Semi-Annual Remedial Performance Report for Chromium and Perchlorate

Nevada Environmental Response
Trust Site; Henderson, Nevada
July – December 2014

Prepared for:
Nevada Environmental Response Trust

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Semi-Annual Remedial Performance Report for Chromium and Perchlorate

Nevada Environmental Response Trust
(Former Tronox LLC Site)
Henderson, Nevada

Nevada Environmental Response Trust (Trust) Representative Certification

I certify that this document and all attachments submitted to the Division were prepared at the request of, or under the direction or supervision of the Trust. Based on my own involvement and/or my inquiry of the person or persons who manage the system(s) or those directly responsible for gathering the information or preparing the document, or the immediate supervisor of such person(s), the information submitted and provided herein is, to the best of my knowledge and belief, true, accurate, and complete in all material respects.

Office of the Nevada Environmental Response Trust

Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

as President and not Individually

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Date: 4/28/15

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Responsible Certified Environmental Manager (CEM) for this project

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and, to the best of my knowledge, comply with all applicable federal, state and local statutes, regulations and ordinances.

04/30/2015

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Acronyms and Abbreviations

AMPAC	American Pacific Corporation
AWF	Athens Road Well Field
bgs	below ground surface
Bird Viewing Ponds	City of Henderson Bird Viewing Preserve
BMI	Black Mountain Industrial
CD	compact disc
CEM	Certified Environmental Manager
COH	City of Henderson
COP	Continuous Optimization Program
CZE Report	Capture Zone Evaluation Report
DVSR	Data Validation Summary Report
EDD	Electronic Data Deliverable
Envirogen	Envirogen Technologies, Inc.
ENVIRON	ENVIRON International Corporation
FBR	fluidized bed reactors
ft/ft	feet/foot
gpm	gallons per minute
GWETS	groundwater extraction and treatment system
GWTP	Groundwater Treatment Plant
ITRC	Interstate Technology and Regulatory Council
IWF	Interceptor Well Field
kWh	kilowatt hour
kWh/year	kilowatt hours per year
lbs/day	pounds per day
mg/L	milligrams per liter
NDEP	Nevada Division of Environmental Protection
Northgate	Northgate Environmental Management, Inc.
NPDES	National Pollution Discharge Elimination System
OSSM	Olin Chlor-Alkali/Stauffer/Syngenta/Montrose
Qal	Quaternary alluvium

RIB	Rapid Infiltration Basin
RI/FS	Remedial Investigation and Feasibility Study
Site	Nevada Environmental Response Trust Site
SNWA	Southern Nevada Water Authority
SQL	Sample quantitation limit
SWF	Seep Well Field
TDS	total dissolved solids
TestAmerica	TestAmerica Laboratories, Inc.
Tetra Tech	Tetra Tech, Inc.
TIMET	Titanium Metals Corporation
Tronox	Tronox LLC
Trust	Nevada Environmental Response Trust
TSS	total suspended solids
UMCf	Upper Muddy Creek Formation
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
Veolia	Veolia Water North America
WBZ	water-bearing zones
WRF	Water Reclamation Facility

1 Introduction

In accordance with the Interim Consent Agreement between the Nevada Environmental Response Trust (the Trust) and the Nevada Division of Environmental Protection (NDEP), ENVIRON International Corporation (ENVIRON) submits this performance report to NDEP on behalf of the Trust for the Nevada Environmental Response Trust Site (the Site). The Site, which was formerly owned and operated by Tronox LLC (Tronox), comprises approximately 346 acres located within the Black Mountain Industrial (BMI) Complex in unincorporated Clark County and is surrounded by the City of Henderson, Nevada.

In conjunction with the settlement of Tronox's bankruptcy proceeding, the Trust took title to the Site and the groundwater extraction and treatment system (GWETS).[1] The effective date of the property transfer to the Trust and the Interim Consent Agreement between the Trust and NDEP was February 14, 2011. Tronox continues to conduct manufacturing operations on a portion of the Site leased from the Trust.

Envirogen Technologies, Inc. (Envirogen) currently operates and maintains the Site's GWETS on behalf of the Trust.[2] TestAmerica Laboratories, Inc. (TestAmerica) acts as the Site's primary analytical testing laboratory.[3]

This report, covering the period July through December 2014, summarizes performance data for both the chromium and perchlorate removal programs based on sampling performed during this period. Specifically, this report describes:

- Regional groundwater conditions based on July through December 2014 groundwater levels;
- The hexavalent chromium remediation system (consisting of the on-site Interceptor Well Field [IWF], the off-site Athens Road Well Field [AWF],[4] and the related treatment systems) and its performance in carrying out the extraction and treatment of chromium;
- The perchlorate remediation system (consisting of the on-site IWF, the off-site AWF, the off-site Seep Well Field [SWF], the off-site seep capture sump[5], and related treatment systems) and its performance in carrying out the extraction and treatment of perchlorate;

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[1] Herein "GWETS" will be used to refer to the entirety of all systems and components of the groundwater extraction and treatment systems owned by the Trust, both on-site and off-site, including extraction well fields, treatment facilities, and groundwater conveyance systems.

[2] Veolia Water North America (Veolia), formerly US Filter Operating Services, operated the GWETS on behalf of Tronox beginning in 2003 and, after the Trust took title to the Site, continued to serve as the GWETS operator until July 24, 2013.

[3] Eaton Analytical, formerly MWH Laboratories, served as the Site's primary analytical testing laboratory prior to April 1, 2013.

[4] Although Athens Road has been renamed Galleria Drive, the Athens Road designation has been retained for the well field to maintain consistency with past reports.

[5] The seep was previously reported to have not flowed since April 2007. However, groundwater was identified in this area in early February 2015. Discussion of the current status of this issue is included in Section 2.3.

- The distribution of total dissolved solids (TDS) concentrations at the Site;
- The performance metrics,[6] which are used to evaluate the performance of the GWETS;
- The conclusion of the 2013 GWETS Optimization Project, as described in Attachment A; and
- Proposed future activities, including implementation of the Continuous Optimization Program (COP).

This report is provided in both hard copy and electronic forms. Where electronic files are referenced or information is stated as provided on compact disc (CD), this information is contained on the CD attached to the hard copy report. Appendix A contains Table A-1, which has five quarters of analytical data from the Site. The analytical lab reports for the third and fourth quarter 2014 groundwater monitoring events are also included in Appendix A (on the report CD). Appendix B contains the Electronic Data Deliverable (EDD). The EDD includes an Access© compatible data file (on the report CD) containing the analytical results from the period July to December 2014, and an Access© compatible data file (on the report CD) containing water level monitoring data from the period July to December 2014. Appendix C contains the Data Validation Summary Report (DVSR) (on the report CD). Appendix D contains the field records from July to December 2014 (on the report CD). Attachment A contains the 2013 GWETS Optimization Project Report, which describes the activities and results of that project, including aquifer testing, well activation and optimization, model updates, and a capture zone evaluation.

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[6] Performance metrics were developed as part of the 2013 GWETS Optimization Work Plan (ENVIRON 2013e), approved by NDEP on December 3, 2013 (NDEP 2013c). These performance metrics differ from those being utilized as part of NERT's monthly GWETS operations reporting, which were developed by Tetra Tech and included in their Enhanced Operational Metrics Proposal dated August 20, 2014 (Tetra Tech 2014a).

2 Area Groundwater Conditions

The locations of the groundwater extraction well fields are shown on Figure 1a, a location map covering the area between the Site and Las Vegas Wash. Figure 1b is a guide showing the locations of various well transects that are discussed in subsequent sections of the report. Plate 1 shows the locations of all former and current wells in the vicinity. Discussion of the overall groundwater conditions follow below. The remainder of this section discusses the hydraulic performance of each of the well fields, starting with the on-site extraction well field, the IWF, and proceeding northward to the successively downgradient extraction well fields, the AWF and the SWF.

Ground surface elevations across the Site range from 1,677 to 1,873 feet above mean sea level. The ground surface across the Site generally slopes downward to the north at a gradient of approximately 0.02 feet per foot (ft/ft). Off site to the north, the topographic surface continues at the same gradient to approximately Sunset Road, at which point it flattens to a gradient of 0.01 ft/ft to the Las Vegas Wash. The shallow groundwater gradient generally mimics the surface topography.

The NDEP has defined three water-bearing zones (WBZs) of interest in the vicinity of the Site, including the Shallow, Middle, and Deep WBZ.[7] The Shallow WBZ, which extends to approximately 90 feet below ground surface (bgs), is unconfined to partially confined, and is considered the water table aquifer. Unless otherwise stated, discussions of groundwater in this report refer to the Shallow WBZ, which contains the saturated portions of the Quaternary alluvium (Qal) and the uppermost portion of the Upper Muddy Creek Formation (UMCf).

Investigations of the Middle WBZ at the Site and surrounding sites indicate, with a few exceptions, a vertical upward gradient between the Middle and Shallow Zones that generally increases with depth. Wells screened in the Middle WBZ were not sampled during this performance period, but second quarter 2014 measurements in the vicinity of the IWF found vertical upward gradients between the Middle and Shallow WBZ wells ranging from five to fourteen feet (ENVIRON 2014d). Vertical gradients measured near the AWF were +0.1 to +1.6 feet during the same period. Consistent vertical gradients have not been observed near the SWF due to a lack of wells screened below the Qal.

During the current reporting period, shallow groundwater was generally encountered in on-site wells between 20 and 50 feet bgs and is generally deepest in the southernmost portion of the Site. North of the Site, beyond Boulder Highway, shallow groundwater is generally encountered between four and 30 feet bgs, becoming shallower as it approaches the Las Vegas Wash.

As discussed in the report entitled *Annual Remedial Performance Report for Chromium and Perchlorate, Nevada Environmental Response Trust Site; Henderson, Nevada; July 2013 – June 2014 dated October 31, 2014* (the 2013-2014 Annual Performance Report) (ENVIRON 2014d), groundwater flow direction at the Site is generally north to northwesterly, whereas north of the Site, the direction changes slightly to the north-northeast. This generally uniform flow

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[7] NDEP guidance for the water-bearing zones can be viewed at http://ndep.nv.gov/bmi/docs/090106_hydro_litho.pdf

pattern may be modified locally by subsurface alluvial channels cut into the underlying UMCf; the on-site bentonite-slurry groundwater barrier wall (the "barrier wall"); localized areas of recharge from on-site from storm water retention basins (discussed below); off-site recharge from the City of Henderson (COH) Bird Viewing Preserve (Bird Viewing Ponds); groundwater extraction from the IWF, AWF, and SWF; and nearby groundwater extraction conducted by Olin, Stauffer, Syngenta, and Montrose (OSSM), Titanium Metals Corporation (TIMET), and American Pacific Corporation (AMPAC). Historically, on- and off-site artificial groundwater highs or "mounds" were observed around the on-site recharge trenches[8] and the COH Water Reclamation Facility (WRF) Rapid Infiltration Basins (RIBs)[9]; however, both of these have ceased operation.

Recent changes to the management of storm water on-site have had significant effects on groundwater conditions. During the 2011-2012 interim soil removal action, the Site was graded such that storm water would be retained on-site. Two retention basins and a drainage channel were constructed: 1) the Central Retention Basin, located approximately 800 feet south (upgradient) of the IWF and 2) the Northern Retention Basin, located approximately 300 feet north (downgradient) of the IWF. A shallow channel located along the eastern side of the Site connects the two retention basins and conveys overflow from the Central Retention Basin into the Northern Retention Basin. Surface runoff from on-site areas and a majority of water collected by the storm sewer network within the Tronox-leased area are directed to the Central Retention Basin. Given the topography along the western property boundary, there is the potential for a small volume of storm water to enter the Site from the west through surface flow, which is collected in topographic depressions on the Site and/or in the Central Retention Basin. Surface runoff from north of the former Beta Ditch is directed to the Northern Retention Basin. The design capacities of the Central and Northern Retention Basins are approximately 1.3 and 1.2 million cubic feet, respectively (RCI Engineering 2010).

The retention basins have altered the location and extent of infiltration at the Site and thereby have had significant effects on groundwater conditions. Following a series of storm events between August and October 2012, storm water collected in the Central Retention Basin altering local infiltration pathways and influencing downgradient groundwater conditions at the IWF, the effects of which were discussed beginning with the 2012 Semi-Annual Performance Report (ENVIRON 2013a). The effects included elevated water levels in and around the IWF which resulted in the mobilization of high concentrations of perchlorate previously bound to vadose zone soils. Mobilized perchlorate migrated to underlying groundwater and was subsequently captured in the IWF, resulting in increased perchlorate mass removal from the Site. It is anticipated that similar effects may be seen in the future following large storm events.

During the current reporting period ending December 2014, groundwater elevation trends at the Site were relatively consistent with the previous five quarters. Groundwater elevations in the

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[8] Reinjection of stabilized Lake Mead water ceased in September 2010 when the recharge trenches were removed to accommodate soil excavation and remediation activities at the Site. They have not been replaced.

[9] Since the completion of the COH WRF in 2008, discharge of treated effluent to the Pabco Road RIBs has ceased; however, groundwater mounding events continued to be observed into late 2011, although lessening in intensity. The most recent mounding events are likely attributable to the operation of the COH Bird Viewing Ponds located west of the RIBs.

vicinity of the barrier wall (described below in Section 2.1), which were elevated during portions of 2013, generally have returned to pre-November 2012 levels. The elevated water level measurements upgradient of the IWF beginning in the end of 2012 were likely related to the influence of heavy rainfall between August and October of 2012 and the resulting infiltration, which was likely intensified in the area upgradient of the IWF due to the collection of storm water in the Central Retention Basin.

2.1 Interceptor Well Field Area

The location of the IWF area is shown on Figure 1a. A bentonite-slurry wall was constructed at the Site in 2001 as a physical barrier across the higher concentration portion of the perchlorate/chromium plume. The barrier wall is approximately 1,600 feet in length and 60 feet deep and constructed to tie into approximately 30 feet of the UMCf. The IWF consists of a series of 27 active groundwater extraction wells that are situated south (upgradient) of the barrier wall.

The average discharge rate for each IWF well active during July to December 2014 is shown in Table 1, along with the annual average discharge rates from the four previous years. The combined discharge of the IWF averaged 69.5 gallons per minute (gpm) from July to December 2014. As seen in Table 4, average IWF extraction rates decreased from July to November to 67.9 gpm. Average extraction increased to 71.5 gpm in December following extraction rate adjustments as part of the 2013 GWETS Optimization Project. Over the last four and a half years of operation, the combined discharge of the IWF averaged 68.3 gpm. For comparison, in June 2001, prior to the installation of the barrier wall, the 22 wells comprising the IWF at that time averaged a combined discharge of 24.7 gpm.

Groundwater recharge trenches located north (downgradient) of the barrier wall were originally installed to receive extracted and treated groundwater, but were used in the more recent past to inject stabilized Lake Mead water into the subsurface to replace water extracted by the IWF. Injection ceased in September 2010 when the recharge trenches were removed to accommodate soil excavation and removal activities at the Site.

Figures 2a through 2f present historical (January 2006 to December 2014) water elevations for selected pairs of monitoring wells located on opposite sides of the barrier wall. As shown on the figures, between July and December 2014, water levels in wells directly downgradient (north) of the barrier wall (wells M-69 through M-74) were generally five to twelve feet lower than water elevations in corresponding wells upgradient (south) of the wall (wells I-Y/M-167, M-55, M-56, M-58, M-67, and M-68). The large drop in measured groundwater elevations across the barrier wall indicates that the wall is generally an effective barrier to shallow groundwater flow. Further analysis of barrier wall performance is presented in Section 6.4.7.

Figures 2a through 2f show that, beginning in January 2006, water levels in wells downgradient of the barrier wall showed a continual decline until February 2008 when refurbishment of the recharge trench was completed allowing increased recharge rates and a corresponding rise in water levels. Peaks in water levels in downgradient wells observed in July 2008 and May 2010 (Figures 2a through 2c, and to a lesser extent on Figures 2d through 2f) are in response to increased recharge rates during those times. These figures also show a significant decline in water elevations in the downgradient wells beginning around September 2010, when the recharge trenches were shut down and groundwater mounding associated with the recharge began to dissipate.

As seen on Figures 2a through 2d, groundwater elevations downgradient of the barrier wall gradually declined during the current reporting period to pre-November 2012 levels, the continuation of a trend that began in approximately September 2013. Groundwater elevations in upgradient wells were approximately one to two feet higher than before November 2012, but also have been gradually declining during the current reporting period as seen in Figures 2a-2d. Figures 2e and 2f show increases in groundwater elevations in both downgradient and upgradient wells at the east end of the barrier wall beginning in late 2013 to early 2014, with the response first seen in the downgradient wells. The timing corresponds to the installation of a new barrier wall by TIMET at the northern edge of their property. Therefore, the increases in groundwater elevations seen at the east side of the NERT property are likely the result of groundwater mounding upgradient of TIMET’s newly-constructed barrier wall.

2.2 Athens Road Well Field Area

The AWF is approximately 8,200 feet north (downgradient) of the barrier wall and the IWF. The AWF was constructed as a series of 14 groundwater extraction wells screened in the Qal at seven paired well locations that span approximately 1,200 feet across two alluvial paleochannels located on either side of an UMCf ridge. The AWF was completed in March 2002 and continuous pumping began in mid-October of that year. The well pairs act in concert, with one well pumping while the adjacent well is used to measure water levels and monitor the effect of pumping on the aquifer. In September 2006, a fifteenth standalone well, ART-9, began full-time operation after groundwater elevations at the AWF dropped below a level where ART-6/6A could be effective.

An evaluation of performance of the AWF included in the 2011-2012 Annual Performance Report (ENVIRON 2012) identified a potential gap in the capture zone of the AWF in the vicinity of well PC-150, which is located immediately west of the UMCf ridge. This potential gap is believed to be the reason for elevated perchlorate and chromium concentrations in MW-K4, which is located downgradient of PC-150. The initial capture zone analysis suggested that extracting from wells ART-7B and PC-150 could improve capture efficiency of shallow groundwater on either side of the UMCf ridge (ENVIRON 2012). ART-7B is co-located with the ART-7/ART-7A extraction well pair, but with a screened interval extending deeper down to the Qal/UMCf interface and to the reported bottom of the eastern alluvial channel. PC-150 is located west of the UMCf ridge and is screened entirely within the Qal.

Wells ART-7B and PC-150 were connected to the AWF during the current reporting period as part of the 2013 GWETS Optimization Project and began operating as extraction wells in October 2014 and November 2014, respectively. Decreasing perchlorate concentrations were subsequently observed at MW-K4 in November and December 2015. Further analysis of AWF performance following implementation of the 2013 GWETS Optimization Project is discussed in Attachment A.

The average discharge rate for each AWF pumping well from July to December 2014 is shown in Table 2, along with the average annual discharge rates for the previous four years. The combined discharge rate of the AWF averaged 285.5 gpm from July to December 2014, which represented an increase in extraction rate when compared with the previous four years. As seen in Table 4, AWF extraction rates gradually increased to 292.8 gpm in September 2014 followed by a decrease to 277.5 gpm in November 2014 due to several outages involving ART-9 and various adjustments made in response to these outages. Extraction rates increased to 283.7 gpm in December 2014 following activation of PC-150 and ART-7B as part of the 2013 GWETS Optimization Project. Over the last four and a half years of operation, the combined discharge of the AWF has averaged 277.4 gpm.

Groundwater levels are currently much lower than they were in 2002 before pumping began, and the Qal overlying the UMCf ridge has been partially dewatered. Historical groundwater level trends for selected wells are shown on Figure 3. In general, the water elevations in the AWF are consistent with water elevations from one year ago.

2.3 Seep Well Field Area

The SWF and the seep capture sump,[10] located approximately 4,500 feet north (downgradient) of the AWF near the Las Vegas Wash, are shown on Figure 1a. When pumping began in July 2002, the SWF consisted of three extraction wells (PC-99R2/R3, PC-115R, and PC-116R) situated over the deepest part of the alluvial channel and a seep capture sump designed to capture an intermittent surface seep. Five additional wells (PC-117, PC-118, PC-119, PC-120, and PC-121) were completed in February 2003 and an additional well (PC-133) was completed in December 2004. Presently, the SWF consists of 10 extraction wells—two of which (PC-99R2 and PC-99R3) are connected and operate as one combined well. The wells comprising the SWF are screened across the full thickness of the Qal and across the deepest portion of an alluvial channel.

The SWF has been effective in lowering groundwater levels in the vicinity of the seep; as a result, the surface seep reportedly had not flowed since April 2007, although the location was not regularly inspected as part of the groundwater monitoring program. On February 4, 2015, after the end of the current reporting period, NDEP reported that groundwater was discharging to the surface from the eastern side of the seep capture sump and overtopping the sump. Inspection by NERT personnel indicated that water was overflowing the sump at a rate of approximately 1.5 gpm. As an interim response, water was removed from the seep capture sump using a vacuum truck and pumping rates were subsequently increased at the east end of the SWF (wells PC-133, PC-117, PC-116R, and PC-99R2/R3) in order to lower the water table in the vicinity of the seep capture sump and reduce the potential for future discharge from the sump. Water stopped overtopping the seep capture sump approximately four days after extraction rates were increased, and monitoring data from nearby wells PC-96 and PC-97 indicates that the increased extraction rates had lowered the water table by approximately 0.4-

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[10] The seep capture sump was reportedly last operated in April 2007 and was decommissioned (pump removed and piping blocked) shortly thereafter. Currently only the seep sump remains.

0.5 feet. After one month of continuous increased pumping, water levels dropped to three inches below the rim of the seep capture sump.

The recent surface flow from the seep capture sump is likely the result of seasonal changes in the water table elevation, which may have been further aggravated by recent tamarisk removal efforts. On April 7, 2015, the Trust submitted a memo to NDEP detailing the interim response actions near the seep and requesting permission to discontinue interim response measures due to the current hydraulic limitation of the GWETS and the anticipated implementation of the COP (NERT 2015b). NDEP approved discontinuation of the interim measure on April 9, 2015 (NDEP 2015b).

The average discharge rate for each SWF pumping well during July to December 2014 is shown in Table 3, along with the discharge rates for the previous four years. The combined discharge rate of the SWF averaged 518.8 gpm during the current reporting period, which is generally consistent with combined pumping rates between July 2010 and June 2012. Over the last four and a half years of operation, the combined discharge of the SWF averaged 529.9 gpm.

Groundwater levels at the SWF are currently lower than they were in 2001, before pumping began. Historical groundwater level trends for selected wells are shown on Figure 4. In general, the water elevations in the SWF are consistent with water elevations from one year ago.

2.4 Groundwater Treatment Overview

Treatment of chromium-contaminated groundwater (primarily from the IWF) occurs via the on-site Groundwater Treatment Plant (GWTP),[11] which chemically reduces hexavalent chromium and removes total chromium via chemical precipitation. A small ferrous sulfate drip system, which was used at the AWF lift station (Lift Station #3) to treat chromium present (at lower concentrations) in groundwater extracted by the AWF, ceased operation in August 2014 after it was determined that the low concentrations of hexavalent chromium from the AWF did not require treatment ahead of the fluidized bed reactors (FBRs) (Tetra Tech 2014b). This change in operation, which is further discussed in Section 3.2, has not had a significant effect on overall GWETS performance.

Treatment of perchlorate-contaminated groundwater from all well fields occurs via the on-site FBRs, which biologically remove perchlorate as well as chlorate, nitrate, and trace concentrations of residual chromium. A simplified process flow diagram is presented on Figure 5. Monthly extraction rates for individual IWF, AWF, and SWF wells are presented in Table 4.[12] Routine maintenance is completed as needed at the GWTP and FBRs. The performances of

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[11] By convention, the "GWTP" consists of only the on-site hexavalent chromium treatment plant. The name pre-dates the installation of any of the perchlorate treatment systems and related components.

[12] The average total influent reported in Table 4 differs from the average total effluent of the GWETS. The discrepancy is the result of flow into and out of GW-11, evaporation from GW-11, and additions of stabilized Lake Mead water, which is used for various maintenance procedures. Perchlorate removal calculations are based on the extraction rates at each individual extraction well for the AWF and the SWF. For the IWF, the influent flow rates prior to entering the GWTP are used for perchlorate removal calculations.

the chromium and perchlorate treatment systems are described in Sections 3.2 and 4.2, respectively.

3 Chromium Capture and Treatment

The components of the chromium capture system consist of the IWF, the barrier wall, and the AWF. As discussed previously, recharge trenches located downgradient of the barrier wall were formerly part of the chromium remediation system. The locations of these components are shown on Figure 1a. For the 6-month period lasting from July to December 2014, a total of approximately 1,370 pounds of chromium were captured and removed from groundwater. The treatment of chromium-contaminated groundwater is discussed in Section 3.2.

3.1 Chromium Plume Configuration

A chromium plume map is not included in this mid-period report. Plume maps are included as part of the detailed evaluation and presentation of data contained in the Annual Performance Report submitted in October of each year. This section presents data to supplement the 2013-2014 Annual Performance Report and the plume maps contained therein.

Table A-1 in Appendix A contains analytical and groundwater elevation data for the last five quarters. Based on the fourth quarter 2014 chromium analytical results, the portion of the chromium plume with the highest concentrations remains south (upgradient) of the barrier wall where it is captured by the IWF. In this area, the highest chromium concentrations in shallow groundwater continued to be centered near the middle of the IWF in wells I-T (24 milligrams per liter, or mg/L) and I-G (24 mg/L). North of the barrier wall, the highest total chromium concentration was 9.8 mg/L in groundwater collected from well M-72, located north of wells I-H and I-P. This is an increase from 7.7 mg/L measured in fourth quarter 2013. North of the former recharge trenches, the highest total chromium concentration detected in fourth quarter 2014 was 3.6 mg/L in groundwater collected from well PC-136, located at the AWF and screened within an alluvial sub-channel east of the UMCf ridge. This concentration is consistent with the concentration measured in fourth quarter 2013 (3.2 mg/L), representing stable year-over-year conditions in this portion of the plume. Total chromium concentrations in groundwater adjacent to well M-12A, located immediately north of Unit Building 4 on the upgradient edge of the main plume, have been generally declining since 2002 and have remained stable over the last year. At the end of the current reporting period, the total chromium concentration in groundwater collected from M-12A was 12 mg/L compared with 25 mg/L in May 2002.

In general, the overall lower concentrations observed in on-site wells located downgradient of the barrier wall compared with those upgradient indicate that the IWF is generally an effective barrier to migration of the main portion of the chromium plume. The predominantly upward vertical gradients and the fact that the barrier wall is keyed into the UMCf are important factors that appear to limit flow beneath the barrier.

3.1.1 Interceptor Well Field Area

The IWF captures the highest concentrations and the main portion of the groundwater plume located downgradient of the on-site source areas. Figure 6 shows the concentrations of total chromium in groundwater extracted by the IWF pumping wells over the last five quarters. Chromium concentrations during the current reporting period were generally similar to previous quarters, with slightly lower concentrations in groundwater collected from wells I-W, I-P, I-O, and I-V during the third and fourth quarters of 2014.

Chromium concentration data from groundwater samples collected from select wells (M-11, M-23, M-36, M-38, M-72, and M-86)[13] over time are presented in Figure 7. Groundwater samples collected from monitoring well M-11, located immediately downgradient of the former primary source area (Unit Buildings 4 and 5), illustrate that concentrations have remained relatively stable over the last ten years with a concentration of 1.4 mg/L at the end of the current reporting period. Total chromium concentrations measured in groundwater from well M-38, located upgradient of the IWF, were consistent with recent concentrations observed over the last year (18 mg/L in December 2014). The concentration of chromium in groundwater collected from well M-72, located between the barrier wall and former recharge trenches, has increased during the reporting period from a concentration of 8.7 mg/L in May 2014 to 9.8 mg/L in December 2014. Concentrations in groundwater adjacent to well M-72 have been gradually increasing since approximately November 2010, following the shutdown of recharge trenches in September 2010, suggesting that the former recharge trenches either diluted concentrations in these wells or mitigated the upward diffusion of chromium from the UMCf. Further evaluation of the barrier wall's effectiveness is presented in Section 6.4.7.

3.1.2 Athens Road Well Field

The AWF is designed to intercept residual chromium in groundwater downgradient of the IWF and the Site. Based on total chromium concentrations in groundwater downgradient of the AWF, the system is operating effectively; nonetheless, as further discussed in Attachment A, wells ART-7B and PC-150 were activated as extraction wells during the current reporting to enhance capture. Downgradient of the AWF in the Athens Road Piezometer or "ARP" well line, the highest measured concentration of total chromium during the fourth quarter 2014 sampling event was 0.35 mg/L in well ARP-6B. Chromium concentrations in MW-K4, located further west, are typically equal to or greater than the concentrations in ARP-6B.

Figure 8 shows the concentrations of total chromium across the area of the seven AWF pumping wells in addition to monitoring wells PC-18, PC-55, PC-122, PC-148, PC-149, and PC-150 over the last five quarters, where data are available. PC-148 and PC-149 are monitoring wells that are situated across the top of the UMCf ridge with screened intervals primarily within the UMCf. As shown on Figure 8, chromium concentrations in the western sub-channel (represented by wells west of PC-149) have been low relative to those in the eastern sub-channel (represented by wells east of PC-148). An additional extraction well, ART-9, was installed in this area in 2006 to capture this narrow channel of chromium-impacted groundwater.

3.1.3 Seep Well Field

Wells in the SWF continue to generally contain less than 0.01 mg/L total chromium. Total chromium concentrations east of the SWF are slightly higher, but remained relatively stable over

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[13] These wells were selected because they are the five "Consent Order Appendix J Wells" that were historically presented for evaluating performance of the chromium mitigation program. Figure 7 has historically presented data for well M-36; however, M-36 was damaged in June 2013. Data collected from nearby well M-38 is presented in Figure 7 to replace M-36.

the reporting period. For example, the concentration of total chromium in groundwater collected from monitoring well PC-94, located east of the well field, was measured at 0.036 mg/L in fourth quarter 2014, greater than the concentration in groundwater at any of the SWF extraction wells (the highest chromium concentration detected in the SWF during fourth quarter 2014 was 0.0025 mg/L in well PC-116R).

3.2 Chromium Treatment System

The operation and maintenance of the chromium treatment system, as well as the rest of the GWETS, has been performed by Envirogen since July 25, 2013. As discussed in Section 1, prior to that date the GWETS was operated and maintained by Veolia.

Table 5 contains the July to December 2014 process treatment data from the on-site GWTP. The treated groundwater from the GWTP is pumped to the equalization tanks or GW-11,[14] where it is combined with water from the off-site groundwater collection systems (AWF and SWF). The blended water flows through activated carbon beds before being pumped to the FBRs for treatment to remove perchlorate, chlorate, nitrate, and residual chromium.

As shown in Table 5, the total monthly chromium inflow concentration to the GWTP for this reporting period has been relatively stable in the range of 7.7 to 8.2 mg/L, which is slightly lower than the range of 8.0 to 10.6 mg/L reported for July 2013 to June 2014. The chemical reduction of hexavalent chromium and removal of total chromium via the GWTP during the reporting period has been consistently effective. The average monthly total chromium outflow concentrations for the last 6 months ranged from 0.30 to 1.31 mg/L. The average monthly hexavalent chromium outflow concentration during the reporting period ranged from non-detect (<0.00025) to 0.0063 mg/L. As seen in Table 5, for the period between July and December 2014, approximately 1,230 pounds of chromium were removed from groundwater by the GWTP.

A trace amount of chromium is also removed in the FBRs. Results of total chromium analysis from weekly FBR influent and effluent samples are presented in Table 6. Based on an average influent total chromium concentration of 0.093 mg/L and an average flow rate of 814 gpm,[15] the FBRs were receiving about 0.91 pounds of chromium per day from the equalization tanks.

As previously discussed, until August 2014 a small ferrous sulfate drip system was used to treat the relatively low concentrations of chromium present in groundwater extracted at the AWF. Chromium concentrations in the FBR influent appear to have increased slightly since operation of the ferrous sulfate drip system ended in August 2014. For comparison, between June 2013 and July 2014 (the year preceding shutdown of the AWF ferrous sulfate drip system), total chromium influent concentrations averaged 0.034 mg/L and the FBRs were receiving about 0.36 pounds of chromium per day from the equalization tanks.

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[14] GW-11 operated as an equalization basin from March 27 to August 6, 2014. When not operating as an equalization basin, groundwater enters the equalization tanks directly from Lift Station 2 and the GWTP.

[15] This flow rate is measured at the effluent totalizer and measures the throughput at the FBRs. This flow is not the same as the cumulative groundwater extraction rate as measured by the extraction well totalizers, since these readings do not account for flow into and out of GW-11, evaporation, and additions of stabilized Lake Mead water, which is used to maintain the mechanical pump seals.

Despite receiving approximately half a pound of additional chromium per day during the current reporting period, total and hexavalent chromium concentrations in the FBR effluent are still well below the site's National Pollutant Discharge Elimination System (NPDES) permit requirements, as described below. The FBRs discharge treated water to the Las Vegas Wash just upgradient of the Pabco Road erosion control structure under authority of NPDES Permit NV0023060. Results of discharge monitoring performed between July and December 2014 are presented in Table 6. Effluent hexavalent chromium concentrations have consistently been non-detect during the current reporting period (<0.00025 mg/L) – well below the effluent discharge limitation of 0.01 mg/L (daily maximum). Total chromium was detected in effluent samples at concentrations ranging from 0.0059 mg/L to 0.034 mg/L and at an average concentration of 0.016 mg/L – also well below the effluent discharge limitation of 0.1 mg/L (daily maximum).

The FBR system removed approximately 140 pounds of additional chromium over the 6-month period. The sum of the chromium captured and removed from groundwater between July and December 2014 by the GWTP and by the FBRs totaled approximately 1,370 pounds.

4 Perchlorate Capture and Treatment

The components of the perchlorate capture system consist of the IWF, the barrier wall, the AWF, the SWF, and the seep capture sump.[16] As discussed previously, recharge trenches located downgradient of the barrier wall were formerly part of the GWETS. The locations of these components are shown on Figure 1a. Perchlorate mass removal, flow rate, and average concentration information for the IWF, AWF, and SWF is presented in Table 7. Figure 9 presents the monthly perchlorate recovery totals and the relative contribution of the IWF, AWF, and SWF.

During the period July to December 2014, a total of approximately 255,600 pounds of perchlorate (approximately 1,390 pounds per day [lbs/day]) were captured and removed from groundwater by the GWETS. Of this total, approximately 149,300 pounds (approximately 810 lbs/day) were captured by the IWF; approximately 94,600 pounds (approximately 510 lbs/day) were captured by the AWF; and approximately 11,700 pounds (approximately 60 lbs/day) were captured by the SWF. These perchlorate removal calculations are consistent with information presented in the *Perchlorate Removed from the Environment* submittals and are generated using flow and perchlorate concentration data for the three well fields.

The perchlorate mass removal during the current reporting period indicates a gradual return to conditions as they existed prior to late 2012. Starting in September 2012 there was a significant increase in the mass of perchlorate captured and removed from groundwater due to a series of storm events between August and October 2012 and subsequent infiltration, primarily at the Central Retention Basin, but in other areas as well, causing mobilization of perchlorate from the vadose zone.[17] As described below, perchlorate concentrations generally decreased over the current reporting period, particularly in the IWF.

4.1 Perchlorate Plume Configuration

A perchlorate plume map is not included in this mid-period report. Plume maps are included as part of the detailed evaluation and presentation of data contained in the Annual Performance Report submitted in October of each year. This section presents data to supplement the 2013-2014 Annual Performance Report and the plume maps contained therein.

Appendix A contains analytical and groundwater elevation data for the last five quarters. Based on fourth quarter 2014 perchlorate analytical results, the highest perchlorate concentration south (upgradient) of the barrier wall occurred in well I-AR (2,100 mg/L), in the western flank of the IWF, and near I-G and I-H (1,900 mg/L) near the center of the IWF. As seen in Figure 10, perchlorate concentrations at the IWF have been relatively stable over the last five quarters.

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[16] As discussed in Section 1, the seep capture sump was decommissioned shortly after April 2007, which is when the sump reportedly last operated.

[17] Perchlorate captured and removed by the three wells fields rapidly increased from approximately 1,300 lbs/day in August 2012 to 1,730 lbs/day in September 2012. In October 2012, perchlorate removal reached a peak of approximately 1,980 lbs/day. The effects of the storm events on groundwater conditions were discussed in previous performance reports beginning with the 2012 Semi-Annual Performance Report (ENVIRON 2013a).

North of the barrier wall, the highest perchlorate concentrations in fourth quarter 2014 were detected in wells M-71 (940 mg/L) and M-72 (1,100 mg/L), immediately downgradient and near the mid-point of the wall. North of the former recharge trenches, the highest perchlorate concentration in December 2014 was 740 mg/L in well M-44, located between Warm Springs Road and Boulder Highway. The highest perchlorate concentration reported at the SWF was 17 mg/L in well PC-99R2/R3, which is located in the center of the well field.

4.1.1 Interceptor Well Field Area

The IWF targets the highest concentrations of perchlorate at the Site. In general, perchlorate concentrations in groundwater downgradient of the IWF and barrier wall are significantly below concentrations observed in groundwater upgradient of these features. Figure 10 represents a west-east transect through the IWF and shows perchlorate concentrations from May 2002 compared to data for the last five quarters from the extraction wells. Seven of these wells (I-AA, I-AB, I-AC, I-AD, I-W, I-X, and I-Y) were activated as part of the 2013 GWETS Optimization Project. Following activation, extraction wells I-AB, I-AC, and I-AD were unable to achieve sustainable pumping rates and are currently idle.

Since November 2012, there has been significant variability in the perchlorate concentrations in the IWF wells due to a marked increase in perchlorate concentrations beginning in November 2012. A combination of factors is likely responsible for the observed increase and subsequent decrease in perchlorate concentrations within many of the IWF wells. These factors include high levels of precipitation during late 2012, the alteration of Site drainage patterns resulting from Site excavation and grading, and the potential mobilization of vadose zone perchlorate from infiltration at the Central Retention Basin. However, perchlorate concentrations have gradually decreased and are now consistent with levels prior to November 2012. During the reporting period, elevated perchlorate concentrations west of I-M existed in a relatively narrow area centered on well I-AR, while the elevated perchlorate concentrations east of I-M typically spanned a broader area extending from wells I-E to I-I. This concentration profile is similar, but less pronounced than in the dashed red line in Figure 10 depicting the May 2002 data with the exception of wells I-M and I-X where current perchlorate concentrations are currently higher than they were in 2002.

Figure 11 charts perchlorate concentrations for select wells at the IWF over time and, while there is insufficient historical data regarding well operation and Site conditions to determine the root cause of historical perchlorate cycles, the graph shows generally decreasing trends since sampling for perchlorate began in 2002.

Figure 12 represents a west-to-east transect through wells immediately downgradient of the barrier wall and shows perchlorate concentrations from May 2002 compared to data for the last five quarters. Perchlorate concentrations in wells immediately downgradient of the barrier wall remained elevated over the past six months, but appear to be returning to late-2012 conditions (concentrations were 690 mg/L in well M-71 in November 2012), after reaching concentrations of up to 1,600 mg/L in third quarter 2013.

Figure 13 charts perchlorate concentration and water elevation trends in monitoring wells M-100 and M-23, located approximately 700 and 1,300 feet north (downgradient) of the former recharge trenches, respectively. Figure 13 indicates a sharp decrease in perchlorate concentrations in both wells beginning in early 2002, shortly after the barrier wall was installed at the IWF. Water level trends reflect infiltration and mounding of water recharged to the subsurface through the former recharge trenches. Clogging of the trenches and reduced infiltration are reflected in the decreasing water levels beginning in approximately May 2007. The trenches were subsequently refurbished in February 2008 and June 2009 with water levels in well M-100 quickly rebounding and water levels in well M-23 rebounding somewhat more slowly. Operation of the trenches was suspended in September 2010, which corresponds with decreases in water levels in both wells M-100 and M-23. Well M-100 has been dry since December 2010. The water level in well M-23 has decreased approximately seven feet since the trenches were shut down. Perchlorate concentrations in well M-100 remained relatively stable from 2008 through 2010. Perchlorate concentrations in well M-23 have gradually decreased since July 2006.

4.1.2 Athens Road Well Field Area

The AWF captures perchlorate in groundwater at concentrations generally less than 500 mg/L. A west-east transect through the AWF, which charts perchlorate concentrations for the last five quarters, is shown on Figure 14. Perchlorate concentrations in the AWF's eight pumping wells are shown, in addition to monitoring wells PC-18, PC-55, PC-122, PC-148, and PC-149. The pumping wells shown include PC-150, which was activated as an extraction well during the reporting period. As shown on the figure, perchlorate concentrations on the western (PC-55 and ART-1) and eastern (PC-122) edges of the well field remain relatively low.

Figure 15 shows that overall perchlorate concentrations in the AWF have declined significantly since 2002. Concentrations in individual wells fluctuate between sampling events, but for most wells these fluctuations have moderated with time.

Approximately 250 feet north of the AWF, eight wells comprise the Athens Road Piezometer or "ARP" well line. Perchlorate concentrations across the ARP well line are presented on Figure 16, and perchlorate concentrations in these wells over time are shown on Figure 17.

As shown on Figure 16, perchlorate concentrations in the western side of the well line (represented by ARP-1, ARP-2/2A, and ARP-3/3A) and the eastern side of the well line (represented by ARP-4/4A, ARP-5/5A, ARP-6/6A/6B and ARP-7) have significantly decreased since 2002. This indicates that the AWF has been effective in capturing perchlorate contaminated groundwater in these sections of the plume. As shown on Figure 17, with the exception of wells MW-K4 and ART-6/6A/6B, concentration trends in the ARP well line appear relatively stable. Concentrations in well MW-K4 initially declined with the onset of AWF operation in 2002 and dropped further when ART-9 began pumping in September 2006. Perchlorate concentrations in MW-K4 generally declined between January 2010 (300 mg/L) and December 2011 (150 mg/L), but rebounded from January 2012 to September 2012, once again reaching 300 mg/L. These increases and decreases in perchlorate concentration in MW-K4 do not appear related to changes in water elevation. The higher and more variable perchlorate concentrations in well MW-K4 are likely influenced by the well's location with respect to subsurface alluvial channels within the UMCf. Analysis first presented in Appendix E of the

2011-2012 Annual Performance Report indicated that there could be a gap in the capture zone that may be responsible for the elevated concentrations in MW-K4 (ENVIRON 2012).

Perchlorate concentrations in MW-K4 declined steadily during the current reporting period from 220 mg/L in September to 180 mg/L in October to 130 mg/L in November to a low of 89 mg/L in December 2014. Although the activation of upgradient extraction well PC-150 occurred in November 2014, it is not yet clear how much of an effect this had on the concentrations in MW-K4. No significant changes in perchlorate concentration were observed downgradient of well ART-7B, which was also activated as an extraction well during the current reporting period.

Between the ARP well line and the SWF are the COH WRF well line (wells PC-103, PC-98R, MW-K5, PC-53) and the Lower Ponds monitoring well line (PC-68, PC-62, PC-59, PC-60, PC-56, PC-58), located approximately 2,200 and 4,400 feet north (downgradient) of the AWF, respectively. Perchlorate concentrations in the COH WRF wells on a west-east transect are shown on Figure 18. Figure 19 presents perchlorate concentration trends for these same wells over time. As shown in the figures, current perchlorate concentrations are well below levels measured in the same wells in May 2002, especially in the center of the well line (Figure 18). Figure 19 shows perchlorate concentrations at the COH WRF well line have been stable or gradually increasing since mid-2007.

Figure 20 shows historical water elevations at the COH WRF well line in PC-98R. This figure indicates that many of the historical low-concentration events in the wells appear to be associated with a rapid increase in the water levels, likely the result of increased infiltration from the COH WRF surface ponds. The significant groundwater “mounding events” since 2008 (when the operation of the COH RIBs ceased) are not as pronounced as previous ones and are presumed to be related to operation of the COH Bird Viewing Ponds or due to seasonal fluctuation. Recently, the more moderate changes in groundwater elevations appear to have little effect on perchlorate concentrations. Overall, perchlorate concentrations in PC-98R have been gradually increasing since about 2009. Immediately downgradient from PC-98R is the location of the proposed groundwater bioremediation pilot test intended to evaluate in-situ biological treatment for perchlorate (Tetra Tech 2015).

The Lower Ponds well line is approximately 2,200 feet north of the COH WRF well line. Figures 21 and 22, the perchlorate west-east transect and trend chart for the Lower Ponds well line, respectively, show that current perchlorate concentrations are well below levels measured in the same wells in May 2002, especially at well PC-56 (Figure 21). Figure 22 shows that perchlorate concentrations present in the Lower Ponds well line are generally low and, with the exception of well PC-56, have been relatively stable since 2007. Perchlorate concentrations in well PC-56 have historically been higher and more variable than in other wells on the Lower Ponds well line. The higher and more variable perchlorate concentrations in well PC-56 may be influenced by the well’s location with respect to a subsurface alluvial channel that runs north-south back towards the AWF. According to boring logs for these wells, the UMCf was encountered 12 to 20 feet deeper in PC-56 compared to nearby wells PC-58 and PC-60 suggesting it is within a narrow alluvial channel incised within the UMCf.

4.1.3 Seep Well Field Area

At present, the SWF consists of 10 extraction wells – two of which (PC-99R2 and PC-99R3) are connected and operate as one – positioned over the deepest part of a broad alluvium channel. The well field is located approximately 600 feet upgradient of the seep capture sump. The original three recovery wells in the SWF commenced pumping in 2002. In 2003, five additional wells (PC-117, PC-118, PC-119, PC-120, and PC-121), and in 2005, one additional well (PC-133), were completed in the SWF. Wells PC-120 and PC-121, located at the west end of the SWF line and away from the deepest portion of the subsurface alluvial channel, have not been continuously pumped since 2005 due to their low perchlorate removal efficiencies when compared with other SWF wells. Wells PC-120 and PC-121 are turned on for sampling or when maintenance is performed on other SWF wells.

Figure 23 shows perchlorate concentrations along a west-east transect for the last five quarters along with concentrations for each well during its first month of operation. This transect shows that the plume configuration has remained relatively stable, with a broad area of higher concentration centered on well PC-99R2/R3. Figure 24, which depicts perchlorate concentrations in each well, shows that perchlorate concentrations have significantly decreased since 2002. Perchlorate concentrations in PC-99R2/R3, PC-115R, PC-116R, and PC-117 appear to be gradually increasing since about 2009 in a manner that is similar to upgradient well PC-56 (Figure 22) located at the Lower Ponds well line and PC-98R (Figure 20) located at the COH WRF well line.

SWF wells with lower concentrations of perchlorate (PC-119, PC-120, and PC-121) have been relatively stable with the exception of PC-133, which steadily increased from 0.63 mg/L in May 2012 to a high of 16.0 mg/L in February 2013. However, starting in March 2013, perchlorate concentrations in PC-133 decreased to a low of 1.5 mg/L in April 2014 before increasing to 8.9 mg/L by December 2014. PC-133 is on the eastern edge of the alluvial channel away from the other SWF pumping wells, which pump at significantly higher rates compared to PC-133. It is further noted that PC-133 was rehabilitated on September 30, 2013 to remove roots from the well in an effort to increase its extraction rate; however, the work, which included swabbing and pumping the well and replacing the pump and motor with higher capacity units, did not result in an increase in the extraction rate.

As discussed in Section 2.3, on February 4th, 2015, after the end of the current reporting period, NDEP reported that groundwater was accumulating in the seep capture sump and overtopping the sump. Inspection by NERT personnel indicated that water was overflowing the sump and discharging to the surface at a rate of approximately 1.5 gpm. Prior to this it was believed that the seep had been dry since April 2007. As reported to NDEP on April 7, 2015 (NERT 2015b) two surface water samples were collected from within the seep capture sump and were analyzed by Envirogen using their on-site laboratory. The perchlorate concentrations in the samples were 950 and 890 mg/L. Pumping rates were subsequently increased at the east end of the SWF (wells PC-133, PC-117, PC-116R, and PC-99R2/R3) in order to lower the water table in the vicinity of the seep capture sump and reduce the potential for future discharge from the sump. Water stopped overtopping the seep capture sump approximately four days after extraction rates were increased, and monitoring data from nearby wells PC-96 and PC-97 indicates that the increased extraction rates lowered the water table by approximately 0.4-0.5 feet. After one month of continuous increased pumping, water levels dropped to three inches below the rim of the seep capture sump. The water levels in the seep capture sump will continue to be monitored.

4.2 Perchlorate Treatment System

Throughout the reporting period, groundwater was captured both on-site and off-site, conveyed to the on-site treatment facilities, and treated biologically in the FBRs to remove perchlorate, chlorate and nitrate. As previously shown in Figure 9, the majority of perchlorate capture at the Site happens via the IWF (149,300 pounds), followed by the AWF (94,600 pounds), and the SWF (11,700 pounds). The SWF contributes the highest flows (an average flow rate of 518.8 gpm between July and December 2014) compared with the IWF (an average flow rate of 69.5 gpm) and the AWF (an average flow rate of 285.5 gpm) to the GWETS, but captures significantly lower concentrations of perchlorate (generally less than 10 mg/L).

As shown on Figure 25, the monthly average perchlorate concentrations captured at the IWF generally decreased from a high of about 1,890 mg/L in October 2002 to 732 mg/L in June 2012, the lowest recorded average concentration. The IWF's monthly average perchlorate concentration then doubled to 1,491 mg/L in December 2012. As reported previously, it is likely that additional perchlorate mass was mobilized via infiltration of storm water following the large rain events in the fall of 2012 leading to the historically high perchlorate concentrations and mass removals at the IWF. The calculated perchlorate mass removal has generally followed a similar trend. During the current reporting period, average concentrations in the IWF decreased from approximately 1,040 mg/L in July 2014 to 860 mg/L in December 2014, resulting in decreased mass removal. Barring additional historic rain events or changes in system operation, it is expected that the elevated perchlorate concentrations and mass removals will continue to decrease to levels similar to those prior to December 2012.

Figure 26 shows that perchlorate concentration and mass removal for the AWF have been decreasing since late 2002. During the current reporting period, concentrations and mass removal rates were relatively stable. In contrast to the IWF (Figure 25) where large increases and subsequent decreases in perchlorate concentrations and mass removal are evident starting in late 2012 following large rain events at that time, no similar trends have been observed at the AWF (Figure 26) in the succeeding years.

Figure 27 depicts a generally decreasing trend in monthly average perchlorate concentrations captured at the SWF from a high of approximately 82 mg/L in March 2003 to an average of approximately 10 mg/L between July and December 2014. The calculated perchlorate mass removal has generally followed a similar trend. The average perchlorate removal during the current reporting period is approximately 410 pounds per month greater than the average reported for the previous reporting period from July 2013 to June 2014.

Effluent from the FBRs has been discharged into Las Vegas Wash within the limits specified in the NPDES NV0023060 discharge permit. As shown on Table 8, between July and December 2014, the perchlorate influent to the FBRs ranged from 100 mg/L to 130 mg/L. Perchlorate was not detected at concentrations exceeding the laboratory sample quantitation limit (SQL) (<0.0025 mg/L) in effluent discharged to Las Vegas Wash during the current reporting period.

The perchlorate treatment system underwent a temporary process modification during the previous reporting period. The GW-11 pond, which had served as a holding area for untreated groundwater and off-specification effluent, was altered to function as an influent equalization basin starting on March 27, 2014. The change was designed to provide hydraulic retention upstream of the GWETS process units and dampen fluctuations in influent loading. However, plugging of filtration equipment proved to be a significant hindrance to the modification and the use of GW-11 as an equalization basin ended on August 6, 2014, during the current reporting period. Envirogen subsequently identified modifications to the filtration system, including the use of automatic filters, which were fully implemented after the end of the current reporting period. GW-11 began operating as an equalization basin again on January 7, 2015.

5 Total Dissolved Solids

As shown in TDS plume maps presented as part of the 2013-2014 Annual Performance Report, the Site is located between two high TDS zones originating from off-site sources to the west and east.

Figure 28 is a west-east transect through the IWF which charts TDS concentrations over the last five quarters. A comparison of Figure 10 and Figure 28, which show perchlorate and TDS, respectively, in each of the IWF wells, indicates that a broad zone of high TDS in the central part of the IWF that coincides with the eastern area of elevated perchlorate concentrations. As with perchlorate, concentrations of TDS generally returned to pre-November 2012 levels across the IWF during the current performance period with the exception of an anomalously high TDS reading in well I-AC in fourth quarter 2014.

Figure 29 is a west-east transect through the AWF which charts TDS concentrations for the last five quarters. The figure shows that two zones of higher TDS exist at the AWF: one centered on well ART-8 on the west side of the AWF and one at well PC-122 on the east end of the AWF. Concentrations of TDS in AWF wells remained relatively stable during the reporting period.

TDS concentrations in the SWF wells for the last five quarters are plotted on Figure 30. The highest TDS concentration during the reporting period (5,300 mg/L) was detected in well PC-99R2/R3 in October 2014. Higher TDS concentrations generally correspond with higher perchlorate concentrations in both AWF and SWF wells.   TDS mapping and analysis in the northern portion of the plume, between the Bird Viewing Ponds and Las Vegas Wash, has also aided in interpretation of hydrologic conditions and the potential influent of surface water futures, as further discussed in Section 6.4.4.

6 Performance Evaluation

This section provides an evaluation of the performance of the GWETS against a set of performance metrics developed in coordination with NDEP. These metrics are intended to establish a consistent framework for evaluating performance of the GWETS.

6.1 Performance Metrics

Performance metrics were developed as part of the 2013 GWETS Optimization Work Plan (ENVIRON 2013e), approved by NDEP on December 3, 2013 (NDEP 2013c). The metrics include those identified in the October 10, 2013 letter from NDEP (NDEP 2013b) commenting on the 2012-2013 Annual Performance Report, additional data requested in the April 9, 2014 letter from NDEP (NDEP 2014b) on the 2013 Semi-Annual Performance Report, and additional metrics[18] identified by ENVIRON. The approved performance metrics are outlined below:

1. Monthly perchlorate and chromium mass removal rates from the IWF, AWF, and SWF;
2. Perchlorate and chromium plume mass estimates;
3. The concentrations at which the Site is achieving 90% and 99% capture of perchlorate and chromium;
4. Perchlorate and chromium capture efficiency of the IWF, AWF, and SWF;
5. Mass loading of perchlorate and chromium in the Las Vegas Wash at Northshore Road;
6. The fraction of mass loading in Las Vegas Wash at Northshore Road that originates from the Site;
7. The amount of surface water from Las Vegas Wash and the COH Bird Viewing Ponds that is being extracted by the SWF; and
8. The environmental footprint of the GWETS with a focus on energy use.

The numbering of the metrics presented above was done only for clarity and does not reflect prioritization. The metrics are discrete measures of performance that will be used to understand and adjust GWETS performance over time.

6.2 Groundwater Model

A key tool for developing and implementing the performance metrics is the groundwater model. The groundwater model for the Site was originally developed by Northgate Environmental Management, Inc. (Northgate) and documented in the Capture Zone Evaluation (CZE) Report (Northgate 2010b). The model was approved on April 4, 2013 by NDEP (NDEP 2013a). As part of the 2013 GWETS Optimization Project, the model was refined and updated to recent

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[18] These metrics are separate and distinct from those being utilized as part of NERT's monthly GWETS operations reporting, which were included in Tetra Tech's Enhanced Operational Metrics Proposal dated August 20, 2014 (Tetra Tech 2014a).

steady-state conditions. The modeling work follows the 2013 GWETS Optimization Project Work Plan submitted by ENVIRON to NDEP (ENVIRON 2013e). The updated model, known as the Phase I Model, was described in the 2013 Semi-Annual Performance Report (ENVIRON 2014a). A second phase of refinements and updates were made as described in Attachment A of the 2014 Annual Performance Report (ENVIRON 2014d). The Phase II Model has recently been updated with December 2014 pumping rates for evaluations presented in this report and as shown in Tables 1 through 3. The fourth quarter 2014 pumping rates for OSSM, TIMET and AMPAC wells have also been incorporated. The Phase III Model is currently in development as part of the RI/COP and will involve further refinement of the steady state model and subsequent development of a transient groundwater model.

6.3 Performance Evaluation Approach

An overall approach for evaluating metrics was established in the 2013 GWETS Optimization Project Work Plan (ENVIRON 2013e) and was described in the 2013 Semi-Annual Performance Report (ENVIRON 2014a). The performance metrics are focused mainly on perchlorate because the perchlorate plume is the most spatially extensive (i.e., the spatial extent of the chromium plume is contained within the perchlorate plume) and perchlorate represents the more immediate threat to off-site receptors due to its potential impacts on Las Vegas Wash. This is consistent with the focus of previous capture zone evaluations at the Site. The evaluation of GWETS performance using the metrics is consistent with United States Environmental Protection Agency (USEPA) guidance on evaluating capture zones for groundwater pump and treat systems (USEPA 2008).

6.4 Evaluation of Performance

In this section, the performance of the GWETS is discussed in relation to the metrics described in Section 6.1. The methodologies used for these evaluations are also described. This evaluation of performance also includes discussion of the operation of GW-11 in Section 6.4.6, as requested by NDEP in the April 9, 2014 comments on the 2013 Semi-Annual Performance Report (NDEP 2014b), and an evaluation of the continuing performance of the barrier wall in Section 6.4.7.

6.4.1 Mass Removal and Remaining Plume Mass

During the period July through December 2014, approximately 255,600 pounds of perchlorate (approximately 1,390 lbs/day) were captured and removed from groundwater by the GWETS as shown in Table 7. Of this total, approximately 149,300 pounds (approximately 810 lbs/day) were captured by the IWF; approximately 94,600 (approximately 510 lbs/day) were captured by the AWF; and approximately 11,700 pounds (approximately 60 lbs/day) were captured by the SWF.

Tables 9 and 10 present chromium and perchlorate plume mass estimates for 2002, 2006, 2012, and 2014. Estimates of remaining plume mass were first presented in the 2012-2013 Annual Performance Report (ENVIRON 2013d) for years 2002, 2006, and 2012. No estimate of chromium mass for 2002 could be developed due to lack of data. The mass estimates for 2014 were based on second quarter 2014 data and were previously presented in the 2013-2014 Annual Performance Report (ENVIRON 2014d). All mass estimates were calculated using kriging. A previous comparison of three interpolation methods, including methods based on kriging, splines, and contours, showed that the methods give similar results (ENVIRON 2013d). The use of kriging is preferred as it allows the estimation of uncertainty resulting from the interpolation over a large area from point measurements of concentration.

The inherent uncertainty in the resulting mass estimates (particularly for chromium where the concentrations are lower) may explain why the mass estimates demonstrate variability year to year. Starting with second quarter 2014, and for all subsequent plume mass estimates, a 95% margin of error will be included in the tables in order to characterize the uncertainty in the mass estimates. The 95% margins of error are calculated based on the standard deviations of the interpolated concentrations obtained from the kriging algorithm and assumed standard deviations for the Qal and UMCf thicknesses. We assume a standard deviation for the Qal thickness of 10% and for the UMCf thickness of 20%, based on professional judgment.

The thickness of the Qal used in the mass estimate is based on the contact between the alluvium and UMCf in the groundwater model. As part of the Phase II Model Refinement, changes were made to the contact surface between the Qal and the UMCf; therefore, the thickness of the Qal used in the mass estimate was changed for the 2014 estimate. This has resulted in some changes in the 2014 alluvium mass estimates as compared to 2012, as discussed below.

Another reason that plume mass estimates may vary from year to year is due to on-site sources in the unsaturated zone, which have the potential to contribute significantly to plume mass through leaching. Consistent with the conceptual site model developed as part of the Remedial Investigation and Feasibility Study (RI/FS) Work Plan (ENVIRON 2014c), there are likely continuing sources of both perchlorate and chromium that will contribute to the plume mass over time. The increases in perchlorate concentrations in the IWF following the heavy rains at the end of 2012 represent strong evidence for the existence of such sources in the unsaturated zone. A primary goal of the RI will be to investigate potential source areas to better understand the impact of contaminants remaining in the unsaturated zone in order to identify effective long-term remedial alternatives.

The total plume masses as of second quarter 2014 are estimated to be 2,217 ± 609 tons for perchlorate and 25 ± 8 tons for chromium. In the on-site area, there were increases in plume mass estimates in the Qal for both perchlorate and chromium. The chromium mass estimate also increased slightly in the on-site UMCf, but this increase was much smaller than the estimated margin of error. These increases in Qal plume mass were caused by a combination of two factors: 1) there were significant increases in perchlorate and chromium concentrations in some on-site areas after the heavy rainfall event in 2012, and 2) the assumed thickness of the Qal used in the estimate increased due to the refinement of the contact surface between the Qal and UMCf. The total plume masses for both perchlorate and chromium decreased in the downgradient areas (on-site to AWF and AWF to Wash). Updated plume mass estimates will be presented as part of the 2014-2015 Annual Performance Report.

6.4.2 Capture Zone Evaluation and Estimated Mass Flux

Capture zones for each of the well fields were estimated in the Qal and UMCf using forward particle tracking, calculated using MODPATH (Pollock 1994), and using the Phase II steady-state groundwater model. Particles were released in the center of each model cell in model layer 1 (representing the Qal) and layer 2 (representing the vertical extent of UMCf impacted by perchlorate). Capture zones for each well field were defined using an analysis of the particle tracking endpoints.

Based on pumping rates from December 2014, simulated capture zones in the Qal and UMCf are shown in Figures 31a and Figure 31b, respectively. In order to evaluate performance based on this metric, the simulated capture zones are compared to target capture zones, which were defined as the combination of the Site and Downgradient Plume Areas, as defined in the RI Work Plan (ENVIRON 2014c) and outlined on Figures 31a and 31b. Comparing the target capture zones to the simulated capture zones indicates that the combination of the IWF, AWF and SWF almost completely capture groundwater within the Site and Downgradient Plume Areas, except for a small area between SWF and Las Vegas Wash, where the perchlorate concentrations are generally less than 10 mg/L (approximately 2.0 mg/L in PC-97), and an area east of the SWF where perchlorate concentrations in groundwater collected from well PC-94 were between 17 and 20 mg/L during the reporting period.

To further evaluate the performance of each well field, perchlorate mass flux at the IWF, AWF, and SWF were estimated at three transects within the Site and Downgradient Plume Areas, located just upgradient of each of the three respective well fields. The transect lines were drawn perpendicular to the groundwater flow and are shown on Figure 32a. Mass flux was calculated using the methods described in applicable guidance by the Interstate Technology and Regulatory Council (ITRC 2010). The distributions of perchlorate mass flux at the IWF, AWF, and SWF along these transects are shown in Figures 32b, 32c, and 32d, respectively.

Perchlorate mass flux across each transect was calculated differently depending on whether that portion of the transect was inside or outside of the simulated capture zone. The perchlorate mass flux within the capture zone was estimated by averaging the mass loading at each extraction well in the AWF and SWF for December 2014, as reported in GWETS operations spreadsheets provided by Envirogen. For the IWF, the perchlorate loading at individual extraction wells is not tracked in the GWETS operations spreadsheet; hence, the mass loading at each IWF well was determined using the average pumping rates for December 2014 and the perchlorate concentration measured in each well in December 2014.

The estimates of perchlorate mass flux outside of the capture zone at each transect were calculated from modeled flow rates and interpolated concentrations. For each model cell on the transect, the flux was calculated as the product of the average perchlorate concentration for December 2014, modeled groundwater flow rate, model cell width, and saturated thickness of the Qal. For calculating the mass flux in UMCf, it was assumed that perchlorate is present throughout model layer 2 only. Further, it was assumed that perchlorate has not reached the UMCf in the vicinity of the SWF. These assumptions were based on an examination of the vertical distribution of concentrations found at nested wells locations, which are screened in both the Shallow and Middle WBZ. At the IWF and AWF, the mass fluxes in the UMCf were estimated based on the thickness of layer 2 which is the estimated saturated thickness of perchlorate-impacted UMCf.

The overall capture efficiency of each well field was calculated as the ratio of the total captured mass flux to the total mass flux across the transect. The capture efficiencies of the IWF, AWF, and SWF were calculated as 99%, 97%, and 96%, respectively. The results show that during fourth quarter 2014, an estimated average of 2.5 lbs/day of perchlorate discharged into Las Vegas Wash from areas within the Site and Downgradient Plume Areas.

Based on an evaluation of concentration trends in observation wells downgradient from the well fields, the capture efficiency may be overestimated for the IWF and AWF. As described in Section 2.2, the elevated perchlorate concentrations observed in well MW-K4 during previous performance periods may have indicated a potential gap in capture at the AWF immediately west of the UMCf ridge. In order to address this gap, well PC-150 was activated in November 2014 as part of the 2013 GWETS Optimization Project. Perchlorate concentrations have decreased considerably in the downgradient wells MW-K4 and PC-144 since September 2014; however, it is not yet clear if this is the result of activation of PC-150, or rather, due to natural trends in concentrations. ART-7B, which is located to the east of the UMCf ridge, was also activated in October 2014. No significant changes in concentration have been observed in downgradient concentrations following activation of extraction well ART-7B. However, the capture efficiency at AWF has increased from 95% calculated during second quarter 2014 to 97% in fourth quarter 2014.

As requested in NDEP's April 9, 2014 letter on the 2013 Semi-Annual Performance Report (NDEP 2014b), the mass flux across each transect was also estimated using an alternative calculation method, one based only on model-estimated groundwater flow rates and interpolated concentrations. Unlike the baseline method, the alternative method does not use the calculated mass removal rates at extraction wells. Rather, the Darcy flux across each transect line was estimated from the groundwater model. Then, the Darcy flux at each model cell on the transect was multiplied by the interpolated perchlorate concentration to estimate the perchlorate flux across each transect. For comparison, the perchlorate mass captured at each well field using the extraction well mass removal rates (baseline method) and the alternative method is shown below:

	Perchlorate Mass Captured (lbs/d)	
	Baseline Method[1]	**Alternative Method**
IWF	761	552
AWF	508	354
SWF	62	32

[1] From measured flow rates and perchlorate concentrations at each well

The mass captured at the three well fields is consistently lower using the alternative method as compared to the baseline method using flow rates and measured concentrations at each extraction well. This is mainly due to the fact that interpolated concentrations at the transect lines are lower than the concentrations measured at each extraction well. The capture efficiencies of the IWF, AWF, and SWF using the alternate method were calculated as 98%, 96%, and 92%, respectively. The estimated average mass of perchlorate discharged into Las Vegas Wash is equivalent for both methods (2.5 lbs/day in fourth quarter 2014). While it is ENVIRON's opinion that the baseline method, which uses measured mass removal data from extraction wells, is likely to be more accurate than the alternative method, the alternative method provides a good estimate of the lower bound of the range of potential capture efficiencies given existing uncertainty.

6.4.3 Perchlorate Mass Loading to Las Vegas Wash

The water in the Las Vegas Wash is sampled for perchlorate monthly or quarterly at various locations by the GWETS operator (for compliance with the site's NPDES permit) and by Southern Nevada Water Authority (SNWA). Currently, perchlorate concentration and mass loading to Las Vegas Wash are reported to NDEP using data from Northshore Road, which is located approximately six river miles downstream of the Site and just upstream from Lake Mead.

Based on the measured perchlorate concentrations in stream water and corresponding stream flow (at the time of chemical sampling), perchlorate mass loading was estimated at the following three locations: Las Vegas Wasteway (LW8.85), Pabco Road (LW 6.05), and Northshore Road (LW0.55). These sampling stations are co-located with United States Geological Survey (USGS) gauging stations and are shown on Figure 33a. Perchlorate mass entering the Las Vegas Wash at any point will include groundwater discharge, as well as other sources (e.g., bank storage, wash gravels). This analysis does not attempt to identify the various sources of perchlorate, but is intended only to identify the general areas where perchlorate may be entering the Las Vegas Wash. Mass loading at the Las Vegas Wasteway stream gauging station, located about 2.8 river miles upstream of the SWF, is used to estimate background levels of perchlorate. Mass loading at Pabco Road can be used to evaluate the portion of the perchlorate mass loading resulting from sources upstream of Pabco Road.

Annual perchlorate mass loading at the three stations (Northshore Road, Pabco Road and Las Vegas Wasteway) for each year (July through June) are shown on Figure 33b and also presented in Table 11. From July through December 2014, the average perchlorate mass loading was 1.2 lbs/day at Las Vegas Wasteway, 19.6 lbs/day at Pabco Road, and 69.9 lbs/day at Northshore Road. Thus, this analysis indicates that approximately 26% of the mass loading measured at Northshore Road can generally be attributed to mass entering the Las Vegas Wash between the Las Vegas Wasteway and Pabco Road stations, while approximately 70% can be attributed to mass entering Las Vegas Wash between the Pabco Road and Northshore Road stations for this reporting period.

6.4.4 Surface Water and Groundwater Interaction Near the SWF

Because the SWF is located near two surface water bodies (Las Vegas Wash and the COH Bird Viewing Ponds), pumping at the SWF potentially induces surface water flow into the SWF extraction wells. The surface water from both Las Vegas Wash and the COH Bird Viewing Ponds is comprised primarily of treated municipal wastewater effluent.

The USGS stream gage at the Pabco Road weir (USGS # 09419700) is located approximately 1,000 feet downgradient of the SWF. Daily historical gauge height (i.e., stream stage) data from the Pabco Road weir are available from the USGS for this station starting on October 1, 2000. A comparison of stream gauging height with groundwater elevations measured in nearby shallow monitoring wells is shown on Figure 34. The hydrographs show that by 2007, the groundwater elevations in monitoring wells near the SWF were below the stream gauging height, with the exception of well PC-97. These data suggest that in the area of the SWF, the groundwater potentiometric surface has been reduced in certain locations such that surface water from the Las Vegas Wash is potentially being pulled into the SWF. As described in the RI/FS Work Plan (ENVIRON 2014c), additional monitoring wells are being installed in this area as part of the RI in order to better characterize stream-aquifer interactions.

Apart from surface water potentially being pulled into the SWF from the Las Vegas Wash, the SWF draws a significant quantity of water from the COH Bird Viewing Ponds. A region of low TDS concentration (<2,500 mg/L) originating at the COH Bird Viewing Ponds is captured by the SWF and is visible on the TDS plume map (Plate 8) presented as part of the 2013-2014 Annual Performance Report. Treated effluent from the COH WRF is discharged into the COH Bird Viewing Ponds at an average rate of approximately 1.2 million gallons per day (850 gpm). In May 2014, effluent wastewater discharged to the COH Bird Viewing Ponds contained 1,150 mg/L of TDS (COH 2014).

An initial analysis of the fraction of surface water extracted by the SWF was presented as part of the 2013-2014 Annual Performance Report. Modified Piper diagrams presented in that report suggest that three distinct water types (groundwater, Las Vegas Wash, and effluent from the Bird Viewing Pond) are likely mixing at the SWF. Results from the Phase II Model suggest that during second quarter 2014, the Bird Viewing Pond was the source for approximately 51% of the water extracted at the SWF. This estimate will be re-evaluated using the Phase III Model refinement conducted as part of the RI/FS and COP. Surface water samples collected from the Bird Viewing Ponds will also be integrated into this analysis. ENVIRON is currently coordinating direct sampling of the Bird Viewing Ponds' surface water to better understand the relative contributions from each source in an effort to enhance the efficiency of the GWETS.

6.4.5 Environmental Footprint

Based on information compiled for the July to December 2014 environmental footprint analysis, which documents energy and materials used at the Site, the GWETS used approximately 1.9 million kilowatt hours per year (kilowatt hours per year [kWh/yr]) and the wells and pump stations used approximately 0.68 million kWh/yr.[19] Monthly energy use by the GWETS varied

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[19] This information was initially requested by NDEP and the USEPA as part of the 2011-2012 Footprint Analysis (ENVIRON 2013b).

from 310,639 to 328,153 kWh between July and December 2014. Monthly use by the wells and lift stations varied from 104,020 to 127,120 kilowatt hours (kWh) during the same period. During the July to December 2014 performance period, approximately 10.2 kWh of electricity were used for each pound of perchlorate removed.

6.4.6 GW-11's Operation as an Equalization Basin

As previously discussed, GW-11's use as an equalization basin was temporarily halted on August 6, 2014 after plugging of filtration equipment. After the end of the current reporting period, modifications to the intake filtration system enabled GW-11 to begin operating as an equalization basin in January 2015.

In their April 9, 2014 comments on the 2013 Semi-Annual Performance Report (NDEP 2014b), NDEP requested a full analytical assessment (e.g., perchlorate, chlorate, nitrate, chloride, sulfate, ammonia, phosphorus, calcium, iron, total chromium, hexavalent chromium, TDS, total suspended solids [TSS], and pH) of water in the GW-11 pond prior to its use as an equalization basin. Envirogen collected an initial composite sample of GW-11 water on March 27, 2014, the day GW-11 began operating as an equalization basin.[20] The initial sample was analyzed for all of the requested analytes with the exception of ammonia.

In ENVIRON's June 30, 2014 response to NDEP comments on the 2013 Semi-Annual Performance Report, ENVIRON indicated that GW-11 would be monitored for the requested analytes and other parameters (water volume, level and flow rate) on a monthly basis and reported in the Annual and Semi-Annual Performance Reports. As shown in Table 12, GW-11 water volume and level were monitored on an approximately weekly basis during the reporting period and average influent and effluent flow were calculated on a monthly basis. Estimated evaporation rates for GW-11, which were calculated using the pond's surface area and published pan evaporation rates (Shevenell 1996), were also included to more fully explain changes in GW-11's volume (e.g., decreasing water volume despite greater influent than effluent flow). The total volume of water in GW-11 increased by approximately 9 million gallons during the reporting period from a low of approximately 35.8 million gallons in early July 2014 to a high of 45.0 million gallons in late December 2014. While GW-11 was not operating as an equalization basin for much of the reporting period, influent to the pond included diversions of FBR effluent and well field influent, as well as backwash from various maintenance operations.

As presented in Table 13, between March and December 2014 Envirogen collected approximately monthly single-point grab samples via the GW-11 effluent piping, which were analyzed for a reduced list of analytes (perchlorate, chlorate, nitrate, total chromium, and hexavalent chromium). In late July 2014, Tetra Tech, Inc. (Tetra Tech)[21] initiated collection of four-point composite samples which were analyzed for the full suite of requested analytes. An initial sample was collected on July 25, 2014 via bailer, however, it was determined that permanent sampling tubes needed to be installed to address safety concerns related to

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[20] GW-11 monitoring was originally requested by NDEP via email on March 26, 2014, prior to start-up of GW-11 as an equalization basin (NDEP 2014a).

[21] Starting in May 2014, Tetra Tech began overseeing Envirogen's groundwater sampling activities and operation of the GWETS.

collecting samples from the pond corners. Once the sampling tubes were installed in early September, sampling was re-initiated with a four-point composite sample collected from the pond corners on September 4, 2014, and analyzed for the full list of requested analytes. GW-11 sampling was interrupted in August 2014 after the pond's use as an equalization basin was temporary halted. Monthly sampling for the full analyte list was restarted after GW-11 began operating as an equalization basin on January 7, 2015, after the end of the current reporting period. The perchlorate mass in GW-11 presented in Table 14 was calculated using perchlorate concentration data (as presented in Table 12) and GW-11 pond volume data (presented in Table 13).

6.4.7 Analysis of Barrier Wall Performance

Performance of the barrier wall at the IWF was evaluated using groundwater elevation data from wells immediately upgradient and downgradient of the barrier, as well as perchlorate concentration data in these same wells. These data were plotted over time for the same paired wells presented in Figures 2a through 2f and are presented in Figures 35a through 35f.

The primary measure of the barrier wall's effectiveness is the change in potentiometric surface across the wall (i.e., the difference in water elevations between the upgradient and downgradient wells). During this period of performance, the elevation difference ranged from 5 to 12 feet, with the lowest elevation difference on the west side of the barrier wall near the M-167/M-69 well pair (Figure 35a) and the highest elevation difference on the east side of the barrier wall near the M-67/M-73 well pair (Figure 35e). While water elevations vary in response to precipitation events in the vicinity of the IWF, the relative elevations in the well pairs has remained reasonably constant (i.e., the groundwater elevations in the upgradient and downgradient wells rise and fall in tandem). Prior to September 2008, the elevation differences were more variable due to the operation of the recharge trenches.

Although the hydraulic data suggest that the barrier wall is an effective barrier to groundwater flow, concentrations in downgradient wells have increased since the end of 2012, most notably in M-69, M-70, and M-71. The increases in concentration in downgradient wells follow similar trends as those in the upgradient wells. As discussed in the 2012-2013 Annual and 2014 Semi-Annual Reports, these increased concentrations were believed to be related to mobilization of soil-bound perchlorate as a result of heavy rains in the fall and winter of 2012 (ENVIRON 2013d; ENVIRON 2014a).

An initial evaluation of barrier wall effectiveness included in the 2013-2014 Annual Performance Report concluded that although the concentration data is consistent with leakage past the wall, the hydraulic data do not support this interpretation. For leakage to occur, it is expected that there first be a hydraulic response (an increase in head) in the upgradient wells followed by a similar hydraulic response in the downgradient wells. In fact, the data show the opposite—the hydraulic response is seen first in the downgradient wells.

During the current report period perchlorate concentrations and groundwater elevations have generally decreased on both sides of the wall, indicating a gradual return to conditions that existed prior to the fall of 2012. Water levels have increased slightly on the east end of the barrier wall, which is likely due to emplacement of TIMET's barrier wall to the east in March 2014 (GEI 2015). TIMET is not currently operating extraction wells at the west end of its wall, which may allow groundwater to be transported through a gap in the capture zones of the NERT and TIMET systems. This is the likely cause of increased groundwater elevations observed in the area. The performance of the barrier wall as part of the overall long-term remedy will be evaluated, including the potential to re-initiate artificial recharge via trenches or other means, as part of the Feasibility Study.

6.5 Summary of GWETS Performance Evaluation

A summary of the performance metrics is shown in Table 15. The performance metrics for GWETS described above will be used to adjust the operation of the GWETS to more effectively and efficiently meet the performance objectives during the proposed COP. The assumptions used in calculation of the metrics, which are described throughout Section 6.4, will be reviewed as part of the Phase III Model refinement.

7 Conclusions

The GWETS consists of three groundwater capture well fields: the IWF, the AWF, and the SWF. The IWF coupled with the barrier wall provides capture of the highest concentrations of perchlorate and chromium at the Site and significantly reduces the amount of perchlorate and chromium in downgradient groundwater. The off-site AWF, located approximately 8,200 feet downgradient of the IWF, has operated since October 2002. The AWF captures significantly lower concentrations of both perchlorate and chromium, but operates at higher extraction rates compared with the IWF and contributes significantly to the overall mass of perchlorate removed from the environment and mitigates its migration in groundwater. The SWF, located over a broad alluvium channel in close proximity to Las Vegas Wash, operates at the highest flow rate (average of 518.8 gpm between July and December 2014) compared with the IWF (69.5 gpm) and the AWF (285.5 gpm), but captures groundwater containing significantly lower perchlorate concentrations.

Treatment of chromium-contaminated groundwater captured by the IWF occurs via the on-site GWTP, which chemically reduces hexavalent chromium and removes total chromium. Treatment of perchlorate-contaminated groundwater from all well fields occurs via the on-site FBRs, which biologically remove perchlorate as well as chlorate and nitrate. The FBRs also remove lesser amounts of residual chromium.

For the 6-month period ending in December 2014, the capture of chromium-contaminated groundwater at the IWF, and treatment at the on-site GWTP, has removed approximately 1,230 pounds of chromium. Adding the approximately 140 pounds of chromium removed by the FBRs for the same period, a total of approximately 1,370 pounds of chromium were removed from groundwater between July and December 2014.

For the same 6-month period, the capture of perchlorate-contaminated groundwater from all three well fields, and biological treatment in the on-site FBRs, has removed a total of approximately 255,600 pounds of perchlorate from the environment. This was a 6.6% decrease from 272,430 pounds of perchlorate removed during 6-month period ending in December 2013. The decrease in removal is primarily the result of decreasing average perchlorate concentrations, particularly in groundwater extracted from the AWF.

As first discussed in the 2012-2013 Annual Performance Report, the above average rainfall in the fall of 2012 and the infiltration of storm water within the Central Retention Basin and elsewhere have likely resulted in mobilization of additional soil-bound perchlorate into alluvial groundwater at the Site, particularly evident within the IWF (ENVIRON 2013d). Monitoring of Site groundwater during the current performance period indicates a gradual return to conditions prevailing prior to the fall of 2012. While perchlorate concentrations and perchlorate mass removals at the IWF increased to historic levels in the months following the fall of 2012, similar effects have not been seen at the AWF or SWF. Based on the evidence to date, there is no indication that the precipitation events in late 2012 mobilized a large mass of perchlorate downgradient of the Site within the Qal.

Performance metrics were developed as part of the 2013 GWETS Optimization Project, the results of which are presented in Attachment A. The 2013 GWETS Optimization Project is now complete and the COP is being initiated and will be summarized in subsequent reports. The performance metrics will be used for quantitatively evaluating performance of the GWETS on a comparative basis moving forward.

During the current reporting period, GW-11 was taken out of service as an equalization basin on August 6, 2014 due to problems with filtration. Following construction and installation of new pipelines at the AWF, wells PC-150 and ART-7B began operating as extraction wells at the end of the current reporting period. Additional optimization and well testing work completed as part of the 2013 GWETS Optimization Project is described in Attachment A.

8 Proposed Future Activities

With the exception of the RI activities associated with the Unit 4 and 5 Buildings, field activities related to the RI are expected to be completed in May 2015. Information from the groundwater, soil, and soil gas sampling programs will be incorporated into a number of different reports and deliverables over the next year, including the RI Report and the 2014-2015 Annual Performance Report. ENVIRON is also in the process of expanding the boundaries of the current steady-state groundwater model and anticipates developing a transient model as part of the RI for the Site.

Other proposed future activities include commencement of the COP, a timeline for which was outlined in a letter submitted to NDEP on February 27, 2015 (NERT 2015a). A high-level program summary was presented at the Stakeholder Annual Meeting on March 26, 2015. A more detailed task list to support objectives of the COP is currently being developed. The implementation of the Enhanced Operational Metrics Work Plan (Tetra Tech 2014a) is currently underway, which will bring online enhanced flow and water level measurement and control capabilities.

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Tables

TABLE 1: INTERCEPTOR WELL FIELD DISCHARGE RATES

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID	July 2010-June 2011 (gpm)	July 2011-June 2012 (gpm)	July 2012-June 2013 (gpm)	July 2013-June 2014 (gpm)	July 2014-December 2014 (gpm)	Well Screened In
I-AA	-	-	-	0.1	1.1	Qal/UMCf
I-AB	-	-	-	0.0	0.0	Qal/UMCf
I-AC	-	-	-	0.0	0.0	Qal/UMCf
I-AD	-	-	-	0.0	0.0	Qal/UMCf
I-AR	0.8	1.1	1.4	1.1	0.8	Qal/UMCf
I-B	2.5	1.5	1.6	1.5	1.2	Qal/UMCf
I-C	4.1	5.9	5.1	5.5	6.0	Qal/UMCf
I-D	4.2	1.3	1.7	2.0	2.0	Qal/UMCf
I-E	1.5	1.3	2.1	2.7	1.3	Qal/UMCf
I-F	4.1	5.7	4.5	4.7	4.3	Qal/UMCf
I-G	0.3	0.1	0.5	0.9	0.2	Qal/UMCf
I-H	0.9	0.9	1.0	0.8	1.4	Qal/UMCf
I-I	5.1	5.0	4.7	4.8	4.7	Qal/UMCf
I-J	7.3	6.3	6.0	6.6	3.1	Qal/UMCf
I-K	4.0	3.9	3.3	4.0	5.0	Qal/UMCf
I-L	1.5	1.9	1.9	1.5	2.4	Qal/UMCf
I-M	2.2	2.6	4.0	2.2	2.7	Qal/UMCf
I-N	3.7	3.1	2.7	1.7	2.8	Qal/UMCf
I-O	2.8	1.7	2.7	1.5	2.6	Qal/UMCf
I-P	3.4	2.1	3.7	5.1	3.7	Qal/UMCf
I-Q	0.6	0.3	0.2	0.7	0.5	Qal/UMCf
I-R	1.2	2.5	2.9	3.3	2.6	Qal/UMCf
I-S	6.1	5.2	4.0	4.0	5.1	Qal/UMCf
I-T	0.4	0.4	0.4	0.4	0.5	Qal/UMCf
I-U	0.8	0.7	0.8	1.0	0.9	Qal/UMCf
I-V	4.0	4.8	5.4	5.7	5.6	Qal/UMCf
I-W	-	-	-	0.1	1.0	Qal/UMCf
I-X	-	-	-	0.5	3.4	Qal/UMCf
I-Y	-	-	-	0.1	1.4	Qal/UMCf
I-Z	7.3	6.7	8.0	7.5	3.4	Qal/UMCf
TOTAL	**68.9**	**65.1**	**68.6**	**70.1**	**69.5**	

Notes:

Pumping rates are presented as annual averages.

- = Well not pumping

gpm=gallons per minute

Qal=Quaternary Alluvium

UMCf=Upper Muddy Creek Formation (first fine-grained unit)

TABLE 2: ATHENS ROAD WELL FIELD DISCHARGE RATES

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID	July 2010-June 2011 (gpm)	July 2011-June 2012 (gpm)	July 2012-June 2013 (gpm)	July 2013-June 2014 (gpm)	July 2014-December 2014 (gpm)	Well Screened In
ART-1/1A	16.5	14.1	22.0	23.4	21.0	Qal
ART-2/2A	62.2	62.4	62.2	61.6	59.7	Qal
ART-3/3A	46.8	46.8	45.8	47.3	45.1	Qal
ART-4/4A	7.9	8.5	8.3	10.0	14.9	Qal
ART-7/7A/7B[1]	31.2	31.2	31.1	30.9	30.8	Qal
ART-8/8A	61.8	62.7	62.2	60.0	63.5	Qal
ART-9/ART-6[2]	46.7	46.7	49.1	46.4	49.3	Qal
PC-150[1]	-	-	-	-	1.2	Qal
TOTAL	**273.1**	**272.4**	**280.6**	**279.6**	**285.5**	

Notes:

Pumping rates are presented as annual averages.

- = Well not pumping

ART-1, 2, 3, 4, 7, and 8 have adjacent recovery wells - "Buddy Wells" - designated by the letter "A".

[1] ART-7B and PC-150 were activated as part of the 2013 GWETS Optimization project; ART-7B began pumping in October 2014 and PC-150 began pumping in November 2014.

[2] Starting in September 2006, ART-9 replaced the pumping of ART-6/6A due to the low water levels in that well pair. The electrical and plumbing system from ART-6A was removed and is being used in ART-9.

gpm=gallons per minute

Qal=Quaternary Alluvium

TABLE 3: SEEP WELL FIELD DISCHARGE RATES

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID	July 2010-June 2011 (gpm)	July 2011-June 2012 (gpm)	July 2012-June 2013 (gpm)	July 2013-June 2014 (gpm)	July 2014-December 2014 (gpm)	Well Screened In
PC-116R	132.5	124.8	124.5	123.2	124.7	Qal
PC-99R2/R3[1]	64.0	61.6	54.4	61.0	62.3	Qal
PC-115R	82.8	91.4	95.7	88.4	95.2	Qal
PC-117	98.9	92.6	124.6	96.8	93.2	Qal
PC-118	70.6	76.3	93.3	67.3	76.7	Qal
PC-119	62.8	65.0	87.6	63.5	62.5	Qal
PC-120[2]	3.2	0.0	0.1	0.4	0.0	Qal
PC-121[2]	1.0	0.0	0.1	0.0	0.0	Qal
PC-133	5.1	3.1	4.3	4.3	4.2	Qal
TOTAL	**520.9**	**514.9**	**584.6**	**504.9**	**518.8**	

Notes:

Pumping rates are presented as annual averages.

[1] Wells PC-99R2 and PC-99R3 are connected and operate as a single pumping well.

[2] Wells PC-120 and PC-121 have not been continuously pumped since October 2005 due to their low perchlorate removal efficiencies and because they are located at the end of the well line in the shallowest portion of the subsurface alluvial channel.

gpm=gallons per minute

Qal=Quaternary Alluvium

TABLE 4: MONTHLY WELL FIELD EXTRACTION RATES, JULY - DECEMBER 2014

Nevada Environmental Response Trust Site

Henderson, Nevada

Well	July 2014 (gpm)	August 2014 (gpm)	September 2014 (gpm)	October 2014 (gpm)	November 2014 (gpm)	December 2014 (gpm)
Interceptor Well Field (IWF)						
I-AA	0.3	0.9	1.4	1.4	1.3	1.2
I-AB	0.0	0.0	0.0	0.0	0.0	0.0
I-AC	0.0	0.0	0.0	0.0	0.0	0.0
I-AD	0.0	0.0	0.0	0.1	0.0	0.0
I-AR	1.0	0.9	0.8	0.8	0.8	0.7
I-B	1.4	1.3	1.1	1.1	1.1	1.0
I-C	6.7	5.8	5.9	5.7	5.5	6.1
I-D	2.6	1.9	1.9	1.9	1.8	1.8
I-E	1.6	1.4	1.3	1.3	1.2	0.9
I-F	4.4	4.4	4.1	4.0	4.2	4.5
I-G	0.2	0.2	0.2	0.2	0.2	0.1
I-H	1.3	1.4	1.4	1.4	1.5	1.3
I-I	4.5	4.8	4.7	4.6	4.7	4.7
I-J	2.5	2.6	2.6	2.6	2.6	5.6
I-K	4.7	5.0	5.1	5.3	5.3	4.8
I-L	2.9	2.4	2.2	2.2	2.4	2.4
I-M	3.1	2.9	2.7	2.5	2.5	2.4
I-N	3.1	3.1	3.0	3.0	2.5	1.9
I-O	2.5	2.5	2.6	2.8	2.9	2.5
I-P	3.5	3.8	3.9	3.9	4.0	3.1
I-Q	0.6	0.5	0.5	0.5	0.5	0.5
I-R	2.9	2.7	2.6	2.6	2.6	2.3
I-S	5.0	4.9	5.1	5.2	5.1	5.0
I-T	0.5	0.4	0.5	0.5	0.5	0.4
I-U	0.8	0.8	0.9	0.9	0.9	0.9
I-V	5.6	5.7	5.7	5.6	5.6	5.2
I-W	0.9	0.9	1.1	1.1	1.0	1.0
I-X	4.3	3.4	3.1	3.1	3.2	3.3
I-Y	1.4	1.4	1.4	1.4	1.5	1.3
I-Z	3.7	2.7	2.7	2.8	2.7	6.0
Total for IWF:	**71.9**	**69.0**	**68.5**	**68.3**	**67.9**	**71.5**
Athens Road Well Field (AWF)						
ART-1/1A	23.4	23.4	23.6	23.1	20.9	11.7
ART-2/2A	61.0	62.0	62.5	62.3	52.2	57.9
ART-3/3A	43.3	46.3	46.6	43.6	45.0	45.6
ART-4/4A	11.5	15.4	15.6	15.8	15.6	15.6
ART-7/7A/7B	30.5	31.0	31.3	30.9	30.2	31.0
ART-8/8A	66.4	62.0	62.5	62.9	65.0	62.3
ART-9/ART-6	45.4	47.9	50.8	50.6	45.7	55.0
PC-150	-	-	-	-	2.9	4.5
Total for AWF:	**281.5**	**288.1**	**292.8**	**289.2**	**277.5**	**283.7**

TABLE 4: MONTHLY WELL FIELD EXTRACTION RATES, JULY - DECEMBER 2014

Nevada Environmental Response Trust Site

Henderson, Nevada

Well	July 2014 (gpm)	August 2014 (gpm)	September 2014 (gpm)	October 2014 (gpm)	November 2014 (gpm)	December 2014 (gpm)
Seep Well Field (SWF)						
PC-116R	124.8	124.0	124.8	124.5	125.1	124.9
PC-99R2/R3	62.4	62.0	62.3	62.2	62.5	62.5
PC-115R	89.7	96.0	98.9	92.4	98.7	95.4
PC-117	91.6	93.1	93.6	93.6	93.8	93.7
PC-118	70.8	77.6	78.0	77.8	78.1	78.0
PC-119	62.9	62.1	62.4	62.3	62.5	62.5
PC-120[1]	0.0	0.0	0.0	0.0	0.0	0.0
PC-121[1]	0.0	0.0	0.0	0.0	0.0	0.0
PC-133	4.2	4.2	4.2	4.2	4.2	4.1
Total for SWF:	**506.4**	**519.1**	**524.2**	**517.0**	**525.1**	**521.1**

Notes:

Pumping rates are presented as monthly averages.

- = Well not pumping

gpm=gallons per minute

[1] Wells PC-120 and PC-121 have not been continuously pumped since October 2005 due to their low perchlorate removal efficiencies and because they are located at the end of the well line in the shallowest portion of the subsurface alluvial channel.

TABLE 5: CHROMIUM TREATMENT DATA FOR THE GWTP, JULY - DECEMBER 2014

Nevada Environmental Response Trust Site
Henderson, Nevada

Month	Average Flow to GWTP (gpm)	Average Flow to GWTP (MGals)	Average Total Cr Inflow[1] (mg/L)	Average Total Cr Outflow[2] (mg/L)	Average Cr VI Outflow[2] (mg/L)	Average Total Cr Removed (lbs/day)	Total Cr Removed (lbs/month)
July 2014	71.9	3.21	8.1	0.53	0.0001	7.00	217.1
August 2014	69.0	3.08	8.2	0.62	0.0063	6.80	210.7
September 2014	68.5	2.96	7.9	1.31	0.0001	6.50	195.0
October 2014	68.3	3.05	8.1	0.30	0.0001	6.68	207.1
November 2014	67.9	2.94	8.1	0.70	0.0001	6.60	197.9
December 2014	71.5	3.19	7.7	0.50	0.0003	6.63	205.5

Estimated Chromium Removed by GWTP:	**1,230**
Estimated Chromium Removed by FBRs:	**140**
Estimated Total Chromium Removed:	**1,370**

Notes:

Estimated removal rates are rounded to the nearest 10 pounds.

[1] Hexavalent chromium is used as a surrogate for total chromium in inflow calculations.

[2] Treated Outflow is directed to Bioplant Equalization Area and Carbon Treatment before being fed to the Fluidized Bed Reactors (FBRs).

Cr = chromium

Cr VI = hexavalent chromium

FBR = fluidized bed reactor

GWTP = groundwater treatment plant

gpm = gallons per minute

lbs = pounds

mg/L = milligrams per liter

MGals = million gallons

TABLE 6: WEEKLY CHROMIUM IN FBR INFLUENT AND EFFLUENT, JULY - DECEMBER 2014

Nevada Environmental Response Trust Site
Henderson, Nevada

Sample Date	Influent/ Effluent	Total Chromium EPA 200.7 (mg/L)	Total Chromium SQL (mg/L)	Hexavalent Chromium EPA 218.6 (mg/L)	Hexavalent Chromium SQL (mg/L)
7/8/2014	INFLUENT	0.017	0.0025	0.0073	0.00025
7/8/2014	INFLUENT	0.022	0.0025	0.0073	0.00025
7/8/2014	EFFLUENT	0.0089	0.0025	<0.00025	0.00025
7/8/2014	EFFLUENT	0.015	0.0025	<0.00025	0.00025
7/15/2014	INFLUENT	0.023	0.0050	0.012 H	0.00025
7/15/2014	EFFLUENT	0.020	0.0025	<0.00025	0.00025
7/21/2014	INFLUENT	0.030	0.0025	0.023	0.00025
7/21/2014	EFFLUENT	0.020	0.0025	<0.00025	0.00025
7/28/2014	INFLUENT	0.028	0.0025	0.018	0.00025
7/28/2014	EFFLUENT	0.014	0.0025	<0.00025	0.00025
8/4/2014	INFLUENT	0.044	0.013	0.006	0.00025
8/4/2014	EFFLUENT	0.034	0.013	<0.00025	0.00025
8/11/2014	INFLUENT	0.089	0.0025	0.0016	0.00025
8/11/2014	EFFLUENT	0.012	0.0025	<0.00025	0.00025
8/18/2014	INFLUENT	0.025	0.0025	0.00082 J	0.00025
8/18/2014	EFFLUENT	0.0064	0.0025	<0.00025	0.00025
8/25/2014	INFLUENT	0.028	0.0025	0.00092 J	0.00025
8/25/2014	EFFLUENT	0.0059	0.0025	<0.00025	0.00025
9/2/2014	INFLUENT	0.21	0.0025	0.025	0.00025
9/2/2014	EFFLUENT	0.017	0.0025	<0.00025	0.00025
9/8/2014	INFLUENT	0.090	0.0025	0.032	0.00025
9/8/2014	EFFLUENT	0.017	0.0025	<0.00025	0.00025
9/15/2014	INFLUENT	0.023	0.0025	0.0064	0.00025
9/15/2014	EFFLUENT	0.021	0.0025	<0.00025	0.00025
9/22/2014	INFLUENT	0.046	0.0025	0.02	0.00025
9/22/2014	EFFLUENT	0.0065	0.0025	<0.00025	0.00025
9/29/2014	INFLUENT	0.35	0.0025	0.076	0.00025
9/29/2014	EFFLUENT	0.029	0.0025	<0.00025	0.00025
10/6/2014	INFLUENT	0.096 B	0.0025	0.079	0.00025
10/6/2014	EFFLUENT	0.025 B	0.0025	<0.00025	0.00025
10/13/2014	INFLUENT	0.13	0.0025	0.087	0.00025
10/13/2014	INFLUENT	0.14	0.0025	0.087	0.00025
10/13/2014	EFFLUENT	0.026	0.0025	<0.00025	0.00025
10/13/2014	EFFLUENT	0.027	0.0025	<0.00025	0.00025
10/20/2014	INFLUENT	0.11	0.0025	0.078	0.00025
10/20/2014	EFFLUENT	0.010	0.0025	<0.00025	0.00025
10/27/2014	INFLUENT	0.092	0.0025	0.086	0.00025
10/27/2014	EFFLUENT	0.0088 J	0.0050	<0.00025	0.00025
11/3/2014	INFLUENT	0.12	0.0025	0.058	0.00025
11/3/2014	EFFLUENT	0.016	0.0025	<0.00025	0.00025
11/10/2014	INFLUENT	0.067	0.0025	0.06	0.00025
11/10/2014	EFFLUENT	0.0076	0.0025	<0.00025	0.00025
11/17/2014	INFLUENT	0.13	0.0025	0.1	0.00025
11/17/2014	EFFLUENT	0.012	0.0025	<0.00025	0.00025
11/24/2014	INFLUENT	0.083	0.0025	0.051	0.00025
11/24/2014	EFFLUENT	0.0099	0.0025	<0.00025	0.00025

TABLE 6: WEEKLY CHROMIUM IN FBR INFLUENT AND EFFLUENT, JULY - DECEMBER 2014

Nevada Environmental Response Trust Site

Henderson, Nevada

Sample Date	Influent/ Effluent	Total Chromium EPA 200.7 (mg/L)	Total Chromium SQL (mg/L)	Hexavalent Chromium EPA 218.6 (mg/L)	Hexavalent Chromium SQL (mg/L)
12/1/2014	INFLUENT	0.061	0.0025	0.042	0.00025
12/1/2014	EFFLUENT	0.012	0.0025	<0.00025	0.00025
12/8/2014	INFLUENT	0.19	0.0025	0.057	0.0005
12/8/2014	EFFLUENT	0.011	0.0025	<0.00025 H	0.00025
12/15/2014	INFLUENT	0.085	0.0025	0.073	0.00025
12/15/2014	EFFLUENT	0.015	0.0025	<0.00025	0.00025
12/22/2014	INFLUENT	0.061	0.0025	0.059	0.0005
12/22/2014	EFFLUENT	0.013	0.0025	<0.00025	0.00025
12/29/2014	INFLUENT	0.19	0.0025	0.067	0.00025
12/29/2014	EFFLUENT	0.023	0.0025	<0.00025	0.00025

Notes:

-- = No Sample

B = Compound was found in the blank and sample.

FBR = Fluidized Bed Reactor

H = sample analyzed beyond hold time

J = Estimated Concentration

mg/L = milligrams per liter

SQL = Sample Quantitation Limit

TABLE 7: PERCHLORATE REMOVED FROM THE ENVIRONMENT

Nevada Environmental Response Trust Site
Henderson, Nevada

	Perchlorate Removal Rate						Extraction Rate				Average Perchlorate Concentration			
Month	Interceptor Well Field (lbs/day)	Athens Road Well Field (lbs/day)	Seep Wells and Seep (lbs/day)	Total (lbs/day)	Total Pounds Removed (per month)	Total Tons Removed (per month)	Interceptor Well Field (gpm)	Athens Road Well Field (gpm)	Seep Well Field (gpm)	Total (gpm)	Interceptor Well Field (mg/L)	Athens Road Well Field (mg/L)	Seep Well Field (mg/L)	Total (mg/L)
Oct 2002	1,402	331	495	2,228	69,068	34.5	--	--	--	--	--	--	--	--
Nov 2002	1,146	1,001	422	2,569	77,070	38.5	--	--	--	--	--	--	--	--
Dec 2002	1,292	1,164	208	2,664	82,584	41.3	--	--	--	--	--	--	--	--
Jan 2003	1,467	1,077	408	2,952	91,500	45.7	--	--	--	--	--	--	--	--
Feb 2003	1,060	785	482	2,327	65,155	32.6	--	--	--	--	--	--	--	--
Mar 2003	1,067	806	576	2,449	75,923	38.0	--	--	--	--	--	--	--	--
Apr 2003	1,033	708	664	2,405	72,146	36.1	--	--	--	--	--	--	--	--
May 2003	1,148	728	640	2,517	78,016	39.0	--	--	--	--	--	--	--	--
Jun 2003	1,098	909	628	2,634	79,035	39.5	--	--	--	--	--	--	--	--
Jul 2003	1,034	764	550	2,348	72,795	36.4	--	--	--	--	--	--	--	--
Aug 2003	999	742	431	2,172	67,400	33.7	--	--	--	--	--	--	--	--
Sep 2003	937	769	415	2,121	63,644	31.8	--	--	--	--	--	--	--	--
Oct 2003	1,003	767	370	2,140	66,344	33.2	--	--	--	--	--	--	--	--
Nov 2003	949	714	337	2,000	59,991	30.0	--	--	--	--	--	--	--	--
Dec 2003	932	734	318	1,984	61,518	30.8	--	--	--	--	--	--	--	--
Jan 2004	938	690	306	1,934	59,950	30.0	--	--	--	--	--	--	--	--
Feb 2004	881	652	322	1,856	53,816	26.9	--	--	--	--	--	--	--	--
Mar 2004	917	742	221	1,879	58,256	29.1	--	--	--	--	--	--	--	--
Apr 2004	854	735	151	1,740	52,197	26.1	--	--	--	--	--	--	--	--
May 2004	890	741	122	1,753	54,340	27.2	--	--	--	--	--	--	--	--
Jun 2004	978	753	157	1,888	56,641	28.3	--	--	--	--	--	--	--	--
Jul 2004	985	760	195	1,941	60,163	30.1	59.5	245.4	704.3	1009.3	1,380	258	23.1	160
Aug 2004	941	803	201	1,945	60,308	30.2	57.3	241.6	684.8	983.8	1,370	277	24.4	165
Sep 2004	970	835	169	1,973	59,201	29.6	55.8	243.2	649.4	948.4	1,450	286	21.7	174
Oct 2004	1,038	799	179	2,016	62,498	31.2	58.7	239.3	690.4	988.3	1,475	279	21.6	170
Nov 2004	1,016	814	168	1,998	59,928	30.0	62.5	243.2	698.1	1003.9	1,355	279	20.0	166
Dec 2004	929	811	122	1,862	57,725	28.9	65.1	257.6	681.0	1003.8	1,190	262	15.0	155
Jan 2005	993	776	142	1,910	59,215	29.6	67.5	254.0	665.6	987.0	1,227	255	17.8	161
Feb 2005	976	790	144	1,910	53,467	26.7	65.9	254.1	713.6	1033.7	1,234	259	16.9	154
Mar 2005	964	781	158	1,902	58,975	29.5	63.5	251.2	725.2	1039.9	1,265	259	18.1	153
Apr 2005	971	787	145	1,904	57,107	28.6	65.3	244.2	711.9	1021.4	1,240	269	17.0	155
May 2005	966	838	152	1,956	60,646	30.3	64.0	234.7	701.8	1000.5	1,258	298	18.1	163
Jun 2005	970	793	151	1,913	57,400	28.7	64.5	237.5	703.4	1005.5	1,253	278	17.9	159
Jul 2005	1,060	769	154	1,983	61,485	30.7	65.5	234.7	686.6	986.9	1,350	273	18.7	168
Aug 2005	1,092	800	135	2,028	62,858	31.4	66.6	239.2	680.6	986.4	1,369	279	16.6	171
Sep 2005	1,122	806	85	2,013	60,384	30.2	65.4	254.9	634.3	954.6	1,431	264	11.1	176
Oct 2005	1,060	797	99	1,957	60,653	30.3	64.4	251.6	621.5	937.5	1,374	264	13.3	174
Nov 2005	1,072	773	111	1,956	58,672	29.3	66.1	244.9	619.6	930.6	1,353	263	14.9	175
Dec 2005	1,123	726	121	1,971	61,088	30.5	63.8	236.5	621.1	921.4	1,469	256	16.3	178
Jan 2006	984	756	141	1,881	58,325	29.2	62.9	237.8	657.0	957.7	1,303	265	18.0	164
Feb 2006	975	734	120	1,828	51,197	25.6	63.8	239.1	664.1	967.0	1,273	256	15.1	158
Mar 2006	967	736	109	1,813	56,198	28.1	63.5	235.1	661.6	960.2	1,270	261	13.8	157
Apr 2006	1,011	749	127	1,887	56,598	28.3	63.7	224.1	660.6	948.5	1,325	279	16.0	166
May 2006	945	713	131	1,789	55,466	27.7	65.3	239.2	669.5	974.1	1,207	248	16.4	153
Jun 2006	874	753	135	1,762	52,854	26.4	61.9	244.1	669.8	975.9	1,176	257	16.8	151
Jul 2006	920	647	123	1,690	52,377	26.2	65.4	239.5	670.6	975.5	1,173	225	15.3	144
Aug 2006	925	656	139	1,720	53,325	26.7	63.6	240.9	664.4	969.0	1,214	227	17.5	148

TABLE 7: PERCHLORATE REMOVED FROM THE ENVIRONMENT
Nevada Environmental Response Trust Site
Henderson, Nevada

	Perchlorate Removal Rate						Extraction Rate				Average Perchlorate Concentration			
Month	Interceptor Well Field (lbs/day)	Athens Road Well Field (lbs/day)	Seep Wells and Seep (lbs/day)	Total (lbs/day)	Total Pounds Removed (per month)	Total Tons Removed (per month)	Interceptor Well Field (gpm)	Athens Road Well Field (gpm)	Seep Well Field (gpm)	Total (gpm)	Interceptor Well Field (mg/L)	Athens Road Well Field (mg/L)	Seep Well Field (mg/L)	Total (mg/L)
Sep 2006	1,064	768	157	1,989	59,674	29.8	66.2	251.5	656.4	974.0	1,341	255	20.0	170
Oct 2006	1,018	778	134	1,930	59,824	29.9	66.4	254.7	649.0	970.0	1,279	255	17.3	166
Nov 2006	867	724	102	1,694	50,809	25.4	63.9	258.0	524.0	845.8	1,133	234	16.3	167
Dec 2006	870	745	121	1,736	53,818	26.9	64.6	253.4	629.2	947.1	1,124	245	16.0	153
Jan 2007	948	786	98	1,831	56,775	28.4	66.1	256.2	638.2	960.4	1,197	256	12.8	159
Feb 2007	871	736	91	1,697	47,520	23.8	68.5	265.6	657.5	991.6	1,060	231	11.5	143
Mar 2007	915	689	88	1,692	52,454	26.2	68.4	259.0	601.3	928.6	1,116	222	12.2	152
Apr 2007	896	692	90	1,678	50,351	25.2	68.1	257.2	631.5	956.8	1,098	225	11.9	146
May 2007	890	679	100	1,669	51,734	25.9	66.2	259.1	660.5	985.8	1,120	219	12.6	141
Jun 2007	832	642	91	1,565	46,959	23.5	64.3	258.5	673.7	996.5	1,079	207	11.3	131
Jul 2007	912	659	67	1,638	50,785	25.4	63.7	257.8	656.7	978.3	1,193	213	8.6	140
Aug 2007	840	632	55	1,527	47,329	23.7	61.2	258.5	611.0	930.7	1,145	204	7.5	137
Sep 2007	842	631	53	1,526	45,794	22.9	59.2	251.1	605.2	915.5	1,187	210	7.4	139
Oct 2007	841	686	53	1,580	48,973	24.5	59.4	264.5	617.0	940.9	1,181	216	7.2	140
Nov 2007	762	675	55	1,493	44,782	22.4	57.3	264.1	622.9	944.3	1,110	213	7.4	132
Dec 2007	742	655	60	1,456	45,134	22.6	55.4	264.1	627.6	947.1	1,117	207	7.9	128
Jan 2008	873	630	58	1,562	48,410	24.2	56.5	262.9	631.2	950.7	1,289	200	7.6	137
Feb 2008	818	634	61	1,513	43,878	21.9	59.1	262.2	608.9	930.3	1,154	202	8.3	136
Mar 2008	870	666	60	1,595	49,460	24.7	61.6	265.0	614.0	940.6	1,178	210	8.1	141
Apr 2008	830	656	54	1,540	46,196	23.1	61.9	268.1	623.1	953.1	1,118	204	7.3	135
May 2008	721	627	46	1,394	43,222	21.6	60.6	266.5	618.8	945.9	993	196	6.2	123
Jun 2008	732	637	44	1,413	42,393	21.2	61.0	271.5	630.3	962.8	1,001	196	5.8	122
Jul 2008	817	673	54	1,544	47,872	23.9	63.4	273.5	618.5	955.4	1,076	205	7.3	135
Aug 2008	945	678	59	1,682	52,153	26.1	65.7	276.5	585.1	927.3	1,201	205	8.4	151
Sep 2008	798	635	56	1,489	44,670	22.3	65.4	275.7	589.9	931.0	1,018	192	7.9	133
Oct 2008	801	626	51	1,477	45,791	22.9	65.5	275.3	597.2	938.0	1,020	190	7.1	131
Nov 2008	807	643	48	1,497	44,921	22.5	65.4	279.0	560.4	904.8	1,029	192	7.1	138
Dec 2008	809	678	58	1,544	47,871	23.9	65.4	285.8	562.7	914.0	1,031	198	8.6	141
Jan 2009	864	659	44	1,567	48,567	24.3	66.8	276.4	586.0	929.3	1,078	199	6.2	141
Feb 2009	825	648	33	1,506	42,170	21.1	66.7	267.5	584.2	918.4	1,031	202	4.8	137
Mar 2009	865	720	36	1,621	50,242	25.1	67.6	258.9	606.0	932.4	1,067	232	4.9	145
Apr 2009	833	685	34	1,552	46,562	23.3	67.5	260.0	595.9	923.3	1,029	220	4.7	140
May 2009	823	655	35	1,514	46,920	23.5	66.6	256.8	598.6	922.0	1,031	213	4.9	137
Jun 2009	866	618	35	1,519	45,557	22.8	69.3	258.2	579.9	907.4	1,042	199	5.1	140
Jul 2009	833	674	40	1,547	47,953	24.0	68.6	282.6	572.2	923.4	1,012	199	5.8	140
Aug 2009	859	652	43	1,554	48,168	24.1	69.3	226.7	561.8	857.7	1,034	240	6.4	151
Sep 2009	938	671	48	1,657	49,708	24.9	71.2	230.7	559.4	861.4	1,099	242	7.1	160
Oct 2009	847	622	44	1,513	46,914	23.5	74.9	238.1	562.2	875.2	944	218	6.6	144
Nov 2009	894	613	47	1,554	46,611	23.3	74.5	234.7	564.6	873.8	1,001	218	7.0	148
Dec 2009	891	635	49	1,575	48,839	24.4	73.3	248.1	582.4	903.8	1,015	213	7.1	145
Jan 2010	914	661	55	1,630	50,533	25.3	71.8	240.2	571.0	883.0	1,062	230	8.1	154
Feb 2010	853	675	53	1,581	44,270	22.1	75.3	246.6	573.5	895.3	945	228	7.8	147
Mar 2010	949	629	49	1,626	50,413	25.2	73.2	255.4	562.2	890.8	1,081	205	7.2	152
Apr 2010	926	637	50	1,614	48,408	24.2	73.2	244.1	540.8	858.1	1,055	218	7.7	157
May 2010	983	758	53	1,794	55,610	27.8	75.1	266.2	548.5	889.8	1,092	237	8.0	168
Jun 2010	942	733	53	1,728	51,846	25.9	73.8	267.3	527.4	868.5	1,064	229	8.4	166
Jul 2010	839	652	46	1,537	47,638	23.8	73.0	269.4	533.7	876.1	959	202	7.1	146

TABLE 7: PERCHLORATE REMOVED FROM THE ENVIRONMENT

Nevada Environmental Response Trust Site

Henderson, Nevada

	Perchlorate Removal Rate						Extraction Rate				Average Perchlorate Concentration			
Month	Interceptor Well Field (lbs/day)	Athens Road Well Field (lbs/day)	Seep Wells and Seep (lbs/day)	Total (lbs/day)	Total Pounds Removed (per month)	Total Tons Removed (per month)	Interceptor Well Field (gpm)	Athens Road Well Field (gpm)	Seep Well Field (gpm)	Total (gpm)	Interceptor Well Field (mg/L)	Athens Road Well Field (mg/L)	Seep Well Field (mg/L)	Total (mg/L)
Aug 2010	846	668	44	1,558	48,294	24.1	71.1	269.4	518.7	859.2	992	207	7.0	151
Sep 2010	833	707	46	1,585	47,564	23.8	73.8	264.6	510.3	848.7	941	223	7.5	156
Oct 2010	794	632	51	1,476	45,762	22.9	70.9	268.4	529.6	868.9	934	196	8.0	142
Nov 2010	761	635	50	1,447	43,401	21.7	69.8	268.9	521.6	860.2	910	197	8.1	140
Dec 2010	687	636	42	1,365	42,327	21.2	67.7	267.7	530.8	866.2	846	198	6.6	131
Jan 2011	735	598	24	1,357	42,073	21.0	69.3	266.9	529.7	865.9	885	187	3.8	131
Feb 2011	709	588	38	1,334	37,362	18.7	67.3	263.0	545.1	875.5	878	186	5.8	127
Mar 2011	733	634	43	1,410	43,695	21.8	65.0	283.3	526.1	874.5	941	187	6.8	134
Apr 2011	791	616	48	1,455	43,641	21.8	67.1	285.1	505.0	857.2	983	180	8.0	142
May 2011	732	632	57	1,421	44,053	22.0	65.4	285.8	500.7	851.9	934	184	9.5	139
Jun 2011	757	639	46	1,442	43,246	21.6	66.2	284.6	499.9	850.7	953	187	7.7	141
Jul 2011	756	646	41	1,443	44,726	22.4	67.8	285.5	535.8	889.1	931	189	6.4	135
Aug 2011	768	630	39	1,438	44,578	22.3	67.3	273.9	507.0	848.3	952	192	6.5	141
Sep 2011	751	619	41	1,410	42,312	21.2	65.8	270.6	461.3	797.7	951	191	7.4	147
Oct 2011	747	585	41	1,372	42,537	21.3	67.5	270.7	467.7	805.8	923	180	7.3	142
Nov 2011	696	570	41	1,307	39,212	19.6	67.9	268.2	494.3	830.3	855	177	6.9	131
Dec 2011	659	567	38	1,263	39,168	19.6	65.0	267.3	506.8	839.1	846	177	6.2	126
Jan 2012	694	611	41	1,346	41,741	20.9	64.4	268.7	438.6	771.7	899	190	7.8	146
Feb 2012	701	658	43	1,401	40,643	20.3	64.5	269.1	469.4	803.1	906	204	7.6	146
Mar 2012	720	625	46	1,391	43,134	21.6	64.2	270.9	566.0	901.1	936	193	6.7	129
Apr 2012	686	607	44	1,337	40,095	20.0	63.7	273.1	567.9	904.7	897	185	6.5	123
May 2012	687	665	47	1,399	43,375	21.7	61.8	278.2	571.7	911.7	926	199	6.9	128
Jun 2012	541	641	48	1,229	36,879	18.4	61.6	272.8	590.8	925.2	732	196	6.7	111
Jul 2012	661	621	49	1,331	41,256	20.6	61.8	271.5	590.4	923.8	892	191	6.9	120
Aug 2012	654	598	48	1,301	40,316	20.2	62.4	272.2	578.8	913.4	874	183	6.9	119
Sep 2012	1,042	626	61	1,728	51,844	25.9	73.7	280.7	602.4	956.9	1,178	186	8.4	151
Oct 2012	1,294	604	65	1,962	60,837	30.4	74.4	278.7	602.8	955.9	1,450	181	9.0	171
Nov 2012	1,145	606	50	1,801	54,024	27.0	68.6	290.9	597.2	956.6	1,392	174	7.0	157
Dec 2012	1,301	619	56	1,976	61,268	30.6	72.8	290.3	590.5	953.6	1,491	178	8.0	173
Jan 2013	1,292	642	58	1,992	61,742	30.9	70.6	288.1	589.6	948.3	1,527	186	8.2	175
Feb 2013	1,194	615	52	1,862	52,137	26.1	70.7	282.8	587.1	940.5	1,408	182	7.4	165
Mar 2013	1,070	610	51	1,732	53,679	26.8	68.1	280.8	578.8	927.7	1,311	181	7.4	156
Apr 2013	1,141	629	63	1,833	54,980	27.5	68.4	281.2	570.9	920.5	1,391	187	9.2	166
May 2013	1,086	564	62	1,713	53,095	26.5	65.4	270.2	568.8	904.4	1,384	174	9.1	158
Jun 2013	885	538	47	1,471	44,118	22.1	66.6	280.6	558.3	905.5	1,109	160	7.1	135
Jul 2013	947	523	53	1,523	47,223	23.6	66.2	274.8	570.2	911.2	1,193	159	7.8	139
Aug 2013	933	569	59	1,562	48,417	24.2	65.6	277.1	545.1	887.8	1,187	171	9.1	147
Sep 2013	956	576	44	1,576	47,281	23.6	66.7	274.0	508.9	849.6	1,194	175	7.3	155
Oct 2013	937	593	55	1,586	49,158	24.6	66.7	283.8	507.4	857.9	1,173	174	9.1	154
Nov 2013	795	514	54	1,363	40,898	20.4	66.2	274.2	476.6	817.0	1,001	156	9.4	139
Dec 2013	799	448	45	1,292	40,063	20.0	71.3	285.3	477.6	834.2	934	131	7.9	129
Jan 2014	944	479	57	1,480	45,874	22.9	71.7	283.0	503.2	857.8	1,095	141	9.4	144
Feb 2014	837	512	49	1,399	39,174	19.6	71.8	282.8	510.9	865.5	971	151	8.1	135
Mar 2014	916	497	48	1,461	45,289	22.6	73.1	272.9	492.5	838.4	1,043	152	8.2	144
Apr 2014	808	469	45	1,322	39,655	19.8	71.1	276.8	488.6	836.5	945	141	7.7	132
May 2014	735	448	47	1,230	38,142	19.1	73.3	284.6	496.0	853.9	834	131	8.0	121
Jun 2014	975	423	47	1,445	43,337	21.7	78.1	285.4	481.0	844.5	1,038	123	8.2	142

TABLE 7: PERCHLORATE REMOVED FROM THE ENVIRONMENT

Nevada Environmental Response Trust Site

Henderson, Nevada

	Perchlorate Removal Rate						Extraction Rate				Average Perchlorate Concentration			
Month	Interceptor Well Field (lbs/day)	Athens Road Well Field (lbs/day)	Seep Wells and Seep (lbs/day)	Total (lbs/day)	Total Pounds Removed (per month)	Total Tons Removed (per month)	Interceptor Well Field (gpm)	Athens Road Well Field (gpm)	Seep Well Field (gpm)	Total (gpm)	Interceptor Well Field (mg/L)	Athens Road Well Field (mg/L)	Seep Well Field (mg/L)	Total (mg/L)
Jul 2014	898	506	60	1,464	45,374	22.7	71.9	281.5	506.4	859.9	1,039	150	10	142
Aug 2014	840	510	59	1,409	43,666	21.8	69.0	288.1	519.1	876.1	1,014	147	9	134
Sep 2014	830	541	70	1,441	43,219	21.6	68.5	292.8	524.2	885.5	1,008	154	11	135
Oct 2014	804	539	70	1,412	43,767	21.9	68.3	289.2	517.0	874.5	979	155	11	134
Nov 2014	759	483	61	1,303	39,087	19.5	67.9	277.5	525.1	870.5	935	145	10	125
Dec 2014	737	508	62	1,307	40,512	20.3	71.5	283.7	521.1	876.3	858	149	10	124

Notes:

Mass removal rates presented in this spreadsheet may be slightly different from previously reported mass removal rates for the following reasons:

1) Analytical data were obtained directly from the database for extraction wells and the GWTP east and west well feeds instead of the field spreadsheet.

2) Data interpolation and mass removal calculations were performed more systematically using a script developed in Matlab.

These changes have not substantially impacted total perchlorate mass removal rates. Previously, data presented in Table 7 were based on calculations performed in the Envirogen/Veolia field spreadsheet. ENVIRON has not been able to locate perchlorate concentration and/or pumping data prior to July 2004, but has included the perchlorate removal numbers included in prior reports.

-- = no data available
gpm = gallons per minute
lbs/day = pounds per day
mg/L = milligrams per liter

TABLE 8: WEEKLY PERCHLORATE IN FBR INFLUENT AND EFFLUENT, JULY - DECEMBER 2014

Nevada Environmental Response Trust Site
Henderson, Nevada

Sample Date	Influent/Effluent Weekly Composite	Perchlorate by EPA 314 (mg/L)	Perchlorate SQL (mg/L)
7/5/2014	INFLUENT-COMP	130	5.0
7/5/2014	EFFLUENT-COMP	<0.0025	0.0025
7/12/2014	INFLUENT-COMP	120	5.0
7/12/2014	EFFLUENT-COMP	<0.0025	0.0025
7/19/2014	INFLUENT-COMP	120	5.0
7/19/2014	EFFLUENT-COMP	<0.0025	0.0025
7/26/2014	INFLUENT-COMP	120	5.0
7/26/2014	EFFLUENT-COMP	<0.0025	0.0025
8/2/2014	INFLUENT-COMP	120	5.0
8/2/2014	EFFLUENT-COMP	<0.0025	0.0025
8/9/2014	INFLUENT-COMP	120	5.0
8/9/2014	EFFLUENT-COMP	<0.0025	0.0025
8/16/2014	INFLUENT-COMP	100	5.0
8/16/2014	EFFLUENT-COMP	<0.0025	0.0025
8/23/2014	INFLUENT-COMP	120	5.0
8/23/2014	EFFLUENT-COMP	<0.0025	0.0025
8/30/2014	INFLUENT-COMP	120	5.0
8/30/2014	EFFLUENT-COMP	<0.0025	0.0025
9/6/2014	INFLUENT-COMP	130	5.0
9/6/2014	EFFLUENT-COMP	<0.0025	0.0025
9/13/2014	INFLUENT-COMP	110	5.0
9/13/2014	EFFLUENT-COMP	<0.0025	0.0025
9/20/2014	INFLUENT-COMP	120	5.0
9/20/2014	EFFLUENT-COMP	<0.0025	0.0025
9/27/2014	INFLUENT-COMP	120	5.0
9/27/2014	EFFLUENT-COMP	<0.0025	0.0025
10/4/2014	INFLUENT-COMP	110	5.0
10/4/2014	EFFLUENT-COMP	<0.0025	0.0025
10/11/2014	INFLUENT-COMP	120	5.0
10/11/2014	EFFLUENT-COMP	<0.0025	0.0025
10/18/2014	INFLUENT-COMP	110	5.0
10/18/2014	EFFLUENT-COMP	<0.0025	0.0025
10/25/2014	INFLUENT-COMP	110	5.0
10/25/2014	EFFLUENT-COMP	<0.0025	0.0025
11/1/2014	INFLUENT-COMP	100	5.0
11/1/2014	INFLUENT-COMP	100	5.0
11/1/2014	EFFLUENT-COMP	<0.0025	0.0
11/1/2014	EFFLUENT-COMP	<0.0025	0.0025
11/8/2014	INFLUENT-COMP	110	5.0
11/8/2014	INFLUENT-COMP	110	5.0
11/8/2014	EFFLUENT-COMP	<0.0025	0.0
11/8/2014	EFFLUENT-COMP	<0.0025	0.0025
11/15/2014	INFLUENT-COMP	100	5.0
11/15/2014	EFFLUENT-COMP	<0.0025	0.0025
11/22/2014	INFLUENT-COMP	110	5.0
11/22/2014	EFFLUENT-COMP	<0.0025	0.0025
11/29/2014	INFLUENT-COMP	120	5.0

TABLE 8: WEEKLY PERCHLORATE IN FBR INFLUENT AND EFFLUENT, JULY - DECEMBER 2014

Nevada Environmental Response Trust Site
Henderson, Nevada

Sample Date	Influent/Effluent Weekly Composite	Perchlorate by EPA 314 (mg/L)	Perchlorate SQL (mg/L)
11/29/2014	EFFLUENT-COMP	<0.0025	0.0025
12/6/2014	INFLUENT-COMP	110	5.0
12/6/2014	EFFLUENT-COMP	<0.0025	0.0025
12/13/2014	INFLUENT-COMP	120	5.0
12/13/2014	EFFLUENT-COMP	<0.0025	0.0025
12/20/2014	INFLUENT-COMP	120	5.0
12/20/2014	EFFLUENT-COMP	<0.0025	0.0025
12/27/2014	INFLUENT-COMP	120	5.0
12/27/2014	EFFLUENT-COMP	<0.0025	0.0025

Notes:

The influent and effluent composite results above are the same as those used in the Discharge Monitoring Reports (DMRs) associated with the Site's National Pollution Discharge Elimination System (NPDES) Permit NV0023060.

FBR = Fluidized Bed Reactor

mg/L = milligrams per liter

SQL = Sample Quantitation Limit

TABLE 9: PERCHLORATE MASS ESTIMATES

Nevada Environmental Response Trust Site
Henderson, Nevada

	On-site			Off-site to AWF			AWF to Wash			Entire Area
	Alluvium	UMCf	Total On-site	Alluvium	UMCf	Total Off-site to AWF	Alluvium	UMCf	Total AWF to Wash	
2002	18	3,680	3,698	680	1,604	2,285	95	0	95	6,078
2006	12	2,321	2,333	538	1,223	1,761	11	0	11	4,105
2012	9	1,724	1,733	384	817	1,201	14	0	14	2,947
2014*	17 ± 4	1,447 ± 567	1,464 ± 567	185 ± 37	556 ± 219	741 ± 222	11 ± 3	0	11 ± 3	2,217 ± 609

Notes:

Mass values are presented in tons and were calculated using kriging.

AWF = Athens Road Well Field

UMCf = Upper Muddy Creek Formation

* Mass estimations for 2014 are presented with a 95% margin of error, which was calculated from the standard deviation of the interpolated concentrations and aquifer thicknesses. Between 2012 and 2014, the on-site mass in the alluvium increased for two reasons: 1) the assumed thickness of the alluvium used in the mass estimate was increased, and 2) concentrations measured in some on-site areas increased following the 2012 heavy rainfall event.

TABLE 10: CHROMIUM MASS ESTIMATES

Nevada Environmental Response Trust Site
Henderson, Nevada

	On-Site			Off-Site to AWF			AWF to Wash			Entire Area
	Alluvium	UMCf	Total On-site	Alluvium	UMCf	Total Off-site to AWF	Alluvium	UMCf	Total AWF to Wash	
2006	0.06	31.74	31.80	1.79	4.61	6.40	0.12	0.00	0.12	38.32
2012	0.04	20.15	20.19	1.20	3.01	4.20	0.04	0.00	0.04	24.44
2014*	0.24 ± 0.05	21.34 ± 8.37	21.58 ± 8.37	0.65 ± 0.13	2.60 ± 1.02	3.25 ± 1.03	0.03 ± 0.01	0.00	0.03 ± 0.01	24.86 ± 8.43

Notes:

Mass values are presented in tons and were calculated using kriging.

AWF = Athens Road Well Field

UMCf = Upper Muddy Creek Formation

* Mass estimations for 2014 are presented with a 95% margin of error, which was calculated from the standard deviation of the interpolated concentrations and aquifer thicknesses. Between 2012 and 2014, the on-site mass in the alluvium increased for two reasons: 1) the assumed thickness of the alluvium used in the mass estimate was increased, and 2) concentrations measured in some on-site areas increased following the 2012 heavy rainfall event.

TABLE 11: AVERAGE PERCHLORATE MASS LOADING IN LAS VEGAS WASH

Nevada Environmental Response Trust Site

Henderson, Nevada

	Average Perchlorate Mass Loading (lbs/d)			Percentage Loading at Northshore Road from		
Reporting Year	LV Wasteway	Pabco Road	Northshore Road	Upstream of Wasteway	Las Vegas Wasteway to Pabco Road	Pabco Road to Northshore Road
2007/2008[1]	1.96	23.34	68.73	3%	31%	63%
2008/2009[2]	1.69	16.71	70.60	2%	21%	74%
2009/2010	1.60	30.21	62.05	3%	46%	49%
2010/2011	1.49	18.74	71.05	2%	24%	72%
2011/2012	1.26	9.69	76.35	2%	11%	86%
2012/2013	1.44	27.94	68.57	2%	39%	57%
2013/2014	1.77	30.00	67.26	3%	42%	53%
2014/2015*	1.16	19.58	69.87	2%	26%	70%
Average	**1.57**	**22.18**	**69.27**	**2%**	**30%**	**65%**

Notes:

lbs/d = pounds per day

Reporting year is July through June

[1] 2007 third quarter mass loading estimate missing.

[2] 2009 first quarter mass loading estimate missing.

* Based on July through December 2014 estimates.

TABLE 12: GW-11 WATER ELEVATION, WATER VOLUME, AND FLOW

Nevada Environmental Response Trust Site

Henderson, Nevada

Date	Water Level Elevation (ft amsl)	Water Volume (Mgal)	Average GW-11 Influent Flow (gpm)	Average GW-11 Effluent Flow (gpm)	Estimated Evaporation Rate (gpm)*
7/4/2014	1740.84	35.78	--	--	--
7/11/2014	1741.45	38.26	--	--	--
7/18/2014	1741.74	39.46	--	--	--
7/24/2014	1741.98	40.45	--	--	--
Monthly Average	--	--	1006	785	126
8/5/2014	1742.53	42.77	--	--	--
8/7/2014	1742.53	42.77	--	--	--
8/15/2014	1742.50	42.66	--	--	--
8/21/2014	1742.37	42.11	--	--	--
8/28/2014	1742.21	41.44	--		
Monthly Average	--	--	233	111	111
9/1/2014	1742.21	41.66	--	--	--
9/4/2014	1742.63	41.44	--	--	--
9/11/2014	1742.66	43.22	--	--	--
9/18/2014	1742.66	43.33	--	--	--
9/25/2014	1742.61	43.33	--		
Monthly Average	--	--	88	3	90
10/2/2014	1742.53	43.10	--	--	--
10/9/2014	1742.53	42.77	--	--	--
10/17/2014	1742.56	42.77	--	--	--
10/23/2014	1742.48	42.88	--	--	--
10/30/2014	1742.61	42.66	--	--	--
Monthly Average	--	--	21	0	60
11/6/2014	1742.61	42.55	--	--	--
11/13/2014	1742.61	43.10	--	--	--
11/17/2013	1742.61	43.10	--	--	--
11/20/2014	1742.98	43.10	--	--	--
11/28/2014	1743.08	43.10	--	--	--
Monthly Average	--	--	32	0	37
12/11/2014	1742.27	44.67	--	--	--
12/19/2014	1742.50	45.12	--	--	--
12/30/2014	1743.06	45.00	--	--	--
Monthly Average	--	--	9	0	26

Notes:

*Evaporation has a significant impact on pond volume. Using historic pan evaporation data, ENVIRON calculated approximate evaporation rates for GW-11 in gpm (Shevenell, 1996).

GW-11 did not operate as an equalization basin between August 6, 2014 and January 2015.

gpm = gallons per minute

ft amsl = feet above mean sea level

Mgal = millions of gallons

Source: Shevenell, Lisa. 1996. Nevada Bureau of Mines and Geology, Report 48: Statewide Potential Evapotranspiration Maps for Nevada.

TABLE 13: GW-11 ANALYTICAL MONITORING

Nevada Environmental Response Trust Site

Henderson, Nevada

Date	Perchlorate (mg/L)	Chlorate (mg/L)	Nitrate as Nitrogen (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Ammonia (mg/L)	Phosphorus (mg/L)	Calcium (mg/L)	Iron (mg/L)	Total Chromium (µg/L)	Hexavalent Chromium (µg/L)	TDS (mg/L)	TSS (mg/L)	pH (SU)
3/27/2014	40	68	2.4	2800	2400	NA	0.15	510	0.19	28	1.1	8600	26	NA
5/5/2014	84	170	8.8	NA	NA	NA	NA	NA	NA	59	31	NA	NA	NA
6/2/2014	99	280	7.3	NA	NA	NA	NA	NA	NA	23	5.5	NA	NA	NA
7/1/2014	130	250	8	NA	NA	NA	NA	NA	NA	28	11	NA	NA	NA
7/25/2014	110	230	7.1	1800	1600	0.59	0.53	350	0.058	41	4	6000	25	8.37
8/4/2014	120	190	7.6	NA	NA	NA	NA	NA	NA	49	5.1	NA	NA	NA
9/2/2014	100	140	4.4	1800	1700	2.6	0.11	360	0.37	12	0.44	6000	43	8.27
10/13/2014	85	100	4.9	NA	NA	NA	NA	NA	NA	39	0.42	NA	NA	NA
11/3/2014	63	90	3.2	NA	NA	NA	NA	NA	NA	5.4	1.2	NA	NA	NA
12/10/2014	49	63	2.8	NA	NA	NA	NA	NA	NA	13	3.1	NA	NA	NA

Notes:

GW-11 did not operate as an equalization basin between August 6, 2014 and January 2015.

Four-point composite samples were collected from GW-11 on July 25 and September 2, 2014. Other samples were collected from the GW-11 effluent pipe.

Although requested by NDEP, ammonia was not analyzed in the initial GW-11 sample.

pH was not specified in NDEP's original GW-11 monitoring request, but was added for consistency with the groundwater monitoring program during the July 25, 2014 GW-11 sampling event.

GW-11 effluent was not analyzed for chloride, sulfate, ammonia, phosphorus, calcium, iron, TDS, and TSS during May, June, August, October, November, and December 2014.

mg/L = milligrams per liter

µg/L = micrograms per liter

SU = standard units

NA = not analyzed

TDS = total dissolved solids

TSS = total suspended solids

TABLE 14: GW-11 MASS LOADING, JULY - DECEMBER 2014

Nevada Environmental Response Trust Site

Henderson, Nevada

GW-11 Perchlorate Mass Calculation Based on Concentration and Pond Volume				
GW-11 Water Sample		GW-11 Pond Volume		Estimated Perchlorate Mass in GW-11 (lbs)
Date	Perchlorate Concentration (mg/L)	Date	Measured Volume (Mgal)	
July 1, 2014	130	June 27, 2014	36.10	39,167
July 25, 2014	110	July 24, 2014	40.45	37,132
August 8, 2014	120	August 7, 2014	42.77	42,832
September 2, 2014	100	September 1, 2014	41.66	34,770
October 13, 2014	85	October 9, 2014	42.77	30,339
November 3, 2014	63	November 6, 2014	42.55	22,370
December 10, 2014	49	December 11, 2014	44.67	18,266

Notes:

GW-11 began functioning as an equalization basin on March 27, 2014. GW-11 did not operate as an equalization basin between August 6, 2014 and January 2015.

-- = no value
lbs = pounds
Mgal = million gallons
mg/L = milligrams per liter

TABLE 15: GWETS PERFORMANCE METRICS SUMMARY

Nevada Environmental Response Trust Site
Henderson, Nevada

Performance Metric	Method of Evaluation	Location	Value
Mass Removal and Remaining Plume Mass (Section 6.4.1)			
Perchlorate Mass Remaining in Groundwater (tons)	Interpolation of concentrations using kriging (May 2014 data used for estimate)	On-site	1,464
		Off-site to AWF	741
		AWF to the Wash	11
		Total	2,217
Perchlorate Mass Removal Rate[1] (tons during reporting period)	Calculated from extraction rates and concentrations in extraction wells (July 2014 through December 2014)	IWF	75
		AWF	47
		SWF	6
		Total	128
Chromium Mass Remaining in Groundwater (tons)	Interpolation of concentrations using kriging (May 2014 data used for estimate)	On-site	21.58
		Off-site to AWF	3.25
		AWF to the Wash	0.03
		Total	24.86
Chromium Mass Removal Rate[2] (tons during reporting period)	Calculated from extraction rates and concentrations in extraction wells (July 2014 through December 2014)	IWF[3]	0.62
		FBR[4]	0.07
		Total	1.49
Capture Zone Evaluation and Estimated Mass Flux (Section 6.4.2)			
Capture Efficiency at Well Fields (percent)	Calculated from groundwater modeling, measured concentrations, and extraction rates	IWF[5]	99%
		AWF[5]	97%
		SWF	96%
Well Field Capture Zones	Estimated capture zones from particle tracking compared to target capture zone. See Figures 29a and 29b.	Study Area	Target area captured except for small area near SWF

TABLE 15: GWETS PERFORMANCE METRICS SUMMARY

Nevada Environmental Response Trust Site

Henderson, Nevada

Performance Metric	Method of Evaluation	Location	Value
Perchlorate Mass Loading to Las Vegas Wash (Section 6.4.3)			
Perchlorate Mass Loading in Las Vegas Wash (lbs/day)	Based on instantaneous sampling results and flow rates. Average since 2008 shown.	Northshore Rd	69.87
		Pabco Rd	19.58
		LV Wasteway	1.16
Contribution to Northshore Road Mass Loading by Reach (percent)	Apportionment of mass loading at Northshore Road to stream reaches. Average since 2008 shown.	Pabco Rd to Northshore Rd	70%
		Wasteway to Pabco Rd	26%
		Upstream of Wasteway	2%
Surface Water-Groundwater Interaction Near the SWF (Section 6.4.4)			
Las Vegas Wash Flow Captured at SWF	Comparison of surface water level at Pabco Road gauge to nearby groundwater levels.	SWF	Flow direction is from Las Vegas Wash to SWF
COH Birding Pond Flow Captured at SWF	Low TDS plume used as tracer	SWF	Flow direction is from Birding Ponds to SWF
Environmental Footprint (Section 6.4.5)			
Energy Use (GWH during reporting period)	Summarized from utility bills (July 2014 through December 2014)	GWETS Plant	1.9
		Off-site Wells and Lift Stations	0.7
		Entire system	2.6
Energy Use (kwH per lb of perchlorate removed)	Summarized from utility bills and perchlorate mass removal (July 2014 through December 2014)	Entire system	10.2

Notes:

[1] Average mass removal rate at each well field between July 2014 and December 2014. Monthly removal rates are shown on Table 7.

[2] Average mass removal rate at the Groundwater Treatment Plant (GWTP) and Fluidized Bed Reactor (FBR) between July 2014 and December 2014. Monthly removal rates at the GTWP are shown on Table 5.

[3] The average mass removal rate is calculated using influent and effluent hexavalent chromium concentration data at the GWTP and average monthly flow to the GWTP.

[4] The average mass removal rate is calculated using influent and effluent total chromium concentration data at the FBRs and average monthly FBR flow data.

[5] Capture efficiency may be overestimated at the IWF and AWF. Elevated perchlorate concentrations in wells downgradient of the IWF and AWF indicate potential gaps in capture.

IWF = Interceptor Well Field

AWF = Athens Road Well Field

SWF = Seep Well Field

lbs/day = pounds per day

kwH = kilowatt hour

GWH/yr = gigawatt hours per year

Figures

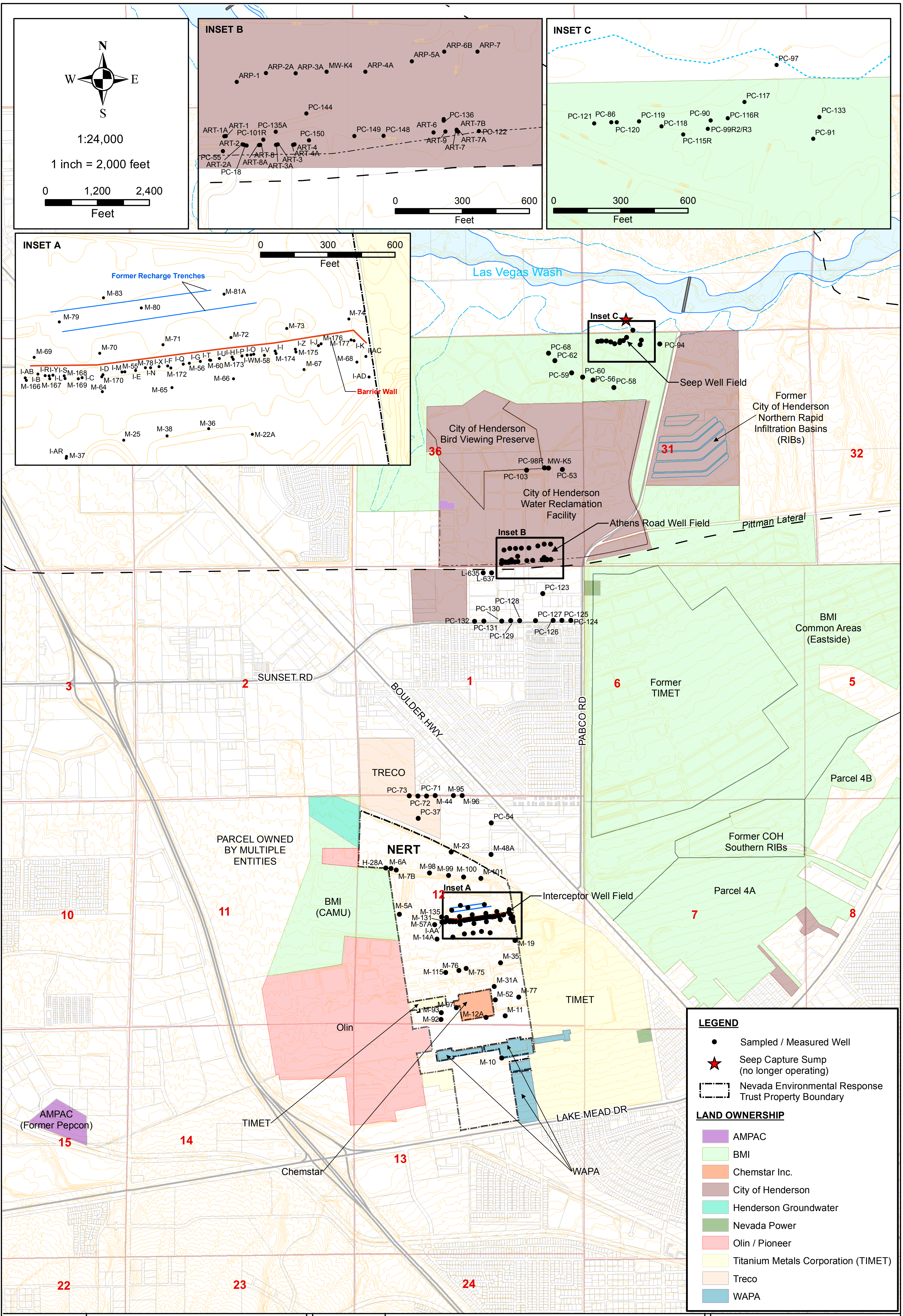

Figure
1a

Project No.: 21-37300A

WELL LOCATION MAP

Semi-Annual Remedial
Performance Report
Nevada Environmental Response Trust Site
Henderson, Nevada

DESIGNED BY:
EJK
DRAWN BY:
RS
CHECKED BY:
CJR
APPROVED BY:
CJR/KPL

REVISIONS

No.	DESCRIPTION:	DATE:	BY:
0	GENERATE APPROVED MAP	4/30/2015	RS

ENVIRON

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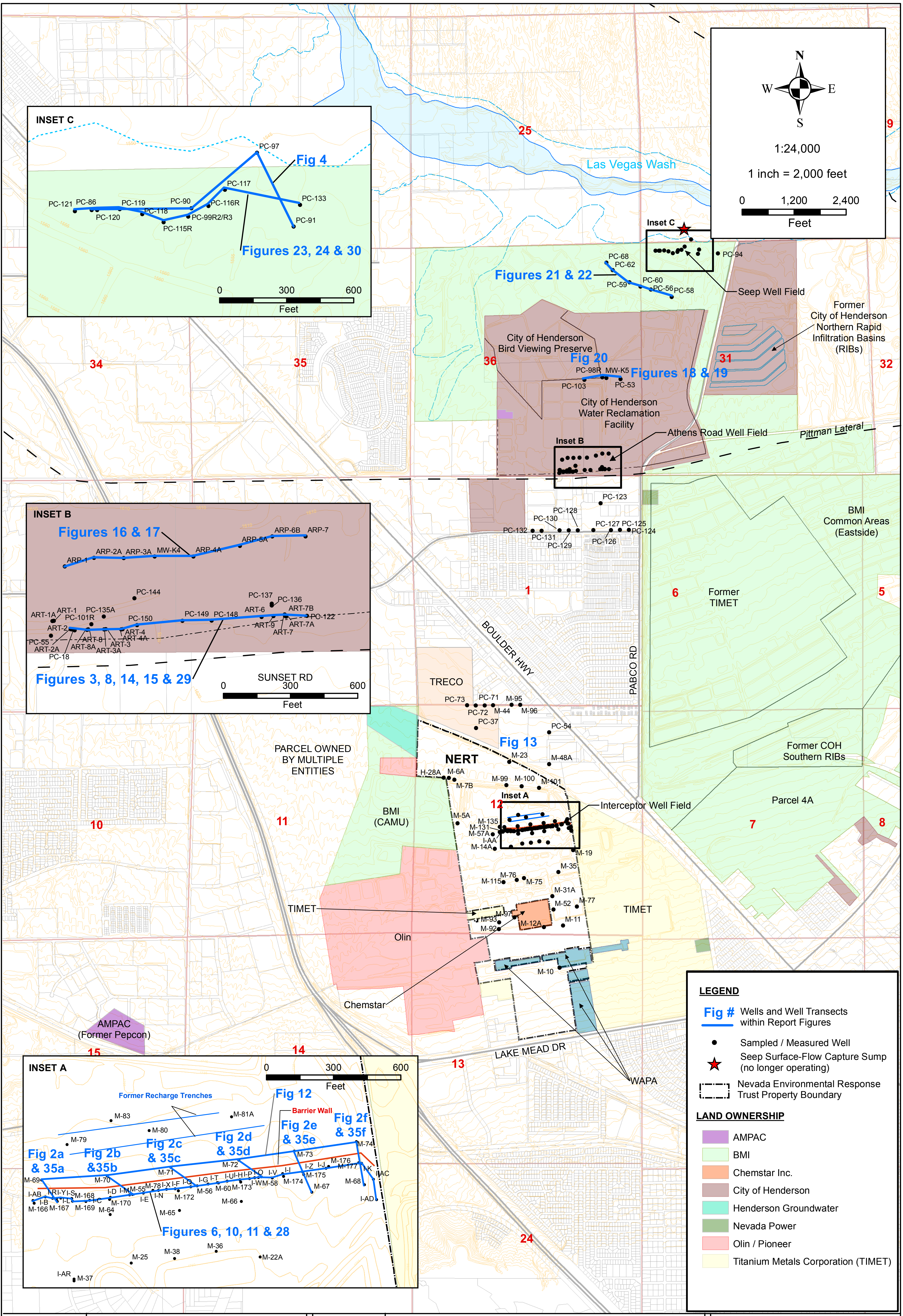

LEGEND

Fig #	Wells and Well Transects within Report Figures
●	Sampled / Measured Well
★	Seep Surface-Flow Capture Sump (no longer operating)
⌐¬	Nevada Environmental Response Trust Property Boundary

LAND OWNERSHIP

🟪	AMPAC
🟩	BMI
🟧	Chemstar Inc.
🟫	City of Henderson
🟦	Henderson Groundwater
🟩	Nevada Power
🟥	Olin / Pioneer
🟨	Titanium Metals Corporation (TIMET)

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Figure

1b

Project No.: 21-37300A

FIGURE LOCATION MAP

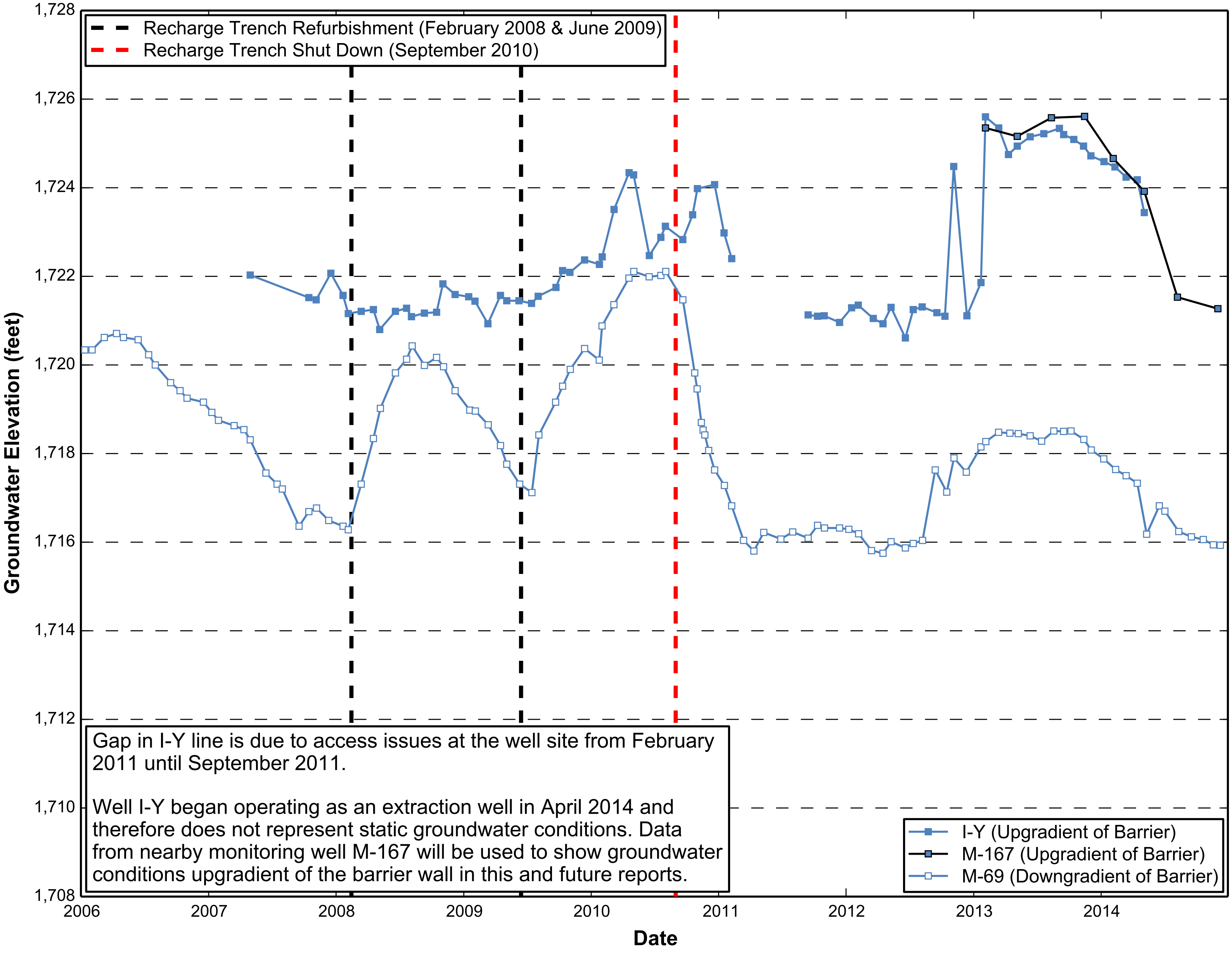
Semi-Annual Remedial
Performance Report
Nevada Environmental Response Trust Site
Henderson, Nevada

DESIGNED BY:	EJK
DRAWN BY:	RS
CHECKED BY:	CJR
APPROVED BY:	CJR/KPL

REVISIONS

No.	DESCRIPTION:	DATE:	BY:
0	GENERATE APPROVED MAP	4/30/2015	RS

ENVIRON



Gap in I-Y line is due to access issues at the well site from February 2011 until September 2011.

Well I-Y began operating as an extraction well in April 2014 and therefore does not represent static groundwater conditions. Data from nearby monitoring well M-167 will be used to show groundwater conditions upgradient of the barrier wall in this and future reports.

ENVIRON

Hydrograph Pair Across the Barrier Wall - M-69 and I-Y
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
2a

Drafter: JH | Date: 04/29/15 | Contract Number: 21-37300A | Approved: | Revised:

ENVIRON

Hydrograph Pair Across the Barrier Wall - M-70 and M-55
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
2b

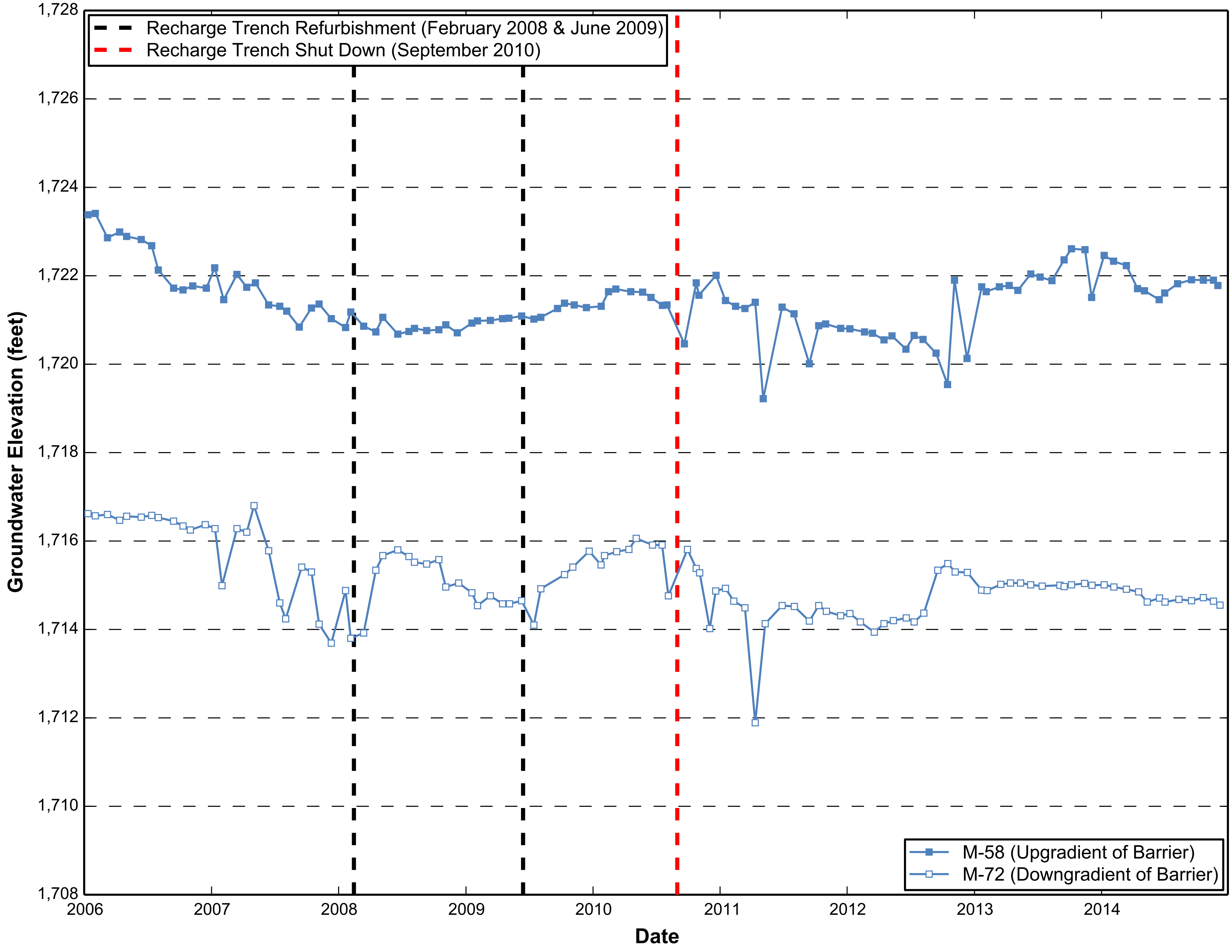
Drafter: JH	Date: 04/29/15	Contract Number: 21-37300A	Approved:	Revised:

ENVIRON

Hydrograph Pair Across the Barrier Wall - M-71 and M-56
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
2c

Drafter: JH
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:

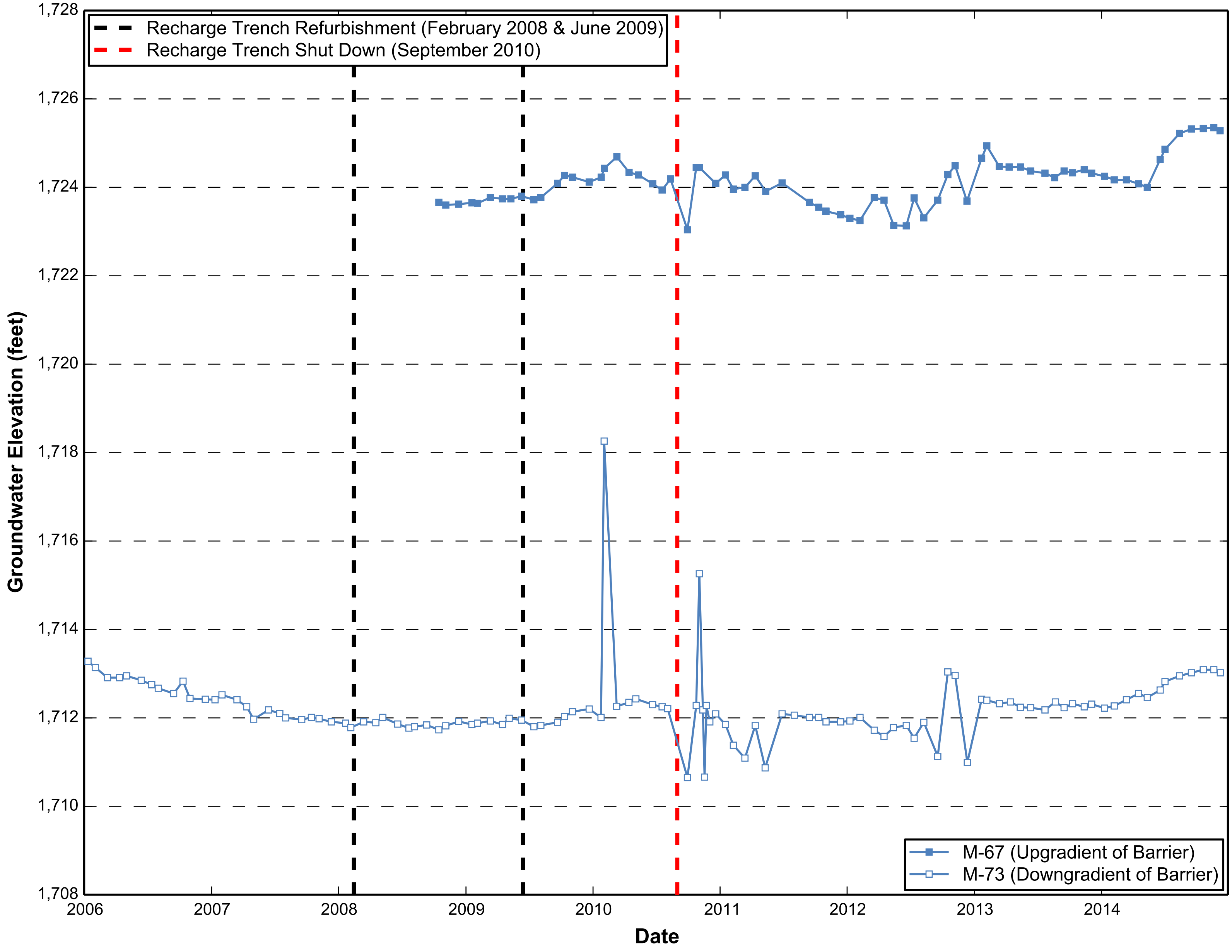


ENVIRON

Hydrograph Pair Across the Barrier Wall - M-72 and M-58
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
2d

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:



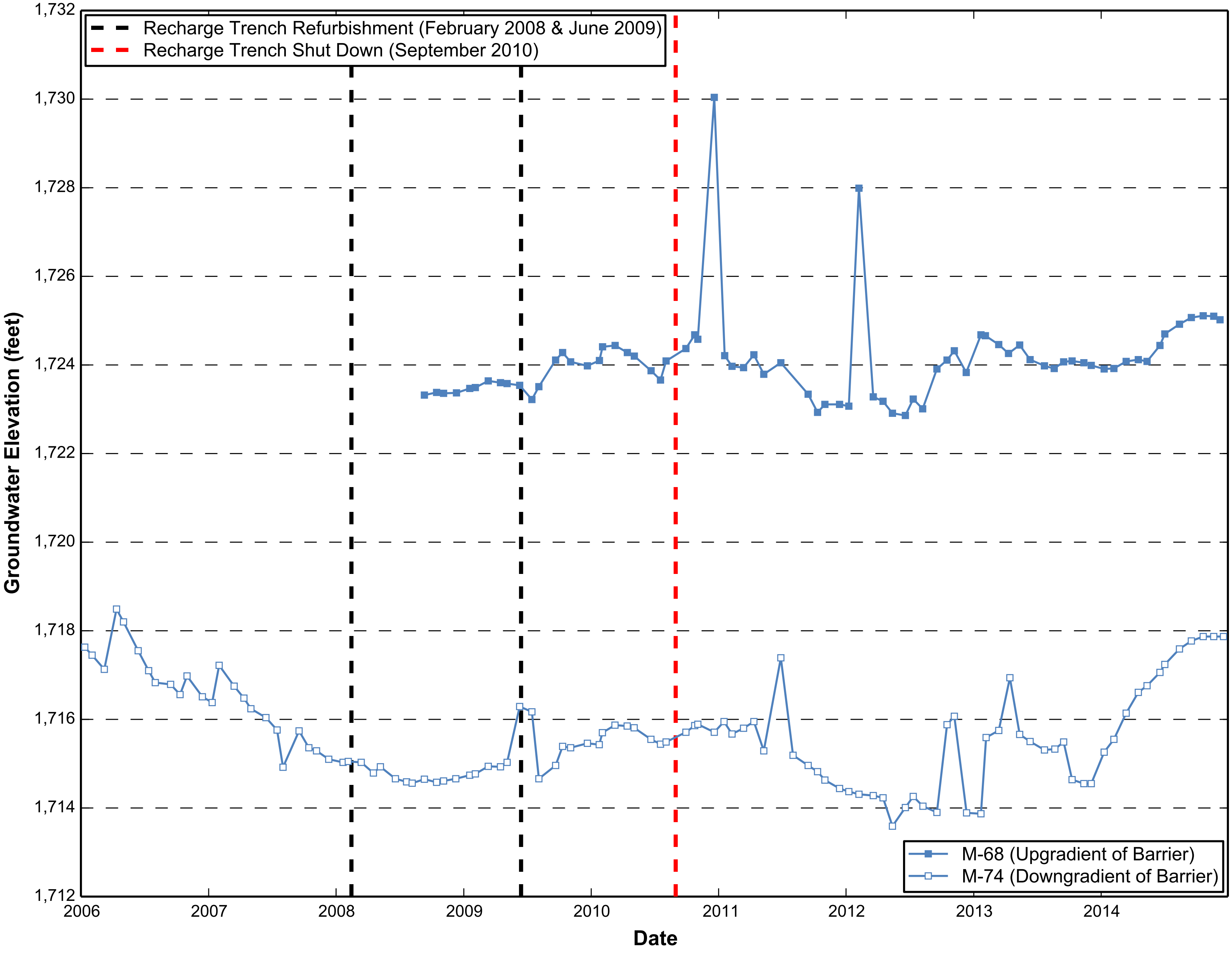
ENVIRON

Hydrograph Pair Across the Barrier Wall - M-73 and M-67
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

2e

Drafter: JH	Date: 04/29/15	Contract Number: 21-37300A	Approved:	Revised:

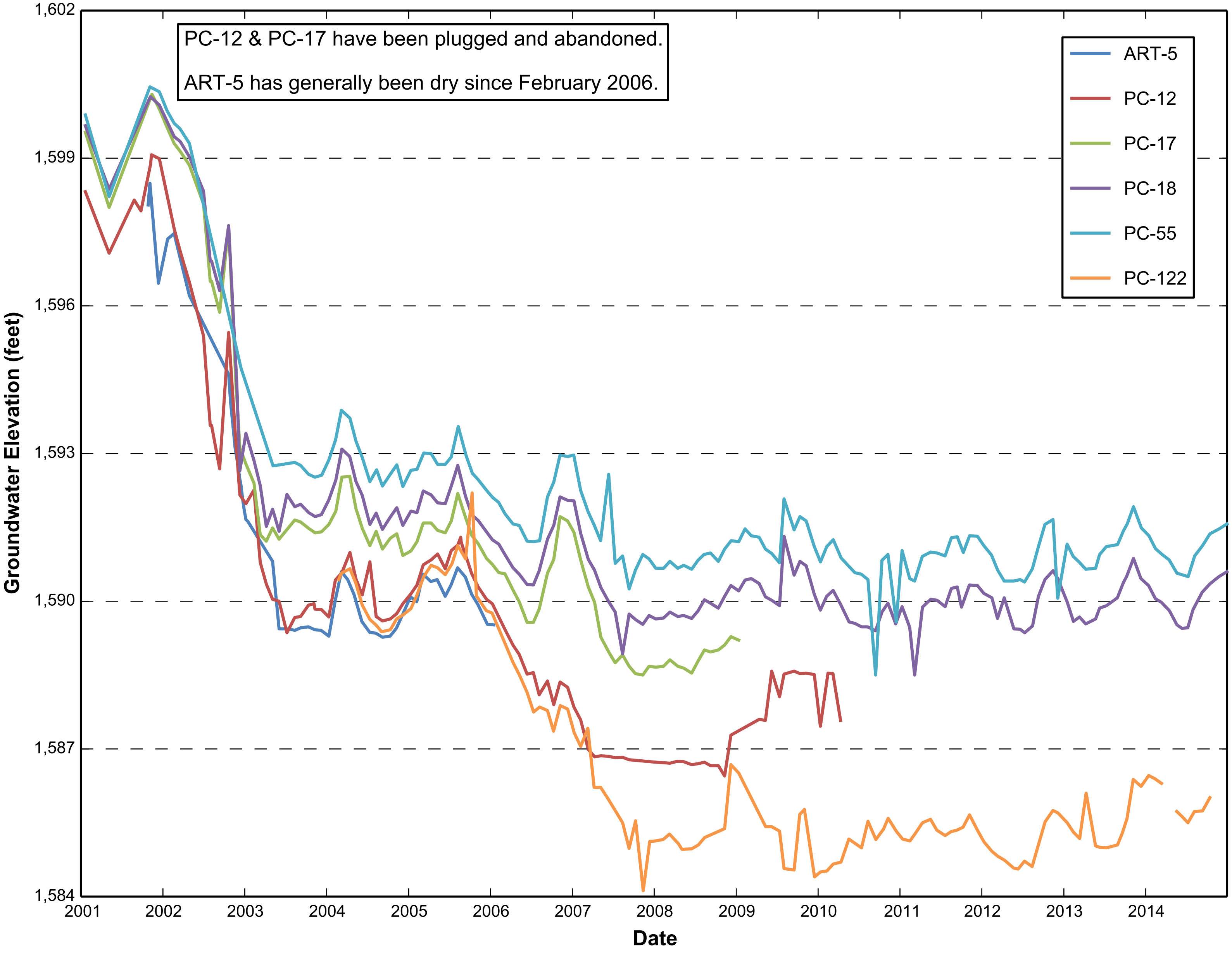


ENVIRON

Hydrograph Pair Across the Barrier Wall - M-74 and M-68
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
2f

Drafter: JH
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:

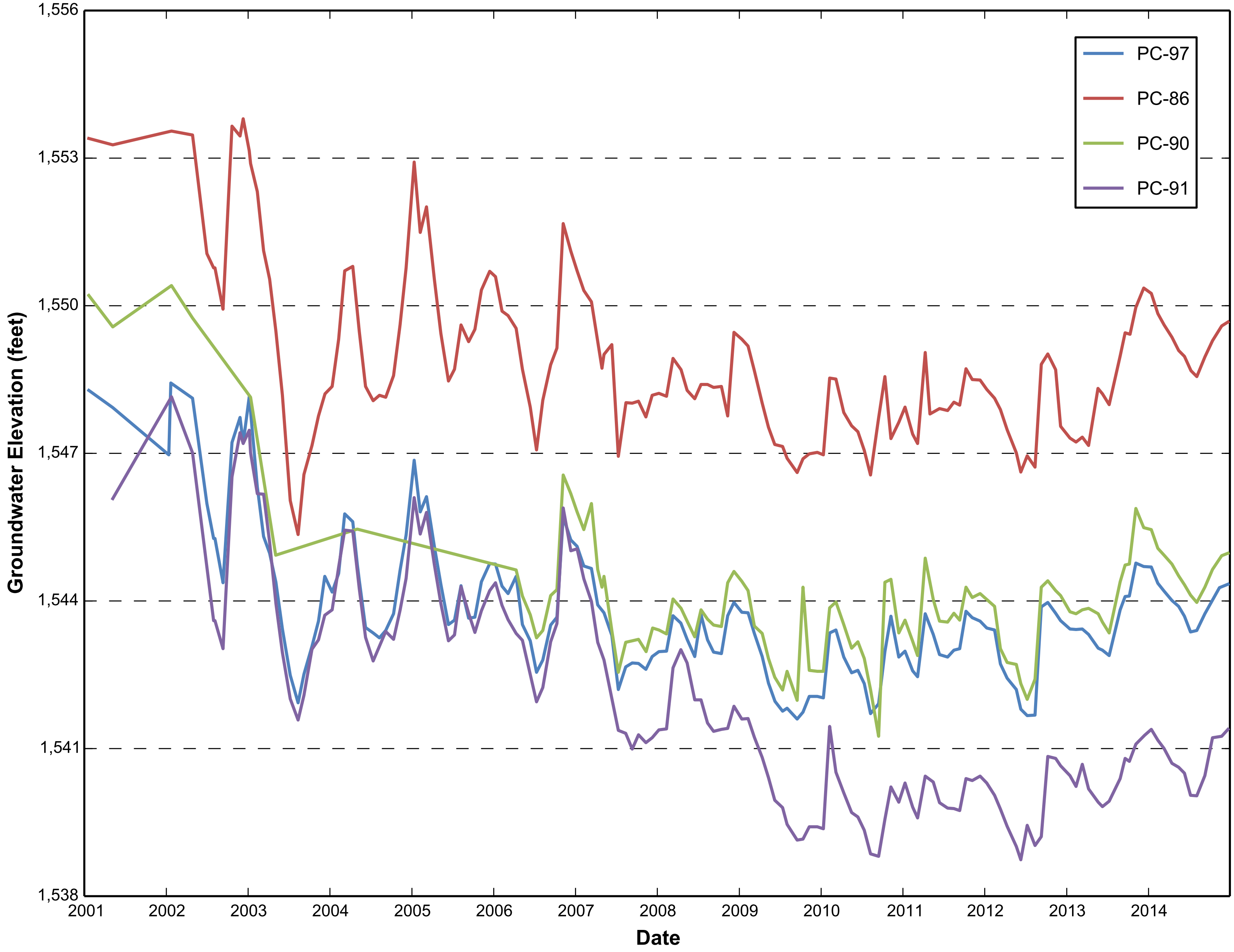


ENVIRON

Athens Road Well Field Drawdown
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
3

Drafter: JH
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:

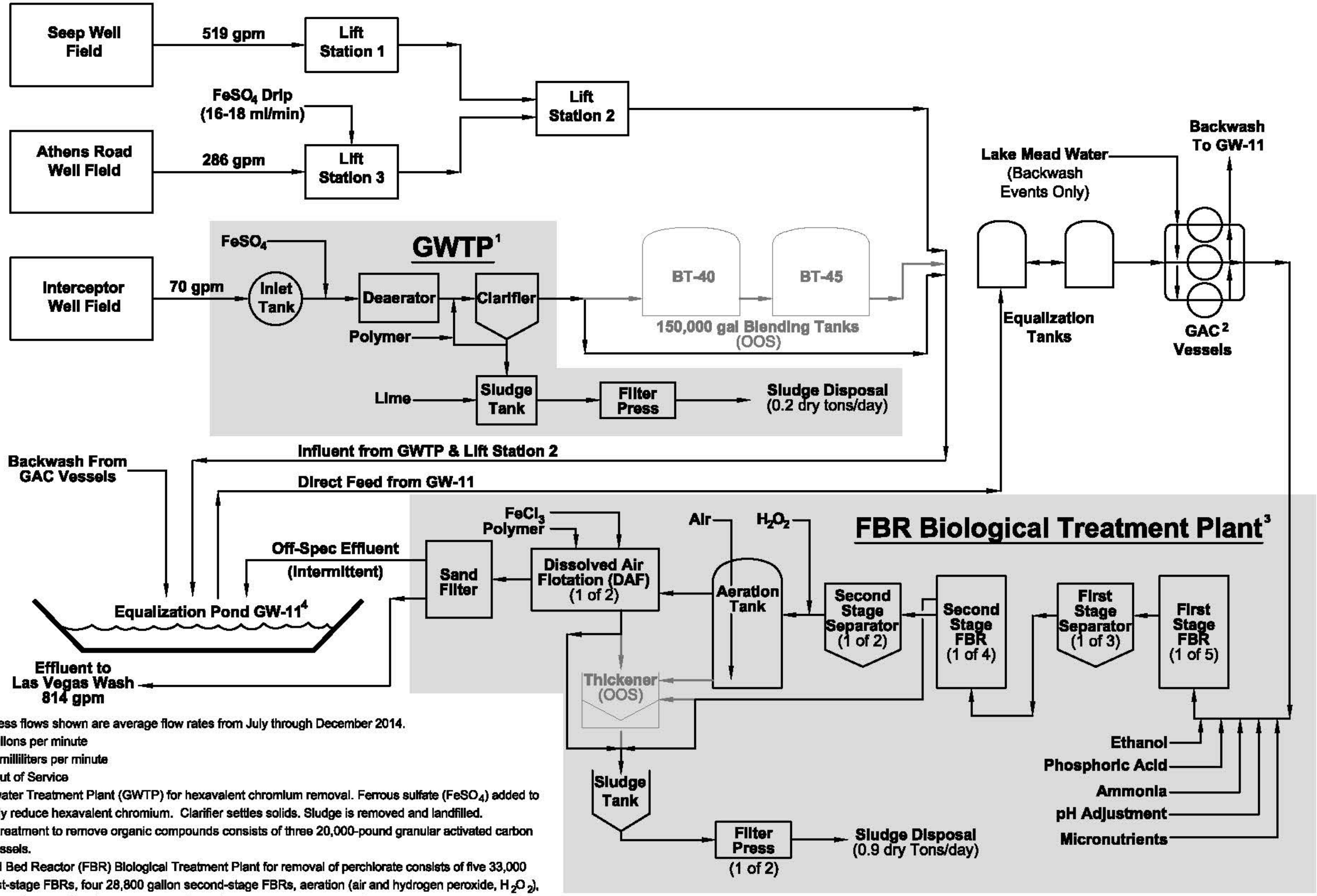


ENVIRON

Seep Well Field Drawdown
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
4

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:



NOTES:

The process flows shown are average flow rates from July through December 2014.

gpm = gallons per minute

ml/min = milliliters per minute

OOS = Out of Service

1) Groundwater Treatment Plant (GWTP) for hexavalent chromium removal. Ferrous sulfate ($FeSO_4$) added to chemically reduce hexavalent chromium. Clarifier settles solids. Sludge is removed and landfilled.

2) Carbon treatment to remove organic compounds consists of three 20,000-pound granular activated carbon (GAC) vessels.

3) Fluidized Bed Reactor (FBR) Biological Treatment Plant for removal of perchlorate consists of five 33,000 gallon first-stage FBRs, four 28,800 gallon second-stage FBRs, aeration (air and hydrogen peroxide, H_2O_2), dissolved air flotation (DAF), two plate and frame filter presses, and a sand filter.

4) GW-11 operated as an equalization basin from March 27 through August 6, 2014. After that date, groundwater entered the equalization tanks directly from lift station 2 and the GWTP.

ENVIRON

Groundwater Extraction and Treatment System (GWETS) Flow Diagram
Nevada Environmental Response Trust (NERT)
Henderson, Nevada

Figure
5

Drafter: RS Date: 3/25/15 Contract Number: 21-37300A Approved: Revised:

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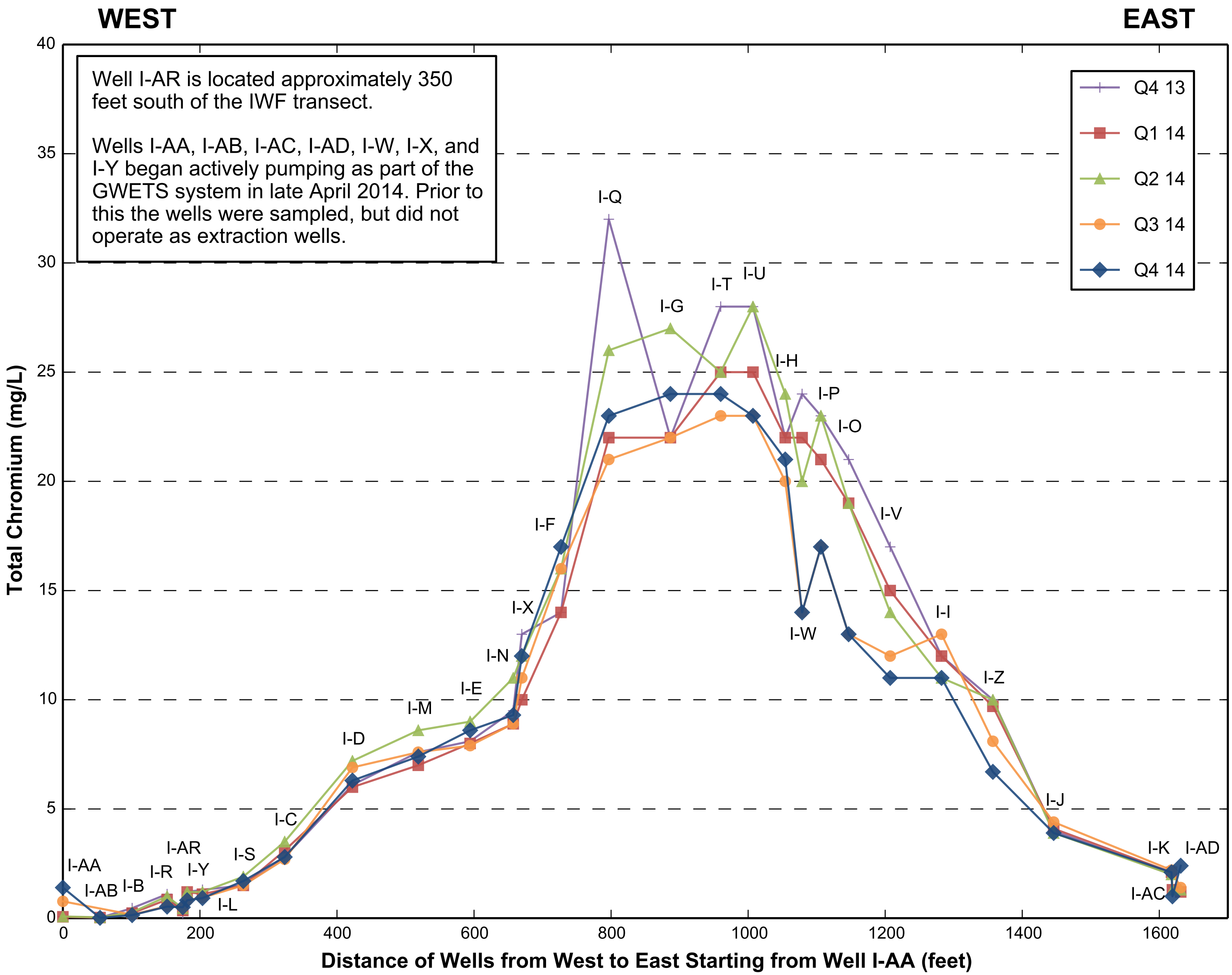

Well I-AR is located approximately 350 feet south of the IWF transect.

Wells I-AA, I-AB, I-AC, I-AD, I-W, I-X, and I-Y began actively pumping as part of the GWETS system in late April 2014. Prior to this the wells were sampled, but did not operate as extraction wells.

ENVIRON

Interceptor Well Field Total Chromium Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
6

Drafter: JH
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:

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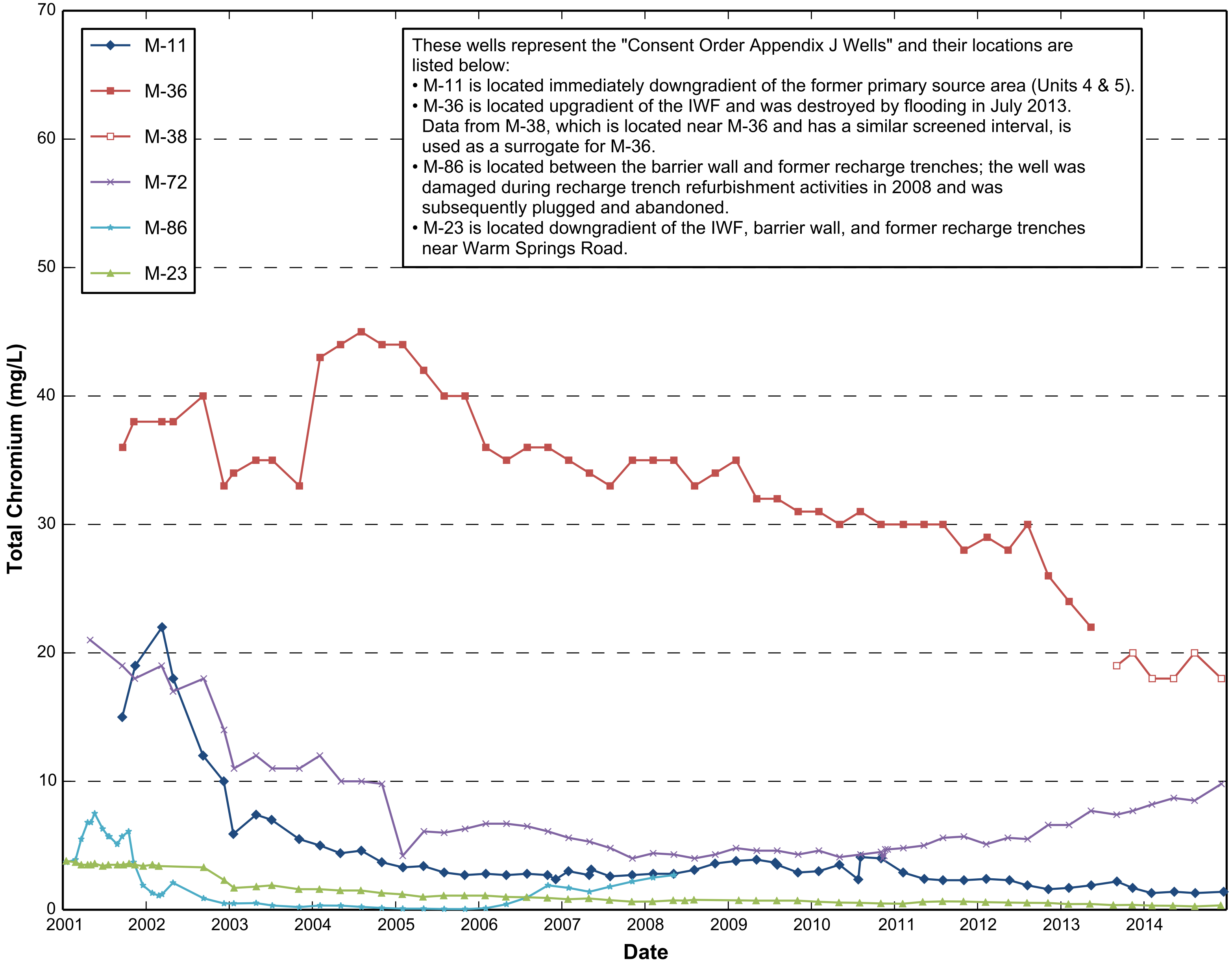

These wells represent the "Consent Order Appendix J Wells" and their locations are listed below:

- M-11 is located immediately downgradient of the former primary source area (Units 4 & 5).
- M-36 is located upgradient of the IWF and was destroyed by flooding in July 2013. Data from M-38, which is located near M-36 and has a similar screened interval, is used as a surrogate for M-36.
- M-86 is located between the barrier wall and former recharge trenches; the well was damaged during recharge trench refurbishment activities in 2008 and was subsequently plugged and abandoned.
- M-23 is located downgradient of the IWF, barrier wall, and former recharge trenches near Warm Springs Road.

ENVIRON

Total Chromium Concentration Trends for Select Wells
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
7

Drafter: KGL | Date: 04/29/15 | Contract Number: 21-37300A | Approved: | Revised:

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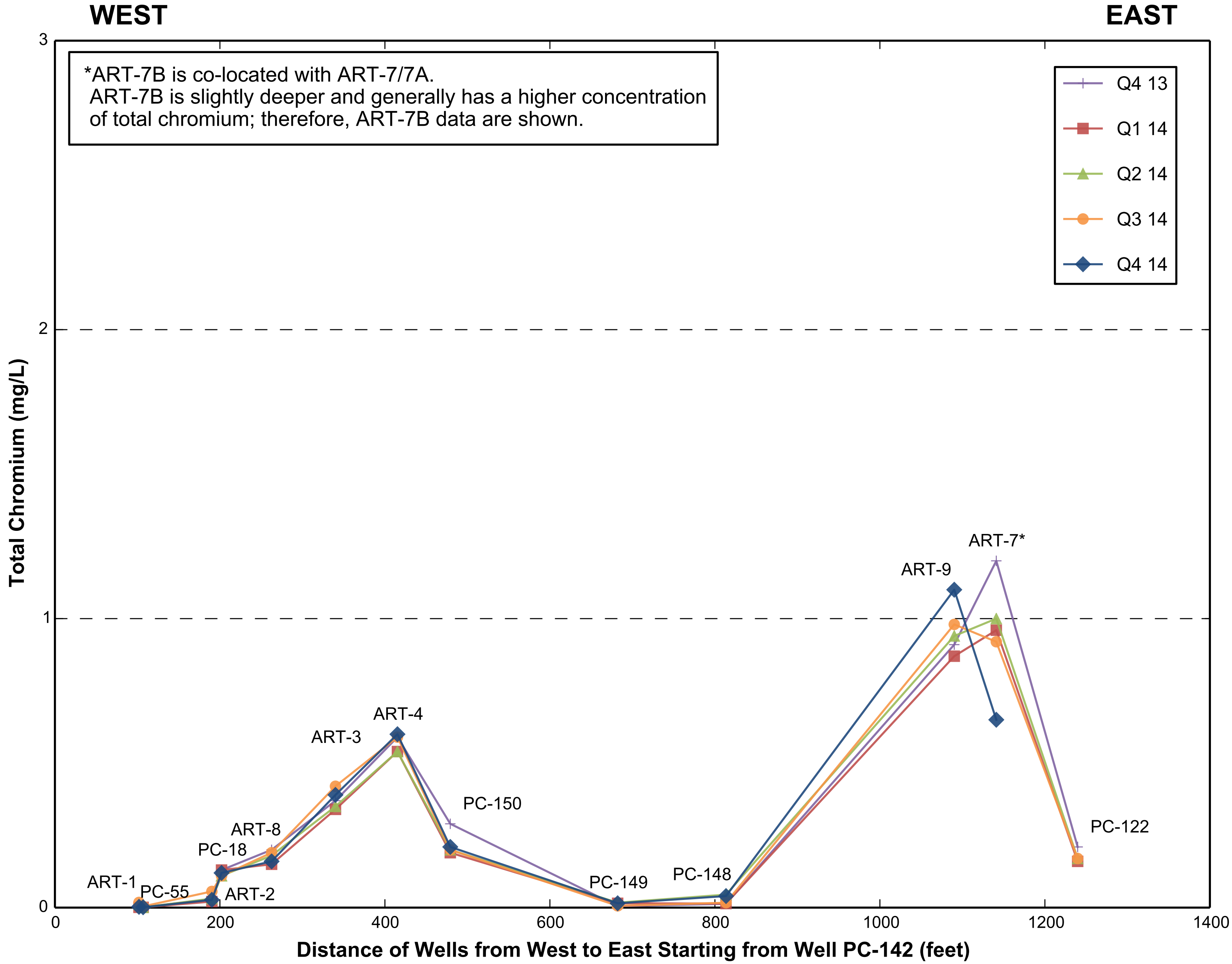

ENVIRON

Athens Road Well Field Total Chromium Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
8

Drafter: JH | Date: 04/29/15 | Contract Number: 21-37300A | Approved: | Revised:

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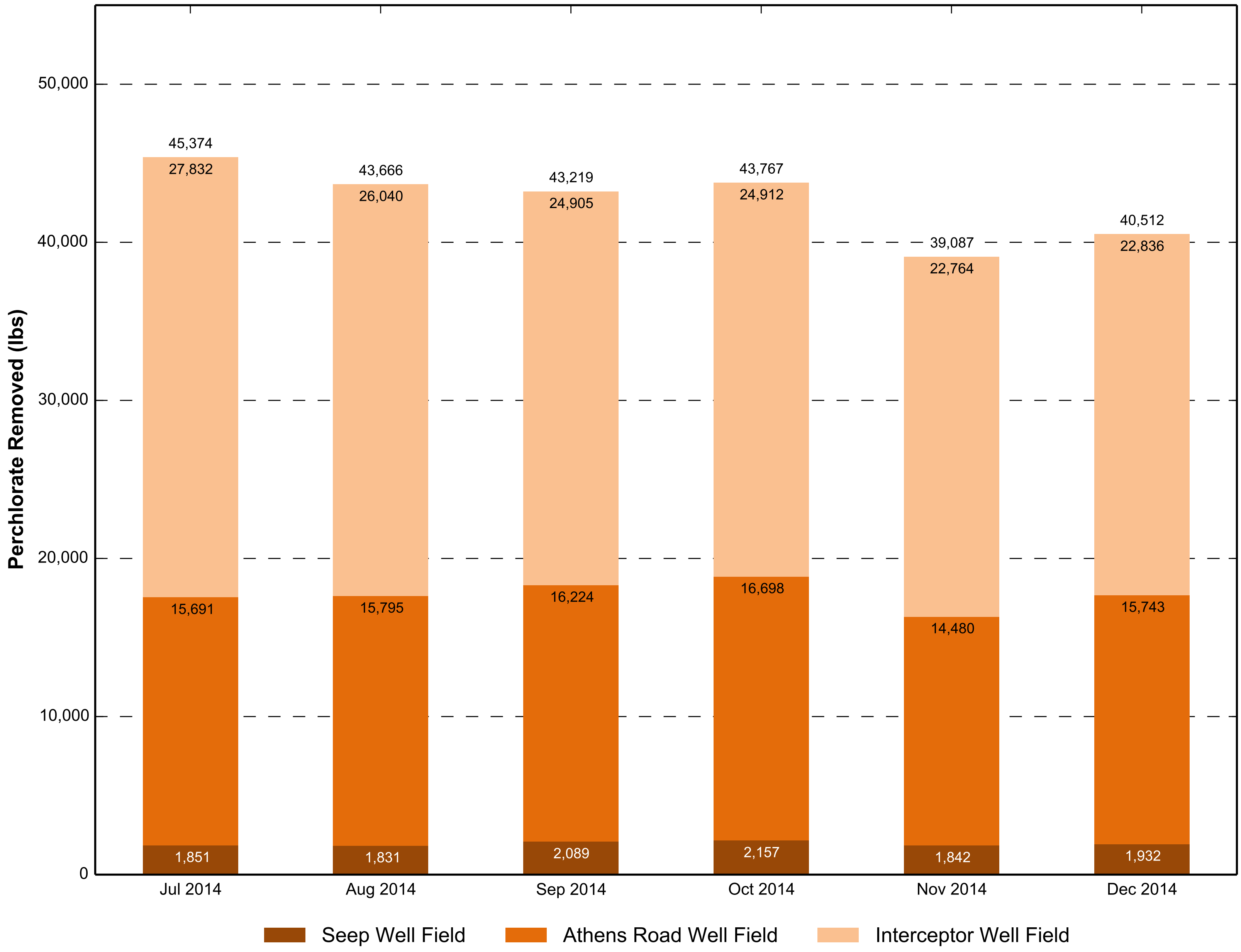

ENVIRON

Perchlorate Removed from the Environment July - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

9

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:

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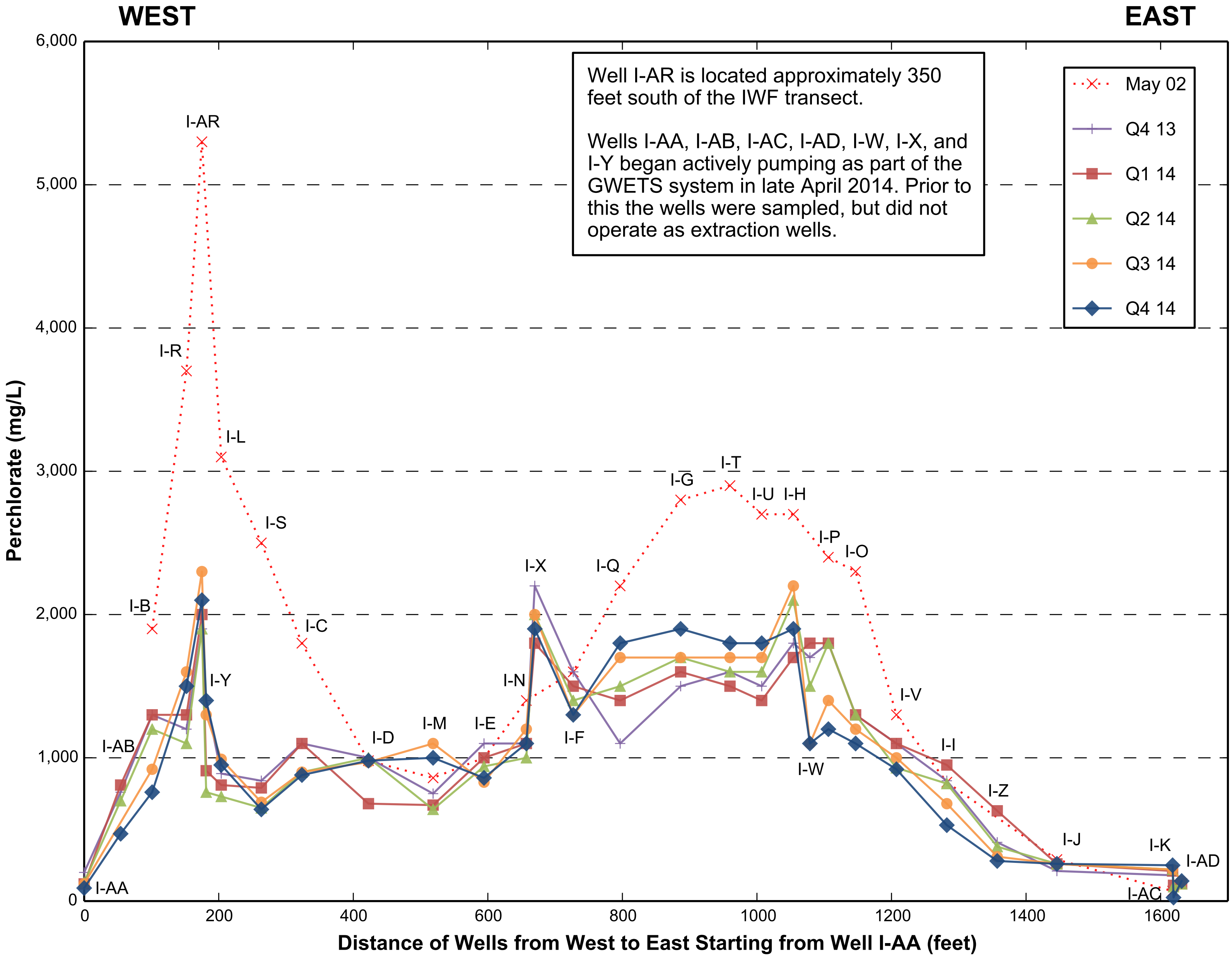


Well I-AR is located approximately 350 feet south of the IWF transect.

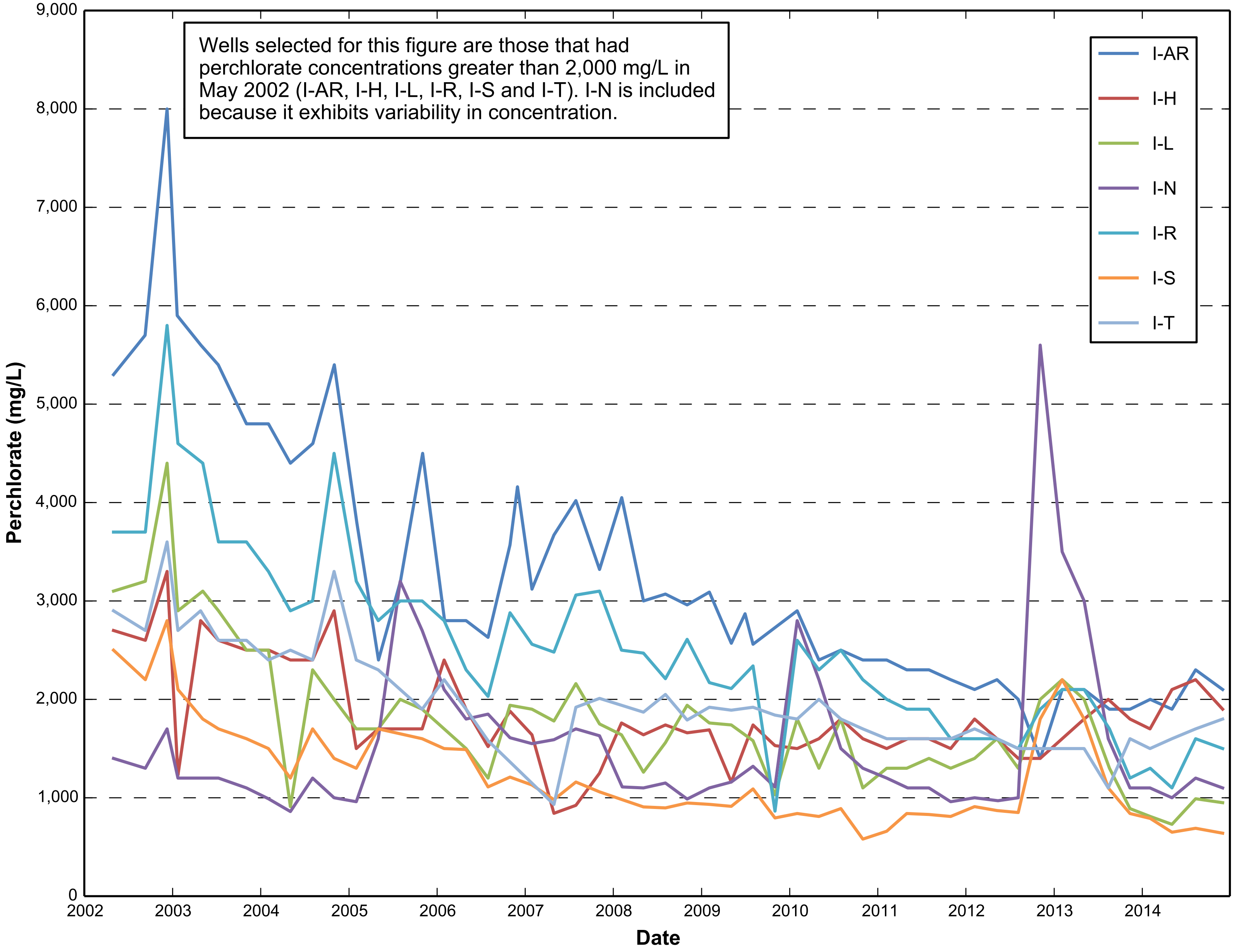
Wells I-AA, I-AB, I-AC, I-AD, I-W, I-X, and I-Y began actively pumping as part of the GWETS system in late April 2014. Prior to this the wells were sampled, but did not operate as extraction wells.

ENVIRON

Interceptor Well Field Perchlorate Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
10

Drafter: JH
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:



Wells selected for this figure are those that had perchlorate concentrations greater than 2,000 mg/L in May 2002 (I-AR, I-H, I-L, I-R, I-S and I-T). I-N is included because it exhibits variability in concentration.

ENVIRON

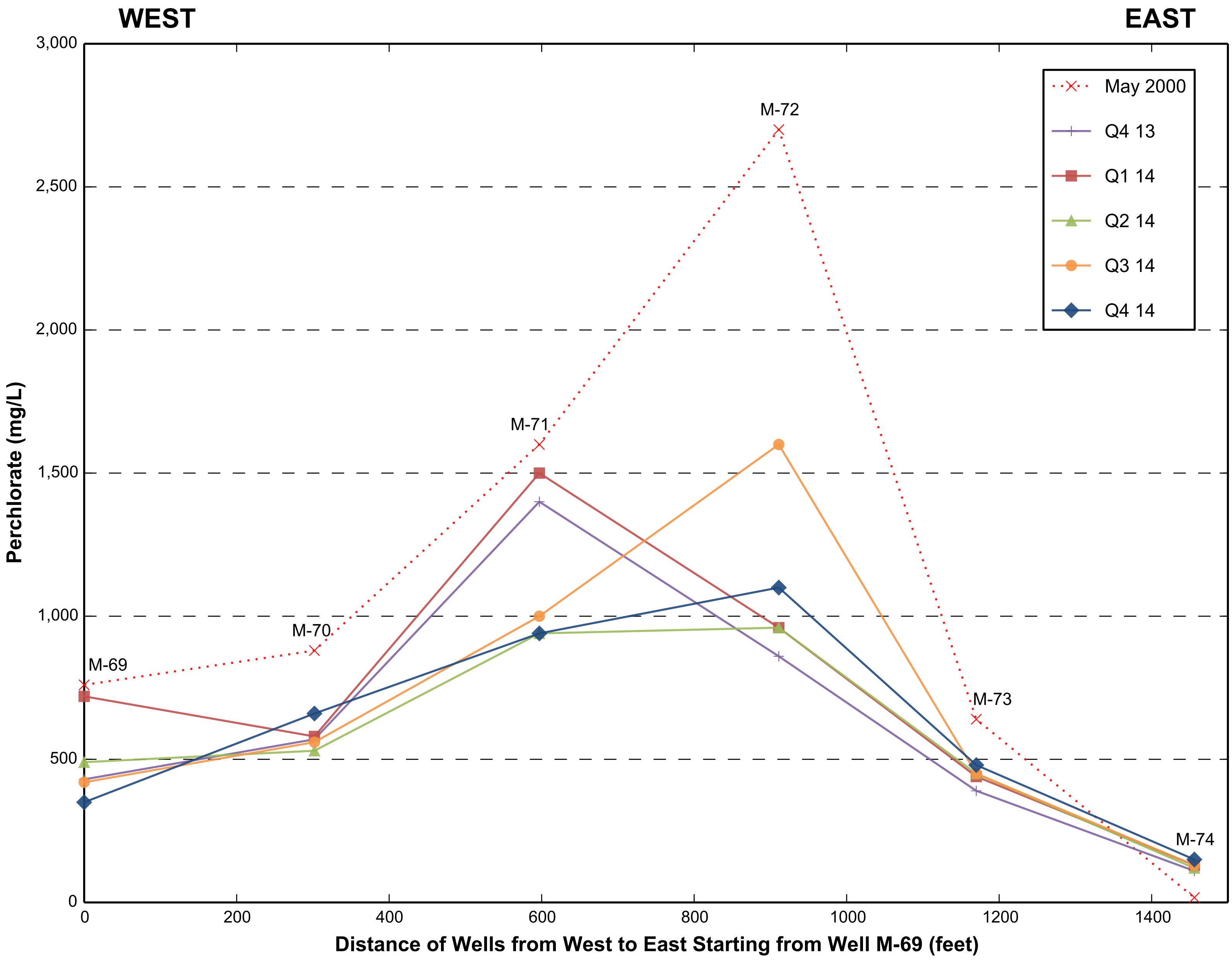
Interceptor Well Field Perchlorate Concentration Trends for Select Wells
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

11

Drafter: KGL Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:

Path: H:\LePetomane\NERT\GWM\Annual Performance Reports\2014 semi-Annual\Figures\RunNERTFigs.py



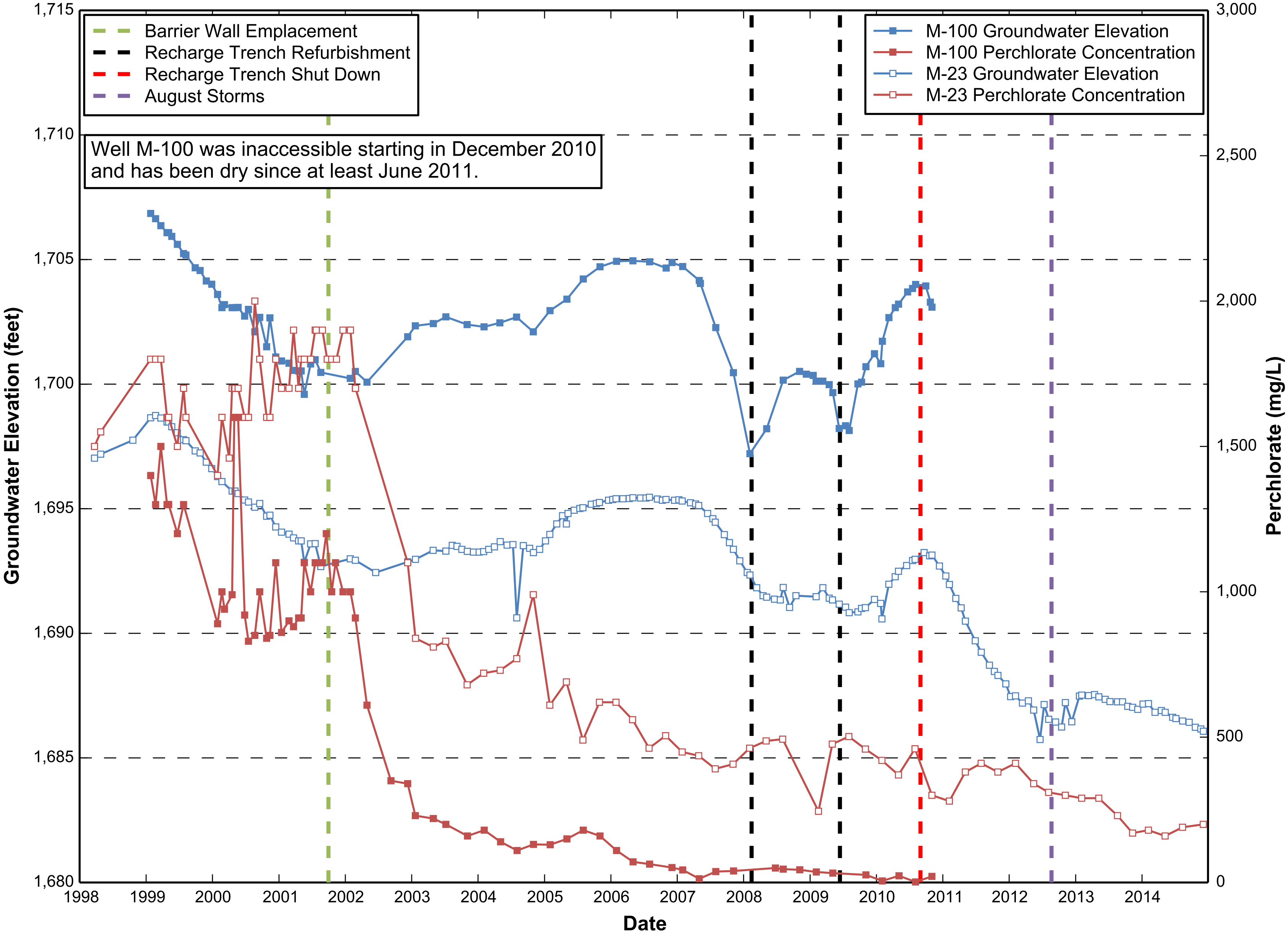
ENVIRON

Barrier Wall Well Line Perchlorate Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
12

Drafter: JH
Date: 04/30/15
Contract Number: 21-37300A
Approved:
Revised:

Path: H:\LePetomane\NERT\GWM\Annual Performance Reports\2014 semi-Annual\Figures\RunNERTFigs.py



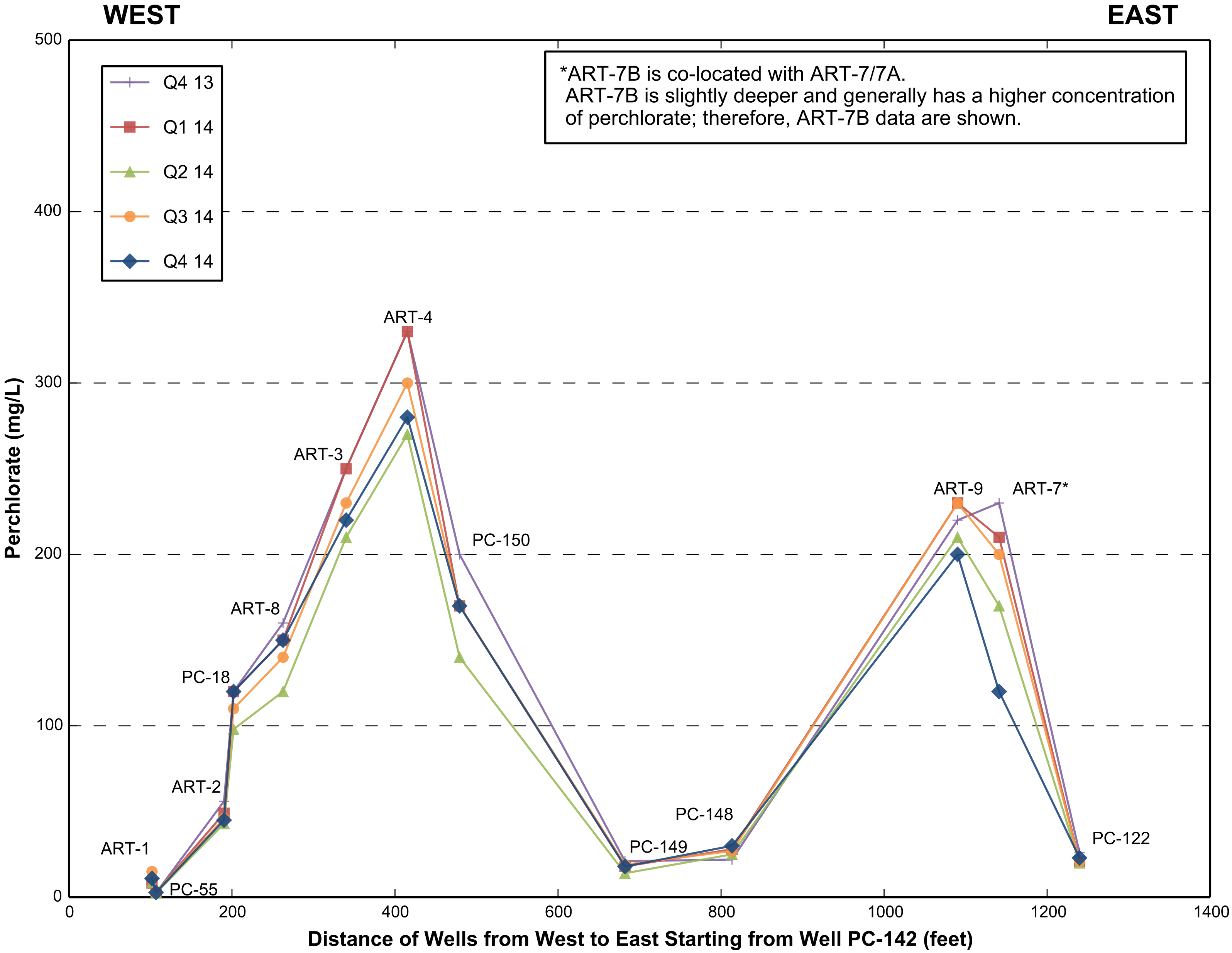
ENVIRON

Wells M-100 and M-23 Perchlorate Concentrations vs. Groundwater Elevation Trends
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

13

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:



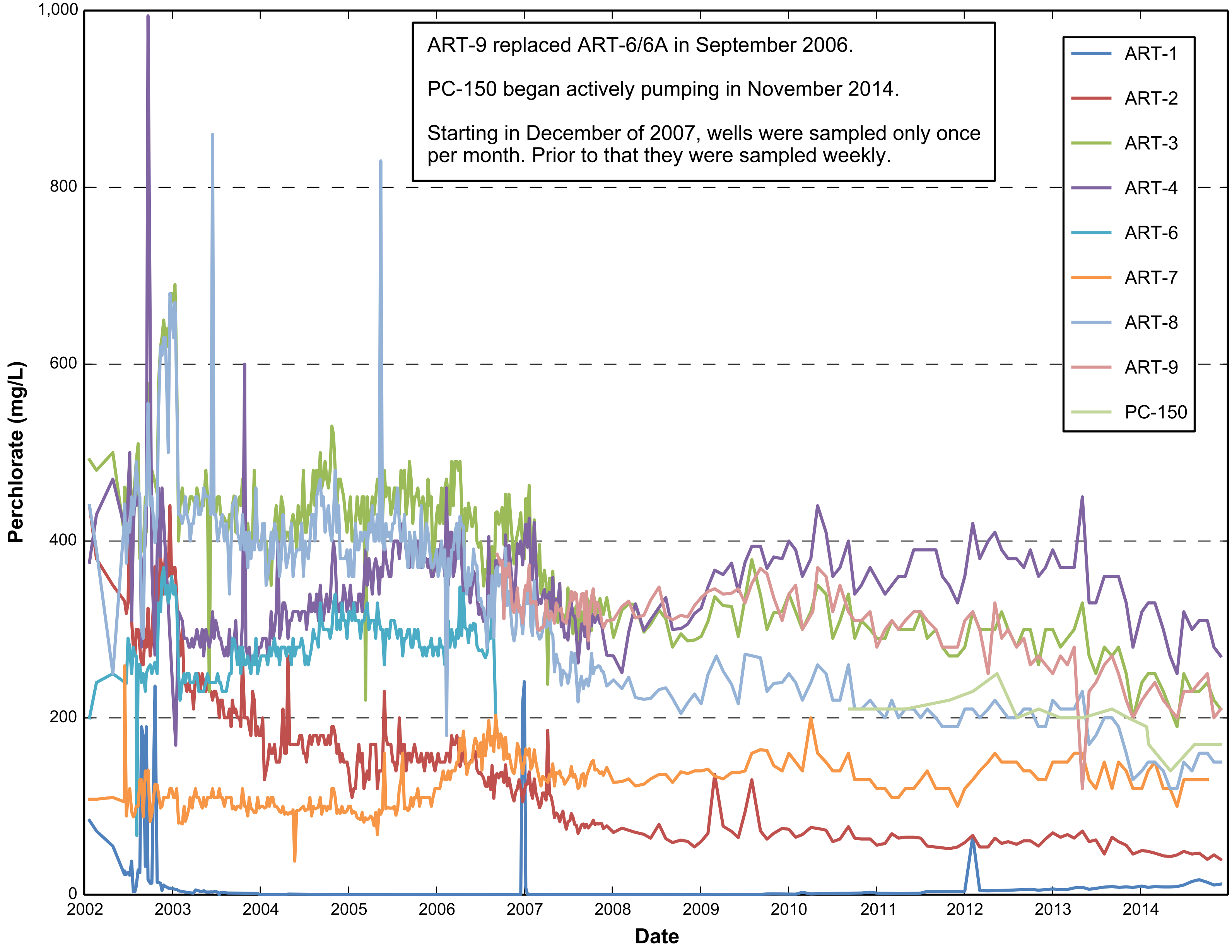
*ART-7B is co-located with ART-7/7A.
ART-7B is slightly deeper and generally has a higher concentration of perchlorate; therefore, ART-7B data are shown.

ENVIRON

Athens Road Well Field Perchlorate Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
14

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:



ART-9 replaced ART-6/6A in September 2006.

PC-150 began actively pumping in November 2014.

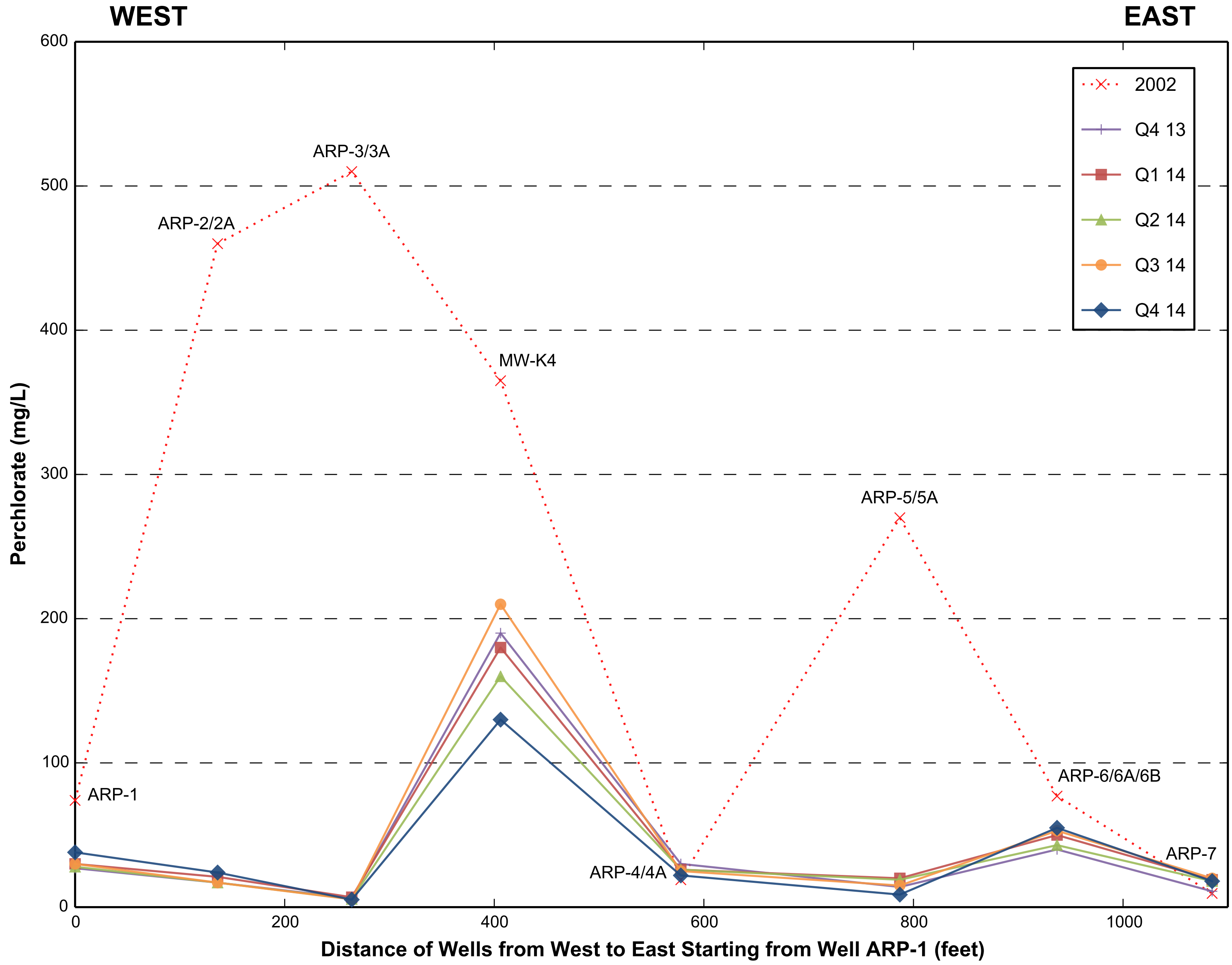
Starting in December of 2007, wells were sampled only once per month. Prior to that they were sampled weekly.

ENVIRON

Athens Road Well Field Perchlorate Concentration Trends
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
15

Drafter: KGL | Date: 04/29/15 | Contract Number: 21-37300A | Approved: | Revised:

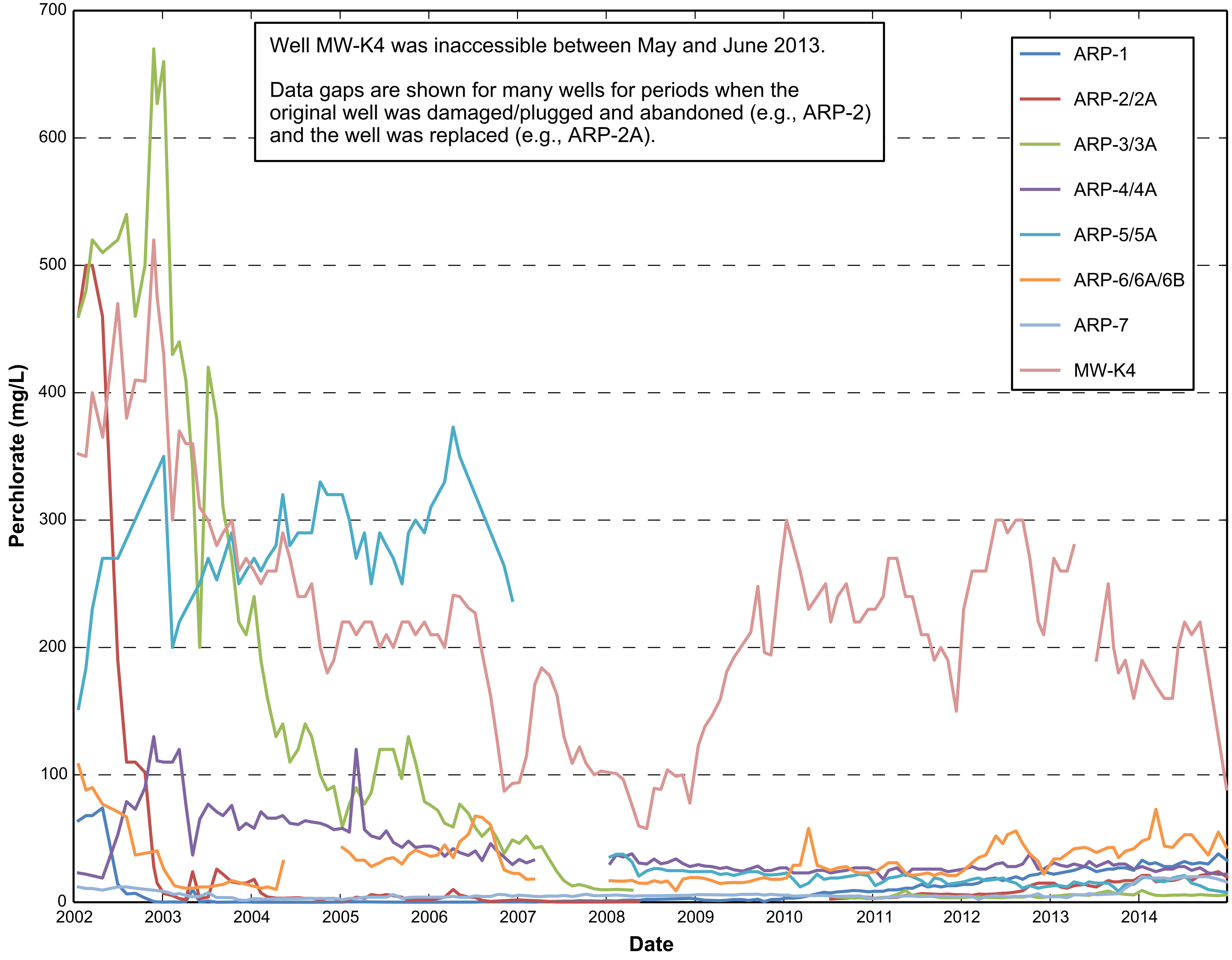


ENVIRON

Athens Road Piezometer Well Line Perchlorate Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
16

Drafter: JH
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:

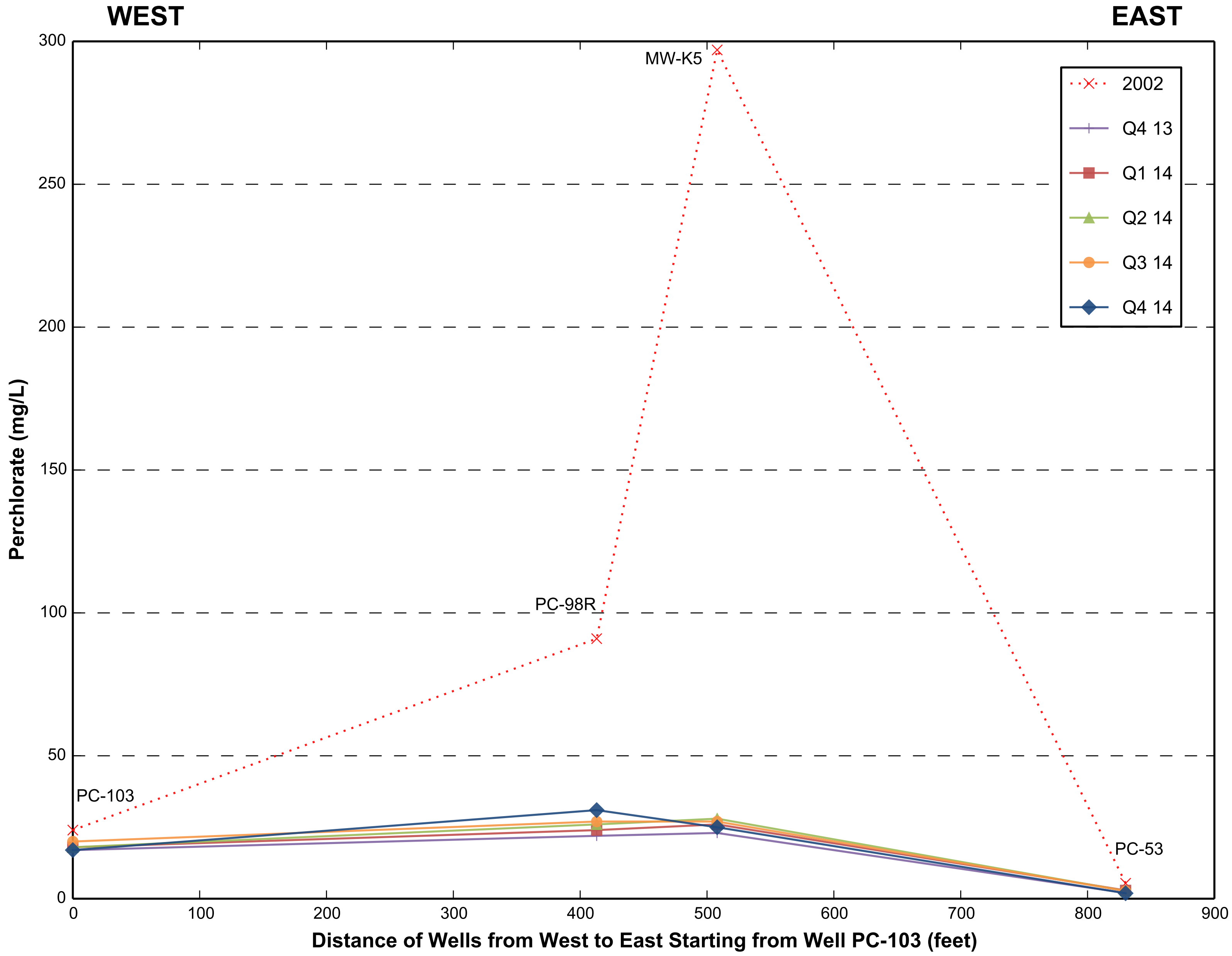


ENVIRON

Athens Road Piezometer Well Line Perchlorate Concentration Trends
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
17

Drafter: KGL	Date: 04/29/15	Contract Number: 21-37300A	Approved:	Revised:

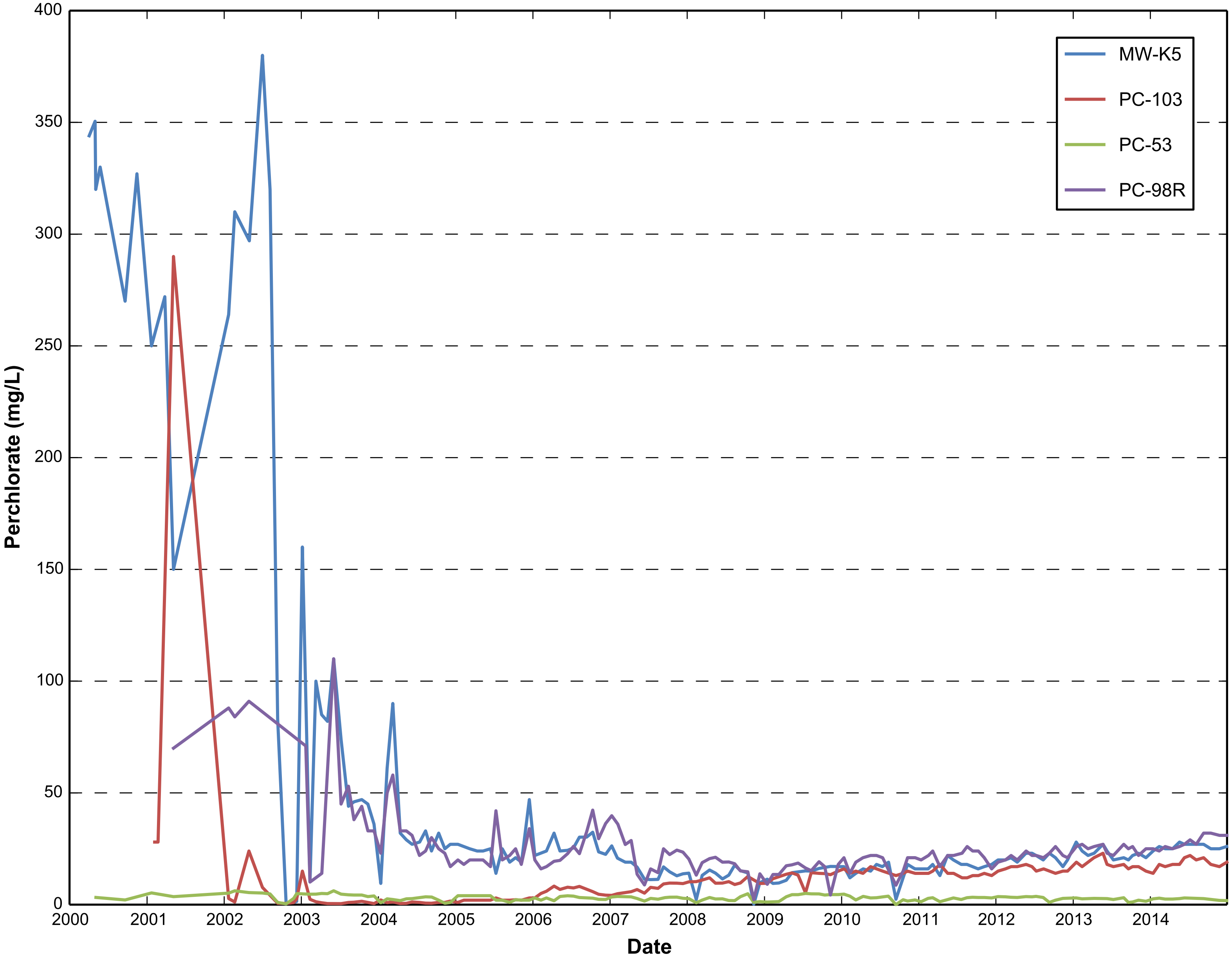


ENVIRON

City of Henderson WRF Well Line Perchlorate Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
18

Drafter: JH | Date: 04/29/15 | Contract Number: 21-37300A | Approved: | Revised:



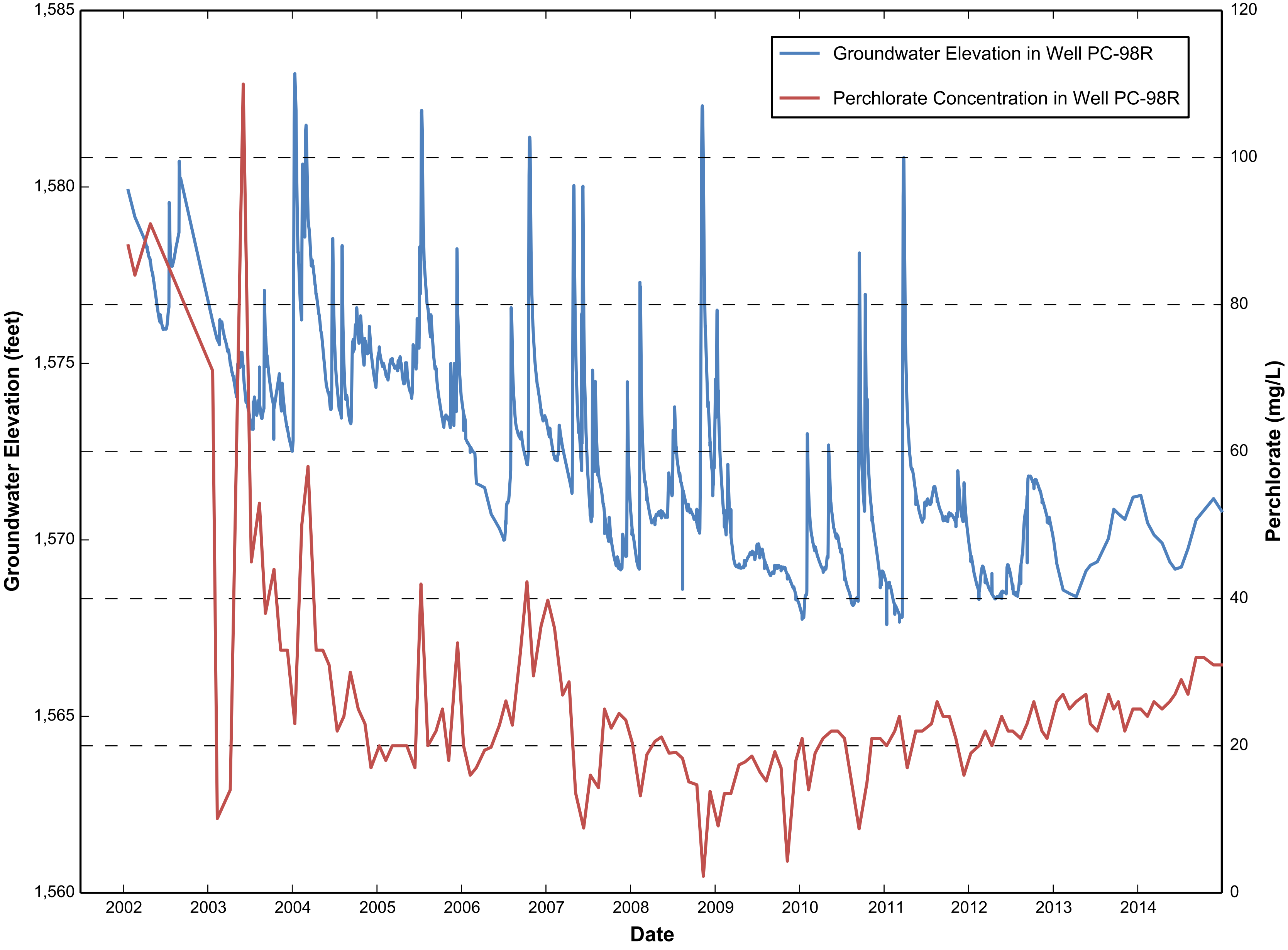
ENVIRON

City of Henderson WRF Well Line Perchlorate Concentration Trends
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
19

Drafter: KGL	Date: 04/29/15	Contract Number: 21-37300A	Approved:	Revised:

Path: H:\LePetomane\NERT\GWM\Annual Performance Reports\2014 semi-Annual\Figures\RunNERTFigs.py

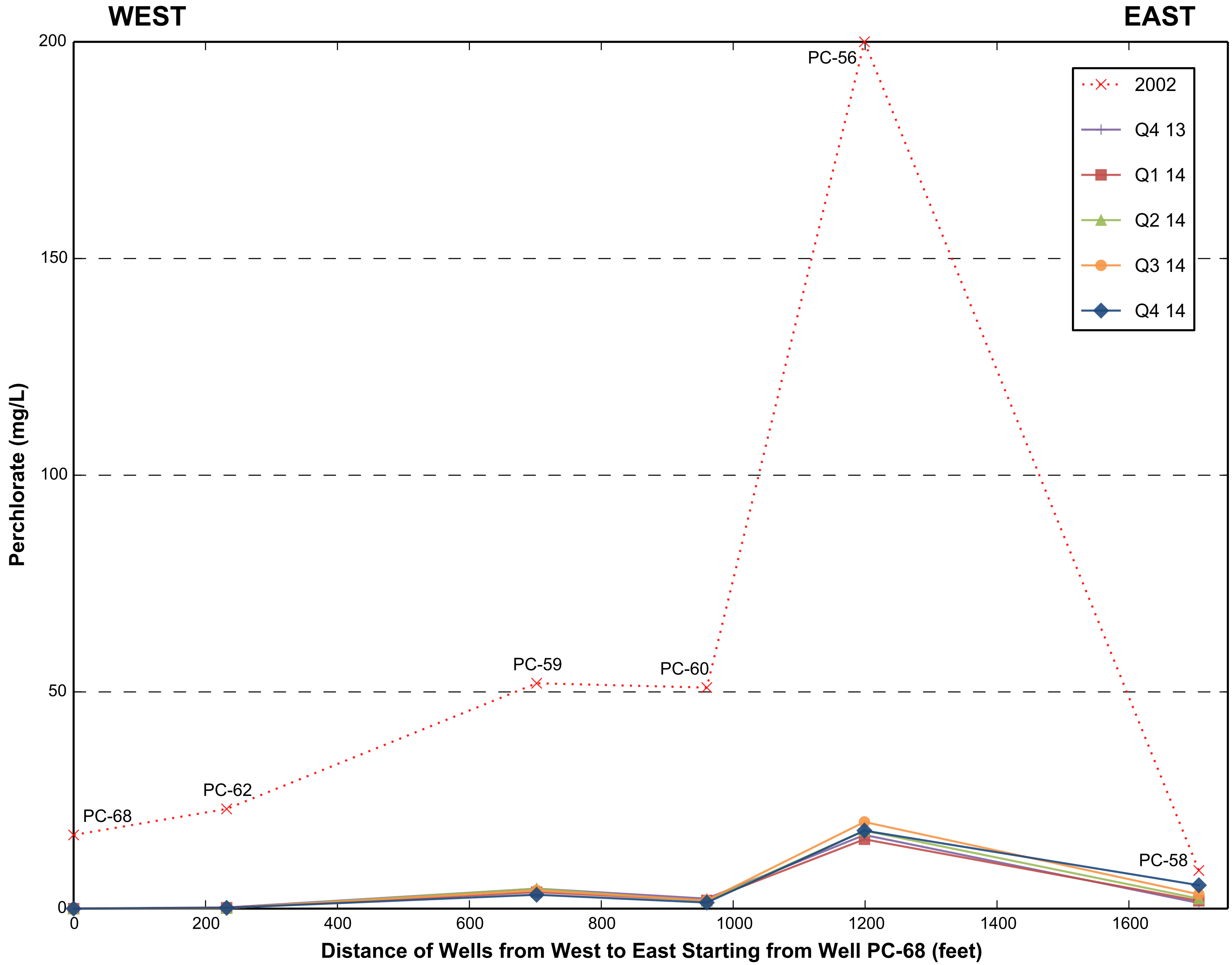


ENVIRON

Well PC-98R Perchlorate Concentration vs. Water Elevation Trends
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
20

Drafter: JH
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:



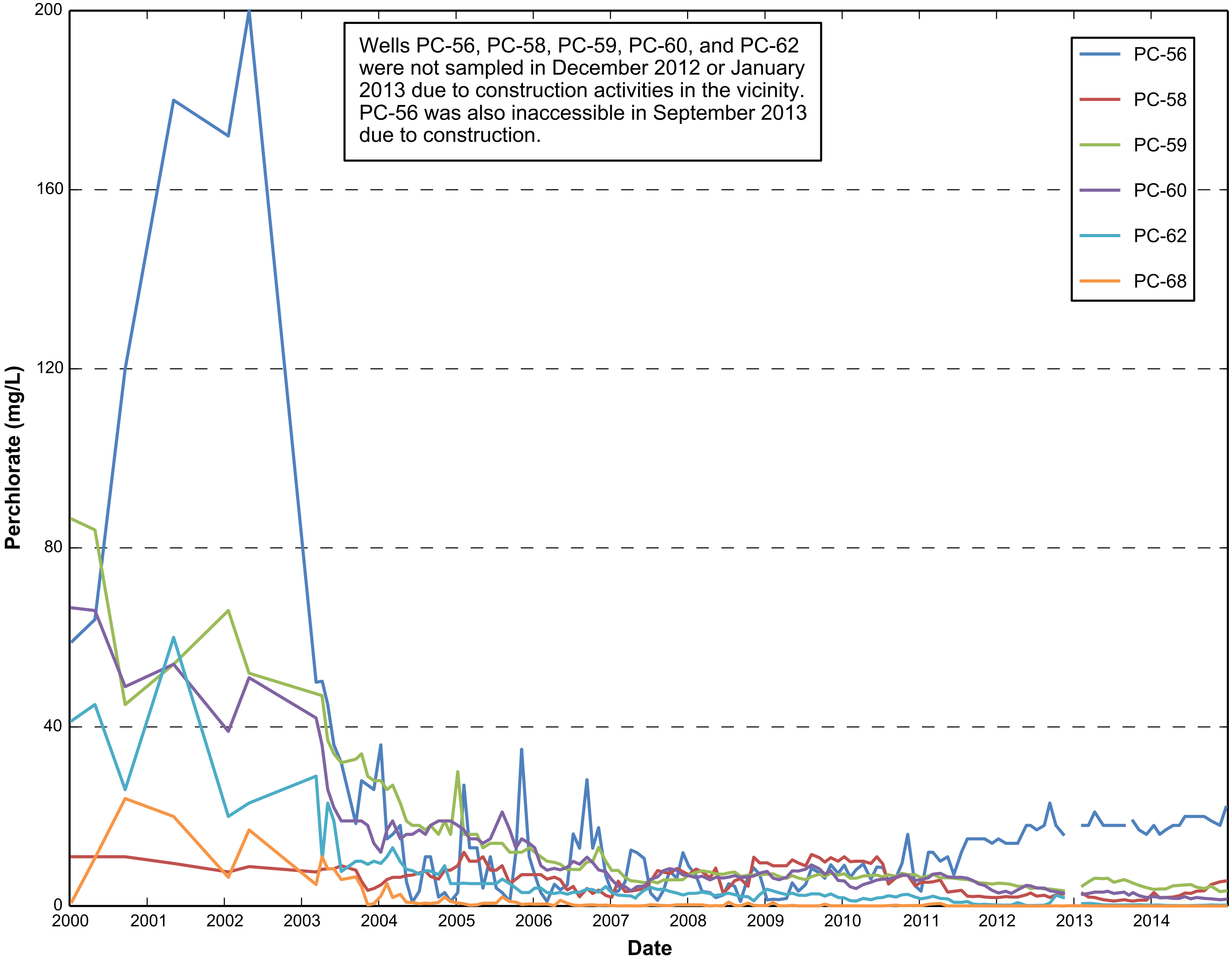
ENVIRON

Lower Ponds Well Line Perchlorate Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

21

Drafter: JH	Date: 04/29/15	Contract Number: 21-37300A	Approved:	Revised:

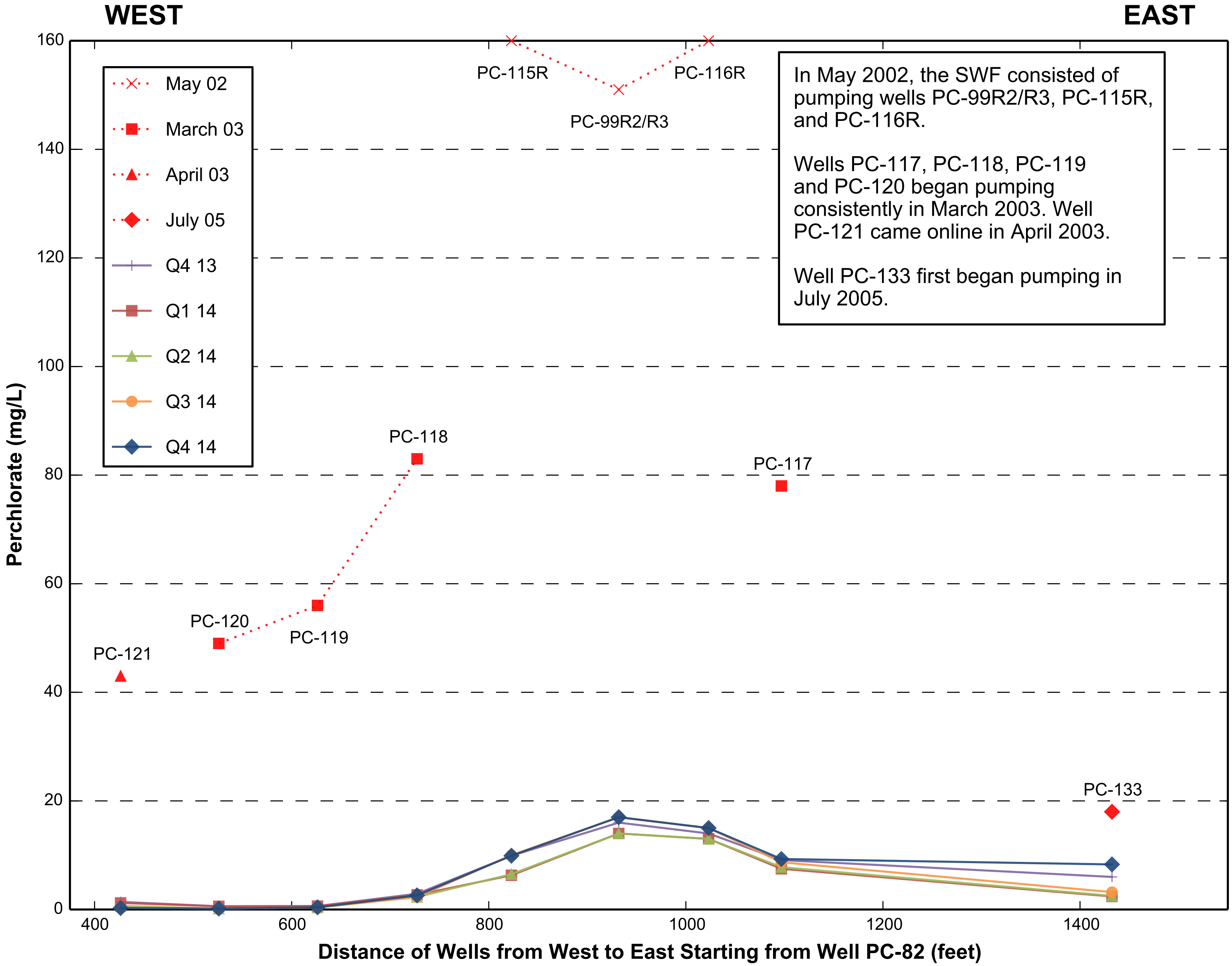


ENVIRON

Lower Ponds Well Line Perchlorate Concentration Trends
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
22

Drafter: KGL Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:



In May 2002, the SWF consisted of pumping wells PC-99R2/R3, PC-115R, and PC-116R.

Wells PC-117, PC-118, PC-119 and PC-120 began pumping consistently in March 2003. Well PC-121 came online in April 2003.

Well PC-133 first began pumping in July 2005.

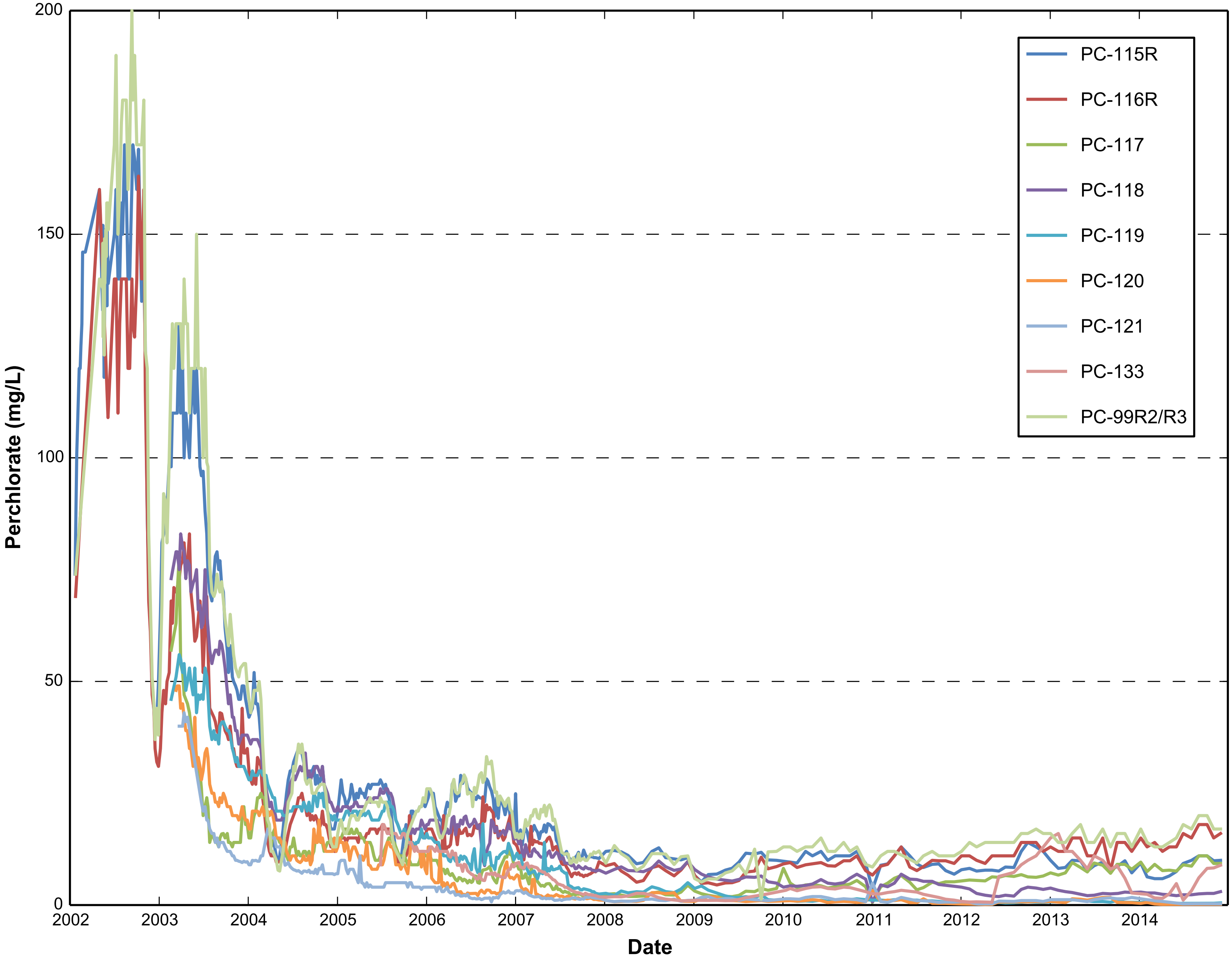
ENVIRON

Seep Well Field Perchlorate Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
23

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:

Path: H:\LePetomane\NERT\GWM\Annual Performance Reports\2014 semi-Annual\Figures\RunNERTFigs.py



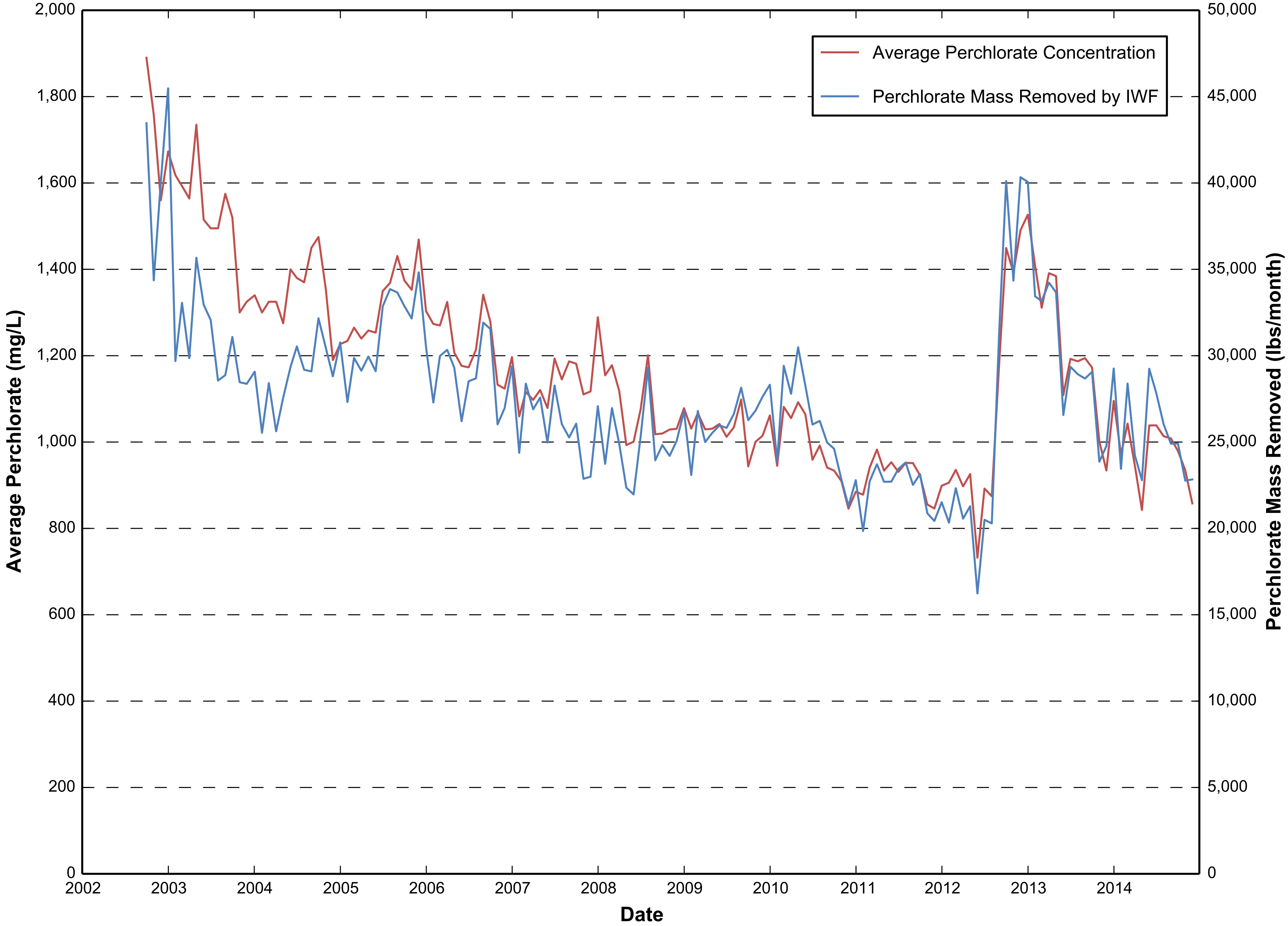
ENVIRON

Seep Well Field Perchlorate Concentration Trends
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

24

Drafter: KGL	Date: 04/29/15	Contract Number: 21-37300A	Approved:	Revised:

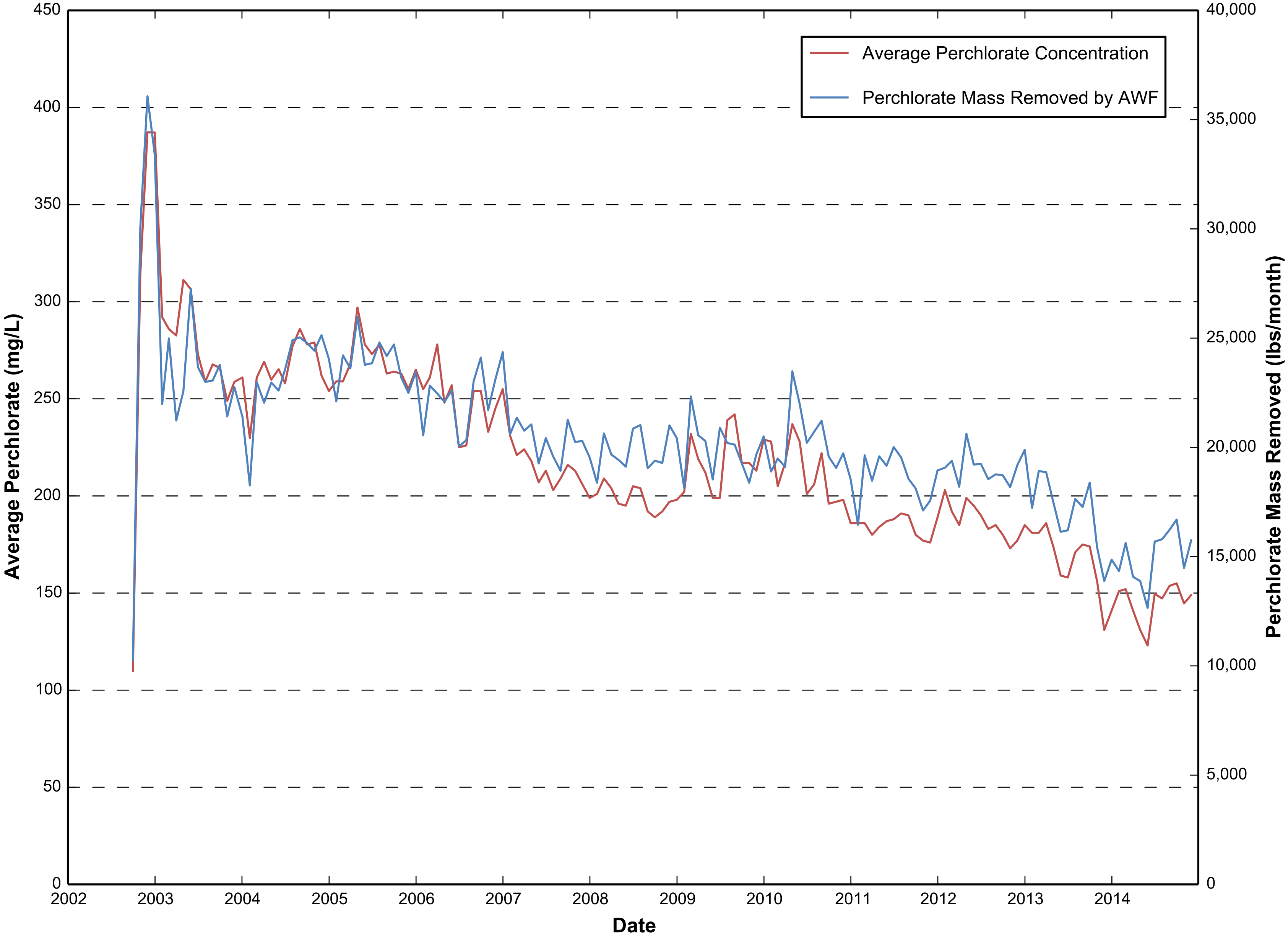


ENVIRON

Interceptor Well Field Average Perchlorate Concentration and Mass Removed
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
25

Drafter: KGL Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:

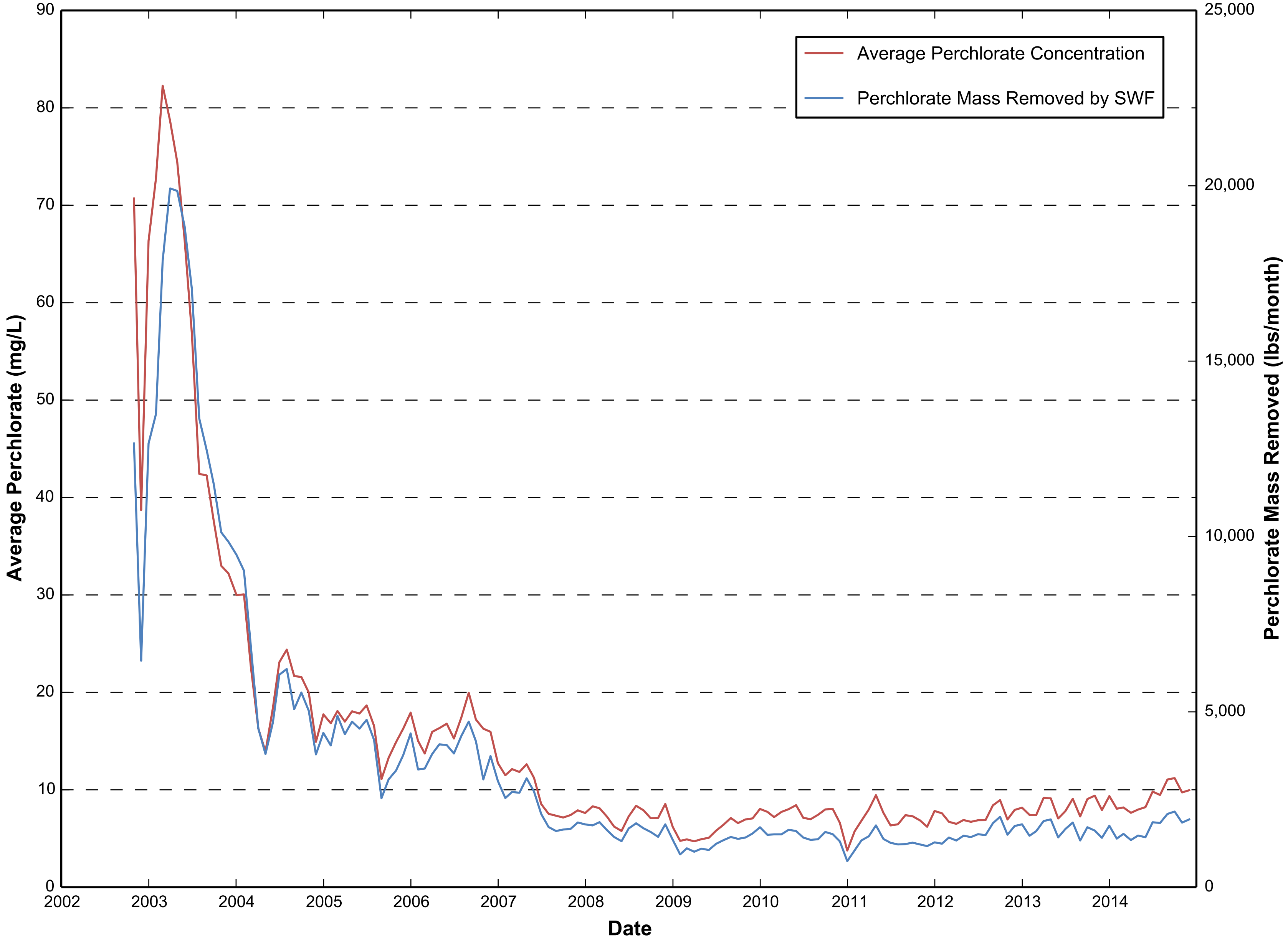


ENVIRON

Athens Road Well Field Average Perchlorate Concentration and Mass Removed
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
26

Drafter: KGL
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:



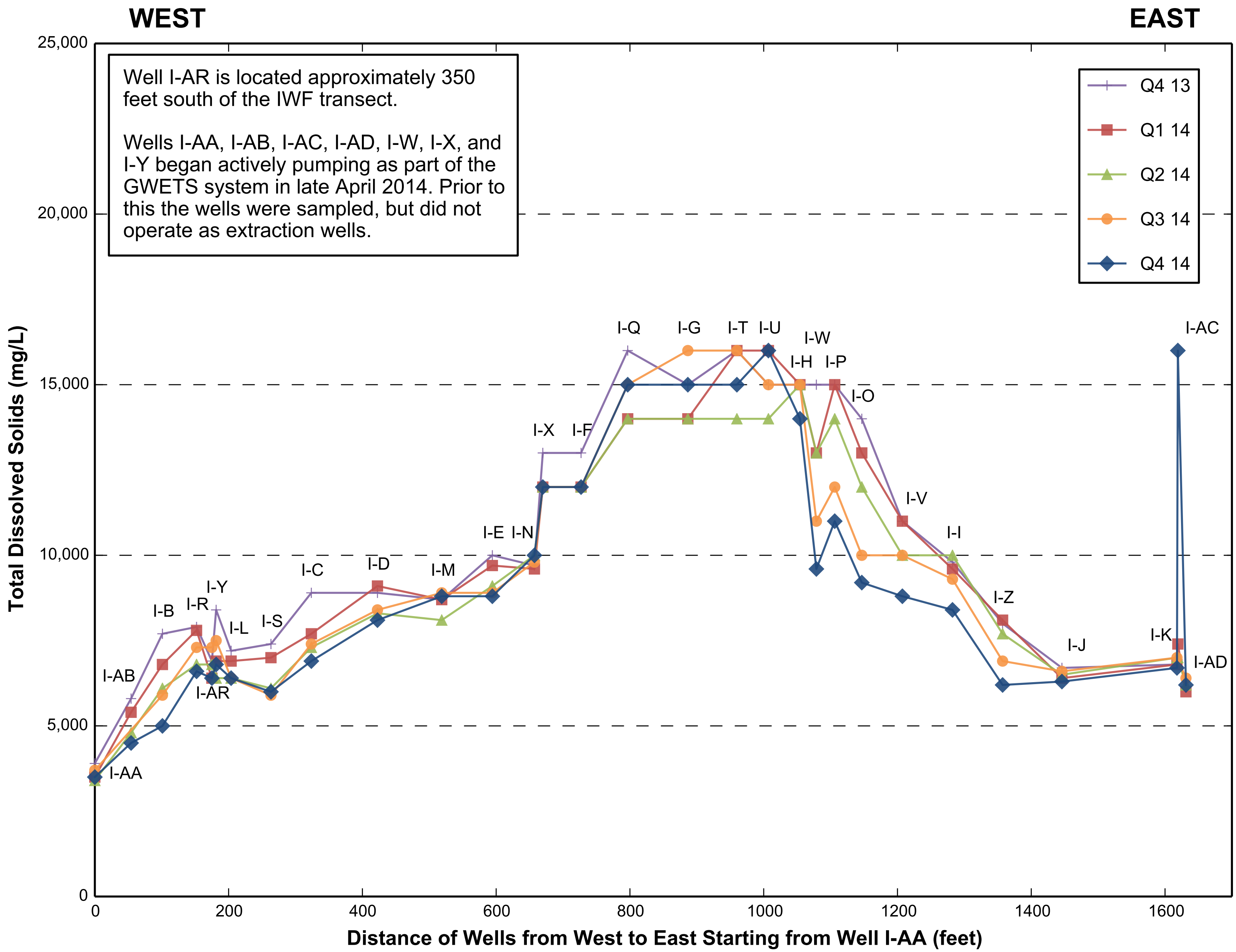
ENVIRON

Seep Well Field Average Perchlorate Concentration and Mass Removed
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

27

Drafter: KGL Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:

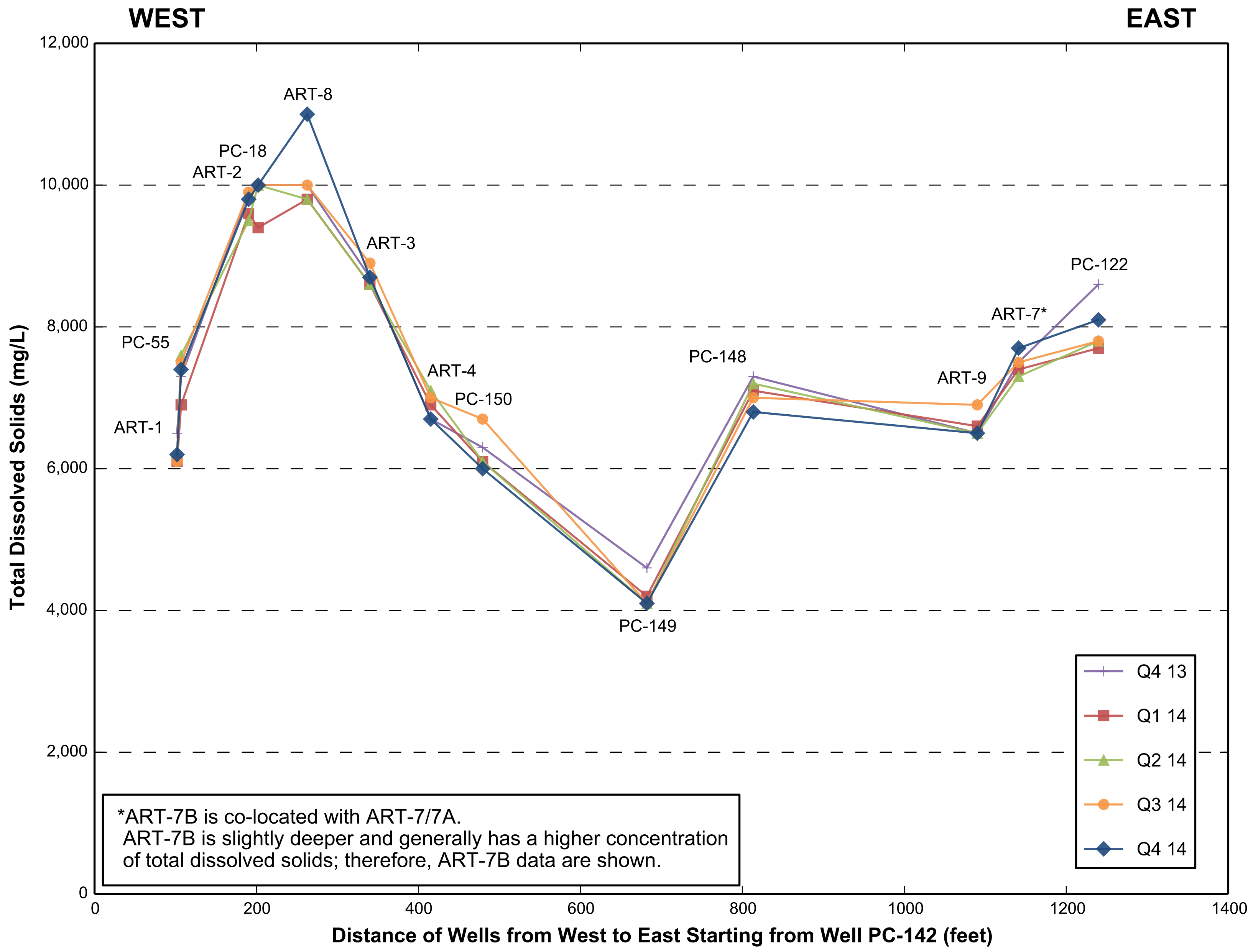


ENVIRON

Interceptor Well Field Total Dissolved Solids Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
28

Drafter: JH
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:



*ART-7B is co-located with ART-7/7A.
ART-7B is slightly deeper and generally has a higher concentration of total dissolved solids; therefore, ART-7B data are shown.

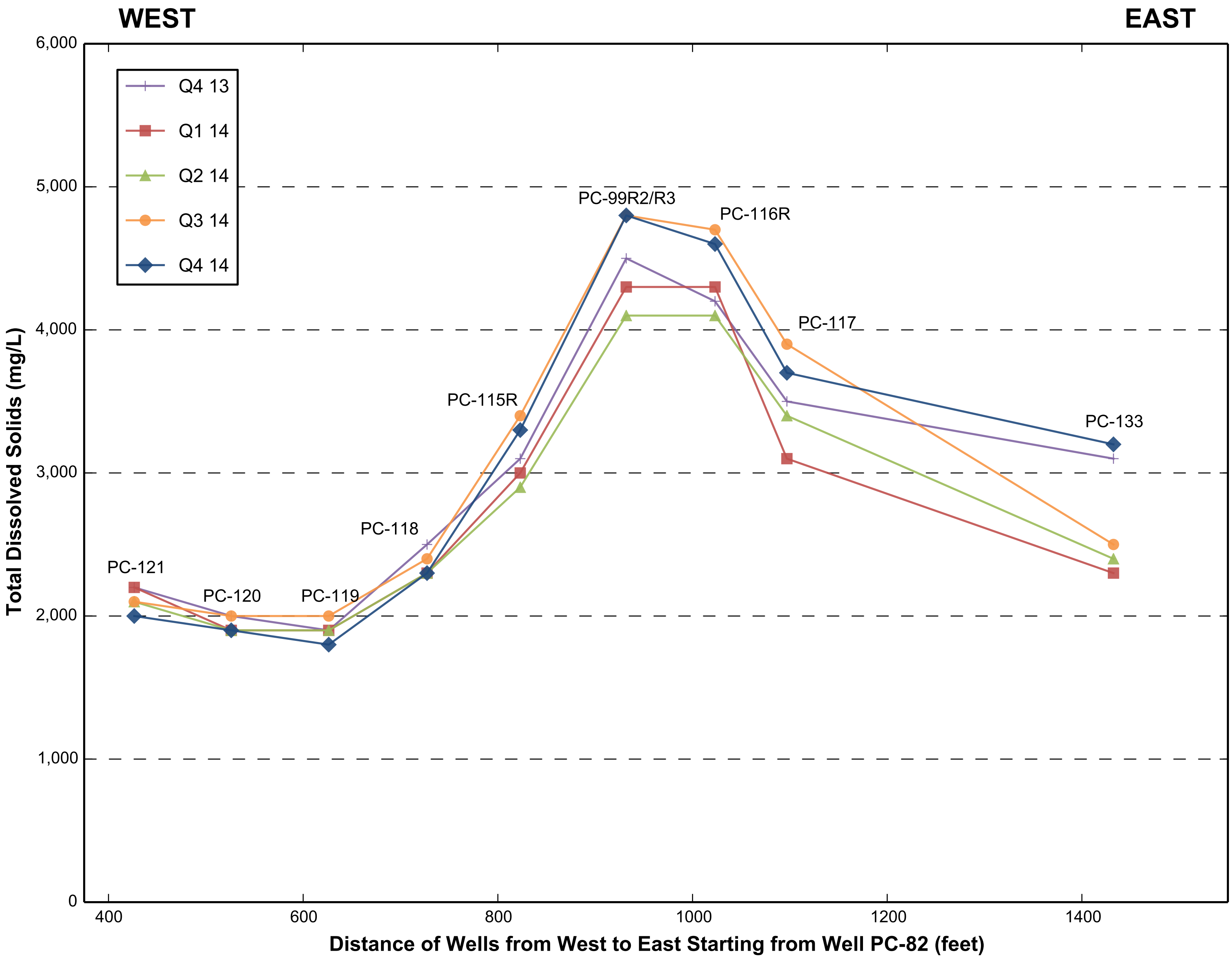
ENVIRON

Athens Road Well Field Total Dissolved Solids Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
29

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:

Path: H:\LePetomane\NERT\GWM\Annual Performance Reports\2014 semi-Annual\Figures\RunNERTFigs.py

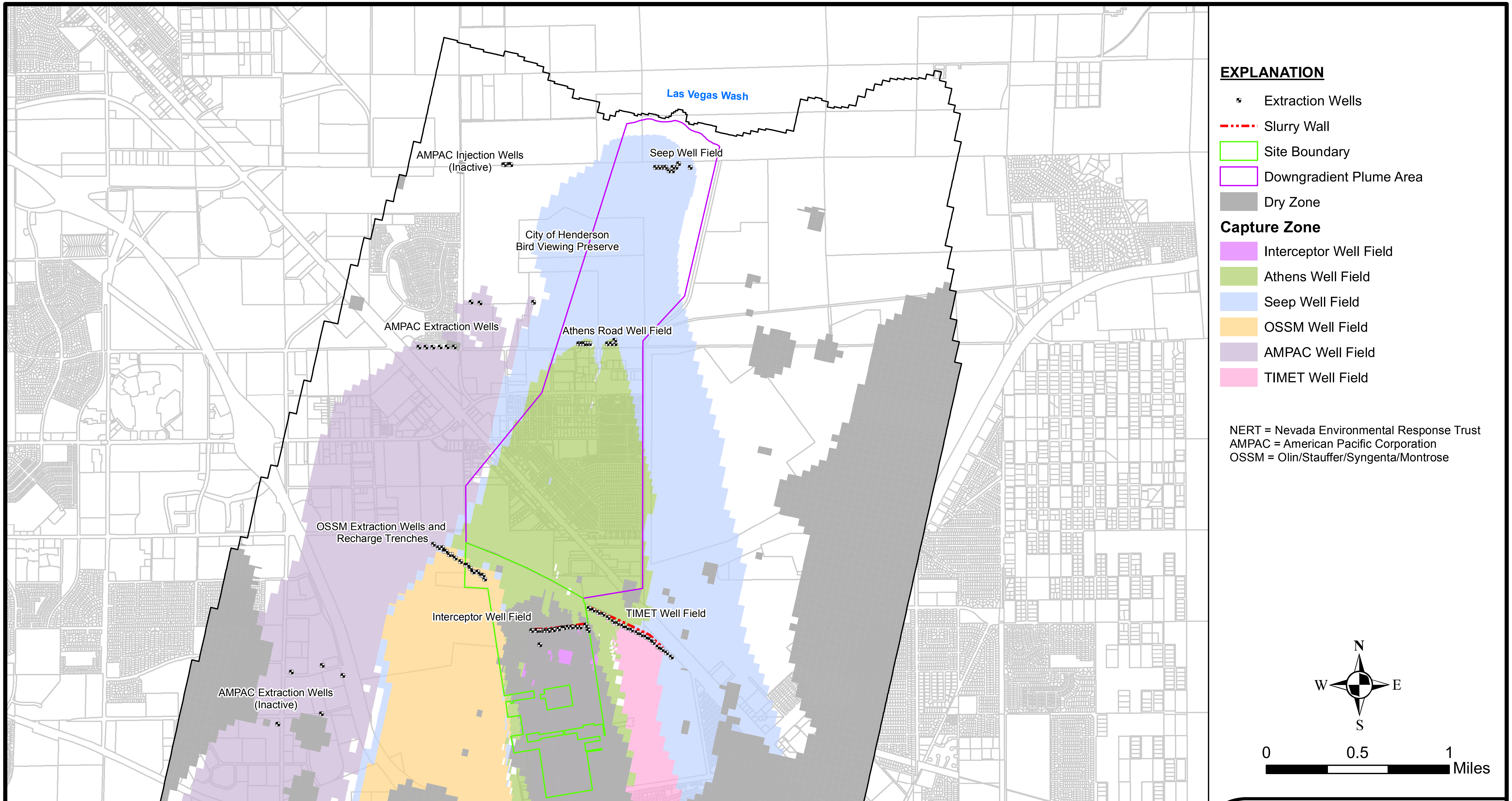


ENVIRON

Seep Well Field Total Dissolved Solids Concentrations
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
30

Drafter: JH
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:



NERT = Nevada Environmental Response Trust
AMPAC = American Pacific Corporation
OSSM = Olin/Stauffer/Syngenta/Montrose

ENVIRON

Capture Zones - Alluvium
Nevada Environmental Response Trust Site
Henderson, Nevada

Date: 3/27/2015	Contract Number: 21-37300A		Figure 31a
Drafter: AS	Approved:	Revised:	

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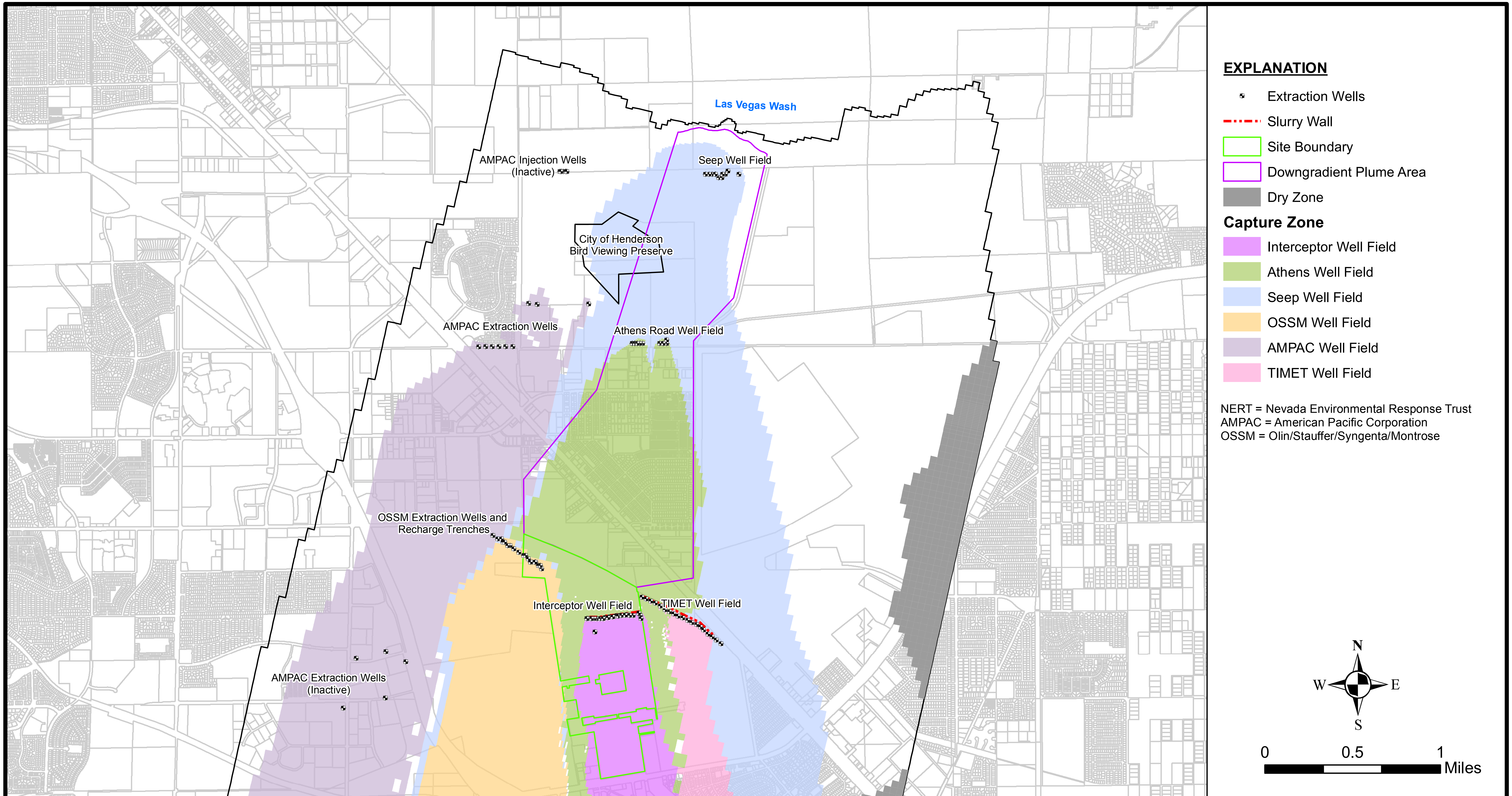

ENVIRON

Capture Zones - UMCf
Nevada Environmental Response Trust Site
Henderson, Nevada

Date: 3/27/2015	Contract Number: 21-37300A		Figure **31b**
Drafter: AS	Approved:	Revised:	

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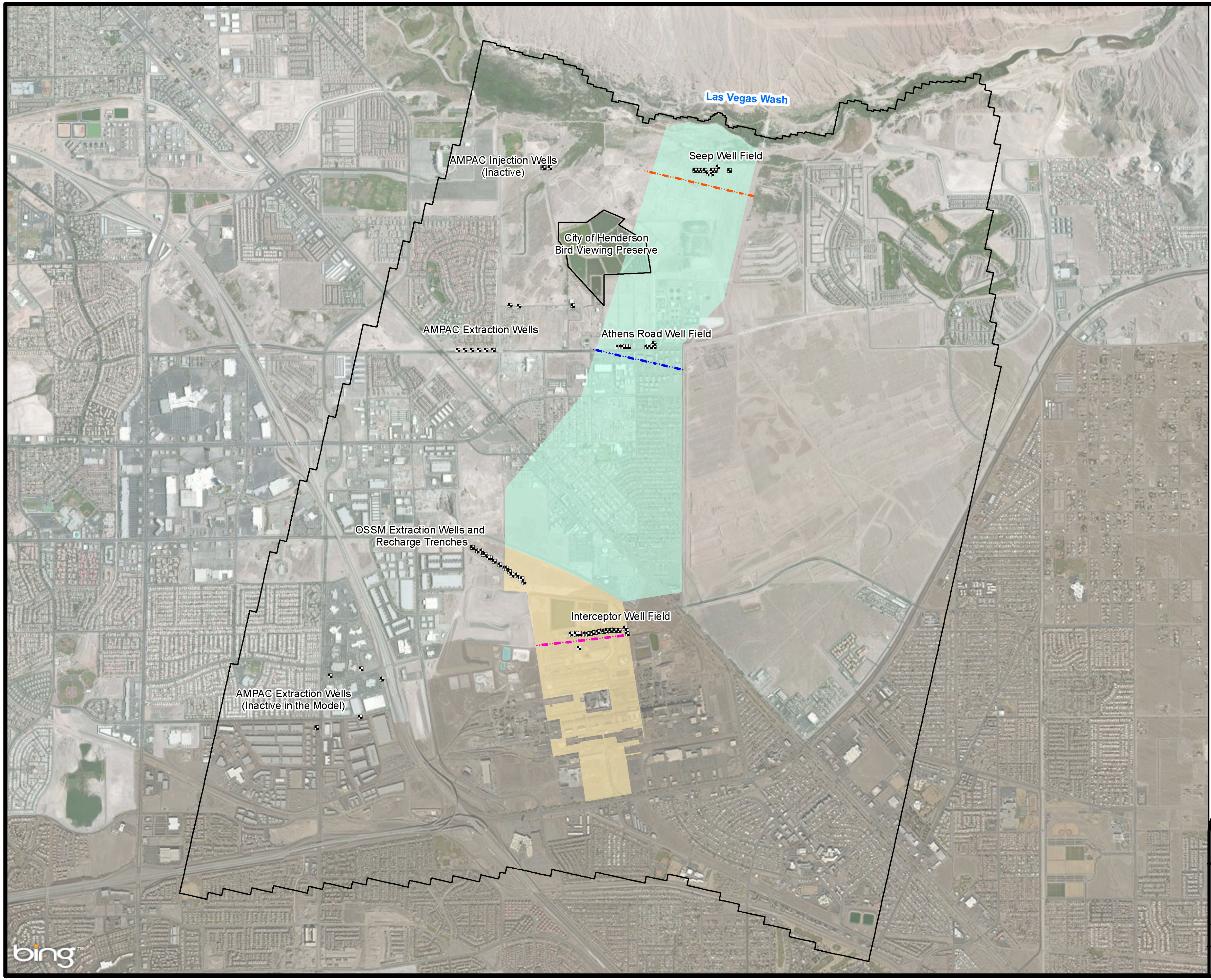

EXPLANATION

●	Extraction Wells
-·-·-	Transect - Athens Road Well Field
-·-·-	Transect - Interceptor Well Field
-·-·-	Transect - Seep Well Field
🟨	Site Boundary
☐	Model Boundary
🟩	Downgradient Plume

ENVIRON

Mass Flux Transect Locations
Nevada Environmental Response Trust Site
Henderson, Nevada

Date: 3/27/2015	Contract Number: 21-37300A		Figure 32a
Drafter: AS	Approved:	Revised:	

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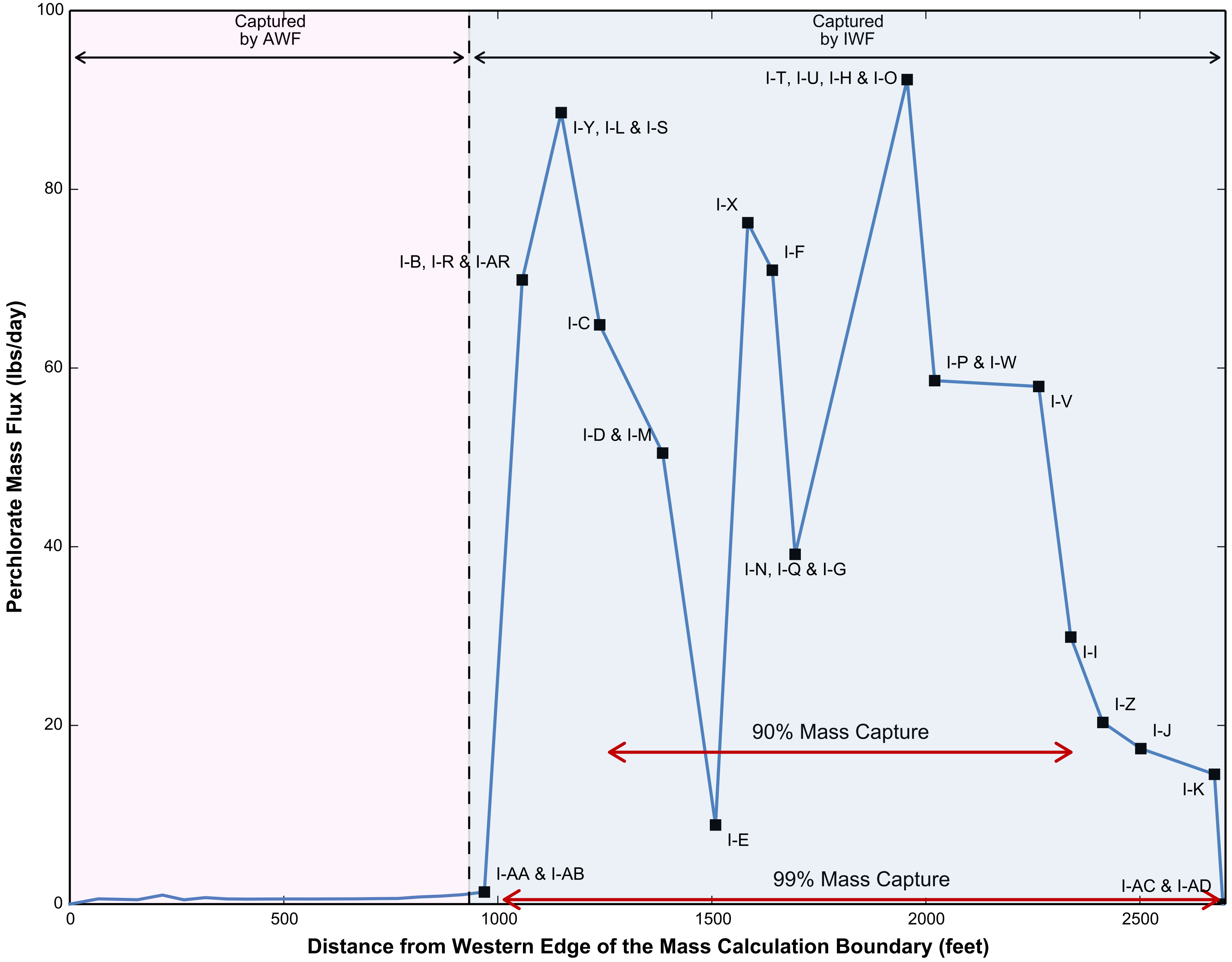


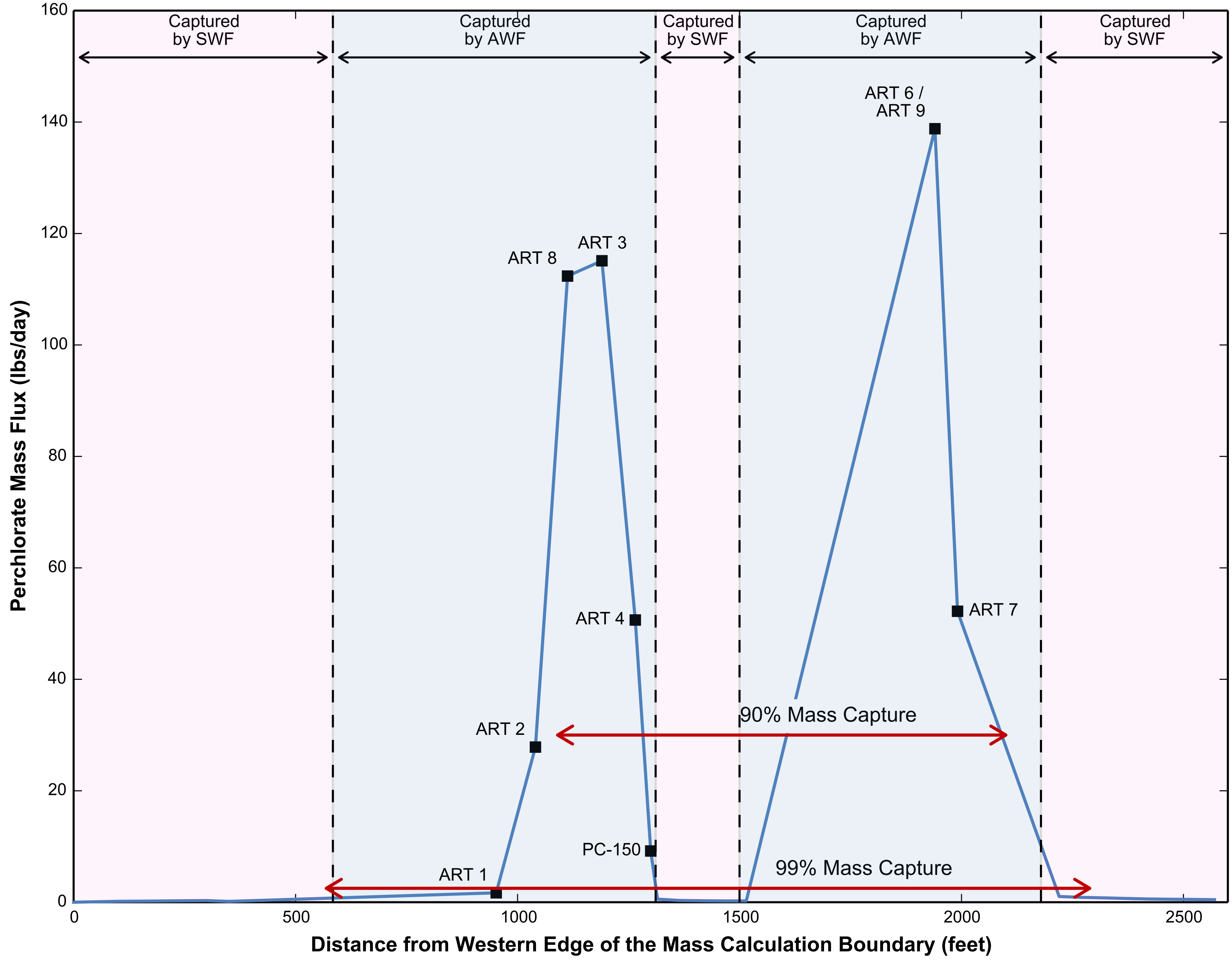
ENVIRON

Perchlorate Mass Flux at Interceptor Well Field
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

32b

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:



ENVIRON

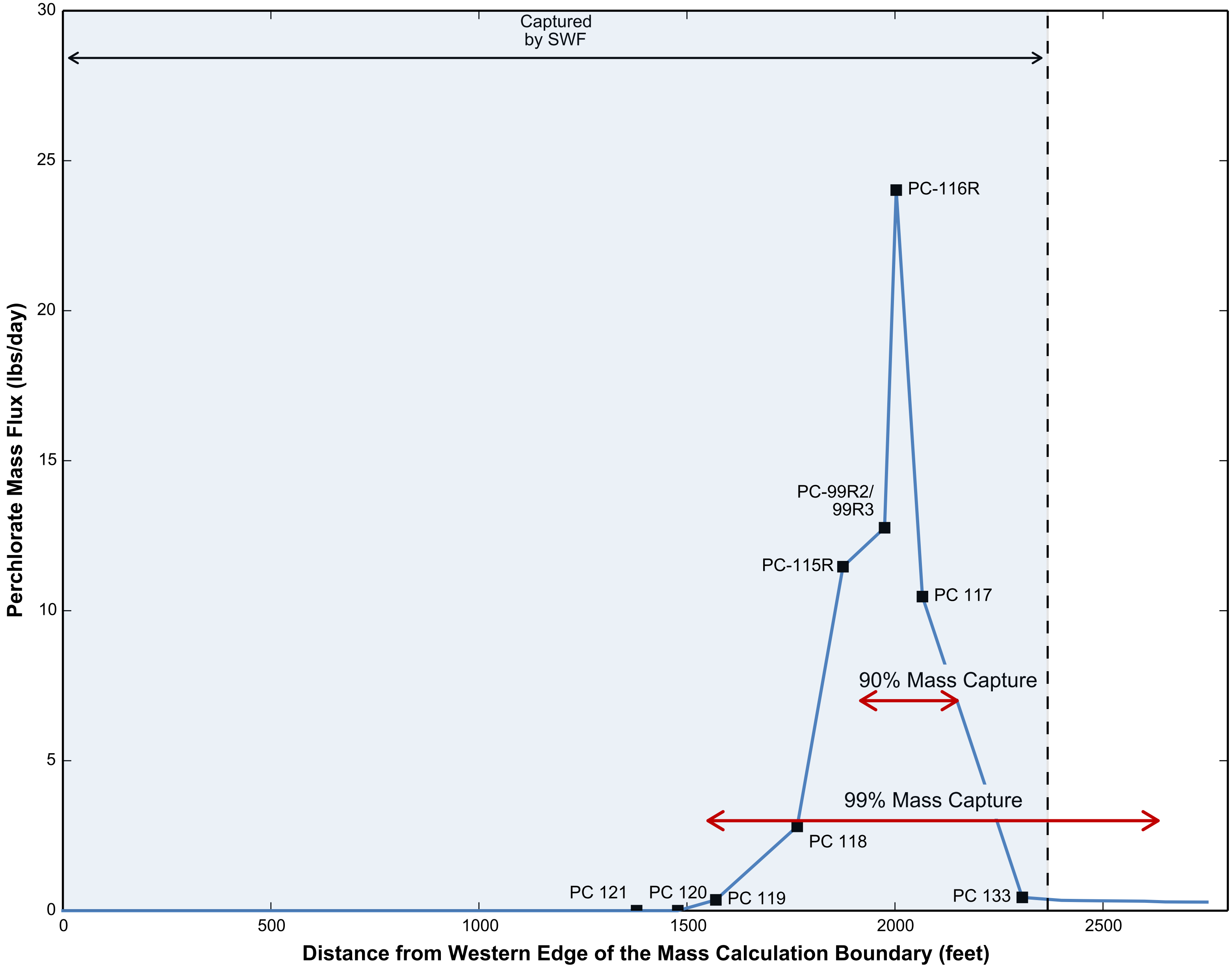
Perchlorate Mass Flux at Athens Road Well Field
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

32c

Drafter: JH
Date: 04/29/15
Contract Number: 21-37300A
Approved:
Revised:

Path: H:\LePetomane\NERT\GWM\Annual Performance Reports\2014 semi-Annual\Figures\RunNERTFigs.py



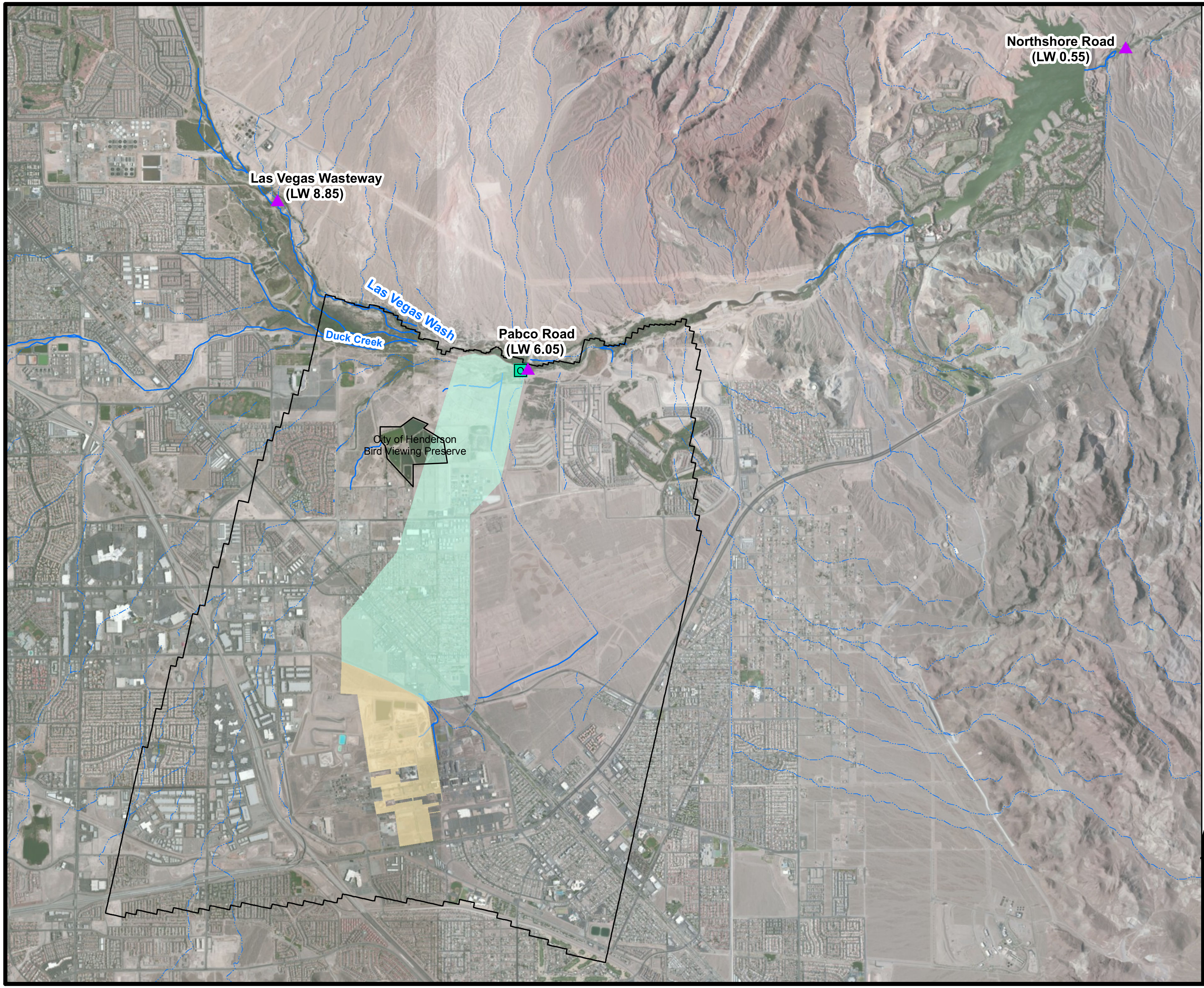
ENVIRON

Perchlorate Mass Flux at Seep Well Field
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

32d

Drafter: JH | Date: 04/29/15 | Contract Number: 21-37300A | Approved: | Revised:



Legend

- ▲ USGS Stream Gauge Station
- 🟩 NERT/AMPAC/TIMET Outfall Location
- 🟨 Site Boundary
- 🟩 Downgradient Plume
- ☐ Model Boundary

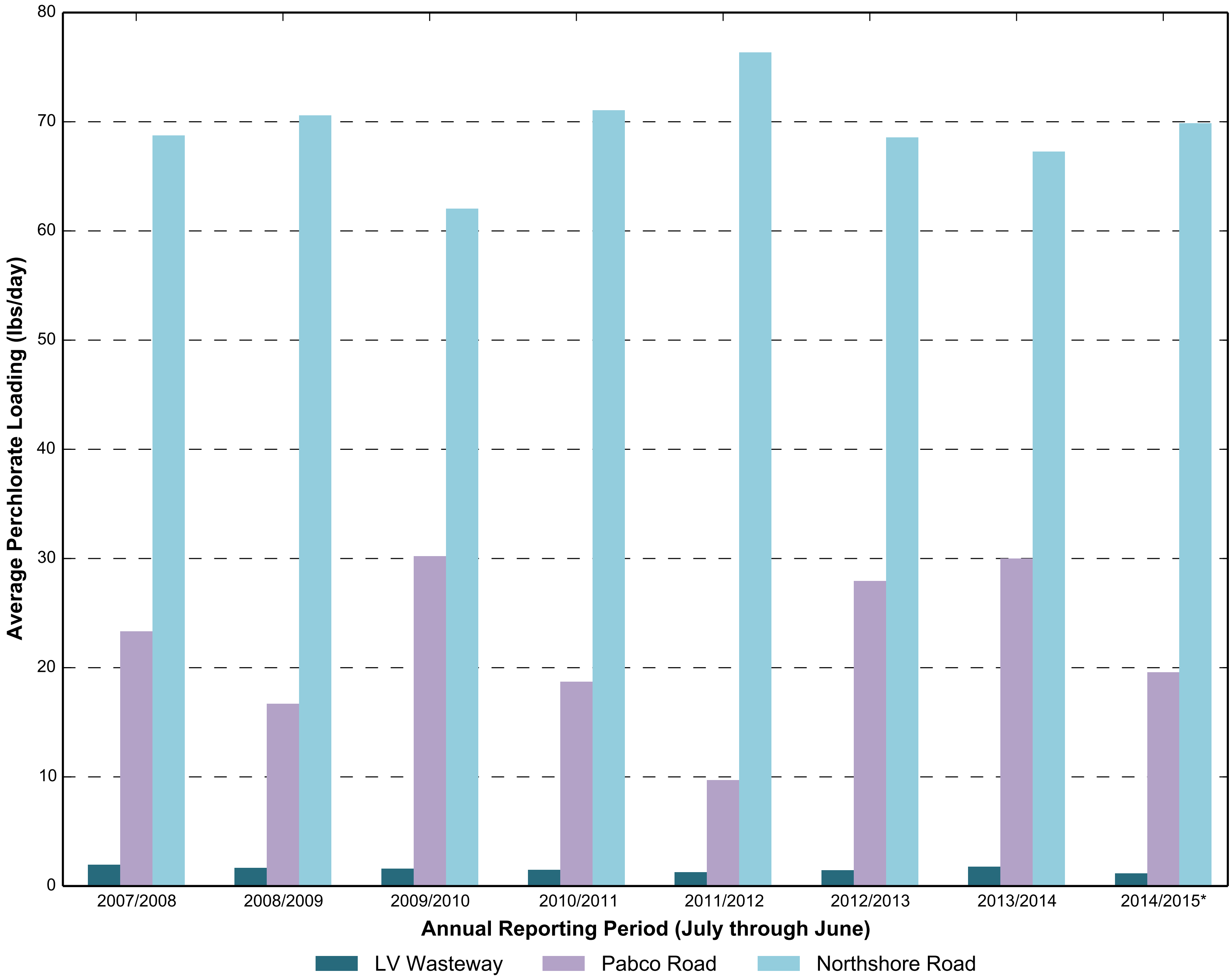
ENVIRON

Sampling Locations in
Las Vegas Wash

Nevada Environmental Response Trust Site
Henderson, Nevada

Date: 3/27/2015	Contract Number: 21-37300A		Figure 33a
Drafter: AS	Approved:	Revised:	

Path: H:\LePetomane\NERT\Modeling\Optimization Report\GWETS Performance - 2014 Semi-Annual Report\GIS\Fig 31a-Las Vegas wash Sampling Location.mxd

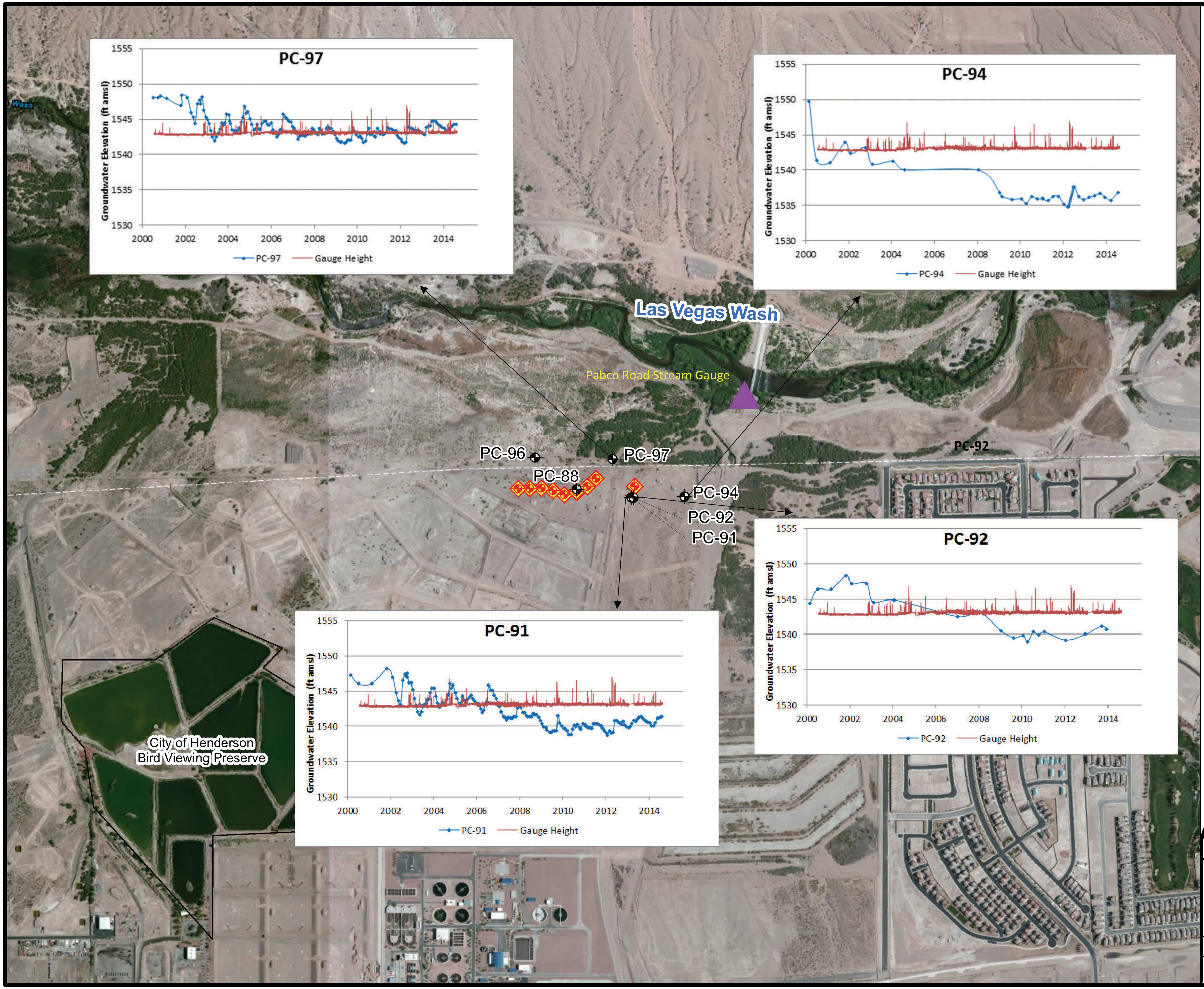


ENVIRON

Annual Perchlorate Mass Loading in Las Vegas Wash
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
33b

Drafter: JH | Date: 04/29/15 | Contract Number: 21-37300A | Approved: | Revised:



EXPLANATION

- ⌖ Groundwater Monitoring Wells
- ◈ Seep Well Field Extraction Well
- ▲ USGS Stream Gauge Station

N

0 0.1 0.2 0.4 Miles

ENVIRON

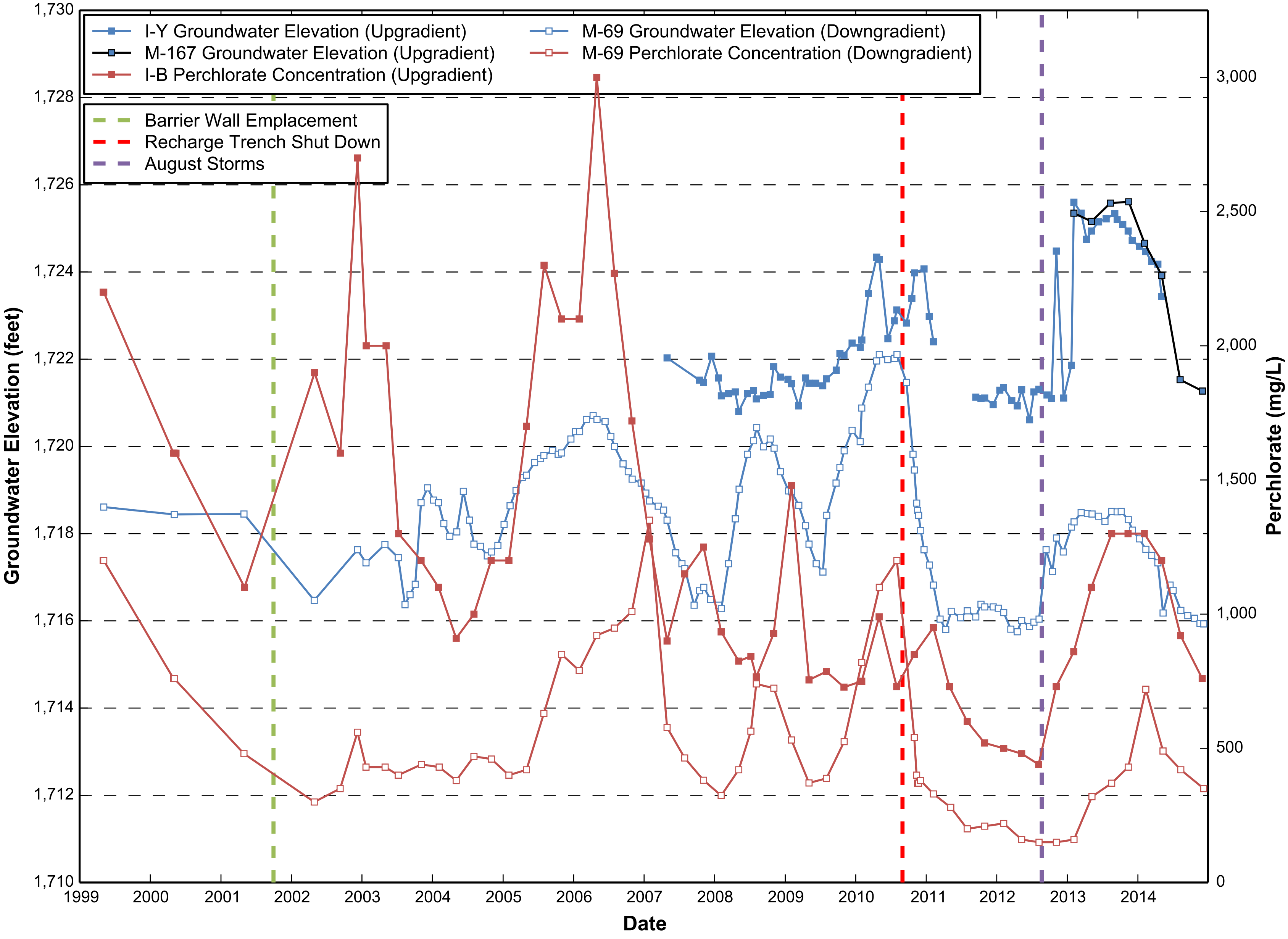
Groundwater Levels and Stream Stage at Pabco Road

Nevada Environmental Response Trust Site
Henderson, Nevada

Date: 3/27/2015	Contract Number: 21-37300A		Figure
Drafter: AS	Approved:	Revised:	34

Path: H:\LePetomane\NERT\Modeling\Optimization Report\GWETS Performance - 2014 Semi-Annual Report\GIS\Fig 32-GW Monitoring wells-SWF.mxd

Path: H:\LePetomane\NERT\GWM\Annual Performance Reports\2014 semi-Annual\Figures\RunNERTFigs.py



ENVIRON

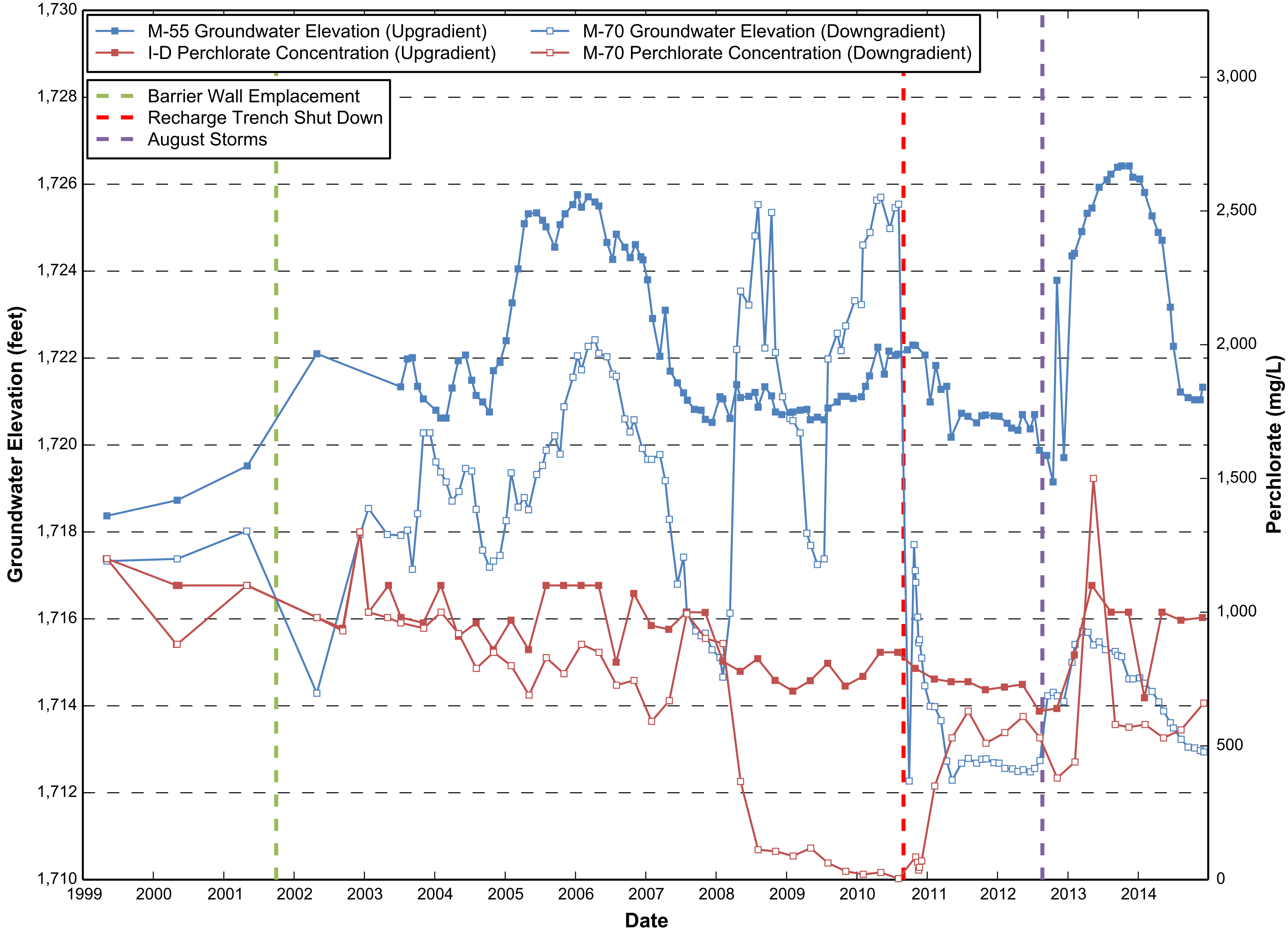
Perchlorate and Groundwater Elevation Across the Barrier Wall Near Well M-69
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

35a

Drafter: JH	Date: 04/29/15	Contract Number: 21-37300A	Approved:	Revised:

Path: H:\LePetomane\NERT\GWM\Annual Performance Reports\2014 semi-Annual\Figures\RunNERTFigs.py

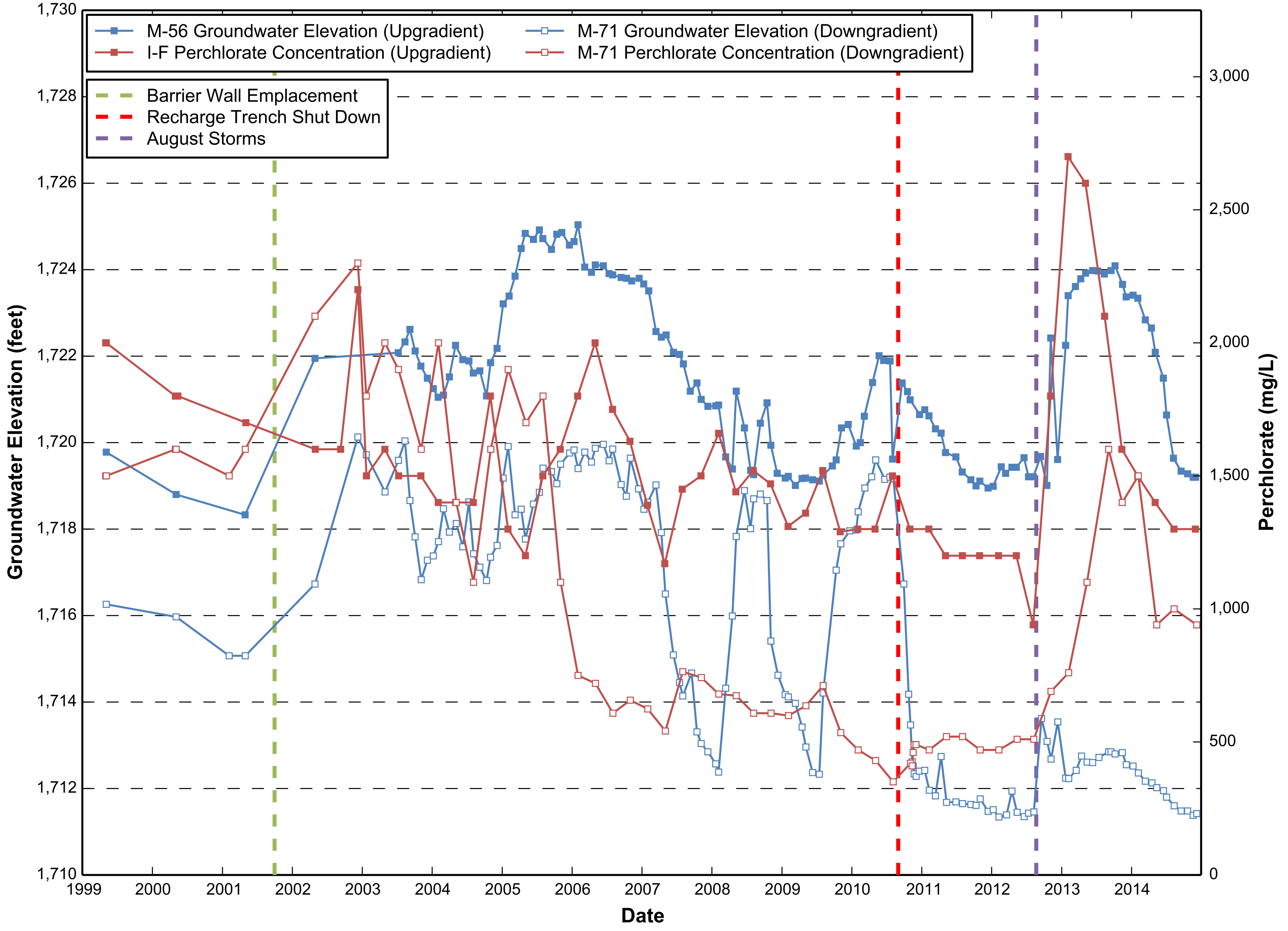


ENVIRON

Perchlorate and Groundwater Elevation Across the Barrier Wall Near Well M-70
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
35b

Drafter: JH	Date: 04/29/15	Contract Number: 21-37300A	Approved:	Revised:



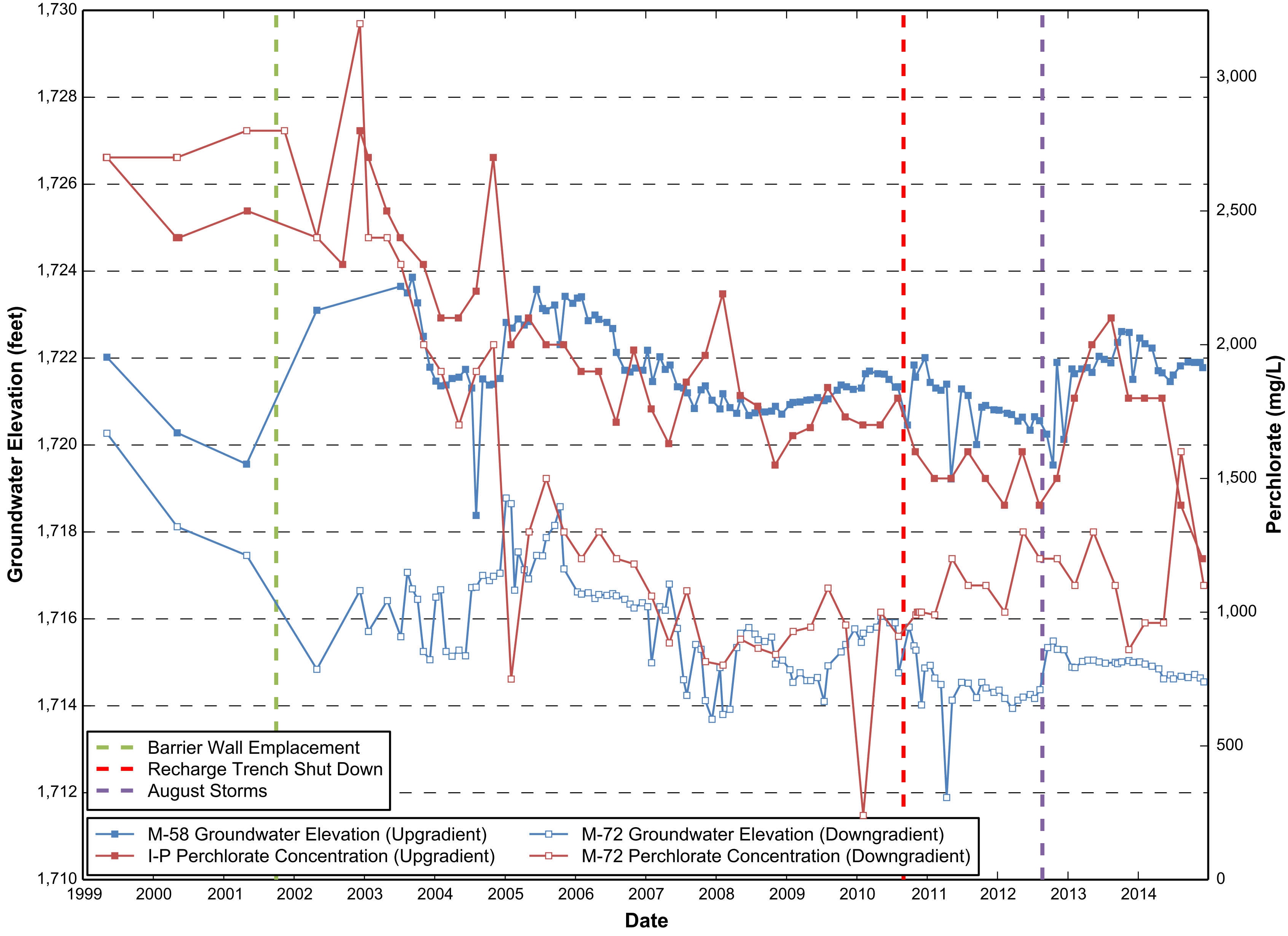
ENVIRON

Perchlorate and Groundwater Elevation Across the Barrier Wall Near Well M-71
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

35c

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:



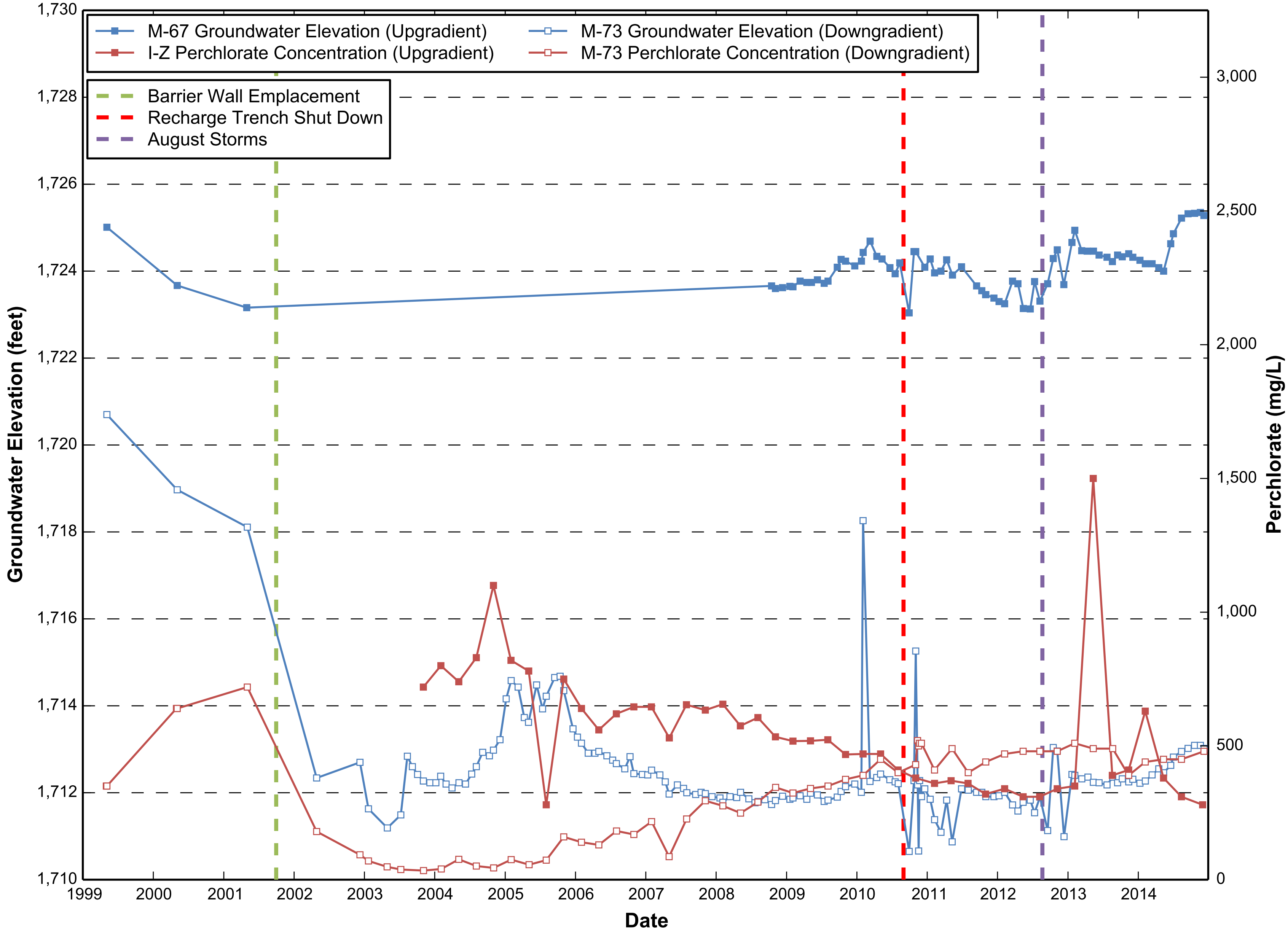
ENVIRON

Perchlorate and Groundwater Elevation Across the Barrier Wall Near Well M-72
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

35d

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:

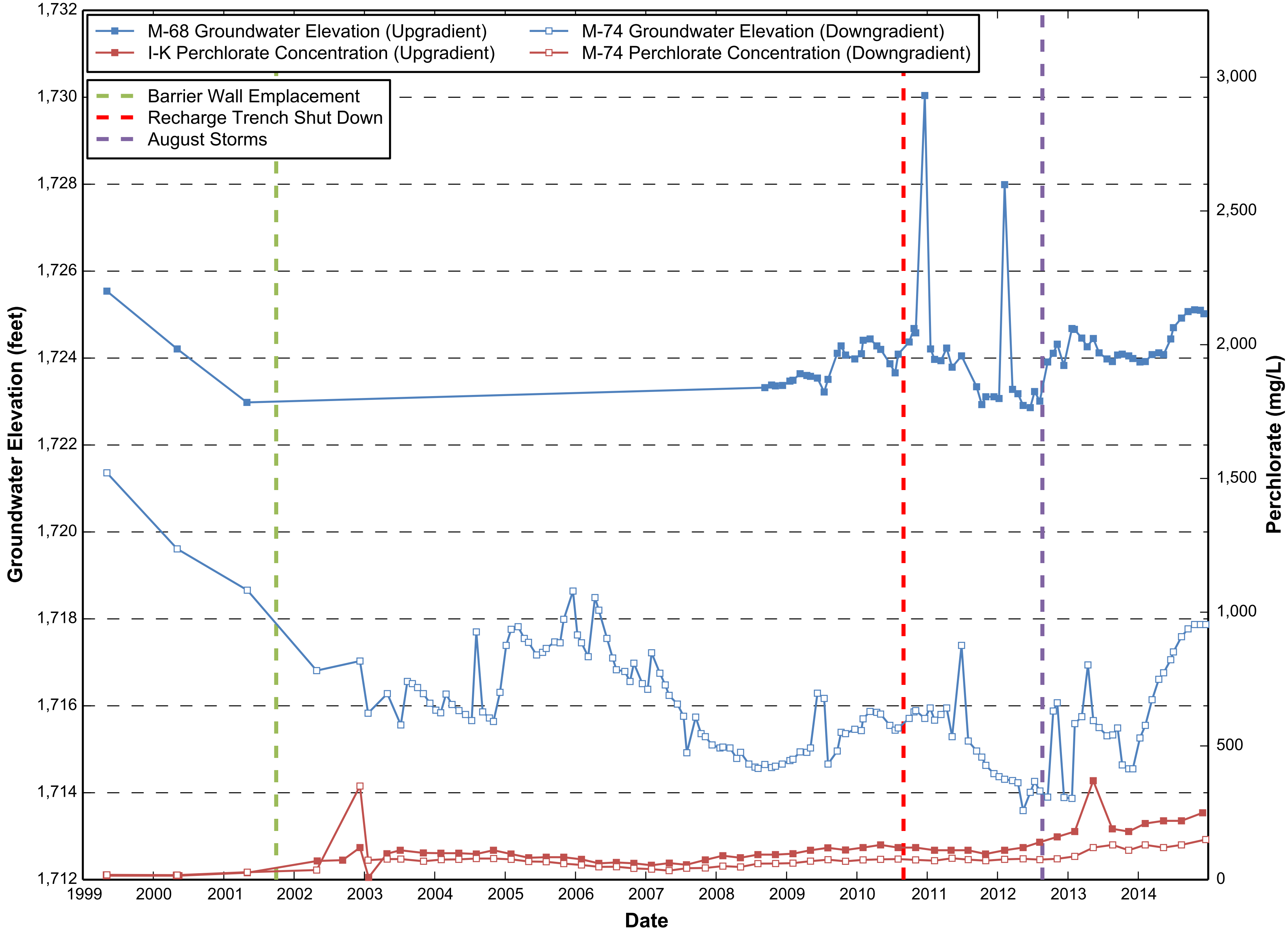


ENVIRON

Perchlorate and Groundwater Elevation Across the Barrier Wall Near Well M-73
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
35e

Drafter: JH	Date: 04/29/15	Contract Number: 21-37300A	Approved:	Revised:



ENVIRON

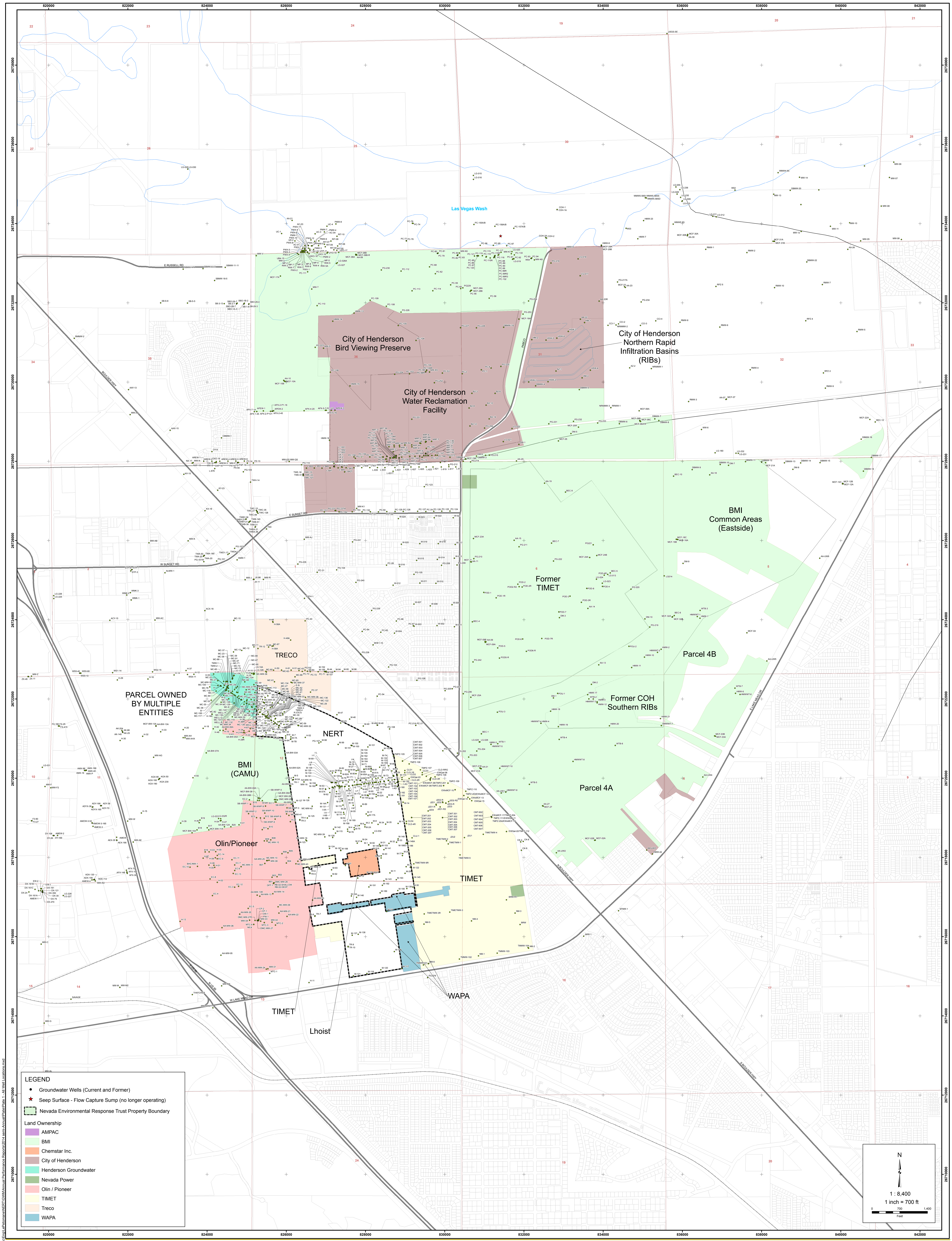
Perchlorate and Groundwater Elevation Across the Barrier Wall Near Well M-74
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

35f

Drafter: JH Date: 04/29/15 Contract Number: 21-37300A Approved: Revised:

Plate



Path: \\Env-Evl-File3\public\Eng\LePetomane\NERT\GWM\Annual Performance Reports\2014 semi-Annual\Plate\Plate 1 - All Well Locations.mxd

Plate
1

PROJECT: 21-37300A

ALL WELL LOCATION MAP

Semi-Annual Remedial Performance Report
Nevada Environmental Response Trust (NERT)
Henderson, Nevada

DESIGNED BY:
EJK
DRAWN BY:
EA
CHECKED BY:
KL
APPROVED BY:
CJR/EJK

REVISIONS

NO.	DESCRIPTION:	DATE:	BY:
0	GENERATE APPROVED MAP	3/6/15	EA

ENVIRON

Appendix A

Groundwater Elevations and Analytical Data

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Collection	GW Elevation	Chlorate	Chromium	Chromium VI	Nitrate	Perchlorate	TDS
Units	Date	(ft amsl)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
AA-01	05/08/14	1709.69					1.6	4,400
AA-11	05/06/14	1629.28						
ARP-1	10/08/13	1589.77					27	5,500
	11/08/13	1590.13		<0.0020			27	5,600
	12/12/13	1589.80					25	5,500
	01/14/14	1589.64						
	01/15/14						33	5,400
	02/14/14	1589.33		<0.0020			30	5,300
	03/12/14	1589.23					31	5,500
	04/17/14	1589.01					28	5,400
	05/21/14	1588.78		<0.0020			28	5,400
	06/12/14	1588.71					30	5,400
	07/08/14	1588.69					32	5,500
	08/08/14	1589.17		0.0048 J			30	5,700
	09/10/14	1589.46					31	5,700
	10/14/14	1589.61					30	5,700
	11/25/14	1589.70		<0.0025			38	5,800
	12/30/14	1589.76					33	5,100
ARP-2A	10/10/13	1589.12					16	5,800
	11/07/13	1589.57		0.013			17	5,900
	12/12/13	1589.11					17	5,600
	01/15/14	1588.96					21	5,500
	02/13/14	1588.69		0.011			21	5,400
	03/13/14	1588.57					16	6,000
	04/17/14	1588.35					17	5,600
	05/20/14	1588.15		0.014			17	6,000
	06/12/14	1588.06					18	5,900
	07/09/14	1588.03					20	5,800
	08/07/14	1588.54		0.0054 J			17	5,900
	09/11/14	1588.77					21	6,200
	10/15/14	1589.00					22	6,000
	11/25/14	1589.01		0.011			24	5,700
	12/29/14	1589.09					20	5,900
ARP-3A	10/10/13	1588.19					6.8	8,100
	11/07/13	1588.48		0.013			6.2	8,300
	12/12/13	1588.20					5.7	8,000
	01/15/14	1588.03					9.3	8,100
	02/13/14	1587.79		0.028			6.9	7,900
	03/13/14	1587.64					5.4	8,200
	04/17/14	1587.40					5.2	8,000
	05/20/14	1587.24		0.0054			5.6	8,200
	06/12/14	1587.14					5.6	7,900
	07/09/14	1587.15					5.8	8,200
	08/07/14	1587.43		<0.0050			5.4	8,000
	09/11/14	1587.84					6.0	8,700

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Collection	GW Elevation	Chlorate	Chromium	Chromium VI	Nitrate	Perchlorate	TDS
Units	Date	(ft amsl)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
ARP-3A	10/15/14	1588.06					5.5	8,300
	11/25/14	1588.05		0.0058			5.2	8,200
	12/29/14	1588.10					5.8	8,200
ARP-4A	10/10/13	1586.90					30	5,200
	11/07/13	1586.92		0.0058			30	5,200
	12/12/13	1586.98					26	5,000
	01/15/14	1586.82					28	5,100
	02/13/14	1586.61		<0.0040			26	5,300
	03/13/14	1586.46					24	5,500
	04/17/14	1586.30					26	5,300
	05/20/14	1586.12		0.0039 J			26	5,300
	06/12/14	1586.08					28	5,100
	07/09/14	1586.01					28	5,100
	08/07/14	1586.43		<0.0050			25	5,200
	09/11/14	1586.79					27	5,300
	10/15/14	1586.96					23	5,400
	11/25/14	1586.99		0.0040 J			22	5,300
	12/29/14	1587.09					22	4,900
ARP-5A	10/10/13	1583.99					8.4	4,800
	11/07/13	1584.27		0.033			14	5,400
	12/12/13	1584.42					14	5,100
	01/15/14	1584.51					19	5,500
	02/13/14	1584.36		0.032			20	5,800
	03/13/14	1584.25					17	5,800
	04/17/14	1583.97					16	6,000
	05/21/14	1583.72		0.028			19	6,900
	06/12/14	1583.65					20	6,400
	07/09/14	1583.51					21	6,400
	08/07/14	1583.73		0.022			15	6,100
	09/11/14	1584.11					13	5,900
	10/15/14	1584.38					9.9	5,500
	11/25/14	1584.58		0.031			8.7	5,100
	12/29/14	1584.78					7.8	4,500
ARP-6B	10/10/13	1583.92					35	8,700
	11/07/13	1584.29		0.27			40	8,600
	12/12/13	1584.39					42	7,900
	01/15/14	1584.44					48	8,000
	02/13/14	1584.32		0.28			50	7,600
	03/13/14	1584.19					73	7,900
	04/17/14	1583.99					44	7,400
	05/21/14	1583.69		0.26			43	7,500
	06/12/14	1583.60					48	7,500
	07/09/14	1583.48					53	7,700
	08/07/14	1583.77		0.30			53	7,800
	09/11/14	1584.08					45	8,300

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
ARP-6B	10/15/14	1584.34					37	7,800
	11/25/14	1584.55		0.35			55	7,500
	12/29/14	1584.72					43	7,600
ARP-7	10/10/13	1583.55					6.7	6,700
	11/07/13	1583.77		0.088			11	7,200
	12/12/13	1583.96					15	7,600
	01/15/14	1584.06					20	8,300
	02/13/14	1583.89		0.12			19	7,500
	03/13/14	1583.79					19	8,000
	04/17/14	1583.57					19	7,200
	05/20/14	1583.32		0.14			18	8,400
	06/12/14	1583.19					19	8,000
	07/09/14	1583.05					20	8,400
	08/07/14	1583.28		0.14			20	8,300
	09/11/14	1583.67					20	8,600
	10/15/14	1583.91					20	8,400
	11/25/14	1584.09		0.15			18	8,300
	12/29/14	1584.22					16	8,100
ART-1	10/07/13						8.3	6,000
	10/11/13	1589.26						
	11/04/13			<0.0020			8.9	6,500 J-
	11/08/13	1589.20						
	12/02/13						8.2	5,900
	12/03/13	1589.04						
	01/08/14						9.8	6,100
	01/09/14	1588.96						
	02/03/14	1577.65		<0.0020			8.3	6,100
	03/03/14						9.2	6,200
	03/13/14	1577.84						
	04/07/14						8.8	6,200
	04/14/14	1578.73						
	05/05/14	1577.90		0.011			8.8	6,200
	06/03/14						9.2	6,100
	06/20/14	1578.06						
	07/01/14						11	6,100
	07/02/14	1578.57						
	08/04/14			0.018			15	6,100
	08/08/14	1590.31						
	09/03/14						17	6,000
	09/08/14	1590.54						
	10/07/14						14	6,600
	10/22/14	1581.26						
	11/03/14			0.0027 J			11	6,200
	11/05/14	1578.45						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
ART-1	12/01/14						12	6,200
	12/16/14	1589.59						
ART-1A	10/11/13	1590.86						
	11/08/13	1591.25						
	12/03/13	1590.85						
	01/09/14	1590.75						
	02/03/14	1590.56						
	03/13/14	1590.35						
	04/14/14	1590.23						
	05/05/14	1590.12						
	06/20/14	1589.97						
	07/02/14	1589.57						
	08/08/14	1589.84						
	09/08/14	1590.03						
	10/22/14	1590.71						
	11/05/14	1590.67						
	12/16/14	1591.00						
ART-2	10/03/13						60	9,500
	10/11/13	1590.02						
	11/04/13			0.030			56	9,900 J-
	11/08/13	1590.38						
	12/02/13						46	9,000
	12/03/13	1589.92						
	01/08/14						50	9,500
	01/09/14	1589.76						
	02/03/14	1589.62		0.021			49	9,600
	03/03/14						47	9,000
	03/13/14	1589.36						
	04/07/14						44	9,300
	04/14/14	1589.23						
	05/05/14	1589.12		0.031			43	9,500
	06/03/14						45	9,500
	06/20/14	1589.01						
	07/01/14						49	9,600
	07/02/14	1588.86						
	08/04/14			0.056			46	9,900
	08/08/14	1589.35						
	09/03/14						47	9,900
	09/08/14	1589.58						
	10/07/14						40	10,000
	10/22/14	1589.78						
	11/03/14			0.027			45	9,800
	11/05/14	1589.51						
	12/01/14						40	11,000
	12/16/14	1590.58						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
ART-2A	10/11/13	1590.62						
	11/08/13	1590.97						
	12/03/13	1590.57						
	01/09/14	1590.45						
	02/03/14	1590.26						
	03/13/14	1590.03						
	04/14/14	1589.93						
	05/05/14	1589.77						
	06/20/14	1589.63						
	07/02/14	1589.46						
	08/08/14	1590.00						
	09/08/14	1590.22						
	10/22/14	1590.40						
	11/05/14	1590.28						
	12/16/14	1589.33						
ART-3	10/03/13						280	8,900
	10/11/13	1587.48						
	11/04/13			0.37			250	8,700
	11/08/13	1588.13						
	12/02/13						200	6,800
	12/03/13	1590.04						
	01/08/14						240	8,500
	01/09/14	1587.52						
	02/03/14	1587.39		0.34			250	8,600
	03/03/14						250	8,500
	03/13/14	1587.20						
	04/07/14						230	8,700
	04/14/14	1586.99						
	05/05/14	1586.93		0.35			210	8,600
	06/03/14						190	8,800
	06/20/14	1586.73						
	07/01/14						250	8,600
	07/02/14	1586.87						
	08/04/14			0.42			230	8,900
	08/08/14	1587.21						
	09/03/14						230	8,900
	09/08/14	1587.23						
	10/07/14						240	9,400
	10/22/14	1587.35						
	11/03/14			0.39			220	8,700
	11/05/14	1587.33						
	12/01/14						210	8,900
	12/16/14	1587.57						
ART-3A	10/11/13	1581.36						
	11/08/13	1579.92						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
ART-3A	01/09/14	1581.65						
	02/03/14	1578.61						
	03/13/14	1581.52						
	04/14/14	1581.19						
	05/05/14	1580.99						
	06/20/14	1581.29						
	07/02/14	1580.16						
	08/08/14	1581.23						
	09/08/14	1581.11						
	10/22/14	1580.09						
	11/05/14	1591.84						
	12/16/14	1577.53						
ART-4	10/03/13						360	7,100
	10/11/13	1589.07						
	11/04/13			0.59			330	6,700
	11/08/13	1589.16						
	12/02/13						280	6,600
	12/03/13	1589.03						
	01/08/14						320	6,700
	01/09/14	1578.82						
	02/03/14	1579.38		0.54			330	6,900
	03/03/14						330	7,000
	03/13/14	1578.88						
	04/07/14						300	6,900
	04/14/14	1588.40						
	05/05/14	1588.27		0.54			270	7,100
	06/03/14						250	7,200
	06/20/14	1579.08						
	07/01/14						320	7,000
	07/02/14	1588.08						
	08/04/14			0.59			300	7,000
	08/08/14	1579.08						
	09/03/14						310	7,100
	09/08/14	1579.08						
	10/07/14						310	7,800
	10/22/14	1579.34						
	11/03/14			0.60			280	6,700
	11/05/14	1579.18						
	12/01/14						270	7,000
	12/16/14	1578.86						
ART-4A	10/11/13	1576.60						
	11/08/13	1575.47						
	12/03/13	1574.53						
	01/09/14	1588.72						
	02/03/14	1588.55		0.55	0.59 J-	26		

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
ART-4A	03/13/14	1588.39						
	04/14/14	1575.44						
	05/05/14	1574.47						
	06/20/14	1587.78						
	07/02/14	1574.41						
	08/08/14	1588.22						
	09/08/14	1589.41						
	10/22/14	1588.52						
	11/05/14	1588.61						
	12/16/14	1588.68						
ART-6	10/07/13						210	6,800
	10/15/13	1585.52						
	11/04/13			0.69			200	6,500
	11/07/13	1586.36						
	12/03/13	1586.12					36	6,900
	01/08/14						35	6,800
	01/09/14	1586.38						
	02/03/14	1587.36		0.16			48	6,900
	03/06/14						40	6,300
	03/13/14	1586.82						
	04/07/14						40	6,900
	04/14/14	1585.98						
	05/05/14	1585.98						
	05/07/14			0.22			39	6,800
	06/03/14						44	7,400
	06/20/14	1585.70						
	07/01/14						52	6,800
	07/02/14	1585.63						
	08/04/14			0.27			52	6,900
	08/07/14	1585.67						
	09/03/14						51	6,900
	09/08/14	1585.68						
	10/08/14						47	7,200
	10/22/14	1586.09						
	11/03/14			0.21			36	6,300
	11/05/14	1586.14						
	12/01/14						36	6,500
	12/16/14	1586.33						
ART-7	10/03/13						150	6,800
	10/15/13	1584.29						
	11/04/13			0.75			140	8,200 J-
	11/07/13	1585.58						
	12/02/13						120	7,800
	12/03/13	1585.40						
	01/08/14						120	7,900

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
ART-7	01/09/14	1585.64						
	02/03/14	1585.68		0.59			140	7,900
	03/03/14						150	7,700
	03/13/14	1585.54						
	04/07/14						120	7,800
	04/14/14	1585.27						
	05/05/14	1585.36		0.70			120	7,700
	06/03/14						100	7,800
	06/20/14	1584.77						
	07/01/14						130	7,800
	07/02/14	1584.68						
	08/04/14			0.68			130	8,000
	08/07/14	1584.88						
	09/03/14						130	8,100
	09/08/14	1585.01						
	10/07/14						130	8,200
ART-7A	10/15/13	1582.01						
	11/07/13	1583.25						
	12/03/13	1583.06						
	01/09/14	1583.29						
	02/03/14	1583.31						
	03/13/14	1583.84						
	04/14/14	1582.94						
	05/05/14	1582.85						
	06/20/14	1582.43						
	07/02/14	1582.74						
	08/07/14	1582.65						
	09/08/14	1582.70						
	10/22/14	1584.94						
	11/05/14	1585.07						
	12/16/14	1585.51						
ART-7B	10/10/13	1584.83						
	11/07/13	1585.66		1.2			230	7,500
	12/03/13	1585.47						
	01/09/14	1585.70						
	01/29/14		490	0.55	0.57	27	200	7,600
	02/13/14	1585.71		0.96			210	7,400
	03/13/14	1585.56						
	04/14/14	1585.29						
	05/20/14	1585.01		1.0			170	7,300
	06/12/14	1584.85						
	07/02/14	1584.75						
	08/07/14	1584.99		0.92			200	7,500
	09/08/14	1585.05						
	10/22/14	1583.95						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
ART-7B	11/03/14			0.65			120	7,700
	11/05/14	1582.89						
	12/01/14						140	7,900
	12/16/14	1581.78						
ART-8	10/03/13						190	9,700
	10/11/13	1587.34						
	11/04/13			0.20			160	10,000 J-
	11/08/13	1588.88						
	12/02/13						130	8,900
	12/03/13	1587.28						
	01/08/14						140	9,600
	01/09/14	1589.64						
	02/03/14	1589.47		0.15			150	9,800
	03/03/14						150	9,500
	03/13/14	1589.27						
	04/07/14						140	10,000
	04/14/14	1586.09						
	05/05/14	1585.93		0.18			120	9,800
	06/03/14						120	9,800
	06/20/14	1586.09						
	07/01/14						150	9,800
	07/02/14	1588.69						
	08/04/14			0.19			140	10,000
	08/08/14	1589.28						
	09/03/14						160	10,000
	09/08/14	1586.60						
	10/07/14						160	11,000
	10/22/14	1586.73						
	11/03/14			0.16			150	11,000
	11/05/14	1585.48						
	12/01/14						150	10,000
	12/16/14	1586.89						
ART-8A	10/11/13	1590.01						
	11/08/13	1596.10						
	12/03/13	1581.43						
	01/09/14	1587.29						
	02/03/14	1588.83						
	03/13/14	1586.84						
	04/14/14	1589.18						
	05/05/14	1589.05						
	06/20/14	1588.91						
	07/02/14	1591.63						
	08/08/14	1587.09						
	09/08/14	1591.78						
	10/22/14	1589.71						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters

October 2013 - December 2014

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
ART-8A	11/05/14	1589.48						
	12/16/14	1589.90						
ART-9	10/03/13						250	6,700
	10/15/13	1580.61						
	11/04/13			0.91			220	6,500 J-
	11/07/13	1583.91						
	12/02/13						200	6,500
	12/03/13	1583.68						
	01/08/14						220	6,400
	01/09/14	1583.99						
	02/03/14	1584.03		0.87	0.89	22 J-	230	6,600
	03/03/14						240	6,200
	03/13/14	1583.91						
	04/07/14						220	6,600
	04/14/14	1583.58						
	05/05/14	1583.37		0.94			210	6,500
	06/03/14						200	6,700
	06/20/14	1582.88						
	07/01/14						230	6,700
	07/02/14	1582.47						
	08/04/14			0.98			230	6,900
	08/07/14	1583.08						
	09/03/14						240	7,000
	09/08/14	1583.00						
	10/07/14						250	7,400
	10/22/14	1583.51						
	11/03/14			1.1			200	6,500
	11/05/14	1583.50						
	12/01/14						210	6,700
	12/16/14	1584.93						
H-11	05/14/14	1799.92					0.012	1,200
H-28A	05/09/14	1693.28		0.041			12	10,000
	08/13/14	1692.51		<0.0050			13	12,000
H-48	05/08/14	1661.25		<0.040			14	8,600
H-58A	05/08/14	1664.49		<0.0040			0.30	12,000
HM-2	05/07/14	1560.17					3.4	4,900
HMW-13	05/07/14	1578.50					<0.0025	1,400
HMW-14	05/07/14	1580.21					0.66	1,600
HMW-15	05/07/14	1600.68					0.0058	2,000
HMW-16	05/07/14	1612.68					17	5,800
I-AA	10/15/13	1722.22						
	11/12/13	1723.49		0.064			200	3,900
	12/03/13	1722.42						
	01/09/14	1722.28						
	02/04/14		62	0.16	0.0013	14	120	3,400

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters

October 2013 - December 2014

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
I-AA	02/10/14	1721.96		0.063			120	3,500
	03/14/14	1722.11						
	04/15/14	1722.04						
	05/05/14	1709.99		0.076			130	3,400
	06/17/14	1722.09						
	07/03/14	1732.87						
	08/11/14	1709.94		0.77			120	3,700
	09/17/14	1709.96						
	10/21/14	1709.85						
	11/19/14	1709.99						
	12/01/14	1709.85		1.4			91	3,500
I-AB	10/15/13	1723.24						
	11/12/13	1723.13		0.019			760	5,800
	12/03/13	1723.93						
	01/09/14	1722.80						
	02/06/14		15	0.022	0.0049	120	910	5,600
	02/10/14	1722.78		0.028			810	5,400
	03/14/14	1722.68						
	04/15/14	1722.55						
	05/05/14	1722.17		0.039			700	4,800
	06/17/14	1721.92						
	07/03/14	1721.56						
	08/11/14	1720.88						
	09/17/14	1720.76						
	10/21/14	1720.66						
	11/19/14	1720.63						
	12/01/14	1720.61		0.016			470	4,500
I-AC	10/15/13	1723.36						
	11/15/13	1723.37						
	12/03/13	1723.38						
	01/10/14	1723.29						
	02/03/14		480	1.1	1 J-	20	87	8,600
	02/07/14	1723.35		1.3			110	7,400
	03/14/14	1723.59						
	04/18/14	1723.72						
	05/16/14	1712.93		1.3			100	7,000
	06/19/14	1723.93						
	07/03/14	1724.18						
	08/14/14	1724.42						
	09/17/14	1724.55						
	10/21/14	1724.59						
	11/20/14	1724.56						
	12/01/14	1724.53						
	12/02/14			1.0			25	16,000

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
I-AD	10/15/13	1725.71						
	11/15/13	1727.25						
	12/03/13	1725.76						
	01/10/14	1725.67						
	01/30/14		400	1.2	1.1	11	130	6,000
	02/07/14	1725.74		1.2			120	6,000
	03/14/14	1725.87						
	04/18/14	1725.96						
	05/13/14	1718.66		1.3			120	6,200
	06/19/14	1726.08						
	07/03/14	1726.27						
	08/14/14	1726.54		1.4			140	6,400
	09/17/14	1726.66						
	10/21/14	1726.68						
	11/20/14	1726.61						
	12/02/14	1726.66		2.4			140	6,200
I-AR	10/07/13	1730.96						
	11/12/13	1715.16		0.22			1,900	6,900
	12/04/13	1715.19						
	01/09/14	1715.37						
	02/04/14	1715.23		0.35			2,000	6,400
	03/14/14	1715.28						
	04/15/14	1715.17						
	05/05/14	1715.21		0.45			1,900	6,800
	06/17/14	1715.18						
	07/03/14	1715.14						
	08/11/14	1715.21		0.47			2,300	7,300
	09/17/14	1715.16						
	10/21/14	1715.29						
	11/19/14	1715.24						
	12/01/14			0.50			2,100	6,400
	12/02/14	1715.26						
I-B	10/07/13	1716.04						
	11/12/13	1728.19		0.46			1,300	7,700
	12/04/13	1716.26						
	01/09/14	1717.82						
	02/04/14	1719.01		0.23			1,300	6,800
	03/14/14	1714.38						
	04/15/14	1716.33						
	05/05/14	1717.94		0.27			1,200	6,100
	06/17/14	1713.84						
	07/03/14	1713.19						
	08/11/14	1710.35		0.16			920	5,900
	09/17/14	1711.25						
	10/21/14	1711.19						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters

October 2013 - December 2014

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
I-B	11/19/14	1714.10						
	12/01/14	1709.20		0.14			760	5,000
I-C	10/07/13	1724.32						
	11/12/13	1724.20		2.8			1,100	8,900
	12/04/13	1723.85						
	01/09/14	1722.79						
	02/04/14	1723.58		3.1			1,100	7,700
	03/14/14	1722.99						
	04/15/14	1722.66						
	05/05/14	1722.36		3.5			900	7,300
	06/17/14	1720.04						
	07/03/14	1717.36						
	08/11/14	1716.93		2.7			900	7,400
	09/17/14	1716.72						
	10/21/14	1716.74						
	11/19/14	1716.63						
	12/01/14			2.8			880	6,900
	12/02/14	1716.61						
I-D	10/07/13	1726.06						
	11/12/13	1726.06		6.1			1,000	8,900
	12/04/13	1725.76						
	01/09/14	1725.66						
	02/03/14	1725.43		6.0			680	9,100
	03/14/14	1725.49						
	04/15/14	1724.56						
	05/05/14	1724.19		7.2			1,000	8,300
	06/17/14	1722.70						
	07/03/14	1721.30						
	08/11/14	1715.61		6.9			970	8,400
	09/17/14	1710.11						
	10/21/14	1707.84						
	11/19/14	1708.93						
	12/01/14			6.3			980	8,100
	12/02/14	1709.58						
I-E	10/07/13	1709.23						
	11/12/13	1708.43		8.1			1,100	10,000
	12/04/13	1708.43						
	01/09/14	1708.04						
	02/03/14	1708.03		8.0			1,000	9,700
	03/14/14	1708.82						
	04/15/14	1708.17						
	05/05/14	1708.29		9.0			940	9,100
	06/17/14	1708.00						
	07/03/14	1708.04						
	08/11/14	1708.02		7.9			830	8,900

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
I-E	09/17/14	1708.09						
	10/21/14	1708.27						
	11/19/14	1708.29						
	12/01/14	1708.59		8.6			860	8,800
I-F	10/07/13	1725.38						
	11/12/13	1725.32		14			1,600	13,000
	12/04/13	1724.99						
	01/09/14	1725.03						
	02/03/14	1724.83		14			1,500	12,000
	03/14/14	1724.03						
	04/15/14	1723.75						
	05/05/14	1723.61		16			1,400	12,000
	06/17/14	1720.99						
	07/03/14	1719.81						
	08/11/14	1716.75		16			1,300	12,000
	09/17/14	1708.73						
	10/21/14	1708.65						
	11/19/14	1709.03						
	12/01/14	1708.65		17			1,300	12,000
I-G	10/07/13	1714.59						
	11/12/13	1714.51		22			1,500	15,000
	12/04/13	1715.36						
	01/09/14	1715.26						
	02/03/14	1714.88		22			1,600	14,000
	03/14/14	1714.75						
	04/15/14	1714.59						
	05/05/14	1711.93		27			1,700	14,000
	06/16/14	1714.61						
	07/03/14	1711.07						
	08/11/14	1712.65		22			1,700	16,000
	09/17/14	1708.28						
	10/21/14	1712.64						
	11/19/14	1712.85						
	12/01/14	1711.12		24			1,900	15,000
I-H	10/07/13	1721.34						
	11/12/13	1721.59		22			1,800	15,000
	12/04/13	1721.48						
	01/09/14	1721.39						
	02/03/14	1721.33		22			1,700	15,000
	03/14/14	1721.15						
	04/15/14	1720.78						
	05/05/14	1720.69		24			2,100	15,000
	06/16/14	1709.30						
	07/03/14	1709.42						
	08/11/14	1709.34		20			2,200	15,000

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
I-H	09/17/14	1709.24						
	10/21/14	1709.27						
	11/19/14	1709.27						
	12/01/14	1709.18		21			1,900	14,000
I-I	10/10/13	1722.29						
	11/13/13	1722.39		12			840	9,800
	12/04/13	1722.29						
	01/10/14	1722.22						
	02/07/14	1722.13		12			950	9,600
	03/14/14	1722.08						
	04/18/14	1721.79						
	05/13/14	1721.58		11			820	10,000
	06/19/14	1722.18						
	07/03/14	1722.33						
	08/14/14	1722.70		13			680	9,300
	09/17/14	1722.79						
	10/21/14	1722.81						
	11/20/14	1722.76						
	12/01/14	1722.78						
	12/02/14			11			530	8,400
I-J	10/10/13	1709.08						
	11/13/13	1715.31		4.0			210	6,700
	12/04/13	1715.71						
	01/10/14	1715.23						
	02/07/14	1718.50		4.1			260	6,400
	03/14/14	1719.26						
	04/18/14	1718.23						
	05/13/14	1718.50		3.9			260	6,500
	06/19/14	1721.97						
	07/03/14	1722.30						
	08/14/14	1722.78		4.4			260	6,600
	09/17/14	1722.95						
	10/21/14	1722.93						
	11/20/14	1723.01						
	12/02/14	1722.96		3.9			260	6,300
I-K	10/10/13	1716.67						
	11/13/13	1712.49		2.0			180	6,800
	12/04/13	1713.76						
	01/10/14	1710.05						
	02/07/14	1714.79		2.1			210	6,800
	03/14/14	1714.73						
	04/18/14	1713.33						
	05/13/14	1715.08		2.0			220	7,000
	06/19/14	1718.61						
	07/03/14	1719.82						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters

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Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID	Collection	GW Elevation	Chlorate	Chromium	Chromium VI	Nitrate	Perchlorate	TDS
Units	Date	(ft amsl)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
I-K	08/14/14	1719.98		2.2			220	7,000
	09/17/14	1719.97						
	10/21/14	1719.43						
	11/20/14	1718.47						
	12/02/14	1716.55		2.1			250	6,700
I-L	10/07/13	1725.47						
	11/12/13	1725.39		1.3			890	7,200
	12/04/13	1724.88						
	01/09/14	1724.77						
	02/04/14	1724.63		1.1			810	6,900
	03/14/14	1724.37						
	04/15/14	1724.26						
	05/05/14	1722.89		1.2			730	6,200
	(FD)			1.1			730	6,400
	06/17/14	1721.06						
	07/03/14	1715.98						
	08/11/14	1711.72		0.94			990	6,400
	09/17/14	1720.68						
	10/21/14	1719.74						
	11/19/14	1712.41						
	12/01/14	1711.64		0.92			950	6,400
I-M	10/07/13	1725.28						
	11/12/13	1725.31		7.6			750	8,700
	12/04/13	1725.02						
	01/09/14	1724.96						
	02/03/14	1724.72		7.0			670	8,700
	03/14/14	1724.14						
	04/15/14	1723.93						
	05/05/14	1723.49		8.6			640	8,100
	06/17/14	1719.89						
	07/03/14	1714.81						
	08/11/14	1714.79		7.6			1,100	8,900
	09/17/14	1716.11						
	10/21/14	1715.97						
	11/19/14	1716.27						
	12/01/14	1716.27		7.4			1,000	8,800
I-N	10/07/13	1725.59						
	11/12/13	1725.62		9.5			1,100	9,700
	12/04/13	1725.36						
	01/09/14	1725.36						
	02/03/14	1724.95		8.9			1,100	9,600
	03/14/14	1723.47						
	04/15/14	1723.40						
	05/05/14	1723.40		11			1,000	10,000
	06/17/14	1720.76						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
I-N	07/03/14	1719.57						
	08/11/14	1716.34		8.9			1,200	9,800
	09/17/14	1713.91						
	10/21/14	1715.10						
	11/19/14	1717.66						
	12/01/14	1717.63		9.3			1,100	10,000
I-O	10/07/13	1722.54						
	11/12/13	1722.38		21			1,300	14,000
	12/04/13	1722.21						
	01/09/14	1722.17						
	02/03/14	1722.07		19			1,300	13,000
	03/14/14	1721.93						
	04/15/14	1720.87						
	05/05/14	1720.67		19			1,300	12,000
	06/16/14	1719.15						
	07/03/14	1719.96						
	08/11/14	1720.54		13			1,200	10,000
	09/17/14	1720.57						
	10/21/14	1720.56						
	11/19/14	1715.95						
	12/01/14	1715.24		13			1,100	9,200
I-P	10/07/13	1709.62						
	11/12/13	1713.74		23			1,800	15,000
	12/04/13	1711.64						
	01/09/14	1708.98						
	02/03/14	1713.40		21			1,800	15,000
	03/14/14	1713.07						
	04/15/14	1708.93						
	05/05/14	1709.15		23			1,800	14,000
	06/16/14	1711.59						
	07/03/14	1712.07						
	08/11/14	1710.29		17			1,400	12,000
	09/17/14	1712.90						
	10/21/14	1711.50						
	11/19/14	1711.43						
	12/01/14	1710.61		17			1,200	11,000
I-Q	10/07/13	1725.43						
	11/12/13	1720.16		32			1,100	16,000
	12/04/13	1719.75						
	01/09/14	1722.44						
	02/03/14	1722.33		22			1,400	14,000
	03/14/14	1720.81						
	04/15/14	1720.30						
	05/05/14	1720.74		26			1,500	14,000
	06/16/14	1714.47						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters

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Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
I-Q	07/03/14	1714.02						
	08/11/14	1713.23		21			1,700	15,000
	09/17/14	1713.50						
	10/21/14	1712.69						
	11/19/14	1713.79						
	12/01/14	1712.58		23			1,800	15,000
I-R	10/07/13	1736.16						
	11/12/13	1719.00		1.1			1,200	7,900
	12/04/13	1718.74						
	01/09/14	1726.06						
	02/04/14	1717.72		0.85			1,300	7,800
	03/17/14	1716.26						
	04/15/14	1717.01						
	05/05/14	1721.40		1.0			1,100	6,800
	06/17/14	1716.92						
	07/03/14	1712.14						
	08/11/14	1710.41		0.55			1,600	7,300
	09/17/14	1710.61						
	10/21/14	1715.12						
	11/19/14	1710.23						
	12/01/14	1709.22		0.53			1,500	6,600
I-S	10/07/13	1725.58						
	11/12/13	1725.45		1.5			840	7,400
	12/04/13	1725.02						
	01/09/14	1724.89						
	02/04/14	1725.84		1.5			790	7,000
	03/17/14	1726.02						
	04/15/14	1724.57						
	05/05/14	1724.22		1.9			650	6,100
	06/17/14	1723.16						
	07/03/14	1721.95						
	08/11/14	1721.49		1.5			690	5,900
	09/17/14	1721.29						
	10/21/14	1721.11						
	11/19/14	1721.08						
	12/01/14	1721.04		1.7			640	6,000
I-T	10/07/13	1722.65						
	11/12/13	1722.18		28			1,600	16,000
	12/04/13	1721.92						
	01/09/14	1708.65						
	02/03/14	1708.61		25			1,500	16,000
	03/14/14	1722.37						
	04/15/14	1719.28						
	05/05/14	1718.40		25			1,600	14,000
	06/16/14	1708.43						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
I-T	07/03/14	1708.45						
	08/11/14	1708.38		23			1,700	16,000
	09/17/14	1708.42						
	10/21/14	1708.45						
	11/19/14	1708.42						
	12/01/14	1708.42		24			1,800	15,000
I-U	10/15/13	1709.99						
	11/12/13	1716.33		28			1,500	15,000
	12/04/13	1707.99						
	01/09/14	1708.02						
	02/03/14	1708.88		25			1,400	16,000
	03/14/14	1709.52						
	04/15/14	1708.05						
	05/05/14	1709.51		28			1,600	14,000
	06/16/14	1708.01						
	07/03/14	1707.73						
	08/11/14	1707.73		23			1,700	15,000
	09/17/14	1707.28						
	10/21/14	1707.90						
	11/19/14	1707.98						
	12/01/14	1707.75		23			1,800	16,000
I-V	10/10/13	1720.90						
	11/13/13	1721.12		17			1,100	11,000
	12/04/13	1720.89						
	01/10/14	1720.81						
	02/07/14	1720.65		15			1,100	11,000
	03/14/14	1720.51						
	04/18/14	1720.02						
	05/13/14	1719.78		14			930	10,000
	06/19/14	1720.12						
	07/03/14	1720.32						
	08/14/14	1720.74		12			1,000	10,000
	09/17/14	1720.77						
	10/21/14	1720.80						
	11/20/14	1720.86						
	12/02/14	1720.82		11			920	8,800
I-W	10/15/13	1722.02						
	11/12/13	1722.45		24			1,700	15,000
	12/03/13	1722.47						
	01/09/14	1722.36						
	02/07/14		4,100	4.3	20	60	1,500	14,000
	02/11/14	1722.36		22			1,800	13,000
	03/14/14	1722.16						
	04/15/14	1721.68						
	05/05/14	1720.56		20			1,500	13,000

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
I-W	06/16/14	1719.79						
	07/03/14	1713.81						
	08/11/14	1703.98		14			1,100	11,000
	09/17/14	1716.85						
	10/21/14	1717.44						
	11/19/14	1720.16						
	12/01/14	1719.91		14			1,100	9,600
I-X	10/15/13	1727.08						
	11/12/13	1725.54		13			2,200	13,000
	12/03/13	1725.52						
	01/09/14	1725.38						
	02/05/14		2,600	9.1	10	100	1,700	12,000
	02/10/14	1725.19		10			1,800	12,000
	03/14/14	1724.34						
	04/15/14	1724.09						
	05/05/14	1723.96		12			2,000	12,000
	06/17/14	1703.97						
	07/03/14	1713.76						
	08/11/14	1711.27		11			2,000	12,000
	09/17/14	1708.07						
	10/21/14	1707.38						
	11/19/14	1703.39						
	12/01/14	1704.43		12			1,900	12,000
I-Y	10/15/13	1725.09						
	11/12/13	1724.94		1.2			1,400	8,400
	12/03/13	1724.72						
	01/09/14	1724.59						
	02/07/14		360	0.21	1.0	140 J-	970	7,000
	02/10/14	1724.47		1.2			910	6,900
	03/14/14	1724.24						
	04/15/14	1724.18						
	05/05/14	1723.44		1.2			760	6,400
	06/17/14	1710.81						
	07/03/14	1716.11						
	08/11/14	1704.88		0.83			1,300	7,500
	09/17/14	1714.05						
	10/21/14	1712.96						
	11/19/14	1708.77						
	12/01/14	1711.28		0.82			1,400	6,800
I-Z	10/15/13	1709.66						
	11/13/13	1714.80		10			410	8,000
	12/03/13	1717.63						
	01/10/14	1714.84						
	02/07/14	1710.86		9.7			630	8,100
	03/14/14	1710.26						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
I-Z	04/18/14	1710.91						
	05/13/14	1710.82		10			380	7,700
	06/19/14	1720.94						
	07/03/14	1721.29						
	08/14/14	1722.53		8.1			310	6,900
	09/17/14	1722.64						
	10/21/14	1722.69						
	11/20/14	1722.67						
	12/02/14	1722.61		6.7			280	6,200
M-2A	05/13/14	1739.69		13			280	9,400
M-5A	05/12/14	1714.04		<0.0040			12	11,000
	08/12/14	1714.19		0.063			0.23	15,000
M-6A	05/09/14	1694.37		0.015			15	8,400
	08/13/14	1694.24		0.024			14	9,400
M-7B	05/12/14	1696.64		0.0043 J			26	9,700
	08/12/14	1696.49		0.023			26	9,600
M-10	10/15/13	1789.46						
	11/13/13	1789.04	85	0.35	<0.00025	1.2	8.4	2,700
	12/05/13	1788.58						
	01/07/14	1788.18						
	02/04/14	1787.69	67	2.3	<0.00025	1.6	7.8	2,500
	03/14/14	1787.19						
	04/18/14	1786.77						
	05/15/14	1786.50	71	0.36	<0.00025	1.4	6.3	2,700
	06/19/14	1786.50						
	07/07/14	1786.62						
	08/15/14	1786.27	63	0.34	<0.00025	1.4	7.7	2,700
	09/17/14	1785.93						
	10/21/14	1785.64						
	11/21/14	1785.45						
	12/08/14	1785.27	73	0.36	0.00062 J	1.3	6.6	2,600
M-11	10/15/13	1773.26						
	11/13/13	1773.22		1.7	1.5		25	2,500
	12/05/13	1773.09						
	01/10/14	1772.95						
	02/04/14	1772.94		1.3	1.3		21	2,400
	03/14/14	1772.64						
	04/18/14	1772.32						
	05/15/14	1772.14	240	1.4	1.2	2.1	18	2,400
	06/19/14	1771.99						
	07/03/14	1771.97						
	08/15/14	1771.88		1.3	1.2		20	2,400
	(FD)			1.2	1.2		18	2,600
	09/17/14	1771.71						
	10/21/14	1771.58						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters

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Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-11	11/21/14	1771.44						
	12/18/14	1771.32		1.4	1.2		17	2,400
M-12A	11/13/13	1771.94		8.3	8.0		160	6,700
	(FD)			8.2	7.9		150	6,800
	02/07/14	1771.19		8.3	8.7		170	6,700
	(FD)			8.6	8.9		170	6,700
	05/14/14	1770.60	1,900	9.1	9.1	7.6	160	6,600
	(FD)		1,800	9.1	9.1	9.0	150	6,700
	08/14/14	1770.40		9.6	9.7		210	7,200
	(FD)			9.8	9.5		200	7,300
	12/18/14	1769.94		11	10		220	7,200
	(FD)			12	10		230	7,000
M-13	05/15/14	1769.45	160	0.49		4.4	12	3,100
M-14A	10/07/13	1729.42						
	11/14/13	1729.28		0.066			41	3,400
	12/05/13	1729.29						
	01/09/14	1729.11						
	02/07/14	1728.92		0.041			38	3,500
	03/14/14	1728.75						
	04/15/14	1729.12						
	05/12/14	1729.14		0.050			31	3,300
	06/18/14	1728.99						
	07/03/14	1728.71						
	08/12/14	1728.44		0.038			32	3,600
	09/17/14	1728.35						
	10/21/14	1728.32						
	11/19/14	1728.20						
	12/08/14	1728.15		0.047			30	3,200
M-19	10/10/13	1732.56						
	11/13/13	1732.45		0.40			13	5,000
	12/05/13	1732.56						
	01/10/14	1732.43						
	02/07/14	1732.38		0.34			12	5,100
	03/14/14	1732.28						
	04/18/14	1732.16						
	05/13/14	1732.04		0.38			12	5,100
	06/19/14	1732.03						
	07/03/14	1732.07						
	08/14/14	1732.23		0.39			13	5,300
	09/17/14	1732.31						
	10/21/14	1732.24						
	11/20/14	1732.19						
	12/18/14	1732.18		0.39			14	5,100
M-21	05/14/14	1751.30		0.61 J			13	3,400

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-22A	10/10/13	1730.07						
	11/14/13	1730.03		20			1,300	13,000
	(FD)			22			1,300	13,000
	12/05/13	1730.12						
	01/09/14	1729.99						
	02/07/14	1729.84		18			1,400	13,000
	03/14/14	1729.75						
	04/18/14	1729.54						
	05/12/14	1729.38		19			1,200	12,000
	06/18/14	1729.33						
	07/02/14	1729.39						
	08/12/14	1729.50		18			1,200	13,000
	09/17/14	1729.55						
	10/21/14	1729.54						
	11/19/14	1729.53						
	12/08/14	1729.47		17			1,100	11,000
M-23	10/15/13	1687.07						
	11/11/13	1687.03		0.38 J+			170	4,500
	12/09/13	1686.95						
	01/07/14	1687.16						
	02/06/14	1687.18		0.32			180	3,900
	03/14/14	1686.83						
	04/18/14	1686.90						
	05/09/14	1686.83	130	0.31		35	160	4,700
	06/19/14	1686.63						
	07/07/14	1686.58						
	08/13/14	1686.48		0.26 J-			190	4,300
	09/18/14	1686.43						
	10/22/14	1686.23						
	11/21/14	1686.16						
	12/05/14	1686.07		0.34			200	4,000
M-25	10/07/13	1729.74						
	11/12/13	1729.61		6.7			560	8,000
	12/04/13	1729.38						
	01/09/14	1729.29						
	02/07/14	1728.92		6.2			560	7,900
	03/14/14	1728.45						
	04/15/14	1728.09						
	05/12/14	1727.86	1,900	6.9		32	480	7,800
	06/18/14	1727.17						
	07/03/14	1727.06						
	08/12/14	1726.62		7.0			500	8,200
	09/17/14	1726.55						
	10/21/14	1726.50						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-25	11/19/14	1726.42						
	12/08/14	1726.43		7.0			430	7,600
M-31A	10/15/13	1754.34						
	11/13/13	1753.92		0.088			4.6	780
	12/05/13	1753.73						
	01/10/14	1753.60						
	03/14/14	1751.73						
	04/18/14	1751.02						
	05/14/14	1751.03		2.4			330	3,900
	06/19/14	1751.00						
	07/03/14	1750.93						
	08/14/14	1750.86		4.3			690	6,000
	09/17/14	1750.80						
	10/21/14	1750.73						
	11/21/14	1750.60						
	12/09/14	1750.54		4.7			710	6,400
M-35	10/10/13	1741.62						
	11/13/13	1741.55		5.7			170	6,100
	12/05/13	1741.55						
	01/10/14	1741.15						
	02/07/14	1741.32		6.1			190	6,700
	03/14/14	1741.03						
	04/18/14	1740.69						
	05/13/14	1740.57		6.5			180	6,900
	(FD)			7.3			180	6,800
	06/19/14	1740.45						
	07/03/14	1740.45						
	08/14/14	1740.44		7.4			210	6,900
	09/17/14	1740.47						
	10/21/14	1740.40						
	11/20/14	1740.35						
	12/18/14	1740.27		5.8			200	5,900
M-37	10/07/13	1731.34						
	11/12/13	1730.82		0.035	0.032		1,300	6,100
	(FD)			0.054	0.042		1,300	6,400
	12/04/13	1730.79						
	01/09/14	1730.71						
	02/07/14	1730.54		0.047	0.029		1,100	5,700
	03/14/14	1730.33						
	04/15/14	1730.19						
	05/12/14	1730.13	15	0.036	0.018	99	1,200	5,800
	06/18/14	1729.73						
	07/03/14	1729.59						
	08/12/14	1729.37		0.014	0.014		1,300	6,400
	09/17/14	1729.35						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-37	10/21/14	1729.27						
	11/19/14	1729.25						
	12/05/14	1729.19		0.016	0.0083		1,400	4,700
M-38	10/10/13	1729.85						
	11/14/13	1729.77		18	16		650	12,000
	(FD)			20	16		700	12,000
	12/05/13	1729.71						
	01/09/14	1729.59						
	02/07/14	1729.41		18	18		740	12,000
	03/14/14	1729.22						
	04/18/14	1729.00						
	05/12/14	1728.89		18	18 J-		730	12,000
	06/18/14	1728.68						
	07/02/14	1728.60						
	08/12/14	1728.54		20	18		640	12,000
	09/17/14	1728.49						
	10/21/14	1728.52						
	11/19/14	1728.50						
	12/08/14	1728.41		18	18		630	11,000
	(FD)			18	18		640	11,000
M-44	10/15/13	1674.69						
	11/11/13	1674.62		1.2 J+	0.91 J-		590	9,700
	12/09/13	1674.62						
	01/07/14	1674.52						
	02/05/14	1674.43		0.85	0.93		730	8,900
	03/14/14	1674.35						
	04/18/14	1674.33						
	05/08/14	1674.18		0.99	0.94 J-		630	8,600
	(FD)			0.99	0.94 J-		770	8,700
	06/19/14	1674.13						
	07/07/14	1674.07						
	08/13/14	1673.94		0.99 J-	0.90		760	9,400
	09/18/14	1673.92						
	10/22/14	1673.82						
	11/21/14	1673.73						
	12/04/14	1673.63		1.0	0.93		740	8,400
M-48A	10/15/13	1688.84						
	11/11/13	1688.74		1.7			150	4,300
	(FD)			1.8 J+			170	4,400
	12/09/13	1688.74						
	01/07/14	1688.78						
	02/05/14	1688.69		1.6			160	4,800
	03/14/14	1688.55						
	04/18/14	1688.40						
	05/08/14	1688.34	520	2.0		27	140	4,800

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-48A	06/19/14	1688.22						
	07/07/14	1688.18						
	08/13/14	1688.19		1.6 J-			140	5,300
	09/18/14	1688.16						
	10/22/14	1688.12						
	11/21/14	1688.10						
	12/04/14	1688.04		1.9			160	5,000
M-52	11/13/13	1761.68		2.3			2,300	5,600
	02/07/14	1761.90		2.1			490	5,500
	05/14/14	1761.25		2.1			440	5,400
	08/14/14	1761.07		2.0			560	5,400
	12/09/14	1760.66		1.9			430	4,900
M-55	10/07/13	1726.42						
	11/15/13	1726.42						
	12/04/13	1726.16						
	01/09/14	1726.12						
	02/03/14	1725.81						
	03/14/14	1725.27						
	04/15/14	1724.89						
	05/05/14	1724.71						
	06/17/14	1723.17						
	07/03/14	1722.27						
	08/08/14	1721.22						
	09/17/14	1721.09						
	10/21/14	1721.04						
	11/19/14	1721.04						
	12/02/14	1721.33						
M-56	10/07/13	1724.09						
	11/15/13	1723.66						
	12/04/13	1723.37						
	01/09/14	1723.41						
	02/03/14	1723.34						
	03/14/14	1722.84						
	04/15/14	1722.65						
	05/05/14	1722.09						
	06/16/14	1721.49						
	07/03/14	1720.64						
	08/08/14	1719.64						
	09/17/14	1719.34						
	10/21/14	1719.28						
	11/19/14	1719.20						
	12/02/14	1719.20						
M-57A	10/07/13	1724.65						
	11/13/13	1724.70		0.061			25	3,100
	12/05/13	1724.57						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-57A	01/07/14	1724.43						
	02/07/14	1724.33		0.061			27	3,300
	03/14/14	1724.21						
	04/15/14	1724.23						
	05/12/14	1724.33		0.062			27	3,400
	(FD)			0.061	0.058 J-		27	3,400
	06/17/14	1724.21						
	07/03/14	1724.10						
	08/12/14	1723.91		0.049			30	3,300
	09/17/14	1723.81						
	10/21/14	1723.80						
	11/19/14	1723.72						
	12/05/14	1723.66		0.062			39	3,400
M-58	10/07/13	1722.61						
	11/15/13	1722.59						
	12/04/13	1721.51						
	01/09/14	1722.46						
	02/05/14	1722.33						
	03/14/14	1722.23						
	04/15/14	1721.71						
	05/05/14	1721.66						
	06/16/14	1721.46						
	07/02/14	1721.61						
	08/08/14	1721.82						
	09/17/14	1721.91						
	10/21/14	1721.90						
	11/19/14	1721.90						
	12/02/14	1721.78						
M-60	10/07/13	1723.26						
	11/15/13	1723.12						
	12/04/13	1722.88						
	01/09/14	1722.25						
	02/05/14	1722.18						
	03/14/14	1722.57						
	04/15/14	1722.03						
	05/05/14	1721.77						
	06/16/14	1719.51						
	07/02/14	1719.17						
	08/08/14	1718.95						
	09/17/14	1718.93						
	10/21/14	1718.89						
	11/19/14	1718.92						
	12/02/14	1721.00						
M-64	10/07/13	1724.94						
	11/12/13	1724.74		6.2			950	8,400

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-64	12/09/13	1724.43						
	01/09/14	1724.40						
	02/06/14	1724.11		5.7			1,200	8,200
	03/14/14	1723.67						
	04/15/14	1723.40						
	05/12/14	1723.50		5.6			1,000	8,200
	06/18/14	1721.95						
	07/02/14	1721.17						
	08/12/14	1720.64		6.0			880	9,000
	09/17/14	1720.55						
	10/21/14	1720.55						
	11/19/14	1720.73						
	12/03/14	1720.39		2.9			390	5,600
M-65	10/07/13	1726.37						
	11/12/13	1726.37		21			1,100	13,000
	12/04/13	1726.03						
	01/09/14	1726.03						
	02/06/14	1725.70		20			1,000	13,000
	03/14/14	1725.13						
	04/15/14	1724.80						
	05/12/14	1724.61		20			980	13,000
	06/16/14	1723.10						
	07/02/14	1722.04						
	08/12/14	1721.09		20			1,100	14,000
	09/17/14	1720.99						
	10/21/14	1720.97						
	11/19/14	1720.95						
	12/03/14	1720.94		22			1,300	14,000
M-66	10/07/13	1724.32						
	11/12/13	1724.43		24			2,200	16,000
	12/04/13	1724.22						
	01/09/14	1724.18						
	02/06/14	1724.03		21			2,700	16,000
	03/14/14	1723.87						
	04/15/14	1723.66						
	05/12/14	1723.48		21			2,400	15,000
	06/16/14	1723.35						
	07/02/14	1723.41						
	08/12/14	1723.50		21			2,100	16,000
	09/17/14	1723.56						
	10/21/14	1723.83						
	11/19/14	1723.56						
	12/02/14	1723.47						
	12/03/14			21			2,200	14,000

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Nevada Environmental Response Trust Site
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-67	10/10/13	1724.33						
	11/13/13	1724.40		7.1			210	6,600
	12/04/13	1724.32						
	01/10/14	1724.25						
	02/07/14	1724.17		6.6			250	6,300
	03/14/14	1724.17						
	04/18/14	1724.08						
	05/13/14	1724.00		6.4			230	6,200
	06/19/14	1724.63						
	07/03/14	1724.86						
	08/14/14	1725.22		6.6			250	6,200
	09/17/14	1725.32						
	10/21/14	1725.33						
	11/20/14	1725.35						
	12/08/14	1725.28		3.0			260	5,800
M-68	10/10/13	1724.09						
	11/13/13	1724.05		1.7			170	6,700
	12/04/13	1723.99						
	01/10/14	1723.91						
	02/07/14	1723.92		1.7			190	6,700
	(FD)			1.8			180	7,000
	03/14/14	1724.08						
	04/18/14	1724.12						
	05/13/14	1724.08		1.8			170	6,600
	06/19/14	1724.44						
	07/03/14	1724.70						
	08/14/14	1724.92		1.7			170	6,700
	09/17/14	1725.07						
	10/21/14	1725.11						
	11/20/14	1725.10						
	12/08/14	1725.02		1.6			170	6,200
M-69	10/07/13	1718.51						
	11/13/13	1718.32		0.043			430	4,800
	12/04/13	1718.08						
	01/09/14	1717.88						
	02/12/14	1717.64		0.10			720	4,800
	03/14/14	1717.50						
	04/15/14	1717.33						
	05/12/14	1716.18		0.057			490	4,500
	06/17/14	1716.82						
	07/03/14	1716.70						
	08/12/14	1716.24		0.055			420	4,700
	09/17/14	1716.12						
	10/21/14	1716.06						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Nevada Environmental Response Trust Site
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-69	11/19/14	1715.94						
	12/09/14	1715.93		0.058			350	4,000
M-70	10/07/13	1715.13						
	11/14/13	1714.62		3.4			570	6,000
	12/05/13	1714.62						
	01/09/14	1714.64						
	02/06/14	1714.52		3.5			580	6,500
	03/14/14	1714.33						
	04/18/14	1714.09						
	05/13/14	1713.88		3.8			530	6,800
	06/17/14	1713.61						
	07/03/14	1713.49						
	08/12/14	1713.23		3.8			560	7,300
	09/17/14	1713.05						
	10/21/14	1713.03						
	11/19/14	1712.97						
	12/08/14	1712.94		4.2			660	6,800
M-71	10/07/13	1712.80						
	11/14/13	1712.83		8.6			1,400	11,000
	12/05/13	1712.55						
	01/09/14	1712.52						
	02/06/14	1712.36		8.1			1,500	11,000
	03/14/14	1712.17						
	04/18/14	1712.13						
	05/13/14	1712.02		6.3			940	8,900
	06/17/14	1711.95						
	07/03/14	1711.80						
	08/12/14	1711.60		5.5			1,000	9,100
	09/17/14	1711.48						
	10/21/14	1711.48						
	11/19/14	1711.38						
	12/08/14	1711.42		4.9			940	7,000
M-72	10/07/13	1715.01						
	11/14/13	1715.04		7.7			860	11,000
	12/05/13	1715.00						
	01/09/14	1715.01						
	02/06/14	1714.96		8.2			960	12,000
	03/14/14	1714.91						
	04/18/14	1714.85						
	05/13/14	1714.62		8.7			960	12,000
	06/17/14	1714.71						
	07/03/14	1714.62						
	08/12/14	1714.68		8.5			1,600	13,000
	09/17/14	1714.65						
	10/21/14	1714.72						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-72	11/19/14	1714.64						
	12/08/14	1714.55		9.8			1,100	11,000
M-73	10/10/13	1712.32						
	11/13/13	1712.25		9.2			390	8,300
	12/04/13	1712.31						
	01/10/14	1712.22						
	02/07/14	1712.27		12			440	9,000
	03/14/14	1712.41						
	04/18/14	1712.55						
	05/13/14	1712.46		11			450	9,800
	06/19/14	1712.63						
	07/03/14	1712.82						
	08/14/14	1712.95		9.6			450	9,000
	09/17/14	1713.02						
	10/21/14	1713.09						
	11/20/14	1713.09						
	12/09/14	1713.02		9.3			480	8,400
M-74	10/10/13	1714.64						
	11/13/13	1714.55		1.3			110	6,300
	12/04/13	1714.55						
	01/10/14	1715.26						
	02/07/14	1715.55		1.3			130	6,100
	03/14/14	1715.44						
	04/18/14	1716.61						
	05/13/14	1716.76		1.3			120	6,100
	06/19/14	1717.06						
	07/03/14	1717.24						
	08/14/14	1717.59		1.4			130	6,400
	09/17/14	1717.77						
	10/21/14	1717.87						
	11/20/14	1717.87						
	12/18/14	1717.87		1.4			150	6,300
M-75	10/10/13	1742.23						
	11/14/13	1742.15						
	12/05/13	1742.18						
	01/10/14	1742.09						
	02/07/14	1742.02						
	03/14/14	1741.92						
	04/18/14	1741.86						
	05/13/14	1741.83		2.1			45	3,900
	06/19/14	1741.84						
	07/03/14	1741.84						
	08/11/14	1741.79						
	09/17/14	1741.83						
	10/21/14	1741.79						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-75	11/20/14	1741.85						
	12/02/14	1741.68						
M-76	10/10/13	1746.20						
	11/14/13	1746.09						
	12/05/13	1746.13						
	01/10/14	1746.06						
	02/07/14	1746.00						
	03/14/14	1745.92						
	04/18/14	1745.99						
	05/13/14	1746.03		2.6			96	4,300
	06/19/14	1746.00						
	07/03/14	1745.99						
	08/11/14	1745.91						
	09/17/14	1745.95						
	10/21/14	1745.88						
	11/20/14	1745.87						
	12/02/14	1745.82						
M-77	11/13/13	1761.15						
	12/05/13	1761.13						
	01/10/14	1763.27						
	02/07/14	1763.09						
	03/14/14	1760.74						
	04/18/14	1762.60						
	05/14/14	1762.46		0.54 J			170	3,100
	06/19/14	1762.29						
	07/03/14	1762.25						
	08/11/14	1762.11						
	09/17/14	1762.07						
	10/21/14	1761.90						
	11/21/14	1761.57						
	12/02/14	1761.74						
M-78	10/07/13	1725.95						
	11/15/13	1725.96						
	12/04/13	1725.65						
	01/09/14	1725.61						
	02/03/14	1725.36						
	03/14/14	1724.36						
	04/15/14	1724.14						
	05/05/14	1724.03						
	06/17/14	1721.76						
	07/03/14	1720.61						
	08/08/14	1718.97						
	09/17/14	1718.64						
	10/21/14	1718.63						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-78	11/19/14	1718.83						
	12/02/14	1718.99						
M-79	10/07/13	1713.11						
	11/13/13	1712.65		0.28			390	4,600
	12/04/13	1712.61						
	01/09/14	1712.59						
	02/06/14	1712.49		0.30			510	4,500
	03/14/14	1712.31						
	04/15/14	1712.25						
	05/12/14	1711.94		0.22			460	4,600
	06/17/14	1711.72						
	07/03/14	1711.62						
	08/12/14	1711.39		0.21			570	5,200
	09/17/14	1711.21						
	10/21/14	1711.15						
	11/19/14	1711.06						
	12/03/14	1711.05		0.19			630	4,700
M-80	10/07/13	1710.70						
	11/14/13	1710.62		1.1			180	2,400
	12/04/13	1710.59						
	01/10/14	1710.60						
	02/07/14	1710.57		1.2	1.1		200	2,800
	03/14/14	1710.50						
	04/18/14	1710.42						
	05/13/14	1710.35		1.2	1.2		210	3,000
	06/19/14	1710.25						
	07/03/14	1710.13						
	08/14/14	1710.11		1.3			270	3,400
	09/17/14	1710.03						
	10/21/14	1710.01						
	11/20/14	1710.00						
	12/18/14	1710.01		1.3			360	3,500
M-81A	10/07/13	1708.92						
	11/14/13	1708.87		2.7			510	5,000
	12/04/13	1708.89						
	01/10/14	1708.85						
	02/07/14	1708.79		2.6			610	5,700
	03/14/14	1708.79						
	04/18/14	1708.73						
	05/13/14	1708.60		2.5			550	5,400
	06/19/14	1708.63						
	07/03/14	1708.58						
	08/14/14	1708.70		2.5			540	5,700
	09/17/14	1708.59						
	10/21/14	1708.54						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-81A	11/20/14	1708.54						
	12/18/14	1708.48		2.0			550	4,700
M-83	10/11/13	1712.92					220	2,800
	11/14/13	1712.29		1.0			250	3,100
	12/12/13	1712.55					270	3,300
	01/16/14	1711.70					310	3,200
	02/07/14	1711.63		0.99			320	3,500
	03/13/14	1712.25					320	3,500
	04/17/14	1711.19					340	3,500
	05/13/14	1711.14		1.1			360	3,900
	06/13/14	1710.94					470	4,000
	07/09/14	1710.79					460	4,200
	08/14/14	1710.65		1.2			450	4,300
	09/11/14	1710.57					480	3,800
	10/14/14	1710.68					530	3,900
	11/24/14	1710.43		1.2			440	4,300
	12/30/14	1710.41					500	3,500
M-92	10/15/13	1764.50						
	11/15/13	1764.53						
	12/05/13	1764.47						
	01/07/14	1764.51						
	02/06/14	1764.38						
	03/14/14	1764.28						
	04/18/14	1764.19						
	05/12/14	1764.28		0.019			2.0	2,000
	06/19/14	1764.45						
	07/07/14	1764.49						
	08/11/14	1764.54						
	09/18/14	1764.68						
	10/22/14	1764.77						
	11/21/14	1764.74						
	12/02/14	1764.74						
M-93	10/15/13	1762.19						
	11/15/13	1762.18						
	12/05/13	1762.16						
	01/07/14	1762.19						
	02/06/14	1762.06						
	03/14/14	1761.97						
	04/18/14	1761.87						
	05/12/14	1761.96						
	06/19/14	1762.14						
	07/07/14	1762.11						
	08/11/14	1762.19						
	09/18/14	1762.35						
	10/22/14	1762.38						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-93	11/21/14	1762.38						
	12/02/14	1762.32						
M-95	10/15/13	1677.56						
	11/11/13	1677.52		0.75 J+	0.48		330	6,600
	12/09/13	1677.64						
	01/07/14	1677.50						
	02/05/14	1677.37		0.57	0.61		340	6,500
	(FD)			0.56	0.61		330	6,400
	03/14/14	1677.27						
	04/18/14	1677.21						
	05/08/14	1677.17		0.64	0.6 J-		280	6,000
	06/19/14	1677.10						
	07/07/14	1677.04						
	08/13/14	1676.97		0.52 J-	0.55		350	6,600
	09/18/14	1676.90						
	10/22/14	1676.81						
	11/21/14	1676.62						
	12/05/14	1676.55		0.55	0.61		360	6,200
M-96	10/15/13	Dry						
	11/11/13	Dry						
	01/07/14	Dry						
	02/05/14	Dry						
	03/14/14	Dry						
	04/18/14	Dry						
	05/08/14	Dry						
	06/19/14	Dry						
	07/07/14	Dry						
	08/13/14	Dry						
	09/18/14	Dry						
	10/22/14	Dry						
	11/21/14	Dry						
	12/05/14	Dry						
M-97	10/15/13	1761.26						
	11/15/13	1761.23						
	12/05/13	1761.16						
	01/07/14	1761.24						
	02/06/14	1761.09						
	03/14/14	1760.98						
	04/18/14	1760.86						
	05/12/14	1760.93		0.069			71	4,300
	06/19/14	1761.01						
	07/07/14	1760.99						
	08/11/14	1760.91						
	09/18/14	1761.01						
	10/22/14	1760.97						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-97	11/21/14	1761.04						
	12/02/14	1760.98						
M-98	10/15/13	Dry						
	11/18/13	Dry						
	12/09/13	Dry						
	01/07/14	Dry						
	02/06/14	Dry						
	03/14/14	Dry						
	04/18/14	Dry						
	05/09/14	Dry						
	06/19/14	Dry						
	07/07/14	Dry						
	08/13/14	Dry						
	09/18/14	Dry						
	10/22/14	Dry						
	11/21/14	Dry						
	12/05/14	Dry						
M-99	10/07/13	1697.41						
	11/14/13	1697.19		0.36			84	3,400
	12/05/13	1697.65						
	01/10/14	1697.72						
	02/10/14	1697.70		0.18			88	3,600
	03/14/14	1697.66						
	04/18/14	1697.57						
	05/20/14	1697.50		0.22			80	3,600
	06/17/14	1697.49						
	07/03/14	1697.41						
	08/12/14	1697.36		0.25			95	3,900
	09/17/14	1697.31						
	10/21/14	1697.28						
	11/19/14	1697.21						
	12/08/14	1697.18		0.26			98	3,300
M-100	10/10/13	Dry						
	11/15/13	Dry						
	12/04/13	Dry						
	01/10/14	Dry						
	02/11/14	Dry						
	03/14/14	Dry						
	04/18/14	Dry						
	05/13/14	Dry						
	06/19/14	Dry						
	07/03/14	Dry						
	08/11/14	Dry						
	09/17/14	Dry						
	10/21/14	Dry						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters

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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-100	11/21/14	Dry						
	12/02/14	Dry						
M-101	10/10/13	Dry						
	11/15/13	Dry						
	12/04/13	Dry						
	01/10/14	Dry						
	02/11/14	Dry						
	03/14/14	Dry						
	04/18/14	Dry						
	05/13/14	Dry						
	06/19/14	Dry						
	07/03/14	Dry						
	08/11/14	Dry						
	09/17/14	Dry						
	10/21/14	Dry						
	11/21/14	Dry						
	12/02/14	Dry						
M-103	05/13/14	Dry						
M-115	10/10/13	1750.19						
	11/14/13	1750.01						
	12/05/13	1750.12						
	01/10/14	1749.98						
	02/07/14	1749.90						
	03/14/14	1749.81						
	04/18/14	1750.25						
	05/13/14	1750.13		0.029			20	2,500
	06/19/14	1750.11						
	07/03/14	1749.93						
	08/11/14	1749.87						
	09/17/14	1749.85						
	10/21/14	1749.73						
	11/20/14	1749.68						
	12/02/14	1749.62						
M-117	05/15/14	1808.51		0.014			<0.00050	720
M-118	05/13/14	1810.83		0.016			<0.00050	700
M-120	05/13/14	1797.43		0.0051			0.067	2,100
M-121	05/13/14	1797.91		0.025			0.94	4,700
M-123	05/14/14	1744.26					0.56	13,000
M-124	05/14/14	1751.09		0.065 J			1.7	3,000
M-125	05/15/14	1733.89					0.44	12,000
M-126	05/12/14	1724.70		0.0074 J			<0.05	14,000
M-128	05/14/14	1747.32					6.7	2,700
M-131	11/13/13	1722.82		0.079			41	3,300
	02/06/14	1722.49		0.075			46	3,100
	05/12/14	1721.62		0.073			38	3,300

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-131	08/12/14	1720.87		0.070			36	3,600
	12/03/14	1720.58		0.089			39	3,300
	(FD)			0.081			42	3,300
M-132	05/14/14	1718.30		0.18 J			4.8	1,100
M-133	05/14/14	1716.90		0.95			33	5,900
M-134	05/12/14	1719.68		0.15			71	2,700
M-135	11/11/13	1719.42						
	11/13/13			0.060			31	3,600
	02/06/14	1718.63		0.069			43	3,500
	(FD)			0.062			38	3,500
	05/12/14	1718.96		0.067			36	3,400
	08/12/14	1717.42		0.065			35	3,800
	12/09/14	1717.21		0.084			45	3,500
M-136	05/12/14	1723.54		0.082			78	1,300
M-137	05/14/14	1790.33		0.096 J			1.0	2,000
M-138	05/14/14	1790.19		0.077 J			1.1	2,500
M-139	05/15/14	1777.76		0.020 J			0.19	2,600
M-140	05/12/14			4.0			890	6,900
M-141	05/14/14	1754.92		5.8			370	6,600
M-142	05/15/14	1743.39		0.037			7.5	2,700
M-144	05/15/14	1775.62		0.054			4.7	3,800
	(FD)			0.059			4.7	3,700
M-145	05/15/14	1774.50		<0.010			0.45	3,300
M-146	05/15/14	1777.71		0.090			3.0	4,500
M-147	05/15/14	1743.20		0.19			9.8	4,300
M-148A	05/15/14	1753.90		0.095			3.4	5,300
M-149	05/22/14	1752.30		1.1			130	1,500
M-150	05/19/14	1736.45		0.028			0.076	540
M-151	05/21/14	1712.61		0.028			0.0026	520
M-152	05/19/14	1672.19		0.025			0.21	640
	(FD)			0.025			0.22	640
M-153	05/22/14	1766.70		0.012			0.013	570
M-154	05/19/14	1747.73		0.025			0.0099	560
M-155	05/21/14	1730.69		0.021			<0.00050	540
M-156	05/15/14	1678.91		<0.0020			<0.00050	530
M-161	05/20/14	1729.50		0.022			0.019	540
M-162	05/20/14	1726.21		0.027			39	740
M-163	05/20/14	1721.47		0.025			0.031	530
M-164	05/19/14	1713.89		3.6			490	4,600
M-165	05/21/14	1721.69		0.021			0.049	520
M-166	11/15/13	1724.08						
	02/05/14	1723.44						
	05/05/14	1723.05						
	08/08/14	1721.68						
	12/02/14	1723.35						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-167	11/15/13	1725.61						
	02/05/14	1724.66						
	05/05/14	1723.92						
	08/08/14	1721.53						
	12/02/14	1721.27						
M-168	11/15/13	1726.19						
	02/05/14	1725.54						
	05/05/14	1724.81						
	08/08/14	1722.50						
	12/02/14	1722.20						
M-169	11/15/13	1725.94						
	02/05/14	1725.36						
	05/05/14	1724.50						
	08/08/14	1721.91						
	12/02/14	1721.68						
M-170	11/15/13	1726.35						
	02/05/14	1725.65						
	05/05/14	1724.37						
	08/08/14	1721.30						
	12/02/14	1720.90						
M-172	11/15/13	1725.09						
	02/05/14	1724.48						
	05/05/14	1723.42						
	08/08/14	1717.45						
	12/02/14	1717.16						
M-173	11/15/13	1722.70						
	02/05/14	1722.40						
	05/05/14	1721.75						
	08/08/14	1721.30						
	12/02/14	1721.32						
M-174	11/15/13	1722.71						
	02/07/14	1722.37						
	05/13/14	1722.00						
	08/11/14	1722.96						
	12/02/14	1722.96						
M-175	11/15/13	1721.97						
	02/07/14	1721.72						
	05/13/14	1721.53						
	08/11/14	1723.56						
	12/02/14	1723.66						
M-176	11/15/13	1721.57						
	02/07/14	1721.42						
	05/13/14	1721.39						
	08/11/14	1723.71						
	12/02/14	1723.79						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Nevada Environmental Response Trust Site
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
M-177	11/15/13	1721.64						
	02/07/14	1721.59						
	05/03/14	1721.61						
	08/11/14	1722.64						
	12/02/14	1722.77						
M-181	05/21/14	1733.73		0.043			0.0018	510
M-182	05/20/14	1728.43		1.2			8.3	13,000
M-186	05/22/14	1755.35		3.9			170	6,400
MC-3	05/09/14	1691.26					7.2	19,000
MC-6	05/09/14	1683.15					0.54	15,000
MC-7	05/09/14	1690.95					2.3	8,500
MC-29	05/09/14	1685.94					1.5	22,000
MC-45	05/09/14	1681.85					0.77	15,000
MC-50	05/09/14	1682.95					0.33	14,000
MC-51	05/09/14	1684.15					0.077	15,000
MC-53	05/09/14	1683.09		0.0044 J			3.8	14,000
MC-65	05/08/14	1671.56		0.022			22	12,000
MC-69	05/09/14	1685.92					0.98	16,000
MC-93	05/09/14	1685.55					13	7,000
MC-97	05/09/14	1682.37					3.5	14,000
MW-16	05/12/14	1718.68		<0.0040			<0.05	11,000
MW-K4	10/10/13	1587.65					180	7,000
	11/07/13	1587.77		0.26			190	7,100
	12/12/13	1587.66					160	7,100
	01/15/14	1587.55					190	6,900
	02/13/14	1587.29		0.31	0.29	16	180	6,900
	03/13/14	1587.19					170	7,300
	04/17/14	1586.99					160	6,900
	05/20/14	1586.80		0.28			160	7,100
	06/12/14	1586.73					200	6,700
	07/09/14	1586.65					220	6,800
	08/07/14	1587.09		0.31			210	6,800
	09/11/14	1587.39					220	7,400
	10/15/14	1587.58					180	7,400
	11/25/14	1587.55		0.20			130	7,500
	12/29/14	1587.63					89	7,500
MW-K5	10/10/13	1569.00					22	6,600
	11/07/13	1568.85		0.025			23	6,500
	12/12/13	1569.62					21	6,400
	01/15/14	1569.75					24	6,500
	02/13/14	1568.92		0.048			26	6,400
	03/13/14	1568.51					25	7,000
	04/17/14	1568.19					25	6,900
	05/20/14	1567.69	82	0.079		13	28	6,900
	06/12/14	1567.51					27	6,600

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
MW-K5	07/09/14	1567.54					27	6,300
	08/07/14	1567.90		0.088			27	6,900
	09/11/14	1568.70					27	7,000
	10/15/14	1569.08					25	6,900
	11/25/14	1569.59		0.036			25	6,600
	12/29/14	1569.16					26	6,700
PC-1	05/21/14	Dry						
PC-2	05/07/14	1568.08	19	0.013		13 J-	3.0	5,300
PC-4	05/21/14	1564.78	78	0.087		21	7.0	7,000
PC-18	10/08/13	1590.50					130	9,900
	11/08/13	1590.87		0.13			120	10,000
	12/11/13	1590.46					110	9,600
	01/14/14	1590.32						
	01/15/14						120	9,700
	02/14/14	1590.05		0.13 J+			120	9,400
	03/12/14	1589.98					130	10,000
	04/17/14	1589.81					110	9,800
	05/21/14	1589.52		0.11			98	10,000
	06/12/14	1589.45					120	9,700
	07/08/14	1589.46					120	10,000
	08/01/14	1589.83						
	08/08/14			0.11			110	10,000
	09/10/14	1590.18					130	11,000
	10/14/14	1590.35					150	10,000
	11/24/14	1590.50		0.12			120	10,000
	12/30/14	1590.60					130	10,000
PC-21A	05/08/14	1692.34	240	0.20		21	2.1	8,800
PC-24	05/06/14	1613.26		0.29			31	9,000
PC-28	05/08/14	1639.17		0.41			110	4,400
PC-31	05/08/14	1646.89		<0.0040			25	4,800
PC-37	10/15/13	1678.21						
	11/11/13	1678.18		0.22 J+			350	7,600
	12/09/13	1678.10						
	01/07/14	1678.13						
	02/06/14	1678.03		0.14			340	7,100
	03/14/14	1678.04						
	04/18/14	1677.93						
	05/08/14	1677.90		0.17			330	7,200
	06/19/14	1677.79						
	07/07/14	1677.79						
	08/13/14	1677.67		0.15			350	7,900
	09/18/14	1677.60						
	10/22/14	1677.53						
	11/21/14	1677.48						
	12/05/14	1677.34		0.13			380	7,400

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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-40	05/08/14	1657.28		<0.0040			0.26	14,000
PC-50	05/06/14	1620.98		0.076			130	9,800
PC-53	10/10/13	1567.94					1.2	4,500
	11/07/13	1567.85		0.074			2.0	5,000
	12/12/13	1568.69					1.5	4,600
	01/15/14	1568.88					2.6	4,900
	02/13/14	1568.16		0.077			2.9	5,300
	03/13/14	1567.77					2.5	5,700
	04/17/14	1567.43					2.5	5,300
	05/20/14	1566.88		0.088			2.7	5,600
	06/12/14	1566.61					3.0	5,400
	07/09/14	1566.46					2.9	5,400
	08/07/14	1566.84		0.089			2.7	5,400
	09/11/14	1567.64					2.7	5,400
	10/15/14	1568.06					2.3	5,400
	11/25/14	1568.88		0.090			1.9	5,200
	12/29/14	1568.48					1.8	5,100
PC-54	10/15/13	1681.44						
	11/11/13	1681.39		1.8			210	5,600
	12/09/13	1681.35						
	01/07/14	1681.36						
	02/05/14	1681.31		1.6			210	5,300
	03/14/14	1681.24						
	04/18/14	1681.15						
	05/08/14	1681.05		1.8			190	5,300
	06/19/14	1680.91						
	07/07/14	1680.86						
	08/13/14	1680.72		1.7 J-			220	5,600
	09/18/14	1680.68						
	10/22/14	1680.57						
	11/21/14	1680.42						
	12/04/14	1680.29		1.8			240	5,100
PC-55	10/11/13	1591.57					2.1	7,400
	11/08/13	1591.92		<0.0020			2.6	7,300
	12/13/13	1591.49					2.1	7,000
	01/16/14	1591.33					2.2	6,900
	02/14/14	1591.07		<0.0020			2.9	6,900
	03/13/14	1590.96					2.6	7,300
	04/16/14	1590.84					3.8	7,300
	05/21/14	1590.57		<0.0020			2.5	7,600
	06/13/14	1590.54					3.4	7,200
	07/10/14	1590.50					3.2	7,500
	08/08/14	1590.92		0.0043 J			3.1	7,500
	09/12/14	1591.13					3.3	7,700
	10/15/14	1591.37					3.6	7,600

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-55	11/25/14	1591.47		<0.0025			2.8	7,400
	12/30/14	1591.57					3.1	7,000
PC-56	10/08/13	1555.71					19	4,700
	11/06/13	1555.89		0.0027 J			17	4,600
	12/11/13	1556.65					16	4,500
	01/14/14	1556.83						
	01/15/14						18	4,400
	02/12/14	1556.22		<0.0020			16	3,800
	03/12/14	1555.84					17	4,200
	04/16/14	1555.46					18	4,500
	05/16/14	1555.10		<0.0020			18	4,700
	06/11/14	1554.81					20	4,900
	07/08/14	1555.01					20	4,900
	08/05/14	1554.65		0.0027 J			20	5,300
	09/10/14	1555.16					20	5,100
	10/14/14	1555.61					19	4,600
	11/24/14	1556.27		0.0032 J			18	4,400
	12/22/14	1556.26					22	4,900
PC-58	10/08/13	1554.86					1.1	2,600
	11/06/13	1554.96		0.021			1.3	2,600
	12/11/13	1555.72					1.3	3,000
	01/14/14	1555.96						
	01/15/14						3.0	3,000
	02/12/14	1555.37		0.015			1.8	2,800
	03/12/14	1555.00					1.9	2,800
	04/16/14	1554.61					2.0	2,900
	05/16/14	1554.30		0.016			2.3	3,000
	06/11/14	1554.00					2.9	3,000
	07/08/14	1554.54					2.8	3,100
	08/05/14	1553.82		0.025			3.3	3,500
	09/10/14	1554.33					3.4	3,400
	10/14/14	1554.75					4.8	3,200
	11/24/14	1555.37		0.015			5.4	3,700
	12/22/14	1555.42					5.6	3,300
PC-59	10/08/13	1556.54					5.1	3,100
	11/06/13	1556.55		0.0020 J			4.6	3,100
	12/11/13	1557.36					4.1	3,000
	01/14/14	1557.42						
	01/15/14						3.7	2,700
	02/12/14	1556.84		<0.0020			3.8	2,700
	03/12/14	1556.51					3.8	2,700
	04/16/14	1556.23					4.5	2,900
	05/16/14	1555.91		<0.0020			4.6	2,800
	06/11/14	1555.61					4.7	2,900
	07/08/14	1555.44					4.8	2,900

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-59	08/05/14	1555.39		<0.0025			4.2	2,900
	09/10/14	1555.98					3.9	2,800
	10/14/14	1556.38					4.4	2,800
	11/24/14	1556.78		<0.0025			3.2	2,600
	12/22/14	1556.86					3.4	2,600
PC-60	10/08/13	1556.16					3.0	2,400
	11/06/13	1556.28		<0.0020			2.3	2,400
	12/11/13	1557.09					1.9	2,300
	01/14/14	1557.31						
	01/15/14						2.1	2,200
	02/12/14	1556.65		<0.0020			1.9	2,100
	03/12/14	1556.26					1.9	2,200
	04/16/14	1555.89					1.7	2,300
	05/16/14	1555.49		<0.0020			1.7	2,200
	06/11/14	1555.21					2.1	2,300
	07/08/14	1555.34					1.6	2,200
	08/05/14	1555.05		<0.0025			1.9	2,300
	09/10/14	1555.56					1.7	2,200
	10/14/14	1556.06					1.6	2,100
	11/24/14	1556.69		0.0025 J			1.4	2,100
	12/22/14	1556.69					1.5	2,000
PC-62	10/08/13	1557.11					0.26	1,800
	11/06/13	1557.10		<0.0020			0.27	1,800
	12/11/13	1557.82					0.20	1,900
	01/14/14	1557.81						
	01/15/14						0.22	2,000
	02/12/14	1557.27		<0.0020	<0.000009	3.9	0.21	1,900
	03/12/14	1557.00					0.12	1,800
	04/16/14	1556.72					0.091	1,800
	05/16/14	1556.40		<0.0020			0.078	1,800
	06/11/14	1556.17					0.063	1,700
	07/08/14	1555.91					0.081	1,700
	08/05/14	1556.01		<0.0025			0.11	1,700
	09/10/14	1556.53					0.16	1,700
	10/14/14	1556.85					0.23	1,700
	11/24/14	1557.20		<0.0025			0.18	1,800
	12/22/14	1557.32					0.21	1,700
PC-64	05/08/14	1664.80		1.1			260	6,500
PC-65	05/08/14	1664.92		0.56			110	5,500
PC-66	05/08/14	1660.05		1.7			200	6,300
PC-67	05/08/14	1659.85		0.40			30	12,000
PC-68	10/08/13	1557.75					<0.0048	1,900
	11/06/13	1557.76		<0.0020			0.039	1,700
	12/11/13	1558.42					<0.0025	1,800
	01/14/14	1558.38						

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Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-68	01/15/14						<0.0025	1,700
	02/12/14	1557.92		<0.0020			<0.0025	1,700
	03/12/14	1557.70					<0.0025	1,800
	04/16/14	1557.39					<0.0025	1,900
	05/16/14	1557.06		<0.0020			<0.0025	1,900
	06/11/14	1556.88					<0.0025	2,000
	07/08/14	1556.61					<0.0025	1,900
	08/05/14	1556.70		<0.0025			<0.0025	2,000
	09/10/14	1557.19					<0.0025	1,800
	10/14/14	1557.50					<0.0025	1,800
	11/24/14	1557.80		<0.0025			<0.0025	1,700
	12/22/14	1557.89					<0.0025	1,700
PC-71	10/15/13	1672.28						
	11/11/13	1672.20		0.71 J+			500	8,200
	12/09/13	1672.15						
	01/07/14	1672.12						
	02/05/14	1672.05		0.47			400	8,100
	03/14/14	1671.92						
	04/18/14	1671.82						
	05/08/14	1671.78		0.56			530	8,100
	06/19/14	1671.67						
	07/07/14	1671.64						
	08/13/14	1671.54		0.37 J-			410	7,900
	09/18/14	1671.40						
	10/22/14	1671.32						
	11/21/14	1671.21						
	12/04/14	1671.16		0.43			420	7,500
PC-72	10/15/13	1670.47						
	11/11/13	1670.37		0.23 J+			220	7,200
	12/09/13	1670.22						
	01/07/14	1670.27						
	02/06/14	1670.20		0.19			280	7,000
	03/14/14	1670.08						
	04/18/14	1669.94						
	05/08/14	1669.83		0.22			200	7,200
	06/19/14	1669.69						
	07/07/14	1669.61						
	08/13/14	1669.42		0.14 J-			200	7,200
	09/18/14	1669.32						
	10/22/14	1669.19						
	11/21/14	1669.10						
	12/04/14	1669.00		0.19			220	6,700
PC-73	10/15/13	1669.33						
	11/11/13	1669.21		0.50 J+			350	7,600
	12/09/13	1669.12						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID	Collection	GW Elevation	Chlorate	Chromium	Chromium VI	Nitrate	Perchlorate	TDS
Units	Date	(ft amsl)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
PC-73	01/07/14	1669.13						
	02/06/14	1669.02		0.41			400	7,400
	03/14/14	1668.97						
	04/18/14	1668.83						
	05/08/14	1668.71		0.46			370	7,300
	06/19/14	1668.53						
	07/07/14	1668.45						
	08/13/14	1668.26		0.39 J-			400	8,000
	09/18/14	1668.18						
	10/22/14	1668.02						
	11/21/14	1668.00						
	12/04/14	1667.92		0.49			450	7,400
PC-74	05/06/14	1553.52					0.43	4,800
PC-76	05/06/14	1553.27						
PC-77	05/06/14	1559.14					3.2	4,500
PC-78	05/06/14	1559.97						
PC-79	05/06/14	1555.25		<0.0020			1.5	2,200
PC-80	05/06/14	1555.25						
PC-81	05/06/14	1555.15						
PC-82	05/06/14	1552.01	0.030			0.12 J-	0.57	2,300
PC-83	05/06/14	1552.92						
PC-86	10/11/13	1549.42					0.73	1,800
	11/06/13	1549.97		<0.0020			0.50	2,000
	12/11/13	1550.36					0.31	2,000
	01/14/14	1550.25						
	01/15/14						0.20	1,900
	02/12/14	1549.84		<0.0020			0.28	1,800
	03/12/14	1549.61					0.22	2,000
	04/16/14	1549.36					0.25	2,000
	05/16/14	1549.09	<0.016	<0.0020		0.42 J-	0.22	1,900
	06/11/14	1548.97					0.25	2,000
	07/10/14	1548.68					0.26	2,000
	08/05/14	1548.56		<0.0025			0.25	2,000
	09/10/14	1548.96					0.30	1,900
	10/14/14	1549.29					0.24	1,900
	11/24/14	1549.59		<0.0025			0.17	2,100
	12/22/14	1549.67					0.20	1,800
PC-87	05/06/14	1548.78						
PC-88	05/06/14	1545.12						
PC-90	10/08/13	1544.75					4.7	2,900
	11/06/13	1545.88		0.0034 J			5.7	3,500
	12/11/13	1545.49					4.8	3,000
	01/14/14	1545.45						
	01/15/14						6.4	3,100
	02/12/14	1545.07		<0.0020			7.4	3,300

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-90	03/12/14	1544.93					8.2	3,600
	04/16/14	1544.75					5.7	2,900
	05/16/14	1544.51	4.5	<0.0020		2.3	5.2	3,000
	06/11/14	1544.33					5.5	3,000
	07/08/14	1544.12					3.8	2,600
	08/05/14	1543.97		0.0026 J			3.8	2,600
	09/10/14	1544.28					3.7	2,500
	10/14/14	1544.64					3.9	2,500
	11/24/14	1544.92		<0.0025			3.4	2,600
	12/22/14	1544.97					4.4	2,600
PC-91	10/08/13	1540.74					5.0	3,400
	11/06/13	1541.09		0.0025 J			4.6	3,400
	12/11/13						4.8	3,400
	12/15/13	1541.27						
	01/14/14	1541.39						
	01/15/14						6.3	3,400
	02/12/14	1541.17		0.00072 J+	0.0011 J-	2.6	6.3	3,400
	03/12/14	1541.00					6.0	3,500
	04/16/14	1540.70					4.8	3,400
	05/16/14	1540.62	3.7	<0.0020		1.8	4.1	3,300
	06/11/14	1540.50					3.8	3,100
	07/08/14	1540.05					3.3	3,000
	08/05/14	1540.04		0.0048 J			3.0	3,100
	09/10/14	1540.45					2.6	2,800
	10/14/14	1541.22					3.2	2,700
	11/24/14	1541.25		<0.0025			2.4	2,700
	12/22/14	1541.39					2.9	2,800
PC-92	02/12/14	1541.22		<0.0020			7.4	2,600
	05/16/14	1540.71		<0.0020			4.5	3,300
PC-94	11/06/13	1536.40		0.030			13	5,700
	02/12/14	1536.70		0.025			16	5,600
	05/16/14	1536.19		0.031			15	6,400
	08/05/14	1535.76		0.023			17	6,700
	12/05/14	1536.88		0.036			20	6,000
PC-96	05/06/14	1546.34					2.9	3,600
PC-97	10/08/13	1544.10					4.8	3,000
	11/06/13	1544.77		0.0022 J			3.5	2,800
	12/11/13	1544.70					2.9	2,800
	01/14/14	1544.69						
	01/15/14						2.5	2,400
	02/12/14	1544.36		0.0071			2.1	2,300
	03/12/14	1544.20					1.5	2,300
	04/16/14	1544.01					1.4	2,400
	05/16/14	1543.89		<0.0020			1.2	2,300
	06/11/14	1543.69					1.5	2,300

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-97	07/08/14	1543.37					1.6	2,300
	08/05/14	1543.40		0.0036 J			1.7	2,400
	09/10/14	1543.74					1.8	2,300
	10/14/14	1544.02					2.2	2,400
	11/14/14	1544.27						
	11/24/14			0.0026 J			1.9	2,400
	12/22/14	1544.34					2.0	2,300
PC-98R	10/10/13	1570.74					26	5,900
	11/07/13	1570.58		0.012			22	6,000
	12/12/13	1571.21					25	5,900
	01/15/14	1571.26					25	5,900
	02/13/14	1570.48		0.015			24	6,200
	03/13/14	1570.14					26	6,600
	04/17/14	1569.91					25	6,100
	05/20/14	1569.38		0.047			26	6,800
	06/12/14	1569.17					27	6,500
	07/09/14	1569.23					29	6,300
	08/07/14	1569.76		0.025			27	6,200
	09/11/14	1570.57					32	6,500
	10/15/14	1570.84					32	6,400
	11/25/14	1571.17		0.015			31	6,000
	12/30/14	1570.82					31	5,600
PC-99R2/R3	10/03/13						16	4,500
	10/15/13	1539.20						
	11/04/13			<0.0020			16	4,500
	11/14/13	1538.81						
	12/02/13						13	4,400
	12/06/13	1534.11						
	01/08/14						17	4,500
	01/09/14	1538.09						
	02/03/14	1538.99		<0.0020			14	4,300
	03/06/14						13	3,800
	03/19/14	1537.33						
	04/07/14						13	4,100
	04/08/14	1532.78						
	05/05/14	1538.64		0.020			14	4,100
	06/03/14						15	3,500
	06/20/14	1533.14						
	07/01/14						18	4,400
	07/02/14	1537.42						
	08/04/14			0.029			17	4,800
	08/06/14	1537.28						
	09/03/14	1538.52					20	4,900
	10/07/14						20	5,300
	10/22/14	1538.09						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-99R2/R3	11/03/14			0.0033 J			17	4,800
	11/04/14	1536.57						
	12/01/14						17	4,700
	12/16/14	1538.36						
PC-101R	10/10/13	1589.33					130	9,800
	11/07/13	1590.03		0.12			140	10,000
	12/12/13	1589.37					8.7 J	8,000
	01/15/14	1589.17					7.9 J	8,400
	02/13/14	1588.97		<0.0040			8.7 J	7,800
	03/13/14	1588.80					22	8,600
	04/17/14	1588.55					100	10,000
	05/20/14	1588.43		0.017			26	8,700
	06/12/14	1588.38					9.2	7,700
	07/09/14	1588.31					14	8,700
	08/07/14	1588.91		0.0092 J			21	8,700
	09/11/14	1588.95					120	11,000
	10/15/14	1589.11					120	11,000
	11/25/14	1589.21		0.080			120	11,000
	12/29/14	1589.31					110	11,000
PC-103	10/10/13	1576.78					17	4,300
	11/07/13	1576.47		<0.0020			17	4,300
	12/12/13	1576.82					15	4,200
	01/15/14	1576.63					14	3,800
	02/13/14	1575.96		0.00036 J	0.000033	5.6	18	4,100
	03/13/14	1575.90					17	4,700
	04/17/14	1575.78					18	4,600
	05/20/14	1575.46	2.5	<0.0020		6.3	18	5,100
	06/12/14	1575.38					21	4,900
	07/09/14	1575.60					22	4,800
	08/07/14	1576.27		<0.0050			20	4,900
	09/11/14	1577.04					21	4,900
	10/15/14	1576.98					18	4,600
	11/25/14	1576.78		<0.0025			17	4,400
	12/30/14	1576.46					19	3,900
PC-107	05/07/14	1607.18					53	4,800
PC-108	05/06/14	1572.56					0.0073	2,200
PC-110	05/06/14	1578.80					1.1	4,500
PC-115R	10/03/13						8.6	3,200
	10/15/13	1543.28						
	11/04/13			<0.0020			9.9	3,100
	11/14/13	1543.50						
	12/02/13						7.2	3,100
	12/06/13	1544.11						
	01/08/14						9.4	3,100
	01/09/14	1544.25						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-115R	02/03/14	1543.93		<0.0020			6.3	3,000
	03/06/14						5.9	2,800
	03/19/14	1543.47						
	04/07/14						5.9	2,800
	04/08/14	1543.81						
	05/05/14	1543.92		0.0082			6.5	2,900
	06/03/14						7.5	3,000
	06/20/14	1542.92						
	07/01/14						9.3	3,200
	07/02/14	1542.71						
	08/04/14			0.0084			10	3,400
	08/06/14	1542.57						
	09/03/14	1542.79					11	3,500
	10/07/14						11	3,800
	10/22/14	1543.28						
	11/03/14			<0.0025			9.9	3,300
	11/04/14	1543.40						
	12/01/14						10	3,400
	12/16/14	1543.54						
PC-116R	10/03/13						14	4,300
	10/15/13	1539.11						
	11/04/13			<0.0020			14	4,200
	11/14/13	1539.43						
	12/02/13						12	4,200
	12/06/13	1540.00						
	01/08/14						15	5,100
	01/09/14	1540.28						
	02/03/14	1539.87		<0.0020			13	4,300
	03/06/14						14	3,900
	03/19/14	1539.42						
	04/07/14						12	4,100
	04/08/14	1539.41						
	05/05/14	1538.72		0.0069			13	4,100
	06/03/14						13	4,100
	06/20/14	1538.14						
	07/01/14						16	4,500
	07/02/14	1537.97						
	08/04/14			0.027			15	4,700
	08/06/14	1537.94						
	09/03/14	1538.36					18	4,600
	10/07/14						18	5,100
	10/22/14	1538.65						
	11/03/14			0.0025 J			15	4,600
	11/04/14	1538.88						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-116R	12/01/14						16	4,500
	12/16/14	1539.03						
PC-117	10/03/13						9.1	3,600
	10/15/13	1541.35						
	11/04/13			0.0054			9.1	3,500
	11/14/13	1541.58						
	12/02/13						8.0	3,400
	12/06/13	1534.00						
	01/08/14						9.6	3,600
	01/09/14	1542.20						
	02/03/14	1541.88		0.00073 J	0.00036 J-	3.1	7.5	3,100
	03/06/14						9.1	3,400
	03/19/14	1541.49						
	04/07/14						7.7	3,400
	04/08/14	1541.40						
	05/05/14	1541.24		0.0073			7.8	3,400
	06/03/14						7.6	3,400
	06/20/14	1540.93						
	07/01/14						9.0	3,600
	07/02/14	1540.70						
	08/04/14			0.0085			8.7	3,900
	08/06/14	1540.66						
	09/03/14	1540.81					11	3,500
	10/07/14						11	4,200
	10/22/14	1541.28						
	11/03/14			<0.0025			9.3	3,700
	11/04/14	1541.41						
	12/01/14						9.3	3,500
	12/16/14	1541.50						
PC-118	10/07/13						2.6	2,400
	10/15/13	1546.69						
	11/04/13			<0.0020			2.9	2,500
	11/14/13	1546.85						
	12/02/13						2.8	2,300
	12/06/13	1547.40						
	01/08/14						2.9	2,400
	01/09/14	1547.59						
	02/03/14	1547.24		<0.0020			2.7	2,300
	03/06/14						2.7	2,400
	03/19/14	1546.80						
	04/07/14						2.4	2,300
	04/08/14	1546.74						
	05/05/14	1546.56		0.0065			2.3	2,300
	06/03/14						2.1	2,300
	06/20/14	1546.12						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
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Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-118	07/01/14						2.3	2,300
	07/02/14	1545.95						
	08/04/14			0.0075			2.3	2,400
	08/06/14	1546.47						
	09/03/14	1545.96					2.5	2,300
	10/07/14						2.6	2,600
	10/22/14	1546.40						
	11/03/14			<0.0025			2.6	2,300
	11/04/14	1546.61						
	12/01/14						3.0	2,300
	12/16/14	1546.71						
PC-119	10/03/13						1.0	2,000
	10/15/13	1548.37						
	11/04/13			<0.0020			0.63	1,900
	11/14/13	1548.55						
	12/02/13						0.61	1,900
	12/06/13	1549.09						
	01/08/14						0.60	1,900
	01/09/14	1549.27						
	02/03/14	1548.92		0.00017 J	<0.000009	0.094 J	0.62	1,900
	03/06/14						0.48	2,000
	03/19/14	1548.51						
	04/07/14						0.40	1,900
	04/08/14	1548.43						
	05/05/14	1548.23		0.0078			0.37	1,900
	06/03/14						0.37	2,000
	06/20/14	1547.78						
	07/01/14						0.38	1,900
	07/02/14	1547.94						
	08/04/14			0.0077			0.38	2,000
	08/06/14	1547.60						
	09/03/14	1547.82					0.38	1,800
	10/07/14						0.40	2,100
	10/22/14	1548.24						
	11/03/14			<0.0025			0.40	1,800
	11/04/14	1548.42						
	12/01/14						0.48	1,800
	12/16/14	1548.46						
PC-120	10/03/13						0.61	2,000
	10/15/13	1550.19						
	11/04/13			<0.0020			0.59	2,000
	11/14/13	1550.33						
	12/02/13						0.53	1,600
	12/06/13	1551.03						
	01/08/14						0.39	1,900

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-120	01/09/14	1551.11						
	02/03/14	1550.71		<0.0020			0.59	1,900
	03/06/14						0.24	2,000
	03/19/14	1550.30						
	04/07/14						0.14	1,900
	04/08/14	1550.22						
	05/05/14	1549.98		0.0065			0.15	1,900
	06/03/14						0.16	1,900
	06/20/14	1549.52						
	07/01/14						0.18	2,000
	07/02/14	1549.37						
	08/04/14			0.0073			0.18	2,000
	08/06/14	1549.34						
	09/03/14	1549.58					0.17	1,900
	10/07/14						0.17	2,100
	10/22/14	1550.08						
	11/03/14			<0.0025			0.17	1,900
	11/04/14	1550.27						
	12/01/14						0.17	1,900
	12/16/14	1550.34						
PC-121	10/03/13						1.4	2,200
	10/15/13	1549.71						
	11/04/13			<0.0020			1.4	2,200
	11/14/13	1549.83						
	12/02/13						1.7	2,200
	12/06/13	1550.51						
	01/08/14						1.4	2,200
	01/09/14	1550.62						
	02/03/14	1550.21		0.00019 J	0.000021	0.075 J	1.2	2,200
	03/06/14						1.0	2,200
	03/19/14	1549.79						
	04/07/14						0.75	2,100
	04/08/14	1549.66						
	05/05/14	1549.45		0.0060			0.65	2,100
	06/03/14						0.39	2,000
	06/20/14	1549.01						
	07/01/14						0.27	2,000
	07/02/14	1548.90						
	08/04/14			0.0069			0.30	2,100
	08/06/14	1548.80						
	09/03/14	1549.10					0.31	1,900
	10/07/14						0.29	2,200
	10/22/14	1549.56						
	11/03/14			<0.0025			0.27	2,000
	11/04/14	1549.78						

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters

October 2013 - December 2014

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-121	12/01/14						0.29	1,900
	12/16/14	1549.84						
PC-122	10/10/13	1585.58					24	9,300
	11/07/13	1586.38		0.21			26	8,600
	12/12/13	1586.24					22	8,600
	01/15/14	1586.46					23	8,300
	02/13/14	1586.39		0.16			21	7,700
	03/13/14	1586.30					19	8,200
	05/20/14	1585.73		0.17			20	7,800
	06/12/14	1585.63					22	8,000
	07/09/14	1585.50					23	8,100
	08/07/14	1585.73		0.17			21	7,800
	09/12/14	1585.74					22	8,700
	10/15/14	1586.01					23	8,100
	12/30/14	1586.79					22	6,900
PC-123	11/11/13	1601.80		1.3			290	6,900
	02/04/14	1604.02		1.0			220	7,000
	05/06/14	1603.82		1.0			240	6,600
	08/13/14	1603.86		0.99 J-			240	6,800
	12/04/14	1604.01		0.88			200	6,600
PC-124	11/11/13	1610.86		0.10			8.2	8,500
	02/04/14	1611.02		0.085			8.2	9,000
	05/06/14	1610.86	150	0.099		27 J-	9.0	8,800
	08/13/14	1610.78		0.084 J-			9.4	9,500
	12/04/14	1610.65		0.12			8.9	8,800
PC-125	11/11/13	1612.14		0.078			9.3	8,200
	02/04/14	1612.35		0.072			8.6	8,300
	05/06/14	1612.17		0.085			9.2	7,900
	08/13/14	1612.18		0.073 J-			10	8,500
	12/04/14	1612.12		0.091			9.6	7,700
PC-126	11/11/13	1612.59		0.21			23	8,100
	02/04/14	1612.80		0.16			19	7,500
	05/06/14	1612.62	190	0.17		23 J-	19	6,700
	08/13/14	1612.66		0.15 J-			21	6,800
	12/04/14	1612.59		0.18			19	6,300
PC-127	11/11/13	1614.23		1.2			250	6,700
	02/04/14	1613.10						
	02/05/14			1.0			240	6,600
	05/06/14	1614.28		0.97			230	5,900
	08/13/14	1612.68		0.84 J-			220	6,500
	12/04/14	1614.15		0.86			220	6,100
PC-128	11/11/13	1614.08		0.49			260	6,200
	02/04/14	1615.21		0.38			250	6,100
	05/06/14	1615.00	410	0.39		20 J-	260	6,200

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters

October 2013 - December 2014

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-128	08/13/14	1614.95		0.37 J-			270	6,600
	12/04/14	1615.10		0.42			250	6,300
PC-129	11/11/13	1615.74		1.0			330	6,900
	02/04/14	1615.63		0.81			300	6,700
	05/06/14	1615.37		0.82			320	6,600
	08/13/14	1615.72		0.72 J-			300	6,800
	12/04/14	1615.53		0.74			290	6,200
PC-130	11/11/13	1614.43		1.0			360	7,100
	02/04/14	1614.30		0.82			370	6,900
	(FD)			0.78			380	6,900
	05/06/14	1613.92	520	0.82		29 J-	340	6,800
	08/13/14	1614.22		0.76 J-			340	7,500
	12/04/14	1614.14		0.81			340	6,900
PC-131	11/11/13	1618.31		<0.010			3.5	9,400
	02/04/14	1622.72		<0.0020			3.1	9,400
	05/06/14	1622.37		<0.0020			2.6	8,800
	08/13/14	1622.65		0.0097 J-			2.4	9,000
	12/04/14	1622.38		0.0043 J			2.5	9,200
PC-132	11/11/13	1625.19		<0.010			1.2	8,700
	05/06/14	1624.92	0.35	0.0024 J		1.2 J-	0.63	8,800
	(FD)		0.38	<0.0020		1.2 J-	0.69	8,800
	08/13/14	1625.07		0.0076 J-			0.68	9,100
	(FD)			0.0083 J-			0.71	9,100
	12/04/14	1624.78		<0.0025			0.44	9,100
PC-133	10/03/13						8.8	3,200
	10/15/13	1545.97						
	11/04/13			0.038			6.0	3,100
	11/14/13	1521.98						
	12/02/13						2.7	2,500
	12/06/13	1520.92						
	01/08/14						2.5	2,400
	01/09/14	1522.07						
	02/03/14	1520.87		0.00015 J	0.000014 J	0.49	2.4	2,300
	03/06/14						1.6	2,300
	03/19/14	1521.99						
	04/07/14						1.5	2,400
	04/08/14	1521.10						
	05/05/14	1545.66		0.0081			2.5	2,400
	06/03/14						4.8	2,800
	06/20/14	1545.37						
	07/01/14						1.1	2,500
	07/02/14	1521.81						
	08/04/14			0.0077			3.2	2,500
	08/06/14	1545.17						
	09/03/14	1545.34					6.1	3,000

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters
October 2013 - December 2014
Nevada Environmental Response Trust Site
Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-133	10/07/14						8.2	3,400
	10/22/14	1545.79						
	11/03/14			<0.0025			8.3	3,200
	11/04/14	1545.94						
	12/01/14						8.9	3,300
	12/16/14	1546.08						
PC-134A	05/07/14	1589.04		0.0050			12	7,500
PC-135A	11/12/13	1589.77		0.069			95	9,100
	02/05/14	1589.37		<0.0020			9.1	8,400
	05/07/14	1588.86		0.0049 J			17	9,100
	08/15/14	1589.10		<0.0025			11	8,900
	12/05/14	1589.67		0.011			23	9,100
PC-136	11/12/13	1585.32		3.2			110	6,200
	02/13/14	1585.51		4.9			96	5,500
	05/07/14	1585.00		5.1			70	5,800
	08/15/14	1583.83		3.1			110	6,500
	12/05/14	1585.52		3.6			120	6,100
PC-137	05/07/14	1583.36		<0.0020			0.23	2,800
PC-142	05/07/14	1591.62		0.040 J			25	5,100
	(FD)			0.010 J			24	5,200
PC-143	05/07/14	1589.01		0.030			3.0	7,700
PC-144	10/10/13	1588.64						
	11/12/13	1588.80		0.58			260	6,700
	(FD)			0.54			260	6,800
	01/15/14	1588.49						
	02/05/14	1588.30		0.47			280	6,500
	03/13/14	1588.14						
	04/17/14	1587.96						
	05/07/14	1587.82		0.47			230	6,300
	06/12/14	1587.76						
	07/09/14	1587.70						
	08/15/14	1589.00		0.46			290	7,000
	09/11/14	1588.32						
	10/15/14	1588.44						
	11/25/14	1588.42		0.40			220	6,700
	12/29/14	1588.55						
PC-145	05/07/14	1584.62		0.51			71	7,300
PC-146	05/07/14	Dry						
PC-147	05/07/14	1586.39						
PC-148	11/12/13	1589.45		0.013 J			22	7,300
	02/05/14	1589.63		0.014			28	7,100
	05/07/14	1589.55		0.045			25	7,200
	08/15/14	1589.83		0.017			27	7,000
	12/05/14	1590.32		0.040			30	6,800

TABLE A-1: Groundwater Elevation and Analytical Data for Five Quarters

October 2013 - December 2014

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID Units	Collection Date	GW Elevation (ft amsl)	Chlorate (mg/L)	Chromium (mg/L)	Chromium VI (mg/L)	Nitrate (mg/L)	Perchlorate (mg/L)	TDS (mg/L)
PC-149	11/12/13	1589.75		<0.010			21	4,600
	02/05/14	1589.50		0.015			18	4,200
	05/07/14	1589.04		0.017			14	4,100
	08/15/14	1589.28		0.0061			19	4,100
	12/05/14	1589.72		0.015			18	4,100
PC-150	11/12/13	1589.85		0.29			200	6,300
	01/28/14		220	0.24	0.21	15	190	6,000
	02/05/14	1589.26		0.19			170	6,100
	05/07/14	1588.72		0.20			140	6,100
	08/15/14	1588.95		0.19			160	6,600
	(FD)			0.20			170	6,700
	11/13/14	1590.27		0.21			170	6,000
	12/01/14						170	6,200
TR-1	05/15/14	1761.64		0.015			<0.00050	690
TR-2	05/12/14	1726.80		0.029			<0.00050	550
TR-3	05/15/14	1772.84		0.028			<0.00050	660
TR-4	05/15/14	1736.74		0.020			<0.00050	610
TR-5	05/15/14	1800.27		0.015			<0.00050	730
TR-6	05/13/14	1763.12		0.031			0.35	26,000
TR-7	05/14/14	1818.63		0.012			<0.00050	800
TR-8	05/14/14	1779.30		0.014			0.10	1,200
TR-9	05/13/14	1818.48		0.013			0.0060	820
TR-10	05/13/14	1792.43		0.12			2.7	2,400
TR-11	05/15/14	1732.64		0.012			<0.00050	720
TR-12	05/19/14	1695.71		0.044			<0.00050	530

Notes:

FD = field duplicate

ft amsl = feet above mean sea level

J = Concentration is estimated

J- = Estimated concentration, potential negative bias

J+ = Estimated concentration, potential positive bias

mg/L = milligrams per liter

< = Concentration is less than indicated laboratory method reporting limit

Appendix B

Groundwater Field Records

(Provided on CD)

ENVIROGEN
TECHNOLOGIES

Third Quarter Well Monitoring

Nevada Environmental Response Trust
Henderson, Nevada

August 4 – August 15, 2014

ENVIROGEN
TECHNOLOGIES

CONTENTS

Field Data Letter Report

ENVIROGEN
TECHNOLOGIES

Letter of Transmittal

Attention: John Pekala Date: August 25, 2014
Senior Manager
Environ International Corp.
510 Fourth St.
Henderson, NV 89015

Project:
2014 3rd Quarter Groundwater Monitoring

Enclosed:
1 copy of Field Data Letter Report

Remarks:
John,
The enclosed Quarterly Groundwater Monitoring Report with supporting documents is provided for your records.

Signature:

Wendy Prescott

Wendy Prescott

Envirogen Technologies
Two Kingwood Place
700 Rockmead Drive Suite 105
Kingwood, TX 77339

ENVIROGEN
TECHNOLOGIES

Field Data Letter Report

1 INTRODUCTION

Nevada Environmental Response Trust (NERT) contracts with Envirogen Technologies to conduct groundwater sampling and analysis at their Perchlorate Removal Facility, located at 510 Fourth Street, in Henderson, Nevada. The work described herein represents the third quarter groundwater sampling event for 2014. The work was conducted in accordance with the Sampling and Analysis Work plan, submitted to Tronox January 9, 2004.

Envirogen has three staff members trained to assist the quarterly well monitoring events. The Envirogen monitoring team meets once prior to the sampling event to discuss all issues associated with this project, sampling and laboratory equipment needs, time tables and well site schedules. Bottle orders and bottles received are cross checked to ensure that all wells and analysis are represented.

1.1 SCOPE OF SAMPLING EVENT

This sampling effort included the following tasks:

- Soundings of the pumping water levels in 27 interceptor wells.
- Soundings of the water levels in 3 dormant interceptor wells
- Collection of groundwater samples from 28 interceptor wells.
- Soundings of water levels in 111 monitoring wells.
- Collection of groundwater samples from 87 monitoring wells.
- Collection of groundwater samples from 16 pumping wells.
- Soundings of water levels in 6 backup (Buddy) wells.
- Soundings of water levels in 16 pumping wells.

Analysis of samples collected from the interceptor and monitoring wells, range from Perchlorate (CLO4), Total Chromium (Cr), Hexavalent Chromium (CRVI), pH, Specific Conductance (EC), Total Dissolved Solids (TDS), and NPDES list for well M-10, (Up Well). CR, MN, FE, B, Ammonia, TIN, Nitrate-Nitrite as N, and Chloide. RCRA well analysis also included Conductance, TOC, TOX and Total Phenols.

Groundwater samples were shipped daily to TestAmerica (TA) for analysis, in Irvine, California. TA is certified by the State of Nevada.
The scope of this assignment also included compiling the water level and analytical data presented in this report. Data are presented in tabular form.

2 FIELD ACTIVITIES

Envirogen conducted the field activities associated with this quarterly sampling event between Monday August 4th and Friday August 15th, 2014. Activities included the sounding of "pumping water" levels in the interceptor wells, sounding the "static water" level in the monitoring wells and sampling of both the interceptor and monitoring wells. Prior to each quarter, an inventory list is issued to Environ for review and comment. Sampling was conducted according to their specifications.

Chris Cabrera and Michele Brown were responsible for sample collection and recording all pertinent data on sample bottles. Michele Brown supervised the groundwater sampling activities. She is responsible for executing all work elements related to the groundwater sampling program, including laboratory equipment maintenances and calibration, fieldwork, documenting field activities, maintaining field notes and photographs (when applicable), and providing the Operations Manager with information concerning implementation of the sampling plan.

Envirogen maintained records of daily events and pertinent sampling data of each well on a field log sheet and addendum data in a bound log book. Log sheet entries included personnel onsite, weather conditions, water levels, activities conducted, sampling times, pH, EC, temperature and other significant field information.

2.1 Groundwater Level Soundings

Envirogen sounded pumping water levels in 27 interceptor wells. The static water readings were taken in Interceptor wells I-AB, I-AD and I-AC. In addition to the interceptor wells, static water levels in 111 monitoring wells were taken. There were thirty-one (31) wells where only static water levels were taken. The following are the 31 wells:

ART-1A	ART-2A	ART-3	ART-4A	ART-7A	ART-8	M-55	M-56	M-58	M-60	M-75
M-76	M-77	M-78	M-92	M-93	M-97	M-115	M-166	M-167	M-168	M-169
M-170	M-172	M-173	M-174	M-175	M-176	M-177		I-AC	I-AB	

The water levels were sounded to the nearest 0.01 foot using an electronic well sounder.

2.2 Equipment Cleaning Procedures

All equipment was washed and rinsed with three gallons of de-ionized soapy water then rinsed with three gallons of lab grade DI water after use at each well. The rinse water was collected in a polyethylene container and transported to GW-11 for treatment.

3.0 GROUNDWATER SAMPLING

3.1 Sampling Locations

The following presents the identification of wells sampled.

3.1.1 Interceptor Wells

I-AR	I-B	I-C	I-D	I-E	I-F	I-G	I-H	I-I	I-J	I-K
I-L	I-M	I-N	I-O	I-P	I-Q	I-R	I-S	I-T	I-U	I-V
I-W	I-Y	I-Z	I-AA	I-AD						

3.1.2 Pumping Wells

ART-1	ART-2	ART-3A	ART-4	ART-7	ART-8A	ART-9	PC-99R2/R3	PC-115R	PC-116R	PC-117
PC-118	PC-119	PC-133								

3.1.3 **Monitoring Wells**

ARP-1	ARP-2A	ARP-3A	ARP-4A	ARP-5A	ARP-6B	ARP-7	ART-7B	M-5A	M-6A	M-7B
M-10	M-11	M-12A	M-14A	M-19	M-22A	M-23	M-25	M-31A	M-35	M-37
M-38	M-44	M-48A	M-57A	M-64	M-65	M-66	M-67	M-68	M-69	M-70
M-71	M-72	M-73	M-74	M-79	M-80	M-81A	M-83	M-95	M-99	M-131
M-135	MW-K4	MW-K5	PC-18	PC-37	PC-53	PC-54	PC-55	PC-56	PC-58	PC-59
PC-60	PC-62	PC-68	PC-71	PC-72	PC-73	PC-86	PC-90	PC-91	PC-94	PC-97
PC-98R	PC-101R	PC-103	PC-122	PC-123	PC-124	PC-125	PC-126	PC-127	PC-128	PC-129
PC-130	PC-131	PC-132	PC-135A	PC-136	PC-144	PC-148	PC-149	PC-150	M-52	
PC-120	PC-121	ART-3								

4.0 SAMPLING TECHNIQUES

4.1 Interceptor Wells

All interceptor wells were sampled using dedicated sampling ports. At the beginning of sampling each well or line, personnel wore a new pair of clean nitrile or latex gloves.

The sampling port was opened to drain any stagnant water from piping and valves. This water is captured and containerized. All captured water is off-loaded at GW-11 for onsite treatment. Following the purging of the sample port, a "water quality" sample was collected for analysis of Perchlorate, Total Chromium, pH, and TDS. Envirogen also recorded the "*field*" temperature, pH, and conductivity as well as the pumping water level. The "*field*" parameters are provided in Table 1.

4.2 Monitoring Wells

Monitoring wells were purged before sampling to assure that each sample was collected from fresh formation water.

Eighty-three (83) wells were purged and sampled, using the 12 volt submersible pump. Two (2) wells M-6A and M-38 were sampled with a dedicated bailer. Only M-38 was purged. Four (4) wells were sampled using a non-dedicated disposable bailer, ART-6, M-7B, M-99 and H-28A, and were not purged due to location and/or low water column level. Hand bailing was done as a result of only needing to purge less than 3 gallons of water, if there was an insufficient amount of water in the well casing to use a pump or due to the location of the well.

Samples for both the interceptor and monitoring wells were collected in appropriate containers supplied by TestAmerica and analyzed for the specific required analysis of the well. The bottles were filled with minimal aeration, using laminar flow.

The samples were labeled, packaged, stored, and transported using the procedures outlined in the work plan for well samples. .

4.3 Problems Encountered

Access to M-7B is limited to golf cart or by foot.

M-36 and M-95 are destroyed.

PC-90 has no cast lid but is locked on the well plug.

PC-58 lock was dropped down inside the cast casing and could not be reached. Well needs a new lock.

L-63 and L-637 are not accessible.

I-AB and I-C were both turned on for sampling but no water was pumped to the surface.

Generator used to power the Ready Flo 2" pump VFD did not work. The two (2) wells historically sampled with this pump were sampled using the 12 volt submersible pump.

M-96, M-98, M-100 and M-101 were all dry.

4.4 Equipment Cleaning Procedures

The deionized water is changed each morning so the rinsing water is fresh. Non-dedicated sampling equipment has been replaced by disposable bailers. Sounding meter and Conductivity/pH meter probe was thoroughly rinsed with soapy de-ionized water and again with lab grade DI water after each sample was analyzed. Pumping equipment was washed and purged with soapy deionized water and again with lab grade DI water to flush and clean before leaving to sample at the next location.

5.0 QUALITY CONTROL

Quality control (QC) procedures include collection and analysis of QC duplicate samples, equipment and field blanks. The analytical laboratory is also required to meet specific QA/QC requirements for surrogate recovery, MS/MSD recovery and RPDs, and LCS recoveries. Duplicate SC readings were conducted at one well each day to insure the accuracy of the Hanna field probe.

5.1 QC Duplicate Samples

QC duplicate samples were collected during the sampling event to evaluate the precision and accuracy of analytical data. The QC duplicates were collected, packaged, and transported in the same manner as the primary sample, but assigned a different identification number.

Four (4) duplicates were collected from the wells. The duplicate samples were collected from the following wells: M-12A, PC-132, PC-150 and M-11. They were analyzed for the same parameters as the primary samples. TestAmerica was not informed of the identity of these "blind" samples.

5.2 Equipment Blanks

Three (3) equipment blanks were taken this quarter. Two of the equipment blanks, for CLO4, TDS, CR, CRVI and pH analysis, were collected on August 13th and August 14th, 2014. One equipment blank for CLO4 analysis only was collected on 8-5-14. This is done to evaluate the adequacy of cleaning procedures used by field personnel during this sampling event.

5.3 Field Blanks

One Field Blank was collected for CLO4, TDS, CR, CRVI and pH analysis. This was done on August 12th, 2014

6.0 ANALYTICAL PROCEDURES

The following designates the parameter, analytical method and method reporting limits for groundwater. Some of the following analysis may not have been performed for this reporting period.

PARAMETER	ANALYTICAL METHOD	MRL
CLO4	Method 314.0	4.0 µg/L
Total Chromium	Method 200.7	0.01 mg/L
Hexavalent Chromium (CRVI)	Method 218.6 ORGFM	0.005 mg/L,
pH	Method 150.1	.01 units
TDS	Method 2540C Calcd	10 mg/L

PARAMETER	ANALYTICAL METHOD	MRL
Chloride	Method 300 ORGFM 28D	80.0 mg/L
Iron (ICAP)	Method 200.7	0.005 mg/L
Manganese (ICAP/)	Method 200.7	100 µg/L
Sodium (ICAP)	Method 200.7	5 mg/L
Phenols, Total	Method 420.1, 420	.010 mg/L
Sulfate	Method 300 ORGFM 28D	80 mg/L
Total Organic Carbon, TOC	Method 5310C	unknown
Total Organic Halogen, TOX	Method 9020B - 9020	unknown
Boron	Method 200.7	.10 mg/L
Conductance	Method 2510B - 2510	2 µohms/cm
Ammonia Nitrogen	Method 300 ORGFM	0.050 mg/L
Nitrate Nitrogen	Method 300 ORGFM	2.0 mg/L

Copper	Method 300 ORGFM	2.0 µg/L
Chlorate	Method 300.1B 28D	

6.1 Field Equipment Calibration

Prior to the start of each day's events, field laboratory equipment was calibrated. A Hanna HI 98130 water proof pH, EC/TDS and temperature field probe was calibrated and measurements recorded on daily laboratory calibration maintenance forms, which have been provided. Each day a duplicate EC reading was taken at random wells to ensure the calibration of the meter was holding. The duplicate EC readings were taken from wells PC-59, ARP-5A, PC-55, I-E, M-14A, PC-126, M-83 and M-10.

SUMMARY RESULTS

7.1 Groundwater Level Soundings

A summary of water level soundings collected for the interceptor and monitoring wells are presented in Table 1.

Pumping water level in interceptors wells. (Measured in feet from below the top of casing.)

LOW	**HIGH**
47.52 (I-W)	21.25 (I-Z)

Static water level monitoring wells. (Measured in feet from below the top of casing.)

LOW	**HIGH**
49.94 (M-10)	5.13 (PC-97)

7.2 Summary of Field Activities

7.2.1 Interceptor Wells

Twenty-seven (28) interceptor wells were sampled for analytical sets including CLO4, Cr, TDS and pH.

7.2.2 Monitoring Wells

Eighty-seven (87) monitoring wells were sampled for sets that may have included: pH, TDS, CLO4, CR and CRVI. Four (4) wells were sampled for RCRA constituents.

7.2.3 QC Duplicate Samples (Measured for the same analyses as the primary samples.)

M-11, PC-132, M-12A and PC-150.

7.2.4 Equipment Blanks

Two (2) equipment blanks were analyzed for CLO4, Total Cr., Hex Cr., pH, and TDS.
One (1) equipment blank for CLO4only was analyzed during the Monthly/Quarterly sampling

Weather	Warm/Humid
Total # of wells visited	172
Total water samples collected	141
Total Wells measured DTW only	31
Total Duplicate Samples	4
Total Equipment Blanks	3
Total Wells hand bailed	6
Total Wells considered DRY	4
Total Wells not accessible	2
Total Wells damaged	2

ENVIROGEN
TECHNOLOGIES

Table of Well Gauging Data

This Section Contains:

- Field Sign - In Log
- Daily Maintenance & Calibration Log
- Table 1 Well Inventory
- Chain-of-Custody & Bottle Order Forms

ENVIROGEN QUARTERLY SAMPLING SIGN IN SHEET

DATE	TIME	COMPANY	SIGNATURE	PRINT NAME
8-5-14	500A	Envirogen	Michele Brown	Michele Brown
8-7-14	500A	Envirogen	Michele Brown	Michele Brown
8-8-14	500A	Envirogen	Michele Brown	Michele Brown
8-11-14	500A	Envirogen	Michele Brown	Michele Brown
8-11-14	500A	Envirogen		Chris Cabrera
8-11-14	0830A	Tetra Tech		Becki Dano
8-12-14	0400	Envirogen	Michele Brown	Michele Brown
8-12-14	0840	Tetra Tech		Becki Dano
8-12-14	0851	Envirogen		Tobin Welke
8-12-14	0420	Envirogen		Chris Cabrera
8-13-14	0400	Envirogen	Michele Brown	Michele Brown
8-13-14	0400	Envirogen		Chris Cabrera
8-13-14	0900	Tetra Tech		Becki Dano
8-14-14	0500	Envirogen	Michele Brown	Michele Brown
8-14-14	0500	Envirogen		Chris Cabrera
8-18-14	0500	Envirogen	Michele Brown	Michele Brown

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 8-4-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.0	2) 7.98	0617 / MB
Buffer Temperature	3) 24.1	3) 24.2	
Changed Buffers yes X Please Check			

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1264	0613 / MB
Calibration Value	3) 1288	
Standard Temp.	4) 24.1 °C	
Changed Standards yes X Please Check		

Dupliate EC Redaing Well # ___________

1st Reading 2nd Reading

EC___________ Temp.___________ EC___________ Temp.___________

All equipment was rinsed and purged with Deionized water after each use.

Date 8-4-14 Verified MB

NO conductivity readings taken Today - ALL pumping wells sampled

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 8-5-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.0	2) 8.01	0610 / MB
Buffer Temperature	3) 23.8 °c	3) 24.2 °c	
Changed Buffers yes X Please Check			

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1264	0605 / MB
Calibration Value	3) 1288	
Standard Temp.	4) 23.6 °c	
Changed Standards yes X Please Check		

Dupliate EC Redaing

Well # PC-59

1st Reading

EC 4.14 mS/cm Temp. 24.6 °c

2nd Reading

EC 4.11 mS/cm Temp. 25.3 °c

All equipment was rinsed and purged with Deionized water after each use.

Date 8-5-14

Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 8-7-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.01	2) 7.99	0605/MB
Buffer Temperature	3) 24.1	3) 24.3	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1313	0600/MB
Calibration Value	3) 1288	
Standard Temp.	4) 24.5	

Changed Standards
yes X
Please Check

Dupliate EC Redaing

Well # ARP-5A

1st Reading

EC 7.53 mS/cm Temp. 24.3 °C

2nd Reading

EC 7.51 mS/cm Temp. 24.4 °C

All equipment was rinsed and purged with Deionized water after each use.

Date 8-7-14

Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 8-8-14

HANNA FIELD pH METER

Known Values Calibration Value Buffer Temperature	1) 7.0 2) 23.9 oC 3) 700	1) 8.0 2) 801 3) 24.1 oC	TIME/ANALYST 0605/MB
	Changed Buffers yes X Please Check		

HANNA FIELD EC METER

Known Values Temp. Comp. Value Calibration Value Standard Temp.	1) 1288 2) 1264 3) 1288 4) 24.3	TIME/ANALYST 0600/MB
	Changed Standards yes X Please Check	

Dupliate EC Redaing

Well # PC-55

1st Reading

EC 10.70 mS/cm Temp. 26.0 oC

2nd Reading

EC 10.71 mS/cm Temp. 26.1 oC

All equipment was rinsed and purged with Deionized water after each use.

Date 8-8-14

Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 8-11-14

HANNA FIELD pH METER

			TIME/ANALYST
Known Values	1) 7.0	1) 8.0	0423/MB
Calibration Value	2) 7.01	2) 8.01	
Buffer Temperature	3) 24.7°C	3) 24.6°C	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

		TIME/ANALYST
Known Values	1) 1288	0420 /MB
Temp. Comp. Value	2) 1288	
Calibration Value	3) 1288	
Standard Temp.	4) 24.9°C	

Changed Standards
yes X
Please Check

Dupliate EC Redaing

Well # I-6

1st Reading

EC 9.79 mS/cm Temp. 27.3°C

2nd Reading

EC 9.82 mS/cm Temp. 27.2°C

All equipment was rinsed and purged with Deionized water after each use.

Date 8-11-14

Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 8-12-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.0	2) 7.99	0345/MB
Buffer Temperature	3) 24.3°c	3) 23.9°c	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1264	0340/MB
Calibration Value	3) 1288	
Standard Temp.	4) 23.7°c	

Changed Standards
yes X
Please Check

Dupliate EC Redaing

Well # M-14A

1st Reading

EC 4.49 mS/cm Temp. 25.6°c

2nd Reading

EC 4.50 mS/cm Temp. 26.0°c

All equipment was rinsed and purged with Deionized water after each use.

Date 8-12-14

Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 8-13-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.01	2) 8.01	0328/mB
Buffer Temperature	3) 23.5°c	3) 23.3°c	

Changed Buffers

yes X

Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1239	0323/MB
Calibration Value	3) 1288	
Standard Temp.	4) 23.4°c	

Changed Standards

yes X

Please Check

Dupliate EC Redaing Well # PC-126

1st Reading

EC 9.08 mS/cm Temp. 23.3°c

2nd Reading

EC 9.07 mS/cm Temp. 23.3°c

All equipment was rinsed and purged with Deionized water after each use.

Date 8-13-14 Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 8-14-14

HANNA FIELD pH METER

			TIME/ANALYST
Known Values	1) 7.0	1) 8.0	0500/MB
Calibration Value	2) 7.01	2) 7.99	
Buffer Temperature	3) 24.2 °C	3) 23.9 °C	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

		TIME/ANALYST
Known Values	1) 1288	0455/MB
Temp. Comp. Value	2) 1264	
Calibration Value	3) 1288	
Standard Temp.	4) 23.8 °C	

Changed Standards
yes _______
Please Check

Dupliate EC Redaing

Well # M-83

1st Reading

EC 4.83 mS/cm Temp. 24.2 °C

2nd Reading

EC 4.80 mS/cm Temp. 24.8 °C

All equipment was rinsed and purged with Deionized water after each use.

Date 8-14-14

Verified MD

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 8-15-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.0	2) 8.01	0450 / MB
Buffer Temperature	3) 24.3°C	3) 24.2°C	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1264	0445 / MB
Calibration Value	3) 1288	
Standard Temp.	4) 24.2°C	

Changed Standards
yes X
Please Check

Dupliate EC Redaing

Well # M-10

1st Reading

EC 3.28 mS/cm

Temp. 251°C

2nd Reading

EC 3.25 mS/cm

Temp. 25.3°C

All equipment was rinsed and purged with Deionized water after each use.

Date 8-15-14

Verified MB

TABLE 1
Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 3rd Quarter Groundwater Monitoring, August 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
ARP-1	44.2	1613.32	24.15		**1589.17**	7.21	7.75	8/7/2014	6:25		pH, TDS, Cr, ClO_4
ARP-2A	54	1614.18	25.64		**1588.54**	7.29	8.82	8/7/2014	10:33		pH, TDS, Cr, ClO_4
ARP-3A	41	1614.67	27.24		**1587.43**	7.3	11.97	8/7/2014	10:15		pH, TDS, Cr, ClO_4
ARP-4A	33	1615.47	29.04		**1586.43**	7.13	6.16	8/7/2014	9:16		pH, TDS, Cr, ClO_4
ARP-5A	38	1616.10	32.37		**1583.73**	7.47	7.53	8/7/2014	9:00		pH, TDS, Cr, ClO_4
ARP-6B	43	1615.56	31.79		**1583.77**	7.2	9.98	8/7/2014	8:44		pH, TDS, Cr, ClO_4
ARP-7	39.2	1613.20	29.92		**1583.28**	7.07	10.37	8/7/2014	8:27		pH, TDS, Cr, ClO_4
ART-1	56	1614.47	24.16		**1590.31**	7.4		8/8/2014	7:20		pH, TDS, Cr, ClO_4
ART-1A	56	1614.40	24.56		**1589.84**			8/8/2014	7:21		DTW Only
ART-2	56	1617.10	27.75		**1589.35**	7.13		8/8/2014	7:23		pH, TDS, Cr, ClO_4
ART-2A	58	1616.81	26.81		**1590.00**			8/8/2014	7:24		DTW Only
ART-3	47	1617.93	30.73		**1587.20**			8/8/2014	7:30		DTW Only
ART-3A	55	1617.60	36.37		**1581.23**	7.21		8/8/2014	7:31		pH, TDS, Cr, ClO_4
ART-4	46	1617.39	38.55		**1578.84**	7.27		8/8/2014	7:33		pH, TDS, Cr, ClO_4
ART-4A	46	1617.46	29.24		**1588.22**			8/8/2014	7:34		DTW Only
ART-6	36	1615.19	29.52		**1585.67**	7.38		8/7/2014	6:48		pH, TDS, Cr, ClO_4
ART-7	38.9	1615.37	30.49		**1584.88**	7.27		8/7/2014	6:53		pH, TDS, Cr, ClO_4
ART-7A	40	1614.78	32.13		**1582.65**			8/7/2014	6:56		DTW Only
ART-7B	50	1619.62	34.63		1584.99	7.3	8.50	8/7/2014	6:35		pH, TDS, Cr, ClO_4

Sampling Crew Signature: ______________________

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WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
ART-8	50.53	1617.69	28.38		1589.31			8/8/2014	7:27		DTW Only
ART-8A	54	1617.10	30.01		1587.09	7.1		8/8/2014	7:28		pH, TDS, Cr, ClO_4
ART-9	43	1614.90	31.82		1583.08	7.35		8/7/2014	6:51		pH, TDS, Cr, ClO_4
L-635	36.5				0.00			8/5/2014	11:20	NO ACCESS	pH, TDS, Cr, ClO_4
L-637	37.5				0.00			8/5/2014	11:20	NO ACCESS	pH, TDS, Cr, ClO_4
M-2A	47.57	1781.16			1781.16	Sampled in the 2nd Quarter only					pH, TDS, Cr, ClO_4
M-5A	50.00	1751.80	37.61		1714.19	6.86	17.93	8/12/2014	9:29		(pH / SC / TOC / TOX) x 4 / CLO4 / CR / TDS
M-6A	46.00	1733.19	38.95		1694.24	7.06	12.07	8/13/2014	11:55		(pH / SC / TOC / TOX) x 4 / CLO4 / CR / TDS
M-7B	55.00	1732.83	36.34		1696.49	7.24	12.96	8/12/2014	11:29		(pH / SC / TOC / TOX) x 4 / CLO4 / CR / TDS
M-10	69.45	1836.21	49.94		1786.27	7.50	3.28	8/15/2014	12:50		pH / CR6 / Cr / ClO_4 /TDS /+NPDES list
M-11	58.00	1815.53	43.65		1771.88	8.08	3.47	8/15/2014	11:54		pH / TDS / Cr / Cr6 / Cl04
M-12A	49.71	1812.47	42.07		1770.40	7.88	8.35	8/14/2014	11:01		pH / TDS / Cr / Cr6 / Cl04
M-13	54.76	1814.89			1814.89	Sampled in the 2nd Quarter only					pH, TDS, Cr, ClO_4
M-14A	42.40	1760.93	32.49		1728.44	7.39	4.49	8/12/2014	8:37		pH, TDS, Cr, ClO_4
M-19	41.20	1766.77	34.54		1732.23	7.32	6.46	8/14/2014	6:01		pH, TDS, Cr, ClO_4
M-21	44.74	1792.07			1792.07	Sampled in the 2nd Quarter only					pH, TDS, Cr, ClO_4
M-22A	36.92	1759.46	29.96		1729.50	7.10	12.2	8/12/2014	8:21		pH, TDS, Cr, ClO_4
M-23	44.66	1720.54	34.06		1686.48	7.24	5.29	8/13/2014	11:16		pH, TDS, Cr, ClO_4

Sampling Crew Signature: ______________________________

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M-25	41.47	1759.93	33.31		1726.62	7.04	8.85	8/12/2014	8:59		pH, TDS, Cr, ClO_4
M-31A	55.00	1796.87	46.01		1750.86	7.27	6.14	8/14/2014	9:27		pH, TDS, Cr, ClO_4
M-33	46.78	1800.29			1800.29	Sampled in the 2nd Quarter only					pH, TDS, Cr, ClO_4
M-35	39.70	1772.78	32.34		1740.44	7.00	7.06	8/14/2014	5:44		pH, TDS, Cr, ClO_4
M-36	37.85	1759.82			1759.82			8/12/2014	11:05		pH / Cr / Cr^6 / ClO_4 / TDS
M-37	37.18	1761.06	31.69		1729.37	6.85	7.3	8/12/2014	10:37		pH / Cr / Cr^6 / ClO_4 / TDS
M-38	36.82	1759.73	31.19		1728.54	7.01	12.04	8/12/2014	11:05		pH / Cr / Cr^6 / ClO_4 / TDS
M-44	37.65	1698.31	24.37		1673.94	7.31	10.17	8/13/2014	10:50		pH / TDS / Cr / Cr6 / Cl04
M-48A	40	1718.36	30.17		1688.19	7.26	6.39	8/13/2014	8:40		pH, TDS, Cr, ClO_4
M-52	47.85	1802.39	41.32		1761.07	7.65	5.72	8/14/2014	9:47		pH, TDS, Cr, ClO_4
M-55	45.00	1750.88	29.66		1721.22			8/8/2014	11:29		DTW Only
M-56	40.00	1750.83	31.19		1719.64			8/8/2014	11:25		DTW Only
M-57A	42.40	1753.44	29.53		1723.91	7.43	4.63	8/12/2014	7:09		pH, TDS, Cr, ClO_4
M-58	45.00	1751.25	29.43		1721.82			8/8/2014	11:20		DTW Only
M-60	43.00	1750.94	31.99		1718.95			8/8/2014	11:23		DTW Only
M-64	38.00	1749.76	29.12		1720.64	7.18	9.19	8/12/2014	5:17		pH, TDS, Cr, ClO_4
M-65	40.00	1753.91	32.82		1721.09	7.05	13.29	8/12/2014	5:45		pH, TDS, Cr, ClO_4
M-66	43.00	1754.24	30.74		1723.50	6.82	15.16	8/12/2014	5:57		pH, TDS, Cr, ClO_4

Sampling Crew Signature: ____________________

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WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
M-67	38.00	1745.91	20.69		1725.22	7.32	6.71	8/14/2014	7:44		pH, TDS, Cr, ClO_4
M-68	41.00	1750.23	25.31		1724.92	7.25	7.10	8/14/2014	8:04		pH, TDS, Cr, ClO_4
M-69	40.00	1749.75	33.51		1716.24	7.25	5.21	8/12/2014	6:25		pH, TDS, Cr, ClO_4
M-70	41.00	1748.25	35.02		1713.23	7.24	7.88	8/12/2014	7:32		pH, TDS, Cr, ClO_4
M-71	43.00	1747.04	35.44		1711.60	6.88	8.5	8/12/2014	7:50		pH, TDS, Cr, ClO_4
M-72	36.00	1746.49	31.81		1714.68	6.84	11.52	8/12/2014	8:09		pH, TDS, Cr, ClO_4
M-73	36.00	1741.14	28.19		1712.95	7.26	8.41	8/14/2014	7:29		pH, TDS, Cr, ClO_4
M-74	39.70	1745.08	27.49		1717.59	7.33	7.26	8/14/2014	6:36		pH, TDS, Cr, ClO_4
M-75	53.90	1784.21	42.42		1741.79			8/11/2014	9:57		DTW ONLY
M-76	54.60	1785.22	39.31		1745.91			8/11/2014	10:01		DTW ONLY
M-77	49.32	1801.73	39.62		1762.11			8/11/2014	9:55		DTW ONLY
M-78	43.60	1751.50	32.53		1718.97			8/8/2014	11:28		DTW ONLY
M-79	37.60	1742.53	31.14		1711.39	7.30	5.92	8/12/2014	6:12		pH / TDS / Cr / ClO_4
M-80	43.70	1746.04	35.93		1710.11	7.38	3.92	8/14/2014	8:43		pH / Cr / Cr^6 / ClO_4 / TDS
M-81A	41.60	1744.16	35.46		1708.70	7.30	6.25	8/14/2014	9:06		TDS / Cr / ClO_4
M-83	41.75	1742.02	31.37		1710.65	7.36	4.83	8/14/2014	8:28		pH, TDS, Cr, ClO_4
M-92	48.50	1800.76	36.22		1764.54			8/11/2014	9:35		DTW ONLY
M-93	49.00	1797.54	35.35		1762.19			8/11/2014	9:38		DTW ONLY

Sampling Crew Signature: ____________________

TABLE 1
Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 3rd Quarter Groundwater Monitoring, August 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
M-95	30.00	1694.09	17.12		1676.97	7.35	7.05	8/13/2014	12:25		pH / TDS / Cr / Cr6 / Cl04
M-96	16.57	1693.85			1693.85			8/13/2014	8:02	DRY	pH / Cr / Cr^6 / ClO_4 / TDS
M-97	52.50	1800.85	39.94		1760.91			8/11/2014	9:36		DTW ONLY
M-98	33.40	1731.90			1731.90			8/13/2014	12:05	DRY	pH, TDS, Cr, ClO_4
M-99	35.59	1730.74	33.38		1697.36	7.52	4.91	8/12/2014	12:00		pH, TDS, Cr, ClO_4
M-100	33.81	1730.93			1730.93			8/11/2014	10:20	DRY	pH / TDS / Cr / Cr6 / Cl04
M-101	32.15	1730.81			1730.81			8/11/2014	10:18	DRY	pH, TDS, Cr, ClO_4
M-115	47.50	1787.64	37.77		1749.87			8/11/2014	10:05		DTW ONLY
M-131	39.00	1754.13	33.26		1720.87	7.51	4.66	8/12/2014	6:54		pH, TDS, Cr, ClO_4
M-135	39.00	1751.85	34.43		1717.42	7.39	4.76	8/12/2014	6:41		pH, TDS, Cr, ClO_4
M-166	32.00	1751.09	29.41		1721.68			8/8/2014	11:38		DTW Only
M-167	30.00	1749.95	28.42		1721.53			8/8/2014	11:36		DTW Only
M-168	35.00	1748.46	25.96		1722.50			8/8/2014	11:34		DTW Only
M-169	35.00	1750.22	28.31		1721.91			8/8/2014	11:33		DTW Only
M-170	35.00	1750.66	29.36		1721.30			8/8/2014	11:30		DTW Only
M-172	37.00	1750.58	33.13		1717.45			8/8/2014	11:26		DTW Only
M-173	40.00	1749.88	28.58		1721.30			8/8/2014	11:21		DTW Only
M-174	28.00	1742.29	19.33		1722.96			8/11/2014	10:16		DTW Only

Sampling Crew Signature: ______________________

TABLE 1
Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 3rd Quarter Groundwater Monitoring, August 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
M-175	29.00	1742.74	19.18		1723.56			8/11/2014	10:15		DTW Only
M-176	30.00	1745.35	21.64		1723.71			8/11/2014	10:12		DTW Only
M-177	30.00	1743.23	20.59		1722.64			8/11/2014	10:10		DTW Only
MW-K4	50	1614.96	27.87		1587.09	7.20	8.38	8/7/2014	9:56		pH, TDS, Cr, ClO_4
MW-K5	44	1598.87	30.97		1567.90	7.02	9.48	8/7/2014	8:06		pH, TDS, Cr, ClO_4
PC-18	52.11	1618.50	28.46		1590.04	7.02	14.01	8/8/2014	6:50		pH, TDS, Cr, ClO_4
PC-53	32.86	1595.03	28.33		1566.70	7.34	6.26	8/7/2014	7:51		pH, TDS, Cr, ClO_4
PC-55	54.9	1618.46	27.54		1590.92	7.36	10.7	8/8/2014	7:14		pH, TDS, Cr, ClO_4
PC-56	63.58	1576.83	22.18		1554.65	7.09	7.04	8/5/2014	8:49		pH, TDS, Cr, ClO_4
PC-58	42.78	1,576.79	22.97		1553.82	7.26	4.34	8/5/2014	8:31		pH, TDS, Cr, ClO_4
PC-59	48.13	1567.05	20.66		1546.39	7.21	4.14	8/5/2014	9:38		pH, TDS, Cr, ClO_4
PC-60	48.09	1576.47	21.42		1555.05	7.35	3.46	8/5/2014	9:12		pH, TDS, Cr, ClO_4
PC-62	45.91	1575.74	19.73		1556.01	7.42	2.66	8/5/2014	9:57		pH, TDS, Cr, ClO_4
PC-68	64.72	1576.39	19.69		1556.70	7.26	2.82	8/5/2014	10:14		pH, TDS, Cr, ClO_4
PC-86	35.75	1561.60	13.04		1548.56	7.23	2.87	8/5/2014	10:45		pH, TDS, Cr, ClO_4
PC-90	15.0	1550.46	6.49		1543.97	7.25	3.75	8/5/2014	7:23		pH, TDS, Cr, ClO_4
PC-91	37.0	1552.33	12.29		1540.04	7.21	3.98	8/5/2014	7:41		pH, TDS, Cr, ClO_4
PC-92	22.0	1552.05			1552.05	Sampled in the 2nd Quarter only					pH, TDS, Cr, ClO_4

Sampling Crew Signature: ______________________

TABLE 1
Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 3rd Quarter Groundwater Monitoring, August 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
PC-94	20.0	1548.95	13.19		1535.76	7.02	7.82	8/5/2014	8:00		pH, TDS, Cr, ClO_4
PC-95	35.0	1550.62			1550.62					DESTROYED	pH, TDS, Cr, ClO_4
PC-97	33.5	1548.53	5.13		1543.40	7.13	3.23	8/5/2014	7:00		pH, TDS, Cr, ClO_4
PC-98R	40.5	1593.35	23.59		1569.76	7.04	8.80	8/7/2014	11:13		pH, TDS, Cr, ClO_4
PC-99R3	55.3	1552.48	15.27		1537.21	6.69		8/6/2014	6:25		pH, TDS, Cr, ClO_4
PC-101R	50.58	1618.12	29.13		1588.99	7.22	12.72	8/7/2014	9:34		pH, TDS, Cr, ClO_4
PC-103	29.5	1599.49	23.22		1576.27	7.11	7.00	8/7/2014	10:56		pH, TDS, Cr, ClO_4
PC-115R	55.5	1554.71	12.14		1542.57	7.26		8/6/2014	6:29		pH, TDS, Cr, ClO_4
PC-116R	55.5	1552.10	14.16		1537.94	7.21		8/6/2014	6:22		pH, TDS, Cr, ClO_4
PC-117	53.0	1552.26	11.60		1540.66	7.28		8/6/2014	6:19		pH, TDS, Cr, ClO_4
PC-118	51.0	1554.53	8.06		1546.47	7.39		8/6/2014	6:32		pH, TDS, Cr, ClO_4
PC-119	47.0	1554.66	7.06		1547.60	7.36		8/6/2014	6:35		pH, TDS, Cr, ClO_4
PC-120	47.0	1554.64	5.30		1549.34	7.33		8/6/2014	6:39		pH, TDS, Cr, ClO_4
PC-121	38.5	1554.10	5.30		1548.80	7.20		8/6/2014	6:47		pH, TDS, Cr, ClO_4
PC-122	38.0	1618.02	32.29		1585.73	7.22	10.09	8/7/2014	7:37		pH, TDS, Cr, ClO_4
PC-123	34.70	1626.44	22.58		1603.86	7.14	7.60	8/13/2014	4:18		pH, TDS, Cr, ClO_4
PC-124	34.60	1635.73	24.95		1610.78	7.27	11.18	8/13/2014	6:28		pH, TDS, Cr, ClO_4
PC-125	33.50	1635.06	22.88		1612.18	7.21	10.65	8/13/2014	7:26		pH, TDS, Cr, ClO_4

Sampling Crew Signature: ______________________

TABLE 1
Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 3rd Quarter Groundwater Monitoring, August 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
PC-126	34.35	1634.38	21.72		**1612.66**	7.33	9.08	8/13/2014	6:46		pH, TDS, Cr, ClO_4
PC-127	34.70	1632.42	19.74		**1612.68**	7.42	7.05	8/13/2014	7:03		pH, TDS, Cr, ClO_4
PC-128	34.70	1633.36	18.41		**1614.95**	7.36	7.11	8/13/2014	4:37		pH, TDS, Cr, ClO_4
PC-129	37.70	1633.99	18.27		**1615.72**	7.22	7.54	8/13/2014	5:00		pH, TDS, Cr, ClO_4
PC-130	49.70	1633.21	18.99		**1614.22**	7.28	8.13	8/13/2014	5:15		pH, TDS, Cr, ClO_4
PC-131	39.40	1633.58	10.93		**1622.65**	7.30	13.31	8/13/2014	5:41		pH, TDS, Cr, ClO_4
PC-132	39.56	1634.70	9.63		**1625.07**	7.20	12.88	8/13/2014	6:02		pH, TDS, Cr, ClO_4
PC-133	40.2	1553.00	7.83		**1545.17**	7.29		8/6/2014	6:16		pH, TDS, Cr, ClO_4
PC-135A	50.8	1618.58	29.48		**1589.10**	7.15	12.52	8/15/2014	6:59		pH, TDS, Cr, ClO_4
PC-136	40.3	1618.04	34.21		**1583.83**	7.32	7.00	8/15/2014	7:21		pH, TDS, Cr, ClO_4
PC-144	39.7	1618.63	29.63		**1589.00**	7.33	7.57	8/15/2014	6:43		pH, TDS, Cr, ClO_4
PC-148	50.2	1617.96	28.13		**1589.83**	7.06	8.78	8/15/2014	5:26		pH, TDS, Cr, ClO_4
PC-149	50	1618.93	29.65		**1589.28**	7.28	5.19	8/15/2014	6:08		pH, TDS, Cr, ClO_4
PC-150	45.7	1619.09	30.14		**1588.95**	7.42	7.31	8/15/2014	7:59		pH, TDS, Cr, ClO_4
INTERCEPTOR WELLS											
I-AA	46.00	1753.93	43.99		**1709.94**	7.13	4.85	8/11/2014	7:44		pH, TDS, Cr, ClO_4
I-AB	52..0	1753.89	33.01		**1720.88**			8/11/2014	7:37	When pump turned on no water materialized	pH, TDS, Cr, ClO_4
I-AC	50	1752.76	28.34		**1724.42**			8/14/2014	6:24	When pump turned on no water materialized	pH, TDS, Cr, ClO_5

Sampling Crew Signature: ______________________________

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Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 3rd Quarter Groundwater Monitoring, August 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID[1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER[2]	COMMENTS/Analytical Plan/Temp
I-AD	50	1755.39	28.85		1726.54	7.45	6.92	8/14/2014	6:13		pH, TDS, Cr, ClO_4
I-AR	45.00	1758.35	43.14		1715.21	7.07	8.26	8/11/2014	7:49		pH, TDS, Cr, ClO_4
I-B	45.70	1752.87	42.52		1710.35	6.94	6.52	8/11/2014	7:24		pH, TDS, Cr, ClO_4
I-C	43.80	1752.77	35.84		1716.93	7.36	9.09	8/11/2014	6:53		pH, TDS, Cr, ClO_4
I-D	47.70	1752.67	37.06		1715.61	7.34	9.73	8/11/2014	6:45		pH, TDS, Cr, ClO_4
I-E	46.70	1752.36	44.34		1708.02	6.96	9.79	8/11/2014	6:28		pH, TDS, Cr, ClO_4
I-F	45.80	1749.70	32.95		1716.75	6.98	12.09	8/11/2014	6:07		pH, TDS, Cr, ClO_4
I-G	42.60	1752.50	39.85		1712.65	6.74	14.91	8/11/2014	5:37		pH, TDS, Cr, ClO_4
I-H	46.50	1753.21	43.87		1709.34	6.75	14.61	8/11/2014	5:13		pH, TDS, Cr, ClO_4
I-I	44.20	1745.50	22.80		1722.70	7.33	9.40	8/14/2014	7:14		pH, TDS, Cr, ClO_4
I-J	44.50	1750.09	27.31		1722.78	7.20	6.98	8/14/2014	7:01		pH, TDS, Cr, ClO_4
I-K	40.60	1746.04	26.06		1719.98	7.42	7.39	8/14/2014	6:52		pH, TDS, Cr, ClO_4
I-L	43.40	1751.69	39.98		1711.71	7.35	7.87	8/11/2014	7:06		pH, TDS, Cr, ClO_4
I-M	43.70	1752.90	38.11		1714.79	7.29	10.25	8/11/2014	6:35		pH, TDS, Cr, ClO_4
I-N	41.70	1751.45	35.11		1716.34	6.96	10.35	8/11/2014	6:21		pH, TDS, Cr, ClO_4
I-O	43.80	1752.79	32.25		1720.54	6.97	9.96	8/11/2014	4:55		pH, TDS, Cr, ClO_4
I-P	47.80	1751.66	41.37		1710.29	6.72	11.8	8/11/2014	5:09		pH, TDS, Cr, ClO_4
I-Q	43.80	1753.11	39.88		1713.23	6.75	14.48	8/11/2014	5:43		pH, TDS, Cr, ClO_4

Sampling Crew Signature: ______________________

TABLE 1
Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 3rd Quarter Groundwater Monitoring, August 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
I-R	45.30	1751.35	40.94		1710.41	7.09	8.09	8/11/2014	7:19		pH, TDS, Cr, ClO_4
I-S	47.70	1750.03	28.54		1721.49	87.35	7.79	8/11/2014	7:00		pH, TDS, Cr, ClO_4
I-T	47.80	1751.66	43.28		1708.38	6.87	14.88	8/11/2014	5:31		pH, TDS, Cr, ClO_4
I-U	47.60	1752.17	44.44		1707.73	6.93	14.79	8/11/2014	5:26		pH, TDS, Cr, ClO_4
I-V	47.70	1752.13	31.39		1720.74	7.39	9.4	8/14/2014	7:20		pH, TDS, Cr, ClO_4
I-W	50.00	1751.50	47.52		1703.98	7.13	10.5	8/11/2014	5:03		pH, TDS, Cr, ClO_4
I-X	50.00	1748.60	37.33		1711.27	6.95	12.11	8/11/2014	6:11		pH, TDS, Cr, ClO_4
I-Y	50.50	1751.40	46.52		1704.88	6.97	8.39	8/11/2014	7:14		pH, TDS, Cr, ClO_4
I-Z	37.00	1743.78	21.25		1722.53	7.44	7.19	8/14/2014	7:08		pH, TDS, Cr, ClO_4
OTHER WELLS (OFFSITE)											
PC-37	43.08	1707.72	30.05		1677.67	7.37	9.6	8/13/2014	9:40		pH, TDS, Cr, ClO_4
PC-54	34.60	1704.43	23.71		1680.72	7.29	6.11	8/13/2014	8:25		pH, TDS, Cr, ClO_4
PC-71	33.23	1698.73	27.19		1671.54	7.31	9.96	8/13/2014	10:34		pH, TDS, Cr, ClO_4
PC-72	39.54	1699.43	30.01		1669.42	7.35	8.32	8/13/2014	10:19		pH, TDS, Cr, ClO_4
PC-73	49.44	1699.50	31.24		1668.26	7.26	9.07	8/13/2014	9:56		pH, TDS, Cr, ClO_4
PIONEER CHEMICAL WELL											
H-28A	51.00	1731.75	39.24		1692.51	6.94	14.98	8/13/2014	11:40		(pH / SC / TOC / TOX) x 4 / CLO4 / CR / TDS
DUPLICATE SAMPLES											
DUP-1	PC-132					7.20	12.88	8/13/2014	6:02		pH, TDS, Cr, ClO_4
DUP-2	PC-150					7.42	7.31	8/15/2014	7:59		pH, TDS, Cr, ClO_4

Sampling Crew Signature: ______________________

TABLE 1

Well Inventory for Groundwater Sampling

NERT Project, Henderson, Nevada

Summary of Field Data for: 3rd Quarter Groundwater Monitoring, August 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
DUP-3	M-12A					7.88	8.35	8/14/2014	11:01		pH / TDS / Cr / Cr6 / Cl04
DUP-4	M-11					8.08	3.47	8/15/2014	11:54		pH / TDS / Cr / Cr6 / Cl04
OTHER SAMPLES COLLECTED											
EB-M1								8/5/2014	9:30		CLO4
EB-1								8/13/2014	9:56		pH / TDS / Cr / Cr6 / Cl04
EB-2								8/14/2014	9:43		pH / TDS / Cr / Cr6 / Cl04
FB-1								8/12/2014	11:00		pH / TDS / Cr / Cr6 / Cl04

NOTES:

Sampling Crew Signature: ______________________

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No:
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	1 of 2 COCs
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) **WORK**			
702-371-9307	TAT if different from Below 10 DAY			
FAX:	☑ 2 weeks			SDG No.
Project Name: Envirogen- Monthly ART and PC Wells pg 1	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_CALCED- TOTAL DISSOLVED	314.0_LL- PERCHLORATE	SM 4500 pH	200.7 Total Chromium
ART-1 ✓	8-4-14	0849	NORMAL	WATER	3		1	1	1	4
ART-2 ✓		0856	NORMAL	WATER	3		1	1	1	4
ART-3 ✓		0900	NORMAL	WATER	3		1	1	1	4
ART-4 ✓		0906	NORMAL	WATER	3		1	1	1	4
ART-6 ✓		0940	NORMAL	WATER	3		1	1	1	4
ART-7 ✓		0917	NORMAL	WATER	3		1	1	1	4
ART-8 ✓		0911	NORMAL	WATER	3		1	1	1	4
ART-9 ✓		0923	NORMAL	WATER	3		1	1	1	4
PC-99R2/R3 ✓		0734	NORMAL	WATER	3		1	1	1	4
PC-115R ✓		0741	NORMAL	WATER	3		1	1	1	4
PC-116R ✓		0746	NORMAL	WATER	3		1	1	1	4
PC-117 ✓	✓	0751	NORMAL	WATER	3		1	1	1	4

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michele Brown **Date** 8-4-14

Special Instructions/QC Requirements & Comments:

Needs Level 4 Report

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-4-14/1400	Received by:	Company:	Date/Time: 8/4/14 1400
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No:
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	PG 2 OF 2 COCs
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) **WORK**			
702-371-9307	TAT if different from Below ________			
FAX:	☑ 2 weeks			SDG No.
Project Name: Envirogen- Monthly ART and PC Wells pg 2	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_CALCED- TOTAL DISSOLVED SOLIDS	314.0_LL- PERCHLORATE	SM 4500 pH	200.7 Total Chromium
PC-118	8.4.14	0755	NORMAL	WATER	3		1	1	1	4
PC-119		0800	NORMAL	WATER	3		1	1	1	4
PC-120		0810	NORMAL	WATER	3		1	1	1	4
PC-121		0815	NORMAL	WATER	3		1	1	1	4
PC-133		0804	NORMAL	WATER	3		1	1	1	4

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☑ Archive For 1 Months

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown **Date** 8-4-14

Special Instructions/QC Requirements & Comments: Needs Level 4 Report

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-4-14/1420	Received by:	Company: TA	Date/Time: 8/4/14 1420
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No:
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	
510 South Fourth Street	Analysis Turnaround Time			Job No
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ________			SDG No
FAX:	☒ 2 weeks			
Project Name: Envirogen- Monthly ARP and PC Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_Calcd- Total Dissolved Solids	314.0 Perchlorate	SM 4500 pH	200.7 Total Chromium
PC-97 ✓	8-5-14	0713	NORMAL	WATER	3		1	1	1	4
PC-90 ✓		0735	NORMAL	WATER	3		1	1	1	4
PC-91 ✓		0753	NORMAL	WATER	3		1	1	1	4
PC-94 ✓		0807	NORMAL	WATER	3		1	1	1	4
PC-58 ✓		0844	NORMAL	WATER	3		1	1	1	4
PC-56 ✓		0905	NORMAL	WATER	3		1	1	1	4
PC-60 ✓		0925	NORMAL	WATER	3		1	1	1	4
PC-59 ✓		0950	NORMAL	WATER	3		1	1	1	4
PC-62 ✓		1010	NORMAL	WATER	3		1	1	1	4
PC-68 ✓		1035	NORMAL	WATER	3		1	1	1	4
PC-86 ✓		1055	NORMAL	WATER	3		1	1	1	4
EB-M1 ✓	↓	0930	NORMAL	WATER	1 MS		MS 2	1	MD 3	5

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ________

Possible Hazard Identification
☒ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☒ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC 445.0636)
Signature: Michele Brown Date 8-5-14

Special Instructions/QC Requirements & Comments: Needs Level 4 Report

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-5-14/1445	Received by:	Company: TA	Date/Time: 8/5/14 1445
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact			
Envirogen Technologies	**Project Manager:** Wendy Prescott	**Site Contact:** Wendy Prescott	**Date:**
510 South Fourth Street	**Tel/Fax:** 702-371-9307	**Lab Contact:** Sushmitha Reddy	**Carrier:**
Henderson, NV 89015	**Analysis Turnaround Time**		COC No:
702-371-9307	Calendar (C) or Work Days (W) **WORK**		Job No:
FAX:	TAT if different from Below ________		SDG No:
Project Name: Envirogen- Monthly ARP and PC Wells	☑ 2 weeks		
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 1 week		
P O # 3693	☐ 2 days		
	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_Calcd- Total Dissolved Solids	314.0 Perchlorate	SM 4500 pH	200.7 Total Chromium
ART-7B ✓	8-7-14	0733	NORMAL	WATER	3		1	1	1	4
PC-122 ✓		0743	NORMAL	WATER	3		1	1	1	4
PC-53 ✓		0755	NORMAL	WATER	3		1	1	1	4
MW-K5 ✓		0814	NORMAL	WATER	3		1	1	1	4
ARP-7 ✓		0836	NORMAL	WATER	3		1	1	1	4
ARP-6B ✓		0853	NORMAL	WATER	3		1	1	1	4
ARP-5A ✓		0908	NORMAL	WATER	3		1	1	1	4
ARP-4A ✓		0924	NORMAL	WATER	3		1	1	1	4
PC-101R ✓		0947	NORMAL	WATER	3		1	1	1	4
MW-K4 ✓		1008	NORMAL	WATER	3		1	1	1	4
ARP-3A ✓		1026	NORMAL	WATER	3		1	1	1	4
ARP-2A ✓		1046	NORMAL	WATER	3		1	1	1	4

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC ~~445~~.0636)
Signature: Michele Brown Date 8-7-14

Special Instructions/QC Requirements & Comments:
Needs Level 4 Report

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-7-14/ 1305	Received by:	Company: TA	Date/Time: 8/7/14 1305
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No.
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) **WORK**			
702-371-9307	TAT if different from Below ________			
FAX:	☑ 2 weeks			SDG No.
Project Name: Envirogen- Monthly ARP and PC Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_Calcd- Total Dissolved Solids	314.0 Perchlorate	SM 4500 pH	200.7 Total Chromium
PC-103	8-7-14	1105	NORMAL	WATER	3		1	1	1	4
PC-98R	8-7-14	1145	NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown **Date** 8-7-14

Special Instructions/QC Requirements & Comments: Needs Level 4 report

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-7-14/ 1305	Received by:	Company: TA	Date/Time: 8/7/14 1305
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**
510 South Fourth Street	**Analysis Turnaround Time**		
Henderson, NV 89015	Calendar (C) or Work Days (W) **WORK**		
702-371-9307	TAT if different from Below ______		
FAX:	☑ 2 weeks		
Project Name: Envirogen- Monthly ARP and PC Wells	☐ 1 week		
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days		
P O # 3693	☐ 1 day		

COC No
Job No.
SDG No.

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_Calcd - Total Dissolved Solids	314.0 Perchlorate	SM 4500 pH	200.7 Total Chromium
PC-18 ✓	8.8.14	0905	NORMAL	WATER	3		1	1	1	4
ARP-1 ✓	8.8.14	0642	NORMAL	WATER	3		1	1	1	4
PC-55 ✓	8.8.14	0846	NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michele Brown Date 8-8-14

Special Instructions/QC Requirements & Comments:
Needs Level 4 Report

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-8-14 945	Received by:	Company: TA	Date/Time: 8/8/14 945
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No:
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	1 of 2 COCs
510 South Fourth Street	Analysis Turnaround Time			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ____			
FAX:	☒ 2 weeks			SDG No.
Project Name: NERT- 3rd Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
I-O ✓	8-11-14	0457	NORMAL	WATER	3		4	1	1				
I-W ✓		0506	NORMAL	WATER	3		4	1	1				
I-P ✓		0510	NORMAL	WATER	3		4	1	1				
I-H ✓		0515	NORMAL	WATER	3		4	1	1				
I-U ✓		0528	NORMAL	WATER	3		4	1	1				
I-T ✓		0533	NORMAL	WATER	3		4	1	1				
I-G ✓		0540	NORMAL	WATER	3		4	1	1				
I-Q ✓		0555	NORMAL	WATER	3		4	1	1				
I-F ✓		0609	NORMAL	WATER	3		4	1	1				
I-X ✓		0613	NORMAL	WATER	3		4	1	1				
I-N ✓		0623	NORMAL	WATER	3		4	1	1				
I-E ✓	↓	0630	NORMAL	WATER	3		4	1	1				

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification
☒ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☒ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC 445.0636)
Signature: Michele Brown Date 8-11-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-11-14/ 14[illegible]	Received by:	Company:	Date/Time: 8/11/14 1400
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Soshmitha Reddy	Carrier:	2 of 2 COCs
510 South Fourth Street	Analysis Turnaround Time			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ________			
FAX	☑ 2 weeks			SDG No
Project Name: NERT-3rd Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
I-M ✓	8-11-14	0637	NORMAL	WATER	3		4	1					
I-D ✓		0647	NORMAL	WATER	3		4	1					
I-C ✓		0655	NORMAL	WATER	3		4	1					
I-S ✓		0702	NORMAL	WATER	3		4	1					
I-L ✓		0708	NORMAL	WATER	3		4	1					
I-Y ✓		0716	NORMAL	WATER	3		4	1					
I-R ✓		0721	NORMAL	WATER	3		4	1					
I-B ✓		0726	NORMAL	WATER	3		4	1					
I-AA ✓		0746	NORMAL	WATER	3		4	1					
I-AR ✓		0750	NORMAL	WATER	3		4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ________

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☑ Archive For 1 Months

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele A Brown Date 8-11-14

Special Instructions/QC Requirements & Comments

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-11-14/1430	Received by:	Company: TA	Date/Time: 8/11/14 1430
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No:
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	1 of 2 COCs
510 South Fourth Street	Analysis Turnaround Time			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ________			
FAX:	☑ 2 weeks			SDG No
Project Name: NERT-3rd Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
M-64 ✓	8-12-14	0538	NORMAL	WATER	3		4	1	1				
M-65 ✓		0550	NORMAL	WATER	3		4	1	1				
M-66 ✓		0605	NORMAL	WATER	3		4	1	1				
M-79 ✓		0619	NORMAL	WATER	3		4	1	1				
M-69 ✓		0633	NORMAL	WATER	3		4	1	1				
M-135 ✓		0647	NORMAL	WATER	3		4	1	1				
M-131 ✓		0702	NORMAL	WATER	3		4	1	1				
M-57A ✓		0718	NORMAL	WATER	3		4	1	1				
M-70 ✓		0741	NORMAL	WATER	3		4	1	1				
M-71 ✓		0801	NORMAL	WATER	3		4	1	1				
M-72 ✓		0814	NORMAL	WATER	3		4	1	1				
M-22A ✓		0827	NORMAL	WATER	3		4	1	1				

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michela Brown Date 8-12-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michela Brown	Envirogen	8-12/14 1300		TA	8/12/14 1300
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No:
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	1 of 2 COCs
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ________			
FAX:	☒ 2 weeks			SDG No.
Project Name: NERT-~~1st~~ 3rd Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
M-14A ✓	8-12-14	0845	NORMAL	WATER	3		4	1	1				
M-25 ✓		0906	NORMAL	WATER	3		4	1	1				
M-37 ✓		1045	NORMAL	WATER	3		4	1		1			
FB-1 ✓		1100	NORMAL	WATER	3		4	1		1			
M-38 ✓		1115	NORMAL	WATER	3		4	1		1			
M-99 ✓		1207	NORMAL	WATER	3		4	1	1				
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ________

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☒ Archive For 1 Months

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown Date 8-12-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-12-14/ 1306	Received by:	Company: TA	Date/Time: 8/12/14 1305
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact			
Envirogen Technologies	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:
510 South Fourth Street	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:
Henderson, NV 89015	Analysis Turnaround Time		
702-371-9307	Calendar (C) or Work Days (W) WORK		
FAX:	TAT if different from Below ________		
Project Name: Envirogen Quarterly RCRA	☑ 2 weeks		
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 1 week ☐ 2 days ☐ 1 day		
P O # 3693			

COC No:
1 of 1 COCs
Job No.
SDG No.

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	CLO4 314.0	Cr, B, Iron, Mn, Na 200.7 - 200.7	300_ORGFM_28D - 300: Cl/SO4, 150.1-150; pH, 2540C_Calcd - 2540: TDS, 2510B - 2510: Conductance	5310C - 5310C TOC	9020B- 9020, TOX	420.1 - 420, Phenols, Total
M-5A ✓	8-12-14	0955	NORMAL	WATER	8		1	4	1	6	3	3
M-7B ✓	8-12-14	1135	NORMAL	WATER	8		1	4	1	6	3	3

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* *Disposal By Lab* ☐ *Archive For* ☑ *Months*

I attest to the validity and authenticity of ~~this~~ (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown Date 8-12-14

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michele Brown	Envirogen	8-12-14 / 1300		TA	8/12/14 2005
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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17461 Derian Ave
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Irvine, CA 92614
phone 949 261 1022 fax 949 260 3299

Chain of Custody Record

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	1 of 2 COCs
510 South Fourth Street	Analysis Turnaround Time			Job No
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ______			
FAX	☒ 2 weeks			SDG No
Project Name: NERT- 3rd Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3853	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
PC-123 ✓	8-13-14	0428	NORMAL	WATER	3		4	1	1				
PC-128 ✓		0453	NORMAL	WATER	3		4	1	1				
PC-129 ✓		0509	NORMAL	WATER	3		4	1	1				
PC-130 ✓		0530	NORMAL	WATER	3		4	1	1				
PC-131 ✓		0556	NORMAL	WATER	3		4	1	1				
PC-132 ✓		0618	NORMAL	WATER	3		4	1	1				
PC-124 ✓		0638	NORMAL	WATER	3		4	1	1				
PC-126 mo ✓		0655	NORMAL	WATER	3		4	1	1				
PC-125 mo ✓		0736	NORMAL	WATER	3		4	1	1				
PC-127 ✓		0713	NORMAL	WATER	3		4	1	1				
PC-54 ✓		0831	NORMAL	WATER	3		4	1	1				
M-48A ✓	↓	0850	NORMAL	WATER	3		4	1	1				

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification
☒ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☒ Archive For 1 Months

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC 445.0636)
Signature: Michele Brown Date 8-13-14

Special Instructions/QC Requirements & Comments

NEEDS LEVEL 4 REPORT

Relinquished by Michele Brown	Company Envirogen	Date/Time 8-13-14 1305	Received by	Company TA	Date/Time 8/13/14 1305
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received by	Company	Date/Time

Irvine
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Irvine, CA 92614
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Chain of Custody Record

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	2 of 2 COCs
510 South Fourth Street	Analysis Turnaround Time			Job No
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ___			
FAX:	☑ 2 weeks			SDG No
Project Name: NERT 3rd Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
PC-71 ✓	8-13-14	1042	NORMAL	WATER	3		4	1	1				
PC-72 ✓		1027	NORMAL	WATER	3		4	1	1				
PC-73		1008	NORMAL	WATER	3		4	1	1				
M-23 ✓		1125	NORMAL	WATER	3		4	1	1				
M-95 ✓		1234	NORMAL	WATER	3		4	1		1			
M-44 ✓		1102	NORMAL	WATER	3		4	1		1			
Dup-1 ✓		0618	NORMAL	WATER	3		4	1	1				
EB-1 ✓		1013	NORMAL	WATER	3		4	1		1			
PC-37 ✓		0947	NORMAL	WATER	3		4	1	1				
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☑ Archive For 1 Months

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC 445.0636)

Signature: Michele Brown Date 8-13-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Michele Brown	Envirogen	8-13-14/1305		TA	8/13/14 1305
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received by	Company	Date/Time

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Irvine, CA 92614
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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No:
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	1 of 1 COCs
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ______			
FAX:	☒ 2 weeks			SDG No.
Project Name: Envirogen Quarterly RCRA	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	CLO4 314.0	Cr, B, Iron, Mn, Na 200.7 - 200.7	300_ORGFM_28D - 300: Cl/SO4, 150.1-150: pH, 2540C_Calcd - 2540: TDS, 2510B - 2510: Conductance	5310C - 5310C TOC	9020B- 9020, TOX	420.1 - 420, Phenols, Total
H-28A ✓	8-13-14	1143	NORMAL	WATER	8		1	4	1	6	3	3
M-6A ✓	8-13-14	1158	NORMAL	WATER	8		1	4	1	6	3	3

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification
☒ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☒ *Archive For 1 Months*

I attest to the validity and authenticity of this ~~(these)~~ sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown **Date** 8-13-14

Special Instructions/QC Requirements & Comments:

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-13-14/ 1305	Received by:	Company:	Date/Time: 8/13/14 1305
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No:
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	1 of 2 COCs
510 South Fourth Street	Analysis Turnaround Time			Job No
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ______			SDG No.
FAX:	☒ 2 weeks			
Project Name: NERT-3rd Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
M-31A ✓	8-14-14	0938	NORMAL	WATER	3		4	1	1				
M-52 ✓		0954	NORMAL	WATER	3		4	1	1				
M-35 ✓		0554	NORMAL	WATER	3		4	1	1				
M-19 ✓		0608	NORMAL	WATER	3		4	1	1				
M-68 ✓		0816	NORMAL	WATER	3		4	1	1				
M-67 ✓		0757	NORMAL	WATER	3		4	1	1				
M-74 ✓		0644	NORMAL	WATER	3		4	1	1				
M-73 ✓		0737	NORMAL	WATER	3		4	1	1				
I-K ✓		0654	NORMAL	WATER	3		4	1	1				
I-J ✓		0704	NORMAL	WATER	3		4	1	1				
I-Z ✓		0710	NORMAL	WATER	3		4	1	1				
I-I ✓		0718	NORMAL	WATER	3		4	1	1				

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☒ Archive For 1 Months

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown Date 8-14-14

Special Instructions/QC Requirements & Comments

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-14-14/1400	Received by:	Company: TA	Date/Time: 8/14/14 1450
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949 261 1022 fax 949 260 3299

Chain of Custody Record

TestAmerica

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	1 of 1 COCs
510 South Fourth Street	Analysis Turnaround Time			Job No
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ________			
FAX:	☒ 2 weeks			SDG No
Project Name: NERT- 1st Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St , Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
I-V ✓	81414	0723	NORMAL	WATER	3		4	1	1				
I-AD ✓		0815	NORMAL	WATER	3		4	1	1				
M-80 ✓		0900	NORMAL	WATER	3		4	1	1				
M-81A ✓		0916	NORMAL	WATER	3		4	1	1				
M-83 ✓		0836	NORMAL	WATER	3		4	1	1				
M-12A ✓		1108	NORMAL	WATER	3		4	1		1			
EB-2 ✓		0943	NORMAL	WATER	3		4	1		1			
DUP-3 ✓		1108	NORMAL	WATER	3		4	1		1			
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ________

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☒ Archive For 1 Months

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown Date 8-14-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 8-14-14 / 1900	Received by:	Company:	Date/Time: 8/14/14 1900
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Chain of Custody Record

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No:
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	of COCs

Envirogen Technologies
510 South Fourth Street
Henderson, NV 89015
702-371-9307
FAX:
Project Name: NERT- Quarterly M-10
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015
P O # 3693

Analysis Turnaround Time
Calendar (C) or Work Days (W) WORK
TAT if different from Below ________
☑ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Job No.

SDG No.

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	200.7 - B, Cr, Iron, Mn	SM4500NH3_D - Ammonia, TIN	300.1B_28D - Chlorate	314.0 Perchlorate	300_ORGFMS - (MOD) Nitate-Nitrite as N 300_ORGFM_28d - Chloride 150.1 - pH 2540C_Calcd - Total Dissolved Solids 218.6_ORGFM- Chromium, hexavalent
M-10 ✓	8-15-14	1480	NORMAL	WATER	6		4	3	6	1	1

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown Date 8-15-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michele Brown	Envirogen	8-15-14/ 1340		TA	8/15/14 1340
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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17461 Derian Ave
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Irvine, CA 92614
phone 949 261 1022 fax 949 260 3299

TestAmerica

Chain of Custody Record

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No:
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	1 of 1 COCs
510 South Fourth Street	Analysis Turnaround Time			Job No
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ________			SDG No
FAX:	☑ 2 weeks			
Project Name: NERT ~~3rd~~ 3rd Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
PC-148 ✓	8-15-14	0602	NORMAL	WATER	3		4	1	1				
PC-149 ✓		06636	NORMAL	WATER	3		4	1	1				
PC-150 ✓		0857	NORMAL	WATER	3		4	1	1				
PC-136 ✓		0730	NORMAL	WATER	3		4	1	1				
PC-144 ✓		0654	NORMAL	WATER	3		4	1	1				
PC-135A ✓		0715	NORMAL	WATER	3		4	1	1				
M-11 ✓		1238	NORMAL	WATER	3		4	1		1			
DUP-2 ✓		0857	NORMAL	WATER	3		4	1	1				
DUP-4 ✓	↓	1238	NORMAL	WATER	3		4	1		1			
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michela Brown Date 8-15-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michela Brown	Envirogen	8-15-14/1340		TA	8/15/14 1340
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Bottle Order Information

Bottle Order: *NERT - Quarterly M-10*
Bottle Order #: *4296*
Request From Client:
Date Order Posted: *3/21/2013 12:00:12PM*
Order Status: *In Process*
Prepared By: *Sushmitha Reddy*
Deliver By Date: ***6/11/2014 11:59:00PM***
Lab Project Number: *44008210*

Order Completion Information

Creator: *Sushmitha Reddy*
Filled by:
Sent Date:
Sent Via:
Tracking #:

Sets	Bottles/Set	Qty	Bottle Type Description	Preservative	Method	Matrix	Sample Type	Comments	Lot #
1	1	1	Plastic 500ml - with Nitric Acid	Nitric Acid	200.7 - B, Cr, Iron, Mn	Water	Normal		
1	1	1	Plastic 500ml - with Sulfuric Acid	Sulfuric Acid	SM4500NH3_D - Ammonia, TIN	Water	Normal		
1	1	1	Plastic 125mL - ethylene diamine	Ethylene Diamine	300.1B_28D - Chlorate	Water	Normal		
1	2	2	Plastic 500ml - unpreserved	None	300_ORGFMS - (MOD) Nitrate-Nitrite as N 300_ORGFM_28D - Chloride 150.1 - pH 2540C_Calcd - Total Dissolved Solids 218.6_ORGFM - Chromium, hexavalent	Water Water Water Water Water	Normal Normal Normal Normal Normal		
1	1	1	Plastic 125mL - sterile	None		Water	Normal	CLO4	

Notes to Field Staff:

Health and Safety Notes:

Preservative	Comment
Ethylene Diamine	CAUTION! CORROSIVE! CONTAINS ETYLENEDIAMINE. Harmful if inhaled. Use adequate ventilation. Harmful in contact with skin and eyes. If contact is made, FLUSH IMMEDIATELY with water.
Nitric Acid	CAUTION! STRONG OXIDIZER! CONTAINS 1:1 NITRIC ACID. Avoid skin and eye contact. If contact is made, FLUSH IMMEDIATELY with water.
Sulfuric Acid	CAUTION! CONTAINS 1:1 SULFURIC ACID. Avoid skin and eye contact. If contact is made, FLUSH IMMEDIATELY with water.

Relinquished By	Company	Date	Time	Received By	Company	Seal #: Seal #: Seal #:
Relinquished By	Company	Date	Time	Received By	Company	Seal #: Seal #: Seal #:

Please notify us immediately if an error is found in shipment

Shipping Summary

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

S440-58896

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Bottle Order Information

Bottle Order: *NERT - Quarterly 3rd RCRA wells*
Bottle Order #: *5497*
Date Order Posted: *7/11/2013 12:20:49PM*
Order Status: *Shipped*
Prepared By: *Sushmitha Reddy*
Deliver By Date: ***8/28/2014 11:59:00PM***

Project/Event Information

Project Manager: *Sushmitha Reddy*
Lab Project Number: *44008877*
Project Ref: *NERT - Quarterly 3rd*
Event Desc: *NERT 3rd Qtr*

Client Samples: H-28A, M-5A, M-6A, M-7B

Sets	Bottles/Set	Bottle Type Description	Field Filtered	Preservative	Method	Matrix	Comments
4	1	Plastic 500ml - with Nitric Acid		Nitric Acid	200.7 - B, Cr, Iron, Mn, Na	Water	
4	1	Amber Glass 500mL - Sulfuric Acid		Sulfuric Acid	420.1 - Phenols	Water	
4	2	Plastic 500ml - unpreserved		None	2540C_Calcd - Total Dissolved Solids 2510B - Specific Conductance 300_ORGFM_28D - Cl/SO4 SM4500_H+ - pH	Water Water Water Water	
4	1	Amber Glass 250ml - H3PO4		Phosphoric Acid	5310C - Total Organic Carbon	Water	
4	2	Amber Glass 500mL - Sulfuric Acid		Sulfuric Acid	9020B - QUAD TOX (in quadruplicate)	Water	
4	1	Plastic 125mL - sterile		None		Water	Perchlorate

Please notify us immediately if an error is found in shipment

Shipping Summary

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

S440-41625

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Bottle Order Information

Bottle Order: *3rd Qtr - pH, TDS, Cr, CLO4*
Bottle Order #: *5498*
Date Order Posted: *7/11/2013 12:34:33PM*
Order Status: *Shipped*
Prepared By: *Sushmitha Reddy*
Deliver By Date: ***7/22/2014 11:59:00PM***

Project/Event Information

Project Manager: *Sushmitha Reddy*
Lab Project Number: *44008877*
Project Ref: *NERT - Quarterly 3rd*
Event Desc: *NERT 3rd Qtr*

Client Samples: ARP-1, ARP-2A, ARP-3A, ARP-4A, ARP-5A, ARP-6B, ARP-7, ART-1, ART-3, ART-4, ART-6, ART-8, ART-9, I-AA, I-AB, I-AC, I-AD, I-AR, I-B, I-C, I-D, I-E, I-F, I-G, I-H, I-I, I-J, I-K, I-L, I-M, I-N, I-O, I-P, I-Q, I-R, I-S, I-T, I-U, I-V, I-W, I-X, I-Y, I-Z, L-635, L-637, M-101, M-131, M-135, M-14A, M-19, M-22A, M-23, M-25, M-31A, M-35, M-48A, M-50, M-52, M-57A, M-64, M-65, M-66, M-67, M-68, M-69, M-70, M-71, M-72, M-73, M-74, M-79, M-80, M-81A, M-83, M-98, M-99, MW-K4, MW-K5, PC-101R, PC-103, PC-115R, PC-116R, PC-117, PC-118, PC-119, PC-120, PC-121, PC-122, PC-123, PC-124, PC-125, PC-126, PC-127, PC-128, PC-129, PC-130, PC-131, PC-132, PC-133, PC-135A, PC-136, PC-144, PC-148, PC-149, PC-150, PC-18, PC-37, PC-53, PC-54, PC-55, PC-56, PC-58, PC-59, PC-60, PC-62, PC-68, PC-71, PC-72, PC-73, PC-86, PC-90, PC-91, PC-94, PC-97, PC-98R, PC-99R2/R3

Sets	Bottles/Set	Bottle Type Description	Field Filtered	Preservative	Method	Matrix	Comments
129	1	Plastic 500ml - with Nitric Acid		Nitric Acid	200.7 - Chromium	Water	
129	1	Plastic 500ml - unpreserved		None	2540C_Calcd - Total Dissolved Solids SM4500_H+ - pH	Water Water	
129	1	Plastic 125mL - sterile		None		Water	Perchlorate

Please notify us immediately if an error is found in shipment

Shipping Summary

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Bottle Order Information

Bottle Order:	*NERT 3rd Qtr - pH, Cr, CLO4, TDS, CrVI*
Bottle Order #:	*5499*
Date Order Posted:	*7/11/2013 12:35:24PM*
Order Status:	*Ready To Process*
Prepared By:	*Sushmitha Reddy*
Deliver By Date:	***7/19/2013 11:59:00PM***

Project/Event Information

Project Manager:	*Sushmitha Reddy*
Lab Project Number:	*44008877*
Project Ref:	*NERT - Quarterly 3rd*
Event Desc:	*NERT 3rd Qtr*

Client Samples: M-100, M-11, M-12A, M-36, M-37, M-38, M-44, M-95, M-96

Sets	Bottles/Set	Bottle Type Description	Field Filtered	Preservative	Method	Matrix	Comments
15	1	Plastic 500ml - with Nitric Acid		Nitric Acid	200.7 - Chromium	Water	
15	1	Plastic 500ml - unpreserved		None	2540C_Calcd - Total Dissolved Solids 218.6_ORGFM - Chromium, hexavalent SM4500_H+ - pH	Water Water Water	
15	1	Plastic 125mL - sterile		None		Water	Perchlorate

Please notify us immediately if an error is found in shipment

ENVIROGEN
TECHNOLOGIES

Groundwater Field Log

This Section Contains:

- Water Sampling Field Logs

Water Sampling Field Log

Well No.: ARP-1

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 44.2 feet

Time: 0625

Depth to Water: 24.15 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 20.05 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 3.2 gal. (Well Volume (WV)) * 3 (Purge Factor) = 10 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0630	-----	-----	-----	-----	
0633	4 gal	6.83	7.62 mS/cm	23.8 oC	clear
0637	7 gal	7.17	7.76 mS/cm	24.3 oC	clear
0640	10 gal	7.21	7.75 mS/cm	24.4 oC	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0642 Time Finished: 0642

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 14 - 44'

Water Sampling Field Log

Well No.: ARP-2A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 54.0 feet

Time: 1033

Depth to Water: 25.64 feet

		Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
		[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L):	28.36 feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	=	4.53 gal.	*	3	=	14 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1035	-----	-----	-----	-----	
1038	5 gal	7.57	9.09 mS/cm	26.5 °C	clear
1042	10 gal	7.38	8.81 mS/cm	25.9 °C	clear
1044	14 gal	7.29	8.82 mS/cm	26.3 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1046 Time Finished: 1046

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: 23.7' To Top of screen

Water Sampling Field Log

Well No.: ARP-3A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 41.0 feet

Time: 1015

Depth to Water: 27.24 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L)		Well Diameter				Well Volume (WV)		Purge Factor		Purge Volume
13.76 feet		[✓ 2-in.]	4-in.	6-in						
		* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	=	2.20 gal.	*	3	=	7 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1017	-----	-----	-----	-----	
1020	3 gal	7.40	11.84 mS/cm	273 °C	clear
1022	5 gal	7.23	1201 mS/cm	266 °C	Clear
1024	7 gal	7.30	11.97 mS/cm	26.2 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1026 Time Finished: 1026

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: 20.7 To top of screen

Water Sampling Field Log

Well No.: ARP-4A

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 33.0 feet

Time: 0916

Depth to Water: 29.04 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 3.96 feet = Well Volume (WV) .63 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0918	-----	-----	-----	-----	
0920	1 gal	7.19	6.31 mS/cm	26.0 °C	Clear
0921	2 gal	7.16	6.15 mS/cm	26.1 °C	clear
0922	3 gal	7.13	6.16 mS/cm	25.7 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0924 Time Finished: 0924

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: screen 17.7 - 32.7

Water Sampling Field Log

Well No.: ARP-5A

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 38.0 feet

Time: 0900

Depth to Water: 32.37 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 5.63 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = .90 gal. (Well Volume (WV)) * 3 (Purge Factor) = 3 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0902	-----	-----	-----	-----	
0904	1 gal	7.56	7.64 mS/cm	24.6 °C	clear
0905	2 gal	7.42	7.53 mS/cm	24.7 °C	clear
0906	3 gal	7.47	7.53 mS/cm	24.3 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0908 Time Finished: 0908

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: screen 12.7 - 37.7

Dup EC 24.4 °C Temp 7.51 EC

Water Sampling Field Log

Well No.: ARP-6B

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 43.0 feet

Time: 0844

Depth to Water: 31.79 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 11.21 feet

Well Volume (WV) = 1.79 gal. * Purge Factor 3 = Purge Volume 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0847	-----	-----	-----	-----	
0849	2 gal	7.31	10.12 mS/cm	25.9 °C	clear
0850	4 gal	7.27	9.94 mS/cm	26.2 °C	clear
0851	5 gal	7.20	9.98 mS/cm	25.7 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0853 Time Finished: 0853

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: screen 27.7 - 42.7'

Water Sampling Field Log

Well No.: ARP-7

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 39.0 feet

Time: 0827

Depth to Water: 29.92 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 9.08 feet

Well Volume (WV) = 1.45 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0829	-----	-----	-----	-----	
0831	2 gal	7.28	10.51 mS/cm	26.0 °C	Clear
0832	3 gal	7.08	10.45 mS/cm	26.3 °C	Clear
0834	4 gal	7.07	10.37 mS/cm	26.2 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 0836 Time Finished: 0836

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: screen 14-39'

Water Sampling Field Log

Well No.: ART-1

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: humid, overcast

Well Information:

Total Well Depth: 56.0 feet

8-8-14 Time: 0720

Depth to Water: - 24.16 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	4-in.	6-in.		
Water Column (L):	31.84	feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample
0849		7.40	25.4°C	Clear

Comments:

Sample Collection Time - 0849

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-1A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-8-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 56.0 feet

Time: 0721

Depth to Water: - 24.56 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	4-in.	6-in.		
Water Column (L):	31.44	feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample

Comments: Depth To Water only
No Sample

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-2

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: humid overcast

Well Information:

8-8-14

Total Well Depth: 56.0 feet

Time: 0723

Depth to Water: - 27.75 feet

Water Column (L): 28.25 feet X Well Diameter (circle one) **2-in.** 0.4893 **4-in.** 1.9 **6-in.** 4.41 = **Purge Volume** 0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**
0856		7.13	25.6°c	Clear

Comments:

Sample Collection Time - 0856

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-2A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Date: 8-8-14

Sampling Team: Michele Brown

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 56.0 feet

Time: 0724

Depth to Water: - 26.81 feet

			Well Diameter (circle one)				Purge Volume
			2-in.	**4-in.**	**6-in.**		
Water Column (L):	29.19 feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample

Comments: Depth to Water Only
No sAmple

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-3

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-8-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 47.0 feet Time: 0730

Depth to Water: - 30.73 feet

			Well Diameter (circle one)				Purge Volume
			2-in.	4-in.	6-in.		
Water Column (L):	16.27 feet	X	0.4893	1.9	4.41	=	-0-

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample

Comments: Depth To water Only
No Sample

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles-

Water Sampling Field Log

Well No.: ART-3A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: humid, overcast, drizzling

Well Information:

8-8-14

Total Well Depth: 55.0 feet ← Time: 0731

Depth to Water: - 36.37 feet ←

			Well Diameter (circle one)				Purge Volume
			2-in.	4-in.	6-in.		
Water Column (L):	18.63 feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample
0900		7.21	25.1	Clear

Comments:

Sample Collection Time - 0900

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-4

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: humid overcast, drizzling

Well Information:

8814

Total Well Depth: 46.0 feet Time: 0733

Depth to Water: - 38.55 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	4-in.	6-in.		
Water Column (L):	7.45	feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample
0906		7.27	25.4°C	clear

Comments:

Sample Collection Time - 0906

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-4A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-8-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 46.0 feet

Time: 0734

Depth to Water: - 29.24 feet

			Well Diameter (circle one)				**Purge Volume**
			2-in.	**4-in.**	**6-in.**		
Water Column (L): 16.76 feet	X		0.4893	1.9	4.41	=	0

Field Measurements:

Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**

Comments: Depth To water only
No SAmple

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-6

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ○ Disposable Bailer ● Electric pump ○

Weather Conditions: Humid, clearing

Well Information:

8-7-14

Total Well Depth: 36.0 feet

Time: 0648

Depth to Water: - 29.52 feet

				Well Diameter (circle one)				**Purge Volume**
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	6.48	feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**
0940		7.38	26.2	Clear

Comments:

Sample Collection Time - 0940

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-7

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: Humid, over cast

Well Information:

8-7-14

Total Well Depth: 38.90 feet

Time: 0653

Depth to Water: - 30.49 feet

Water Column (L): 8.41 feet X Well Diameter (circle one) 2-in. 0.4893 4-in. 1.9 6-in. 4.41 = Purge Volume 0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample
0917		7.27	25.0°c	Clear

Comments:

Sample Collection Time - 0917

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-7A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 40.0 feet

Time: 0656

Depth to Water: - 32.13 feet

Water Column (L): 7.87 feet X Well Diameter (circle one) 2-in. 0.4893 4-in. 1.9 6-in. 4.41 = **Purge Volume** 0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample

Comments: Depth to water Only
No SAmple

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-7B

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 50.0 feet

Time: 0635

Depth to Water: 34.63 feet

Well Diameter (circle one): 2-in. * 0.16 gal/ft 4-in. * 0.65 gal/ft [✓ 6-in * 1.47 gal/ft]

Height of Water Column (L): 15.37 feet

Well Volume (WV) = 22.59 gal. * Purge Factor 3 = Purge Volume 68 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0638	-----	-----	-----	-----	
0657	23 gal	6.92	8.42 mS/cm	24.2 °C	clear
0713	45 gal	7.24	8.53 mS/cm	23.7 °C	clear
0730	68 gal	7.30	8.50 mS/cm	24.2 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0733 Time Finished: 0733

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: ART-8

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-8-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 50.53 feet

Time: 0727

Depth to Water: - 28.38 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	22.15	feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**

Comments: Depth to water Only
No sample

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-8A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: humid, overcast

Well Information:

Total Well Depth: 54.0 feet 88.14'

Time: 0728

Depth to Water: - 30.01 feet

Well Diameter (circle one)

Purge Volume

				2-in.	**4-in.**	**6-in.**		
Water Column (L):	23.99	feet	X	0.4893	1.9	4.41	=	-0-

Field Measurements:

Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**
0911		7.10	25.2°C	clear

Comments:

Sample Collection Time - 0911

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-9

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: humid, overcast

Well Information:

8-7-14

Total Well Depth: 43.0 feet

Time: 0651

Depth to Water: - 31.82 feet

				Well Diameter (circle one)				**Purge Volume**
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	11.18	feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**
0923		7.35	25.2°	Clear

Comments:

Sample Collection Time - 0923

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH/TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: H-28A

Project No.: ____________ Site: TRONOX LLC- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ○ Dedicated bailer ○ disps. Non Dedicated Bailer ●

Weather Conditions: hot, breezy, sun w/clouds

Well Information:

Total Well Depth: 51.0 feet Time: 1140

Depth to Water: 39.24 feet

11.76 feet

Well Diameter (circle one): [✓ 2-in. *0.16 gal/ft] 4-in. *0.65 gal/ft 6-in *1.47 gal/ft

Well Volume (WV) ____ gal. * Purge Factor 3 Purge Volume ____ gal

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
1142	gal	6.94	14.98mS/cm	26.6°C	Clear
	gal				
	gal				
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: 1143 Time Finished: 1143

Analyses:	TOC	TOX	CLO4	Phenols	B/Cr/Iron/Mn/Na	TDS/SC/SO4/Cl/pH
Bottles:	1 Btl	2 Btls	1 Btl	1 Btl	1 Btl	2 Btls

TOTAL BOTTLES- 8

Comments: Well not purged due to location

Water Sampling Field Log

Well No.: L-635

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: humid, hot, sunny.

Well Information:

Total Well Depth: 36.5 feet

Time: 1120

Depth to Water: feet

Well Diameter (circle one): 2-in. 4-in. 6-in

Height of Water Column (L): feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = gal. * 3 =

Well Volume (WV) | Purge Factor | Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				No ACCESS
	gal				
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: L-637

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: humid, sunny, hot

Well Information:

Total Well Depth: 37.5 feet

Time: 1120

Depth to Water: feet

Well Diameter (circle one): 2-in. 4-in. 6-in

Height of Water Column (L): feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) gal. * Purge Factor 3 = Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				
	gal				NO ACCESS
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses: CLO4 pH / TDS CR

Bottles: 1 BTL 1 BTL 1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-5A

Project No.:

Site: TRONOX LLC- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated bailer ○ Non Dedicated Bailer ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 50.0 feet

Time: 0929

Depth to Water: 37.61 feet

12.39 feet

Well Diameter (circle one): 2-in. *0.16 gal/ft [✓ 4-in. *0.65 gal/ft] 6-in *1.47 gal/ft

Well Volume (WV): 8.05 gal. * Purge Factor: 3 Purge Volume: 24 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0930	-----	-----	-----	-----	
0937	8 gal	6.86	13.44 mS/cm	26.8 °C	clear
0943	16 gal	6.83	13.81 mS/cm	26.5 °C	clear
0949	24 gal	6.83	17.95 mS/cm	26.1 °C	clear
0951	26 gal	6.74	17.94 mS/cm	26.2 °C	clear
0952	28 gal	6.86	17.93 mS/cm	25.9 °C	clear
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0955 Time Finished: 0955

Analyses:	TOC	TOX	CLO4	Phenols	B/Cr/Iron/Mn/Na	TDS/SC/SO4/Cl/pH
Bottles:	1 Btl	2 Btls	1 Btl	1 Btl	1 Btl	2 Btls

TOTAL BOTTLES- 8

Comments:

Water Sampling Field Log

Well No.: M-6A

Project No.:

Site: TRONOX LLC- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ○ Dedicated bailer ● Non Dedicated Bailer ○

Weather Conditions: hot, breezy, cloudy w/sun

Well Information:

Total Well Depth: 46.0 feet

Time: 1155

Depth to Water: 38.95 feet

7.05 feet

Well Diameter (circle one): [✓ 2-in. *0.16 gal/ft] 4-in. *0.65 gal/ft 6-in *1.47 gal/ft

Well Volume (WV): gal. * Purge Factor: 3 Purge Volume: gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
1158	gal	7.06	12.07mS/cm	26.1°C	silty
	gal				
	gal				
	gal				
	gal				
	gal				

Sample Appearance: silty

Sample Collection - Time Start: 1158 Time Finished: 1158

Analyses:	TOC	TOX	CLO4	Phenols	B/Cr/Iron/Mn/Na	TDS/SC/SO4/Cl/pH
Bottles:	1 Btl	2 Btls	1 Btl	1 Btl	1 Btl	2 Btls

TOTAL BOTTLES- 8

Comments: Well was not purged due to location

Water Sampling Field Log

Well No.: M-7B

Project No.: ______

Site: TRONOX LLC- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ○ Dedicated bailer ○ Non Dedicated Bailer ● disposable

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 55.00 feet Time: 1129

Depth to Water: 36.34 feet

18.66 feet

Well Diameter (circle one): [✓ 2-in. *0.16 gal/ft] 4-in. *0.65 gal/ft 6-in *1.47 gal/ft

Well Volume (WV) ______ gal. * Purge Factor 3 Purge Volume ______ gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
1130	gal	7.24	12.96 mS/cm	26.5°C	clear
	gal				
	gal				
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1135 Time Finished: 1135

Analyses:	TOC	TOX	CLO4	Phenols	B/Cr/Iron/Mn/Na	TDS/SC/SO4/Cl/pH
Bottles:	1 Btl	2 Btls	1 Btl	1 Btl	1 Btl	2 Btls

TOTAL BOTTLES- 8

Comments: well not purged due to location

Water Sampling Field Log

Well No.: M-10

Project No.: ________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-15-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 69.45 feet Time: 1250

Depth to Water: 49.94 feet

Well Diameter (circle one): 2-in. 4-in. [✓ 6-in]

Height of Water Column (L): 19.51 feet * 0.16 gal/ft * 0.65 gal/ft [✓ * 1.47 gal/ft] = Well Volume (WV) 28.67 gal. * Purge Factor 3 = Purge Volume 86 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1253	-----	-----	-----	-----	
111p	28 gal	7.71	3.32mS/cm	25.4°C	clear
128p	56 gal	7.66	3.36mS/cm	25.0°C	clear
146p	86 gal	7.50	3.28mS/cm	25.1°C	clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 148p Time Finished: 148p

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 6

Comments: M-10 has its own cooler and bottle order
See COC + BO for analyses

Dup EC
25.3°C Temp
3.25mS/cm EC

Water Sampling Field Log

Well No.: M-11

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-15-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny clear

Well Information:

Total Well Depth: 58.0 feet

Time: 1154

Depth to Water: 43.65 feet

Well Diameter (circle one): 2-in. 4-in. [✓ 6-in]

Height of Water Column (L): 14.35 feet * 0.16 gal/ft * 0.65 gal/ft [✓ * 1.47 gal/ft] = Well Volume (WV) 21.09 gal. * Purge Factor 3 = Purge Volume 63 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1154	-----	-----	-----	-----	
1208	21 gal	7.88	3.38 mS/cm	27.0°C	clear
1223	42 gal	8.06	3.55 mS/cm	26.2°C	clear
1236	63 gal	8.08	3.47 mS/cm	26.5°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1238 Time Finished: 1238

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	1 BTL	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-12A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, breezy

Well Information:

Total Well Depth: 49.71 feet

Time: 1101

Depth to Water: 42.07 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 7.64 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.22 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1102	-----	-----	-----	-----	
1104	2 gal	8.03	7.95 mS/cm	26.9°C	yellow
1105	3 gal	7.95	8.10 mS/cm	26.6°C	yellow
1106	4 gal	7.88	8.35 mS/cm	26.0°C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 1108 Time Finished: 1108

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Dup-3 collected here
same analyses 1108
3 btls

Water Sampling Field Log

Well No.: M-14A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 42.40 feet

Time: 0837

Depth to Water: 32.49 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 9.91 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 1.58 gal. (Well Volume (WV)) * 3 (Purge Factor) = 5 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0838	-----	-----	-----	-----	
0840	2 gal	7.44	5.05 mS/cm	27.1 °C	clear
0842	4 gal	7.44	4.57 mS/cm	26.1 °C	clear
0843	5 gal	7.39	4.49 mS/cm	25.8 °C	clear
0844	6 gal	7.39	4.49 mS/cm	25.6 °C	clear
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: 0845 Time Finished: 0845

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Dup EC

26.0 °C
temp

4.50
EC

Water Sampling Field Log

Well No.: M-19

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, slight breeze

Well Information:

Total Well Depth: 41.20 feet Time: 0601

Depth to Water: 34.54 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 6.66 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 1.06 gal. (Well Volume (WV)) * 3 (Purge Factor) = 3 gal (Purge Volume)

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0603	-----	-----	-----	-----	
0604	1 gal	7.33	6.30 mS/cm	25.3 °C	clear
0605	2 gal	7.33	6.34 mS/cm	25.6 °C	clear
0606	3 gal	7.32	6.46 mS/cm	25.4 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 0608 Time Finished: 0608

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-22A

Project No.: ______ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 36.92 feet Time: 0821

Depth to Water: 29.96 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 6.96 feet = Well Volume (WV) 1.11 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0823	-----	-----	-----	-----	
0824	1 gal	7.15	9.69 mS/cm	26.7 °C	yellow
0825	2 gal	7.10	12.06 mS/cm	25.7 °C	yellow
0826	3 gal	7.10	12.17 mS/cm	25.5 °C	yellow
0827	4 gal	7.10	12.20 mS/cm	25.4 °C	yellow
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 0827 Time Finished: 0827

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-23

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny w/clouds, breezy

Well Information:

Total Well Depth: 44.66 feet

Time: 1116

Depth to Water: 34.06 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in.

Height of Water Column (L)					Well Volume (WV)		Purge Factor		Purge Volume
10.60 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	1.69 gal.	*	3	=	5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1117	-----	-----	-----	-----	
1120	2 gal	7.41	5.78 mS/cm	26.0 °C	clear
1122	4 gal	7.34	5.31 mS/cm	25.3 °C	clear
1123	5 gal	7.24	5.29 mS/cm	25.7 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1125 Time Finished: 1125

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-25

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 41.47 feet

Time: 0859

Depth to Water: 33.31 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 8.16 feet

Well Volume (WV) = 1.30 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0900	-----	-----	-----	-----	
0903	2 gal	7.06	9.16 mS/cm	26.1°C	yellow
0904	3 gal	7.06	9.06 mS/cm	26.0°C	yellow
0905	4 gal	7.04	8.85 mS/cm	25.8°C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 0906 Time Finished: 0906

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-31A

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny breezy

Well Information:

Total Well Depth: 55.0 feet

Time: 0927

Depth to Water: 46.01 feet

Height of Water Column (L): 8.99 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= Well Volume (WV) 1.43 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0933	-----	-----	-----	-----	
0935	2 gal	7.32	6.05 mS/cm	24.9°C	light yellow
0936	3 gal	7.29	6.14 mS/cm	24.3°C	light yellow
0937	4 gal	7.27	6.14 mS/cm	24.3°C	light yellow
	gal				
	gal				
	gal				

Sample Appearance: ______

Sample Collection - Time Start: 0938 Time Finished: 0938

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: EB-2 collected here before moving to next well CR, TDS, pH, CLO4/CRVI 3 btls 0943

Water Sampling Field Log

Well No.: M-35

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, slight breeze

Well Information:

Total Well Depth: 39.70 feet

Time: 0544

Depth to Water: 32.34 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 7.36 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 1.17 gal. (Well Volume (WV)) * 3 (Purge Factor) = 4 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0548	-----	-----	-----	-----	
0551	2. gal	6.76	6.62 mS/cm	25.7 °C	slightly yellow
0552	3 gal	6.94	6.93 mS/cm	25.7 °C	same
0553	4 gal	.700	7.06 mS/cm	25.6 °C	same
	gal				
	gal				
	gal				

Sample Appearance: slightly yellow

Sample Collection - Time Start: 0554 Time Finished: 0554

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-36

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid sunny

Well Information:

Total Well Depth: 37.85 feet

Time: 1105

Depth to Water: feet

Well Diameter (circle one): 2-in. 4-in. 6-in

Height of Water Column (L): feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = gal. * 3 =

Well Volume (WV) Purge Factor **Purge Volume**

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal			WELL	DESTROYED
	gal				
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-37

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-13

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 37.18 feet

Time: 1037

Depth to Water: 31.69 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 5.49 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = .87 gal. (Well Volume (WV)) * 3 (Purge Factor) = 3 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1039	-----	-----	-----	-----	
1041	1 gal	6.92	7.39 mS/cm	29.9 °C	clear
1042	2 gal	6.88	7.04 mS/cm	30.5 °C	clear
1043	3 gal	6.85	7.30 mS/cm	30.5 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1045 Time Finished: 1045

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: FB-1 - 3 btls CLO4 pH/TDS, CRVI CR collected here before moving to next well 1100A

Water Sampling Field Log

Well No.: M-38

Project No.: ______ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-12-14

Sampling Method: Electric Pump ○ Dedicated Bailer ● Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid sunny

Well Information:

Total Well Depth: 36.82 feet Time: 1105

Depth to Water: 31.19 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 5.63 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = ______ gal. (Well Volume (WV)) * 3 (Purge Factor) = ______ (Purge Volume)

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1106	-----	-----	-----	-----	
1109	1 gal	6.74	12.45 mS/cm	26.1 °C	yellow
1111	2 gal	6.97	12.21 mS/cm	25.3 °C	yellow
1113	3 gal	7.01	12.04 mS/cm	25.7 °C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 1115 Time Finished: 1115

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-44

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8·13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, breezy, sun w/clouds

Well Information:

Total Well Depth: 37.65 feet

Time: 1050

Depth to Water: 24.37 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 13.28 feet

Well Volume (WV) = 2.12 gal. * Purge Factor 3 = Purge Volume 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1053	------	------	------	------	
1056	2 gal	7.39	9.99 mS/cm	26.7 °C	clear
1058	4 gal	7.29	1014 mS/cm	25.6 °C	clear
1100	6 gal	7.31	10.17 mS/cm	25.4 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1102 Time Finished: 1102

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-48A

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, breezy, sun/cloudy

Well Information:

Total Well Depth: 40.0 feet Time: 0840

Depth to Water: 30.17 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 9.83 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.57 gal. * Purge Factor 3 = Purge Volume 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0842	-----	-----	-----	-----	
0844	2 gal	7.43	6.49 mS/cm	26.8 °C	slight yellow
0846	4 gal	7.30	6.39 mS/cm	26.7 °C	same
0847	5 gal	7.26	6.39 mS/cm	26.5 °C	slightly yellow
	gal				
	gal				
	gal				

Sample Appearance: slightly yellow

Sample Collection - Time Start: 0850 Time Finished: 0850

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-52

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, brezy

Well Information:

Total Well Depth: 47.85 feet Time: 0947

Depth to Water: 41.32 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

		Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
Height of Water Column (L):	6.53 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 1.04 gal.	* 3	= 3 gal

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0949	-----	-----	-----	-----	
0950	1 gal	7.53	5.65 mS/cm	27.9 °C	silty
0951	2 gal	7.46	5.75 mS/cm	26.8 °C	silty
0952	3 gal	7.65	5.72 mS/cm	27.7 °C°C	silty
	gal				
	gal				
	gal				

Sample Appearance: silty

Sample Collection - Time Start: 0954 Time Finished: 0954

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-55

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 45.0 feet

Time: 1129

Depth to Water: 29.66 feet

Height of Water Column (L): 15.34 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft = Well Volume (WV) ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-56

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 40.0 feet

Time: 1125

Depth to Water: 31.19 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 8.81 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = ______ gal. * 3 = ______

Well Volume (WV) · Purge Factor · Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-57A

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, sunny

Well Information:

Total Well Depth: 42.40 feet Time: 0709

Depth to Water: 29.53 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 12.87 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 2.05 gal. * Purge Factor 3 = Purge Volume 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0711	-----	-----	-----	-----	
0713	2 gal	7.50	4.42 mS/cm	25.7 °C	very slightly cloudy
0715	4 gal	7.50	4.61 mS/cm	25.5 °C	very slightly cloudy
0717	6 gal	7.43	4.63 mS/cm	25.5 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0718 Time Finished: 0718

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-58

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 450 feet Time: 1120

Depth to Water: 29.43 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 15.57 feet = ______ gal. Well Volume (WV) * 3 Purge Factor = ______ Purge Volume

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: 1135 Time Finished: 1135

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-60

Project No.: ______________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 43.0 feet Time: 1123

Depth to Water: 31.99 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L):	Well Diameter 2-in.	4-in.	6-in	Well Volume (WV)	Purge Factor	Purge Volume
11.01 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= ______ gal.	* 3	=

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ______________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-64

Project No.: ____________

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 38.0 feet

Time: 0517

Depth to Water: 29.12 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 8.88 feet

Well Volume (WV) = 1.42 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0525	-----	-----	-----	-----	
0527	2 gal	6.76	9.13 mS/cm	25.4 °c	slightly yellow
0533	3 gal	7.10	9.19 mS/cm	26.8 °c	cloudy
0537	4 gal	7.18	9.19 mS/cm	26.3 °c	slightly cloudy yellow
	gal				
	gal				
	gal				

Sample Appearance: slightly cloudy yellow

Sample Collection - Time Start: 0538 Time Finished: 0538

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: well purges dry.

Water Sampling Field Log

Well No.: M-65

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 40.0 feet

Time: 0545

Depth to Water: 32.82 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 7.18 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.14 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0546	-----	-----	-----	-----	
0547	1 gal	7.01	13.24 mS/cm	25.6 °C	yellow
0548	2 gal	7.05	13.29 mS/cm	25.7 °C	yellow
0549	3 gal	7.05	13.29 mS/cm	257 °C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 0550 Time Finished: 0550

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-66

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 43.0 feet

Time: 0557

Depth to Water: 30.74 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 12.26 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.96 gal. * Purge Factor 3 = Purge Volume 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0558	-----	-----	-----	-----	
0600	2 gal	6.89	14.91 mS/cm	25.0 °c	yellow
0601	4 gal	6.90	15.12 mS/cm	25.1 °c	yellow
0604	6 gal	6.82	15.16 mS/cm	25.3 °c	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 0605 Time Finished: 0605

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-67

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, breezy

Well Information:

Total Well Depth: 38.0 feet Time: 0744

Depth to Water: 20.69 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 17.31 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 2.76 gal. (Well Volume (WV)) * 3 (Purge Factor) = 8 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0746	-----	-----	-----	-----	
0751	3 gal	7.45	6.69 mS/cm	262 °C	light yellow
0753	6 gal	7.28	6.63 mS/cm	25.9 °C	light yellow
0756	8 gal	7.32	6.71 mS/cm	25.7 °C	light yellow
	gal				
	gal				
	gal				

Sample Appearance: light yellow

Sample Collection - Time Start: 0757 Time Finished: 0757

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-68

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, sunny, breezy

Well Information:

Total Well Depth: 41.0 feet Time: 0804

Depth to Water: 25.31 feet

Height of Water Column (L): 15.69 feet

Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
[✓ 2-in.]	4-in.	6-in			
[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 2.51 gal.	* 3	= 8 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0806	-----	-----	-----	-----	
0809	3 gal	7.37	07.44 mS/cm	26.1 °C	Clear
0812	6 gal	7.34	7.15 mS/cm	26.0 °C	Clear
0814	8 gal	7.25	7.10 mS/cm	25.7 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 0816 Time Finished: 0816

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-209

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 40.0 feet

Time: 0625

Depth to Water: 33.51 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 6.49 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.03 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0627	-----	-----	-----	-----	
0629	1 gal	7.25	5.28 mS/cm	25.2 °C	clear
0630	2 gal	7.24	5.24 mS/cm	25.4 °C	clear
0632	3 gal	7.25	5.21 mS/cm	25.4 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0633 Time Finished: 0633

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-70

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, humid, cloudy

Well Information:

Total Well Depth: 41.0 feet

Time: 0732

Depth to Water: 35.02 feet

Height of Water Column (L): 5.98 feet * Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. 0.65 gal/ft 6-in * 1.47 gal/ft = .95 gal. (Well Volume (WV)) * 3 (Purge Factor) = 3 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0735	-----	-----	7.92	-----	
0737	1 gal	7.35	25MB mS/cm	25.5 °C	slightly yellow
0738	2 gal	7.23	7.89 mS/cm	26.1 °C	slightly yellow
0740	3 gal	7.24	7.88 mS/cm	25.4 °C	slightly yellow
	gal				
	gal				
	gal				

Sample Appearance: slightly yellow

Sample Collection - Time Start: 0741 Time Finished: 0741

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-71

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 43.0 feet

Time: 0750

Depth to Water: 35.44 feet

Height of Water Column (L): 7.56 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Well Volume (WV) = 1.20 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0752	------	------	------	------	
0754	2 gal	6.91	8.50 mS/cm	28.2 °°	slightly yellow
0759	3 gal	6.95	8.64 mS/cm	26.0 °C	slightly yellow
0800	4 gal	6.88	8.50 mS/cm	25.8 °C	slightly yellow
	gal				
	gal				
	gal				

Sample Appearance: ______

Sample Collection - Time Start: 0801 Time Finished: 0801

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-72

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 36.0 feet

Time: 0809

Depth to Water: 31.81 feet

Height of Water Column (L)	Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
	[✓ 2-in.]	4-in.	6-in			
4.19 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= .67 gal. *	3 =	2 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0810	-----	-----	-----	-----	
0812	1 gal	6.87	11.70mS/cm	27.0 °C	yellow
0813	1.5 gal	6.84	1093mS/cm	26.6 °C	yellow
0813	2 gal	6.84	11.52mS/cm	263 °C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 0814 Time Finished: 0814

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-73

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, breezy

Well Information:

Total Well Depth: 36.0 feet

Time: 0729

Depth to Water: 28.19 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 7.81 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.24 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0732	-----	-----	-----	-----	
0734	2 gal	7.35	9.20 mS/cm	26.2°C	yellow
0735	3 gal	7.31	8.66 mS/cm	26.0°C	yellow
0736	4 gal	7.26	8.41 mS/cm	26.3°C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 0737 Time Finished: 0737

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-74

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, slight breeze

Well Information:

Total Well Depth: 39.70 feet Time: 0636

Depth to Water: 27.49 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in.

Height of Water Column (L): 12.21 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 1.95 gal. (Well Volume (WV)) * 3 (Purge Factor) = 6 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0637	-----	-----	-----	-----	
0639	2 gal	7.41	7.33 mS/cm	25.2°c	clear
0640	4 gal	7.38	7.20 mS/cm	25.2°c	clear
0642	6 gal	7.33	7.26 mS/cm	25.4	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0644 Time Finished: 0644

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-75

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, humid

Well Information:

Total Well Depth: 53.90 feet

Time: 0957

Depth to Water: 42.42 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 11.48 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = ______ gal. (Well Volume (WV)) * 3 (Purge Factor) = ______ (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-76

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 54.60 feet Time: 1001

Depth to Water: 39.31 feet

	Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
	[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L): 15.29 feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	*	3	=	

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-74

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 49.32 feet Time: 0955

Depth to Water: 39.62 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 9.70 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = ______ gal. Well Volume (WV) * 3 Purge Factor = ______ Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-78

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 43.60 feet Time: 1128

Depth to Water: 32.53 feet

Well Diameter (circle one): 2-in. * 0.16 gal/ft [✓ 4-in. 0.65 gal/ft] 6-in * 1.47 gal/ft

Height of Water Column (L): 11.07 feet = Well Volume (WV) ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-79

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 37.60 feet

Time: 0612

Depth to Water: 31.14 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 6.46 feet

Well Volume (WV) = 1.03 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0613	------	------	------	------	
0615	1 gal	7.32	5.94 mS/cm	24.7 oc	clear
0617	2 gal	7.28	5.91 mS/cm	25.0 oc	clear
0618	3 gal	7.30	5.92 mS/cm	25.1 oc	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0619 Time Finished: 0619

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-80

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, sunny, breezy

Well Information:

Total Well Depth: 43.70 feet Time: 0843

Depth to Water: 35.93 feet

Well Diameter (circle one): ~~2-in. * 0.16 gal/ft~~ MB [✓ 4-in. * 0.65 gal/ft] 6-in * 1.47 gal/ft

Height of Water Column (L): 7.77 feet

Well Volume (WV) = 5.05 gal. * Purge Factor 3 = Purge Volume 15 gal

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0845	-----	-----	-----	-----	
0849	5 gal	7.48	4.37 mS/cm	25.5 °C	clear
0853	10 gal	7.38	3.97 mS/cm	25.6 °C	clear
0857	15 gal	7.38	3.92 mS/cm	24.8 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0900 Time Finished: 0900

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-81A

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, breezy

Well Information:

Total Well Depth: 41.60 feet

Time: 0906

Depth to Water: 35.46 feet

		Well Diameter (circle one)			Well Volume (WV)		Purge Factor		Purge Volume
		2-in.	[✓ 4-in.]	6-in					
Height of Water Column (L): 6.14 feet	* 0.16 gal/ft		[✓ 0.65 gal/ft]	* 1.47 gal/ft	= 3.99 gal.	*	3	=	12gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0907	-----	-----	-----	-----	
0909	4 gal	7.30	6.32mS/cm	26.2 °C	very slight yellow
0911	8 gal	7.27	6.33mS/cm	25.6 °C	same
0914	12 gal	7.30	6.25 mS/cm	25.9 °C	same
	gal				
	gal				
	gal				

Sample Appearance: very slight yellow

Sample Collection - Time Start: 0916 Time Finished: 0916

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-83

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, breezy

Well Information:

Total Well Depth: 41.75 feet

Time: 0828

Depth to Water: 31.37 feet

Height of Water Column (L): 10.38 feet * Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft = Well Volume (WV) 1.66 gal. * Purge Factor 3 = Purge Volume 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0829	-----	-----	-----	-----	
0831	2 gal	7.44	4.82 mS/cm	25.7 °C	Clear
0893	4 gal	7.38	4.93 mS/cm	24.3 °C	clear
0834	5 gal	7.36	4.83 mS/cm	24.2 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0836 Time Finished: 0836

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Dup EC

24.8 / temp

480 / EC

Water Sampling Field Log

Well No.: M-92

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 48.50 feet

Time: 0935

Depth to Water: 36.22 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 12.28 feet

= Well Volume (WV): ____ gal. * Purge Factor: 3 = Purge Volume: ____

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ____ Time Finished: ____

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-93

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 49.0 feet Time: 0938

Depth to Water: 35.35 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 13.65 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = ______ gal. (Well Volume (WV)) * 3 (Purge Factor) = ______ (Purge Volume)

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-95

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Hot, sunny w/ clouds, breezy

Well Information:

Total Well Depth: 30.0 feet

Time: 1225

Depth to Water: 17.12 feet

Height of Water Column (L): 12.88 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Well Volume (WV) = 2.06 gal. * Purge Factor 3 = Purge Volume 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1226	-----	-----	-----	-----	
1228	2 gal	7.46	7.15 mS/cm	26.3°c	clear
1230	4 gal	7.37	7.10 mS/cm	26.1°c	clear
1232	6 gal	7.35	7.05 mS/cm	26.1 °c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1234 Time Finished: 1234

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-96

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: sunny, warm, cloudy

Well Information:

Total Well Depth: 16.57 feet Time: 0802

Depth to Water: ______ feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): ______ feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = ______ gal. (Well Volume (WV)) * 3 (Purge Factor) = ______ (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	------	------	------	------	
	gal				
	gal				Well Dry
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ______

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: ~~6~~

Comments:

Water Sampling Field Log

Well No.: M-97

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 52.50 feet Time: 0936

Depth to Water: 39.94 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 12.56 feet = ________ gal. (Well Volume (WV)) * 3 (Purge Factor) = ________ (Purge Volume)

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ________________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-98

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, breezy, clouds + sun

Well Information:

Total Well Depth: 33.40 feet

Time: 1205

Depth to Water: feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): feet = gal. Well Volume (WV) * 3 Purge Factor = Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				WELL DRY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-99

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ● Disposable Ready Flo 2" ○

Weather Conditions: hot, humid, cloudy

Well Information:

Total Well Depth: 35.59 feet

Time: 1200

Depth to Water: 33.38 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 2.21 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) ____ gal. * Purge Factor 3 = Purge Volume ____

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
1203	gal	7.52	4.91 mS/cm	25.2	clear
	gal				
	gal				
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: 1207 Time Finished: 1207

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Sample bottles not filled to capacity - due to low water volume in well - There is however enough sample to run all Tests

Water Sampling Field Log

Well No.: M-100

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 33.81 feet

Time: 1020

Depth to Water: feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = gal. (Well Volume (WV)) * 3 (Purge Factor) = (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				
	gal				Well Dry
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-101

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 32.15 feet Time: 1018

Depth to Water: ________ feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): ________ feet = Well Volume (WV) ________ gal. * Purge Factor 3 = Purge Volume ________

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				well dry
	gal				
	gal				
	gal				
	gal				

Sample Appearance: ________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-115

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 47.50 feet

Time: 1005

Depth to Water: 37.77 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 9.73 feet = ______ gal. (Well Volume (WV)) * 3 (Purge Factor) = ______ (**Purge Volume**)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	**Cumulative Volume Purged**	**pH**	**Specific Conductivity**	**Temp**	**Observations**
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-131

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8·12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 39.0 feet

Time: 0654

Depth to Water: 33.26 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 5.74 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = .91 gal. (Well Volume (WV)) * 3 (Purge Factor) = 3 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0656	-----	-----	-----	-----	
0658	1 gal	7.49	4.60 mS/cm	25.4 °c	clear
0659	2 gal	7.49	4.63 mS/cm	25.3 °c	clear
0700	3 gal	7.51	4.66 mS/cm	25.3 °c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0702 Time Finished: 0702

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-135

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-12-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 39.0 feet

Time: 0641

Depth to Water: 34.43 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L)					Well Volume (WV)	Purge Factor	Purge Volume
4.57 feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	=	.73 gal.	* 3	= 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0643	-----	-----	-----	-----	
0644	1 gal	7.40	4.70 mS/cm	25.6 °C	clear
0645	2 gal	7.39	4.74 mS/cm	25.5 °C	clear
0646	3 gal	7.39	4.76 mS/cm	25.5 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0647 Time Finished: 0647

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-166

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 32.0 feet Time: 1138

Depth to Water: 29.41 feet

Height of Water Column (L): 2.59 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft = ______ gal. (Well Volume (WV)) * 3 (Purge Factor) = ______ (Purge Volume)

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-167

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 30.0 feet Time: 1136

Depth to Water: 28.42 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 1.58 feet = ______ gal. Well Volume (WV) * 3 Purge Factor = ______ Purge Volume

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-168

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 35.0 feet

Time: 1134

Depth to Water: 25.96 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L):	9.04 feet	[✓ 2-in. * 0.16 gal/ft]	4-in. * 0.65 gal/ft	6-in * 1.47 gal/ft	=	Well Volume (WV) gal.	* Purge Factor 3	= Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-169

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 35.0 feet

Time: 1133

Depth to Water: 28.31 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 6.69 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-170

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 35.0 feet

Time: 1130

Depth to Water: 29.36 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 5.64 feet

Well Volume (WV) = ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-172

Project No.: ____

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 37.0 feet

Time: 1126

Depth to Water: 33.13 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 3.87 feet

Well Volume (WV) = ____ gal. * Purge Factor 3 = Purge Volume ____

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____

Sample Collection - Time Start: ____ Time Finished: ____

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-173

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, clear

Well Information:

Total Well Depth: 40.0 feet Time: 1121

Depth to Water: 28.58 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 11.42 feet * Well Diameter = ______ gal. (Well Volume (WV)) * 3 (Purge Factor) = ______ (Purge Volume)

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-174

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, sunny, humid

Well Information:

Total Well Depth: 28.0 feet

Time: 1016

Depth to Water: 19.33 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 8.67 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = ____ gal. (Well Volume (WV)) * 3 (Purge Factor) = ____ (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ____ Time Finished: ____

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-173

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 29.0 feet

Time: 1015

Depth to Water: 19.18 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 9.820 feet

Well Volume (WV) = ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-176

Project No.: ________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 30.0 feet Time: 1021

Depth to Water: 21.64 feet

			Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
			2-in.	4-in.	6-in			
Height of Water Column (L):	8.36	feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	= ____ gal.	* 3	=

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ________

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-177

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-11-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 30.0 feet Time: 1010

Depth to Water: 20.59 feet

		Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
		[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L): 9.41 feet		* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	*	3	=	

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: MW-K4

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 50.0 feet

Time: 0956

Depth to Water: 27.87 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 22.13 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 3.54 gal. (Well Volume (WV)) * 3 (Purge Factor) = 11 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0957	-----	-----	-----	-----	
1000	4 gal	7.38	8.68 mS/cm	26.8 °C	clear
1003	8 gal	7.31	8.33 mS/cm	27.1 °C	clear
1005	11 gal	7.20	8.38 mS/cm	27.2 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1008 Time Finished: 1008

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: 9.5' To Top of screen

Water Sampling Field Log

Well No.: MW-K5

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 44.0 feet

Time: 0806

Depth to Water: 30,97 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 13.03 feet

Well Volume (WV) = 208 gal. * Purge Factor 3 = Purge Volume 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0807	-----	-----	-----	-----	
0809	2 gal	7.14	9.62 mS/cm	25.5°C	clear
0810	4 gal	7.09	9.49 mS/cm	25.3°C	clear
0812	6 gal	7.02	9.48 mS/cm	25.4°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0814 Time Finished: 0814

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-18

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown Date: 8.8.14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 52.11 feet Time: 0650

Depth to Water: 28.46 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 23.65 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 3.78 gal. (Well Volume (WV)) * 3 (Purge Factor) = 11 gal (Purge Volume)

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0653	-----	-----	-----	-----	
0657	4 gal	7.13	13.82 mS/cm	24.4 °C	clear
0706	8 gal	7.05	14.04 mS/cm	25.0 °C	clear
0702	11 gal	7.02	14.01 mS/cm	24.9 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0705 Time Finished: 0705

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 11.5 - 51.5

Water Sampling Field Log

Well No.: PC-37

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: breezy, warm, sun/clouds

Well Information:

Total Well Depth: 43.08 feet

Time: 0940

Depth to Water: 30.05 feet

	Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
	[✓ 2-in.]	4-in.	6-in			
Height of Water Column (L): 13.03 feet	* [✓ 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 2.08 gal.	* 3	= 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0940	-----	-----	-----	-----	
0942	2 gal	7.46	10.08 mS/cm	27.7 °C	clear
0944	4 gal	7.43	9.61 mS/cm	27.1 °C	clear
0946	6 gal	7.37	9.60 mS/cm	27.5 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0947 Time Finished: 0947

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: AC-53

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 32.86 feet Time: 0751

Depth to Water: 28.33 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 4.53 feet * 0.16 gal/ft = Well Volume (WV) .72 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0751	-----	-----	-----	-----	
0752	1 gal	7.38	6.62 mS/cm	25.6°C	clear.
0753	2 gal	7.35	6.21 mS/cm	25.7°C	clear
0754	3 gal	7.34	6.26 mS/cm	25.5°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0755 Time Finished: 0755

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 13 – 32.5'

Water Sampling Field Log

Well No.: PC-54

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: breezy, warm, sun/clouds

Well Information:

Total Well Depth: 34.60 feet

Time: 0825

Depth to Water: 23.71 feet

Height of Water Column (L): 10.89 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= 1.74 gal. (Well Volume (WV)) * 3 (Purge Factor) = 5 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0826	-----	-----	-----	-----	
0827	2 gal	7.30	6.14 mS/cm	27.0°c	slightly cloudy
0829	4 gal	7.28	6.15 mS/cm	26.8°c	clear w/ slight yellow
0830	5 gal	7.29	6.11 mS/cm	26.4°c	clear w/slight yellow
	gal				
	gal				
	gal				

Sample Appearance: clear w/ slight yellow tint

Sample Collection - Time Start: 0831 Time Finished: 0831

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-55

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 55.4 feet

Time: 0714

Depth to Water: 27.54 feet

Height of Water Column (L): 27.86 feet

Well Diameter (circle one): 2-in. * 0.16 gal/ft 4-in. * 0.65 gal/ft [✓ 6-in * 1.47 gal/ft]

= Well Volume (WV) 40.95 gal. * Purge Factor 3 = Purge Volume 123

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0716	-----	-----	-----	-----	
0745	41 gal	7.38	10.84 mS/cm	25.9 °C	clear
0813	82 gal	7.08	10.93 mS/cm	26.3 °C	clear
0844	123 gal	7.36	10.70 mS/cm	26.0 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0846 Time Finished: 0846

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 4 - 54'

Dup EC 26.1°C temp 10.71 EC

Water Sampling Field Log

Well No.: PC-56

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 63.58 feet

Time: 0849

Depth to Water: 22.18 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 41.4 feet

Well Volume (WV) = 6.62 gal. * Purge Factor 3 = Purge Volume 20 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0850	-----	-----	-----	-----	
0855	7 gal	7.15	7.13 mS/cm	25.0 °C	clear
0859	14 gal	7.16	7.01 mS/cm	25.1 °C	clear
0903	20 gal	7.09	7.04 mS/cm	24.9 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0905 Time Finished: 0905

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 4.8 – 54.8

Water Sampling Field Log

Well No.: PC-58

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown Date: 8-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, humid, sunny

Well Information:

Total Well Depth: 42.78 feet Time: 0831

Depth to Water: 22.97 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 19.81 feet

Well Volume (WV) = 3.16 gal. * Purge Factor 3 = Purge Volume 10 gal

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0833	-----	-----	-----	-----	
0836	4 gal	7.45	4.30mS/cm	24.0 °C	Clear
0838	7 gal	7.33	4.43 mS/cm	23.5 °C	Clear
0840	10 gal	7.26	4.34 mS/cm	23.4 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 0844 Time Finished: 0844

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

screen 7.8 – 32.8

TOTAL BOTTLES: 3

Comments: Needs Lock

Water Sampling Field Log

Well No.: PC-59

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 48.13 feet

Time: 0938

Depth to Water: 20.66 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 27.47 feet

Well Volume (WV) = 4.39 gal. * Purge Factor 3 = Purge Volume 13 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0940	-----	-----	-----	-----	
0943	5 gal	7.42	4.26 mS/cm	24.5 °c	clear
0945	9 gal	7.39	4.16 mS/cm	24.0 °c	clear
0947	15 gal	7.21	4.14 mS/cm	24.6 °c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0950 Time Finished: 0950

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 4.8 - 34.8

Dup EC

4.11 / EC

25.3 / Temp

Water Sampling Field Log

Well No.: PC-60

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, sunny

Well Information:

Total Well Depth: 48.09 feet

Time: 0912

Depth to Water: 21.42 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 26.67 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 4.26 gal. (Well Volume (WV)) * 3 (Purge Factor) = 13 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0914	------	------	------	------	
0918	5 gal	7.54	3.55 mS/cm	23.9 °C	clear
0920	9 gal	7.35	3.49 mS/cm	24.7 °C	Clear
0922	13 gal	7.35	3.46 mS/cm	24.6 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0925 Time Finished: 0925

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 4.5 – 39.5
EB-M1 - collected here before 0930
moving to next well
CLO4 only 1 btl

Water Sampling Field Log

Well No.: PC-62

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: humid, sunny, clear

Well Information:

Total Well Depth: 45.91 feet Time: 0957

Depth to Water: 19.73 feet

Well Diameter (circle one)

	2-in.	4-in.	6-in	Well Volume (WV)	Purge Factor	Purge Volume
Height of Water Column (L): 26.18 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 4.18 gal.	* 3	= 13 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0959	-----	-----	-----	-----	
1002	5 gal	7.70	2.82 mS/cm	21.2 °C	clear
1004	9 gal	7.43	2.73 mS/cm	21.8 °C	Clear
1006	13 gal	7.42	2.66 mS/cm	22.1 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 1010 Time Finished: 1010

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 7.6 – 37.6

Water Sampling Field Log

Well No.: PC-68

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: humid, sunny, clear

Well Information:

Total Well Depth: 64.72 feet

Time: 1014

Depth to Water: 19.69 feet

Height of Water Column (L): 45.03 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= Well Volume (WV) 7.20 gal. * Purge Factor 3 = Purge Volume 22 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1016	-----	-----	-----	-----	
1022	8 gal	7.23	2.90 mS/cm	23.0 °C	Clear
1027	15 gal	7.34	2.88 mS/cm	23.0 °C	clear
1033	22 gal	7.26	2.82 mS/cm	24.3 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1035 Time Finished: 1035

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: screen 9.9 -54.9

Water Sampling Field Log

Well No.: PC-71

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: hot, humid, breezy, sun/clouds

Well Information:

Total Well Depth: 33.23 feet

Time: 1034

Depth to Water: 27.19 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 6.04 feet = Well Volume (WV) .96 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp		Observations
1035	-----	-----	-----	-----		
1037	1 gal	7.44	8.86 mS/cm	27.5	°C	clear
1038	2 gal	7.36	9.49 mS/cm	27.3	°C	clear
1039	3 gal	7.31	1006 mS/cm	28.5	°C	slightly cloudy
1040	4 gal	7.31	9.96mS/cm	28.8	°C	slightly cloudy
	gal					
	gal					

Sample Appearance:

Sample Collection - Time Start: 1042 Time Finished: 1042

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-72

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, breezy, sun w/ clouds

Well Information:

Total Well Depth: 39.54 feet

Time: 1019

Depth to Water: 30.01 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 9.53 feet * 0.16 gal/ft = Well Volume (WV) 1.52 gal. * Purge Factor 3 = Purge Volume 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1020	-----	-----	-----	-----	
1022	2 gal	7.39	8.43 mS/cm	27.2 °C	clear
1024	4 gal	7.39	8.33 mS/cm	26.9 °C	clear
1025	5 gal	7.35	8.32 mS/cm	27.3 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1027 Time Finished: 1027

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-73

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, breezy, clouds w/sun

Well Information:

Total Well Depth: 49.44 feet

Time: 0956

Depth to Water: 31.24 feet

Height of Water Column (L): 18.20 feet * Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] / 4-in. * 0.65 gal/ft / 6-in * 1.47 gal/ft = Well Volume (WV) 2.91 gal. * Purge Factor 3 = Purge Volume 9 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0958	-----	-----	-----	-----	
1002	3 gal	7.33	9.27 mS/cm	26.8 °C	clear
1004	6 gal	7.29	9.32 mS/cm	26.1 °C	Clear
1007	9 gal	7.26	9.09 mS/cm	26.1	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1008 Time Finished: 1008

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: EB-1 collected here before moving to next well.

CLO4, CR, TDS, pH, CRVI

3 btls

Water Sampling Field Log

Well No.: PC-86

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: sunny, humid, clear

Well Information:

Total Well Depth: 28.0 feet

Time: 1045

Depth to Water: 13.04 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 14.96 feet

Well Volume (WV) = 2.39 gal. * Purge Factor 3 = Purge Volume 7 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1046	-----	-----	-----	-----	
1049	3 gal	7.24	2.89 mS/cm	22.7 °c	Clear
1050	5 gal	7.26	2.88 mS/cm	23.1 °c	Clear
1051	7 gal	7.23	2.87 mS/cm	22.7 °c	Clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1055 Time Finished: 1055

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

Screen 17.5 – 27.5

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-90

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown Date: 8.5.14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: sunny, warm, humid

Well Information:

Total Well Depth: 33.0 feet Time: 0723

Depth to Water: 6.49 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 26.51 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 4.24 gal. (Well Volume (WV)) * 3 (Purge Factor) = 13 gal (Purge Volume)

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0726	-----	-----	-----	-----	
0729	5 gal	7.22	3.77 mS/cm	25.0 °c	Clear
0731	9 gal	7.30	3.75mS/cm	24.9 °c	Clear
0733	13 gal	7.25	3.75mS/cm	24.9 °c	Clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 0735 Time Finished: 0735

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

Screen 4.5 - 14.5

TOTAL BOTTLES: 3

Comments:
No cart lid

Water Sampling Field Log

Well No.: PC-91

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: sunny, warm, humid

Well Information:

Total Well Depth: 37.0 feet

Time: 0741

Depth to Water: 12.29 feet

Height of Water Column (L)	Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
	[✓ 2-in.]	4-in.	6-in			
24.71 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 395 gal.	* 3	= 12gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0743	-----	-----	-----	-----	
0746	4 gal	7.26	4.08 mS/cm	23.3 °C	Clear
0748	8 gal	7.22	3.98 mS/cm	23.5 °C	Clear
0751	12 gal	7.21	3.98 mS/cm	22.9 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 0753 Time Finished: 0753

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

Screen 26.5 - 36.5

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-94

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: humid, warm, sunny

Well Information:

Total Well Depth: 200 feet

Time: 0800

Depth to Water: 13.19 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 6.81 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.08 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0801	-----	-----	-----	-----	
0803	1 gal	7.07	7.85 mS/cm	24.1 °C	cloudy
0804	2 gal	7.06	7.84 mS/cm	23.6 °C	slightly cloudy
0805	3 gal	7.02	7.82 mS/cm	23.6 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0807 Time Finished: 0807

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-95

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date:

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions:

Well Information:

Total Well Depth: feet

Time:

Depth to Water: feet

Well Diameter (circle one): 2-in. 4-in. 6-in

Height of Water Column (L): feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = gal. * 3 =

Well Volume (WV) | Purge Factor | Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				Destroyed
	gal				
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES:

Comments:

Water Sampling Field Log

Well No.: PC-97

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: sunny, warm

Well Information:

Total Well Depth: 33.5 feet

Time: 0700

Depth to Water: 5.13 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 28.37 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 4.53 gal. (Well Volume (WV)) * 3 (Purge Factor) = 14 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0704	-----	-----	-----	-----	
0707	5 gal	6.87	3.26 mS/cm	22.5 °C	clear
0709	10 gal	7.09	3.27 mS/cm	22.1 °C	clear
0711	14 gal	7.13	3.23 mS/cm	22.9 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0713 Time Finished: 0713

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

screen 23'-33'

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-98R

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 40.5 feet

Time: 1113

Depth to Water: 23.59 feet

Well Diameter (circle one): 2-in. [✓ 4-in.] 6-in

Height of Water Column (L): 16.91 feet * 0.16 gal/ft [✓ * 0.65 gal/ft] * 1.47 gal/ft = ~~16.26~~ MB 10.99 gal. (Well Volume (WV)) * 3 (Purge Factor) = 33 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1114	-----	-----	-----	-----	
1122	11 gal	722	906 mS/cm	25.9°c	Clear
1130	22 gal	7.04	8.84 mS/cm	25.4°c	Clear
1141	33 gal	7.04	8.80 mS/cm	25.3°c	Clean
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 1145 Time Finished: 1145

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 20-35

Water Sampling Field Log

Well No.: PC-99R2/R3

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: overcast, humid

Well Information:

8.6.14

Total Well Depth: 57.4 feet Time: 0625

Depth to Water: - 15.27 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	42.13	feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample
0734	0	6.69	24.3	clear

Comments:

Sample Collection Time - 0734

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-101R

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 50.58 feet

Time: 0934

Depth to Water: 29.13 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 21.45 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 3.43 gal. (Well Volume (WV)) * 3 (Purge Factor) = 10 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0936	-----	-----	-----	-----	
0939	4 gal	7.23	12.93 mS/cm	26.0 °C	clear
0941	7 gal	7.17	1298 mS/cm	267 °C	clear
0944	10 gal	7.22	12.72 mS/cm	26.8 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0947 Time Finished: 0947

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 20-50'

Water Sampling Field Log

Well No.: PC-103

Project No.: ________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 31.8 feet Time: 1056

Depth to Water: 23.22 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 8.58 feet * 0.16 gal/ft = Well Volume (WV) 1.37 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1058	------	------	------	------	
1100	2 gal	7.25	6.99 mS/cm	25.8 °c	clear
1101	3 gal	7.15	6.95 mS/cm	26.0 °c	clear
1102	4 gal	7.11	7.00 mS/cm	25.9 °c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1105 Time Finished: 1105

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: BMI square key

screen 9-29'

Water Sampling Field Log

Well No.: PC-115R

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: overcast, humid

Well Information:

8-6-14

Total Well Depth: 55.5 feet

Time: 0629

Depth to Water: - 12.14 feet

		Well Diameter (circle one)				Purge Volume
		2-in.	4-in.	6-in.		
Water Column (L): 43.36 feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample
0741		7.26	23.2°c	clear

Comments:

Sample Collection Time - 0741

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-116R

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer O Electric pump O

Weather Conditions: overcast, humid

Well Information:

8-6-14

Total Well Depth: 55.5 feet

Time: 0622

Depth to Water: - 14.16 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	41.34	feet	X	0.4893	1.9	4.41	=	-0-

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample
0746		7.21	23.6°c	Clear

Comments:

Sample Collection Time - 0746

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-117

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: overcast, humid

Well Information:

8-6-14

Total Well Depth: 55.0 feet

Time: 0619

Depth to Water: - 11.60 feet

		Well Diameter (circle one)				Purge Volume	
		2-in.	**4-in.**	**6-in.**			
Water Column (L): 43.40 feet	X	0.4893	1.9	4.41	=	0	

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**
0951		7.28	22.7°c	Clear

Comments:

Sample Collection Time - 0951

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-118

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: hot, humid, overcast

Well Information:

8-6-14

Total Well Depth: 53.0 feet

Time: 0632

Depth to Water: - 8.06 feet

Water Column (L): 44.94 feet X Well Diameter (circle one) 2-in. 0.4893 4-in. 1.9 6-in. 4.41 = **Purge Volume** 0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**
0755		7.39	22.3°c	clear

Comments:

Sample Collection Time - 0755

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH/TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-119

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: humid, overcast

Well Information:

Total Well Depth: 49.0 feet

8-6-14 Time: 0635

Depth to Water: - 7.06 feet

Well Diameter (circle one)

				2-in.	**4-in.**	**6-in.**		**Purge Volume**
Water Column (L):	41.94	feet	X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample
0800		7.36	21.8 °c	Clear

Comments:

Sample Collection Time - 0800

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-120

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: humid, overcast

Well Information:

8-6-14

Total Well Depth: 49.0 feet

Time: 0639

Depth to Water: - 5.30 feet

			Well Diameter (circle one)				Purge Volume
			2-in.	**4-in.**	**6-in.**		
Water Column (L): 43.70 feet	X		0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**
0810		7.33	24.2°C	Clear

Comments:

Sample Collection Time - 0810

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-121

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: humid, overcast

Well Information:

8-6-14

Total Well Depth: 40.5 feet Time: 0647

Depth to Water: - 5.30 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	4-in.	6-in.		
Water Column (L):	35.20 feet		X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	gals	pH	Temp	Observations of Sample
0815		7.20	23.6°C	Clear

Comments:

Sample Collection Time - 0815

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-122

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-7-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 37.9 feet Time: 0737

Depth to Water: 32.29 feet

	Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
	[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L): 5.61 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	.89 gal.	*	3	=	3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0738	-----	-----	-----	-----	
0739	1 gal	7.31	9.85 mS/cm	24.3 °C	clear
0740	2 gal	7.28	9.98 mS/cm	24.7 °C	clear
0741	3 gal	7.22	10.09 mS/cm	24.8 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0743, Time Finished: 0743

Analyses:	CLO4	pH / TDS	CR
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 22.5 - 37.5

Water Sampling Field Log

Well No.: PC-123

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: breezy, cool

Well Information:

Total Well Depth: 34.70 feet Time: 0418

Depth to Water: 2258 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 12.12 feet * 0.16 gal/ft = Well Volume (WV) 1.93 gal. * Purge Factor 3 = Purge Volume 6gal

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0420	-----	-----	-----	-----	
0422	2 gal	6.90	7.49 mS/cm	24.5 °C	clear
0424	4 gal	7.04	7.57 mS/cm	24.7 °C	clear
0426	6 gal	7.14	7.60 mS/cm	24.6 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0428 Time Finished: 0428

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-124

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Cool, breezy, cloudy

Well Information:

Total Well Depth: 34.60 feet

Time: 0628

Depth to Water: 24.95 feet

Height of Water Column (L)	Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
	[✓ 2-in.]	4-in.	6-in			
9.65 feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	= 1.54 gal.	* 3	= 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0631	-----	-----	-----	-----	
0632	2 gal	7.50	10.13 mS/cm	24.3°C	clear
0634	4 gal	7.31	11.19 mS/cm	24.1°C	clear
0635	5 gal	7.30	11.13 mS/cm	24.4°C	clear
0636	6 gal	7.27	11.18 mS/cm	24.2°C	clear
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: 0638 Time Finished: 0638

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-125

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8.13.14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, breezy, cloudy

Well Information:

Total Well Depth: 34.50 feet

Time: 0726

Depth to Water: 22.88 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 11.62 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.85 gal. * Purge Factor 3 = Purge Volume 6gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0727	-----	-----	-----	-----	
0731	2 gal	7.32	10.73 mS/cm	24.3°C	clear
0733	4 gal	7.22	10.64 mS/cm	24.3°C	clear
0734	6 gal	7.21	10.65 mS/cm	24.3°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0736 Time Finished: 0736

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-126

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8.13.14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, breezy, cloudy

Well Information:

Total Well Depth: 33.35 feet

Time: 0646

Depth to Water: 21.72 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 11.63 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 1.86 gal. (Well Volume (WV)) * 3 (Purge Factor) = 6 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0647	-----	-----	-----	-----	
0649	2 gal	7.43	10.19 mS/cm	23.4 °c	very slightly cloudy
0651	4 gal	7.40	9.38 mS/cm	23.3 °c	clear
0653	6 gal	7.42	9.11 mS/cm	23.4 °c	clear
0654	7 gal	7.33	9.08 mS/cm	23.3 0 °c	clear
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0655 Time Finished: 0655

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Dup EC

23.3 Temp

9.07 EC

Water Sampling Field Log

Well No.: PC-127

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, breezy, cloudy

Well Information:

Total Well Depth: 34.70 feet

Time: 0703

Depth to Water: 19.74 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 14.96 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 2.39 gal. (Well Volume (WV)) * 3 (Purge Factor) = 7 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0704	-----	-----	-----	-----	
0707	3 gal	7.56	6.99 mS/cm	24.6°c	clear
0709	5 gal	7.44	6.98 mS/cm	24.7°c	clear
0711	7 gal	7.42	7.05 mS/cm	24.5°	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0713 Time Finished: 0713

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-128

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8·13·14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool breezy

Well Information:

Total Well Depth: 34.70 feet

Time: 0437

Depth to Water: 18.41 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 16.29 feet

Well Volume (WV) = 2.60 gal. * Purge Factor 3 = Purge Volume 8 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0439	-----	-----	-----	-----	
0442	3 gal	7.32	7.10 mS/cm	25.7 °C	clear
0449	6 gal	7.37	7.13 mS/cm	25.5 °C	clear
0452	8 gal	7.36	7.11 mS/cm	25.3 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0453 Time Finished: 0453

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-129

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, breezy

Well Information:

Total Well Depth: 33.70 feet Time: 0500

Depth to Water: 18.27 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 15.43 feet * 0.16 gal/ft = Well Volume (WV) 2.46 gal. * Purge Factor 3 = Purge Volume 7 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0502	-----	-----	-----	-----	
0504	3 gal	7.30	6.34 mS/cm	24.9°C	slightly cloudy
0505	5 gal	7.26	7.16 mS/cm	24.7°C	clear
0506	7 gal	7.21	7.44 mS/cm	24.6°C	clear
0507	9 gal	7.22	7.54 mS/cm	24.4°C	clear
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0509 Time Finished: 0509

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-130

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, breezy

Well Information:

Total Well Depth: 49.70 feet

Time: 0515

Depth to Water: 18.99 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in.

Height of Water Column (L): 30.71 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 4.91 gal. * Purge Factor 3 = Purge Volume 15 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0517	-----	-----	-----	-----	
0521	5 gal	7.32	7.99 mS/cm	24.4 °C	clear
0525	10 gal	7.34	8.09 mS/cm	24.2 °C	clear
0528	15 gal	7.28	8.13 mS/cm	24.3 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0530 Time Finished: 0530

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-131

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, breezy, cloudy

Well Information:

Total Well Depth: 39.40 feet

Time: 0541

Depth to Water: 10.93 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 28.47 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 4.55 gal. * Purge Factor 3 = Purge Volume 14 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0542	-----	-----	-----	-----	
0545	5 gal	7.34	12.53 mS/cm	25.8°C	clear
0549	10 gal	7.23	13.03 mS/cm	25.7°C	clear
0554	14 gal	7.30	13.31 mS/cm	25.6°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0556 Time Finished: 0556

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-132

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-13-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, breezy, cloudy

Well Information:

Total Well Depth: 39.56 feet

Time: 0602

Depth to Water: 9.63 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 29.93 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 4.78 gal. (Well Volume (WV)) * 3 (Purge Factor) = 14 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp		Observations
0603	-----	-----	-----	-----		
0606	5 gal	7.23	12.87 mS/cm	25.7	°C	very slightly cloudy
0613	10 gal	7.21	13.00 mS/cm	25.7	°C	clear
0616	14 gal	7.20	12.88 mS/cm	25.5	°C	clear
	gal					
	gal					
	gal					

Sample Appearance: clear

Sample Collection - Time Start: 0618 Time Finished: 0618

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: DUP-1 collected here
same analyses 3 btls, 0618

Water Sampling Field Log

Well No.: PC-133

Project No.: ____________

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 8-4-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: humid, overcast

Well Information:

Total Well Depth: 40.2 feet

8-6-14 Time: 0616

Depth to Water: - 7.83 feet

Water Column (L): 32.37 feet X

	Well Diameter (circle one)				Purge Volume
	2-in.	**4-in.**	**6-in.**		
X	0.4893	1.9	4.41	=	0

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**
0804		7.29	22.9°C	Clear

Comments:

Sample Collection Time - 0804

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-135A

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-15-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 50.8 feet Time: 0659

Depth to Water: 29.48 feet

		Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
		[✓ 2-in.]	4-in.	6-in			
Height of Water Column (L):	21.32 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 3.41 gal.	* 3	= 10 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0701	-----	-----	-----	-----	
0706	4 gal	7.31	12.45 mS/cm	25.6°C	clear.
0709	7 gal	7.27	12.54 mS/cm	25.7°C	clear
0712	10 gal	7.15	12.52 mS/cm	25.7°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0715 Time Finished: 0715

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-136

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-15-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 40.30 feet Time 0721

Depth to Water: 34.21 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 6.09 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = .97 gal. (Well Volume (WV)) * 3 (Purge Factor) = 3 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0722	-----	-----	-----	-----	
0724	1 gal	7.47	7.14 mS/cm	25.3 °C	slightly yellow
0726	2 gal	7.34	7.09 mS/cm	25.3 °C	slightly yellow
0727	3 gal	7.32	7.00 mS/cm	25.8 °C	slightly yellow
	gal				
	gal				
	gal				

Sample Appearance: slightly yellow

Sample Collection - Time Start: 0930 Time Finished: 0930

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-144

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-15-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 39.70 feet

Time: 0643

Depth to Water: 29.63 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L)	2-in.	4-in.	6-in	Well Volume (WV)	Purge Factor	Purge Volume
10.07 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 1.61 gal.	* 3	= 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0645	-----	-----	-----	-----	
0648	2 gal	7.36	7.48 mS/cm	25.3 °C	clear
0650	4 gal	7.31	7.56 mS/cm	25.3 °C	Clear
0652	5 gal	7.33	7.57 mS/cm	25.1 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0654 Time Finished: 0654

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-148

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-15-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, clear

Well Information:

Total Well Depth: 50.22 feet

Time: 0526

Depth to Water: 28.13 feet

Well Diameter (circle one): 2-in. 4-in. [✓ 6-in]

Height of Water Column (L): 22.07 feet * 0.16 gal/ft * 0.65 gal/ft [✓ * 1.47 gal/ft] = 32.44 gal. (Well Volume (WV)) * 3 (Purge Factor) = 97 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0532	-----	-----	-----	-----	
0542	8 gal	6.97	8.92mS/cm	24.7°C	clear
0551	16 gal	7.21	8.93mS/cm	24.5°C	clear
0559	25 gal	7.06	8.78 mS/cm	24.6°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0602 Time Finished: 0602

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: historic - well slow to recharge purging of 25 gallons before samples are collected

Water Sampling Field Log

Well No.: PC-149

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-15-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, clear

Well Information:

Total Well Depth: 50.0 feet

Time: 0608

Depth to Water: 29.65 feet

Height of Water Column (L): 20.35 feet

Well Diameter (circle one): 2-in. * 0.16 gal/ft 4-in. * 0.65 gal/ft [✓ 6-in * 1.47 gal/ft]

= Well Volume (WV) 29.91 gal. * Purge Factor 3 = Purge Volume 90 gals

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0608	-----	-----	-----	-----	
0614	10 gal	7.26	5.07 mS/cm	24.4 °C	clear
0625	20 gal	7.26	5.08 mS/cm	24.4 °C	clear
0634	30 gal	7.28	5.19 mS/cm	238 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0636 Time Finished: 0636

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Historic.
well slow to recharge
30 gallons purged before
sample was collected

Water Sampling Field Log

Well No.: PC-150

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-15-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 45.7 feet

Time: 0759

Depth to Water: 30.14 feet

Well Diameter (circle one): 2-in. * 0.16 gal/ft 4-in. * 0.65 gal/ft [✓ 6-in * 1.47 gal/ft]

Height of Water Column (L): 15.56 feet

Well Volume (WV) = 22.87 gal. * Purge Factor 3 = Purge Volume 69 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0800	-----	-----	-----	-----	
0818	23 gal	7.44	7.38 mS/cm	25.5 °C	clear
0837	46 gal	7.47	7.48 mS/cm	25.7 °C	clear
0855	69 gal	7.42	7.31 mS/cm	25.4 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0857 Time Finished: 0857

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Dup-2 collected here for same analyses
3 btls
0857

Water Sampling Field Log

Well No.: I- AA

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 46.0 feet

Time: 0744

Depth to Water: 43.99 feet

Height of Water Column (L): 2.01 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0745	4.05 mS/cm	27.1 °C	713	clear

Sample Appearance: clear

Sample Collection - Time Start: 0746 Time Finished: 0746

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- AB

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 52.0 feet

Time: 0937

Depth to Water: 33.01 feet

Height of Water Column (L): 18.99 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations

Sample Appearance:

Sample Collection - Time Start:

Time Finished:

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments: NO SAMPLE

Turned well pump on but no water was pumped to the surface

Water Sampling Field Log

Well No.: I-AC

Project No.: ________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-14-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, breezy

Well Information:

Total Well Depth: 50.0 feet Time: 0624

Depth to Water: 28.34 feet

Height of Water Column (L): 21.66 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations

Sample Appearance: NO SAMPLE

Sample Collection - Time Start: ________ Time Finished: ________

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments: Turn pump motor on but no water comes to the surface

Water Sampling Field Log

Well No.: I- AD

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, breezy

Well Information:

Total Well Depth: 50.0 feet

Time: 0613

Depth to Water: 28.85 feet

Height of Water Column (L): 21.15 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0615	6.92 mS/cm	25.2 °C	7.45	cloudy yellow

Sample Appearance: cloudy yellow

Sample Collection - Time Start: 0615 Time Finished: 0615

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- AR

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 45.0 feet

Time: 0749

Depth to Water: 43.14 feet

Height of Water Column (L): 1.86 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0750	8.26mS/cm	28.0 °C	7.07	clear

Sample Appearance: clear

Sample Collection - Time Start: 0750 Time Finished: 0750

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- B

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Warm, humid, cloudy

Well Information:

Total Well Depth: 45.70 feet

Time: 0724

Depth to Water: 42.52 feet

Height of Water Column (L): 3.18 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0725	6.520 mS/cm	27.4 °C	6.94	clear

Sample Appearance: clear

Sample Collection - Time Start: 0726 Time Finished: 0726

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- C

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 43.80 feet

Time: 0653

Depth to Water: 35.84 feet

Height of Water Column (L): 7.96 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0654	9.09 mS/cm	26.5 °C	7.36	slightly yellow

Sample Appearance: slightly yellow

Sample Collection - Time Start: 0655 Time Finished: 0655

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- D

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Warm, humid, cloudy

Well Information:

Total Well Depth: 47.70 feet

Time: 0645

Depth to Water: 37.06 feet

Height of Water Column (L): 10.64 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0646	9.73mS/cm	26.8 °C	7.34	light yellow

Sample Appearance: light yellow

Sample Collection - Time Start: 0647 Time Finished: 0647

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- E

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, cloudy

Well Information:

Total Well Depth: 46.70 feet

Time: 0628

Depth to Water: 44.34 feet

Height of Water Column (L): 2.36 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0629	9.79 mS/cm	27.3 °C	6.96	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0630 Time Finished: 0630

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Dup EC

27.2 °C / temp

9.82 / EC

Water Sampling Field Log

Well No.: I- F

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Warm, cloudy, slight breeze.

Well Information:

Total Well Depth: 45.80 feet

Time: 0607

Depth to Water: 32.95 feet

Height of Water Column (L): 12.85 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0608	12.09 mS/cm	25.8 °C	6.98	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0609 Time Finished: 0609

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- G

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slight breeze, cloudy

Well Information:

Total Well Depth: 42.60 feet

Time: 0537

Depth to Water: 39.85 feet

Height of Water Column (L): 2.75 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0538	14.91 mS/cm	28.8 °C	6.74	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0540 Time Finished: 0540

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- H

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Warm, cloudy, slight breeze

Well Information:

Total Well Depth: 46.50 feet

Time: 0513

Depth to Water: 43.87 feet

Height of Water Column (L): 2.63 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0514	14.61 mS/cm	26.2 °C	6.75	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0515 Time Finished: 0515

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- I

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, breezy, sunny

Well Information:

Total Well Depth: 44.20 feet

Time: 0714

Depth to Water: 22.80 feet

Height of Water Column (L): 21.40 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0718	9.40mS/cm	26.0°C	7.33	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0718 Time Finished: 0718

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- J

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, breezy

Well Information:

Total Well Depth: 44.50 feet

Time: 0701

Depth to Water: 27.31 feet

Height of Water Column (L): 17.19 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0704	6.98 mS/cm	25.1 °C	7.20	light yellow

Sample Appearance: light yellow

Sample Collection - Time Start: 0704 Time Finished: 0704

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- K

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, breezy

Well Information:

Total Well Depth: 40.60 feet

Time: 0652

Depth to Water: 2606 feet

Height of Water Column (L): 14.54 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0654	7.39 mS/cm	25.6 °C	7.42	very slightly yellow

Sample Appearance: Very slightly yellow

Sample Collection - Time Start: 0654 Time Finished: 0654

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- L

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, humid cloudy

Well Information:

Total Well Depth: 43.40 feet

Time: 0706

Depth to Water: 39.98 feet

Height of Water Column (L): 3.42 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0707	7.87 mS/cm	25.9 °C	7.35	very slight yellow

Sample Appearance: very slight yellow

Sample Collection - Time Start: 0708 Time Finished: 0708

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- M

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Sunny, clouds, warm

Well Information:

Total Well Depth: 43.70 feet

Time: 0635

Depth to Water: 38.4 feet

Height of Water Column (L): 5.59 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0636	10.25 mS/cm	269 °c	7.29	light yellow

Sample Appearance: light yellow

Sample Collection - Time Start: 0637 Time Finished: 0637

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- N

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, sunny, clouds

Well Information:

Total Well Depth: 41.70 feet

Time: 0621

Depth to Water: 35.11 feet

Height of Water Column (L): 6.59 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0622	10.35 mS/cm	26.2°C	6.96	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0623 Time Finished: 0623

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- O

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: overcast, warm, slight breeze

Well Information:

Total Well Depth: 43.80 feet

Time: 0455

Depth to Water: 32.25 feet

Height of Water Column (L): 11.55 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0456	9.96 mS/cm	25.5°c	6.97	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0457 Time Finished: 0457

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- P

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: cloudy, warm, slight breeze

Well Information:

Total Well Depth: 47.80 feet

Time: 0509

Depth to Water: 41.37 feet

Height of Water Column (L): 6.43 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0510	11.80mS/cm	25.2 °C	6.72	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0510 Time Finished: 0510

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- Q

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, cloudy

Well Information:

Total Well Depth: 43.80 feet

Time: 0543

Depth to Water: 3988 feet

Height of Water Column (L): 3.92 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0544	14.48 mS/cm	27.2°c	6.75	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0555 Time Finished: 0555

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- R

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 45.30 feet

Time: 0719

Depth to Water: 40.94 feet

Height of Water Column (L): 4.36 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0720	8.09 mS/cm	27.0 °C	7.09	clear

Sample Appearance: clear

Sample Collection - Time Start: 0721 Time Finished: 0721

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- 5

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, humid, cloudy

Well Information:

Total Well Depth: 47.70 feet

Time: 0700

Depth to Water: 28.54 feet

Height of Water Column (L): 19.16 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0701	7.79 mS/cm	26.0 °C	7.35	slighty yellow

Sample Appearance: slightly yellow

Sample Collection - Time Start: 0702 Time Finished: 0702

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- T

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, cloudy, slight breeze

Well Information:

Total Well Depth: 47.80 feet

Time: 0531

Depth to Water: 43.28 feet

Height of Water Column (L): 4.52 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0533	14.88mS/cm	267 °C	6.87	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0533 Time Finished: 0533

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- U

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, cloudy, slight breeze

Well Information:

Total Well Depth: 47.60 feet Time: 0526

Depth to Water: 44.44 feet

Height of Water Column (L): 3.16 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0527	14.79 mS/cm	26.3 °C	6.93	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0528 Time Finished: 0528

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- V

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, sunny, breezy

Well Information:

Total Well Depth: 47.70 feet

Time: 0720

Depth to Water: 31.39 feet

Height of Water Column (L): 16.31 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0723	9.40 mS/cm	26.4 °C	7.39	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0723 Time Finished: 0723

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- W

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: cloudy, warm, slight breeze

Well Information:

Total Well Depth: 50.0 feet

Time: 0503

Depth to Water: 47.52 feet

Height of Water Column (L): 2.48 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0505	10.50 mS/cm	26.3°C	7.13	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0506 Time Finished: 0506

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- X

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, cloudy

Well Information:

Total Well Depth: 50.0 feet

Time: 0611

Depth to Water: 37.33 feet

Height of Water Column (L): 12.67 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0612	12.11 mS/cm	26.1 °C	6.95	light yellow

Sample Appearance: light yellow

Sample Collection - Time Start: 0613 Time Finished: 0613

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- Y

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-11-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Warm, humid, cloudy

Well Information:

Total Well Depth: 50.50 feet

Time: 0914

Depth to Water: 46.52 feet

Height of Water Column (L): 3.98 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0715	8.39 mS/cm	26.9°C	6.97	clear

Sample Appearance: clear

Sample Collection - Time Start: 0716 Time Finished: 0716

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- 2

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 8-14-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, breezy, sunny

Well Information:

Total Well Depth: 37.0 feet

Time: 0708

Depth to Water: 21.25 feet

Height of Water Column (L): 15.75 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0710	7.19 mS/cm	26.0 °C	7.44	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0710 Time Finished: 0710

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

ENVIROGEN
TECHNOLOGIES

Fourth Quarter Well Monitoring

Nevada Environmental Response Trust
Henderson, Nevada

November 3, 2014 thru December 18, 2014

ENVIROGEN
TECHNOLOGIES

CONTENTS

Field Data Letter Report

ENVIROGEN
TECHNOLOGIES

Letter of Transmittal

Attention: John Pekala Date: January 6, 2014
Senior Manager
Environ International Corp.
510 Fourth St.
Henderson, NV 89015

Project:
2014 4th Quarter Groundwater Monitoring

Enclosed:
1 copy of Field Data Letter Report

Remarks:
John,
The enclosed Quarterly Groundwater Monitoring Report with supporting documents is provided for your records.

Signature:
Wendy Prescott

Wendy Prescott

Envirogen Technologies
Two Kingwood Place
700 Rockmead Drive Suite 105
Kingwood, TX 77339

ENVIROGEN
TECHNOLOGIES

ENVIROGEN
TECHNOLOGIES

Field Data Letter Report

1 INTRODUCTION

Nevada Environmental Response Trust (NERT) contracts with Envirogen Technologies to conduct groundwater sampling and analysis at their Perchlorate Removal Facility, located at 510 Fourth Street, in Henderson, Nevada. The work described herein represents the fourth quarter groundwater sampling event for 2014. The work was conducted in accordance with the Sampling and Analysis Work plan, submitted to Tronox January 9, 2004.

Envirogen has three staff members trained to assist the quarterly well monitoring events. The Envirogen monitoring team meets once prior to the sampling event to discuss all issues associated with this project, sampling and laboratory equipment needs, time tables and well site schedules. Bottle orders and bottles received are cross checked to ensure that all wells and analysis are represented.

1.1 SCOPE OF SAMPLING EVENT

This sampling effort included the following tasks:

- Soundings of the pumping water levels in 27 interceptor wells.
- Soundings of the water levels in 3 dormant interceptor wells
- Collection of groundwater samples from 30 interceptor wells.
- Soundings of water levels in 104 monitoring wells.

- Collection of groundwater samples from 82 monitoring wells.
- Collection of groundwater samples from 16 pumping wells.
- Collection of water levels in 6 backup (Buddy) wells.
- Collection of groundwater sample from 1 dormant ART well (ART-6).

Analysis of samples collected from the interceptor and monitoring wells, range from Perchlorate (CLO4), Total Chromium (Cr), Hexavalent Chromium (CRVI), pH, Specific Conductance (EC), Total Dissolved Solids (TDS), and NPDES list for well M-10, (Up Well). CR, MN, FE, B, Ammonia, TIN, Nitrate-Nitrite as N, and Chloide.

Groundwater samples were shipped daily to TestAmerica (TA) for analysis, in Irvine, California. TA is certified by the State of Nevada.
The scope of this assignment also included compiling the water level and analytical data presented in this report. Data are presented in tabular form.

2 FIELD ACTIVITIES

Envirogen conducted the field activities associated with this quarterly sampling event between Monday November 3 and Thursday December 18, 2014. Activities included the sounding of "pumping water" levels in the interceptor wells, sounding the "static water" level in the monitoring wells and sampling of both the interceptor and monitoring wells. Prior to each quarter, an inventory list was issued to Environ for review and comment. Sampling was conducted according to their specifications.

Chris Cabrera and Michele Brown were responsible for sample collection and recording all pertinent data on sample bottles. Michele Brown supervised the groundwater sampling activities. She is responsible for executing all work elements related to the groundwater sampling program, including laboratory equipment maintenances and calibration, fieldwork, documenting field activities, maintaining field notes and photographs (when applicable), and providing the Operations Manager with information concerning implementation of the sampling plan.

Envirogen maintained records of daily events and pertinent sampling data of each well on a field log sheet and addendum data in a bound log book. Log sheet entries included personnel onsite, weather conditions, water levels, activities conducted, sampling times, pH, EC, temperature and other significant field information.

2.1 Groundwater Level Soundings

Envirogen sounded pumping water levels in 27 interceptor wells. The static water readings were taken in Interceptor wells I-AB, I-C and I-AD. In addition to the interceptor wells, static water levels in 104 monitoring wells were taken. There were twenty-nine (29) wells where only static water levels were taken. The following are the 29 wells:

ART-1A	ART-2A	ART-3	ART-4A	ART-7A	ART-8	M-55	M-56	M-58	M-60	M-75
M-76	M-77	M-78	M-92	M-93		M-97	M-115	M-166	M-167	M-168
M-169	M-170	M-172	M-173	M-174	M-175	M-176	M-177			

The water levels were sounded to the nearest 0.01 foot using an electronic well sounder.

2.2 Equipment Cleaning Procedures

During the sounding of water levels and purging of wells, the equipment was washed with DI water containing Liquinox and rinsed with 1 to 2 gallons of de-ionized water after use at each well. The rinse water was collected in a polyethylene container and transported to GW-11 for treatment.

3.0 GROUNDWATER SAMPLING

3.1 Sampling Locations

The following presents the identification of wells sampled.

3.1.1 Interceptor Wells

I-AR	I-B	I-C	I-D	I-E	I-F	I-G	I-H	I-I	I-J	I-K
I-L	I-M	I-N	I-O	I-P	I-Q	I-R	I-S	I-T	I-U	I-V
I-W	I-X	I-Y	I-Z	I-AA	I-AB	I-AC	I-AD			

3.1.2 Pumping Wells

ART-1	ART-2	ART-3A	ART-4	ART-7B	ART-8	ART-9	PC-99R2/R3	PC-115R	PC-116R	PC-117
PC-118	PC-119	PC-133				PC-150				

3.1.3 **Monitoring Wells**

ARP-1	ARP-2A	ARP-3A	ARP-4A	ARP-5A	ARP-6B	ARP-7	M-10	M-11	M-12A	M-14A
M-19	M-22A	M-23	M-25	M-31A	M-35	M-37	M-38	M-44	M-48A	M-52
M-57A	M-64	M-65	M-66	M-67	M-68	M-69	M-70	M-71	M-72	M-73
M-74	M-79	M-80	M-81A	M-83	M-95	M-131	M-135	MW-K4	MW-K5	PC-18
PC-37	PC-53	PC-54	PC-55	PC-56	PC-58	PC-59	PC-60	PC-62	PC-68	PC-71
PC-72	PC-73	PC-86	PC-90	PC-91	PC-94	PC-97	PC-98R	PC-101R	PC-103	PC-123
PC-124	PC-125	PC-126	PC-127	PC-128	PC-129	PC-130	PC-131	PC-132	PC-135A	PC-136
PC-144	PC-148	PC-149	M-99	ART-6						

4.0 SAMPLING TECHNIQUES

4.1 Interceptor Wells

All interceptor wells were sampled using dedicated sampling ports. At the beginning of sampling each well or line, personnel wore a new pair of clean nitrile or latex gloves.

The sampling port was opened to drain any stagnant water from piping and valves. This water is captured and containerized. All captured water is off-loaded at GW-11 for onsite treatment. Following the purging of the sample port, a "water quality" sample was collected for analysis of Perchlorate, Total Chromium, pH, and TDS. Envirogen also recorded the "*field*" temperature, pH, and conductivity as well as the pumping water level. The "*field*" parameters are provided in Table 1.

4.2 Monitoring Wells

Monitoring wells were purged before sampling to assure that each sample was collected from fresh formation water.

Seventy-nine (79) wells were purged and sampled, using the 12 volt submersible pump connected to dedicated tubing in each well. Two (2) wells, M-99 and ART-6 were sampled with a disposable bailer. One (1) well M-38 was sampled with a dedicated bailer. M-99 was not purged due to location and/or water column level but samples were collected. Hand bailing was done as a result of only needing to purge less than 3 gallons of water, if there was an insufficient amount of water in the well casing to use a pump or due to the location of the well.

Samples for both the interceptor and monitoring wells were collected in appropriate containers supplied by TestAmerica and analyzed for the specific required analysis of the well. The bottles were filled with minimal aeration, using laminar flow.

The samples were labeled, packaged, stored, and transported using the procedures outlined in the work plan for well samples. .

4.3 Problems Encountered

This quarter the sampling event was delayed due to the expectancy of a new peristaltic pump arriving to sample wells. The pump never arrived but a similar pump was borrowed and found that this particular method was not going to work due to the DTW in the wells in the Sampling

Plan. New tubing was dedicated to each well and the submersible pump was used to purge and extract samples. Seven wells were left when the tubing ran out and had to be ordered.

4.4 Equipment Cleaning Procedures

The deionized water is changed each morning so the rinsing water is fresh. Non-dedicated sampling equipment has been replaced by dedicated tubing in each well. Conductivity/pH meter probe was thoroughly rinsed with de-ionized water after each sample was analyzed. Pumping equipment was washed with DI water containing Liquinox and then purged with deionized water to flush and clean before leaving to sample at the next location.

5.0 QUALITY CONTROL

Quality control (QC) procedures include collection and analysis of QC duplicate samples, equipment and field blanks. The analytical laboratory is also required to meet specific QA/QC requirements for surrogate recovery, MS/MSD recovery and RPDs, and LCS recoveries. Duplicate EC readings were conducted at one well each day to insure the accuracy of the Hanna field probe.

5.1 QC Duplicate Samples

QC duplicate samples were collected during the sampling event to evaluate the precision and accuracy of analytical data. The QC duplicates were collected, packaged, and transported in the same manner as the primary sample, but assigned a different identification number.

Four (4) duplicates were collected from the wells, representing at least 5 percent of the samples collected. The duplicate samples were collected from the following wells M-23, M-131, M-38 and M-12A. They were analyzed for the same parameters as the primary samples. TestAmerica was not informed of the identity of these "blind" samples.

5.2 Equipment Blanks

Three equipment blanks were taken this quarter. The equipment blanks were collected on November25, December 4 and December 5, 2014. One set consisting of three (3) bottles, CLO4, pH, TDS, CR and CRVI)was collected for two days and one (1) bottle, CLO4, for the Monthly/Quarterly sampling for a total of seven (7) bottles. This was done to evaluate the adequacy of cleaning procedures used by field personnel during this sampling event.

5.3 Field Blank

One field blank sample was collected on December 3, 2014. One set of three bottles were sent to the laboratory for analysis to evaluate the integrity of the de-ionized water used to clean and purge the sampling equipment.

6.0 ANALYTICAL PROCEDURES

The following designates the parameter, analytical method and method reporting limits for groundwater. Some of the following analysis may not have been performed for this reporting period.

PARAMETER	ANALYTICAL METHOD	MRL
CLO4	Method 314.0	4.0 µg/L
Total Chromium	Method 200.7	0.01 mg/L
Hexavalent Chromium (CRVI)	Method 218.6 ORGFM	0.005 mg/L,
pH	Method 150.1	.01 units
TDS	Method 2540C Calcd	10 mg/L

PARAMETER	ANALYTICAL METHOD	MRL
Chloride	Method 300 ORGFM 28D	80.0 mg/L
Iron (ICAP)	Method 200.7	0.005 mg/L
Manganese (ICAP/)	Method 200.7	100 µg/L
Sodium (ICAP)	Method 200.7	5 mg/L

Phenols, Total	Method 420.1, 420	.010 mg/L
Sulfate	Method 300 ORGFM 28D	80 mg/L
Total Organic Carbon, TOC	Method 5310C	unknown
Total Organic Halogen, TOX	Method 9020B - 9020	unknown
Boron	Method 200.7	.10 mg/L
Conductance	Method 2510B - 2510	2 µohms/cm
Ammonia Nitrogen	Method 300 ORGFM	0.050 mg/L
Nitrate Nitrogen	Method 300 ORGFM	2.0 mg/L
Copper	Method 300 ORGFM	2.0 µg/L
Chlorate	Method 300.1B 28D	

6.1 Field Equipment Calibration

Prior to the start of each day's events, field laboratory equipment was calibrated. A Hanna HI 98130 water proof pH, EC/TDS and temperature field probe was calibrated and measurements recorded on daily laboratory calibration maintenance forms, which have been provided. Each day a duplicate EC reading was taken at random wells to ensure the calibration of the meter was holding. The duplicate EC readings were taken from wells PC-62, ARP-4A, I-E, M-131, PC-72, M-95, M-10, M-73 and M-11.

SUMMARY RESULTS

7.1 Groundwater Level Soundings

A summary of water level soundings collected for the interceptor and monitoring wells are presented in Table 1.

Pumping water level in interceptors wells. (Measured in feet from below the top of casing.)

LOW	**HIGH**
44.42 (I-U)	21.17 (I-Z)

Static water level monitoring wells. (Measured in feet from below the top of casing.)

LOW	**HIGH**
50.94 (M-10)	4.26 (PC-97)

7.2 Summary of Field Activities

7.2.1 Interceptor Wells

CLO4, Cr, TDS, pH thirty (30) interceptor wells

7.2.2 Monitoring Wells

Eighty- Four (84) Monitoring wells sampled for sets that may have included: pH, TDS, CLO4, CR, and CRVI

7.2.3 QC Duplicate Samples (Measured for the same analyses as the primary samples.)

M-95, M-12A (Measured for pH, CR, CRVI, CLO4, TDS)

PC-130, M-135, M-68 (Measured for Total Cr., pH, CLO4 and TDS)

7.2.4 Equipment Blanks

Two (2) equipment blanks were analyzed for CLO4, Total Cr., Hex Cr., pH, and TDS.

One (1) equipment blank was analyzed for CLO4 only.

7.2.5 Field Blank

One (1) field blank was analyzed for CLO4, Total Cr., Hex Cr., pH and TDS.

Weather	cool to cold
Total # of wells visited	168
Total water samples collected	118
Total Wells measured DTW only	29
Total Duplicate Samples (5%)	5
Total Equipment Blanks	3
Total Field Blanks	1
Total Wells hand bailed	3
Total Wells considered DRY	4
Total Wells not accessible	2
Total Wells damaged	2
Total wells not found	0

ENVIROGEN
TECHNOLOGIES

Table of Well Gauging Data

This Section Contains:

- Field Sign - In Log
- Daily Maintenance & Calibration Log
- Table 1 Well Inventory
- Chain-of-Custody & Bottle Order Forms

ENVIROGEN QUARTERLY SAMPLING SIGN IN SHEET

DATE	TIME	COMPANY	SIGNATURE	PRINT NAME
12-1-14	500	Envirogen	Michele Brown	Michele Brown
12-1-14	0600	Envirogen		Chris Cabrera
12-2-14	0600	ETI	Michele Brown	Michele Brown
12-3-14	0500	Envirogen		Chris Cabrera
12-3-14	0500	ETI	Michele Brown	Michele Brown
12.4.14	0500	ETI	Michele Brown	Michele Brown
12-4-14	0500	ETI		Chris Cabrera
12-4-14	1000	Tetra Tech		BECKI DANO
12-5-14	0530	ETI	Michele Brown	Michele Brown
12-5-14	0600	ETI		Chris Cabrera
12-8-14	0608	Envirogen	T. W	Tobin Walker
12-8-14	0500	Envirogen	Michele Brown	Michele Brown
12-9-14	0600	Envirogen	Michele Brown	Michele Brown
12-9-14	0600	Envirogen	T. W	Tobin Walker
12-18-14	0930	ETI	Michele Brown	Michele Brown

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 11-3-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.01	2) 7.98	0700 / MB
Buffer Temperature	3) 20.2°c	3) 20.6°c	
Changed Buffers yes X Please Check			

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2)	
Calibration Value	3)	
Standard Temp.	4)	
Changed Standards yes ______ Please Check		

Dupliate EC Redaing Well # __________

1st Reading

EC__________ Temp.__________

2nd Reading

EC__________ Temp.__________

All equipment was rinsed and purged with Deionized water after each use.

Date 11-3-14 Verified MB

No EC readings Taken on this date.

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 11-24-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.02	2) 7.98	0705/MB
Buffer Temperature	3) 18.0°c	3) 18.1°c	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1119	0703/MB
Calibration Value	3) 1286	
Standard Temp.	4) 182°c	

Changed Standards
yes ✓
Please Check

Dupliate EC Redaing Well # PC-62

1st Reading

EC 2.71 mS/cm Temp. 20.8°c

2nd Reading

EC 2.71 mS/cm Temp. 20.7°c

All equipment was rinsed and purged with Deionized water after each use.

Date 11-24-14 Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 11-25-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.02	2) 7.99	0633/MB
Buffer Temperature	3) 18.2	3) 18.5	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1119	0630/MB
Calibration Value	3) 1287	
Standard Temp.	4) 18.8°C	

Changed Standards
yes X
Please Check

Dupliate EC Redaing Well # ARP-4A

1st Reading

EC 5.75 mS/cm Temp. 23.8°C

2nd Reading

EC 5.75 mS/cm Temp. 23.7°C

All equipment was rinsed and purged with Deionized water after each use.

Date 11-25-14 Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 12-1-14

HANNA FIELD pH METER

Known Values Calibration Value Buffer Temperature	1) 7.0 2) 702 3) 21.2°C	1) 8.0 2) 7.98 3) 21.9°C	TIME/ANALYST 0635 / MB
Changed Buffers yes X Please Check			

HANNA FIELD EC METER

Known Values Temp. Comp. Value Calibration Value Standard Temp.	1) 1288 2) 1215 3) 1286 4) 22.3°C	TIME/ANALYST 0630/MB
Changed Standards yes X Please Check		

Dupliate EC Redaing Well # I-E

1st Reading

EC 9.61 mS/cm Temp. 26.7°C

2nd Reading

EC 9.64 mS/cm Temp. 26.8°C

All equipment was rinsed and purged with Deionized water after each use.

Date 12-1-14 Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 12-2-14

HANNA FIELD pH METER

Known Values Calibration Value Buffer Temperature	1) 7.0 2) 7.02 3) 20.1	1) 8.0 2) 8.01 3) 20.8	TIME/ANALYST 0845/MB
	Changed Buffers yes X Please Check		

HANNA FIELD EC METER

Known Values Temp. Comp. Value Calibration Value Standard Temp.	1) 1288 2) 1191 3) 1288 4) 21.0	TIME/ANALYST 0840/MB
	Changed Standards yes X Please Check	

Dupliate EC Redaing Well # ____________

1st Reading

EC__________ Temp.__________

2nd Reading

EC__________ Temp.__________

All equipment was rinsed and purged with Deionized water after each use.

Date 12-2-14 Verified MB

No Dup EC for today sampled for 1 hr

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 12-3-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.02	2) 7.98	0010/MB
Buffer Temperature	3) 21.3	3) 21.5	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1239	0507/MB
Calibration Value	3) 1289	
Standard Temp.	4) 22.7	

Changed Standards
yes X
Please Check

Dupliate EC Redaing

Well # M-131

1st Reading

EC 4.93 mS/cm Temp. 23.2°C

2nd Reading

EC 4.94 mS/cm Temp. 23.1°C

All equipment was rinsed and purged with Deionized water after each use.

Date 12-3-14

Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 12-4-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.02	2) 7.98	500 / MB
Buffer Temperature	3) 21.1 °c	3) 21.5 °c	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1215	457 / MB
Calibration Value	3) 1288	
Standard Temp.	4) 21.9	

Changed Standards
yes X
Please Check

Dupliate EC Redaing Well # PC-72

1st Reading		2nd Reading	
EC 8.59 mS/cm	Temp. 24.5 °c	EC 8.65 mS/cm	Temp. 24.6 °c

All equipment was rinsed and purged with Deionized water after each use.

Date 12-4-14 Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 12-5-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.02	2) 7.99	0617/MB
Buffer Temperature	3) 21.0	3) 21.4	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1215	0615/MB
Calibration Value	3) 1288	
Standard Temp.	4) 21.9	

Changed Standards
yes X
Please Check

Dupliate EC Redaing Well # M-95

1st Reading
EC 7.27 mS/cm Temp. 25.4°C

2nd Reading
EC 7.32 mS/cm Temp. 25.5°C

All equipment was rinsed and purged with Deionized water after each use.

Date 12-5-14 Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 12-8-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.02	2) 7.98	0610 / MB
Buffer Temperature	3) 21.1	3) 21.4	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1191	0605 / MB
Calibration Value	3) 1269	
Standard Temp.	4) 22.1oC	

Changed Standards
yes X
Please Check

Dupliate EC Redaing

Well # M-10

1st Reading

EC 3.51 mS/cm Temp. 22.7°C

2nd Reading

EC 3.44 mS/cm Temp. 22.6°C

All equipment was rinsed and purged with Deionized water after each use.

Date 12-8-14

Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 12-9-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.02	2) 8.01	0717/MB
Buffer Temperature	3) 21.1	3) 21.6	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1215	0715/MB
Calibration Value	3) 1288	
Standard Temp.	4) 21.9	

Changed Standards
yes X
Please Check

Dupliate EC Redaing

Well # M-73

1st Reading

EC 8.67 mS/cm Temp. 23.9°c

2nd Reading

EC 8.70 mS/cm Temp. 23.8 °c

All equipment was rinsed and purged with Deionized water after each use.

Date 12-9-14

Verified MB

ENVIROGEN TECHNOLOGIES

DAILY MAINTENANCE AND CALIBRATION RECORD

DATE: 12-18-14

HANNA FIELD pH METER

Known Values	1) 7.0	1) 8.0	TIME/ANALYST
Calibration Value	2) 7.01	2) 7.98	0858/MB
Buffer Temperature	3) 19.5	3) 20.3	

Changed Buffers
yes X
Please Check

HANNA FIELD EC METER

Known Values	1) 1288	TIME/ANALYST
Temp. Comp. Value	2) 1191	0855/MB
Calibration Value	3) 1288	
Standard Temp.	4) 20.5	

Changed Standards
yes X
Please Check

Dupliate EC Redaing   Well # M-11

1st Reading
EC 3.25 mS/cm   Temp. 21.9°C

2nd Reading
EC 3.27 mS/cm   Temp. 22.1°C

All equipment was rinsed and purged with Deionized water after each use.

Date 12-18-14   Verified MB

TABLE 1

Well Inventory for Groundwater Sampling

NERT Project, Henderson, Nevada

Summary of Field Data for: 4th Quarter Groundwater Monitoring, Nov. 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
ARP-1	44.2	1613.32	23.62		**1589.70**	7.32	7.71	11/25/2014	13:16		pH, TDS, Cr, ClO_4
ARP-2A	54	1614.18	25.17		**1589.01**	7.35	7.84	11/25/2014	11:54		pH, TDS, Cr, ClO_4
ARP-3A	41	1614.67	26.62		**1588.05**	7.28	11.60	11/25/2014	11:39		pH, TDS, Cr, ClO_4
ARP-4A	33	1615.47	28.48		**1586.99**	7.15	5.75	11/25/2014	10:19		pH, TDS, Cr, ClO_4
ARP-5A	38	1616.10	31.52		**1584.58**	7.36	5.75	11/25/2014	10:05		pH, TDS, Cr, ClO_4
ARP-6B	43	1615.56	31.01		**1584.55**	7.16	9.19	11/25/2014	9:47		pH, TDS, Cr, ClO_4
ARP-7	39.2	1613.20	29.11		**1584.09**	6.95	9.72	11/25/2014	9:28		pH, TDS, Cr, ClO_4
ART-1	56	1614.47	36.02		**1578.45**	7.43		11/5/2014	10:28	pumping	pH, TDS, Cr, ClO_4
ART-1A	56	1614.40	23.73		**1590.67**			11/5/2014	10:27		DTW Only
ART-2	56	1617.10	27.59		**1589.51**	7.17		11/5/2014	10:32	pumping	pH, TDS, Cr, ClO_4
ART-2A	58	1616.81	26.53		**1590.28**			11/5/2014	10:31		DTW Only
ART-3	47	1617.93	30.61		**1587.32**			11/5/2014	10:43		DTW Only
ART-3A	55	1617.60	35.76		**1581.84**	7.12		11/5/2014	10:41	pumping	pH, TDS, Cr, ClO_4
ART-4	46	1617.39	38.21		**1579.18**	7.32		11/5/2014	11:02	pumping	pH, TDS, Cr, ClO_4
ART-4A	46	1617.46	28.85		**1588.61**			11/5/2014	11:03		DTW Only
ART-6	36	1615.19	29.05		**1586.14**	7.41		11/5/2014	11:15		pH, TDS, Cr, ClO_4
ART-7	38.9	1615.37			**1615.37**					well capped	DTW Only
ART-7A	40	1614.78	29.71		**1585.07**			11/5/2014	11:20		DTW Only
ART-7B	50	1619.62	36.73		**1582.89**	7.36		11/5/2014	11:22	pumping	pH, TDS, Cr, ClO_4

Signature Michele Brown

Print Michele Brown

TABLE 1
Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 4th Quarter Groundwater Monitoring, Nov. 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
ART-8	50.5	1617.66	32.18		**1585.48**	7.22		11/5/2014	10:34	pumping	pH, TDS, Cr, ClO_4
ART-8A	54	1617.10	27.62		**1589.48**			11/5/2014	10:37		DTW Only
ART-9	43	1614.90	31.4		**1583.50**	7.38		11/5/2014	11:28	pumping	pH, TDS, Cr, ClO_4
L-635	45.33	1620.94			**1620.94**			11/24/2014	13:25	no access	pH, TDS, Cr, ClO_4
L-637	39.5	1621.60			**1621.60**			11/24/2014	13:25	no access	pH, TDS, Cr, ClO_4
M-2A	47.57	1781.16				Sampled in the 2nd Quarter only					pH, TDS, Cr, ClO_4
M-5A	50.00	1751.80				Sampled in the 2nd and 3rd quarters only					(pH / SC / TOC / TOX) x 4 / CLO4 / CR / TDS
M-6A	46.00	1733.19				Sampled in the 2nd and 3rd quarters only					(pH / SC / TOC / TOX) x 4 / CLO4 / CR / TDS
M-7B	55.00	1732.83				Sampled in the 2nd and 3rd quarters only					(pH / SC / TOC / TOX) x 4 / CLO4 / CR / TDS
M-10	69.45	1836.21	50.94		**1785.27**	7.11	3.51	12/8/2014	10:40		pH / CR6 / Cr / ClO_4 /TDS /+NPDES list
M-11	58.00	1815.53	44.21		**1771.32**	7.81	3.25	12/18/2014	11:50		pH / TDS / Cr / Cr6 / Cl04
M-12A	50.00	1812.76	42.53		**1770.23**	7.95	8.36	12/18/2014	13:21		pH / TDS / Cr / Cr6 / Cl04
M-13	54.76	1814.89			**1814.89**	Sampled in the 2nd Quarter only					pH, TDS, Cr, ClO_4
M-14A	42.40	1760.93	32.78		**1728.15**	7.52	4.49	12/8/2014	6:23		pH, TDS, Cr, ClO_4
M-19	41.20	1766.77	34.59		**1732.18**	7.41	6.52	12/18/2014	11:08		pH, TDS, Cr, ClO_4
M-21	44.74	1792.07			**1792.07**	Sampled in the 2nd Quarter only					pH, TDS, Cr, ClO_4
M-22A	36.92	1759.46	29.99		**1729.47**	7.25	11:49	12/8/2014	7:08		pH, TDS, Cr, ClO_4
M-23	44.47	1720.35	34.47		**1685.88**	7.32	5.45	12/5/2014	12:02		pH, TDS, Cr, ClO_4

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Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 4th Quarter Groundwater Monitoring, Nov. 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
M-25	41.47	1759.93	33.50		**1726.43**	7.21	9.06	12/8/2014	6:50		pH, TDS, Cr, ClO_4
M-31A	55.00	1796.87	46.33		**1750.54**	7.43	6.71	12/9/2014	8:21		pH, TDS, Cr, ClO_4
M-33	46.78	1800.29			**1800.29**	Sampled in the 2nd Quarter only					pH, TDS, Cr, ClO_4
M-35	39.70	1772.78	32.51		**1740.27**	7.17	6.48	12/18/2014	10:46		pH, TDS, Cr, ClO_4
M-36	37.85	1759.82			**1759.82**			12/8/2014	12:59	Destroyed	pH / Cr / Cr^6 / ClO_4 / TDS
M-37	37.18	1761.06	31.87		**1729.19**	6.95	7.34	12/5/2014	13:04		pH / Cr / Cr^6 / ClO_4 / TDS
M-38	36.82	1759.73	31.32		**1728.41**	7.15	11.61	12/8/2014	13:01		pH / Cr / Cr^6 / ClO_4 / TDS
M-44	37.65	1698.31	24.68		**1673.63**	7.47	10.01	12/4/2014	11:40		pH / TDS / Cr / Cr6 / Cl04
M-48A	40	1718.36	30.32		**1688.04**	7.38	6.41	12/4/2014	11:08		pH, TDS, Cr, ClO_4
M-52	47.38	1801.92	41.73		**1760.19**	7.57	5.63	12/9/2014	9:21		pH, TDS, Cr, ClO_4
M-55	45.00	1750.88	29.55		**1721.33**			12/2/2014	6:42		DTW Only
M-56	40.00	1750.83	31.63		**1719.20**			12/2/2014	6:48		DTW Only
M-57A	42.40	1753.44	29.78		**1723.66**	7.52	4.85	12/5/2014	12:40		pH, TDS, Cr, ClO_4
M-58	45.00	1751.25	29.47		**1721.78**			12/2/2014	6:56		DTW Only
M-60	43.00	1750.94	29.94		**1721.00**			12/2/2014	6:50		DTW Only
M-64	38.00	1749.76	29.37		**1720.39**	7.49	6.99	12/3/2014	11:05		pH, TDS, Cr, ClO_4
M-65	40.00	1753.91	32.97		**1720.94**	7.25	13.71	12/3/2014	11:51		pH, TDS, Cr, ClO_4
M-66	43.00	1754.24	30.77		**1723.47**	7.02	14.87	12/3/2014	12:17		pH, TDS, Cr, ClO_4

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M-67	38.00	1745.91	20.63		**1725.28**	7.20	6.72	12/8/2014	12:14		pH, TDS, Cr, ClO_4
M-68	41.00	1750.23	25.21		**1725.02**	7.20	7.21	12/8/2014	12:34		pH, TDS, Cr, ClO_4
M-69	40.00	1749.75	33.82		**1715.93**	7.44	5.19	12/9/2014	7:32		pH, TDS, Cr, ClO_4
M-70	41.00	1748.25	35.31		**1712.94**	7.31	8.22	12/8/2014	7:47		pH, TDS, Cr, ClO_4
M-71	43.00	1747.04	35.62		**1711.42**	7.12	8.05	12/8/2014	8:05		pH, TDS, Cr, ClO_4
M-72	36.00	1746.49	31.94		**1714.55**	6.92	11.85	12/8/2014	8:25		pH, TDS, Cr, ClO_4
M-73	36.00	1741.14	28.12		**1713.02**	7.32	8.67	12/9/2014	9:55		pH, TDS, Cr, ClO_4
M-74	39.00	1744.38	27.21		**1717.17**	7.30	7.14	12/18/2014	10:24		pH, TDS, Cr, ClO_4
M-75	53.90	1784.21	42.53		**1741.68**			12/2/2014	7:05		DTW ONLY
M-76	54.60	1785.22	39.40		**1745.82**			12/2/2014	7:07		DTW ONLY
M-77	47.20	1799.61	39.99		**1759.62**			12/2/2014	7:01		DTW ONLY
M-78	43.60	1751.50	32.51		**1718.99**			12/2/2014	6:45		DTW ONLY
M-79	37.60	1742.53	31.48		**1711.05**	7.46	6.11	12/3/2014	12:39		pH / TDS / Cr / ClO_4
M-80	43.70	1746.04	36.03		**1710.01**	7.51	4.34	12/18/2014	9:36		TDS / Cr / ClO_4
M-81A	41.60	1744.16	35.68		**1708.48**	7.38	5.56	12/18/2014	9:00		TDS / Cr / ClO_4
M-83	42.50	1742.77	31.59		**1711.18**	7.16	4.72	11/24/2014	7:54		pH, TDS, Cr, ClO_4
M-92	48.50	1800.76	36.02		**1764.74**			12/2/2014	10:17		DTW ONLY
M-93	49.00	1797.54	35.22		**1762.32**			12/2/2014	10:20		DTW ONLY

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WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
M-95	30.00	1694.09	17.54		**1676.55**	7.40	7.27	12/5/2014	11:12		pH / TDS / Cr / Cr6 / Cl04
M-96	16.90	1693.52			**1693.52**			12/5/2014	11:00	Dry	pH / TDS / Cr / Cr6 / Cl04
M-97	52.50	1800.85	39.87		**1760.98**			12/2/2014	10:18		DTW ONLY
M-98	33.40	1731.90			**1731.90**			12/5/2014	12:28	Dry	pH, TDS, Cr, ClO_4
M-99	35.59	1730.74	33.56		**1697.18**	7.77	4.87	12/8/2014	9:33		pH, TDS, Cr, ClO_4
M-100	33.81	1730.93			**1730.93**			12/2/2014	7:28	Dry	pH / TDS / Cr / Cr6 / Cl04
M-101	32.15	1730.81			**1730.81**			12/2/2014	7:27	Dry	pH, TDS, Cr, ClO_4
M-115	47.50	1787.64	38.02		**1749.62**			12/2/2014	7:09		DTW ONLY
M-131	39.00	1754.13	33.55		**1720.58**	7.66	4.93	12/3/2014	12:59		pH, TDS, Cr, ClO_4
M-135	39.00	1751.85	34.64		**1717.21**	7.58	4.83	12/9/2014	7:58		pH, TDS, Cr, ClO_4
M-166	32.00	1751.09	29.74		**1721.35**			12/2/2014	6:35		DTW Only
M-167	30.00	1749.95	28.68		**1721.27**			12/2/2014	6:37		DTW Only
M-168	35.00	1748.46	26.26		**1722.20**			12/2/2014	6:39		DTW Only
M-169	35.00	1750.22	28.54		**1721.68**			12/2/2014	6:40		DTW Only
M-170	35.00	1750.66	29.76		**1720.90**			12/2/2014	6:43		DTW Only
M-172	37.00	1750.58	33.42		**1717.16**			12/2/2014	6:47		DTW Only
M-173	40.00	1749.88	28.56		**1721.32**			12/2/2014	6:53		DTW Only
M-174	28.00	1742.29	19.33		**1722.96**			12/2/2014	7:13		DTW Only

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Well Inventory for Groundwater Sampling
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M-175	29.00	1742.74	19.08		**1723.66**			12/2/2014	7:14		DTW Only
M-176	30.00	1745.35	21.56		**1723.79**			12/2/2014	7:18		DTW Only
M-177	30.00	1743.23	20.46		**1722.77**			12/2/2014	7:22		DTW Only
MW-K4	50	1614.96	27.41		**1587.55**	7.17	9.36	11/25/2014	11:18		pH, TDS, Cr, ClO_4
MW-K5	44	1598.87	29.28		**1569.59**	6.96	8.14	11/25/2014	8:10		pH, TDS, Cr, ClO_4
PC-18	52	1618.39	27.89		**1590.50**	7.10	13.79	11/24/2014	12:58		pH, TDS, Cr, ClO_4
PC-53	33	1595.17	26.29		**1568.88**	7.02	5.40	11/25/2014	7:50		pH, TDS, Cr, ClO_4
PC-55	54.9	1618.46	26.99		**1591.47**	7.34	10.51	11/25/2014	13:33		pH, TDS, Cr, ClO_4
PC-56	55	1568.25	20.56		**1547.69**	7.29	6.13	11/24/2014	10:23		pH, TDS, Cr, ClO_4
PC-58	33	1,567.01	21.42		**1545.59**	7.34	4.79	11/24/2014	10:00		pH, TDS, Cr, ClO_4
PC-59	35	1567.92	19.27		**1548.65**	7.35	3.94	11/24/2014	11:09		pH, TDS, Cr, ClO_4
PC-60	40.0	1568.38	19.78		**1548.60**	7.44	3.13	11/24/2014	10:48		pH, TDS, Cr, ClO_4
PC-62	38.0	1567.83	18.54		**1549.29**	7.34	2.71	11/24/2014	11:30		pH, TDS, Cr, ClO_4
PC-68	55.3	1566.97	18.59		**1548.38**	7.35	2.53	11/24/2014	11:56		pH, TDS, Cr, ClO_4
PC-86	28.0	1553.85	12.01		**1541.84**	7.35	2.73	11/24/2014	12:25		pH, TDS, Cr, ClO_4
PC-90	15.0	1550.46	5.54		**1544.92**	7.41	3.68	11/24/2014	9:11		pH, TDS, Cr, ClO_4
PC-91	37.0	1552.33	11.08		**1541.25**	7.34	3.84	11/24/2014	9:34		pH, TDS, Cr, ClO_4
PC-92	22.0	1552.05				Sampled in the 2nd Quarter only					pH, TDS, Cr, ClO_4

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PC-94	20.0	1548.95	12.07		**1536.88**	7.11	8.40	12/5/2014	7:19		pH, TDS, Cr, ClO_4
PC-95	35.0	1550.62			**1550.62**					Destroyed	pH, TDS, Cr, ClO_4
PC-97	33.5	1548.53	4.26		**1544.27**	7.34	3.31	11/24/2014	8:46		pH, TDS, Cr, ClO_4
PC-98R	40.5	1593.35	22.18		**1571.17**	7.13	7.90	11=-25-14	12:34		pH, TDS, Cr, ClO_4
PC-99R2/R3	55.3	1552.48	15.98		**1536.50**	7.40		11/4/2014	9:10	pumping	pH, TDS, Cr, ClO_4
PC-101R	50.5	1618.04	28.83		**1589.21**	6.98	14.47	11/25/2014	10:48		pH, TDS, Cr, ClO_4
PC-103	29.5	1599.49	22.71		**1576.78**	7.27	5.69	11/25/2014	12:19		pH, TDS, Cr, ClO_4
PC-115R	55.5	1554.71	11.31		**1543.40**	7.34		11/4/2014	9:13	pumping	pH, TDS, Cr, ClO_4
PC-116R	55.5	1552.10	13.22			7.30		11/4/2014	9:05	pumping	pH, TDS, Cr, ClO_4
PC-117	53.0	1552.26	10.85		**1541.41**	7.28		11/4/2014	9:03	pumping	pH, TDS, Cr, ClO_4
PC-118	51.0	1554.53	7.92		**1546.61**	7.42		11/4/2014	9:15	pumping	pH, TDS, Cr, ClO_4
PC-119	47.0	1554.66	6.24		**1548.42**	7.41		11/4/2014	10:06	pumping	pH, TDS, Cr, ClO_4
PC-120	47.0	1554.64	4.37		**1550.27**	7.32		11/4/2014	10:03		pH, TDS, Cr, ClO_4
PC-121	38.5	1554.10	4.32		**1549.78**	7.31		11/4/2014	9:59		pH, TDS, Cr, ClO_4
PC-122	38.0	1618.02			**1618.02**			11/25/2014		hit dirt at ~33.5 Feet	pH, TDS, Cr, ClO_4
PC-123	34.70	1626.44	22.43		**1604.01**	7.47	7.77	12/4/2014	5:44		pH, TDS, Cr, ClO_4
PC-124	34.60	1635.73	25.08		**1610.65**	7.36	11.53	12/4/2014	6:09		pH, TDS, Cr, ClO_4
PC-125	33.50	1635.06	22.94		**1612.12**	7.38	10.67	12/4/2014	6:29		pH, TDS, Cr, ClO_4

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PC-126	34.30	1634.33	21.79		**1612.54**	7.46	9.22	12/4/2014	6:49		pH, TDS, Cr, ClO_4
PC-127	34.70	1632.42	18.27		**1614.15**	7.51	7.19	12/4/2014	7:12		pH, TDS, Cr, ClO_4
PC-128	34.70	1633.36	18.26		**1615.10**	7.53	7.29	12/4/2014	7:41		pH, TDS, Cr, ClO_4
PC-129	37.70	1633.99	18.46		**1615.53**	7.34	7.8	12/4/2014	8:06		pH, TDS, Cr, ClO_4
PC-130	49.70	1633.21	19.07		**1614.14**	7.38	8.23	12/4/2014	8:32		pH, TDS, Cr, ClO_4
PC-131	39.40	1633.58	11.20		**1622.38**	7.22	13.68	12/4/2014	9:06		pH, TDS, Cr, ClO_4
PC-132	39.70	1634.84	9.92		**1624.92**	7.16	13.42	12/4/2014	9:40		pH, TDS, Cr, ClO_4
PC-133	40.2	1553.00	7.06		**1545.94**	7.35		11/4/2014	8:53	pumping	pH, TDS, Cr, ClO_4
PC-135A	50.8	1618.58	28.91		**1589.67**	7.11	13.39	12/5/2014	10:15		pH, TDS, Cr, ClO_4
PC-136	40.3	1618.04	32.52		**1585.52**	7.26	7.34	12/5/2014	9:50		pH, TDS, Cr, ClO_4
PC-144	39.7	1618.63	30.21		**1588.42**	7.19	7.75	11/25/2014	10:34		pH, TDS, Cr, ClO_4
PC-148	50.2	1617.96	27.64		**1590.32**	7.35	9.32	12/5/2014	7:49		pH, TDS, Cr, ClO_4
PC-149	50	1618.93	29.21		**1589.72**	7.44	5.44	12/5/2014	8:45		pH, TDS, Cr, ClO_4
PC-150	45.7	1619.09	28.82		**1590.27**	7.15		11/3/2014	11:46	pumping	pH, TDS, Cr, ClO_4
INTERCEPTOR WELLS											
I-AA	46.00	1753.93	44.08		**1709.85**	7.34	4.70	12/1/2014	11:36		pH, TDS, Cr, ClO_4
I-AB	52.0	1753.89	33.28		**1720.61**	7.34	5.08	12/1/2014	11:31		pH, TDS, Cr, ClO_4
I-AC	50	1752.76	28.23		**1724.53**	6.51	18.66	12/2/2014	9:35		pH, TDS, Cr, ClO_4
I-AD	50	1755.39	28.73		**1726.66**	7.00	7.54	12/2/2014	9:42		pH, TDS, Cr, ClO_4

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I-AR	45.00	1758.35	43.09		**1715.26**	7.24	7.97	12/1/2014	11:42		pH, TDS, Cr, ClO_4
I-B	45.70	1752.87	43.67		**1709.20**	7.22	5.92	12/1/2014	11:25		pH, TDS, Cr, ClO_4
I-C	43.80	1752.77	36.16		**1716.61**	7.21	8.58	12/1/2014	11:04		pH, TDS, Cr, ClO_4
I-D	47.70	1752.67	43.09		**1709.58**	7.36	9.19	12/1/2014	10:59		pH, TDS, Cr, ClO_4
I-E	46.70	1752.36	43.77		**1708.59**	6.91	9.61	12/1/2014	10:44		pH, TDS, Cr, ClO_4
I-F	45.80	1749.70	41.05		**1708.65**	7.10	11.99	12/1/2014	10:29		pH, TDS, Cr, ClO_4
I-G	42.60	1752.50	41.38		**1711.12**	6.87	14.58	12/1/2014	10:16		pH, TDS, Cr, ClO_4
I-H	46.50	1753.21	44.03		**1709.18**	6.92	13.43	12/1/2014	9:57		pH, TDS, Cr, ClO_4
I-I	44.20	1745.50	22.72		**1722.78**	7.30	8.81	12/2/2014	9:01		pH, TDS, Cr, ClO_4
I-J	44.50	1750.09	27.13		**1722.96**	7.46	6.97	12/2/2014	9:20		pH, TDS, Cr, ClO_4
I-K	40.60	1746.04	29.49		**1716.55**	7.29	7.24	12/2/2014	9:28		pH, TDS, Cr, ClO_4
I-L	43.40	1751.69	40.06		**1711.63**	7.38	7.63	12/1/2014	11:10		pH, TDS, Cr, ClO_4
I-M	43.70	1752.90	36.63		**1716.27**	7.03	9.99	12/1/2014	10:49		pH, TDS, Cr, ClO_4
I-N	41.70	1751.45	33.82		**1717.63**	7.22	10.14	12/1/2014	10:39		pH, TDS, Cr, ClO_4
I-O	43.80	1752.79	37.55		**1715.24**	7.42	9.14	12/1/2014	9:40		pH, TDS, Cr, ClO_4
I-P	47.80	1751.66	41.05		**1710.61**	7.22	10.78	12/1/2014	9:53		pH, TDS, Cr, ClO_4
I-Q	43.80	1753.11	40.53		**1712.58**	6.84	14.20	12/1/2014	10:22		pH, TDS, Cr, ClO_4
I-R	45.30	1751.35	42.13		**1709.22**	7.26	7.56	12/1/2014	11:20		pH, TDS, Cr, ClO_4

Signature Michele Brown
Print Michele Brown

TABLE 1
Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 4th Quarter Groundwater Monitoring, Nov. 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
I-S	47.70	1750.03	28.99		**1721.04**	7.34	7.52	12/1/2014	11:07		pH, TDS, Cr, ClO_4
I-T	47.80	1751.66	43.24		**1708.42**	6.80	14.42	12/1/2014	10:09		pH, TDS, Cr, ClO_4
I-U	47.60	1752.17	44.42		**1707.75**	6.96	14.32	12/1/2014	10:05		pH, TDS, Cr, ClO_4
I-V	47.70	1752.13	31.31		**1720.82**	7.01	9.15	12/2/2014	8:52		pH, TDS, Cr, ClO_4
I-W	50.00	1751.50	31.59		**1719.91**	7.11	9.60	12/1/2014	9:48		pH, TDS, Cr, ClO_4
I-X	50.00	1748.60	44.17		**1704.43**	7.16	11.23	12/1/2014	10:34		pH, TDS, Cr, ClO_4
I-Y	50.50	1751.40	40.12		**1711.28**	7.30	7.95	12/1/2014	11:16		pH, TDS, Cr, ClO_4
I-Z	37.00	1743.78	21.17		**1722.61**	7.44	6.95	12/2/2014	9:08		pH, TDS, Cr, ClO_4
OTHER WELLS (OFFSITE)											
PC-37	43.08	1707.72	30.38		**1677.34**	7.39	9.78	12/5/2014	11:37		pH, TDS, Cr, ClO_4
PC-54	34.60	1704.43	24.14		**1680.29**	7.52	6.15	12/4/2014	10:37		pH, TDS, Cr, ClO_4
PC-71	33.23	1698.73	27.57		**1671.16**	7.60	9.51	12/4/2014	12:06		pH, TDS, Cr, ClO_4
PC-72	39.54	1699.43	30.43		**1669.00**	7.60	8.59	12/4/2014	12:28		pH, TDS, Cr, ClO_4
PC-73	49.44	1699.50	31.58		**1667.92**	7.45	9.21	12/4/2014	12:46		pH, TDS, Cr, ClO_4
PIONEER CHEMICAL WELL											
H-28A	51.00	1731.75				Sampled in the 2nd and 3rd quarters only					(pH / SC / TOC / TOX) x 4 / CLO4 / CR / TDS
DUPLICATE SAMPLES											
DUP-1	M-23		34.47			7.32	5.45	12/5/2014	12:02		pH, TDS, Cr, ClO_4
DUP-2	M-131		33.55			7.66	4.93	12/3/2014	12:59		pH, TDS, Cr, ClO_4
DUP-3	M-38		31.32			7.15	11.61	12/8/2014	13:01		pH / TDS / Cr / Cr6 / Cl04

Signature Michele Brown

Print Michele Brown

TABLE 1
Well Inventory for Groundwater Sampling
NERT Project, Henderson, Nevada
Summary of Field Data for: 4th Quarter Groundwater Monitoring, Nov. 2014

WELL #	TOTAL DEPTH (from TOC)	TOP OF CASING ELEVATION (MSL)	DEPTH TO WATER (FEET)	NON-AQUEOUS PHASE LIQUID [1]	GROUNDWATER ELEVATION (FT MSL)	pH	SPECIFIC CONDUCTIVITY (mS/cm)	DATE	TIME	MONITORING QUALIFIER [2]	COMMENTS/Analytical Plan/Temp
DUP-4	M-12A		42.53			7.95	8.36	12/18/2014	13:21		pH / TDS / Cr / Cr6 / Cl04
OTHER SAMPLES COLLECTED											
EB-1								12/4/2014	10:05		pH / TDS / Cr / Cr6 / Cl04
EB-2								12/5/2014	11:53		pH / TDS / Cr / Cr6 / Cl04
FB-1								12/3/2014	12:34		pH / TDS / Cr / Cr6 / Cl04
MEB-1								11/25/2014	11:35		CLO4

NOTES:

ART and PC

Monthly

Signature Michele Brown

Print Michele Brown

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No:
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	1 of 2 COCs
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below 10 DAY			
FAX:	☑ 2 weeks			SDG No.
Project Name: Envirogen- Monthly ART and PC Wells pg 1	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_CALCED- TOTAL DISSOLVED	314.0_LL- PERCHLORATE	SM 4500 pH	200.7 Total Chromium
ART-1 ✓	11-3-14	0817	NORMAL	WATER	3		1	1	1	4
ART-2 ✓		0821	NORMAL	WATER	3		1	1	1	4
ART-3 ✓		0828	NORMAL	WATER	3		1	1	1	4
ART-4 ✓		0832	NORMAL	WATER	3		1	1	1	4
ART-6 ✓		0852	NORMAL	WATER	3		1	1	1	4
ART-7 B ✓		0836	NORMAL	WATER	3		1	1	1	4
ART-8 ✓		0824	NORMAL	WATER	3		1	1	1	4
ART-9 ✓		0841	NORMAL	WATER	3		1	1	1	4
PC-99R2/R3		0729	NORMAL	WATER	3		1	1	1	4
PC-115R ✓		0733	NORMAL	WATER	3		1	1	1	4
PC-116R ✓		0738	NORMAL	WATER	3		1	1	1	4
PC-117 ✓	↓	0749	NORMAL	WATER	3		1	1	1	4

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michele Brown **Date** 11-3-14

Special Instructions/QC Requirements & Comments:

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 11-3-14	Received by:	Company: TA	Date/Time: 11/3/14 1314
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No:
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	PG 2 OF 2 COC's
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ____			
FAX:	☑ 2 weeks			SDG No.
Project Name: Envirogen- Monthly ART and PC Wells pg 2	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_CALCED- TOTAL DISSOLVED SOLIDS	314.0_LL- PERCHLORATE	SM 4500 pH	200.7 Total Chromium
PC-118 ✓	11-3-14	0741	NORMAL	WATER	3		1	1	1	4
PC-119 ✓		0745	NORMAL	WATER	3		1	1	1	4
PC-120 ✓		0758	NORMAL	WATER	3		1	1	1	4
PC-121 ✓		0800	NORMAL	WATER	3		1	1	1	4
PC-133 ✓	↓	0753	NORMAL	WATER	3		1	1	1	4

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michele Brown **Date** 11-3-14

Special Instructions/QC Requirements & Comments:

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 11-3-14/ 1310	Received by:	Company:	Date/Time: 11/3/14 1310
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Irvine
17461 Derian Ave
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Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No:
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	
510 South Fourth Street	Analysis Turnaround Time			Job No
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ________			
FAX:	☑ 2 weeks			SDG No
Project Name: Envirogen- Monthly ARP and PC Wells pg 1	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_Calcd- Total Dissolved Solids	314.0 Perchlorate	SM 4500 pH	200.7 Total Chromium
M-83 ✓	11-24-14	0806	NORMAL	WATER	3		1	1	1	4
PC-97 ✓		0900	NORMAL	WATER	3		1	1	1	4
PC-90 ✓		0926	NORMAL	WATER	3		1	1	1	4
PC-91 ✓		0946	NORMAL	WATER	3		1	1	1	4
PC-58 ✓		1012	NORMAL	WATER	3		1	1	1	4
PC-56 ✓		1040	NORMAL	WATER	3		1	1	1	4
PC-60 ✓		1100	NORMAL	WATER	3		1	1	1	4
PC-59 ✓		1123	NORMAL	WATER	3		1	1	1	4
PC-62 ✓		1141	NORMAL	WATER	3		1	1	1	4
PC-68 ✓		1218	NORMAL	WATER	3		1	1	1	4
PC-86 ✓		1235	NORMAL	WATER	3		1	1	1	4
PC-18 ✓		1315	NORMAL	WATER	3		1	1	1	4

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________

Possible Hazard Identification

☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michelle Brown **Date** 11-24-14

Special Instructions/QC Requirements & Comments:

Relinquished by: Michelle Brown	Company: Envirogen	Date/Time: 11-24-14/1400	Received by:	Company: TA	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	1 OF 2 COCs
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ________			
FAX:	☑ 2 weeks			SDG No.
Project Name: Envirogen- Monthly ARP and PC Wells pg 1	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_Calcd- Total Dissolved Solids	314.0 Perchlorate	SM 4500 pH	200.7 Total Chromium	
PC-53	✓	11-25-14	0800	NORMAL	WATER	3		1	1	1	4	
MW-K5	✓		0830	NORMAL	WATER	3		1	1	1	4	
ARP-7	✓		0938	NORMAL	WATER	3		1	1	1	4	
ARP-6B	✓		0958	NORMAL	WATER	3		1	1	1	4	
ARP-5A	✓		1012	NORMAL	WATER	3		1	1	1	4	
ARP-4A	✓		1025	NORMAL	WATER	3		1	1	1	4	
PC-144	✓		1041	NORMAL	WATER	3		1	1	1	4	
PC-101R	✓		1103	NORMAL	WATER	3		1	1	1	4	
MW-K4	✓		1130	NORMAL	WATER	3		1	1	1	4	
ARP-3A	✓		1148	NORMAL	WATER	3		1	1	1	4	
ARP-2A	✓		1210	NORMAL	WATER	3		1	1	1	4	
MEB-1	✓	↓	1135	NORMAL	WATER	1			1			MB

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________

Possible Hazard Identification

☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of ~~this~~ (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC 445.0636)

Signature: Michele Brown **Date** 11-25-14

Special Instructions/QC Requirements & Comments:

Relinquished by Michele Brown	Company Envirogen	Date/Time 11-25-14/ 14	Received by	Company	Date/Time [illegible]
Relinquished by	Company	Date/Time	Received by	Company	Date Time
Relinquished by	Company	Date/Time	Received by:	Company	Date Time

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Chain of Custody Record

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	2 OF 2 COCs
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below			
FAX:	☑ 2 weeks			SDG No
Project Name: Envirogen- Monthly ARP and PC Wells pg 1	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	2540C_Calcd- Total Dissolved Solids	314.0 Perchlorate	SM 4500 pH	200.7 Total Chromium
PC-103 ✓	11-25-14	1225	NORMAL	WATER	3		1	1	1	4
PC-98R ✓	11-25-14	1305	NORMAL	WATER	3		1	1	1	4
ARP-1 ✓	11-25-14	1326	NORMAL	WATER	3		1	1	1	4
PC-55 ✓	11-25-14	1436	NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4
			NORMAL	WATER	3		1	1	1	4

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________

Possible Hazard Identification

☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michelle Brown **Date** 11-25-14

Special Instructions/QC Requirements & Comments:

Relinquished by Michelle Brown	Company: Envirogen	Date/Time: 11-25-14/1440	Received by	Company TA	Date/Time 11/25/14 1440
Relinquished by	Company:	Date/Time	Received by	Company	Date/Time
Relinquished by	Company:	Date/Time	Received by	Company	Date/Time

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact
Envirogen Technologies
510 South Fourth Street
Henderson, NV 89015
702-371-9307
FAX:
Project Name: NERT- 4th Quarter M Wells
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015
P O # 3693

Project Manager: Wendy Prescott
Tel/Fax: 702-371-9307

Analysis Turnaround Time
Calendar (C) or Work Days (W) WORK
TAT if different from Below ________
☑ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Site Contact: Wendy Prescott
Lab Contact: Sushmitha Reddy
Date:
Carrier:

COC No: 10f2
Job No.
SDG No.

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
✓ I-M	12-1-14	051	NORMAL	WATER	3		4	1	1				
✓ I-D		1101	NORMAL	WATER			4	1	1				
✓ I-C		1106	NORMAL	WATER			4	1	1				
✓ I-S		1109	NORMAL	WATER			4	1	1				
✓ I-L		1112	NORMAL	WATER			4	1	1				
✓ I-Y		1118	NORMAL	WATER			4	1	1				
✓ I-R		1122	NORMAL	WATER			4	1	1				
✓ I-B		1127	NORMAL	WATER			4	1	1				
✓ I-AB		1133	NORMAL	WATER			4	1	1				
✓ I-AA		1138	NORMAL	WATER			4	1	1				
✓ I-AR		1144	NORMAL	WATER			4	1	1				
—	—	—	NORMAL	WATER	—		4	1	1				

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michelle Brown Date 12-1-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by:	Company:	Date/Time:	Received by:	Company	Date/Time:
Michelle Brown	Envirogen	12-1-14 1425		TA	12/1/14 1425
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**
510 South Fourth Street	**Analysis Turnaround Time**		
Henderson, NV 89015	Calendar (C) or Work Days (W) **WORK**		
702-371-9307	TAT if different from Below ______		
FAX:	☑ 2 weeks		
Project Name: NERT- 4th Quarter M Wells	☐ 1 week		
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days		
P O # 3693	☐ 1 day		

COC No: 2 of 2

Job No.

SDG No.

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	~~Filtered Sample~~	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
I-O	12-1-14	0943	NORMAL	WATER	3		4	1	1				
I-W		0950	NORMAL	WATER			4	1	1				
I-P		0954	NORMAL	WATER			4	1	1				
I-H		0959	NORMAL	WATER			4	1	1				
I-U		1007	NORMAL	WATER			4	1	1				
I-T		1011	NORMAL	WATER			4	1	1				
I-G		1018	NORMAL	WATER			4	1	1				
I-Q		1024	NORMAL	WATER			4	1	1				
I-F		1031	NORMAL	WATER			4	1	1				
I-X		1036	NORMAL	WATER			4	1	1				
I-N		1041	NORMAL	WATER			4	1	1				
I-E		1046	NORMAL	WATER			4	1	1				

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown **Date** 12-1-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 2-1-14/ 1425	Received by:	Company: TA	Date/Time: 12/1/14 1425
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

17461 Derian Ave
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Chain of Custody Record

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No:
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below			
FAX:	☑ 2 weeks			SDG No.
Project Name: NERT- 4th Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
I-AD	12-2-14	0944	NORMAL	WATER	3		4	1	1				
I-AC		0937	NORMAL	WATER	3		4	1	1				
I-K		0930	NORMAL	WATER	3		4	1	1				
I-J		0922	NORMAL	WATER	3		4	1	1				
I-Z		0910	NORMAL	WATER	3		4	1	1				
I-I		0903	NORMAL	WATER	3		4	1	1				
I-V		0854	NORMAL	WATER	3		4	1	1				
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification

☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michele Brown Date 12-2-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 12-2-14	Received by:	Company: [illegible]	Date/Time: 12-2-14 1535
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No:
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	
510 South Fourth Street	Analysis Turnaround Time			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ______			
FAX:	☑ 2 weeks			SDG No.
Project Name: NERT- 4th Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
M-64	12-3-14	1121	NORMAL	WATER	3		4	1	1				
M-65		1202	NORMAL	WATER	3		4	1	1				
M-66		1230	NORMAL	WATER	3		4	1	1				
FB-1		1234	NORMAL	WATER	3		4	1		1			
M-79		1248	NORMAL	WATER	3		4	1	1				
M-131		1310	NORMAL	WATER	3		4	1	1				
DUP-2		1310	NORMAL	WATER	3		4	1	1				
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michele Brown Date 12-3-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 12-3-14	Received by:	Company: Intelliquick	Date/Time: 12-3-14 1520
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**
510 South Fourth Street	**Analysis Turnaround Time**		
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK		
702-371-9307	TAT if different from Below ______		
FAX:	☑ 2 weeks		
Project Name: NERT- 4th Quarter M Wells	☐ 1 week		
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days		
P O # 3693	☐ 1 day		

COC No:

Job No.

SDG No.

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
PC-123 ✓	12-4-14	0600	NORMAL	WATER	3		4	1	1				
PC-128 ✓	12-4-14	0752	NORMAL	WATER	3		4	1	1				
PC-129 ✓	12-4-14	0823	NORMAL	WATER	3		4	1	1				
PC-130 ✓	12-4-14	0850	NORMAL	WATER	3		4	1	1				
PC-131 ✓	12-4-14	0928	NORMAL	WATER	3		4	1	1				
PC-132 ✓	12-4-14	0958	NORMAL	WATER	3		4	1	1				
PC-124 ✓	12-4-14	0621	NORMAL	WATER	3		4	1	1				
PC-125 ✓	12-4-14	0639	NORMAL	WATER	3		4	1	1				
PC-126 ✓	12-4-14	0659	NORMAL	WATER	3		4	1	1				
PC-127 ✓	12-4-14	0723	NORMAL	WATER	3		4	1	1				
EB-1 ✓	12-4-14	1005	NORMAL	WATER	3		4	1		1			
PC-54 ✓	12-4-14	1048	NORMAL	WATER			4	1	1				

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification

☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michele Brown **Date** 12-4-14 MB

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 12-4-14 / 1055 MB	Received by:	Company: TA	Date/Time: 12/4/14 1605
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact			
Envirogen Technologies	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:
510 South Fourth Street	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:
Henderson, NV 89015			
702-371-9307			
FAX:			
Project Name: NERT- 4th Quarter M Wells			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015			
P O # 3693			

COC No:
Job No.
SDG No.

Analysis Turnaround Time
Calendar (C) or Work Days (W) WORK
TAT if different from Below ________
☑ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
M-48A ✓	12-4-14	1122	NORMAL	WATER	3		4	1	1				
M-44 ✓	12-4-14	1152	NORMAL	WATER	3		4	1		1			
PC-71 ✓	12-4-14	1215	NORMAL	WATER	3		4	1	1				
PC-72 ✓	12-4-14	1238	NORMAL	WATER	3		4	1	1				
PC-73 ✓	12-4-14	1302	NORMAL	WATER	3		4	1	1				
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown Date 12-4-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 12-4-14 1055	Received by:	Company: TA	Date/Time: 12/4/14 1055
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No:
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	
510 South Fourth Street	Analysis Turnaround Time			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ______			
FAX:	☑ 2 weeks			SDG No.
Project Name: NERT- 4th Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
M-94 ✓	12-5-14	0733	NORMAL	WATER	3		4	1	1				
PC-148 ✓	12-5-14	0838	NORMAL	WATER	3		4	1	1				
PC-149 ✓	12-5-14	0938	NORMAL	WATER	3		4	1	1				
PC-136 ✓	12-5-14	1003	NORMAL	WATER	3		4	1	1				
PC-135A ✓	12-5-14	1032	NORMAL	WATER	3		4	1	1				
PC ~~M~~-37 ✓ 12-5-14	12-5-14	1147	NORMAL	WATER	3		4	1	1				
M-23 ✓	12-5-14	1212	NORMAL	WATER	3		4	1	1				
M-95 ✓	12-5-14	1123	NORMAL	WATER	3		4	1		1			
EB-2 ✓	12-5-14	1153	NORMAL	WATER	3		4	1		1			
DUP-1 ✓	12-5-14	1212	NORMAL	WATER	3		4	1	1				
M-5MA ✓	12-5-14	1255	NORMAL	WATER	3		4	1	1				
M-37 ✓	12-5-14	1314	NORMAL	WATER	3		4	1		1			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☑ Archive For 1 Months

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michelle Brown Date 12.5.14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michelle Brown	Envirogen	12-5-14/1540		TA	12/5/14 1540
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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17461 Derian Ave
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Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No:
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	of COCs
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) **WORK**			
702-371-9307	TAT if different from Below ________			
FAX:	☑ 2 weeks			SDG No.
Project Name: NERT- Quarterly M-10	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	200.7 - B, Cr, Iron, Mn	SM4500NH3_D - Ammonia, TIN	300.1B_28D - Chlorate	314.0 Perchlorate	300_ORGFMS - (MOD) Nitate-Nitrite as N 300_ORGFM_28d - Chloride 150.1 - pH 2540C_Calcd - Total Dissolved Solids 218.6_ORGFM- Chromium, hexavalent
M-10	12/8/2014	11:36	NORMAL	WATER	6		4	3	6	1	1

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown **Date** 12-8-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 12-8-14 1400	Received by:	Company: TA	Date/Time: 12/8/14 1700
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Wendy Prescott	Site Contact: Wendy Prescott	Date:	COC No:
Envirogen Technologies	Tel/Fax: 702-371-9307	Lab Contact: Sushmitha Reddy	Carrier:	
510 South Fourth Street	Analysis Turnaround Time			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) WORK			
702-371-9307	TAT if different from Below ______			
FAX:	☑ 2 weeks			SDG No.
Project Name: NERT- 4th Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
M-14A ✓	12-8-14	0636	NORMAL	WATER	3		4	1	1				
M-25 ✓		0700	NORMAL	WATER	3		4	1	1				
M-22A ✓		0721	NORMAL	WATER	3		4	1	1				
M-70 ✓		0757	NORMAL	WATER	3		4	1	1				
M-71 ✓		0818	NORMAL	WATER	3		4	1	1				
M-72 ✓		0840	NORMAL	WATER	3		4	1	1				
M-99 ✓		0940	NORMAL	WATER	3		4	1	1				
M-68 ✓		1248	NORMAL	WATER	3		4	1	1				
M-67 ✓		1225	NORMAL	WATER	3		4	1	1				
M-38 ✓		1310	NORMAL	WATER	3		4	1		1			
DUP-3 ✓		1710	NORMAL	WATER	3		4	1		1			
			NORMAL	WATER			4	1					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: Michele Brown **Date** 12-8-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michele Brown	Envirogen	12/8/14 1700		TA	12/8/14 1700
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**	COC No:
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**	
510 South Fourth Street	**Analysis Turnaround Time**			Job No.
Henderson, NV 89015	Calendar (C) or Work Days (W) **WORK**			
702-371-9307	TAT if different from Below ________			
FAX:	☑ 2 weeks			SDG No.
Project Name: NERT- 4th Quarter M Wells	☐ 1 week			
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days			
P O # 3693	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
M-69 ✓	12.9.14	0746	NORMAL	WATER	3		4	1	1				
M-135 ✓		0808	NORMAL	WATER	3		4	1	1				
M-31A ✓		0832	NORMAL	WATER	3		4	1	1				
M-52 ✓		0941	NORMAL	WATER	3		4	1	1				
M-73 ✓		1005	NORMAL	WATER	3		4	1	1				
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					
			NORMAL	WATER			4	1					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michele Brown **Date** 12-9-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 12-9-14 / 1120	Received by:	Company: TA	Date/Time: 12/9/14 1120
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Irvine
17461 Derian Ave
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Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica
TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Wendy Prescott**	**Site Contact: Wendy Prescott**	**Date:**
Envirogen Technologies	**Tel/Fax: 702-371-9307**	**Lab Contact: Sushmitha Reddy**	**Carrier:**
510 South Fourth Street	**Analysis Turnaround Time**		
Henderson, NV 89015	Calendar (C) or Work Days (W) **WORK**		
702-371-9307	TAT if different from Below ________		
FAX:	☑ 2 weeks		
Project Name: NERT- 4th Quarter M Wells	☐ 1 week		
Site: NERT- 510 S. Fourth St., Hnederson, NV 89015	☐ 2 days		
P O # 3693	☐ 1 day		

COC No:

Job No.

SDG No.

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TOTAL CHROME	CLO4	TDS, pH	TDS, pH, CRVI	TDS, pH, NO3	TDS, pH, CRVI, NO3	CLO3
M-81A ✓	12/18/2014	9:30	NORMAL	WATER	3		4	1	1				
M-80 ✓	12/18/2014	10:14	NORMAL	WATER	3		4	1	1				
M-74 ✓	12/18/2014	10:35	NORMAL	WATER	3		4	1	1				
M-35 ✓	12/18/2014	10:56	NORMAL	WATER	3		4	1	1				
M-19 ✓	12/18/2014	11:16	NORMAL	WATER	3		4	1	1				
M-12A ✓	12/18/2014	13:30	NORMAL	WATER	3		4	1		1			
M-11 ✓	12/18/2014	13:10	NORMAL	WATER	3		4	1		1			
DUP-4 ✓	12/18/2014	13:30	NORMAL	WATER	3		4	1		1			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____________

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☑ *Archive For 1 Months*

I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)

Signature: Michele Brown **Date** 12-18-14

Special Instructions/QC Requirements & Comments:

NEEDS LEVEL 4 REPORT

Relinquished by: Michele Brown	Company: Envirogen	Date/Time: 12-18-14/17:[illegible]	Received by:	Company: TA	Date/Time: 12/18/14 17[illegible]
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Bottle Order Information

Bottle Order: *NERT - Quarterly 4th*
Bottle Order #: *6764*
Request From Client: *1/1/2014*
Date Order Posted: *10/9/2013 10:59:19AM*
Order Status: *Ready To Process*
Prepared By: *Sushmitha Reddy*
Deliver By Date: ***10/24/2014 2:00:00PM***
Lab Project Number: *44009450*

Order Completion Information

Creator: *Sushmitha Reddy*
Filled by:
Sent Date:
Sent Via:
Tracking #:

Sets	Bottles/Set	Qty	Bottle Type Description	Preservative	Method	Matrix	Sample Type	Comments	Lot #
128	1	128	Plastic 500ml - with Nitric Acid	Nitric Acid	200.7 - Chromium	Water	Normal		
128	1	128	Plastic 500ml - unpreserved	None	2540C_Calcd - Total Dissolved Solids SM4500_H+ - pH	Water Water	Normal Normal		
128	1	128	Plastic 125mL - sterile	None		Water	Normal	314	
12	1	12	Plastic 500ml - with Nitric Acid	Nitric Acid	200.7 - Chromium	Water	Normal		
12	1	12	Plastic 500ml - unpreserved	None	2540C_Calcd - Total Dissolved Solids 218.6_ORGFM - Chromium, hexavalent SM4500_H+ - pH	Water Water Water	Normal Normal Normal		
12	1	12	Plastic 125mL - sterile	None		Water	Normal	314	

Notes to Field Staff:

Health and Safety Notes:

Preservative	Comment
Nitric Acid	CAUTION! STRONG OXIDIZER! CONTAINS 1:1 NITRIC ACID. Avoid skin and eye contact. If contact is made, FLUSH IMMEDIATELY with water.

Relinquished By	Company	Date	Time	Received By	Company	Seal #: Seal #: Seal #:
Relinquished By	Company	Date	Time	Received By	Company	Seal #: Seal #: Seal #:

Please notify us immediately if an error is found in shipment

ENVIROGEN
TECHNOLOGIES

Groundwater Field Log

This Section Contains:

- Water Sampling Field Logs

ENVIROGEN
TECHNOLOGIES

Water Sampling Field Log

Well No.: ARP-1

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 44.2 feet

Time: 1316

Depth to Water: 2362 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 20.58 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 3.29 gal. * 3 = 10 gal

Well Volume (WV): 3.29 gal.

Purge Factor: 3

Purge Volume: 10 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1317	-----	-----	-----	-----	
1320	4 gal	7.55	7.59 mS/cm	24.1 °C	clear
1322	7 gal	7.40	7.60 mS/cm	23.7 °C	clear
1324	10 gal	7.32	7.71 mS/cm	24.2 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1326 Time Finished: 1326

Analyses: [✓ CLO4] [✓ pH / TDS] [✓ CR]

Bottles: 1 BTL 1 BTL 1 BTL

TOTAL BOTTLES: 3

Comments: Screen 14 - 44'

Water Sampling Field Log

Well No.: ARP-2A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 54.0 feet

Time: 1154

Depth to Water: 25.17 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 28.83 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 4.61 gal. (Well Volume (WV)) * 3 (Purge Factor) = 14 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1157	-----	-----	-----	-----	
1201	5 gal	7.38	7.77 mS/cm	23.5 °C	clear
1205	10 gal	7.38	7.84 mS/cm	22.6 °C	clear
1209	14 gal	7.35	7.84 mS/cm	23.6 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1210 Time Finished: 1210

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: 23.7' To Top of screen

Water Sampling Field Log

Well No.: ARP-3A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer O Non Dedicated Bailer O Ready Flo 2" O

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 41.0 feet

Time: 1139

Depth to Water: 26.62 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 14.38 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 2.30 gal. (Well Volume (WV)) * 3 (Purge Factor) = 7 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1140	-----	-----	-----	-----	
1143	3 gal	7.46	11.13 mS/cm	23.0°c	clear
1145	5 gal	7.25	11.30 mS/cm	24.8°c	clear
1147	7 gal	7.28	11.60 mS/cm	23.3°c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1148 Time Finished: 1148

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: ARP-4A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny

Well Information:

Total Well Depth: 33.0 feet

Time: 1019

Depth to Water: 28.48 feet

Height of Water Column (L): 4.52 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= Well Volume (WV) .72 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1020	-----	-----	-----	-----	
1022	1 gal	7.23	5.52 mS/cm	22.7°C	clear
1023	2 gal	7.16	5.67 mS/cm	23.8°C	clear
1024	3 gal	7.15	5.75 mS/cm	23.8°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1025 Time Finished: 1025

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: screen 17.7 - 32.7

Dup EC

23.7°C temp 5.75 EC

Water Sampling Field Log

Well No.: ARP-5A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer O Non Dedicated Bailer O Ready Flo 2" O

Weather Conditions: Warm, sunny

Well Information:

Total Well Depth: 38.0 feet

Time: 1005

Depth to Water: 31.52 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 6.48 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.03 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1006	-----	-----	-----	-----	
1008	1 gal	7.51	5.45 mS/cm	21.1 °C	Clear
1009	2 gal	7.42	5.71 mS/cm	22.8 °C	clear
1011	3 gal	7.36	5.75 mS/cm	22.9 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 1012 Time Finished: 1012

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: screen 12.7 - 37.7

Water Sampling Field Log

Well No.: ARP-6B

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, slight breeze

Well Information:

Total Well Depth: 43.0 feet

Time: 0947

Depth to Water: 31.01 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 11.99 feet

Well Volume (WV) = 1.91 gal. * Purge Factor 3 = Purge Volume 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0949	-----	-----	-----	-----	
0951	2 gal	7.20	9.03 mS/cm	23.7 °C	clear
0953	4 gal	7.15	9.06 mS/cm	24.2 °C	clear
0956	6 gal	7.16	9.19 mS/cm	24.0 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0958 Time Finished: 0958

Analyses: [✓ CLO4] [✓ pH / TDS] [✓ CR]

Bottles: [✓ 1 BTL] [✓ 1 BTL] [✓ 1 BTL]

TOTAL BOTTLES: 3

Comments: screen 27.7 - 42.7'

Water Sampling Field Log

Well No.: ARP-7

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warming, sunny, slight breeze

Well Information:

Total Well Depth: 39.0 feet

Time: 0928

Depth to Water: 29.11 feet

Height of Water Column (L): 9.89 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Well Volume (WV) = 1.58 gal. * Purge Factor 3 = Purge Volume 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0930	-----	-----	-----	-----	
0933	2 gal	6.91	9.37 mS/cm	24.1°C	clear
0935	4 gal	6.89	9.70 mS/cm	24.5°C	Clear
0936	5 gal	6.95	9.72 mS/cm	25.1 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0938 Time Finished: 0938

Analyses: [✓ CLO4] [✓ pH / TDS] [✓ CR]

Bottles: [✓ 1 BTL] [✓ 1 BTL] [✓ 1 BTL]

TOTAL BOTTLES: 3

Comments: screen 14 - 39'

Water Sampling Field Log

Well No.: ART-1

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

Total Well Depth: 56.0 feet

Depth to Water: - 36.02 feet

11-5-14 Time: 1028

Water Column (L): 19.98 feet X

Well Diameter (circle one)				**Purge Volume**
2-in.	**4-in.**	**6-in.**		
0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**
0817		7.43	22.9	Clear

Comments:

Sample Collection Time - 0817

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-1A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-5-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm

Well Information:

Total Well Depth: 560 feet

Time: 1027

Depth to Water: - 23.73 feet

				Well Diameter (circle one)				**Purge Volume**
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	32.27	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	**gals**	**pH**	**Temp**	**Observations of Sample**

Comments: DTW ONLY

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-2

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

11-5-14

Total Well Depth: 560 feet

Time: 1032

Depth to Water: - 27.59 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	4-in.	6-in.		
Water Column (L):	28.41	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	gals	pH	Temp	Observations of Sample
0821		7.17	22.9	clear

Comments:

Sample Collection Time - 0821

Analyses:	[✓ CR]	[✓ CLO4]	~~pH /TDS~~	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-2A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-5-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm

Well Information:

Total Well Depth: 56.0 feet

Time: 1031

Depth to Water: - 26.53 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	29.47	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

.me	gals	pH	Temp	Observations of Sample

Comments: DTW ONLY

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-3

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown Date: 11-5-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

Total Well Depth: 47.0 feet Time: 1043

Depth to Water: - 30.61 feet

			Well Diameter (circle one)				**Purge Volume**
			2-in.	**4-in.**	**6-in.**		
Water Column (L):	16.39 feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

me	gals	pH	Temp	Observations of Sample

Comments: DTW ONLY

Sample Collection Time - ____________

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-3A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

11-5-14

Total Well Depth: 55.0' feet

Time: 1041

Depth to Water: - 35.76 feet

Water Column (L): 19.24 feet X

Well Diameter (circle one)				Purge Volume
2-in.	4-in.	6-in.		
0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	gals	pH	Temp	Observations of Sample
0828		7.12	23.5	clear

Comments:

Sample Collection Time - 0828

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-4

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

11-5-14

Total Well Depth: 460 feet

Time: 1102

Depth to Water: - 38.21 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	7.79	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	gals	pH	Temp	Observations of Sample
0832		7.32 MB	22.5	clear

Comments:

Sample Collection Time - 0832

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-4A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-5-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

Total Well Depth: 46.0 feet

Time: 1103

Depth to Water: - 28.85 feet

				Well Diameter (circle one)				**Purge Volume**
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	17.15	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	gals	pH	Temp	Observations of Sample

Comments: DTW ONLY

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-6

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ○ Disposable Bailer ● Electric pump ○

Weather Conditions: warm

Well Information:

11-5-14

Total Well Depth: 36.00 feet

Time: 1115

Depth to Water: - 29.05 feet

Water Column (L): 6.95 feet X

	Well Diameter (circle one)				**Purge Volume**
	2-in.	**4-in.**	**6-in.**		
X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	gals	pH	Temp	Observations of Sample
0852		7.41	22.9	Clear

Comments:

Sample Collection Time - 0852

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-7

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-5-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

Total Well Depth: 38.9 feet

Time:

Depth to Water: - feet

			Well Diameter (circle one)				Purge Volume
			2-in.	**4-in.**	**6-in.**		
Water Column (L):	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**

Comments: Well capped - No DATA

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-7A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-5-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

Total Well Depth: 40.0 feet

Time: 1120

Depth to Water: - 29.71 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	10.29	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

me	gals	pH	Temp	Observations of Sample

Comments: DTW ONLY

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-7B

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm

Well Information:

11-5-14

Total Well Depth: 50.0 feet

Time: 1122

Depth to Water: - 36.73 feet

Water Column (L): 13.27 feet X

Well Diameter (circle one)				Purge Volume
2-in.	**4-in.**	**6-in.**		
0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

.me	gals	pH	Temp	Observations of Sample
0836		7.36	22.1	Clear

Comments:

Sample Collection Time - 0836

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-8

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

11-5-14

Total Well Depth: 50.53 feet

Time: 1034

Depth to Water: - 32.18 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	18.35	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	**gals**	**pH**	**Temp**	**Observations of Sample**
0824		7.22	22.2	clear

Comments:

Sample Collection Time - 0824

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: ART-8A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-5-14

Sampling Method: Sample Port ○ Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

Total Well Depth: 54.0 feet

Time: 1037

Depth to Water: - 27.62 feet

Water Column (L): 26.38 feet X Well Diameter (circle one) **2-in.** 0.4893 **4-in.** 1.9 **6-in.** 4.41 = **Purge Volume**

Field Measurements: Depth Purging From: 2 ft below DTW

ıme	**gals**	**pH**	**Temp**	**Observations of Sample**

Comments: DTW ONLY

Sample Collection Time -

Analyses:	CR	CLO4	pH /TDS	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 0

Water Sampling Field Log

Well No.: ART-9

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information: 11-5-14

Total Well Depth: 43.0 feet Time: 1128

Depth to Water: - 31.40 feet

				Well Diameter (circle one)				**Purge Volume**
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	11.60	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	**gals**	**pH**	**Temp**	**Observations of Sample**
0841		7.38	22.3	Clear

Comments:

Sample Collection Time - 0841

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: L-635

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 11-24-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, sunny, clear

Well Information:

Total Well Depth: 45.33 feet

Time: 1325

Depth to Water: feet

Well Diameter (circle one): 2-in. 4-in. 6-in

Height of Water Column (L): feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = gal. *

Well Volume (WV) x 3

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				No ACCESS
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES:

Comments:

Water Sampling Field Log

Well No.: L-637

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 11-24-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool sunny clear

Well Information:

Total Well Depth: 39.5 feet Time: ________

Depth to Water: ________ feet

Well Diameter (circle one): 2-in. 4-in. 6-in — Well Volume (WV)

Height of Water Column (L): ________ feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = ________ gal. * x 3 ________

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				No Access
	gal				

Sample Appearance: ________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: ________

Comments:

Water Sampling Field Log

Well No.: M-10

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 69.45 feet

Time: 1040

Depth to Water: 50.94 feet

Well Diameter (circle one): 2-in. * 0.16 gal/ft; 4-in. * 0.65 gal/ft; [✓ 6-in * 1.47 gal/ft]

Height of Water Column (L)	Well Volume (WV)	Purge Factor	Purge Volume
18.51 feet	= 27.20 gal.	* 3	= 82 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1053	-----	-----	-----	-----	
1115	27 gal	7.23	3.43 mS/cm	22.5 °C	Very slightly cloudy
1134	54 gal	7.14	3.38 mS/cm	22.6 °C	Very slightly cloudy
1154	82 gal	7.11	3.51 mS/cm	22.7 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: 1156 Time Finished: 1156

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 6

Comments: M-10 has a seperate BO
see COC + BO for analyses

Dup EC

3.44 EC

22.6 temp

Water Sampling Field Log

Well No.: M-11

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-18-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Overcast, cool

Well Information:

Total Well Depth: 58.00 feet

Time: 1150

Depth to Water: 44.21 feet

Well Diameter (circle one): 2-in. 4-in. [✓ 6-in]

Well Volume (WV)

Height of Water Column (L): 13.79 feet * 0.16 gal/ft * 0.65 gal/ft [✓ * 1.47 gal/ft] = 20.27 gal. * x 3 61 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1209	-----	-----	-----	-----	
1228	20 gal	7.99	3.36 mS/cm	21.5°C	clear
1247	40 gal	7.92	3.22 mS/cm	20.9°C	clear
1308	61 gal	7.81	3.25 mS/cm	21.9°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1310 Time Finished: 1310

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Dup EC

22.1 Temp

327 EC

Water Sampling Field Log

Well No.: M-12A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-18-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast cool

Well Information:

Total Well Depth: 50.0 feet

Time: 1321

Depth to Water: 42.53 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 7.47 feet

Well Volume (WV) = 1.19 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1323	-----	-----	-----	-----	
1326	2 gal	8.01	838 mS/cm	21.1 °C	yellow
1327	3 gal	7.96	8.39 mS/cm	23.0 °C	yellow
1329	4 gal	7.95	8.36 mS/cm	23.1 °C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 1330 Time Finished: 1330

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	1 BTL	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-14A

Project No.: ____

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool

Well Information:

Total Well Depth: 42.40 feet

Time: 0623

Depth to Water: 32.78 feet

		Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
		[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L):	9.62 feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	=	1.53 gal.	*	3	=	5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0629	-----	-----	-----	-----	
0631	2 gal	7.51	4.44 mS/cm	23.0 °C	muddy
0633	4 gal	7.50	4.47 mS/cm	23.2 °C	cloudy
0634	5 gal	7.52	4.49 mS/cm	22.5 °C	very slightly cloudy
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0636 Time Finished: 0636

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-19

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-18-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool

Well Information:

Total Well Depth: 41.20 feet

Time: 1108

Depth to Water: 34.59 feet

Height of Water Column (L): 6.61 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] * 4-in. 0.65 gal/ft * 6-in 1.47 gal/ft

Well Volume (WV) = 1.05 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1109	-----	-----	-----	-----	
1111	1 gal	7.43	6.43 mS/cm	21.1 °C	clear
1113	2 gal	7.36	6.56 mS/cm	22.8 °C	clear
1114	3 gal	7.41	6.52 mS/cm	23.0 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1116 Time Finished: 1116

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-22A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 36.92 feet

Time: 0708

Depth to Water: 2999 feet

Height of Water Column (L): 6.93 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft = Well Volume (WV) 1.10 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0716	-----	-----	-----	-----	
0717	1 gal	7.39	11.44 mS/m	20.5 °C	yellow
0718	2 gal	7.28	11.41 mS/m	22.0 °C	yellow
0719	3 gal	7.25	11.49 mS/m	22.7 °C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 0721 Time Finished: 0721

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-23

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warming, overcast, some sun

Well Information:

Total Well Depth: 44.47 feet

Time: 1202

Depth to Water: 34.47 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 10.00 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.60 gal. * Purge Factor 3 = Purge Volume 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1206	-----	-----	-----	-----	
1208	2 gal	7.39	5.61 mS/cm	23.3 °C	Clear
1209	4 gal	7.31	5.46 mS/cm	23.7 °C	Clear
1210	5 gal	7.32	5.45 mS/cm	23.7 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1212 Time Finished: 1212

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Dup 1 - collected here for same analysis

Water Sampling Field Log

Well No.: M-25

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 41.47 feet

Time: 0650

Depth to Water: 33.50 feet

		Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
		[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L): 7.97	feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	1.27 gal.	*	3	=	4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0653	-----	-----	-----	-----	
0655	2 gal	7.31	8.97 mS/cm	19.8 °C	yellow
0657	3 gal	7.28	9.06 mS/cm	22.1 °C	yellow
0658	4 gal	7.21	9.06 mS/cm	21.5 °C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 0700 Time Finished: 0700

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-31A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-9-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Clear, cool, sunny

Well Information:

Total Well Depth: 55.00 feet

Time: 0821

Depth to Water: 46.33 feet

		Well Diameter (circle one) 2-in.	4-in.	6-in		Well Volume (WV)		Purge Factor		Purge Volume
Height of Water Column (L):	8.67 feet	* [✓ 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	1.38 gal.	*	3	=	4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0826	-----	-----	-----	-----	
0828	2 gal	7.53	6.58 mS/cm	20.4 °C	light yellow
0829	3 gal	7.45	6.67 mS/cm	21.4 °C	light yellow
0830	4 gal	7.43	6.71 mS/cm	21.5 °C	light yellow
	gal				
	gal				
	gal				

Sample Appearance: light yellow

Sample Collection - Time Start: 0832 Time Finished: 0832

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-35

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-18-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool

Well Information:

Total Well Depth: 39.70 feet

Time: 1046

Depth to Water: 32.51 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 7.19 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.15 gal. * x 3 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1049	-----	-----	-----	-----	
1051	1 gal	7.20	5.75 mS/cm	21.7°C	slightly yellow
1053	2 gal	7.25	6.30 mS/cm	23.1°C	same
1054	3 gal	7.19	6.45 mS/cm	23.2°C	same
1055	4 g	7.17	6.48 mS/cm	23.9°C	same

Sample Appearance: slightly yellow

Sample Collection - Time Start: 1056 Time Finished: 1056

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-36

Project No.: ________

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: slightly cloudy, cool

Well Information:

Total Well Depth: 37.85 feet

Time: 1259

Depth to Water: ________ feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): ________ feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) ________ gal. * Purge Factor 3 = Purge Volume ________

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				Destroyed
	gal				
	gal				No Sample
	gal				No DATA
	gal				
	gal				

Sample Appearance: ________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-37

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, overcast

Well Information:

Total Well Depth: 37.18 feet Time: 1304

Depth to Water: 31.87 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 5.31 feet = .84 gal. (Well Volume (WV)) * 3 (Purge Factor) = 3 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1308	-----	-----	-----	-----	
1310	1 gal	6.98	7.33 mS/cm	23.6 °C	clear
1312	2 gal	6.93	7.35 mS/cm	24.4 °C	clear
1313	3 gal	6.95	7.34 mS/cm	24.8 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1314 Time Finished: 1314

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-38

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warming, sun, some clouds

Well Information:

Total Well Depth: 36.82 feet

Time: 1301

Depth to Water: 31.32 feet

Well Diameter (circle one)

	[✓ 2-in.]	4-in.	6-in.		Well Volume (WV)		Purge Factor		Purge Volume
Height of Water Column (L): 5.50 feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	=	.88 gal.	*	3	=	3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1302	------	------	------	------	
1304	1 gal	7.21	11.67 mS/cm	23.9 °c	yellow
1306	2 gal	7.12	11.72 mS/cm	23.2 °c	yellow
1308	3 gal	7.15	11.61 mS/cm	23.7 °c	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 1310 Time Finished: 1310

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Dup-3 collected here for same analysis

Water Sampling Field Log

Well No.: M-44

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12.4.14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 37.65 feet

Time: 1140

Depth to Water: 24.68 feet

		Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
		[✓ 2-in.]	4-in.	6-in			
Height of Water Column (L):	12.97 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 2.07 gal.	* 3	= 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1144	-----	-----	-----	-----	
1146	2 gal	7.48	10.16 mS/cm	22.4 °C	clear
1149	4 gal	7.49	10.26 mS/cm	22.5 °C	clear
1151	6 gal	7.47	10.01 mS/cm	22.7 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1152 Time Finished: 1152

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-48A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool

Well Information:

Total Well Depth: 40.0 feet

Time: 1108

Depth to Water: 30.32 feet

		Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
		[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L):	9.68 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	1.54 gal.	*	3	=	5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1112	-----	-----	-----	-----	
1115	2 gal	7.43	6.57 mS/cm	23.7 oc	clear
1118	4 gal	7.41	6.61 mS/cm	23.6 oc	clear
1120	5 gal	7.38	6.41 mS/cm	24.1 oc	clear
	gal				
	gal				
	gal				

Sample Appearance: clear yellow tinted

Sample Collection - Time Start: 1122 Time Finished: 1122

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-520

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-9-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, sunny, clear

Well Information:

Total Well Depth: 47.38 feet

Time: 0921

Depth to Water: 41.73 feet

		Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
		2-in.	4-in.	6-in						
Height of Water Column (L):	5.65 feet	[✓ 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	.90 gal.	*	3	=	3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0935	-----	-----	-----	-----	
0937	1 gal	7.73	5.58 mS/cm	21.6 °C	cloudy
0938	2 gal	7.60	5.58 mS/cm	23.1 °C	slightly cloudy
0940	3 gal	7.57	5.63 mS/cm	23.4 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0941 Time Finished: 0941

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-55

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool cloudy

Well Information:

Total Well Depth: 45.0 feet Time: 0642

Depth to Water: 29.55 feet

Height of Water Column (L): 15.45 feet

	Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
	[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L): 15.45 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	*	3	=	

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal		mS/cm	oC	
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-56

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 40.0 feet

Time: 0648

Depth to Water: 31.63 feet

Height of Water Column (L): 8.37 feet

Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
[✓ 2-in.]	4-in.	6-in						
[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	*	3	=	

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal		mS/cm	oC	
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-57A

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, overcast, some sun

Well Information:

Total Well Depth: 42.40 feet Time: 1240

Depth to Water: 29.78 feet

Height of Water Column (L)	Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
	[✓ 2-in.]	4-in.	6-in			
12.62 feet	0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	= 2.01 gal.	* 3	= 6gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1246	-----	-----	-----	-----	
1248	2 gal	7.68	5.01 mS/cm	25.0 °C	dirty
1250	4 gal	7.60	4.82 mS/cm	24.9 °C	slightly cloudy
1252	6 gal	7.52	4.85 mS/cm	24.7 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1255 Time Finished: 1255

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-58

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 45.0 feet

Time: 0656

Depth to Water: 29.47 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 15.53 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	------	------	------	------	
	gal		mS/cm	oc	DTW ONLY
	gal		mS/cm	oc	NO SAMPLE
	gal		mS/cm	oc	
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-60

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 43.00 feet

Time: 0650

Depth to Water: 29.94 feet

	Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
	[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L): 13.06 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	*	3	=	

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal		mS/cm	oC	
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-64

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-3-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast, breezy

Well Information:

Total Well Depth: 38.0 feet

Time: 1105

Depth to Water: 29.37 feet

Height of Water Column (L): 8.63 feet * Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft = Well Volume (WV) 1.38 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1108	-----	-----	-----	-----	
1112	2 gal	7.53	6.85mS/cm	24.6°C	dirty
1114	3 gal	7.52	6.93mS/cm	25.5°C	slightly cloudy
1116	4 gal	7.49	6.99mS/cm	24.5°C	very slightly cloudy
	gal				
	gal				
	gal				

Sample Appearance: very slightly cloudy

Sample Collection - Time Start: 1117 Time Finished: 1121

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-65

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-3-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, breezy, overcast

Well Information:

Total Well Depth: 40.0 feet

Time: 1151

Depth to Water: 32.97 feet

Height of Water Column (L): 7.03 feet

Well Diameter (circle one)				Well Volume (WV)		Purge Factor	Purge Volume
[✓ 2-in.]	4-in.	6-in					
[✓ 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	1.12 gal.	*	3	= 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1156	-----	-----	-----	-----	
1158	1 gal	7.28	13.53 mS/cm	21.0 oC	yellow
1159	2 gal	7.27	13.73 mS/cm	23.1 oC	yellow
1200	3 gal	7.25	13.71 mS/cm	23.7 oC	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 1202 Time Finished: 1202

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-66

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-3-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, breezy, overcast

Well Information:

Total Well Depth: 43.0 feet

Time: 1217

Depth to Water: 30.77 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

		Well Diameter (circle one)				Well Volume (WV)		Purge Factor	Purge Volume
		[✓ 2-in.]	4-in.	6-in					
Height of Water Column (L):	12.23 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	1.95 gal.	*	3	= 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1222	-----	-----	-----	-----	
1224	2 gal	7.03	14.95mS/cm	21.9 °C	yellow
1226	4 gal	7.02	14.92mS/cm	22.4 °C	yellow
1228	6 gal	7.02	14.87mS/cm	22.8 °C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 1230 Time Finished: 1230

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-67

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, slightly overcast

Well Information:

Total Well Depth: 38.00 feet

Time: 1214

Depth to Water: 20.63 feet

Well Diameter (circle one)

Height of Water Column (L): 17.37 feet [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft = 2.77 gal. * 3 = 8 gal

Well Volume (WV): 2.77 gal.

Purge Factor: 3

Purge Volume: 8 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1217	-----	-----	-----	-----	
1219	3 gal	7.29	6.68 mS/cm	24.5 °C	Very light yellow
1221	6 gal	7.17	6.71 mS/cm	25.0 °C	very light yellow
1223	8 gal	7.20	6.72 mS/cm	25.3 °C	very light yellow
	gal				
	gal				
	gal				

Sample Appearance: Very light yellow

Sample Collection - Time Start: 1225 Time Finished: 1225

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-68

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, slightly cloudy

Well Information:

Total Well Depth: 41.0 feet

Time: 1234

Depth to Water: 25.21 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 15.79 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 2.52 gal. (Well Volume (WV)) * 3 (Purge Factor) = 8 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1237	------	------	------	------	
1240	3 gal	7.40	7.28 mS/cm	23.1 °C	slight yellow tint
1243	6 gal	7.24	7.30 mS/cm	24.2 °C	slight yellow tint
1246	8 gal	7.20	7.21 mS/cm	24.3 °C	slight yellow tint
	gal				
	gal				
	gal				

Sample Appearance: slight yellow tint

Sample Collection - Time Start: 1248 Time Finished: 1248

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-69

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-9-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, clear, sunny

Well Information:

Total Well Depth: 40.0 feet

Time: 0732

Depth to Water: 33.82 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 6.18 feet

Well Volume (WV) = .98 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0741	-----	-----	-----	-----	
0743	1 gal	7.33	5.24 mS/cm	22.2 °C	clear
0744	2 gal	7.40	5.20 mS/cm	23.6 °C	clear
0745	3 gal	7.44	5.19 mS/cm	24.1 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0746 Time Finished: 0746

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-70

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 41.0 feet

Time: 0747

Depth to Water: 35.31 feet

Height of Water Column (L): 5.69 feet

Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
[✓ 2-in. * 0.16 gal/ft]	4-in. * 0.65 gal/ft	6-in * 1.47 gal/ft	= .91 gal.	* 3	= 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0751	-----	-----	-----	-----	
0753	1 gal	7.35	8.31 mS/cm	20.3 °C	light yellow
0754	2 gal	7.32	8.30 mS/cm	21.8 °C	light yellow
0755	3 gal	7.31	8.22 mS/cm	22.4 °C	light yellow
	gal				
	gal				
	gal				

Sample Appearance: light yellow

Sample Collection - Time Start: 0757 Time Finished: 0757

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-71

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 43.0 feet

Time: 0805

Depth to Water: 35.62 feet

Height of Water Column (L): 7.38 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Well Volume (WV) = 1.18 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0812	-----	-----	-----	-----	
0814	2 gal	7.23	7.98 mS/cm	21.1 °C	light yellow
0815	3 gal	7.11	8.06 mS/cm	22.2 °C	light yellow
0816	4 gal	7.12	8.05 mS/cm	22.7 °C	light yellow
	gal				
	gal				
	gal				

Sample Appearance: light yellow

Sample Collection - Time Start: 0818 Time Finished: 0818

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-72

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 36.0 feet

Time: 0825

Depth to Water: 31.94 feet

Height of Water Column (L): 4.06 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= Well Volume (WV) .64 gal. * Purge Factor 3 = Purge Volume 2 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0827	-----	-----	-----	-----	
0831	1 gal	6.90	11.58 mS/cm	20.0 °C	light yellow
0832	1.5 gal	6.91	11.84 mS/cm	23.2 °C	light yellow
0833	2 gal	6.92	11.85 mS/cm	22.2 °C	light yellow
	gal				
	gal				
	gal				

Sample Appearance: light yellow

Sample Collection - Time Start: 0840 Time Finished: 00840

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: well very slow to recharge

Water Sampling Field Log

Well No.: M-73

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-9-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, sunny, clear

Well Information:

Total Well Depth: 36.0 feet

Time: 0955

Depth to Water: 28.12 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 7.88 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.26 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0959	-----	-----	-----	-----	
1001	2 gal	7.37	9.29 mS/cm	23.3 °C	yellow
1002	3 gal	7.31	9.00 mS/cm	23.6 °C	yellow
1003	4 gal	7.32	8.67 mS/cm	23.9 °C	yellow
	gal				
	gal				
	gal				

Sample Appearance: yellow

Sample Collection - Time Start: 1005 Time Finished: 1009

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Dup EC

23.8
Temp

8.70
EC

Water Sampling Field Log

Well No.: M-74

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-18-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Overcast, cool

Well Information:

Total Well Depth: 39.0 feet

Time: 1024

Depth to Water: 27.21 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 11.79 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.88 gal. * Purge Factor 3 = Purge Volume 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1026	-----	-----	-----	-----	
1029	2 gal	7.41	7.19 mS/cm	22.3 °C	clear
1031	4 gal	7.32	7.16 mS/cm	22.5 °C	clear
1033	6 gal	7.30	7.14 mS/cm	22.9 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1035 Time Finished: 1035

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-75

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 53.90 feet Time: 0705

Depth to Water: 42.53 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

						Well Volume (WV)		Purge Factor		Purge Volume
Height of Water Column (L): 11.37 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	____ gal.	*	3	=	____

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-76

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 54.60 feet

Time: 0707

Depth to Water: 39.40 feet

	Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
	[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L): 15.20 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	*	3	=	

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-77

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 47.20 feet

Time: 0701

Depth to Water: 39.99 feet

		Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
		[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L):	7.21 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	*	3	=	

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ______

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-78

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 43.60 feet

Time: 0645

Depth to Water: 32.51 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 11.09 feet

Well Volume (WV) = gal. * Purge Factor 3 = Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	°C	DTW ONLY
	gal		mS/cm	°C	NO SAMPLE
	gal		mS/cm	°C	
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-79

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-3-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, breezy, overcast

Well Information:

Total Well Depth: 37.60 feet

Time: 1239

Depth to Water: 31.48 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L)		Well Diameter				Well Volume (WV)		Purge Factor		Purge Volume
6.12 feet		[✓ 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	.97 gal.	*	3	=	3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1243	-----	-----	-----	-----	
1244	1 gal	7.52	6.33 mS/cm	21.0 °C	Clear
1246	2 gal	7.48	6.12 mS/cm	23.0 °C	clear
1247	3 gal	7.46	6.11 mS/cm	23.4 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1248 Time Finished: 1248

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-80

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-18-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: sun breakeng thru clouds, cool

Well Information:

Total Well Depth: 43.70 feet

Time: 0936

Depth to Water: 36.03 feet

Well Diameter (circle one): 2-in. [✓ 4-in.] 6-in

Height of Water Column (L): 7.67 feet * 0.16 gal/ft [✓ * 0.65 gal/ft] * 1.47 gal/ft = Well Volume (WV) 4.98 gal. * Purge Factor 3 = Purge Volume 15 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0940	-----	-----	-----	-----	
0944	5 gal	7.49	4.26 mS/cm	22.2°C	clear
0958	10 gal	7.47	4.36 mS/cm	21.5°C	clear
1013	15 gal	7.51	4.34 mS/cm	20.9°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1014 Time Finished: 1014

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: well to slow recharge

Water Sampling Field Log

Well No.: M-81A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-18-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast cool

Well Information:

Total Well Depth: 41.60 feet

Time: 0900

Depth to Water: 35.68 feet

Well Diameter (circle one): 2-in. * 0.16 gal/ft [✓ 4-in. * 0.65 gal/ft] 6-in * 1.47 gal/ft

Height of Water Column (L): 5.92 feet

Well Volume (WV) = 3.84 gal. * Purge Factor 3 = Purge Volume 12 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0919	-----	-----	-----	-----	
0922	4 gal	7.17	6.06mS/cm	22.3°C	Very slight yellow tint
0925	8 gal	738	5.79 mS/cm	21.9°C	same
0928	12 gal	7.38	556mS/cm	22.1°C	same
	gal				
	gal				
	gal				

Sample Appearance: Very slight yellow tint

Sample Collection - Time Start: 0930 Time Finished: 0930

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-83

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, sunny, clear

Well Information:

Total Well Depth: 41.75 feet

Time: 0754

Depth to Water: 31.59 feet

		Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
		[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L): 10.16	feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	1.62 gal.	*	3	=	5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0759	-----	-----	-----	-----	
0801	2 gal	6.82	4.57mS/cm	19.8°c	clear
0804	4 gal	7.05	4.64 mS/cm	21.8°c	clear
0806	5 gal	7.16	4.72mS/cm	21.7°c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0808 Time Finished: 0808

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: High concentration pump and hose
screen 10.8 - 40.3'

Water Sampling Field Log

Well No.: M-92

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 48.50 feet Time: 1017

Depth to Water: 36.02 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 12.48 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = ______ gal. * 3 = ______

Well Volume (WV) ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	------	------	------	------	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal		mS/cm	oC	
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-93

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 49.00 feet Time: 1020

Depth to Water: 35.22 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 13.78 feet * 0.16 gal/ft = Well Volume (WV) ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oc	DTW ONLY
	gal		mS/cm	oc	NO SAMPLE
	gal		mS/cm	oc	
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-95

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast, occasionaly sun

Well Information:

Total Well Depth: 30.0 feet

Time: 1112

Depth to Water: 17.54 feet

	Well Diameter (circle one)			Well Volume (WV)		Purge Factor		Purge Volume
	[✓ 2-in.]	4-in.	6-in					
Height of Water Column (L): 12.46 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 1.99 gal.	*	3	=	6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1115	-----	-----	-----	-----	
1117	2 gal	7.55	7.51 mS/cm	24.6 °C	clear
1119	4 gal	7.41	7.31 mS/cm	25.1 °C	clear
1121	6 gal	7.40	7.27 mS/cm	25.4 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1123 Time Finished: 1123

Analyses:	[✓ CLO4]	pH / TDS	[✓ CR]	[✓ pH / TDS / CRVI]	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	1 BTL	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Dup EC

7.32
EC

25.5
Temp

Water Sampling Field Log

Well No.: M-96

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-5-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: some sun, cool overcast

Well Information:

Total Well Depth: 16.90 feet

Time: 1100

Depth to Water: feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): feet = gal. (Well Volume (WV)) * 3 (Purge Factor) = (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	------	------	------	------	
	gal		mS/cm	oC	
	gal		mS/cm	oC	Well Dry
	gal		mS/cm	oC	No data
	gal				No sample
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-97

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool cloudy

Well Information:

Total Well Depth: 52.50 feet

Time: 1018

Depth to Water: 39.87 feet

Height of Water Column (L): 12.63 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= Well Volume (WV) ____ gal. * Purge Factor 3 = Purge Volume ____

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal		mS/cm	oC	
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-98

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-5-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, warming, some sun

Well Information:

Total Well Depth: 33.40 feet

Time: 1228

Depth to Water: feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): feet * = gal. (Well Volume (WV)) * 3 (Purge Factor) = (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oc	Well dry
	gal		mS/cm	oc	NO data
	gal		mS/cm	oc	NO sample
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-99

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-8-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ disposable Non Dedicated Bailer ● Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 35.59 feet

Time: 0933

Depth to Water: 33.56 feet

		Well Diameter (circle one)				Well Volume (WV)	Purge Factor	**Purge Volume**
		[✓ 2-in.]	4-in.	6-in				
Height of Water Column (L):	2.03 feet	* [✓ 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	* 3	=

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	**Cumulative Volume Purged**	**pH**	**Specific Conductivity**	**Temp**	**Observations**
	------	------	------	------	
	0937 gal	7.77	4.87 mS/cm	20.6 °C	slightly cloudy
	gal		mS/cm	°C	
	gal		mS/cm	°C	
	gal				well not purged due
	gal				To low water column
	gal				and location

Sample Appearance: slightly cloudy

Sample Collection - Time Start: 0940 Time Finished: 0940

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-100

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 33.81 feet

Time: 0728

Depth to Water: feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = gal. * 3 =

Well Volume (WV) — Purge Factor — Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	°C	
	gal		mS/cm	°C	Well dry
	gal		mS/cm	°C	No sample
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-101

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 32.15 feet

Time: 0727

Depth to Water: feet

Height of Water Column (L): feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= Well Volume (WV): gal. * Purge Factor: 3 = Purge Volume:

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	
	gal		mS/cm	oC	Well dry
	gal		mS/cm	oC	NO Sample
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-115

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 47.50 feet

Time: 0709

Depth to Water: 38.02 feet

Height of Water Column (L): 948 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= Well Volume (WV) ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-131

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-3-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool, breezy

Well Information:

Total Well Depth: 39.0 feet

Time: 1259

Depth to Water: 33.55 feet

Height of Water Column (L): 5.45 feet

	Well Diameter (circle one)			Well Volume (WV)		Purge Factor		Purge Volume
	[✓ 2-in.]	4-in.	6-in.					
	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= .87 gal.	*	3	=	3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1304	-----	-----	-----	-----	
1306	1 gal	7.67	4.94 mS/cm	21.6 °C	clear
1307	2 gal	7.67	4.91 mS/cm	22.6 °C	clear
1308	3 gal	7.66	4.93 mS/cm	23.2 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1310 Time Finished: 1310

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Dup 2 collected here for same analysis

Dup EC

23.1 Temp

4.94 EC

Water Sampling Field Log

Well No.: M-135

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-9-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, sunny, clear

Well Information:

Total Well Depth: 39.0 feet

Time: 0758

Depth to Water: 34.64 feet

Height of Water Column (L): 4.36 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= Well Volume (WV) .69 gal. * x 3 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0802	-----	-----	-----	-----	
0804	1 gal	7.67	4.84 mS/cm	20.9°c	clear
0805	2 gal	7.63	4.82 mS/cm	23.2°c	clear
0806	3 gal	7.58	4.83 mS/cm	23.2°c	clear

Sample Appearance: clear

Sample Collection - Time Start: 0808 Time Finished: 0808

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: M-166

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 32.00 feet

Time: 0635

Depth to Water: 29.74 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 2.26 feet

Well Volume (WV) = gal. * Purge Factor 3 = Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal		mS/cm	oC	
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-167

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 30.0 feet

Time: 0637

Depth to Water: 28.68 feet

Height of Water Column (L): 132 feet * Well Diameter (circle one) [✓ 2-in. 0.16 gal/ft] * 4-in. 0.65 gal/ft * 6-in 1.47 gal/ft = Well Volume (WV) ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-168

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 35.0 feet Time: 0639

Depth to Water: 26.26 feet

	Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
	[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L): 874 feet	* [✓ 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	*	3	=	

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-169

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 35.0 feet

Time: 0640

Depth to Water: 28.54 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 6.46 feet

Well Volume (WV) = ______ gal. * Purge Factor 3 = Purge Volume ______

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-170

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 35.00 feet

Time: 0643

Depth to Water: 29.76 feet

	Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
	[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L): 5.24 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	*	3	=	

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-172)

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 37.0 feet

Time: 0647

Depth to Water: 33.42 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

		Well Diameter (circle one)				Well Volume (WV)		Purge Factor		Purge Volume
		[✓ 2-in.]	4-in.	6-in						
Height of Water Column (L):	3.58 feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	*	3	=	

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-173

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 40.00 feet Time: 0653

Depth to Water: 28.56 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 11.44 feet = ____ gal. (Well Volume (WV)) * 3 (Purge Factor) = ____ (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	oC	DTW ONLY
	gal		mS/cm	oC	NO SAMPLE
	gal		mS/cm	oC	
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-174

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 28.0 feet

Time: 0913

Depth to Water: 19.33 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. 0.65 gal/ft 6-in 1.47 gal/ft

Height of Water Column (L): 8.67 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = ______ gal. (Well Volume (WV)) * 3 (Purge Factor) = ______ (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-173

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 29.0 feet

Time: 0714

Depth to Water: 19.08 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 9.92 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = ______ gal. (Well Volume (WV)) * 3 (Purge Factor) = ______ (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	------	------	------	------	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ______ Time Finished: ______

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-176

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 30.0 feet Time: 0918

Depth to Water: 21.56 feet

	Well Diameter (circle one)				Well Volume (WV)	Purge Factor	Purge Volume
	[✓ 2-in.]	4-in.	6-in				
Height of Water Column (L): 8.44 feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	=	gal.	* 3	=

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance: ____________

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: M-177

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 300 feet

Time: 0722

Depth to Water: 20.46 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 954 feet

Well Volume (WV) = ____ gal. * Purge Factor 3 = Purge Volume ____

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				DTW ONLY
	gal				NO SAMPLE
	gal				
	gal				
	gal				

Sample Appearance:

Sample Collection - Time Start: ________ Time Finished: ________

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: MW-K4

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer O Non Dedicated Bailer O Ready Flo 2" O

Weather Conditions: Warm, clear, sunny

Well Information:

Total Well Depth: 50.0 feet Time: 1118

Depth to Water: 27.41 feet

Height of Water Column (L): 22.59 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= Well Volume (WV) 3.61 gal. * Purge Factor 3 = Purge Volume 11 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1120	-----	-----	-----	-----	
1124	4 gal	7.42	9.14 mS/cm	23.9 °C	clear
1127	8 gal	7.21	9.31 mS/cm	24.6 °C	clear
1130	11 gal	7.17	9.36 mS/cm	24.2 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1130 Time Finished: 1130

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: 9.5' To Top of screen

MEB-1- 1135
collected here
before moving to next well
CLO4 only

Water Sampling Field Log

Well No.: MW-K5

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: breezy, cool, sunny

Well Information:

Total Well Depth: 44.0 feet

Time: 0810

Depth to Water: 29.28 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 14.72 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 2.35 gal. * Purge Factor 3 = Purge Volume 7 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0812	-----	-----	-----	-----	
0815	3 gal	7.14	8.12 mS/cm	21.2°c	Clear
0817	5 gal	7.06	8.05 mS/cm	22.8°c	clear
0819	7 gal	6.96	8.14 mS/cm	23.5°c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0820 Time Finished: 0820

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Top of screen 28.5'

Water Sampling Field Log

Well No.: PC-18

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24-14

Sampling Method: Electric Pump ● Dedicated Bailer O Non Dedicated Bailer O Ready Flo 2" O

Weather Conditions: breezy, slightly cloudy, warm

Well Information:

Total Well Depth: 52.11 feet

Time: 1258

Depth to Water: 27.89 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 24.22 feet

Well Volume (WV) = 3.87 gal. * Purge Factor 3 = Purge Volume 12 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1300	-----	-----	-----	-----	
1304	4 gal	7.27	13.53 mS/cm	22.9 °C	clear
1308	8 gal	7.19	13.81 mS/cm	23.9 °C	clear
1313	12 gal	7.10	13.79 mS/cm	24.1 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1315 Time Finished: 1315

Analyses: [✓ CLO4] [✓ pH / TDS] [✓ CR]
Bottles: [✓ 1 BTL] [✓ 1 BTL] [✓ 1 BTL]

TOTAL BOTTLES: 3

Comments: Screen 11.5 - 51.5

Water Sampling Field Log

Well No.: PC-37

Project No.: ____

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool, some sun

Well Information:

Total Well Depth: 43.08 feet

Time: 1137

Depth to Water: 30.38 feet

		Well Diameter (circle one)			Well Volume (WV)		Purge Factor		Purge Volume
		[✓ 2-in.]	4-in.	6-in					
Height of Water Column (L):	12.70 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 2.03 gal.	*	3	=	6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1139	-----	-----	-----	-----	
1141	2 gal	7.45	9.69 mS/cm	23.2 °C	Clear
1143	4 gal	7.42	9.75 mS/cm	24.2 °C	Clear
1145	6 gal	7.39	9.78 mS/cm	23.4 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 1147 Time Finished: 1147

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: EB-2 collected here before moving to next well CR, CRVI, pH, TDS CLO4 1153 3 btls

Water Sampling Field Log

Well No.: PC-53

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer O Non Dedicated Bailer O Ready Flo 2" O

Weather Conditions: cool, slight breezy, sunny

Well Information:

Total Well Depth: 32.86 feet

Time: 0750

Depth to Water: 26.29 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 6.57 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.05 gal. * Purge Factor 3 = Purge Volume 3gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0754	-----	-----	-----	-----	
0756	1 gal	6.71	5.34 mS/m	21.1°c	clear
0758	2 gal	6.94	5.33 mS/m	23.0°c	clear
0759	3 gal	7.02	5.40 mS/m	22.3°c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0800 Time Finished: 0800

Analyses: [✓ CLO4] [✓ pH / TDS] [✓ CR]
Bottles: 1 BTL 1 BTL 1 BTL

TOTAL BOTTLES: 3

Comments: Screen 13 — 32.5'

Water Sampling Field Log

Well No.: PC-54

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 34.60 feet

Time: 1037

Depth to Water: 24.14 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 10.46 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.67 gal. * Purge Factor 3 = Purge Volume 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1040	-----	-----	-----	-----	
1044	2 gal	7.57	6.13 mS/cm	23.6 °C	clear
1046	4 gal	7.52	6.12 mS/cm	23.7 °C	clear w/ yellow tint
1047	5 gal	7.52	6.15 mS/cm	24.4 °C	clear w/ yellow tint
	gal				
	gal				
	gal				

Sample Appearance: clear w/ slight yellow tint

Sample Collection - Time Start: 1048 Time Finished: 1048

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-55

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, sunny, clear

Well Information:

Total Well Depth: 55.4 feet

Time: 1333

Depth to Water: 26.99 feet

Well Diameter (circle one): 2-in. 4-in. [✓ 6-in]

Height of Water Column (L): 28.41 feet * 0.16 gal/ft * 0.65 gal/ft [✓ * 1.47 gal/ft] = Well Volume (WV) 41.76 gal. * Purge Factor 3 = Purge Volume 125 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1334	-----	-----	-----	-----	
1351	42 gal	7.48	10.46 mS/cm	24.6 °C	clear
1412	84 gal	7.48	10.50 mS/cm	25.1 °C	clear
1435	125 gal	7.34	10.51 mS/cm	24.2 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1436 Time Finished: 1436

Analyses: [✓ CLO4] [✓ pH / TDS] [✓ CR]

Bottles: [✓ 1 BTL] [✓ 1 BTL] [✓ 1 BTL]

TOTAL BOTTLES: 3

Comments: Screen 4 - 54'

Water Sampling Field Log

Well No.: PC-56

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: some clouds, warm, sunny.

Well Information:

Total Well Depth: 63.58 feet

Time: 1023

Depth to Water: 20.56 feet

Height of Water Column (L)	Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
	[✓ 2-in.]	4-in.	6-in			
43.02 feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	= 6.88 gal.	* 3	= 21 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1024	-----	-----	-----	-----	
1029	7 gal	7.52	5.90 mS/cm	22.8 °C	Clear
1033	14 gal	7.17	6.15 mS/cm	23.4 °C	clear
1039	21 gal	7.29	6.13 mS/cm	22.6 °C	Clear
	gal		mS/cm	°C	
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 1040 Time Finished: 1040

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 4.8 – 54.8

Water Sampling Field Log

Well No.: PC-58

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24-14

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: clear w/some clouds, cool, sunny

Well Information:

Total Well Depth: 42.78 feet

Time: 1000

Depth to Water: 21.42 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L):	Well Diameter			Well Volume (WV)	Purge Factor	Purge Volume
21.36 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 3.41 gal.	* 3	= 10 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1003	-----	-----	-----	-----	
1006	4 gal	7.54	4.68 mS/cm	21.6 °C	clear
1008	7 gal	7.32	4.70 mS/cm	22.8 °C	clear
1011	10 gal	7.34	4.79 mS/cm	22.9 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1012 Time Finished: 1012

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

screen 7.8 – 32.8

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-59

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: some clouds, warm, sunny

Well Information:

Total Well Depth: 48.13 feet

Time: 1109

Depth to Water: 19.27 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 28.66 feet

Well Volume (WV) = 4.58 gal. * Purge Factor 3 = Purge Volume 14 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1111	-----	-----	-----	-----	
1115	5 gal	7.52	3.86mS/cm	22.8°C	clear
1119	10 gal	7.47	3.93 mS/cm	22.9°C	clear
1122	14 gal	7.35	3.94mS/cm	23.2°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1123 Time Finished: 1123

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 4.8 - 34.8

Water Sampling Field Log

Well No.: PC-60

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, some clouds, sunny

Well Information:

Total Well Depth: 48.09 feet

Time: 1048

Depth to Water: 19.78 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 28.31 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 4.52 gal. (Well Volume (WV)) * 3 (Purge Factor) = 14 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1050	-----	-----	-----	-----	
1053	5 gal	7.67	3.120 mS/cm	22.0 °C	clear
1057	10 gal	7.50	3.12 mS/cm	23.1 °C	Clear
1059	14 gal	7.44	3.13 mS/cm	23.3 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1100 Time Finished: 1100

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 4.5 - 39.5

Water Sampling Field Log

Well No.: PC-62

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, slightly cloudy, sun

Well Information:

Total Well Depth: 45.91 feet

Time: 1130

Depth to Water: 18.54 feet

		Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
		[✓ 2-in.]	4-in.	6-in			
Height of Water Column (L):	27.37 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 4.37 gal.	* 3	= 13 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1132	-----	-----	------	-----	
1135	5 gal	7.57	2.78 mS/cm	20.9 °C	clear
1138	9 gal	7.36	2.72 mS/cm	20.3 °C	clear
1140	13 gal	7.34	2.71 mS/cm	20.8 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1141 Time Finished: 1144

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]

TOTAL BOTTLES: 3

Comments: Screen 7.6 – 37.6 Dup EC

20.7 °C temp 2.71 EC

Water Sampling Field Log

Well No.: PC-68

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: slightly cloudy, warm

Well Information:

Total Well Depth: 64.72 feet

Time: 1156

Depth to Water: 18.59 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 46.23 feet

Well Volume (WV) = 7.38 gal. * Purge Factor 3 = Purge Volume 22 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1159	-----	-----	-----	-----	
1204	7 gal	7.52	2.53 mS/cm	21.5 °C	clear
1210	14 gal	7.48	2.50 mS/cm	21.4 °C	clear
1216	22 gal	7.35	2.53 mS/cm	21.3 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1218 Time Finished: 1218

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: screen 9.9 -54.9

Water Sampling Field Log

Well No.: PC-71

Project No.: ______

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool

Well Information:

Total Well Depth: 33.23 feet

Time: 1206

Depth to Water: 27.57 feet

Height of Water Column (L): 5.66 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

= Well Volume (WV) .90 gal. * Purge Factor 3 = Purge Volume 3 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1210	-----	-----	-----	-----	
1212	1 gal	7.58	10.01 mS/cm	22.0 °C	silty
1213	2 gal	7.60	9.46 mS/cm	23.6 °C	slightly cloudy
1214	3 gal	7.60	9.51 mS/cm	23.9 °C	slightly cloudy
	gal				
	gal				
	gal				

Sample Appearance: slightly cloudy

Sample Collection - Time Start: 1215 Time Finished: 1215

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-720

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool overcast

Well Information:

Total Well Depth: 39.54 feet

Time: 1228

Depth to Water: 30.43 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 9.11 feet

Well Volume (WV) = 1.45 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1232	-----	-----	-----	-----	
1234	2 gal	7.60	8.64 mS/cm	23.1 °C	slightly cloudy
1235	3 gal	7.58	8.65 mS/cm	24.2 °C	clear
1236	4 gal	7.60	8.59 mS/cm	24.5 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1238 Time Finished: 1238

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Dup EC reading

8.65 EC

24.6 Temp

Water Sampling Field Log

Well No.: PC-73

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 49.44 feet

Time: 1246

Depth to Water: 31.58 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 17.86 feet [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 2.85 gal. * Purge Factor 3 = Purge Volume 9 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1249	-----	-----	-----	-----	
1254	3 gal	7.49	9.26 mS/m	22.6 °C	clear
1257	6 gal	7.48	9.22 mS/m	23.7 °C	clear
1300	9 gal	7.45	9.21 mS/m	23.6 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1302 Time Finished: 1302

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-86

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: slightly cloudy, slight breeze, warm

Well Information:

Total Well Depth: 28.0 feet

Time: 1225

Depth to Water: 12.01 feet

Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 15.99 feet

Well Volume (WV) = 2.55 gal. * Purge Factor 3 = Purge Volume 8 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1227	-----	-----	-----	-----	
1230	3 gal	7.57	2.73 mS/cm	21.2 °C	clear
1232	6 gal	7.39	2.74 mS/cm	21.0 °C	clear
1234	8 gal	7.35	2.73 mS/cm	21.2 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1235 Time Finished: 1235

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	[✓ 1 BTL]	[✓ 1 BTL]	[✓ 1 BTL]

Screen 17.5 – 27.5

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-90

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, sunny, clear

Well Information:

Total Well Depth: 33.0 feet

Time: 0911

Depth to Water: 5.54 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 27.46 feet	* 0.16 gal/ft	* 0.65 gal/ft	* 1.47 gal/ft	Well Volume (WV)	Purge Factor	Purge Volume
				= 4.39 gal.	* 3	= 13 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0913	-----	-----	-----	-----	
0917	5 gal	7.57	3.65 mS/cm	22.3 °C	clear
0920	9 gal	7.49	3.64 mS/cm	21.9 °C	clear
0924	13 gal	7.41	3.68 mS/cm	23.3 °	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0926 Time Finished: 0926

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

screen 4.5 - 14.5

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-91

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-24

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, sunny, some clouds

Well Information:

Total Well Depth: 37.0 feet

Time: 0934

Depth to Water: 11.08 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 25.92 feet

Well Volume (WV) = 4.14 gal. * Purge Factor 3 = Purge Volume 12 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0936	-----	-----	-----	-----	
0939	4 gal	7.52	3.78 mS/cm	21.7 °C	clear
0942	8 gal	7.46	3.80 mS/cm	22.6 °C	clear
0945	12 gal	7.34	3.84 mS/cm	21.8 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0946 Time Finished: 0946

Analyses: [✓ CLO4] [✓ pH / TDS] [✓ CR]
Bottles: 1 BTL 1 BTL 1 BTL

Screen 26.5 - 36.5

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-94

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12.5.14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 20.0 feet

Time: 0719

Depth to Water: 12.07 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 7.93 feet

Well Volume (WV) = 1.26 gal. * x 3 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0727	-----	-----	-----	-----	
0729	2 gal	7.22	8.42 mS/cm	20.3 °C	slightly cloudy
0730	3 gal	7.12	8.44 mS/cm	21.8 °C	very slightly cloudy
0731	4 gal	7.11	8.40 mS/cm	22.0 °C	clear

Sample Appearance: clear

Sample Collection - Time Start: 0733 Time Finished: 0733

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-95

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date:

Sampling Method: Electric Pump ○ Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions:

Well Information:

Total Well Depth: 35.0 feet

Time:

Depth to Water: feet

Well Diameter (circle one) 2-in. 4-in. 6-in

Well Volume (WV)

Height of Water Column (L): feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = gal. * x 3

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal				
	gal				Destroyed yrs
	gal				Ago

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses:	CLO4	pH / TDS	CR	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 0

Comments:

Water Sampling Field Log

Well No.: PC-97

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown Date: 11·24·14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, clear, sunny

Well Information:

Total Well Depth: 33.5 feet Time: 0846

Depth to Water: 4.26 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 29.24 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 4.67 gal. * Purge Factor 3 = Purge Volume 14 gal

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0848	-----	-----	-----	-----	
0852	5 gal	7.46	3.24 mS/cm	19.8 °C	clear
0855	10 gal	7.44	3.26 mS/cm	20.6 °C	clear
0858	14 gal	7.34	3.31 mS/cm	19.8 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0900 Time Finished: 0900

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

screen 23'-33'

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-98R

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 40.5 feet

Time: 1234

Depth to Water: 22.18 feet

Well Diameter (circle one): 2-in. / [✓ 4-in.] / 6-in

Height of Water Column (L): 18.32 feet * 0.16 gal/ft [✓ * 0.65 gal/ft] * 1.47 gal/ft = Well Volume (WV) 11.90 gal. * Purge Factor 3 = Purge Volume 36 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1235	------	------	------	------	
1243	12 gal	7.39	7.98mS/cm	24.2°c	clear
1254	24 gal	7.24	7.95mS/cm	24.2°c	clear
1304	36 gal	7.13	7.90mS/cm	24.3°c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1305 Time Finished: 1305

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-99R2/R3

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

11-4-14

Total Well Depth: 57.4 feet

Time: 0910

Depth to Water: - 15.98 feet

				Well Diameter (circle one)				Purge Volume
				2-in.	4-in.	6-in.		
Water Column (L):	41.42	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	gals	pH	Temp	Observations of Sample
0729		7.40	21.8	clear

Comments:

Sample Collection Time - 0729

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-101R

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 50.58 feet

Time: 1048

Depth to Water: 28.83 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 21.75 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 3.48 gal. (Well Volume (WV)) * 3 (Purge Factor) = 10 gal (Purge Volume)

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1051	-----	-----	-----	-----	
1054	4 gal	7.14	14.32mS/cm	23.2°C	clear
1057	7 gal	7.06	14.34mS/cm	24.2°C	clear
1102	10 gal	6.98	14.47mS/cm	23.7°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1103 Time Finished: 1103

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: Screen 20-50'

Water Sampling Field Log

Well No.: PC-103

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer O Non Dedicated Bailer O Ready Flo 2" O

Weather Conditions: warm, sunny, clear

Well Information:

Total Well Depth: 31.8 feet

Time: 1219

Depth to Water: 22.71 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 9.09 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = 1.45 gal. * 3 = 4 gal

Well Volume (WV) · Purge Factor · Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1220	-----	-----	-----	-----	
1222	2 gal	7.62	5.52 mS/cm	22.7°C	clear
1223	3 gal	7.36	5.60 mS/cm	23.4 °C	clear
1224	4 gal	7.27	5.69 mS/cm	23.9°C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1225 Time Finished: 1225

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]
Bottles:	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: BMI square key

screen 9-29'

Water Sampling Field Log

Well No.: PC-115R

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

11-4-14

Total Well Depth: 55.5 feet

Time: 0913

Depth to Water: - 11.31 feet

			Well Diameter (circle one)				Purge Volume
			2-in.	**4-in.**	**6-in.**		
Water Column (L):	44.19 feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	gals	pH	Temp	Observations of Sample
0733		7.34	20.7	clear

Comments:

Sample Collection Time - 0733

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-116R

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm

Well Information:

11-4-14

Total Well Depth: 55.5 feet

Time: 0905

Depth to Water: - 13.22 feet

Water Column (L): 42.28 feet

		Well Diameter (circle one)				Purge Volume
		2-in.	4-in.	6-in.		
Water Column (L): 42.28 feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

me	gals	pH	Temp	Observations of Sample
0738		7.30	20.2	Clean

Comments:

Sample Collection Time - 0738

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-117

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm

Well Information:

11-4-14

Total Well Depth: 55.0 feet

Time: 0903

Depth to Water: - 10.85 feet

				Well Diameter (circle one)				**Purge Volume**
				2-in.	**4-in.**	**6-in.**		
Water Column (L):	44.15	feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

me	**gals**	**pH**	**Temp**	**Observations of Sample**
0741		9.28	20.0	Clear

Comments:

Sample Collection Time - 0741

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-118

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm

Well Information:

11-4-14

Total Well Depth: 530 feet

Time: 0915

Depth to Water: - 7.92 feet

			Well Diameter (circle one)				Purge Volume
			2-in.	**4-in.**	**6-in.**		
Water Column (L):	45.08 feet	X	0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

…ıe	**gals**	**pH**	**Temp**	**Observations of Sample**
0745		7.42	20.0	clear

Comments:

Sample Collection Time - 0745

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-119

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm

Well Information:

11-4-14

Total Well Depth: 49.0 feet

Time: 1006

Depth to Water: - 6.24 feet

Well Diameter (circle one)

Purge Volume

Water Column (L): 42.76 feet X **2-in.** 0.4893 **4-in.** 1.9 **6-in.** 4.41 =

Field Measurements: Depth Purging From: 2 ft below DTW

Time	**gals**	**pH**	**Temp**	**Observations of Sample**
0749		9.41	19.2	Clear

Comments:

Sample Collection Time - 0749

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-120

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port O Disposable Bailer O Electric pump O

Weather Conditions: warm

Well Information:

11-4-14

Total Well Depth: 49.0 feet

Time: 1003

Depth to Water: - 4.37 feet

Water Column (L): 44.63 feet X **Well Diameter (circle one)** **2-in.** 0.4893 **4-in.** 1.9 **6-in.** 4.41 = **Purge Volume**

Field Measurements: Depth Purging From: 2 ft below DTW

ne	gals	pH	Temp	Observations of Sample
0758		7.32	18.6	clear

Comments:

Sample Collection Time - 0758

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	[✓ 1 Bottle]	[✓ 1 Bottle]	[✓ 1 Bottle]	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-121

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: Warm

Well Information:

Total Well Depth: 40.5 feet

Depth to Water: - 4.32 feet

11-4-14 Time: 0959

Water Column (L): 36.18 feet X

Well Diameter (circle one)				Purge Volume
2-in.	4-in.	6-in.		
0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ie	gals	pH	Temp	Observations of Sample
0800		7.31	18.6	clear

Comments:

Sample Collection Time - 0800

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-122

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, slight breeze, sunny

Well Information:

Total Well Depth: 37.9 feet

Time:

Depth to Water: feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): feet

Well Volume (WV) = gal. * Purge Factor 3 = Purge Volume

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
	-----	-----	-----	-----	
	gal		mS/cm	°C	
	gal		mS/cm	°C	Dirt in well at
	gal		mS/cm	°C	~ 33.5
	gal				dug dirt out around PVC
	gal				casing and secured Top
	gal				3' of PVC at joint

Sample Appearance:

Sample Collection - Time Start: Time Finished:

Analyses: [✓ CLO4] [✓ pH / TDS] [✓ CR]

Bottles: 1 BTL 1 BTL 1 BTL

TOTAL BOTTLES: 3

Comments: Screen 22.5 - 37.5

Water Sampling Field Log

Well No.: PC-123

Project No.: ____

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 2-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 34.70 feet

Time: 0544

Depth to Water: 22.43 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 12.27 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.96 gal. * x 3 6gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0551	-----	-----	-----	-----	
0554	2 gal	7.59	1.93 mS/cm	22.8°C	slightly cloudy
0557	4 gal	7.48	1.72 mS/cm	24.1°C	clear
0559	6 gal	7.47	1.77 mS/cm	24.3°C	clear
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0600 Time Finished: 0600

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-124

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Overcast, cool

Well Information:

Total Well Depth: 34.60 feet

Time: 0609

Depth to Water: 2508 feet

Height of Water Column (L)	Well Diameter (circle one)			Well Volume (WV)	Purge Factor	Purge Volume
	[✓ 2-in.]	4-in.	6-in			
9.52 feet	[✓ * 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 1.52 gal.	* 3	= 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0614	------	------	------	------	
0616	2 gal	7.32	11.44 mS/m	21.6 °C	clear
0618	4 gal	7.35	11.53 mS/m	233 °C	very slightly cloudy
0619	5 gal	7.36	11.53 mS/m	23.3 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0621 Time Finished: 0621

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-125

Project No.: ________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool

Well Information:

Total Well Depth: 33.50 feet Time: 0629

Depth to Water: 22.94 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 10.56 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.68 gal. * Purge Factor 3 = Purge Volume 5 gal

Field Measurements: Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0632	-----	-----	-----	-----	
0634	2 gal	7.42	10.70 mS/cm	21.6 oc	slightly cloudy
0637	4 gal	7.40	10.61 mS/cm	23.1 oc	clear
0638	5 gal	7.38	10.67 mS/cm	23.7 oc	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0639 Time Finished: 0639

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-126

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Overcast, cool, foggy

Well Information:

Total Well Depth: 34.30 feet

Time: 0649

Depth to Water: 21.79 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 12.51 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 2.00 gal. * Purge Factor 3 = Purge Volume 6 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0651	-----	-----	-----	-----	
0654	2 gal	7.46	9.56 mS/m	20.5 °C	Clear
0656	4 gal	7.46	9.39 mS/m	22.1 °C	slightly cloudy
0658 MB	6 gal	7.46	9.22 mS/m	22.2 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0659 Time Finished: 0659

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-127

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool, foggy

Well Information:

Total Well Depth: 34.70 feet

Time: 0712

Depth to Water: 18.27 feet

Well Diameter (circle one): [✓ 2-in. * 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft

Height of Water Column (L): 16.43 feet

Well Volume (WV) = 2.62 gal. * Purge Factor 3 = Purge Volume 8 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0716	-----	-----	-----	-----	
0718	3 gal	7.55	7.17 mS/cm	22.0 °c	clear
0720	6 gal	7.51	7.22 mS/cm	22.4 °c	clear
0722	8 gal	7.51	7.19 mS/cm	22.5 °c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0723 Time Finished: 0723

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-128

Project No.: ____

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 34.70 feet

Time: 0741

Depth to Water: 18.26 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 16.44 feet * 0.16 gal/ft * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 263 gal. * Purge Factor 3 = Purge Volume 8 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0744	-----	-----	-----	-----	
0746	3 gal	7.54	6.93 mS/cm	22.7 °c	clear
0748	6 gal	7.54	7.10 mS/cm	23.6 °c	Clear
0750	8 gal	7.53	7.29 mS/cm	24.6 °c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0752 Time Finished: 0752

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-129

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 37.70 feet

Time: 0806

Depth to Water: 18.46 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Well Volume (WV)

Height of Water Column (L): 19.24 feet [✓ *0.16 gal/ft] *0.65 gal/ft * 1.47 gal/ft = gal. * x 3

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0813	-----	-----	-----	-----	
0815	3 gal	7.38	7.37 mS/cm	22.8°C	silty
0818	6 gal	7.35	7.66 mS/cm	23.2°C	silty
0821	9 gal	7.34	7.80 mS/cm	23.8°C	silty
	gal				
	gal				
	gal				

Sample Appearance: silty

Sample Collection - Time Start: 0823 Time Finished: 0823

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-130

Project No.: ____________

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 49.70 feet

Time: 0832

Depth to Water: 19.07 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 30.63 feet * [✓ 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 4.90 gal. * Purge Factor 3 = Purge Volume 15 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0836	-----	-----	-----	-----	
0841	5 gal	7.46	8.15 mS/cm	22.6 °C	slightly cloudy
0845	10 gal	7.41	8.25 mS/cm	23.4 °C	clear
0849	15 gal	7.38	8.23 mS/cm	23.6 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0850 Time Finished: 0850

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-131

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool

Well Information:

Total Well Depth: 39.40 feet

Time: 0906

Depth to Water: 11.20 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 28.20 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 4.51 gal. * 3 = 14 gal

Well Volume (WV)	Purge Factor	Purge Volume
4.51 gal.	3	14 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0912	-----	-----	-----	-----	
0917	5 gal	7.25	13.44 mS/cm	23.6 °c	clear
0921	10 gal	7.22	13.50 mS/cm	23.9 °c	clear
0926	14 gal	7.22	13.68 mS/cm	24.0 °c	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0928 Time Finished: 0928

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-132

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-4-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: overcast, cool

Well Information:

Total Well Depth: 39.70 feet

Time: 0940

Depth to Water: 9.92 feet

		Well Diameter (circle one)			Well Volume (WV)		Purge Factor		Purge Volume
		[✓ 2-in.]	4-in.	6-in					
Height of Water Column (L):	29.78 feet	[✓ 0.16 gal/ft]	* 0.65 gal/ft	* 1.47 gal/ft	= 4.76 gal.	*	3	=	14 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0941	-----	-----	-----	-----	
0947	5 gal	7.23	13.45 mS/cm	23.5 °C	Slightly cloudy
0952	10 gal	7.18	13.45 mS/cm	25.2 °C	clear
0956	14 gal	7.16	13.42 mS/cm	24.7 °C	Clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 0958 Time Finished: 0958

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: EB-1 collected here before moving to next well 1005

3 btls CLO4, TDS, pH
CR, CRVI

Water Sampling Field Log

Well No.: PC-133

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-3-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

Total Well Depth: 40.2 feet

Time: 0853 11-4-14

Depth to Water: - 7.06 feet

Water Column (L): 33.14 feet X Well Diameter (circle one) 2-in. 0.4893 4-in. 1.9 6-in. 4.41 = **Purge Volume**

Field Measurements: Depth Purging From: 2 ft below DTW

ıe	gals	pH	Temp	Observations of Sample
0953		7.35	9.30	clear

Comments:

Sample Collection Time - 0953

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: PC-135A

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast, some sun

Well Information:

Total Well Depth: 50.8 feet

Time: 1015

Depth to Water: 28.91 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 21.89 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = 3.50 gal. * 3 = 11 gal

Well Volume (WV) = 3.50 gal.; Purge Factor 3; Purge Volume 11 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1020	-----	-----	-----	-----	
1024	4 gal	7.13	13.36 mS/cm	24.6 °C	clear
1027	8 gal	7.10	13.37 mS/cm	24.7 °C	clear
1030	11 gal	7.11	13.39 mS/cm	24.8 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 1032 Time Finished: 1032

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-136

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast, some sun

Well Information:

Total Well Depth: 40.3 feet

Time: 0950

Depth to Water: 32.52 feet

Well Diameter (circle one): [✓ 2-in.] 4-in. 6-in

Height of Water Column (L): 7.78 feet [✓ * 0.16 gal/ft] * 0.65 gal/ft * 1.47 gal/ft = Well Volume (WV) 1.24 gal. * Purge Factor 3 = Purge Volume 4 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0956	-----	-----	-----	-----	
0959	2 gal	7.36	7.42 mS/cm	23.4 °C	light yellow tint
1000	3 gal	7.31	7.36 mS/cm	24.2 °C	same
1001	4 gal	7.26	7.34 mS/cm	24.4 °C	same
	gal				
	gal				
	gal				

Sample Appearance: clear w/slight yellow tint

Sample Collection - Time Start: 1003 Time Finished: 1003

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments:

Water Sampling Field Log

Well No.: PC-144

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-25-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: Warm, Sunny

Well Information:

Total Well Depth: 39.7 feet

Time: 1034

Depth to Water: 30.21 feet

Height of Water Column (L): 9.49 feet * Well Diameter (circle one): [✓ 2-in. 0.16 gal/ft] 4-in. * 0.65 gal/ft 6-in * 1.47 gal/ft = Well Volume (WV) 1.51 gal. * Purge Factor 3 = Purge Volume 5 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
1035	-----	-----	-----	-----	
1037	2 gal	7.25	7.64mS/cm	23.1°C	Clear
1039	4 gal	7.22	7.71mS/cm	24.5°C	Clear
1040	5 gal	7.19	7.75mS/cm	24.3°C	Clear
	gal				
	gal				
	gal				

Sample Appearance: Clear

Sample Collection - Time Start: 1041 Time Finished: 1041

Analyses: [✓ CLO4] [✓ pH / TDS] [✓ CR]
Bottles: [✓ 1 BTL] [✓ 1 BTL] [✓ 1 BTL]

TOTAL BOTTLES: 3

Comments: 29.7' To Top of screen

Water Sampling Field Log

Well No.: PC-148

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 50.2 feet

Time: 0749

Depth to Water: 27.64 feet

Well Diameter (circle one): 2-in. 4-in. [✓ 6-in]

Height of Water Column (L): 22.56 feet	* 0.16 gal/ft	* 0.65 gal/ft	[✓ 1.47 gal/ft]	=	Well Volume (WV) 33.16 gal.	*	Purge Factor 3	=	Purge Volume 99 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0801	-----	-----	-----	-----	
0811	10 gal	7.36	9.50 mS/cm	23.2 °C	cloudy
0822	20 gal	7.36	9.39 mS/cm	22.8 °C	Very slightly cloudy
0832	30 gal	7.35	9.32 mS/cm	22.2 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0838 Time Finished: 0838

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: historic.
well slow to recharge
sample collected after
25 gal purged

Water Sampling Field Log

Well No.: PC-149

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-5-14

Sampling Method: Electric Pump ● Dedicated Bailer ○ Non Dedicated Bailer ○ Ready Flo 2" ○

Weather Conditions: cool, overcast

Well Information:

Total Well Depth: 50 feet

Time: 0845

Depth to Water: 29.21 feet

Well Diameter (circle one): 2-in. * 0.16 gal/ft, 4-in. * 0.65 gal/ft, [✓ 6-in * 1.47 gal/ft]

Height of Water Column (L): 20.79 feet

Well Volume (WV) = 30.56 gal. * Purge Factor 3 = Purge Volume 92 gal

Field Measurements:

Depth Purging From: 2 ft. below depth to water

Time	Cumulative Volume Purged	pH	Specific Conductivity	Temp	Observations
0901	-----	-----	-----	-----	
0913	15 gal	7.42	5.57 mS/cm	22.2 °C	clear
0925	30 gal	7.40	5.44 mS/cm	22.7 °C	clear
0935	45 gal	7.44	5.44 mS/cm	23.6 °C	clear
	gal				
	gal				
	gal				

Sample Appearance: clear

Sample Collection - Time Start: 0938 Time Finished: 0938

Analyses:	[✓ CLO4]	[✓ pH / TDS]	[✓ CR]	pH / TDS / CRVI	pH / TDS / CRVI / NO3	pH / TDS / NO3	CLO3
Bottles:	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL	1 BTL

TOTAL BOTTLES: 3

Comments: historic · well
slow to recharge
Sample collected after 30 gal were purged

Water Sampling Field Log

Well No.: PC-150

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown

Date: 11-13-14

Sampling Method: Sample Port ● Disposable Bailer ○ Electric pump ○

Weather Conditions: warm

Well Information:

Total Well Depth: 45.7 feet

Time: 1146

Depth to Water: - 28.82 feet

Water Column (L): 16.88 feet X

Well Diameter (circle one)				**Purge Volume**
2-in.	**4-in.**	**6-in.**		
0.4893	1.9	4.41	=	

Field Measurements: Depth Purging From: 2 ft below DTW

ime	**gals**	**pH**	**Temp**	**Observations of Sample**
0704		7.15	23.1°c	clear

Comments:

Sample Collection Time - 0704

Analyses:	[✓ CR]	[✓ CLO4]	[✓ pH /TDS]	pH / TDS/ CRVI	pH/ TDS / NO3	pH / TDS / CRVI / NO3
Bottles:	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1 Bottle	1Bottle

TOTAL Bottles- 3

Water Sampling Field Log

Well No.: I- AA

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: slightly cloudy, warm

Well Information:

Total Well Depth: 46.00 feet

Time: 1136

Depth to Water: 44.08 feet

Height of Water Column (L): 1.92 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1137	4.70 mS/cm	24.1 °c	7.34	full of brown dirt

Sample Appearance: full of brown dirt

Sample Collection - Time Start: 1138 Time Finished: 1138

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- AB

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 52.0 feet

Time: 1131

Depth to Water: 33.28 feet

Height of Water Column (L): 18.72 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1132	5.08 mS/cm	23.9 °C	7.34	clear

Sample Appearance: clear

Sample Collection - Time Start: 1133 Time Finished: 1133

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- AC

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 50.0 feet

Time: 0935

Depth to Water: 28.23 feet

Height of Water Column (L): 21.77 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0936	18.66 mS/cm	22.6 °C	6.51	filled with brown silt

Sample Appearance: filled with brown silt

Sample Collection - Time Start: 0937 Time Finished: 0937

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- AD

Project No.: ____________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-2-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 50.0 feet Time: 0942

Depth to Water: 28.73 feet

Height of Water Column (L): 21.27 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0943	7.54 mS/cm	20.4 °C	7.00	some brown silt

Sample Appearance: some brown silt

Sample Collection - Time Start: 0944 Time Finished: 0944

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- AR

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: slightly cloudy, warm

Well Information:

Total Well Depth: 45.00 feet

Time: 1142

Depth to Water: 43.09 feet

Height of Water Column (L): 1.91 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1143	7.97 mS/cm	26.6°C	7.24	clear

Sample Appearance: clear

Sample Collection - Time Start: 1144 Time Finished: 1144

Analyses: pH / TDS CR CLO4
Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- B

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly sunny

Well Information:

Total Well Depth: 45.70 feet

Time: 1125

Depth to Water: 43.67 feet

Height of Water Column (L): 2.03 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1126	5.92 mS/cm	25.0 °C	7.22	clear

Sample Appearance: clear

Sample Collection - Time Start: 1127 Time Finished: 1127

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- C

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 43.80 feet

Time: 1104

Depth to Water: 36.16 feet

Height of Water Column (L): 7.64 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1105	8.58 mS/cm	24.8 °c	7.21	Very slight yellow

Sample Appearance: Very slight yellow

Sample Collection - Time Start: 1106 Time Finished: 1106

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- D

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 47.70 feet

Time: 1059

Depth to Water: 43.09 feet

Height of Water Column (L): 4.61 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1100	9.19 mS/cm	25.0 °C	7.36	Very light yellow

Sample Appearance: Very light yellow

Sample Collection - Time Start: 1101 Time Finished: 1101

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- E

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 46.70 feet

Time: 1044

Depth to Water: 43.77 feet

Height of Water Column (L): 2.93 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1045	9.61 mS/cm	26.9 °C	6.91	light yellow

Sample Appearance: light yellow

Sample Collection - Time Start: 1046 Time Finished: 1046

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Deep EC 26.8 °C / temp 9.64 / EC

Water Sampling Field Log

Well No.: I- F

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 45.80 feet

Time: 1029

Depth to Water: 41.05 feet

Height of Water Column (L): 4.75 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1030	11.99 mS/cm	24.9 °c	7.10	yellow

Sample Appearance: yellow

Sample Collection -

Time Start: 1031

Time Finished: 1031

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- G

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Warm, slightly cloudy

Well Information:

Total Well Depth: 42.60 feet

Time: 1016

Depth to Water: 41.38 feet

Height of Water Column (L): 1.22 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1017	14.58 mS/cm	30.5 °C	687	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 1018 Time Finished: 1018

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- H

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 46.50 feet

Time: 0957

Depth to Water: 44.03 feet

Height of Water Column (L): 2.47 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0958	13.43mS/cm	25.0 °C	6.92	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0959 Time Finished: 0959

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- I

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 44.20 feet

Time: 0901

Depth to Water: 22.72 feet

Height of Water Column (L): 21.48 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0902	8.81 mS/cm	23.2 °C	7.30	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0903 Time Finished: 0903

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- J

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 44.50 feet

Time: 0920

Depth to Water: 27.13 feet

Height of Water Column (L): 17.37 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0921	6.97 mS/cm	22.9 °c	7.46	light yellow

Sample Appearance: light yellow

Sample Collection - Time Start: 0922 Time Finished: 0922

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- K

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 40.60 feet

Time: 0928

Depth to Water: 29.49 feet

Height of Water Column (L): 11.11 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0929	7.24 mS/cm	22.2 °c	7.29	slight yellow tint

Sample Appearance: slight yellow tint

Sample Collection - Time Start: 0930 Time Finished: 0930

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- L

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Warm, slightly cloudy

Well Information:

Total Well Depth: 43.40 feet

Time: 1110

Depth to Water: 40.06 feet

Height of Water Column (L): 3.34 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1111	7.63 mS/cm	25.9°c	7.38	clear

Sample Appearance: clear

Sample Collection - Time Start: 11:12 Time Finished: 1112

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- M

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Warm, slightly cloudy

Well Information:

Total Well Depth: 43.70 feet

Time: 1049

Depth to Water: 36.63 feet

Height of Water Column (L): 7.07 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1050	9.99 mS/cm	25.7 °C	7.03	light yellow

Sample Appearance: light yellow

Sample Collection - Time Start: 1051 Time Finished: 1051

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- N

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 41.70 feet

Time: 1039

Depth to Water: 33.82 feet

Height of Water Column (L): 7.88 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1040	10.14 mS/cm	25.0 °C	7.22	light yellow

Sample Appearance: light yellow

Sample Collection - Time Start: 1041 Time Finished: 1041

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- 0

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 43.80 feet

Time: 0940

Depth to Water: 37.55 feet

Height of Water Column (L): 6.25 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0943	9.14 mS/cm	24.3°c	7.42	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0943 Time Finished: 0943

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- P

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 47.80 feet

Time: 0953

Depth to Water: 41.05 feet

Height of Water Column (L): 6.75 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0953	10.78 mS/cm	24.4 °C	7.22	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0954 Time Finished: 0954

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- Q

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 43.80 feet

Time: 1022

Depth to Water: 40.53 feet

Height of Water Column (L): 3.27 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1023	14.20mS/cm	26.8 °C	6.84	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 1024 Time Finished: 1024

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- R

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Warm, slightly cloudy

Well Information:

Total Well Depth: 45.30 feet

Time: 1120

Depth to Water: 42.13 feet

Height of Water Column (L): 3.17 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1121	7.56 mS/cm	24.0 °C	7.26	Clear

Sample Appearance: clear

Sample Collection - Time Start: 1122 Time Finished: 1122

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I-5

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 47.70 feet

Time: 1107

Depth to Water: 28.99 feet

Height of Water Column (L): 18.71 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1108	7.52mS/cm	25.4°C	7.34	slight yellow tent

Sample Appearance: slight yellow tint

Sample Collection - Time Start: 11:09 Time Finished: 1109

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- T

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 47.80 feet

Time: 1009

Depth to Water: 43.24 feet

Height of Water Column (L): 4.56 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1010	14.42mS/cm	26.5 °C	6.80	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 1011 Time Finished: 1011

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- U

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: Warm, sunny

Well Information:

Total Well Depth: 47.60 feet

Time: 1005

Depth to Water: 44.42 feet

Height of Water Column (L): 3.18 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1006	14.32 mS/cm	25.4 °C	6.96	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 1007 Time Finished: 1007

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- V

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 47.70 feet

Time: 0852

Depth to Water: 31.31 feet

Height of Water Column (L): 16.39 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0853	9.15 mS/cm	2.25 °C	7.01	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0854 Time Finished: 0854

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- W

Project No.: ________ Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 50.00 feet Time: 0948

Depth to Water: 31.59 feet

Height of Water Column (L): 18.41 feet

Field Measurements:

Time	**Specific Conductivity**	**Temperature**	**pH**	**Oberservations**
0949	9.60 mS/cm	25.2 °C	7.11	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 0950 Time Finished: 0950

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- X

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 50.00 feet

Time: 1034

Depth to Water: 44.17 feet

Height of Water Column (L): 5.83 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1035	11.23 mS/cm	25.0 °C	7.16	yellow

Sample Appearance: yellow

Sample Collection - Time Start: 1036 Time Finished: 1036

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- Y

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-1-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: warm, slightly cloudy

Well Information:

Total Well Depth: 50.50 feet

Time: 1116

Depth to Water: 40.12 feet

Height of Water Column (L): 10.38 feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
1117	7.95 mS/cm	25.8 °C	7.30	clear

Sample Appearance: clear

Sample Collection - Time Start: 1118 Time Finished: 1118

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Water Sampling Field Log

Well No.: I- Z

Project No.:

Site: NERT PROJECT- HENDERSON, NEVADA

Sampling Team: Michele Brown, Chris Cabrera

Date: 12-2-14

Sampling Method: Sample taken from spigot on treatment system discharge line

Weather Conditions: cool, cloudy

Well Information:

Total Well Depth: 37.0 feet

Time: 0908

Depth to Water: feet

Height of Water Column (L): feet

Field Measurements:

Time	Specific Conductivity	Temperature	pH	Oberservations
0909	6.95 mS/cm	229 °C	7.44	light yellow

Sample Appearance: light yellow

Sample Collection - Time Start: 0910 Time Finished: 0910

Analyses: pH / TDS CR CLO4

Bottles: 3 Bottles

Comments:

Appendix C

Data Validation Summary Report (DVSR)

(Provided on CD)

Data Validation Summary Report
July through December 2014
Semi-Annual Remedial Performance Sampling
Nevada Environmental Response Trust (NERT)
Henderson, Nevada

Prepared for

ENVIRON International Corporation
Emeryville, California

Prepared by

Laboratory Data Consultants, Inc.
27010 Loker Avenue West, Suite 220
Carlsbad, California 92010

April 10, 2015

Table of Contents

LIST OF TABLES

ATTACHMENT

LIST OF ACRONYMS AND ABBREVIATIONS

CCB	Continuing Calibration Blank
DQO	Data Quality Objectives
DNR	Do Not Report
DUP	Duplicate
DVSR	Data Validation Summary Report
EB	Equipment Blank
FB	Field Blank
FD	Field Duplicate
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS/LCSD	Laboratory Control Sample / Laboratory Control Sample Duplicate
LDC	Laboratory Data Consultants, Inc.
MS/MSD	Matrix Spike / Matrix Spike Duplicate
PARCCS	Precision, Accuracy, Representativeness, Comparability, Completeness, Sensitivity
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
RPD	Relative Percent Difference
SDG	Sample Delivery Group
SQL	Sample Quantitation Limit
TDS	Total Dissolved Solids
TIN	Total Inorganic Nitrogen
TOC	Total Organic Carbon
TOX	Total Organic Halides
USEPA	United States Environmental Protection Agency
ug/L	Micrograms per Liter
mg/L	Milligram per Liter
%D	Percent Difference
%R	Percent Recovery

1.0 INTRODUCTION

This data validation summary report (DVSR) has been prepared by Laboratory Data Consultants, Inc. (LDC) to assess the validity and usability of laboratory analytical data from the Annual Remedial Performance Sampling conducted at the Nevada Environmental Response Trust (NERT) site in Henderson, Nevada. The assessment was performed by ENVIRON as a part of the *Revised Phase B Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada* dated May 2009 and included the collection and analyses of 459 environmental and quality control (QC) samples. The analyses were performed by the following methods:

Metals by Environmental Protection Agency (EPA) Method 200.7

Wet Chemistry:
Hexavalent Chromium by EPA Method 218.6
Chloride, Nitrate as Nitrogen, Nitrite as Nitrogen, and Sulfate (Anions) by EPA Method 300.0
Chlorate by EPA Method 300.1B
Perchlorate by EPA Method 314.0
Ammonia as Nitrogen by EPA Method 350.1
Nitrate/Nitrite as Nitrogen by EPA Method 353.2
Phenolics by EPA Method 420.1
Total Inorganic Nitrogen (TIN) by Calculation Method
Specific Conductance by Standard Method 2510
Total Dissolved Solids (TDS) by Standard Method 2540C
pH by Standard Method 4500 H+B
Total Organic Carbon (TOC) by Standard Method 5310C
Total Organic Halides (TOX) by EPA SW-846 Method 9020B

Laboratory analytical services were provided by TestAmerica, Inc. The samples were grouped into sample delivery groups (SDGs). The water samples are associated with QA/QC samples designed to document the data quality of the entire SDG or a sub-group of samples within an SDG. Table I is a cross-reference table listing each sample, analysis, SDG, collection date, laboratory sample number, matrix, and validation level.

The laboratory analytical data were validated in accordance with procedures described in the Nevada Division of Environmental Protection (NDEP) *Data Verification and Validation Requirements - Supplement* established for the BMI Plant Sites and Common Areas Projects, Henderson, Nevada, April 13, 2009. Consistent with the NDEP requirements, approximately ninety percent of the analytical data (412 of the 459 samples) were validated according to Stage 2B data validation procedures and ten percent of the analytical data (47 of the 459 samples) were validated according to Stage 4 data validation procedures. The analytical data were evaluated for quality assurance and quality control (QA/QC) based on the following documents: *Basic Remediation Company (BRC) Standard Operating Procedures (SOP) 40 Data Review/Validation,* Revision 4, May 2009; *Revised Phase B Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada (*QAPP), Revision, May 2009; Nevada Department of Environmental Protection (NDEP) *Revised Guidance on Qualifying Data due to Blank Contamination for the BMI Complex and Common Areas*, January 5 2012; *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004; and the *EPA SW 846 Third Edition, Test Methods for Evaluating Solid Waste*, update I, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IV, February 2007.

This report summarizes the QA/QC evaluation of the data according to precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) relative to the project data quality objectives (DQOs). This report provides a quantitative and qualitative assessment of the data and identifies potential sources of error, uncertainty, and bias that may affect the overall usability.

The PARCCS summary report evaluates and summarizes the results of QA/QC data validation for the entire sampling program. Each analytical fraction has a separate section for each of the PARCCS criteria. These sections interpret specific QC deviations and their effects on both individual data points and the analyses as a whole. Section 5.0 presents a summary of the PARCCS criteria by comparing quantitative parameters with acceptability criteria defined in the project DQO's. Qualitative PARCCS criteria are also summarized in this section.

Precision and Accuracy of Environmental Data

Environmental data quality depends on sample collection procedures, analytical methods and instrumentation, documentation, and sample matrix properties. Both sampling procedures and laboratory analyses contain potential sources of uncertainty, error, and/or bias, which affect the overall quality of a measurement. Errors for sample data may result from incomplete equipment decontamination, inappropriate sampling techniques, sample heterogeneity, improper filtering, and improper preservation. The accuracy of analytical results is dependent on selecting appropriate analytical methods, maintaining equipment properly, and complying with QC requirements. The sample matrix also is an important factor in the ability to obtain precise and accurate results within a given media.

Environmental and laboratory QA/QC samples assess the effects of sampling procedures and evaluate laboratory contamination, laboratory performance, and matrix effects. QA/QC samples include: equipment blanks (EBs), field blanks (FBs), field duplicates (FDs), method blanks, laboratory control samples/laboratory control sample duplicates (LCS/LCSDs), laboratory duplicates (DUP), and matrix spike/matrix spike duplicates (MS/MSDs).

Before conducting the PARCCS evaluation, the analytical data were validated according to the BRC SOP-40 (July 2007), QAPP (May 2009), Functional Guidelines (USEPA 2004), and EPA SW 846 Test Methods. Samples not meeting the acceptance criteria were qualified with a flag, an abbreviation indicating a deficiency with the data. The following are flags used in data validation.

J- Estimated The associated numerical value is an estimated quantity with a negative bias. The analyte was detected but the reported value may not be accurate or precise.

J+ Estimated The associated numerical value is an estimated quantity with a positive bias. The analyte was detected but the reported value may not be accurate or precise.

J Estimated The associated numerical value is an estimated quantity. It is not possible to assess the direction of the potential bias. The analyte was detected but the reported value may not be accurate or precise. The "J" qualification indicates the data fell outside the QC limits or any result that is detected in an environmental sample and associated blank at less than the required action level, but the exceedance was not sufficient to cause rejection of the data.

R Rejected The data is unusable (the compound or analyte may or may not be present). Use of the "R" qualifier indicates a significant variance from functional guideline acceptance criteria. Either resampling or reanalysis is necessary to determine the presence or absence of the rejected analyte. The "R" designation is also applied to yield only one complete set of data for a given sample and eliminate redundant data.

U Nondetected Analyses were performed for the compound or analyte, but it was not detected.

UJ	Estimated/Nondetected Analyses were performed for the compound or analyte, but it was not detected and the sample quantitation or detection limit is an estimated quantity due to poor accuracy or precision. This qualification is also used to flag possible false negative results in the case where low bias in the analytical system is indicated by low calibration response, surrogate, or other spike recovery.
DNR	Do Not Report A more appropriate result is reported from another analysis or dilution.
None	Indicates the data was not significantly impacted by the finding, therefore qualification was not required.
A	Indicates the finding is based upon technical validation criteria.
P	Indicates the finding is related to a protocol/contractual deviation.

The hierarchy of flags is listed below:

R > J	The R flag will always take precedence over the J qualifier.
J > J+ or J-	A non-biased (J) flag will always supersede biased (J+ or J-) flags since it is not possible to assess the direction of the potential bias.
J = J+ plus J-	Adding biased (J+, J-) flags with opposite signs will result in a non-biased flag (J).

Table II lists the reason codes used. Reason codes explain why flags have been applied and identify possible limitations of data use. Reason codes are cumulative except when one of the flags is R then only the reason code associated to the R flag will be used.

Table III presents the overall qualified results after all the flags or validation qualifiers and associated reason codes have been applied.

Once the data are reviewed and qualified according to the BRC SOP-40, QAPP, functional guidelines, and EPA Test Methods, the data set is then evaluated using PARCCS criteria. PARCCS criteria provide an evaluation of overall data usability. The following is a discussion of PARCCS criteria as related to the project DQOs.

Precision is a measure of the agreement or reproducibility of analytical results under a given set of conditions. It is a quantity that cannot be measured directly but is calculated from percent recovery data. Precision is expressed as the relative percent difference (RPD):

$$RPD = (D1-D2)/\{1/2(D1+D2)\} \text{ X } 100$$

where:
D1 = reported concentration for the sample
D2 = reported concentration for the duplicate

Precision is primarily assessed by calculating an RPD from the percent recoveries of the spiked compounds for each sample in the MS/MSD pair. In the absence of an MS/MSD pair, a laboratory duplicate or LCS/LCSD pair can be analyzed as an alternative means of assessing precision. An additional measure of sampling precision was obtained by collecting and analyzing field duplicate samples, which were compared using the RPD result as the evaluation criteria.

MS and MSD samples are field samples spiked by the laboratory with target analytes prior to preparation and analysis. These samples measure the overall efficiency of the analytical method in recovering target analytes from an environmental matrix. A LCS is similar to an MS/MSD sample in that the LCS is spiked with the same target analytes prior to preparation and analysis. However, the LCS is prepared using a controlled interference-free matrix instead of a field sample aliquot. Laboratory reagent water is used to prepare aqueous LCS. The LCS measures laboratory efficiency in recovering target analytes from either an aqueous matrix in the absence of matrix interferences.

One primary sample is analyzed and accompanied by an unspiked laboratory duplicate. The data reviewer compares the reported results of the primary analysis and the laboratory duplicate, then calculates RPDs, which are used to assess laboratory precision.

Laboratory and field sampling precision are evaluated by calculating RPDs for aqueous field sample duplicate pairs. The sampler collects two field samples at the same location and under identically controlled conditions. The laboratory then analyzes the samples under identical conditions.

An RPD outside the numerical QC limit in either MS/MSD samples or LCS/LCSD indicates imprecision. Imprecision is the variance in the consistency with which the laboratory arrives at a particular reported result. Thus, the actual analyte concentration may be higher or lower than the reported result.

Possible causes of poor precision include sample matrix interference, improper sample collection or handling, inconsistent sample preparation, and poor instrument stability. In some duplicate pairs, results maybe reported in either the primary or duplicate samples at levels below the practical quantitation limit (PQL) or non-detected. Since these values are considered to be estimates, RPD exceedances from these duplicate pairs do not suggest a significant impact on the data quality.

Accuracy is a measure of the agreement of an experimental determination and the true value of the parameter being measured. It is used to identify bias in a given measurement system. Recoveries outside acceptable QC limits may be caused by factors such as instrumentation, analyst error, or matrix interference. Accuracy is assessed through the analysis of MS, MSD, LCS, and LCSD. In some cases, samples from multiple SDGs were within one QC batch and therefore are associated with the same laboratory QC samples. Accuracy of inorganic analyses is determined using the percent recoveries of MS and LCS analyses.

Percent recovery (%R) is calculated using the following equation:

$$\%R = (A-B)/C \times 100$$

where:
A = measured concentration in the spiked sample
B = measured concentration of the spike compound in the unspiked sample
C = concentration of the spike

The percent recovery of each analyte spiked in MS/MSD samples and LCS/LCSD is evaluated with the acceptance criteria specified by the previously noted documents. Spike recoveries outside the acceptable QC accuracy limits provide an indication of bias, where the reported data may overestimate or underestimate the actual concentration of compounds detected or quantitation limits reported for environmental samples.

Representativeness is a qualitative parameter that expresses the degree to which the sample data are characteristic of a population. It is evaluated by reviewing the QC results of blanks, samples and holding times. Positive detects of compounds in the blank samples identify compounds that may have been introduced into the samples during sample collection, transport, preparation, or analysis. The QA/QC blanks collected and analyzed are method blanks, calibration blanks, EBs, and FBs.

A method blank is a laboratory grade water or solid matrix that contains the method reagents and has undergone the same preparation and analysis as the environmental samples. The method blank provides a measure of the combined contamination derived from the laboratory source water, glassware, instruments, reagents, and sample preparation steps. Method blanks are prepared for each sample of a similar matrix extracted by the same method at a similar concentration level.

Initial and continuing calibration blanks (ICB/CCBs) consist of acidified laboratory grade water, which are injected at the beginning and at a regular frequency during each 12 - hour sample analysis run. These blanks estimate residual contaminants from the previous sample or standards analysis and measure baseline shifts that commonly occur in emission and absorption spectroscopy.

Equipment blanks consist of analyte-free water poured over or through the sample collection equipment. The water is collected in a sample container for laboratory analysis. These blanks are collected after the sampling equipment is decontaminated and measure efficiency of the decontamination procedure. Equipment blanks were collected and analyzed for all target analytes.

Field blanks consist of analyte-free source water stored at the sample collection site. The water is collected from each source water used during each sampling event. Field blanks were collected and analyzed for all target analytes.

Contaminants found in both the environmental sample and the blank sample are assumed to be laboratory artifacts if both values are less than the PQL or if a sample result and blank contaminant value were greater than the PQL and less than 10 times the blank contaminant value. The blanks and associated samples were evaluated according to the NDEP *BMI Plant Sites and Common Areas Projects, Henderson, Nevada, Revised Guidance on Qualifying Data due to Blank Contamination for the BMI Complex and Common Areas,* January 5 2012.

Holding times are evaluated to assure that the sample integrity is intact for accurate sample preparation and analysis. Holding times will be specific for each method and matrix analyzed. Holding time exceedance can cause loss of sample constituents due to biodegradation, precipitation, volatization, and chemical degradation. In accordance with EPA guidance (USEPA 2004), sample results for analyses that were performed after the method holding time but less than two times the method holding time were qualified as estimated (J- or UJ) and sample results for analyses that were performed after two times the method holding time were qualified as rejected (R), with the exception of specific pH results detailed in Attachment B, Section I. Although the holding time for some pH analyses was exceeded by more than two times the holding time, using professional judgment the associated sample results were qualified as estimated (J/UJ) because the sample condition and integrity was maintained during collection, transport, and storage.

Comparability is a qualitative expression of the confidence with which one data set may be compared to another. It provides an assessment of the equivalence of the analytical results to data obtained from other analyses. It is important that data sets be comparable if they are used in conjunction with other data sets. The factors affecting comparability include the following: sample collection and handling techniques, matrix type, and analytical method. If these aspects of sampling and analysis are carried out according to standard analytical procedures, the data are considered comparable. Comparability is also dependent upon other PARCCS criteria, because only when precision, accuracy, and representativeness are known can data sets be compared with confidence.

Completeness is defined as the percentage of acceptable sample results compared to the total number of sample results. Completeness is evaluated to determine if an acceptable amount of usable data were obtained so that a valid scientific site assessment can be completed. Completeness equals the total number of sample results for each fraction minus the total number of rejected sample results divided by the total number of sample results multiplied by 100. As specified in the project DQOs, the goal for completeness for target analytes in each analytical fraction is 90 percent.

Percent completeness is calculated using the following equation:

$$\%C = (T - R)/T \times 100$$

where:
%C = percent completeness
T = total number of sample results
R = total number of rejected sample results

Completeness is also determined by comparing the planned number of samples per method and matrix as specified in the QAPP, with the number determined above.

Sensitivity is the ability of an analytical method or instrument to discriminate between measurement responses representing different concentrations. This capability is established during the planning phase to meet the DQOs. It is important that calibration requirements, detection limits (DLs), and PQLs presented in the QAPP are achieved and that target analytes can be detected at concentrations necessary to support the DQOs. In addition, sample results are compared to method blank and field blank results to identify potential effects of laboratory background and field procedures on sensitivity.

The following sections present a review of QC data for each analytical method.

2.0 METALS

A total of 276 water samples were analyzed for metals by EPA Method 200.7. All metal data were assessed to be valid since none of the 298 total results were rejected based on holding time and QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

2.1 Precision and Accuracy

2.1.1 Instrument Calibration

Initial and continuing calibration verification results provide a means of evaluating accuracy within a particular SDG. Correlation coefficient (r) and percent recovery (%R) are the two major parameters used to measure the effectiveness of instrument calibration. The correlation coefficient indicates the linearity of the calibration curve. %R is used to verify the ongoing calibration acceptability of the analytical system. The most critical of the two calibration parameters, r, has the potential to affect data accuracy across an SDG when it is outside the acceptable QC limits. %R exceedances suggest more routine instrumental anomalies, which typically impact all sample results for the affected analytes.

The correlation coefficients in the initial calibrations were within the acceptance criteria of ≥ 0.995 and the %Rs in the continuing calibration verifications met the acceptance criteria of 90-110%.

2.1.2 MS/MSD Samples

Due to low MS/MSD %Rs outside of acceptance criteria as stated in the QAPP, the chromium results for twenty samples were qualified as detected estimated (J-) or non-detected estimated (UJ). The details regarding the qualification of results are presented in Attachment A, Section VI.

2.1.3 LCS/LCSD Samples

All LCS/LCSD %Rs and RPDs met acceptance criteria as stated in the QAPP.

2.1.4 ICP Interference Check Sample

All ICP interference check %Rs met acceptance criteria as stated in the QAPP.

2.1.5 FD Samples

The field duplicate samples were evaluated for acceptable precision with RPDs or difference in instances the results were less than five times the reporting limit for the compounds. The field duplicate RPDs or differences were within the acceptance criteria. The field duplicate RPDs or differences are presented in detail in Attachment A, Section XIII.

2.1.6 Analyte Quantitation and Target Identification

Raw data were evaluated for the Stage 4 samples. All analyte quantitation and target identifications were acceptable.

2.2 Representativeness

2.2.1 Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All samples met the 180-day analysis holding time criteria for metals.

2.2.2 Blanks

Method blanks, ICB/CCBs, EBs, and FBs were analyzed to evaluate representativeness. The concentration for an individual target compound in any of the types of QA/QC blanks was used for data qualification.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation. The corrective action consisted of amending the laboratory reported results based on the following criteria.

> Results Below the PQL If a sample result and blank contaminant value were less than the PQL, the sample result was amended as estimated (J) at the concentration reported in the sample results.
>
> Results Above the PQL If a sample result and blank contaminant value were greater than the PQL and less than 10 times the blank contaminant value, the sample result was qualified as detected estimated (J+) at the concentration reported in the sample results.
>
> No Action If blank contaminant values were less than the PQL and associated sample results were greater than the PQL, or if blank contaminant values were greater than the PQL and associated sample results were greater than 10 times the blank contaminant value, the result was not amended.

2.2.2.1 Method and Calibration Blanks

No data were qualified due to contaminants detected in the method or calibration blanks for this analysis.

2.2.2.2 EBs and FBs

No data were qualified due to contaminants detected in the equipment or field blanks for this analysis.

2.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the Sample Quantitation Limits (SQLs) attained were at or below the PQLs. The comparability of the metals data is regarded as acceptable.

2.4 Completeness

The completeness level attained for metal field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

2.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

3.0 WET CHEMISTRY

A total of 24 water samples were analyzed for hexavalent chromium by EPA Method 218.6; 6 water samples were analyzed for anions by EPA Method 300.0; 2 water samples were analyzed for chlorate by EPA Method 300.1B, ammonia as nitrogen by EPA Method 350.1, nitrate/nitrite as nitrogen by EPA Method 353.2, and TIN by Calculation Method; 459 water samples were analyzed for perchlorate by EPA Method 314.0; 4 water samples were analyzed for phenolics by EPA Method 420.1, specific conductance by Standard Method 2510, TOC by Standard Method 5310C, and TOX by EPA SW-846 Method 9020B; 453 water samples were analyzed for TDS by Standard Method 2540C; and 276 water samples were analyzed for pH by Standard Method 4500 H+B. All wet chemistry data were assessed to be valid with the exception of one of the 1,252 total results which was rejected based on holding time exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

3.1 Precision and Accuracy

3.1.1 Instrument Calibration

As previously discussed in Section 2.1.1, initial and continuing calibration results provide a means of evaluating accuracy.

Instrument calibrations were evaluated for all wet chemistry methods. The correlation coefficients in the initial calibrations were within the acceptance criteria of ≥ 0.995 and the %Rs in the continuing calibration verifications met the acceptance criteria of 90-110%.

3.1.2 Surrogate

Surrogates were evaluated for chlorate analysis by EPA Method 300.1. All surrogate %Rs met the acceptance criteria as stated in the QAPP.

3.1.3 MS/MSD Samples

MS/MSD samples were evaluated for hexavalent chromium analysis by EPA Method 218.6, anions by EPA Method 300.0, TOC by Standard Method 5310C, and TOX by EPA SW-846 Method 9020B. Due to low MS/MSD %Rs outside of acceptance criteria as stated in the QAPP, the chloride result in sample M-10 (samples on 12/8/14) and the TOX result in sample M-6A (samples on 8/13/14) were qualified as detected estimated (J-). The details regarding the qualification of results are presented in Attachment B, Section V.

3.1.4 DUP Samples

DUP samples were evaluated for TDS by Standard Method 2540C and pH by Standard Method 4500 H+B. All DUP RPDs met the acceptance criteria as stated in the QAPP.

3.1.5 LCS/LCSD Samples

LCS samples were evaluated for all wet chemistry methods. All LCS %Rs and RPDs met the acceptance criteria as stated in the QAPP.

3.1.6 FD Samples

FD samples were evaluated for hexavalent chromium by EPA Method 218.6, perchlorate by EPA Method 314.0, TDS by Standard Method 2540C, and pH by Standard Method 4500 H+B. The field duplicate samples were evaluated for acceptable precision with RPDs or difference in instances the results were less than five times the reporting limit for the compounds. The field duplicate RPDs or differences were within the acceptance criteria. The details regarding the qualification of results are presented in Attachment B, Section X.

3.1.7 Analyte Quantitation and Target Identification

Raw data were evaluated for the Stage 4 samples. All analyte quantitation and target identifications were acceptable.

In instances where data was reanalyzed, data was qualified as not reportable by the validators in order to yield only one complete set of data for a given sample.

3.2 Representativeness

3.2.1 Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with all wet chemistry methods was conducted. All water samples met the 48-hour analysis holding time criteria for nitrate as nitrogen and nitrite as nitrogen, the 7-day analysis holding time criteria for TDS, and the 28-day analysis holding time criteria for ammonia as nitrogen, chlorate, chloride, sulfate, phenolics, specific conductance, TOC, TOX, and perchlorate.

Due to a severe holding time criteria exceedance (>2X holding time criteria), the hexavalent chromium result for sample FB-1 (sampled on 12/3/14) was qualified as rejected (R). Additionally, 10 results for pH were qualified as detected estimated (J). The analysis holding time criteria for water samples is 24 hours for hexavalent chromium and 48 hours for pH. The details regarding the qualification of results are presented in Attachment B, Section I.

3.2.2 Blanks

As previously discussed in Section 2.2.2, method blanks, ICB/CCBs, EBs, and FBs were analyzed to evaluate representativeness.

3.2.2.1 Method and Calibration Blanks

No data were qualified due to contaminants detected in the calibration blanks for this analysis.

3.2.2.2 EBs and FBs

No data were qualified due to contaminants detected in the equipment or field blanks for this analysis.

3.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the SQLs attained were at or below the PQLs. The comparability of the data is regarded as acceptable.

3.4 Completeness

The completeness level attained for wet chemistry field samples was 99.9 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

3.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

4.0 VARIANCES IN ANALYTICAL PERFORMANCE

The laboratory used standard analytical methods for all of the analyses throughout the project. No systematic variances in analytical performance were noted in the laboratory case narratives.

5.0 SUMMARY OF PARCCS CRITERIA

The validation reports present the PARCCS results for all SDGs. Each PARCCS criterion is discussed in detail in the following sections.

5.1 Precision and Accuracy

Precision and accuracy were evaluated using data quality indicators such as calibration, surrogates, MS/MSD, DUP, LCS/LCSD, and field duplicates. The precision and accuracy of the data set were considered acceptable after integration of result qualification.

All calibrations were performed as required and met the acceptance criteria. All surrogate, MS/MSD, DUP, LCS, and field duplicate percent recoveries, RPDs, and difference met acceptance criteria with the exceptions noted in Sections 2.1.2 and 3.1.3. All ICP interference check sample %Rs met acceptance criteria.

5.2 Representativeness

All samples for each method and matrix were evaluated for holding time compliance. All samples were associated with a method blank in each individual SDG. The representativeness of the project data is considered acceptable after integration of result qualification.

5.3 Comparability

Sampling frequency requirements were met in obtaining necessary equipment blanks, field blanks and field duplicates. The laboratory used standard analytical methods for the analyses. The analytical results were reported in correct standard units. Sample integrity criteria were met. Sample preservation and holding times were within QC criteria with the exceptions noted in Section 3.2.1. The overall comparability is considered acceptable after integration of result qualification.

5.4 Completeness

Of the 1,550 total analytes reported, one sample result was rejected. The completeness for the SDGs is as follows:

Parameter	Total Analytes	No. of Rejects	% Completeness
Metals	298	0	100
Wet Chemistry	1,252	1	99.9
Total	**1,550**	**1**	**99.9**

The completeness percentage based on rejected data met the 90 percent DQO goal.

5.5 Sensitivity

Sensitivity was achieved by the laboratory to support the DQOs. Calibration concentrations and PQLs met the project requirements and low level contamination in the method blanks, calibration blanks, equipment blanks, and field blanks did not affect sensitivity.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The analytical data quality assessment for the water sample laboratory analytical results generated during the Annual Remedial Performance Sampling at the Nevada Environmental Response Trust (NERT) site in Henderson, Nevada established that the overall project requirements and completeness levels were met. The sample results that were found to be rejected (R) are unusable for all purposes. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the Stage 2B and Stage 4 data validation all other results are considered valid and usable for all purposes.

7.0 REFERENCES

NDEP 2009. Data Verification and Validation Requirements - Supplement established for the BMI Plant Sites and Common Areas Projects, Henderson, Nevada. April 13.

NDEP 2012. Revised Guidance on Qualifying Data due to Blank Contamination for the BMI Complex and Common Areas. January 5.

Basic Remediation Company (BRC), 2009. Standard Operating Procedures, SOP-40 Data Review/Validation. Revision 4. May.

Revised Phase B Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada (QAPP), Revision. May 2009.

Region 9 Superfund Data Evaluation/Validation Guidance, R6QA/006.1, Draft. December 2001.

USEPA 2004. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. October.

____.1983. EPA Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Cincinnati, Ohio. March.

____.1996. EPA SW 846 Third Edition, Test Methods for Evaluating Solid Waste, update I, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IV, February 2007.

(Eaton et al., 1998) *Standard Method for the Examination of Water and Wastewater* (20th ed.). Washington, DC: American Public Health Association.

TABLE I

Table I. Sample Cross-Reference

SDG	**Client Sample ID**	**Lab Sample ID**	**Matrix**	**Sample Date**	**QC Type**	**Validation Level**	**Metals (200.7)**	**Cr (200.7)**	**Cr^{6+} (218.6)**	**Cl,SO_4,NO_3-N,NO_2-N (300.0)**	**NO_3/NO_2-N (353.2)**	**ClO_3 (300.1)**	**ClO_4 (314.0)**	**NH_3-N (350.1)**
440-82280-1	ART-1	440-82280-1	Water	20140701		Stage 2B							X	
440-82280-1	ART-1DUP	440-82280-1DUP	Water	20140701	DUP	Stage 2B								
440-82280-1	ART-2	440-82280-2	Water	20140701		Stage 2B							X	
440-82280-1	ART-3	440-82280-3	Water	20140701		Stage 2B							X	
440-82280-1	ART-4	440-82280-4	Water	20140701		Stage 2B							X	
440-82280-1	ART-6	440-82280-5	Water	20140701		Stage 2B							X	
440-82280-1	ART-7	440-82280-6	Water	20140701		Stage 2B							X	
440-82280-1	ART-8	440-82280-7	Water	20140701		Stage 2B							X	
440-82280-1	ART-9	440-82280-8	Water	20140701		Stage 2B							X	
440-82280-1	PC-99R2/R3	440-82280-9	Water	20140701		Stage 2B							X	
440-82280-1	PC-115R	440-82280-10	Water	20140701		Stage 2B							X	
440-82280-1	PC-116R	440-82280-11	Water	20140701		Stage 2B							X	
440-82280-1	PC-116RDUP	440-82280-11DUP	Water	20140701	DUP	Stage 2B								
440-82280-1	PC-117	440-82280-12	Water	20140701		Stage 2B							X	
440-82280-1	PC-118	440-82280-13	Water	20140701		Stage 2B							X	
440-82280-1	PC-119	440-82280-14	Water	20140701		Stage 2B							X	
440-82280-1	PC-120	440-82280-15	Water	20140701		Stage 2B							X	
440-82280-1	PC-121	440-82280-16	Water	20140701		Stage 2B							X	
440-82280-1	PC-133	440-82280-17	Water	20140701		Stage 2B							X	
440-82772-1	PC-97	440-82772-1	Water	20140708		Stage 2B							X	
440-82772-1	PC-97DUP	440-82772-1DUP	Water	20140708	DUP	Stage 2B								
440-82772-1	PC-90	440-82772-2	Water	20140708		Stage 2B							X	
440-82772-1	PC-91	440-82772-3	Water	20140708		Stage 2B							X	
440-82772-1	PC-58	440-82772-4	Water	20140708		Stage 2B							X	
440-82772-1	PC-56	440-82772-5	Water	20140708		Stage 2B							X	
440-82772-1	PC-60	440-82772-6	Water	20140708		Stage 2B							X	
440-82772-1	PC-59	440-82772-7	Water	20140708		Stage 2B							X	
440-82772-1	PC-62	440-82772-8	Water	20140708		Stage 2B							X	
440-82772-1	PC-68	440-82772-9	Water	20140708		Stage 2B							X	
440-82772-1	ARP-1	440-82772-10	Water	20140708		Stage 2B							X	
440-82772-1	PC-18	440-82772-11	Water	20140708		Stage 2B							X	
440-82772-1	PC-18DUP	440-82772-11DUP	Water	20140708	DUP	Stage 2B								
440-82772-1	EB-1	440-82772-12	Water	20140708	EB	Stage 2B							X	
440-82778-1	PC-122	440-82778-1	Water	20140709		Stage 2B							X	
440-82778-1	PC-122DUP	440-82778-1DUP	Water	20140709	DUP	Stage 2B								

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO$_4$,NO$_3$-N,NO$_2$-N (300.0)	NO$_3$/NO$_2$-N (353.2)	ClO$_3$ (300.1)	ClO$_4$ (314.0)	NH$_3$-N (350.1)
440-82778-1	PC-53	440-82778-2	Water	20140709		Stage 2B							X	
440-82778-1	MW-K5	440-82778-3	Water	20140709		Stage 2B							X	
440-82778-1	ARP-7	440-82778-4	Water	20140709		Stage 2B							X	
440-82778-1	ARP-6B	440-82778-5	Water	20140709		Stage 2B							X	
440-82778-1	ARP-5A	440-82778-6	Water	20140709		Stage 2B							X	
440-82778-1	ARP-4A	440-82778-7	Water	20140709		Stage 2B							X	
440-82778-1	PC-101R	440-82778-8	Water	20140709		Stage 2B							X	
440-82778-1	MW-K4	440-82778-9	Water	20140709		Stage 2B							X	
440-82778-1	ARP-3A	440-82778-10	Water	20140709		Stage 2B							X	
440-82778-1	ARP-2A	440-82778-11	Water	20140709		Stage 2B							X	
440-82778-1	ARP-2ADUP	440-82778-11DUP	Water	20140709	DUP	Stage 2B								
440-82778-1	PC-103	440-82778-12	Water	20140709		Stage 2B							X	
440-82778-1	PC-98R	440-82778-13	Water	20140709		Stage 2B							X	
440-82778-1	M-83	440-82778-14	Water	20140709		Stage 2B							X	
440-82987-1	PC-86	440-82987-1	Water	20140710		Stage 2B							X	
440-82987-1	PC-55	440-82987-2	Water	20140710		Stage 2B							X	
440-84683-1	ART-1	440-84683-1	Water	20140804		Stage 2B		X					X	
440-84683-1	ART-1DUP	440-84683-1DUP	Water	20140804	DUP	Stage 2B								
440-84683-1	ART-2	440-84683-2	Water	20140804		Stage 2B		X					X	
440-84683-1	ART-3	440-84683-3	Water	20140804		Stage 2B		X					X	
440-84683-1	ART-3DUP	440-84683-3DUP	Water	20140804	DUP	Stage 2B								
440-84683-1	ART-4	440-84683-4	Water	20140804		Stage 2B		X					X	
440-84683-1	ART-6	440-84683-5	Water	20140804		Stage 2B		X					X	
440-84683-1	ART-7	440-84683-6	Water	20140804		Stage 2B		X					X	
440-84683-1	ART-7DUP	440-84683-6DUP	Water	20140804	DUP	Stage 2B								
440-84683-1	ART-8	440-84683-7	Water	20140804		Stage 2B		X					X	
440-84683-1	ART-9	440-84683-8	Water	20140804		Stage 2B		X					X	
440-84683-1	ART-9MS	440-84683-8MS	Water	20140804	MS	Stage 2B		X						
440-84683-1	ART-9MSD	440-84683-8MSD	Water	20140804	MSD	Stage 2B		X						
440-84683-1	PC-99R2/R3	440-84683-9	Water	20140804		Stage 2B		X					X	
440-84683-1	PC-115R	440-84683-10	Water	20140804		Stage 2B		X					X	
440-84683-1	PC-116R	440-84683-11	Water	20140804		Stage 2B		X					X	
440-84683-1	PC-116RDUP	440-84683-11DUP	Water	20140804	DUP	Stage 2B								
440-84683-1	PC-117	440-84683-12	Water	20140804		Stage 2B		X					X	
440-84683-1	PC-118	440-84683-13	Water	20140804		Stage 2B		X					X	

Table I. Sample Cross-Reference

SDG	**Client Sample ID**	**Lab Sample ID**	**Matrix**	**Sample Date**	**QC Type**	**Validation Level**	**Metals (200.7)**	**Cr (200.7)**	**Cr^{6+} (218.6)**	**Cl,SO_4,NO_3-N,NO_2-N (300.0)**	**NO_3/NO_2-N (353.2)**	**ClO_3 (300.1)**	**ClO_4 (314.0)**	**NH_3-N (350.1)**
440-84683-1	PC-119	440-84683-14	Water	20140804		Stage 2B		X					X	
440-84683-1	PC-120	440-84683-15	Water	20140804		Stage 2B		X					X	
440-84683-1	PC-121	440-84683-16	Water	20140804		Stage 2B		X					X	
440-84683-1	PC-133	440-84683-17	Water	20140804		Stage 2B		X					X	
440-84683-1	PC-133DUP	440-84683-17DUP	Water	20140804	DUP	Stage 2B								
440-84834-1	PC-97	440-84834-1	Water	20140805		Stage 4		X					X	
440-84834-1	PC-90	440-84834-2	Water	20140805		Stage 4		X					X	
440-84834-1	PC-90DUP	440-84834-2DUP	Water	20140805	DUP	Stage 4								
440-84834-1	PC-91	440-84834-3	Water	20140805		Stage 4		X					X	
440-84834-1	PC-91MS	440-84834-3MS	Water	20140805	MS	Stage 4		X						
440-84834-1	PC-91MSD	440-84834-3MSD	Water	20140805	MSD	Stage 4		X						
440-84834-1	PC-94	440-84834-4	Water	20140805		Stage 4		X					X	
440-84834-1	PC-58	440-84834-5	Water	20140805		Stage 4		X					X	
440-84834-1	PC-56	440-84834-6	Water	20140805		Stage 4		X					X	
440-84834-1	PC-60	440-84834-7	Water	20140805		Stage 4		X					X	
440-84834-1	PC-59	440-84834-8	Water	20140805		Stage 4		X					X	
440-84834-1	PC-62	440-84834-9	Water	20140805		Stage 4		X					X	
440-84834-1	PC-68	440-84834-10	Water	20140805		Stage 4		X					X	
440-84834-1	PC-86	440-84834-11	Water	20140805		Stage 4		X					X	
440-84834-1	EB-M1	440-84834-12	Water	20140805	EB	Stage 4							X	
440-85159-1	ART-7B	440-85159-1	Water	20140807		Stage 2B		X					X	
440-85159-1	ART-7BDUP	440-85159-1DUP	Water	20140807	DUP	Stage 2B								
440-85159-1	PC-122	440-85159-2	Water	20140807		Stage 2B		X					X	
440-85159-1	PC-53	440-85159-3	Water	20140807		Stage 2B		X					X	
440-85159-1	MW-K5	440-85159-4	Water	20140807		Stage 2B		X					X	
440-85159-1	ARP-7	440-85159-5	Water	20140807		Stage 2B		X					X	
440-85159-1	ARP-6B	440-85159-6	Water	20140807		Stage 2B		X					X	
440-85159-1	ARP-5A	440-85159-7	Water	20140807		Stage 2B		X					X	
440-85159-1	ARP-4A	440-85159-8	Water	20140807		Stage 2B		X					X	
440-85159-1	ARP-4AMS	440-85159-8MS	Water	20140807	MS	Stage 2B		X						
440-85159-1	ARP-4AMSD	440-85159-8MSD	Water	20140807	MSD	Stage 2B		X						
440-85159-1	PC-101R	440-85159-9	Water	20140807		Stage 2B		X					X	
440-85159-1	MW-K4	440-85159-10	Water	20140807		Stage 2B		X					X	
440-85159-1	ARP-3A	440-85159-11	Water	20140807		Stage 2B		X					X	
440-85159-1	ARP-3ADUP	440-85159-11DUP	Water	20140807	DUP	Stage 2B								

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO$_4$,NO$_3$-N,NO$_2$-N (300.0)	NO$_3$/NO$_2$-N (353.2)	ClO$_3$ (300.1)	ClO$_4$ (314.0)	NH$_3$-N (350.1)
440-85159-1	ARP-2A	440-85159-12	Water	20140807		Stage 2B		X					X	
440-85159-1	PC-103	440-85159-13	Water	20140807		Stage 2B		X					X	
440-85159-1	PC-98R	440-85159-14	Water	20140807		Stage 2B		X					X	
440-85159-1	PC-98RDUP	440-85159-14DUP	Water	20140807	DUP	Stage 2B								
440-85240-1	PC-18	440-85240-1	Water	20140808		Stage 2B		X					X	
440-85240-1	PC-18DUP	440-85240-1DUP	Water	20140808	DUP	Stage 2B								
440-85240-1	ARP-1	440-85240-2	Water	20140808		Stage 2B		X					X	
440-85240-1	PC-55	440-85240-3	Water	20140808		Stage 2B		X					X	
440-85350-1	I-O	440-85350-1	Water	20140811		Stage 2B		X					X	
440-85350-1	I-ODUP	440-85350-1DUP	Water	20140811	DUP	Stage 2B								
440-85350-1	I-W	440-85350-2	Water	20140811		Stage 2B		X					X	
440-85350-1	I-WMS	440-85350-2MS	Water	20140811	MS	Stage 2B		X						
440-85350-1	I-WMSD	440-85350-2MSD	Water	20140811	MSD	Stage 2B		X						
440-85350-1	I-P	440-85350-3	Water	20140811		Stage 2B		X					X	
440-85350-1	I-H	440-85350-4	Water	20140811		Stage 2B		X					X	
440-85350-1	I-U	440-85350-5	Water	20140811		Stage 2B		X					X	
440-85350-1	I-T	440-85350-6	Water	20140811		Stage 2B		X					X	
440-85350-1	I-G	440-85350-7	Water	20140811		Stage 2B		X					X	
440-85350-1	I-Q	440-85350-8	Water	20140811		Stage 2B		X					X	
440-85350-1	I-F	440-85350-9	Water	20140811		Stage 2B		X					X	
440-85350-1	I-X	440-85350-10	Water	20140811		Stage 2B		X					X	
440-85350-1	I-N	440-85350-11	Water	20140811		Stage 2B		X					X	
440-85350-1	I-NDUP	440-85350-11DUP	Water	20140811	DUP	Stage 2B								
440-85350-1	I-E	440-85350-12	Water	20140811		Stage 2B		X					X	
440-85350-1	I-EMS	440-85350-12MS	Water	20140811	MS	Stage 2B		X						
440-85350-1	I-EMSD	440-85350-12MSD	Water	20140811	MSD	Stage 2B		X						
440-85350-1	I-M	440-85350-13	Water	20140811		Stage 2B		X					X	
440-85350-1	I-D	440-85350-14	Water	20140811		Stage 2B		X					X	
440-85350-1	I-C	440-85350-15	Water	20140811		Stage 2B		X					X	
440-85350-1	I-S	440-85350-16	Water	20140811		Stage 2B		X					X	
440-85350-1	I-L	440-85350-17	Water	20140811		Stage 2B		X					X	
440-85350-1	I-Y	440-85350-18	Water	20140811		Stage 2B		X					X	
440-85350-1	I-YDUP	440-85350-18DUP	Water	20140811	DUP	Stage 2B								
440-85350-1	I-R	440-85350-19	Water	20140811		Stage 2B		X					X	
440-85350-1	I-B	440-85350-20	Water	20140811		Stage 2B		X					X	

Table I. Sample Cross-Reference

SDG	**Client Sample ID**	**Lab Sample ID**	**Matrix**	**Sample Date**	**QC Type**	**Validation Level**	**Metals (200.7)**	**Cr (200.7)**	**Cr^{6+} (218.6)**	**Cl,SO_4,NO_3-N,NO_2-N (300.0)**	**NO_3/NO_2-N (353.2)**	**ClO_3 (300.1)**	**ClO_4 (314.0)**	**NH_3-N (350.1)**
440-85350-1	I-AA	440-85350-21	Water	20140811		Stage 2B		X					X	
440-85350-1	I-AADUP	440-85350-21DUP	Water	20140811	DUP	Stage 2B								
440-85350-1	I-AR	440-85350-22	Water	20140811		Stage 2B		X					X	
440-85492-1	M-64	440-85492-1	Water	20140812		Stage 2B		X					X	
440-85492-1	M-64DUP	440-85492-1DUP	Water	20140812	DUP	Stage 2B								
440-85492-1	M-64MS	440-85492-1MS	Water	20140812	MS	Stage 2B		X						
440-85492-1	M-64MSD	440-85492-1MSD	Water	20140812	MSD	Stage 2B		X						
440-85492-1	M-65	440-85492-2	Water	20140812		Stage 2B		X					X	
440-85492-1	M-66	440-85492-3	Water	20140812		Stage 2B		X					X	
440-85492-1	M-79	440-85492-4	Water	20140812		Stage 2B		X					X	
440-85492-1	M-69	440-85492-5	Water	20140812		Stage 2B		X					X	
440-85492-1	M-135	440-85492-6	Water	20140812		Stage 2B		X					X	
440-85492-1	M-131	440-85492-7	Water	20140812		Stage 2B		X					X	
440-85492-1	M-57A	440-85492-8	Water	20140812		Stage 2B		X					X	
440-85492-1	M-70	440-85492-9	Water	20140812		Stage 2B		X					X	
440-85492-1	M-71	440-85492-10	Water	20140812		Stage 2B		X					X	
440-85492-1	M-72	440-85492-11	Water	20140812		Stage 2B		X					X	
440-85492-1	M-72DUP	440-85492-11DUP	Water	20140812	DUP	Stage 2B								
440-85492-1	M-72MS	440-85492-11MS	Water	20140812	MS	Stage 2B		X						
440-85492-1	M-72MSD	440-85492-11MSD	Water	20140812	MSD	Stage 2B		X						
440-85492-1	M-22A	440-85492-12	Water	20140812		Stage 2B		X					X	
440-85492-1	M-14A	440-85492-13	Water	20140812		Stage 2B		X					X	
440-85492-1	M-25	440-85492-14	Water	20140812		Stage 2B		X					X	
440-85492-1	M-37	440-85492-15	Water	20140812		Stage 2B		X	X				X	
440-85492-1	FB-1	440-85492-16	Water	20140812	FB	Stage 2B		X	X				X	
440-85492-1	M-38	440-85492-17	Water	20140812		Stage 2B		X	X				X	
440-85492-1	M-99	440-85492-18	Water	20140812		Stage 2B		X					X	
440-85492-1	M-99DUP	440-85492-18DUP	Water	20140812	DUP	Stage 2B								
440-85496-1	M-5A	440-85496-1	Water	20140812		Stage 2B	X			X			X	
440-85496-1	M-7B	440-85496-2	Water	20140812		Stage 2B	X			X			X	
440-85496-1	M-7BMS	440-85496-2MS	Water	20140812	MS	Stage 2B								
440-85496-1	M-7BMSD	440-85496-2MSD	Water	20140812	MSD	Stage 2B								
440-85653-1	PC-123	440-85653-140	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-123DUP	440-85653-140DUP	Water	20140813	DUP	Stage 2B								
440-85653-1	PC-123MS	440-85653-140MS	Water	20140813	MS	Stage 2B		X						

Table I. Sample Cross-Reference

SDG	**Client Sample ID**	**Lab Sample ID**	**Matrix**	**Sample Date**	**QC Type**	**Validation Level**	**Metals (200.7)**	**Cr (200.7)**	**Cr^{6+} (218.6)**	**Cl,SO_4,NO_3-N,NO_2-N (300.0)**	**NO_3/NO_2-N (353.2)**	**ClO_3 (300.1)**	**ClO_4 (314.0)**	**NH_3-N (350.1)**
440-85653-1	PC-123MSD	440-85653-140MSD	Water	20140813	MSD	Stage 2B		X						
440-85653-1	PC-128	440-85653-141	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-129	440-85653-142	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-129DUP	440-85653-142DUP	Water	20140813	DUP	Stage 2B								
440-85653-1	PC-130	440-85653-143	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-132	440-85653-144	Water	20140813	FD1	Stage 2B		X					X	
440-85653-1	PC-131	440-85653-145	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-124	440-85653-146	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-126	440-85653-147	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-125	440-85653-148	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-125DUP	440-85653-148DUP	Water	20140813	DUP	Stage 2B								
440-85653-1	PC-127	440-85653-149	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-54	440-85653-150	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-54MS	440-85653-150MS	Water	20140813	MS	Stage 2B		X						
440-85653-1	PC-54MSD	440-85653-150MSD	Water	20140813	MSD	Stage 2B		X						
440-85653-1	M-48A	440-85653-151	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-71	440-85653-152	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-72	440-85653-153	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-73	440-85653-154	Water	20140813		Stage 2B		X					X	
440-85653-1	M-23	440-85653-155	Water	20140813		Stage 2B		X					X	
440-85653-1	M-95	440-85653-156	Water	20140813		Stage 2B		X	X				X	
440-85653-1	M-44	440-85653-157	Water	20140813		Stage 2B		X	X				X	
440-85653-1	M-44DUP	440-85653-157DUP	Water	20140813	DUP	Stage 2B								
440-85653-1	DUP-1	440-85653-158	Water	20140813	FD1	Stage 2B		X					X	
440-85653-1	DUP-1DUP	440-85653-158DUP	Water	20140813	DUP	Stage 2B								
440-85653-1	EB-1	440-85653-159	Water	20140813	EB	Stage 2B		X	X				X	
440-85653-1	PC-37	440-85653-160	Water	20140813		Stage 2B		X					X	
440-85653-1	PC-37DUP	440-85653-160DUP	Water	20140813	DUP	Stage 2B								
440-85655-1	H-28A	440-85655-1	Water	20140813		Stage 2B	X			X			X	
440-85655-1	H-28AMS	440-85655-1MS	Water	20140813	MS	Stage 2B	X							
440-85655-1	H-28AMSD	440-85655-1MSD	Water	20140813	MSD	Stage 2B	X							
440-85655-1	M-6A	440-85655-2	Water	20140813		Stage 2B	X			X			X	
440-85655-1	M-6AMS	440-85655-2MS	Water	20140813	MS	Stage 2B								
440-85655-1	M-6AMSD	440-85655-2MSD	Water	20140813	MSD	Stage 2B								
440-85776-1	M-31A	440-85776-1	Water	20140814		Stage 2B		X					X	

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO$_4$,NO$_3$-N,NO$_2$-N (300.0)	NO$_3$/NO$_2$-N (353.2)	ClO$_3$ (300.1)	ClO$_4$ (314.0)	NH$_3$-N (350.1)
440-85776-1	M-31ADUP	440-85776-1DUP	Water	20140814	DUP	Stage 2B								
440-85776-1	M-31AMS	440-85776-1MS	Water	20140814	MS	Stage 2B		X						
440-85776-1	M-31AMSD	440-85776-1MSD	Water	20140814	MSD	Stage 2B		X						
440-85776-1	M-52	440-85776-2	Water	20140814		Stage 2B		X					X	
440-85776-1	M-35	440-85776-3	Water	20140814		Stage 2B		X					X	
440-85776-1	M-19	440-85776-4	Water	20140814		Stage 2B		X					X	
440-85776-1	M-68	440-85776-5	Water	20140814		Stage 2B		X					X	
440-85776-1	M-67	440-85776-6	Water	20140814		Stage 2B		X					X	
440-85776-1	M-74	440-85776-7	Water	20140814		Stage 2B		X					X	
440-85776-1	M-73	440-85776-8	Water	20140814		Stage 2B		X					X	
440-85776-1	I-K	440-85776-9	Water	20140814		Stage 2B		X					X	
440-85776-1	I-J	440-85776-10	Water	20140814		Stage 2B		X					X	
440-85776-1	I-Z	440-85776-11	Water	20140814		Stage 2B		X					X	
440-85776-1	I-ZDUP	440-85776-11DUP	Water	20140814	DUP	Stage 2B								
440-85776-1	I-ZMS	440-85776-11MS	Water	20140814	MS	Stage 2B		X						
440-85776-1	I-ZMSD	440-85776-11MSD	Water	20140814	MSD	Stage 2B		X						
440-85776-1	I-I	440-85776-12	Water	20140814		Stage 2B		X					X	
440-85776-1	I-V	440-85776-13	Water	20140814		Stage 2B		X					X	
440-85776-1	I-AD	440-85776-14	Water	20140814		Stage 2B		X					X	
440-85776-1	M-80	440-85776-15	Water	20140814		Stage 2B		X					X	
440-85776-1	M-81A	440-85776-16	Water	20140814		Stage 2B		X					X	
440-85776-1	M-83	440-85776-17	Water	20140814		Stage 2B		X					X	
440-85776-1	M-12A	440-85776-18	Water	20140814	FD2	Stage 2B		X	X				X	
440-85776-1	M-12ADUP	440-85776-18DUP	Water	20140814	DUP	Stage 2B								
440-85776-1	EB-2	440-85776-19	Water	20140814	EB	Stage 2B		X	X				X	
440-85776-1	DUP-3	440-85776-20	Water	20140814	FD2	Stage 2B		X	X				X	
440-85889-1	M-10	440-85889-1	Water	20140815		Stage 2B	X		X	X	X	X	X	X
440-85889-1	M-10DUP	440-85889-1DUP	Water	20140815	DUP	Stage 2B								
440-85889-1	M-10MS	440-85889-1MS	Water	20140815	MS	Stage 2B				X				
440-85889-1	M-10MSD	440-85889-1MSD	Water	20140815	MSD	Stage 2B				X				
440-85890-1	PC-148	440-85890-1	Water	20140815		Stage 2B		X					X	
440-85890-1	PC-148DUP	440-85890-1DUP	Water	20140815	DUP	Stage 2B								
440-85890-1	PC-149	440-85890-2	Water	20140815		Stage 2B		X					X	
440-85890-1	PC-150	440-85890-3	Water	20140815	FD3	Stage 2B		X					X	
440-85890-1	PC-136	440-85890-4	Water	20140815		Stage 2B		X					X	

Table I. Sample Cross-Reference

SDG	**Client Sample ID**	**Lab Sample ID**	**Matrix**	**Sample Date**	**QC Type**	**Validation Level**	**Metals (200.7)**	**Cr (200.7)**	**Cr^{6+} (218.6)**	**Cl,SO_4,NO_3-N,NO_2-N (300.0)**	**NO_3/NO_2-N (353.2)**	**ClO_3 (300.1)**	**ClO_4 (314.0)**	**NH_3-N (350.1)**
440-85890-1	PC-136MS	440-85890-4MS	Water	20140815	MS	Stage 2B		X						
440-85890-1	PC-136MSD	440-85890-4MSD	Water	20140815	MSD	Stage 2B		X						
440-85890-1	PC-144	440-85890-5	Water	20140815		Stage 2B		X					X	
440-85890-1	PC-135A	440-85890-6	Water	20140815		Stage 2B		X					X	
440-85890-1	M-11	440-85890-7	Water	20140815	FD4	Stage 2B		X	X				X	
440-85890-1	DUP-2	440-85890-8	Water	20140815	FD3	Stage 2B		X					X	
440-85890-1	DUP-4	440-85890-9	Water	20140815	FD4	Stage 2B		X	X				X	
440-87226-1	ART-1	440-87226-1	Water	20140903		Stage 4							X	
440-87226-1	ART-1DUP	440-87226-1DUP	Water	20140903	DUP	Stage 4								
440-87226-1	ART-2	440-87226-2	Water	20140903		Stage 4							X	
440-87226-1	ART-3	440-87226-3	Water	20140903		Stage 4							X	
440-87226-1	ART-4	440-87226-4	Water	20140903		Stage 4							X	
440-87226-1	ART-6	440-87226-5	Water	20140903		Stage 4							X	
440-87226-1	ART-7	440-87226-6	Water	20140903		Stage 4							X	
440-87226-1	ART-8	440-87226-7	Water	20140903		Stage 4							X	
440-87226-1	ART-9	440-87226-8	Water	20140903		Stage 4							X	
440-87226-1	PC-99R2/R3	440-87226-9	Water	20140903		Stage 4							X	
440-87226-1	PC-115R	440-87226-10	Water	20140903		Stage 4							X	
440-87226-1	PC-116R	440-87226-11	Water	20140903		Stage 4							X	
440-87226-1	PC-116RDUP	440-87226-11DUP	Water	20140903	DUP	Stage 4								
440-87226-1	PC-117	440-87226-12	Water	20140903		Stage 4							X	
440-87226-1	PC-118	440-87226-13	Water	20140903		Stage 4							X	
440-87226-1	PC-119	440-87226-14	Water	20140903		Stage 4							X	
440-87226-1	PC-120	440-87226-15	Water	20140903		Stage 4							X	
440-87226-1	PC-121	440-87226-16	Water	20140903		Stage 4							X	
440-87226-1	PC-133	440-87226-17	Water	20140903		Stage 4							X	
440-87925-1	PC-97	440-87925-1	Water	20140910		Stage 2B							X	
440-87925-1	PC-97DUP	440-87925-1DUP	Water	20140910	DUP	Stage 2B								
440-87925-1	PC-90	440-87925-2	Water	20140910		Stage 2B							X	
440-87925-1	PC-91	440-87925-3	Water	20140910		Stage 2B							X	
440-87925-1	PC-58	440-87925-4	Water	20140910		Stage 2B							X	
440-87925-1	PC-56	440-87925-5	Water	20140910		Stage 2B							X	
440-87925-1	PC-60	440-87925-6	Water	20140910		Stage 2B							X	
440-87925-1	PC-59	440-87925-7	Water	20140910		Stage 2B							X	
440-87925-1	PC-62	440-87925-8	Water	20140910		Stage 2B							X	

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO_4,NO_3-N,NO_2-N (300.0)	NO_3/NO_2-N (353.2)	ClO_3 (300.1)	ClO_4 (314.0)	NH_3-N (350.1)
440-87925-1	PC-68	440-87925-9	Water	20140910		Stage 2B							X	
440-87925-1	PC-86	440-87925-10	Water	20140910		Stage 2B							X	
440-87925-1	PC-18	440-87925-11	Water	20140910		Stage 2B							X	
440-87925-1	PC-18DUP	440-87925-11DUP	Water	20140910	DUP	Stage 2B								
440-87925-1	ARP-1	440-87925-12	Water	20140910		Stage 2B							X	
440-87966-1	M-83	440-87966-1	Water	20140911		Stage 2B							X	
440-87966-1	M-83DUP	440-87966-1DUP	Water	20140911	DUP	Stage 2B								
440-87966-1	PC-53	440-87966-2	Water	20140911		Stage 2B							X	
440-87966-1	MW-K5	440-87966-3	Water	20140911		Stage 2B							X	
440-87966-1	ARP-7	440-87966-4	Water	20140911		Stage 2B							X	
440-87966-1	ARP-6B	440-87966-5	Water	20140911		Stage 2B							X	
440-87966-1	ARP-5A	440-87966-6	Water	20140911		Stage 2B							X	
440-87966-1	ARP-4A	440-87966-7	Water	20140911		Stage 2B							X	
440-87966-1	PC-101R	440-87966-8	Water	20140911		Stage 2B							X	
440-87966-1	MW-K4	440-87966-9	Water	20140911		Stage 2B							X	
440-87966-1	MEB-1	440-87966-10	Water	20140911	EB	Stage 2B							X	
440-87966-1	ARP-3A	440-87966-11	Water	20140911		Stage 2B							X	
440-87966-1	ARP-2A	440-87966-12	Water	20140911		Stage 2B							X	
440-87966-1	ARP-2ADUP	440-87966-12DUP	Water	20140911	DUP	Stage 2B								
440-87966-1	PC-103	440-87966-13	Water	20140911		Stage 2B							X	
440-87966-1	PC-98R	440-87966-14	Water	20140911		Stage 2B							X	
440-88032-1	PC-122	440-88032-1	Water	20140912		Stage 2B							X	
440-88032-1	PC-55	440-88032-2	Water	20140912		Stage 2B							X	
440-90069-1	ART-1	440-90069-1	Water	20141007		Stage 2B							X	
440-90069-1	ART-1DUP	440-90069-1DUP	Water	20141007	DUP	Stage 2B								
440-90069-1	ART-2	440-90069-2	Water	20141007		Stage 2B							X	
440-90069-1	ART-3	440-90069-3	Water	20141007		Stage 2B							X	
440-90069-1	ART-4	440-90069-4	Water	20141007		Stage 2B							X	
440-90069-1	ART-6	440-90069-5	Water	20141008		Stage 2B							X	
440-90069-1	ART-7	440-90069-6	Water	20141007		Stage 2B							X	
440-90069-1	ART-8	440-90069-7	Water	20141007		Stage 2B							X	
440-90069-1	ART-9	440-90069-8	Water	20141007		Stage 2B							X	
440-90069-1	PC-99R2/R3	440-90069-9	Water	20141007		Stage 2B							X	
440-90069-1	PC-115R	440-90069-10	Water	20141007		Stage 2B							X	
440-90069-1	PC-116R	440-90069-11	Water	20141007		Stage 2B							X	

Table I. Sample Cross-Reference

SDG	**Client Sample ID**	**Lab Sample ID**	**Matrix**	**Sample Date**	**QC Type**	**Validation Level**	**Metals (200.7)**	**Cr (200.7)**	**Cr^{6+} (218.6)**	**Cl,SO_4,NO_3-N,NO_2-N (300.0)**	**NO_3/NO_2-N (353.2)**	**ClO_3 (300.1)**	**ClO_4 (314.0)**	**NH_3-N (350.1)**
440-90069-1	PC-116RDUP	440-90069-11DUP	Water	20141007	DUP	Stage 2B								
440-90069-1	PC-117	440-90069-12	Water	20141007		Stage 2B							X	
440-90069-1	PC-118	440-90069-13	Water	20141007		Stage 2B							X	
440-90069-1	PC-119	440-90069-14	Water	20141007		Stage 2B							X	
440-90069-1	PC-120	440-90069-15	Water	20141007		Stage 2B							X	
440-90069-1	PC-121	440-90069-16	Water	20141007		Stage 2B							X	
440-90069-1	PC-133	440-90069-17	Water	20141007		Stage 2B							X	
440-90694-1	M-83	440-90694-1	Water	20141014		Stage 2B							X	
440-90694-1	PC-97	440-90694-2	Water	20141014		Stage 2B							X	
440-90694-1	PC-97DUP	440-90694-2DUP	Water	20141014	DUP	Stage 2B								
440-90694-1	PC-90	440-90694-3	Water	20141014		Stage 2B							X	
440-90694-1	PC-91	440-90694-4	Water	20141014		Stage 2B							X	
440-90694-1	PC-58	440-90694-5	Water	20141014		Stage 2B							X	
440-90694-1	PC-56	440-90694-6	Water	20141014		Stage 2B							X	
440-90694-1	PC-60	440-90694-7	Water	20141014		Stage 2B							X	
440-90694-1	PC-59	440-90694-8	Water	20141014		Stage 2B							X	
440-90694-1	PC-62	440-90694-9	Water	20141014		Stage 2B							X	
440-90694-1	PC-68	440-90694-10	Water	20141014		Stage 2B							X	
440-90694-1	PC-86	440-90694-11	Water	20141014		Stage 2B							X	
440-90694-1	EB-1	440-90694-12	Water	20141014	EB	Stage 2B							X	
440-90694-1	PC-18	440-90694-13	Water	20141014		Stage 2B							X	
440-90694-1	PC-18DUP	440-90694-13DUP	Water	20141014	DUP	Stage 2B								
440-90694-1	ARP-1	440-90694-14	Water	20141014		Stage 2B							X	
440-90694-1	PC-122	440-90694-15	Water	20141015		Stage 2B							X	
440-90694-1	PC-53	440-90694-16	Water	20141015		Stage 2B							X	
440-90694-1	MW-K5	440-90694-17	Water	20141015		Stage 2B							X	
440-90694-1	ARP-7	440-90694-18	Water	20141015		Stage 2B							X	
440-90694-1	ARP-6B	440-90694-19	Water	20141015		Stage 2B							X	
440-90694-1	ARP-5A	440-90694-20	Water	20141015		Stage 2B							X	
440-90694-1	ARP-4A	440-90694-21	Water	20141015		Stage 2B							X	
440-90694-1	PC-101R	440-90694-22	Water	20141015		Stage 2B							X	
440-90694-1	MW-K4	440-90694-23	Water	20141015		Stage 2B							X	
440-90694-1	MW-K4DUP	440-90694-23DUP	Water	20141015	DUP	Stage 2B								
440-90694-1	ARP-3A	440-90694-24	Water	20141015		Stage 2B							X	
440-90694-1	ARP-2A	440-90694-25	Water	20141015		Stage 2B							X	

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO$_4$,NO$_3$-N,NO$_2$-N (300.0)	NO$_3$/NO$_2$-N (353.2)	ClO$_3$ (300.1)	ClO$_4$ (314.0)	NH$_3$-N (350.1)
440-90694-1	PC-103	440-90694-26	Water	20141015		Stage 2B							X	
440-90694-1	PC-98R	440-90694-27	Water	20141015		Stage 2B							X	
440-90694-1	PC-55	440-90694-28	Water	20141015		Stage 2B							X	
440-92039-1	ART-1	440-92039-1	Water	20141103		Stage 2B		X					X	
440-92039-1	ART-1DUP	440-92039-1DUP	Water	20141103	DUP	Stage 2B								
440-92039-1	ART-1MS	440-92039-1MS	Water	20141103	MS	Stage 2B		X						
440-92039-1	ART-1MSD	440-92039-1MSD	Water	20141103	MSD	Stage 2B		X						
440-92039-1	ART-2	440-92039-2	Water	20141103		Stage 2B		X					X	
440-92039-1	ART-3	440-92039-3	Water	20141103		Stage 2B		X					X	
440-92039-1	ART-3MS	440-92039-3MS	Water	20141103	MS	Stage 2B		X						
440-92039-1	ART-3MSD	440-92039-3MSD	Water	20141103	MSD	Stage 2B		X						
440-92039-1	ART-4	440-92039-4	Water	20141103		Stage 2B		X					X	
440-92039-1	ART-6	440-92039-5	Water	20141103		Stage 2B		X					X	
440-92039-1	ART-7B	440-92039-6	Water	20141103		Stage 2B		X					X	
440-92039-1	ART-8	440-92039-7	Water	20141103		Stage 2B		X					X	
440-92039-1	ART-9	440-92039-8	Water	20141103		Stage 2B		X					X	
440-92039-1	PC-99R2/R3	440-92039-9	Water	20141103		Stage 2B		X					X	
440-92039-1	PC-115R	440-92039-10	Water	20141103		Stage 2B		X					X	
440-92039-1	PC-116R	440-92039-11	Water	20141103		Stage 2B		X					X	
440-92039-1	PC-116RDUP	440-92039-11DUP	Water	20141103	DUP	Stage 2B								
440-92039-1	PC-117	440-92039-12	Water	20141103		Stage 2B		X					X	
440-92039-1	PC-118	440-92039-13	Water	20141103		Stage 2B		X					X	
440-92039-1	PC-119	440-92039-14	Water	20141103		Stage 2B		X					X	
440-92039-1	PC-120	440-92039-15	Water	20141103		Stage 2B		X					X	
440-92039-1	PC-121	440-92039-16	Water	20141103		Stage 2B		X					X	
440-92039-1	PC-121DUP	440-92039-16DUP	Water	20141103	DUP	Stage 2B								
440-92039-1	PC-133	440-92039-17	Water	20141103		Stage 2B		X					X	
440-93300-1	PC-150	440-93300-1	Water	20141113		Stage 2B		X					X	
440-93300-1	PC-150DUP	440-93300-1DUP	Water	20141113	DUP	Stage 2B								
440-94207-1	M-83	440-94207-1	Water	20141124		Stage 2B		X					X	
440-94207-1	M-83DUP	440-94207-1DUP	Water	20141124	DUP	Stage 2B								
440-94207-1	M-83MS	440-94207-1MS	Water	20141124	MS	Stage 2B		X						
440-94207-1	M-83MSD	440-94207-1MSD	Water	20141124	MSD	Stage 2B		X						
440-94207-1	PC-97	440-94207-2	Water	20141124		Stage 2B		X					X	
440-94207-1	PC-90	440-94207-3	Water	20141124		Stage 2B		X					X	

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO$_4$,NO$_3$-N,NO$_2$-N (300.0)	NO$_3$/NO$_2$-N (353.2)	ClO$_3$ (300.1)	ClO$_4$ (314.0)	NH$_3$-N (350.1)
440-94207-1	PC-91	440-94207-4	Water	20141124		Stage 2B		X					X	
440-94207-1	PC-58	440-94207-5	Water	20141124		Stage 2B		X					X	
440-94207-1	PC-56	440-94207-6	Water	20141124		Stage 2B		X					X	
440-94207-1	PC-60	440-94207-7	Water	20141124		Stage 2B		X					X	
440-94207-1	PC-59	440-94207-8	Water	20141124		Stage 2B		X					X	
440-94207-1	PC-62	440-94207-9	Water	20141124		Stage 2B		X					X	
440-94207-1	PC-68	440-94207-10	Water	20141124		Stage 2B		X					X	
440-94207-1	PC-86	440-94207-11	Water	20141124		Stage 2B		X					X	
440-94207-1	PC-86DUP	440-94207-11DUP	Water	20141124	DUP	Stage 2B								
440-94207-1	PC-86MS	440-94207-11MS	Water	20141124	MS	Stage 2B		X						
440-94207-1	PC-86MSD	440-94207-11MSD	Water	20141124	MSD	Stage 2B		X						
440-94207-1	PC-18	440-94207-12	Water	20141124		Stage 2B		X					X	
440-94207-1	PC-18DUP	440-94207-12DUP	Water	20141124	DUP	Stage 2B								
440-94339-1	PC-53	440-94339-1	Water	20141125		Stage 2B		X					X	
440-94339-1	PC-53DUP	440-94339-1DUP	Water	20141125	DUP	Stage 2B								
440-94339-1	PC-53MS	440-94339-1MS	Water	20141125	MS	Stage 2B		X						
440-94339-1	PC-53MSD	440-94339-1MSD	Water	20141125	MSD	Stage 2B		X						
440-94339-1	MW-K5	440-94339-2	Water	20141125		Stage 2B		X					X	
440-94339-1	ARP-7	440-94339-3	Water	20141125		Stage 2B		X					X	
440-94339-1	ARP-6B	440-94339-4	Water	20141125		Stage 2B		X					X	
440-94339-1	ARP-5A	440-94339-5	Water	20141125		Stage 2B		X					X	
440-94339-1	ARP-4A	440-94339-6	Water	20141125		Stage 2B		X					X	
440-94339-1	PC-144	440-94339-7	Water	20141125		Stage 2B		X					X	
440-94339-1	PC-101R	440-94339-8	Water	20141125		Stage 2B		X					X	
440-94339-1	MW-K4	440-94339-9	Water	20141125		Stage 2B		X					X	
440-94339-1	ARP-3A	440-94339-10	Water	20141125		Stage 2B		X					X	
440-94339-1	ARP-2A	440-94339-11	Water	20141125		Stage 2B		X					X	
440-94339-1	ARP-2ADUP	440-94339-11DUP	Water	20141125	DUP	Stage 2B								
440-94339-1	ARP-2AMS	440-94339-11MS	Water	20141125	MS	Stage 2B		X						
440-94339-1	ARP-2AMSD	440-94339-11MSD	Water	20141125	MSD	Stage 2B		X						
440-94339-1	MEB-1	440-94339-12	Water	20141125	EB	Stage 2B							X	
440-94339-1	PC-103	440-94339-13	Water	20141125		Stage 2B		X					X	
440-94339-1	PC-98R	440-94339-14	Water	20141125		Stage 2B		X					X	
440-94339-1	ARP-1	440-94339-15	Water	20141125		Stage 2B		X					X	
440-94339-1	PC-55	440-94339-16	Water	20141125		Stage 2B		X					X	

Table I. Sample Cross-Reference

SDG	**Client Sample ID**	**Lab Sample ID**	**Matrix**	**Sample Date**	**QC Type**	**Validation Level**	**Metals (200.7)**	**Cr (200.7)**	**Cr^{6+} (218.6)**	**Cl,SO_4,NO_3-N,NO_2-N (300.0)**	**NO_3/NO_2-N (353.2)**	**ClO_3 (300.1)**	**ClO_4 (314.0)**	**NH_3-N (350.1)**
440-94339-1	PC-55DUP	440-94339-16DUP	Water	20141125	DUP	Stage 2B								
440-94662-1	I-M	440-94662-1	Water	20141201		Stage 2B		X					X	
440-94662-1	I-MDUP	440-94662-1DUP	Water	20141201	DUP	Stage 2B								
440-94662-1	I-MMS	440-94662-1MS	Water	20141201	MS	Stage 2B		X						
440-94662-1	I-MMSD	440-94662-1MSD	Water	20141201	MSD	Stage 2B		X						
440-94662-1	I-D	440-94662-2	Water	20141201		Stage 2B		X					X	
440-94662-1	I-C	440-94662-3	Water	20141201		Stage 2B		X					X	
440-94662-1	I-S	440-94662-4	Water	20141201		Stage 2B		X					X	
440-94662-1	I-L	440-94662-5	Water	20141201		Stage 2B		X					X	
440-94662-1	I-LDUP	440-94662-5DUP	Water	20141201	DUP	Stage 2B								
440-94662-1	I-Y	440-94662-6	Water	20141201		Stage 2B		X					X	
440-94662-1	I-R	440-94662-7	Water	20141201		Stage 2B		X					X	
440-94662-1	I-B	440-94662-8	Water	20141201		Stage 2B		X					X	
440-94662-1	I-AB	440-94662-9	Water	20141201		Stage 2B		X					X	
440-94662-1	I-AA	440-94662-10	Water	20141201		Stage 2B		X					X	
440-94662-1	I-AR	440-94662-11	Water	20141201		Stage 2B		X					X	
440-94662-1	I-ARDUP	440-94662-11DUP	Water	20141201	DUP	Stage 2B								
440-94662-1	I-ARMS	440-94662-11MS	Water	20141201	MS	Stage 2B		X						
440-94662-1	I-ARMSD	440-94662-11MSD	Water	20141201	MSD	Stage 2B		X						
440-94662-1	I-O	440-94662-12	Water	20141201		Stage 2B		X					X	
440-94662-1	I-W	440-94662-13	Water	20141201		Stage 2B		X					X	
440-94662-1	I-P	440-94662-14	Water	20141201		Stage 2B		X					X	
440-94662-1	I-H	440-94662-15	Water	20141201		Stage 2B		X					X	
440-94662-1	I-U	440-94662-16	Water	20141201		Stage 2B		X					X	
440-94662-1	I-T	440-94662-17	Water	20141201		Stage 2B		X					X	
440-94662-1	I-G	440-94662-18	Water	20141201		Stage 2B		X					X	
440-94662-1	I-Q	440-94662-19	Water	20141201		Stage 2B		X					X	
440-94662-1	I-F	440-94662-20	Water	20141201		Stage 2B		X					X	
440-94662-1	I-X	440-94662-21	Water	20141201		Stage 2B		X					X	
440-94662-1	I-N	440-94662-22	Water	20141201		Stage 2B		X					X	
440-94662-1	I-E	440-94662-23	Water	20141201		Stage 2B		X					X	
440-94662-1	I-EDUP	440-94662-23DUP	Water	20141201	DUP	Stage 2B								
440-94669-1	ART-1	440-94669-1	Water	20141201		Stage 2B							X	
440-94669-1	ART-2	440-94669-2	Water	20141201		Stage 2B							X	
440-94669-1	ART-3	440-94669-3	Water	20141201		Stage 2B							X	

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO$_4$,NO$_3$-N,NO$_2$-N (300.0)	NO$_3$/NO$_2$-N (353.2)	ClO$_3$ (300.1)	ClO$_4$ (314.0)	NH$_3$-N (350.1)
440-94669-1	ART-4	440-94669-4	Water	20141201		Stage 2B							X	
440-94669-1	ART-6	440-94669-5	Water	20141201		Stage 2B							X	
440-94669-1	ART-7B	440-94669-6	Water	20141201		Stage 2B							X	
440-94669-1	ART-8	440-94669-7	Water	20141201		Stage 2B							X	
440-94669-1	ART-8DUP	440-94669-7DUP	Water	20141201	DUP	Stage 2B								
440-94669-1	ART-9	440-94669-8	Water	20141201		Stage 2B							X	
440-94669-1	PC-99R2/R3	440-94669-9	Water	20141201		Stage 2B							X	
440-94669-1	PC-115R	440-94669-10	Water	20141201		Stage 2B							X	
440-94669-1	PC-116R	440-94669-11	Water	20141201		Stage 2B							X	
440-94669-1	PC-117	440-94669-12	Water	20141201		Stage 2B							X	
440-94669-1	PC-118	440-94669-13	Water	20141201		Stage 2B							X	
440-94669-1	PC-119	440-94669-14	Water	20141201		Stage 2B							X	
440-94669-1	PC-120	440-94669-15	Water	20141201		Stage 2B							X	
440-94669-1	PC-121	440-94669-16	Water	20141201		Stage 2B							X	
440-94669-1	PC-133	440-94669-17	Water	20141201		Stage 2B							X	
440-94669-1	PC-133DUP	440-94669-17DUP	Water	20141201	DUP	Stage 2B								
440-94669-1	PC-150	440-94669-18	Water	20141201		Stage 2B							X	
440-94868-1	I-AD	440-94868-1	Water	20141202		Stage 2B		X					X	
440-94868-1	I-ADDUP	440-94868-1DUP	Water	20141202	DUP	Stage 2B								
440-94868-1	I-AC	440-94868-2	Water	20141202		Stage 2B		X					X	
440-94868-1	I-K	440-94868-3	Water	20141202		Stage 2B		X					X	
440-94868-1	I-KMS	440-94868-3MS	Water	20141202	MS	Stage 2B		X						
440-94868-1	I-KMSD	440-94868-3MSD	Water	20141202	MSD	Stage 2B		X						
440-94868-1	I-J	440-94868-4	Water	20141202		Stage 2B		X					X	
440-94868-1	I-Z	440-94868-5	Water	20141202		Stage 2B		X					X	
440-94868-1	I-I	440-94868-6	Water	20141202		Stage 2B		X					X	
440-94868-1	I-V	440-94868-7	Water	20141202		Stage 2B		X					X	
440-94868-1	I-VMS	440-94868-7MS	Water	20141202	MS	Stage 2B		X						
440-94868-1	I-VMSD	440-94868-7MSD	Water	20141202	MSD	Stage 2B		X						
440-95199-1	PC-123	440-95199-1	Water	20141204		Stage 4		X					X	
440-95199-1	PC-123DUP	440-95199-1DUP	Water	20141204	DUP	Stage 4								
440-95199-1	PC-123MS	440-95199-1MS	Water	20141204	MS	Stage 4		X						
440-95199-1	PC-123MSD	440-95199-1MSD	Water	20141204	MSD	Stage 4		X						
440-95199-1	PC-128	440-95199-2	Water	20141204		Stage 4		X					X	
440-95199-1	PC-129	440-95199-3	Water	20141204		Stage 4		X					X	

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO$_4$,NO$_3$-N,NO$_2$-N (300.0)	NO$_3$/NO$_2$-N (353.2)	ClO$_3$ (300.1)	ClO$_4$ (314.0)	NH$_3$-N (350.1)
440-95199-1	PC-130	440-95199-4	Water	20141204		Stage 4		X					X	
440-95199-1	PC-131	440-95199-5	Water	20141204		Stage 4		X					X	
440-95199-1	PC-132	440-95199-6	Water	20141204		Stage 4		X					X	
440-95199-1	PC-124	440-95199-7	Water	20141204		Stage 4		X					X	
440-95199-1	PC-125	440-95199-8	Water	20141204		Stage 4		X					X	
440-95199-1	PC-126	440-95199-9	Water	20141204		Stage 4		X					X	
440-95199-1	PC-127	440-95199-10	Water	20141204		Stage 4		X					X	
440-95199-1	EB-1	440-95199-11	Water	20141204	EB	Stage 4		X	X				X	
440-95199-1	EB-1DUP	440-95199-11DUP	Water	20141204	DUP	Stage 4								
440-95199-1	EB-1MS	440-95199-11MS	Water	20141204	MS	Stage 4		X						
440-95199-1	EB-1MSD	440-95199-11MSD	Water	20141204	MSD	Stage 4		X						
440-95199-1	PC-54	440-95199-12	Water	20141204		Stage 4		X					X	
440-95199-1	M-48A	440-95199-13	Water	20141204		Stage 4		X					X	
440-95199-1	M-44	440-95199-14	Water	20141204		Stage 4		X	X				X	
440-95199-1	PC-71	440-95199-15	Water	20141204		Stage 4		X					X	
440-95199-1	PC-71DUP	440-95199-15DUP	Water	20141204	DUP	Stage 4								
440-95199-1	PC-72	440-95199-16	Water	20141204		Stage 4		X					X	
440-95199-1	PC-73	440-95199-17	Water	20141204		Stage 4		X					X	
440-95253-1	M-64	440-95253-1	Water	20141203		Stage 2B		X					X	
440-95253-1	M-65	440-95253-2	Water	20141203		Stage 2B		X					X	
440-95253-1	M-66	440-95253-3	Water	20141203		Stage 2B		X					X	
440-95253-1	FB-1	440-95253-4	Water	20141203	FB	Stage 2B		X	X				X	
440-95253-1	M-79	440-95253-5	Water	20141203		Stage 2B		X					X	
440-95253-1	M-131	440-95253-6	Water	20141203	FD5	Stage 2B		X					X	
440-95253-1	DUP-2	440-95253-7	Water	20141203	FD5	Stage 2B		X					X	
440-95437-1	PC-94	440-95437-1	Water	20141205		Stage 2B		X					X	
440-95437-1	PC-94DUP	440-95437-1DUP	Water	20141205	DUP	Stage 2B								
440-95437-1	PC-94MS	440-95437-1MS	Water	20141205	MS	Stage 2B		X						
440-95437-1	PC-94MSD	440-95437-1MSD	Water	20141205	MSD	Stage 2B		X						
440-95437-1	PC-148	440-95437-2	Water	20141205		Stage 2B		X					X	
440-95437-1	PC-149	440-95437-3	Water	20141205		Stage 2B		X					X	
440-95437-1	PC-136	440-95437-4	Water	20141205		Stage 2B		X					X	
440-95437-1	PC-135A	440-95437-5	Water	20141205		Stage 2B		X					X	
440-95437-1	PC-135ADUP	440-95437-5DUP	Water	20141205	DUP	Stage 2B								
440-95437-1	PC-37	440-95437-6	Water	20141205		Stage 2B		X					X	

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO_4,NO_3-N,NO_2-N (300.0)	NO_3/NO_2-N (353.2)	ClO_3 (300.1)	ClO_4 (314.0)	NH_3-N (350.1)
440-95437-1	M-23	440-95437-7	Water	20141205	FD6	Stage 2B		X					X	
440-95437-1	M-95	440-95437-8	Water	20141205		Stage 2B		X	X				X	
440-95437-1	EB-2	440-95437-9	Water	20141205	EB	Stage 2B		X	X				X	
440-95437-1	DUP-1	440-95437-10	Water	20141205	FD6	Stage 2B		X					X	
440-95437-1	M-57A	440-95437-11	Water	20141205		Stage 2B		X					X	
440-95437-1	M-57AMS	440-95437-11MS	Water	20141205	MS	Stage 2B		X						
440-95437-1	M-57AMSD	440-95437-11MSD	Water	20141205	MSD	Stage 2B		X						
440-95437-1	M-37	440-95437-12	Water	20141205		Stage 2B		X	X				X	
440-95437-1	M-37MS	440-95437-12MS	Water	20141205	MS	Stage 2B			X					
440-95437-1	M-37MSD	440-95437-12MSD	Water	20141205	MSD	Stage 2B			X					
440-95800-1	M-14A	440-95800-1	Water	20141208		Stage 2B		X					X	
440-95800-1	M-14AMS	440-95800-1MS	Water	20141208	MS	Stage 2B		X						
440-95800-1	M-14AMSD	440-95800-1MSD	Water	20141208	MSD	Stage 2B		X						
440-95800-1	M-25	440-95800-2	Water	20141208		Stage 2B		X					X	
440-95800-1	M-22A	440-95800-3	Water	20141208		Stage 2B		X					X	
440-95800-1	M-70	440-95800-4	Water	20141208		Stage 2B		X					X	
440-95800-1	M-71	440-95800-5	Water	20141208		Stage 2B		X					X	
440-95800-1	M-72	440-95800-6	Water	20141208		Stage 2B		X					X	
440-95800-1	M-72DUP	440-95800-6DUP	Water	20141208	DUP	Stage 2B								
440-95800-1	M-99	440-95800-7	Water	20141208		Stage 2B		X					X	
440-95800-1	M-68	440-95800-8	Water	20141208		Stage 2B		X					X	
440-95800-1	M-67	440-95800-9	Water	20141208		Stage 2B		X					X	
440-95800-1	M-67DUP	440-95800-9DUP	Water	20141208	DUP	Stage 2B								
440-95800-1	M-38	440-95800-10	Water	20141208	FD7	Stage 2B		X	X				X	
440-95800-1	DUP-3	440-95800-11	Water	20141208	FD7	Stage 2B		X	X				X	
440-95800-1	DUP-3MS	440-95800-11MS	Water	20141208	MS	Stage 2B		X						
440-95800-1	DUP-3MSD	440-95800-11MSD	Water	20141208	MSD	Stage 2B		X						
440-95801-1	M-10	440-95801-1	Water	20141208		Stage 4	X		X	X	X	X	X	X
440-95801-1	M-10DL	440-95801-1DL	Water	20141208	DL	Stage 4				X				
440-95801-1	M-10MS	440-95801-1MS	Water	20141208	MS	Stage 4			X	X				
440-95801-1	M-10MSD	440-95801-1MSD	Water	20141208	MSD	Stage 4			X	X				
440-96212-1	M-69	440-96212-1	Water	20141209		Stage 2B		X					X	
440-96212-1	M-69DUP	440-96212-1DUP	Water	20141209	DUP	Stage 2B								
440-96212-1	M-135	440-96212-2	Water	20141209		Stage 2B		X					X	
440-96212-1	M-31A	440-96212-3	Water	20141209		Stage 2B		X					X	

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO_4,NO_3-N,NO_2-N (300.0)	NO_3/NO_2-N (353.2)	ClO_3 (300.1)	ClO_4 (314.0)	NH_3-N (350.1)
440-96212-1	M-31ADUP	440-96212-3DUP	Water	20141209	DUP	Stage 2B								
440-96212-1	M-52	440-96212-4	Water	20141209		Stage 2B		X					X	
440-96212-1	M-73	440-96212-5	Water	20141209		Stage 2B		X					X	
440-97242-1	M-81A	440-97242-1	Water	20141218		Stage 2B		X					X	
440-97242-1	M-81AMS	440-97242-1MS	Water	20141218	MS	Stage 2B		X						
440-97242-1	M-81AMSD	440-97242-1MSD	Water	20141218	MSD	Stage 2B		X						
440-97242-1	M-80	440-97242-2	Water	20141218		Stage 2B		X					X	
440-97242-1	M-74	440-97242-3	Water	20141218		Stage 2B		X					X	
440-97242-1	M-35	440-97242-4	Water	20141218		Stage 2B		X					X	
440-97242-1	M-19	440-97242-5	Water	20141218		Stage 2B		X					X	
440-97242-1	M-12A	440-97242-6	Water	20141218	FD8	Stage 2B		X	X				X	
440-97242-1	M-11	440-97242-7	Water	20141218		Stage 2B		X	X				X	
440-97242-1	DUP-4	440-97242-8	Water	20141218	FD8	Stage 2B		X	X				X	
440-97242-1	DUP-4DUP	440-97242-8DUP	Water	20141218	DUP	Stage 2B								
440-97504-1	PC-97	440-97504-1	Water	20141222		Stage 2B							X	
440-97504-1	PC-97DUP	440-97504-1DUP	Water	20141222	DUP	Stage 2B								
440-97504-1	PC-90	440-97504-2	Water	20141222		Stage 2B							X	
440-97504-1	PC-91	440-97504-3	Water	20141222		Stage 2B							X	
440-97504-1	PC-58	440-97504-4	Water	20141222		Stage 2B							X	
440-97504-1	PC-56	440-97504-5	Water	20141222		Stage 2B							X	
440-97504-1	PC-60	440-97504-6	Water	20141222		Stage 2B							X	
440-97504-1	PC-59	440-97504-7	Water	20141222		Stage 2B							X	
440-97504-1	PC-62	440-97504-8	Water	20141222		Stage 2B							X	
440-97504-1	PC-68	440-97504-9	Water	20141222		Stage 2B							X	
440-97504-1	PC-86	440-97504-10	Water	20141222		Stage 2B							X	
440-97504-1	MEB-1	440-97504-11	Water	20141222	EB	Stage 2B							X	
440-97847-1	PC-53	440-97847-1	Water	20141229		Stage 2B							X	
440-97847-1	PC-53DUP	440-97847-1DUP	Water	20141229	DUP	Stage 2B								
440-97847-1	MW-K5	440-97847-2	Water	20141229		Stage 2B							X	
440-97847-1	ARP-7	440-97847-3	Water	20141229		Stage 2B							X	
440-97847-1	ARP-6B	440-97847-4	Water	20141229		Stage 2B							X	
440-97847-1	ARP-5A	440-97847-5	Water	20141229		Stage 2B							X	
440-97847-1	ARP-4A	440-97847-6	Water	20141229		Stage 2B							X	
440-97847-1	PC-101R	440-97847-7	Water	20141229		Stage 2B							X	
440-97847-1	MW-K4	440-97847-8	Water	20141229		Stage 2B							X	

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Metals (200.7)	Cr (200.7)	Cr^{6+} (218.6)	Cl,SO_4,NO_3-N,NO_2-N (300.0)	NO_3/NO_2-N (353.2)	ClO_3 (300.1)	ClO_4 (314.0)	NH_3-N (350.1)
440-97847-1	ARP-3A	440-97847-9	Water	20141229		Stage 2B							X	
440-97847-1	ARP-2A	440-97847-10	Water	20141229		Stage 2B							X	
440-98043-1	M-83	440-98043-1	Water	20141230		Stage 2B							X	
440-98043-1	PC-18	440-98043-2	Water	20141230		Stage 2B							X	
440-98043-1	ARP-1	440-98043-3	Water	20141230		Stage 2B							X	
440-98043-1	PC-103	440-98043-4	Water	20141230		Stage 2B							X	
440-98043-1	PC-103DUP	440-98043-4DUP	Water	20141230	DUP	Stage 2B								
440-98043-1	PC-98R	440-98043-5	Water	20141230		Stage 2B							X	
440-98043-1	PC-55	440-98043-6	Water	20141230		Stage 2B							X	
440-98043-1	PC-122	440-98043-7	Water	20141230		Stage 2B							X	

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-82280-1	ART-1	440-82280-1	Water	20140701		Stage 2B				X			
440-82280-1	ART-1DUP	440-82280-1DUP	Water	20140701	DUP	Stage 2B				X			
440-82280-1	ART-2	440-82280-2	Water	20140701		Stage 2B				X			
440-82280-1	ART-3	440-82280-3	Water	20140701		Stage 2B				X			
440-82280-1	ART-4	440-82280-4	Water	20140701		Stage 2B				X			
440-82280-1	ART-6	440-82280-5	Water	20140701		Stage 2B				X			
440-82280-1	ART-7	440-82280-6	Water	20140701		Stage 2B				X			
440-82280-1	ART-8	440-82280-7	Water	20140701		Stage 2B				X			
440-82280-1	ART-9	440-82280-8	Water	20140701		Stage 2B				X			
440-82280-1	PC-99R2/R3	440-82280-9	Water	20140701		Stage 2B				X			
440-82280-1	PC-115R	440-82280-10	Water	20140701		Stage 2B				X			
440-82280-1	PC-116R	440-82280-11	Water	20140701		Stage 2B				X			
440-82280-1	PC-116RDUP	440-82280-11DUP	Water	20140701	DUP	Stage 2B				X			
440-82280-1	PC-117	440-82280-12	Water	20140701		Stage 2B				X			
440-82280-1	PC-118	440-82280-13	Water	20140701		Stage 2B				X			
440-82280-1	PC-119	440-82280-14	Water	20140701		Stage 2B				X			
440-82280-1	PC-120	440-82280-15	Water	20140701		Stage 2B				X			
440-82280-1	PC-121	440-82280-16	Water	20140701		Stage 2B				X			
440-82280-1	PC-133	440-82280-17	Water	20140701		Stage 2B				X			
440-82772-1	PC-97	440-82772-1	Water	20140708		Stage 2B				X			
440-82772-1	PC-97DUP	440-82772-1DUP	Water	20140708	DUP	Stage 2B				X			
440-82772-1	PC-90	440-82772-2	Water	20140708		Stage 2B				X			
440-82772-1	PC-91	440-82772-3	Water	20140708		Stage 2B				X			
440-82772-1	PC-58	440-82772-4	Water	20140708		Stage 2B				X			
440-82772-1	PC-56	440-82772-5	Water	20140708		Stage 2B				X			
440-82772-1	PC-60	440-82772-6	Water	20140708		Stage 2B				X			
440-82772-1	PC-59	440-82772-7	Water	20140708		Stage 2B				X			
440-82772-1	PC-62	440-82772-8	Water	20140708		Stage 2B				X			
440-82772-1	PC-68	440-82772-9	Water	20140708		Stage 2B				X			
440-82772-1	ARP-1	440-82772-10	Water	20140708		Stage 2B				X			
440-82772-1	PC-18	440-82772-11	Water	20140708		Stage 2B				X			
440-82772-1	PC-18DUP	440-82772-11DUP	Water	20140708	DUP	Stage 2B				X			
440-82772-1	EB-1	440-82772-12	Water	20140708	EB	Stage 2B							
440-82778-1	PC-122	440-82778-1	Water	20140709		Stage 2B				X			
440-82778-1	PC-122DUP	440-82778-1DUP	Water	20140709	DUP	Stage 2B				X			

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-82778-1	PC-53	440-82778-2	Water	20140709		Stage 2B				X			
440-82778-1	MW-K5	440-82778-3	Water	20140709		Stage 2B				X			
440-82778-1	ARP-7	440-82778-4	Water	20140709		Stage 2B				X			
440-82778-1	ARP-6B	440-82778-5	Water	20140709		Stage 2B				X			
440-82778-1	ARP-5A	440-82778-6	Water	20140709		Stage 2B				X			
440-82778-1	ARP-4A	440-82778-7	Water	20140709		Stage 2B				X			
440-82778-1	PC-101R	440-82778-8	Water	20140709		Stage 2B				X			
440-82778-1	MW-K4	440-82778-9	Water	20140709		Stage 2B				X			
440-82778-1	ARP-3A	440-82778-10	Water	20140709		Stage 2B				X			
440-82778-1	ARP-2A	440-82778-11	Water	20140709		Stage 2B				X			
440-82778-1	ARP-2ADUP	440-82778-11DUP	Water	20140709	DUP	Stage 2B				X			
440-82778-1	PC-103	440-82778-12	Water	20140709		Stage 2B				X			
440-82778-1	PC-98R	440-82778-13	Water	20140709		Stage 2B				X			
440-82778-1	M-83	440-82778-14	Water	20140709		Stage 2B				X			
440-82987-1	PC-86	440-82987-1	Water	20140710		Stage 2B				X			
440-82987-1	PC-55	440-82987-2	Water	20140710		Stage 2B				X			
440-84683-1	ART-1	440-84683-1	Water	20140804		Stage 2B				X	X		
440-84683-1	ART-1DUP	440-84683-1DUP	Water	20140804	DUP	Stage 2B				X			
440-84683-1	ART-2	440-84683-2	Water	20140804		Stage 2B				X	X		
440-84683-1	ART-3	440-84683-3	Water	20140804		Stage 2B				X	X		
440-84683-1	ART-3DUP	440-84683-3DUP	Water	20140804	DUP	Stage 2B					X		
440-84683-1	ART-4	440-84683-4	Water	20140804		Stage 2B				X	X		
440-84683-1	ART-6	440-84683-5	Water	20140804		Stage 2B				X	X		
440-84683-1	ART-7	440-84683-6	Water	20140804		Stage 2B				X	X		
440-84683-1	ART-7DUP	440-84683-6DUP	Water	20140804	DUP	Stage 2B					X		
440-84683-1	ART-8	440-84683-7	Water	20140804		Stage 2B				X	X		
440-84683-1	ART-9	440-84683-8	Water	20140804		Stage 2B				X	X		
440-84683-1	ART-9MS	440-84683-8MS	Water	20140804	MS	Stage 2B							
440-84683-1	ART-9MSD	440-84683-8MSD	Water	20140804	MSD	Stage 2B							
440-84683-1	PC-99R2/R3	440-84683-9	Water	20140804		Stage 2B				X	X		
440-84683-1	PC-115R	440-84683-10	Water	20140804		Stage 2B				X	X		
440-84683-1	PC-116R	440-84683-11	Water	20140804		Stage 2B				X	X		
440-84683-1	PC-116RDUP	440-84683-11DUP	Water	20140804	DUP	Stage 2B				X			
440-84683-1	PC-117	440-84683-12	Water	20140804		Stage 2B				X	X		
440-84683-1	PC-118	440-84683-13	Water	20140804		Stage 2B				X	X		

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-84683-1	PC-119	440-84683-14	Water	20140804		Stage 2B				X	X		
440-84683-1	PC-120	440-84683-15	Water	20140804		Stage 2B				X	X		
440-84683-1	PC-121	440-84683-16	Water	20140804		Stage 2B				X	X		
440-84683-1	PC-133	440-84683-17	Water	20140804		Stage 2B				X	X		
440-84683-1	PC-133DUP	440-84683-17DUP	Water	20140804	DUP	Stage 2B					X		
440-84834-1	PC-97	440-84834-1	Water	20140805		Stage 4				X	X		
440-84834-1	PC-90	440-84834-2	Water	20140805		Stage 4				X	X		
440-84834-1	PC-90DUP	440-84834-2DUP	Water	20140805	DUP	Stage 4				X			
440-84834-1	PC-91	440-84834-3	Water	20140805		Stage 4				X	X		
440-84834-1	PC-91MS	440-84834-3MS	Water	20140805	MS	Stage 4							
440-84834-1	PC-91MSD	440-84834-3MSD	Water	20140805	MSD	Stage 4							
440-84834-1	PC-94	440-84834-4	Water	20140805		Stage 4				X	X		
440-84834-1	PC-58	440-84834-5	Water	20140805		Stage 4				X	X		
440-84834-1	PC-56	440-84834-6	Water	20140805		Stage 4				X	X		
440-84834-1	PC-60	440-84834-7	Water	20140805		Stage 4				X	X		
440-84834-1	PC-59	440-84834-8	Water	20140805		Stage 4				X	X		
440-84834-1	PC-62	440-84834-9	Water	20140805		Stage 4				X	X		
440-84834-1	PC-68	440-84834-10	Water	20140805		Stage 4				X	X		
440-84834-1	PC-86	440-84834-11	Water	20140805		Stage 4				X	X		
440-84834-1	EB-M1	440-84834-12	Water	20140805	EB	Stage 4							
440-85159-1	ART-7B	440-85159-1	Water	20140807		Stage 2B				X	X		
440-85159-1	ART-7BDUP	440-85159-1DUP	Water	20140807	DUP	Stage 2B				X	X		
440-85159-1	PC-122	440-85159-2	Water	20140807		Stage 2B				X	X		
440-85159-1	PC-53	440-85159-3	Water	20140807		Stage 2B				X	X		
440-85159-1	MW-K5	440-85159-4	Water	20140807		Stage 2B				X	X		
440-85159-1	ARP-7	440-85159-5	Water	20140807		Stage 2B				X	X		
440-85159-1	ARP-6B	440-85159-6	Water	20140807		Stage 2B				X	X		
440-85159-1	ARP-5A	440-85159-7	Water	20140807		Stage 2B				X	X		
440-85159-1	ARP-4A	440-85159-8	Water	20140807		Stage 2B				X	X		
440-85159-1	ARP-4AMS	440-85159-8MS	Water	20140807	MS	Stage 2B							
440-85159-1	ARP-4AMSD	440-85159-8MSD	Water	20140807	MSD	Stage 2B							
440-85159-1	PC-101R	440-85159-9	Water	20140807		Stage 2B				X	X		
440-85159-1	MW-K4	440-85159-10	Water	20140807		Stage 2B				X	X		
440-85159-1	ARP-3A	440-85159-11	Water	20140807		Stage 2B				X	X		
440-85159-1	ARP-3ADUP	440-85159-11DUP	Water	20140807	DUP	Stage 2B				X			

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-85159-1	ARP-2A	440-85159-12	Water	20140807		Stage 2B				X	X		
440-85159-1	PC-103	440-85159-13	Water	20140807		Stage 2B				X	X		
440-85159-1	PC-98R	440-85159-14	Water	20140807		Stage 2B				X	X		
440-85159-1	PC-98RDUP	440-85159-14DUP	Water	20140807	DUP	Stage 2B					X		
440-85240-1	PC-18	440-85240-1	Water	20140808		Stage 2B				X	X		
440-85240-1	PC-18DUP	440-85240-1DUP	Water	20140808	DUP	Stage 2B					X		
440-85240-1	ARP-1	440-85240-2	Water	20140808		Stage 2B				X	X		
440-85240-1	PC-55	440-85240-3	Water	20140808		Stage 2B				X	X		
440-85350-1	I-O	440-85350-1	Water	20140811		Stage 2B				X	X		
440-85350-1	I-ODUP	440-85350-1DUP	Water	20140811	DUP	Stage 2B				X	X		
440-85350-1	I-W	440-85350-2	Water	20140811		Stage 2B				X	X		
440-85350-1	I-WMS	440-85350-2MS	Water	20140811	MS	Stage 2B							
440-85350-1	I-WMSD	440-85350-2MSD	Water	20140811	MSD	Stage 2B							
440-85350-1	I-P	440-85350-3	Water	20140811		Stage 2B				X	X		
440-85350-1	I-H	440-85350-4	Water	20140811		Stage 2B				X	X		
440-85350-1	I-U	440-85350-5	Water	20140811		Stage 2B				X	X		
440-85350-1	I-T	440-85350-6	Water	20140811		Stage 2B				X	X		
440-85350-1	I-G	440-85350-7	Water	20140811		Stage 2B				X	X		
440-85350-1	I-Q	440-85350-8	Water	20140811		Stage 2B				X	X		
440-85350-1	I-F	440-85350-9	Water	20140811		Stage 2B				X	X		
440-85350-1	I-X	440-85350-10	Water	20140811		Stage 2B				X	X		
440-85350-1	I-N	440-85350-11	Water	20140811		Stage 2B				X	X		
440-85350-1	I-NDUP	440-85350-11DUP	Water	20140811	DUP	Stage 2B				X			
440-85350-1	I-E	440-85350-12	Water	20140811		Stage 2B				X	X		
440-85350-1	I-EMS	440-85350-12MS	Water	20140811	MS	Stage 2B							
440-85350-1	I-EMSD	440-85350-12MSD	Water	20140811	MSD	Stage 2B							
440-85350-1	I-M	440-85350-13	Water	20140811		Stage 2B				X	X		
440-85350-1	I-D	440-85350-14	Water	20140811		Stage 2B				X	X		
440-85350-1	I-C	440-85350-15	Water	20140811		Stage 2B				X	X		
440-85350-1	I-S	440-85350-16	Water	20140811		Stage 2B				X	X		
440-85350-1	I-L	440-85350-17	Water	20140811		Stage 2B				X	X		
440-85350-1	I-Y	440-85350-18	Water	20140811		Stage 2B				X	X		
440-85350-1	I-YDUP	440-85350-18DUP	Water	20140811	DUP	Stage 2B					X		
440-85350-1	I-R	440-85350-19	Water	20140811		Stage 2B				X	X		
440-85350-1	I-B	440-85350-20	Water	20140811		Stage 2B				X	X		

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-85350-1	I-AA	440-85350-21	Water	20140811		Stage 2B				X	X		
440-85350-1	I-AADUP	440-85350-21DUP	Water	20140811	DUP	Stage 2B					X		
440-85350-1	I-AR	440-85350-22	Water	20140811		Stage 2B				X	X		
440-85492-1	M-64	440-85492-1	Water	20140812		Stage 2B				X	X		
440-85492-1	M-64DUP	440-85492-1DUP	Water	20140812	DUP	Stage 2B				X			
440-85492-1	M-64MS	440-85492-1MS	Water	20140812	MS	Stage 2B							
440-85492-1	M-64MSD	440-85492-1MSD	Water	20140812	MSD	Stage 2B							
440-85492-1	M-65	440-85492-2	Water	20140812		Stage 2B				X	X		
440-85492-1	M-66	440-85492-3	Water	20140812		Stage 2B				X	X		
440-85492-1	M-79	440-85492-4	Water	20140812		Stage 2B				X	X		
440-85492-1	M-69	440-85492-5	Water	20140812		Stage 2B				X	X		
440-85492-1	M-135	440-85492-6	Water	20140812		Stage 2B				X	X		
440-85492-1	M-131	440-85492-7	Water	20140812		Stage 2B				X	X		
440-85492-1	M-57A	440-85492-8	Water	20140812		Stage 2B				X	X		
440-85492-1	M-70	440-85492-9	Water	20140812		Stage 2B				X	X		
440-85492-1	M-71	440-85492-10	Water	20140812		Stage 2B				X	X		
440-85492-1	M-72	440-85492-11	Water	20140812		Stage 2B				X	X		
440-85492-1	M-72DUP	440-85492-11DUP	Water	20140812	DUP	Stage 2B				X			
440-85492-1	M-72MS	440-85492-11MS	Water	20140812	MS	Stage 2B							
440-85492-1	M-72MSD	440-85492-11MSD	Water	20140812	MSD	Stage 2B							
440-85492-1	M-22A	440-85492-12	Water	20140812		Stage 2B				X	X		
440-85492-1	M-14A	440-85492-13	Water	20140812		Stage 2B				X	X		
440-85492-1	M-25	440-85492-14	Water	20140812		Stage 2B				X	X		
440-85492-1	M-37	440-85492-15	Water	20140812		Stage 2B				X	X		
440-85492-1	FB-1	440-85492-16	Water	20140812	FB	Stage 2B				X	X		
440-85492-1	M-38	440-85492-17	Water	20140812		Stage 2B				X	X		
440-85492-1	M-99	440-85492-18	Water	20140812		Stage 2B				X	X		
440-85492-1	M-99DUP	440-85492-18DUP	Water	20140812	DUP	Stage 2B					X		
440-85496-1	M-5A	440-85496-1	Water	20140812		Stage 2B	X		X	X	X	X	X
440-85496-1	M-7B	440-85496-2	Water	20140812		Stage 2B	X		X	X	X	X	X
440-85496-1	M-7BMS	440-85496-2MS	Water	20140812	MS	Stage 2B							X
440-85496-1	M-7BMSD	440-85496-2MSD	Water	20140812	MSD	Stage 2B							X
440-85653-1	PC-123	440-85653-140	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-123DUP	440-85653-140DUP	Water	20140813	DUP	Stage 2B					X		
440-85653-1	PC-123MS	440-85653-140MS	Water	20140813	MS	Stage 2B							

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-85653-1	PC-123MSD	440-85653-140MSD	Water	20140813	MSD	Stage 2B							
440-85653-1	PC-128	440-85653-141	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-129	440-85653-142	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-129DUP	440-85653-142DUP	Water	20140813	DUP	Stage 2B				X			
440-85653-1	PC-130	440-85653-143	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-132	440-85653-144	Water	20140813	FD1	Stage 2B				X	X		
440-85653-1	PC-131	440-85653-145	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-124	440-85653-146	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-126	440-85653-147	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-125	440-85653-148	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-125DUP	440-85653-148DUP	Water	20140813	DUP	Stage 2B				X			
440-85653-1	PC-127	440-85653-149	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-54	440-85653-150	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-54MS	440-85653-150MS	Water	20140813	MS	Stage 2B							
440-85653-1	PC-54MSD	440-85653-150MSD	Water	20140813	MSD	Stage 2B							
440-85653-1	M-48A	440-85653-151	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-71	440-85653-152	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-72	440-85653-153	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-73	440-85653-154	Water	20140813		Stage 2B				X	X		
440-85653-1	M-23	440-85653-155	Water	20140813		Stage 2B				X	X		
440-85653-1	M-95	440-85653-156	Water	20140813		Stage 2B				X	X		
440-85653-1	M-44	440-85653-157	Water	20140813		Stage 2B				X	X		
440-85653-1	M-44DUP	440-85653-157DUP	Water	20140813	DUP	Stage 2B					X		
440-85653-1	DUP-1	440-85653-158	Water	20140813	FD1	Stage 2B				X	X		
440-85653-1	DUP-1DUP	440-85653-158DUP	Water	20140813	DUP	Stage 2B				X			
440-85653-1	EB-1	440-85653-159	Water	20140813	EB	Stage 2B				X	X		
440-85653-1	PC-37	440-85653-160	Water	20140813		Stage 2B				X	X		
440-85653-1	PC-37DUP	440-85653-160DUP	Water	20140813	DUP	Stage 2B					X		
440-85655-1	H-28A	440-85655-1	Water	20140813		Stage 2B	X		X	X	X	X	X
440-85655-1	H-28AMS	440-85655-1MS	Water	20140813	MS	Stage 2B						X	
440-85655-1	H-28AMSD	440-85655-1MSD	Water	20140813	MSD	Stage 2B						X	
440-85655-1	M-6A	440-85655-2	Water	20140813		Stage 2B	X		X	X	X	X	X
440-85655-1	M-6AMS	440-85655-2MS	Water	20140813	MS	Stage 2B							X
440-85655-1	M-6AMSD	440-85655-2MSD	Water	20140813	MSD	Stage 2B							X
440-85776-1	M-31A	440-85776-1	Water	20140814		Stage 2B				X	X		

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-85776-1	M-31ADUP	440-85776-1DUP	Water	20140814	DUP	Stage 2B				X	X		
440-85776-1	M-31AMS	440-85776-1MS	Water	20140814	MS	Stage 2B							
440-85776-1	M-31AMSD	440-85776-1MSD	Water	20140814	MSD	Stage 2B							
440-85776-1	M-52	440-85776-2	Water	20140814		Stage 2B				X	X		
440-85776-1	M-35	440-85776-3	Water	20140814		Stage 2B				X	X		
440-85776-1	M-19	440-85776-4	Water	20140814		Stage 2B				X	X		
440-85776-1	M-68	440-85776-5	Water	20140814		Stage 2B				X	X		
440-85776-1	M-67	440-85776-6	Water	20140814		Stage 2B				X	X		
440-85776-1	M-74	440-85776-7	Water	20140814		Stage 2B				X	X		
440-85776-1	M-73	440-85776-8	Water	20140814		Stage 2B				X	X		
440-85776-1	I-K	440-85776-9	Water	20140814		Stage 2B				X	X		
440-85776-1	I-J	440-85776-10	Water	20140814		Stage 2B				X	X		
440-85776-1	I-Z	440-85776-11	Water	20140814		Stage 2B				X	X		
440-85776-1	I-ZDUP	440-85776-11DUP	Water	20140814	DUP	Stage 2B				X			
440-85776-1	I-ZMS	440-85776-11MS	Water	20140814	MS	Stage 2B							
440-85776-1	I-ZMSD	440-85776-11MSD	Water	20140814	MSD	Stage 2B							
440-85776-1	I-I	440-85776-12	Water	20140814		Stage 2B				X	X		
440-85776-1	I-V	440-85776-13	Water	20140814		Stage 2B				X	X		
440-85776-1	I-AD	440-85776-14	Water	20140814		Stage 2B				X	X		
440-85776-1	M-80	440-85776-15	Water	20140814		Stage 2B				X	X		
440-85776-1	M-81A	440-85776-16	Water	20140814		Stage 2B				X	X		
440-85776-1	M-83	440-85776-17	Water	20140814		Stage 2B				X	X		
440-85776-1	M-12A	440-85776-18	Water	20140814	FD2	Stage 2B				X	X		
440-85776-1	M-12ADUP	440-85776-18DUP	Water	20140814	DUP	Stage 2B					X		
440-85776-1	EB-2	440-85776-19	Water	20140814	EB	Stage 2B				X	X		
440-85776-1	DUP-3	440-85776-20	Water	20140814	FD2	Stage 2B				X	X		
440-85889-1	M-10	440-85889-1	Water	20140815		Stage 2B		X		X	X		
440-85889-1	M-10DUP	440-85889-1DUP	Water	20140815	DUP	Stage 2B					X		
440-85889-1	M-10MS	440-85889-1MS	Water	20140815	MS	Stage 2B							
440-85889-1	M-10MSD	440-85889-1MSD	Water	20140815	MSD	Stage 2B							
440-85890-1	PC-148	440-85890-1	Water	20140815		Stage 2B				X	X		
440-85890-1	PC-148DUP	440-85890-1DUP	Water	20140815	DUP	Stage 2B				X			
440-85890-1	PC-149	440-85890-2	Water	20140815		Stage 2B				X	X		
440-85890-1	PC-150	440-85890-3	Water	20140815	FD3	Stage 2B				X	X		
440-85890-1	PC-136	440-85890-4	Water	20140815		Stage 2B				X	X		

Table I. Sample Cross-Reference

SDG	**Client Sample ID**	**Lab Sample ID**	**Matrix**	**Sample Date**	**QC Type**	**Validation Level**	**Phenolics (420.1)**	**TIN (CALC)**	**Spec. Cond. (SM2510)**	**TDS (SM2540C)**	**pH (SM4500-H+B)**	**TOC (SM5310C)**	**TOX (9020B)**
440-85890-1	PC-136MS	440-85890-4MS	Water	20140815	MS	Stage 2B							
440-85890-1	PC-136MSD	440-85890-4MSD	Water	20140815	MSD	Stage 2B							
440-85890-1	PC-144	440-85890-5	Water	20140815		Stage 2B				X	X		
440-85890-1	PC-135A	440-85890-6	Water	20140815		Stage 2B				X	X		
440-85890-1	M-11	440-85890-7	Water	20140815	FD4	Stage 2B				X	X		
440-85890-1	DUP-2	440-85890-8	Water	20140815	FD3	Stage 2B				X	X		
440-85890-1	DUP-4	440-85890-9	Water	20140815	FD4	Stage 2B				X	X		
440-87226-1	ART-1	440-87226-1	Water	20140903		Stage 4				X			
440-87226-1	ART-1DUP	440-87226-1DUP	Water	20140903	DUP	Stage 4				X			
440-87226-1	ART-2	440-87226-2	Water	20140903		Stage 4				X			
440-87226-1	ART-3	440-87226-3	Water	20140903		Stage 4				X			
440-87226-1	ART-4	440-87226-4	Water	20140903		Stage 4				X			
440-87226-1	ART-6	440-87226-5	Water	20140903		Stage 4				X			
440-87226-1	ART-7	440-87226-6	Water	20140903		Stage 4				X			
440-87226-1	ART-8	440-87226-7	Water	20140903		Stage 4				X			
440-87226-1	ART-9	440-87226-8	Water	20140903		Stage 4				X			
440-87226-1	PC-99R2/R3	440-87226-9	Water	20140903		Stage 4				X			
440-87226-1	PC-115R	440-87226-10	Water	20140903		Stage 4				X			
440-87226-1	PC-116R	440-87226-11	Water	20140903		Stage 4				X			
440-87226-1	PC-116RDUP	440-87226-11DUP	Water	20140903	DUP	Stage 4				X			
440-87226-1	PC-117	440-87226-12	Water	20140903		Stage 4				X			
440-87226-1	PC-118	440-87226-13	Water	20140903		Stage 4				X			
440-87226-1	PC-119	440-87226-14	Water	20140903		Stage 4				X			
440-87226-1	PC-120	440-87226-15	Water	20140903		Stage 4				X			
440-87226-1	PC-121	440-87226-16	Water	20140903		Stage 4				X			
440-87226-1	PC-133	440-87226-17	Water	20140903		Stage 4				X			
440-87925-1	PC-97	440-87925-1	Water	20140910		Stage 2B				X			
440-87925-1	PC-97DUP	440-87925-1DUP	Water	20140910	DUP	Stage 2B				X			
440-87925-1	PC-90	440-87925-2	Water	20140910		Stage 2B				X			
440-87925-1	PC-91	440-87925-3	Water	20140910		Stage 2B				X			
440-87925-1	PC-58	440-87925-4	Water	20140910		Stage 2B				X			
440-87925-1	PC-56	440-87925-5	Water	20140910		Stage 2B				X			
440-87925-1	PC-60	440-87925-6	Water	20140910		Stage 2B				X			
440-87925-1	PC-59	440-87925-7	Water	20140910		Stage 2B				X			
440-87925-1	PC-62	440-87925-8	Water	20140910		Stage 2B				X			

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-87925-1	PC-68	440-87925-9	Water	20140910		Stage 2B				X			
440-87925-1	PC-86	440-87925-10	Water	20140910		Stage 2B				X			
440-87925-1	PC-18	440-87925-11	Water	20140910		Stage 2B				X			
440-87925-1	PC-18DUP	440-87925-11DUP	Water	20140910	DUP	Stage 2B				X			
440-87925-1	ARP-1	440-87925-12	Water	20140910		Stage 2B				X			
440-87966-1	M-83	440-87966-1	Water	20140911		Stage 2B				X			
440-87966-1	M-83DUP	440-87966-1DUP	Water	20140911	DUP	Stage 2B				X			
440-87966-1	PC-53	440-87966-2	Water	20140911		Stage 2B				X			
440-87966-1	MW-K5	440-87966-3	Water	20140911		Stage 2B				X			
440-87966-1	ARP-7	440-87966-4	Water	20140911		Stage 2B				X			
440-87966-1	ARP-6B	440-87966-5	Water	20140911		Stage 2B				X			
440-87966-1	ARP-5A	440-87966-6	Water	20140911		Stage 2B				X			
440-87966-1	ARP-4A	440-87966-7	Water	20140911		Stage 2B				X			
440-87966-1	PC-101R	440-87966-8	Water	20140911		Stage 2B				X			
440-87966-1	MW-K4	440-87966-9	Water	20140911		Stage 2B				X			
440-87966-1	MEB-1	440-87966-10	Water	20140911	EB	Stage 2B							
440-87966-1	ARP-3A	440-87966-11	Water	20140911		Stage 2B				X			
440-87966-1	ARP-2A	440-87966-12	Water	20140911		Stage 2B				X			
440-87966-1	ARP-2ADUP	440-87966-12DUP	Water	20140911	DUP	Stage 2B				X			
440-87966-1	PC-103	440-87966-13	Water	20140911		Stage 2B				X			
440-87966-1	PC-98R	440-87966-14	Water	20140911		Stage 2B				X			
440-88032-1	PC-122	440-88032-1	Water	20140912		Stage 2B				X			
440-88032-1	PC-55	440-88032-2	Water	20140912		Stage 2B				X			
440-90069-1	ART-1	440-90069-1	Water	20141007		Stage 2B				X			
440-90069-1	ART-1DUP	440-90069-1DUP	Water	20141007	DUP	Stage 2B				X			
440-90069-1	ART-2	440-90069-2	Water	20141007		Stage 2B				X			
440-90069-1	ART-3	440-90069-3	Water	20141007		Stage 2B				X			
440-90069-1	ART-4	440-90069-4	Water	20141007		Stage 2B				X			
440-90069-1	ART-6	440-90069-5	Water	20141008		Stage 2B				X			
440-90069-1	ART-7	440-90069-6	Water	20141007		Stage 2B				X			
440-90069-1	ART-8	440-90069-7	Water	20141007		Stage 2B				X			
440-90069-1	ART-9	440-90069-8	Water	20141007		Stage 2B				X			
440-90069-1	PC-99R2/R3	440-90069-9	Water	20141007		Stage 2B				X			
440-90069-1	PC-115R	440-90069-10	Water	20141007		Stage 2B				X			
440-90069-1	PC-116R	440-90069-11	Water	20141007		Stage 2B				X			

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-90069-1	PC-116RDUP	440-90069-11DUP	Water	20141007	DUP	Stage 2B				X			
440-90069-1	PC-117	440-90069-12	Water	20141007		Stage 2B				X			
440-90069-1	PC-118	440-90069-13	Water	20141007		Stage 2B				X			
440-90069-1	PC-119	440-90069-14	Water	20141007		Stage 2B				X			
440-90069-1	PC-120	440-90069-15	Water	20141007		Stage 2B				X			
440-90069-1	PC-121	440-90069-16	Water	20141007		Stage 2B				X			
440-90069-1	PC-133	440-90069-17	Water	20141007		Stage 2B				X			
440-90694-1	M-83	440-90694-1	Water	20141014		Stage 2B				X			
440-90694-1	PC-97	440-90694-2	Water	20141014		Stage 2B				X			
440-90694-1	PC-97DUP	440-90694-2DUP	Water	20141014	DUP	Stage 2B				X			
440-90694-1	PC-90	440-90694-3	Water	20141014		Stage 2B				X			
440-90694-1	PC-91	440-90694-4	Water	20141014		Stage 2B				X			
440-90694-1	PC-58	440-90694-5	Water	20141014		Stage 2B				X			
440-90694-1	PC-56	440-90694-6	Water	20141014		Stage 2B				X			
440-90694-1	PC-60	440-90694-7	Water	20141014		Stage 2B				X			
440-90694-1	PC-59	440-90694-8	Water	20141014		Stage 2B				X			
440-90694-1	PC-62	440-90694-9	Water	20141014		Stage 2B				X			
440-90694-1	PC-68	440-90694-10	Water	20141014		Stage 2B				X			
440-90694-1	PC-86	440-90694-11	Water	20141014		Stage 2B				X			
440-90694-1	EB-1	440-90694-12	Water	20141014	EB	Stage 2B							
440-90694-1	PC-18	440-90694-13	Water	20141014		Stage 2B				X			
440-90694-1	PC-18DUP	440-90694-13DUP	Water	20141014	DUP	Stage 2B				X			
440-90694-1	ARP-1	440-90694-14	Water	20141014		Stage 2B				X			
440-90694-1	PC-122	440-90694-15	Water	20141015		Stage 2B				X			
440-90694-1	PC-53	440-90694-16	Water	20141015		Stage 2B				X			
440-90694-1	MW-K5	440-90694-17	Water	20141015		Stage 2B				X			
440-90694-1	ARP-7	440-90694-18	Water	20141015		Stage 2B				X			
440-90694-1	ARP-6B	440-90694-19	Water	20141015		Stage 2B				X			
440-90694-1	ARP-5A	440-90694-20	Water	20141015		Stage 2B				X			
440-90694-1	ARP-4A	440-90694-21	Water	20141015		Stage 2B				X			
440-90694-1	PC-101R	440-90694-22	Water	20141015		Stage 2B				X			
440-90694-1	MW-K4	440-90694-23	Water	20141015		Stage 2B				X			
440-90694-1	MW-K4DUP	440-90694-23DUP	Water	20141015	DUP	Stage 2B				X			
440-90694-1	ARP-3A	440-90694-24	Water	20141015		Stage 2B				X			
440-90694-1	ARP-2A	440-90694-25	Water	20141015		Stage 2B				X			

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-90694-1	PC-103	440-90694-26	Water	20141015		Stage 2B				X			
440-90694-1	PC-98R	440-90694-27	Water	20141015		Stage 2B				X			
440-90694-1	PC-55	440-90694-28	Water	20141015		Stage 2B				X			
440-92039-1	ART-1	440-92039-1	Water	20141103		Stage 2B				X	X		
440-92039-1	ART-1DUP	440-92039-1DUP	Water	20141103	DUP	Stage 2B				X			
440-92039-1	ART-1MS	440-92039-1MS	Water	20141103	MS	Stage 2B							
440-92039-1	ART-1MSD	440-92039-1MSD	Water	20141103	MSD	Stage 2B							
440-92039-1	ART-2	440-92039-2	Water	20141103		Stage 2B				X	X		
440-92039-1	ART-3	440-92039-3	Water	20141103		Stage 2B				X	X		
440-92039-1	ART-3MS	440-92039-3MS	Water	20141103	MS	Stage 2B							
440-92039-1	ART-3MSD	440-92039-3MSD	Water	20141103	MSD	Stage 2B							
440-92039-1	ART-4	440-92039-4	Water	20141103		Stage 2B				X	X		
440-92039-1	ART-6	440-92039-5	Water	20141103		Stage 2B				X	X		
440-92039-1	ART-7B	440-92039-6	Water	20141103		Stage 2B				X	X		
440-92039-1	ART-8	440-92039-7	Water	20141103		Stage 2B				X	X		
440-92039-1	ART-9	440-92039-8	Water	20141103		Stage 2B				X	X		
440-92039-1	PC-99R2/R3	440-92039-9	Water	20141103		Stage 2B				X	X		
440-92039-1	PC-115R	440-92039-10	Water	20141103		Stage 2B				X	X		
440-92039-1	PC-116R	440-92039-11	Water	20141103		Stage 2B				X	X		
440-92039-1	PC-116RDUP	440-92039-11DUP	Water	20141103	DUP	Stage 2B				X			
440-92039-1	PC-117	440-92039-12	Water	20141103		Stage 2B				X	X		
440-92039-1	PC-118	440-92039-13	Water	20141103		Stage 2B				X	X		
440-92039-1	PC-119	440-92039-14	Water	20141103		Stage 2B				X	X		
440-92039-1	PC-120	440-92039-15	Water	20141103		Stage 2B				X	X		
440-92039-1	PC-121	440-92039-16	Water	20141103		Stage 2B				X	X		
440-92039-1	PC-121DUP	440-92039-16DUP	Water	20141103	DUP	Stage 2B					X		
440-92039-1	PC-133	440-92039-17	Water	20141103		Stage 2B				X	X		
440-93300-1	PC-150	440-93300-1	Water	20141113		Stage 2B				X	X		
440-93300-1	PC-150DUP	440-93300-1DUP	Water	20141113	DUP	Stage 2B					X		
440-94207-1	M-83	440-94207-1	Water	20141124		Stage 2B				X	X		
440-94207-1	M-83DUP	440-94207-1DUP	Water	20141124	DUP	Stage 2B				X			
440-94207-1	M-83MS	440-94207-1MS	Water	20141124	MS	Stage 2B							
440-94207-1	M-83MSD	440-94207-1MSD	Water	20141124	MSD	Stage 2B							
440-94207-1	PC-97	440-94207-2	Water	20141124		Stage 2B				X	X		
440-94207-1	PC-90	440-94207-3	Water	20141124		Stage 2B				X	X		

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-94207-1	PC-91	440-94207-4	Water	20141124		Stage 2B				X	X		
440-94207-1	PC-58	440-94207-5	Water	20141124		Stage 2B				X	X		
440-94207-1	PC-56	440-94207-6	Water	20141124		Stage 2B				X	X		
440-94207-1	PC-60	440-94207-7	Water	20141124		Stage 2B				X	X		
440-94207-1	PC-59	440-94207-8	Water	20141124		Stage 2B				X	X		
440-94207-1	PC-62	440-94207-9	Water	20141124		Stage 2B				X	X		
440-94207-1	PC-68	440-94207-10	Water	20141124		Stage 2B				X	X		
440-94207-1	PC-86	440-94207-11	Water	20141124		Stage 2B				X	X		
440-94207-1	PC-86DUP	440-94207-11DUP	Water	20141124	DUP	Stage 2B				X			
440-94207-1	PC-86MS	440-94207-11MS	Water	20141124	MS	Stage 2B							
440-94207-1	PC-86MSD	440-94207-11MSD	Water	20141124	MSD	Stage 2B							
440-94207-1	PC-18	440-94207-12	Water	20141124		Stage 2B				X	X		
440-94207-1	PC-18DUP	440-94207-12DUP	Water	20141124	DUP	Stage 2B					X		
440-94339-1	PC-53	440-94339-1	Water	20141125		Stage 2B				X	X		
440-94339-1	PC-53DUP	440-94339-1DUP	Water	20141125	DUP	Stage 2B					X		
440-94339-1	PC-53MS	440-94339-1MS	Water	20141125	MS	Stage 2B							
440-94339-1	PC-53MSD	440-94339-1MSD	Water	20141125	MSD	Stage 2B							
440-94339-1	MW-K5	440-94339-2	Water	20141125		Stage 2B				X	X		
440-94339-1	ARP-7	440-94339-3	Water	20141125		Stage 2B				X	X		
440-94339-1	ARP-6B	440-94339-4	Water	20141125		Stage 2B				X	X		
440-94339-1	ARP-5A	440-94339-5	Water	20141125		Stage 2B				X	X		
440-94339-1	ARP-4A	440-94339-6	Water	20141125		Stage 2B				X	X		
440-94339-1	PC-144	440-94339-7	Water	20141125		Stage 2B				X	X		
440-94339-1	PC-101R	440-94339-8	Water	20141125		Stage 2B				X	X		
440-94339-1	MW-K4	440-94339-9	Water	20141125		Stage 2B				X	X		
440-94339-1	ARP-3A	440-94339-10	Water	20141125		Stage 2B				X	X		
440-94339-1	ARP-2A	440-94339-11	Water	20141125		Stage 2B				X	X		
440-94339-1	ARP-2ADUP	440-94339-11DUP	Water	20141125	DUP	Stage 2B				X			
440-94339-1	ARP-2AMS	440-94339-11MS	Water	20141125	MS	Stage 2B							
440-94339-1	ARP-2AMSD	440-94339-11MSD	Water	20141125	MSD	Stage 2B							
440-94339-1	MEB-1	440-94339-12	Water	20141125	EB	Stage 2B							
440-94339-1	PC-103	440-94339-13	Water	20141125		Stage 2B				X	X		
440-94339-1	PC-98R	440-94339-14	Water	20141125		Stage 2B				X	X		
440-94339-1	ARP-1	440-94339-15	Water	20141125		Stage 2B				X	X		
440-94339-1	PC-55	440-94339-16	Water	20141125		Stage 2B				X	X		

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-94339-1	PC-55DUP	440-94339-16DUP	Water	20141125	DUP	Stage 2B					X		
440-94662-1	I-M	440-94662-1	Water	20141201		Stage 2B				X	X		
440-94662-1	I-MDUP	440-94662-1DUP	Water	20141201	DUP	Stage 2B				X			
440-94662-1	I-MMS	440-94662-1MS	Water	20141201	MS	Stage 2B							
440-94662-1	I-MMSD	440-94662-1MSD	Water	20141201	MSD	Stage 2B							
440-94662-1	I-D	440-94662-2	Water	20141201		Stage 2B				X	X		
440-94662-1	I-C	440-94662-3	Water	20141201		Stage 2B				X	X		
440-94662-1	I-S	440-94662-4	Water	20141201		Stage 2B				X	X		
440-94662-1	I-L	440-94662-5	Water	20141201		Stage 2B				X	X		
440-94662-1	I-LDUP	440-94662-5DUP	Water	20141201	DUP	Stage 2B					X		
440-94662-1	I-Y	440-94662-6	Water	20141201		Stage 2B				X	X		
440-94662-1	I-R	440-94662-7	Water	20141201		Stage 2B				X	X		
440-94662-1	I-B	440-94662-8	Water	20141201		Stage 2B				X	X		
440-94662-1	I-AB	440-94662-9	Water	20141201		Stage 2B				X	X		
440-94662-1	I-AA	440-94662-10	Water	20141201		Stage 2B				X	X		
440-94662-1	I-AR	440-94662-11	Water	20141201		Stage 2B				X	X		
440-94662-1	I-ARDUP	440-94662-11DUP	Water	20141201	DUP	Stage 2B				X			
440-94662-1	I-ARMS	440-94662-11MS	Water	20141201	MS	Stage 2B							
440-94662-1	I-ARMSD	440-94662-11MSD	Water	20141201	MSD	Stage 2B							
440-94662-1	I-O	440-94662-12	Water	20141201		Stage 2B				X	X		
440-94662-1	I-W	440-94662-13	Water	20141201		Stage 2B				X	X		
440-94662-1	I-P	440-94662-14	Water	20141201		Stage 2B				X	X		
440-94662-1	I-H	440-94662-15	Water	20141201		Stage 2B				X	X		
440-94662-1	I-U	440-94662-16	Water	20141201		Stage 2B				X	X		
440-94662-1	I-T	440-94662-17	Water	20141201		Stage 2B				X	X		
440-94662-1	I-G	440-94662-18	Water	20141201		Stage 2B				X	X		
440-94662-1	I-Q	440-94662-19	Water	20141201		Stage 2B				X	X		
440-94662-1	I-F	440-94662-20	Water	20141201		Stage 2B				X	X		
440-94662-1	I-X	440-94662-21	Water	20141201		Stage 2B				X	X		
440-94662-1	I-N	440-94662-22	Water	20141201		Stage 2B				X	X		
440-94662-1	I-E	440-94662-23	Water	20141201		Stage 2B				X	X		
440-94662-1	I-EDUP	440-94662-23DUP	Water	20141201	DUP	Stage 2B					X		
440-94669-1	ART-1	440-94669-1	Water	20141201		Stage 2B				X			
440-94669-1	ART-2	440-94669-2	Water	20141201		Stage 2B				X			
440-94669-1	ART-3	440-94669-3	Water	20141201		Stage 2B				X			

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-94669-1	ART-4	440-94669-4	Water	20141201		Stage 2B				X			
440-94669-1	ART-6	440-94669-5	Water	20141201		Stage 2B				X			
440-94669-1	ART-7B	440-94669-6	Water	20141201		Stage 2B				X			
440-94669-1	ART-8	440-94669-7	Water	20141201		Stage 2B				X			
440-94669-1	ART-8DUP	440-94669-7DUP	Water	20141201	DUP	Stage 2B				X			
440-94669-1	ART-9	440-94669-8	Water	20141201		Stage 2B				X			
440-94669-1	PC-99R2/R3	440-94669-9	Water	20141201		Stage 2B				X			
440-94669-1	PC-115R	440-94669-10	Water	20141201		Stage 2B				X			
440-94669-1	PC-116R	440-94669-11	Water	20141201		Stage 2B				X			
440-94669-1	PC-117	440-94669-12	Water	20141201		Stage 2B				X			
440-94669-1	PC-118	440-94669-13	Water	20141201		Stage 2B				X			
440-94669-1	PC-119	440-94669-14	Water	20141201		Stage 2B				X			
440-94669-1	PC-120	440-94669-15	Water	20141201		Stage 2B				X			
440-94669-1	PC-121	440-94669-16	Water	20141201		Stage 2B				X			
440-94669-1	PC-133	440-94669-17	Water	20141201		Stage 2B				X			
440-94669-1	PC-133DUP	440-94669-17DUP	Water	20141201	DUP	Stage 2B				X			
440-94669-1	PC-150	440-94669-18	Water	20141201		Stage 2B				X			
440-94868-1	I-AD	440-94868-1	Water	20141202		Stage 2B				X	X		
440-94868-1	I-ADDUP	440-94868-1DUP	Water	20141202	DUP	Stage 2B				X			
440-94868-1	I-AC	440-94868-2	Water	20141202		Stage 2B				X	X		
440-94868-1	I-K	440-94868-3	Water	20141202		Stage 2B				X	X		
440-94868-1	I-KMS	440-94868-3MS	Water	20141202	MS	Stage 2B							
440-94868-1	I-KMSD	440-94868-3MSD	Water	20141202	MSD	Stage 2B							
440-94868-1	I-J	440-94868-4	Water	20141202		Stage 2B				X	X		
440-94868-1	I-Z	440-94868-5	Water	20141202		Stage 2B				X	X		
440-94868-1	I-I	440-94868-6	Water	20141202		Stage 2B				X	X		
440-94868-1	I-V	440-94868-7	Water	20141202		Stage 2B				X	X		
440-94868-1	I-VMS	440-94868-7MS	Water	20141202	MS	Stage 2B							
440-94868-1	I-VMSD	440-94868-7MSD	Water	20141202	MSD	Stage 2B							
440-95199-1	PC-123	440-95199-1	Water	20141204		Stage 4				X	X		
440-95199-1	PC-123DUP	440-95199-1DUP	Water	20141204	DUP	Stage 4				X			
440-95199-1	PC-123MS	440-95199-1MS	Water	20141204	MS	Stage 4							
440-95199-1	PC-123MSD	440-95199-1MSD	Water	20141204	MSD	Stage 4							
440-95199-1	PC-128	440-95199-2	Water	20141204		Stage 4				X	X		
440-95199-1	PC-129	440-95199-3	Water	20141204		Stage 4				X	X		

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-95199-1	PC-130	440-95199-4	Water	20141204		Stage 4				X	X		
440-95199-1	PC-131	440-95199-5	Water	20141204		Stage 4				X	X		
440-95199-1	PC-132	440-95199-6	Water	20141204		Stage 4				X	X		
440-95199-1	PC-124	440-95199-7	Water	20141204		Stage 4				X	X		
440-95199-1	PC-125	440-95199-8	Water	20141204		Stage 4				X	X		
440-95199-1	PC-126	440-95199-9	Water	20141204		Stage 4				X	X		
440-95199-1	PC-127	440-95199-10	Water	20141204		Stage 4				X	X		
440-95199-1	EB-1	440-95199-11	Water	20141204	EB	Stage 4				X	X		
440-95199-1	EB-1DUP	440-95199-11DUP	Water	20141204	DUP	Stage 4				X			
440-95199-1	EB-1MS	440-95199-11MS	Water	20141204	MS	Stage 4							
440-95199-1	EB-1MSD	440-95199-11MSD	Water	20141204	MSD	Stage 4							
440-95199-1	PC-54	440-95199-12	Water	20141204		Stage 4				X	X		
440-95199-1	M-48A	440-95199-13	Water	20141204		Stage 4				X	X		
440-95199-1	M-44	440-95199-14	Water	20141204		Stage 4				X	X		
440-95199-1	PC-71	440-95199-15	Water	20141204		Stage 4				X	X		
440-95199-1	PC-71DUP	440-95199-15DUP	Water	20141204	DUP	Stage 4					X		
440-95199-1	PC-72	440-95199-16	Water	20141204		Stage 4				X	X		
440-95199-1	PC-73	440-95199-17	Water	20141204		Stage 4				X	X		
440-95253-1	M-64	440-95253-1	Water	20141203		Stage 2B				X	X		
440-95253-1	M-65	440-95253-2	Water	20141203		Stage 2B				X	X		
440-95253-1	M-66	440-95253-3	Water	20141203		Stage 2B				X	X		
440-95253-1	FB-1	440-95253-4	Water	20141203	FB	Stage 2B				X	X		
440-95253-1	M-79	440-95253-5	Water	20141203		Stage 2B				X	X		
440-95253-1	M-131	440-95253-6	Water	20141203	FD5	Stage 2B				X	X		
440-95253-1	DUP-2	440-95253-7	Water	20141203	FD5	Stage 2B				X	X		
440-95437-1	PC-94	440-95437-1	Water	20141205		Stage 2B				X	X		
440-95437-1	PC-94DUP	440-95437-1DUP	Water	20141205	DUP	Stage 2B					X		
440-95437-1	PC-94MS	440-95437-1MS	Water	20141205	MS	Stage 2B							
440-95437-1	PC-94MSD	440-95437-1MSD	Water	20141205	MSD	Stage 2B							
440-95437-1	PC-148	440-95437-2	Water	20141205		Stage 2B				X	X		
440-95437-1	PC-149	440-95437-3	Water	20141205		Stage 2B				X	X		
440-95437-1	PC-136	440-95437-4	Water	20141205		Stage 2B				X	X		
440-95437-1	PC-135A	440-95437-5	Water	20141205		Stage 2B				X	X		
440-95437-1	PC-135ADUP	440-95437-5DUP	Water	20141205	DUP	Stage 2B				X			
440-95437-1	PC-37	440-95437-6	Water	20141205		Stage 2B				X	X		

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SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-95437-1	M-23	440-95437-7	Water	20141205	FD6	Stage 2B				X	X		
440-95437-1	M-95	440-95437-8	Water	20141205		Stage 2B				X	X		
440-95437-1	EB-2	440-95437-9	Water	20141205	EB	Stage 2B				X	X		
440-95437-1	DUP-1	440-95437-10	Water	20141205	FD6	Stage 2B				X	X		
440-95437-1	M-57A	440-95437-11	Water	20141205		Stage 2B				X	X		
440-95437-1	M-57AMS	440-95437-11MS	Water	20141205	MS	Stage 2B							
440-95437-1	M-57AMSD	440-95437-11MSD	Water	20141205	MSD	Stage 2B							
440-95437-1	M-37	440-95437-12	Water	20141205		Stage 2B				X	X		
440-95437-1	M-37MS	440-95437-12MS	Water	20141205	MS	Stage 2B							
440-95437-1	M-37MSD	440-95437-12MSD	Water	20141205	MSD	Stage 2B							
440-95800-1	M-14A	440-95800-1	Water	20141208		Stage 2B				X	X		
440-95800-1	M-14AMS	440-95800-1MS	Water	20141208	MS	Stage 2B							
440-95800-1	M-14AMSD	440-95800-1MSD	Water	20141208	MSD	Stage 2B							
440-95800-1	M-25	440-95800-2	Water	20141208		Stage 2B				X	X		
440-95800-1	M-22A	440-95800-3	Water	20141208		Stage 2B				X	X		
440-95800-1	M-70	440-95800-4	Water	20141208		Stage 2B				X	X		
440-95800-1	M-71	440-95800-5	Water	20141208		Stage 2B				X	X		
440-95800-1	M-72	440-95800-6	Water	20141208		Stage 2B				X	X		
440-95800-1	M-72DUP	440-95800-6DUP	Water	20141208	DUP	Stage 2B				X			
440-95800-1	M-99	440-95800-7	Water	20141208		Stage 2B				X	X		
440-95800-1	M-68	440-95800-8	Water	20141208		Stage 2B				X	X		
440-95800-1	M-67	440-95800-9	Water	20141208		Stage 2B				X	X		
440-95800-1	M-67DUP	440-95800-9DUP	Water	20141208	DUP	Stage 2B					X		
440-95800-1	M-38	440-95800-10	Water	20141208	FD7	Stage 2B				X	X		
440-95800-1	DUP-3	440-95800-11	Water	20141208	FD7	Stage 2B				X	X		
440-95800-1	DUP-3MS	440-95800-11MS	Water	20141208	MS	Stage 2B							
440-95800-1	DUP-3MSD	440-95800-11MSD	Water	20141208	MSD	Stage 2B							
440-95801-1	M-10	440-95801-1	Water	20141208		Stage 4		X		X	X		
440-95801-1	M-10DL	440-95801-1DL	Water	20141208	DL	Stage 4							
440-95801-1	M-10MS	440-95801-1MS	Water	20141208	MS	Stage 4							
440-95801-1	M-10MSD	440-95801-1MSD	Water	20141208	MSD	Stage 4							
440-96212-1	M-69	440-96212-1	Water	20141209		Stage 2B				X	X		
440-96212-1	M-69DUP	440-96212-1DUP	Water	20141209	DUP	Stage 2B					X		
440-96212-1	M-135	440-96212-2	Water	20141209		Stage 2B				X	X		
440-96212-1	M-31A	440-96212-3	Water	20141209		Stage 2B				X	X		

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-96212-1	M-31ADUP	440-96212-3DUP	Water	20141209	DUP	Stage 2B				X			
440-96212-1	M-52	440-96212-4	Water	20141209		Stage 2B				X	X		
440-96212-1	M-73	440-96212-5	Water	20141209		Stage 2B				X	X		
440-97242-1	M-81A	440-97242-1	Water	20141218		Stage 2B				X	X		
440-97242-1	M-81AMS	440-97242-1MS	Water	20141218	MS	Stage 2B							
440-97242-1	M-81AMSD	440-97242-1MSD	Water	20141218	MSD	Stage 2B							
440-97242-1	M-80	440-97242-2	Water	20141218		Stage 2B				X	X		
440-97242-1	M-74	440-97242-3	Water	20141218		Stage 2B				X	X		
440-97242-1	M-35	440-97242-4	Water	20141218		Stage 2B				X	X		
440-97242-1	M-19	440-97242-5	Water	20141218		Stage 2B				X	X		
440-97242-1	M-12A	440-97242-6	Water	20141218	FD8	Stage 2B				X	X		
440-97242-1	M-11	440-97242-7	Water	20141218		Stage 2B				X	X		
440-97242-1	DUP-4	440-97242-8	Water	20141218	FD8	Stage 2B				X	X		
440-97242-1	DUP-4DUP	440-97242-8DUP	Water	20141218	DUP	Stage 2B					X		
440-97504-1	PC-97	440-97504-1	Water	20141222		Stage 2B				X			
440-97504-1	PC-97DUP	440-97504-1DUP	Water	20141222	DUP	Stage 2B				X			
440-97504-1	PC-90	440-97504-2	Water	20141222		Stage 2B				X			
440-97504-1	PC-91	440-97504-3	Water	20141222		Stage 2B				X			
440-97504-1	PC-58	440-97504-4	Water	20141222		Stage 2B				X			
440-97504-1	PC-56	440-97504-5	Water	20141222		Stage 2B				X			
440-97504-1	PC-60	440-97504-6	Water	20141222		Stage 2B				X			
440-97504-1	PC-59	440-97504-7	Water	20141222		Stage 2B				X			
440-97504-1	PC-62	440-97504-8	Water	20141222		Stage 2B				X			
440-97504-1	PC-68	440-97504-9	Water	20141222		Stage 2B				X			
440-97504-1	PC-86	440-97504-10	Water	20141222		Stage 2B				X			
440-97504-1	MEB-1	440-97504-11	Water	20141222	EB	Stage 2B							
440-97847-1	PC-53	440-97847-1	Water	20141229		Stage 2B				X			
440-97847-1	PC-53DUP	440-97847-1DUP	Water	20141229	DUP	Stage 2B				X			
440-97847-1	MW-K5	440-97847-2	Water	20141229		Stage 2B				X			
440-97847-1	ARP-7	440-97847-3	Water	20141229		Stage 2B				X			
440-97847-1	ARP-6B	440-97847-4	Water	20141229		Stage 2B				X			
440-97847-1	ARP-5A	440-97847-5	Water	20141229		Stage 2B				X			
440-97847-1	ARP-4A	440-97847-6	Water	20141229		Stage 2B				X			
440-97847-1	PC-101R	440-97847-7	Water	20141229		Stage 2B				X			
440-97847-1	MW-K4	440-97847-8	Water	20141229		Stage 2B				X			

Table I. Sample Cross-Reference

SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	Phenolics (420.1)	TIN (CALC)	Spec. Cond. (SM2510)	TDS (SM2540C)	pH (SM4500-H+B)	TOC (SM5310C)	TOX (9020B)
440-97847-1	ARP-3A	440-97847-9	Water	20141229		Stage 2B				X			
440-97847-1	ARP-2A	440-97847-10	Water	20141229		Stage 2B				X			
440-98043-1	M-83	440-98043-1	Water	20141230		Stage 2B				X			
440-98043-1	PC-18	440-98043-2	Water	20141230		Stage 2B				X			
440-98043-1	ARP-1	440-98043-3	Water	20141230		Stage 2B				X			
440-98043-1	PC-103	440-98043-4	Water	20141230		Stage 2B				X			
440-98043-1	PC-103DUP	440-98043-4DUP	Water	20141230	DUP	Stage 2B				X			
440-98043-1	PC-98R	440-98043-5	Water	20141230		Stage 2B				X			
440-98043-1	PC-55	440-98043-6	Water	20141230		Stage 2B				X			
440-98043-1	PC-122	440-98043-7	Water	20141230		Stage 2B				X			

TABLE II

Table II. Qualification Codes and Definitions

Reason Code	Explanation
a	qualified due to low abundance (radiochemical activity)
be	qualified due to equipment blank contamination
bf	qualified due to field blank contamination
bl	qualified due to lab blank contamination
bt	qualified due to trip blank contamination
bp	qualified due to pump blank contamination (wells w/o dedicated pumps, when contamination is detected in the Pump Blk)
br	qualified due to filter blank contamination (aqueous Hexavalent Chromium and Dissolved sample fractions)
c	qualified due to calibration problems
cp	qualified due to insufficient ingrowth (radiochemical only)
dc	duel column confirmation %D exceeded
e	concentration exceeded the calibration range
fd	qualified due to field duplicate imprecision
h	qualified due to holding time exceedance
i	qualified due to internal standard areas
k	qualified as Estimated Maximum Possible Concentrations (dioxins and PCB congeners)
l	qualified due to LCS recoveries
ld	qualified due to lab duplicate imprecision (matrix duplicate, MSD, LCSD)
m	qualified due to matrix spike recoveries
nb	qualified due to negative lab blank contamination (nondetect results only)
nd	qualified due to non-detected target analyte
o	other
p	qualified as a false positive due to contamination during shipping
pH	sample preservation not within acceptance range
q	qualified due to quantitation problem
s	qualified due to surrogate recoveries
sd	serial dilution did not meet control criteria
sp	detected value reported >SQL <PQL
st	sample receipt temperature exceeded
t	qualified due to elevated helium tracer concentrations
vh	volatile headspace detected in aqueous sample containers submitted for VOC analysis
x	qualified due to low % solids
z	qualified due to ICS results

TABLE III

Table III.   Overall Qualified Results

SDG	Client Sample ID	Sample Date	Method	Client Analyte ID	Analyte	Lab Result	Lab Qualifier	PQL	Units	Validator Qualifier	Reason Code	Reason Code Definition	Qualification Finding	
440-85653-1	DUP-1	20140813	200.7	7440-47-3	Chromium	0.0083		0.0025	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	EB-1	20140813	200.7	7440-47-3	Chromium		U	0.0025	mg/l	UJ	m	Matrix Spike %R	72/71	%
440-85653-1	M-23	20140813	200.7	7440-47-3	Chromium	0.26		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	M-44	20140813	200.7	7440-47-3	Chromium	0.99		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	M-48A	20140813	200.7	7440-47-3	Chromium	1.6		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	M-95	20140813	200.7	7440-47-3	Chromium	0.52		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-123	20140813	200.7	7440-47-3	Chromium	0.99		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-124	20140813	200.7	7440-47-3	Chromium	0.084		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-125	20140813	200.7	7440-47-3	Chromium	0.073		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-126	20140813	200.7	7440-47-3	Chromium	0.15		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-127	20140813	200.7	7440-47-3	Chromium	0.84		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-128	20140813	200.7	7440-47-3	Chromium	0.37		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-129	20140813	200.7	7440-47-3	Chromium	0.72		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-130	20140813	200.7	7440-47-3	Chromium	0.76		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-131	20140813	200.7	7440-47-3	Chromium	0.0097		0.0025	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-132	20140813	200.7	7440-47-3	Chromium	0.0076		0.0025	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-54	20140813	200.7	7440-47-3	Chromium	1.7		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-71	20140813	200.7	7440-47-3	Chromium	0.37		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-72	20140813	200.7	7440-47-3	Chromium	0.14		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-85653-1	PC-73	20140813	200.7	7440-47-3	Chromium	0.39		0.013	mg/l	J-	m	Matrix Spike %R	72/71	%
440-95253-1	FB-1	20141203	218.6	18540-29-9	Chromium, hexavalent		UH	0.25	ug/l	R	h	Holding Time	54.5	Hours
440-95801-1	M-10	20141208	300.0	16887-00-6	Chloride	200		25	mg/l	J-	m	Matrix Spike %R	72/72	%
440-85492-1	FB-1	20140812	SM4500-H+B	C-006	pH	8.09	HF	0.100	s.u.	J	h	Holding Time	50.25	Hours
440-85492-1	M-37	20140812	SM4500-H+B	C-006	pH	7.24	HF	0.100	s.u.	J	h	Holding Time	50.5	Hours
440-85492-1	M-38	20140812	SM4500-H+B	C-006	pH	7.43	HF	0.100	s.u.	J	h	Holding Time	50	Hours
440-85496-1	M-5A	20140812	SM4500-H+B	C-006	pH	7.17	HF	0.100	s.u.	J	h	Holding Time	51.25	Hours
440-85496-1	M-7B	20140812	SM4500-H+B	C-006	pH	7.42	HF	0.100	s.u.	J	h	Holding Time	49.75	Hours
440-96212-1	M-135	20141209	SM4500-H+B	C-006	pH	7.63	HF	0.100	s.u.	J	h	Holding Time	55	Hours
440-96212-1	M-31A	20141209	SM4500-H+B	C-006	pH	7.48	HF	0.100	s.u.	J	h	Holding Time	54.5	Hours
440-96212-1	M-52	20141209	SM4500-H+B	C-006	pH	7.69	HF	0.100	s.u.	J	h	Holding Time	53.5	Hours
440-96212-1	M-69	20141209	SM4500-H+B	C-006	pH	7.51	HF	0.100	s.u.	J	h	Holding Time	55.25	Hours
440-96212-1	M-73	20141209	SM4500-H+B	C-006	pH	7.42	HF	0.100	s.u.	J	h	Holding Time	53	Hours
440-85655-1	M-6A	20140813	9020	TOH	TOX Quad	1700		390	ug/l	J-	m	Matrix Spike %R	61/77	%

ATTACHMENT A

Metals Data Validation Report

Metals by EPA Method 200.7

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

ICP-MS was not utilized in these SDGs.

III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

SDG	Method Blank ID	Analyte	Maximum Concentration	Associated Samples
440-85350-1	ICB/CCB	Chromium	0.00520 mg/L	I-O I-W I-P I-H I-U I-T I-G I-Q I-F I-X I-N I-E I-M I-D
440-85496-1	PB (prep blank)	Iron	0.0216 mg/L	All samples in SDG 440-85496-1
440-95801-1	PB (prep blank)	Iron	0.0155 mg/L	All samples in SDG 440-95801-1

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified.

Samples EB-1 (from SDGs 440-85653-1 and 440-95199-1) and EB-2 (from SDGs 440-85776-1 and 440-95437-1) were identified as equipment blanks. No metal contaminants were found.

Sample FB-1 (from SDGs 440-85492-1 and 440-95253-1) was identified as a field blank. No metal contaminants were found with the following exceptions:

SDG	Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
440-95253-1	FB-1	12/3/14	Chromium	0.0029 mg/L	M-64 M-65 M-66 M-79 M-131 DUP-2

Sample concentrations were compared to concentrations detected in the field blanks as required by the QAPP. No sample data was qualified.

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

SDG	Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
440-85653-1	PC-123MS/MSD (PC-123 PC-128 PC-129 PC-130 PC-132 PC-131 PC-124 PC-126 PC-125 PC-127 PC-54 M-48A PC-71 PC-72 PC-73 M-23 M-95 M-44 DUP-1 EB-1)	Chromium	72 (75-125)	-	-	J- (all detects) UJ (all nondetects)	A

SDG	Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
440-85653-1	PC-54MS/MSD (PC-123 PC-128 PC-129 PC-130 PC-132 PC-131 PC-124 PC-126 PC-125 PC-127 PC-54 M-48A PC-71 PC-72 PC-73 M-23 M-95 M-44 DUP-1 EB-1)	Chromium	71 (75-125)	-	-	J- (all detects) UJ (all nondetects)	A

For I-WMS/MSD, I-EMS/MSD (both from SDG 440-85350-1), M-72MS/MSD (from SDG 440-85492-1), I-ZMS/MSD (from SDG 440-85776-1), I-MMS/MSD (from SDG 440-94662-1), I-VMS/MSD (from SDG 440-94868-1), DUP-3MS/MSD (from SDG 440-95800-1), no data were qualified for Chromium, and for M-64MS/MSD (from SDG 440-85496-1) and H-28AMS/MSD (from SDG 440-85655-1), no data were qualified for Iron and Sodium percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in these SDGs, and therefore duplicate analyses were not performed for these SDGs.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Internal Standards (ICP-MS)

ICP-MS was not utilized in these SDGs.

X. ICP Serial Dilution

ICP serial dilution was not performed for these SDGs.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed. Raw data were not evaluated for the samples reviewed by Stage 2B criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples PC-132 and DUP-1 (from SDG 440-85653-1), samples M-12A and DUP-3 (from SDG 440-85776-1), samples PC-150 and DUP-2 (from SDG 440-85890-1), samples M-11 and DUP-4 (from SDG 440-85890-1), samples M-131 and DUP-2 (from SDG 440-95253-1), samples M-23 and DUP-1 (from SDG 440-95437-1), samples M-38 and DUP-3 (from SDG 440-95800-1), and samples M-12A and DUP-4 (from SDG 440-97242-1) were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
		PC-132	DUP-1				
440-85653-1	Chromium	0.0076	0.0083	-	0.0007 (≤0.025)	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-12A	DUP-3				
440-85776-1	Chromium	9.6	9.8	2 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
		PC-150	DUP-2				
440-85890-1	Chromium	0.19	0.20	-	0.01 (≤0.025)	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-11	DUP-4				
440-85890-1	Chromium	1.3	1.2	8 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-131	DUP-2				
440-95253-1	Chromium	0.089	0.081	9 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-23	DUP-1				
440-95437-1	Chromium	0.34	0.32	6 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-38	DUP-3				
440-95800-1	Chromium	18	18	0 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-12A	DUP-4				
440-97242-1	Chromium	11	12	9 (≤30)	-	-	-

2014 Annual Remedial Performance Sampling

Metals - Data Qualification Summary - SDGs 440-84834-1, 440-85159-1, 440-85240-1, 440-85350-1, 440-85492-1, 440-85496-1, 440-85653-1, 440-85655-1, 440-85776-1, 440-85889-1, 440-85890-1, 440-94662-1, 440-94868-1, 440-95199-1, 440-95253-1, 440-95437-1, 440-95800-1, 440-95801-1, 440-96212-1, 440-84683-1, 440-92039-1, 440-93300-1, 440-94207-1, 440-97242-1, 440-94339-1

SDG	Sample	Analyte	Flag	A or P	Reason
440-85653-1	PC-123 PC-128 PC-129 PC-130 PC-132 PC-131 PC-124 PC-126 PC-125 PC-127 PC-54 M-48A PC-71 PC-72 PC-73 M-23 M-95 M-44 DUP-1 EB-1	Chromium	J- (all detects) UJ (all nondetects)	A	Matrix spike/Matrix spike duplicate (%R)

2014 Annual Remedial Performance Sampling

Metals - Laboratory Blank Data Qualification Summary – SDGs 440-84834-1, 440-85159-1, 440-85240-1, 440-85350-1, 440-85492-1, 440-85496-1, 440-85653-1, 440-85655-1, 440-85776-1, 440-85889-1, 440-85890-1, 440-94662-1, 440-94868-1, 440-95199-1, 440-95253-1, 440-95437-1, 440-95800-1, 440-95801-1, 440-96212-1, 440-84683-1, 440-92039-1, 440-93300-1, 440-94207-1, 440-97242-1, 440-94339-1

No Sample Data Qualified in these SDGs

2014 Annual Remedial Performance Sampling

Metals - Field Blank Data Qualification Summary – SDGs 440-84834-1, 440-85159-1, 440-85240-1, 440-85350-1, 440-85492-1, 440-85496-1, 440-85653-1, 440-85655-1, 440-85776-1, 440-85889-1, 440-85890-1, 440-94662-1, 440-94868-1, 440-95199-1, 440-95253-1, 440-95437-1, 440-95800-1, 440-95801-1, 440-96212-1, 440-84683-1, 440-92039-1, 440-93300-1, 440-94207-1, 440-97242-1, 440-94339-1

No Sample Data Qualified in these SDGs

ATTACHMENT B

Wet Chemistry Data Validation Report

Hexavalent Chromium by EPA Method 218.6
Chloride, Nitrate as Nitrogen, Nitrite as Nitrogen, and Sulfate by EPA Method 300.0
Chlorate by EPA Method 300.1B
Perchlorate by EPA Method 314.0
Ammonia as Nitrogen by EPA Method 350.1
Nitrate/Nitrite as Nitrogen by EPA Method 353.2
Phenolics by EPA Method 420.1
Total Inorganic Nitrogen by Calculation Method
Specific Conductance by Standard Method 2510B
Total Dissolved Solids by Standard Method 2540C
pH by Standard Method 4500 H+B
Total Organic Carbon by Standard Method 5310C
Total Organic Halides by EPA SW 846 Method 9020B

I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

SDG	Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
440-85492-1	M-37	pH	50.5 hours	48 hours	J (all detects)	P
440-85492-1	FB-1	pH	50.25 hours	48 hours	J (all detects)	P
440-85492-1	M-38	pH	50 hours	48 hours	J (all detects)	P
440-85496-1	M-5A	pH	51.25 hours	48 hours	J (all detects)	P
440-85496-1	M-7B	pH	49.75 hours	48 hours	J (all detects)	P
440-95253-1	FB-1	Hexavalent chromium	54.5 hours	24 hours	R (all non-detects)	P
440-96212-1	M-69	pH	55.25 hours	48 hours	J (all detects)	P
440-96212-1	M-135	pH	55 hours	48 hours	J (all detects)	P
440-96212-1	M-31A M-31ADUP	pH	54.5 hours	48 hours	J (all detects)	P
440-96212-1	M-52	pH	53.5 hours	48 hours	J (all detects)	P
440-96212-1	M-73	pH	53 hours	48 hours	J (all detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

SDG	Method Blank ID	Analyte	Concentration	Associated Samples
440-85496-1	ICB/CCB	Sulfate	0.282 mg/L	All samples in SDG 440-85496-1

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified.

Samples EB-M1 (from SDG 440-84834-1), EB-1 (from SDGs 440-85653-1, 440-95199-1, 440-82772-1, and 440-90694-1), EB-2 (from SDG 440-85776-1 and 440-95437-1), and MEB-1 (from SDGs 440-87966-1, 440-94339-1, and 440-97504-1) were identified as equipment blanks. No contaminant concentrations were found with the following exceptions:

SDG	Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
440-85776-1	EB-2	8/14/14	Perchlorate	0.53 ug/L	M-31A M-52 M-35 M-19 M-68 M-67 M-74 M-73 I-K I-J I-Z I-I I-V I-AD M-80 M-81A M-83 M-12A DUP-3
440-95437-1	EB-2	12/5/14	Hexavalent chromium	0.41 ug/L	M-95 M-37

Sample FB-1 (from SDGs 440-85492-1 and 440-95253-1) was identified as a field blank. No contaminant concentrations were found.

Sample concentrations were compared to concentrations detected in the field blanks as required by the QAPP. No sample data was qualified.

V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

SDG	Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Affected Analyte	Flag	A or P
440-85655-1	M-6AMS/MSD (M-6A)	Total organic halides	61 (78-114)	77 (78-114)	-	Total organic halides	J- (all detects)	A
440-85889-1	M-10MS/MSD (All samples in SDG 440-85889-1)	Nitrite as N	155 (75-125)	150 (75-125)	-	Nitrite as N Total inorganic nitrogen	NA	-
440-95801-1	M-10MS/MSD (M-10)	Chloride	72 (75-125)	72 (75-125)	-	Chloride	J- (all detects)	A

Although the above listed %R flagged "NA" demonstrates a high bias, the affected analyte in the associated samples was non-detected and did not warrant the qualification of the data.

VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed. Raw data were not evaluated for the samples reviewed by Stage 2B criteria.

IX. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

SDG	Sample	Analyte	Flag	A or P
440-95801-1	M-10DL	Nitrate as N Nitrite as N	DNR	A

Data flags are summarized at the end of this report if data has been qualified.

X. Field Duplicates

Samples PC-132 and DUP-1 (from SDG 440-85653-1), samples M-12A and DUP-3 (from SDG 440-85776-1), samples PC-150 and DUP-2 (from SDG 440-85890-1), samples M-11 and DUP-4 (from SDG 440-85890-1), samples M-23 and DUP-1 (from SDG 440-95437-1), samples M-38 and DUP-3 (from SDG 440-95800-1), and samples M-12A and DUP-4 (from SDG 440-97242-1) were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
		PC-132	DUP-1				
440-85653-1	Total dissolved solids	9100 mg/L	9100 mg/L	0 (≤30)	-	-	-
440-85653-1	pH	7.37 SU	7.49 SU	2 (≤30)	-	-	-
440-85653-1	Perchlorate	680 ug/L	710 ug/L	4 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-12A	DUP-3				
440-85776-1	Total dissolved solids	7200 mg/L	7300 mg/L	1 (≤30)	-	-	-
440-85776-1	Hexavalent chromium	9700 ug/L	9500 ug/L	2 (≤30)	-	-	-
440-85776-1	pH	8.01 SU	8.00 SU	0 (≤30)	-	-	-
440-85776-1	Perchlorate	210000 ug/L	200000 ug/L	5 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
		PC-150	DUP-2				
440-85890-1	Total dissolved solids	6600 mg/L	6700 mg/L	2 (≤30)	-	-	-
440-85890-1	pH	7.50 SU	7.52 SU	0 (≤30)	-	-	-
440-85890-1	Perchlorate	160000 ug/L	170000 ug/L	8 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-11	DUP-4				
440-85890-1	Total dissolved solids	2400 mg/L	2600 mg/L	8 (≤30)	-	-	-
440-85890-1	Hexavalent chromium	1200 ug/L	1200 ug/L	0 (≤30)	-	-	-
440-85890-1	pH	7.99 SU	7.98 SU	0 (≤30)	-	-	-
440-85890-1	Perchlorate	20000 ug/L	18000 ug/L	11 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-131	DUP-2				
440-95253-1	Total dissolved solids	3300 mg/L	3300 mg/L	0 (≤30)	-	-	-
440-95253-1	pH	7.66 SU	7.66 SU	0 (≤30)	-	-	-
440-95253-1	Perchlorate	39000 ug/L	42000 ug/L	8 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-23	DUP-1				
440-95437-1	Total dissolved solids	3900 mg/L	4000 mg/L	3 (≤30)	-	-	-
440-95437-1	pH	7.63 SU	7.61 SU	0 (≤30)	-	-	-
440-95437-1	Perchlorate	200000 ug/L	190000 ug/L	8 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-38	DUP-3				
440-95800-1	Total dissolved solids	11000 mg/L	11000 mg/L	0 (≤30)	-	-	-
440-95800-1	Hexavalent chromium	18000 ug/L	18000 ug/L	0 (≤30)	-	-	-
440-95800-1	pH	7.48 SU	7.51 SU	0 (≤30)	-	-	-
440-95800-1	Perchlorate	630000 ug/L	640000 ug/L	2 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
		M-12A	DUP-4				
440-97242-1	Perchlorate	220000 ug/L	230000 ug/L	4 (≤30)	-	-	-
440-97242-1	pH	8.25 SU	8.26 SU	0 (≤30)	-	-	-
440-97242-1	Hexavalent chromium	10000 ug/L	10000 ug/L	0 (≤30)	-	-	-
440-97242-1	Total dissolved solids	7200 mg/L	7000 mg/L	3 (≤30)	-	-	-

2014 Annual Remedial Performance Sampling
Wet Chemistry - Data Qualification Summary - SDGs 440-84834-1, 440-85159-1, 440-85240-1, 440-85350-1, 440-85492-1, 440-85496-1, 440-85653-1, 440-85655-1, 440-85776-1, 440-85889-1, 440-85890-1, 440-87226-1, 440-87925-1, 440-87966-1, 440-88032-1, 440-90069-1, 440-94662-1, 440-94669-1, 440-94868-1, 440-95199-1, 440-95253-1, 440-95437-1, 440-95800-1, 440-95801-1, 440-96212-1, 440-82772-1, 440-82778-1, 440-82987-1, 440-84683-1, 440-90694-1, 440-92039-1, 440-93300-1, 440-94207-1, 440-97242-1, 440-97847-1, 440-82280-1, 440-94339-1, 440-97504-1, 440-98043-1

SDG	Sample	Analyte	Flag	A or P	Reason
440-85492-1 440-85496-1 440-96212-1	M-37 FB-1 M-38 M-5A M-7B M-69 M-135 M-31A M-52 M-73	pH	J (all detects)	P	Technical holding time
440-95253-1	FB-1	Hexavalent chromium	R (all non-detects)	P	Technical holding time
440-85655-1	M-6A	Total organic halides	J- (all detects)	A	Matrix spike/Matrix spike duplicate (%R)
440-95801-1	M-10	Chloride	J- (all detects)	A	Matrix spike/Matrix spike duplicate (%R)
440-95801-1	M-10DL	Nitrate as N Nitrite as N	DNR	A	Overall assessment of data

2014 Annual Remedial Performance Sampling
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDGs 440-84834-1, 440-85159-1, 440-85240-1, 440-85350-1, 440-85492-1, 440-85496-1, 440-85653-1, 440-85655-1, 440-85776-1, 440-85889-1, 440-85890-1, 440-87226-1, 440-87925-1, 440-87966-1, 440-88032-1, 440-90069-1, 440-94662-1, 440-94669-1, 440-94868-1, 440-95199-1, 440-95253-1, 440-95437-1, 440-95800-1, 440-95801-1, 440-96212-1, 440-82772-1, 440-82778-1, 440-82987-1, 440-84683-1, 440-90694-1, 440-92039-1, 440-93300-1, 440-94207-1, 440-97242-1, 440-97847-1, 440-82280-1, 440-94339-1, 440-97504-1, 440-98043-1

No Sample Data Qualified in these SDGs

2014 Annual Remedial Performance Sampling

Wet Chemistry - Field Blank Data Qualification Summary – SDGs 440-84834-1, 440-85159-1, 440-85240-1, 440-85350-1, 440-85492-1, 440-85496-1, 440-85653-1, 440-85655-1, 440-85776-1, 440-85889-1, 440-85890-1, 440-87226-1, 440-87925-1, 440-87966-1, 440-88032-1, 440-90069-1, 440-94662-1, 440-94669-1, 440-94868-1, 440-95199-1, 440-95253-1, 440-95437-1, 440-95800-1, 440-95801-1, 440-96212-1, 440-82772-1, 440-82778-1, 440-82987-1, 440-84683-1, 440-90694-1, 440-92039-1, 440-93300-1, 440-94207-1, 440-97242-1, 440-97847-1, 440-82280-1, 440-94339-1, 440-97504-1, 440-98043-1

No Sample Data Qualified in these SDGs

Appendix D

Electronic Data Deliverable (EDD)

(Database files provided electronically or on CD separately)

Attachment A

2013 GWETS Optimization Project Report

2013 GWETS Optimization Project Report

Nevada Environmental Response Trust Site
Henderson, Nevada

Prepared for:
Nevada Environmental Response Trust

Prepared by:
ENVIRON International Corporation
Emeryville, California

Date:
April 30, 2015

Project Number:
21-37300B, K02

2013 GWETS Optimization Project Report
Nevada Environmental Response Trust Site
(Former Tronox LLC Site)
Henderson, Nevada

Nevada Environmental Response Trust (NERT) Representative Certification

I certify that this document and all attachments submitted to the Division were prepared at the request of, or under the direction or supervision of NERT. Based on my own involvement and/or my inquiry of the person or persons who manage the system(s) or those directly responsible for gathering the information or preparing the document, or the immediate supervisor of such person(s), the information submitted and provided herein is, to the best of my knowledge and belief, true, accurate, and complete in all material respects.

Office of the Nevada Environmental Response Trust

Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

not individually but solely as Pres't

Signature: Jay A Steinberg, ______, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

Name: Jay A. Steinberg, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

Title: Solely as President and not individually

Company: Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

Date: 4-20-15

2013 GWETS Optimization Project Report

Nevada Environmental Response Trust
(Former Tronox LLC Site)
Henderson, Nevada

Responsible Certified Environmental Manager (CEM) for this project

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and, to the best of my knowledge, comply with all applicable federal, state and local statutes, regulations and ordinances.

04/30/2015

John M. Pekala, PG
Senior Manager

Date

Certified Environmental Manager
ENVIRON International Corporation
CEM Certificate Number: 2347
CEM Expiration Date: September 20, 2016

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Acronyms and Abbreviations

α	aquifer compressibility
AMPAC	American Pacific Corporation
amsl	above mean sea level
AWNA	American Water Works Association
AWF	Athens Road Well Field
b	saturated thickness
bgs	below ground surface
Bird Viewing Ponds	Bird Viewing Preserve
BMI	Black Mountain Industrial
CD	compact disc
CEM	Certified Environmental Manager
cm/sec	centimeters per second
COH	City of Henderson
COP	Continuous Optimization Program
CZE	Capture Zone Evaluation
d_s	wellbore skin thickness
Envirogen	Envirogen Technologies, Inc.
ENVIRON	ENVIRON International Corporation
FS	Feasibility Study
ft	feet
ft/day	feet per day
ft^2/day	square feet per day
FBR	fluidized bed reactors
gpm	gallons per minute
gpm/ft	gallons per minute of flow per foot of drawdown
GWETS	Groundwater Extraction and Treatment System
GPRS	Ground Penetrating Radar Systems, Inc.
GWTP	Groundwater Treatment Plant
IWF	Interceptor Well Field
JATCO	J.A. Tiberti Construction

K	hydraulic conductivity
KGS	Kansas Geological Survey
K_r	radial hydraulic conductivity
K_s	wellbore skin hydraulic conductivity
Kz/Kr	anisotropy ratio
mg/L	milligrams per liter
µg/L	micrograms per liter
NERT	Nevada Environmental Response Trust
Northgate	Northgate Environmental Management, Inc.
NDEP	Nevada Division of Environmental Protection
OSSM	Olin, Stauffer, Syngenta, and Montrose
Qal	Quaternary alluvium
r_c	casing radius
r_w	well radius
RI	Remedial Investigation
RI/FS	Remedial Investigation and Feasibility Study
S	Storativity
S’	residual drawdown
S_a	recovery measured since pumping ended
SBCC	S&B Christ Consulting
Site	Nevada Environmental Response Trust Site
S_p	total drawdown
Ss	specific storage
Sw	skin factor
SWF	Seep Well Field
Sy	specific yield
T	transmissivity
t_a	Agarwal equivalent time
TDS	total dissolved solids
TIMET	Titanium Metals Corporations
TestAmerica	TestAmerica Laboratories, Inc.
Tetra Tech	Tetra Tech, Inc.

t_p	time since pumping began
t’	time since pumping ended
Tronox	Tronox LLC
Trust	Nevada Environmental Response Trust
UMCf	Upper Muddy Creek Formation
WBZ	water-bearing zones
USA	Underground Service Alert
USEPA	United States Environmental Protection Agency
xMCf	Transitional Upper Muddy Creek Formation

1 Introduction

ENVIRON International Corporation (ENVIRON) has prepared this report on behalf of the Nevada Environmental Response Trust (the Trust) describing steps taken to increase the effectiveness of the Groundwater Extraction and Treatment System (GWETS) located at the Nevada Environmental Response Trust Site (the Site). As shown on Figure 1, the well fields associated with the Site's GWETS are the Interceptor Well Field (IWF), the Athens Road Well Field (AWF), and the Seep Well Field (SWF). This report describes the activities that were completed in accordance with the 2013 GWETS Optimization Project Work Plan (ENVIRON 2013b). These activities were completed as a continuation of groundwater capture and mass removal analyses originally outlined in Appendix E of the 2011-2012 Annual Performance Report (ENVIRON 2012a) and subsequently presented in Appendix F of the Remedial Investigation and Feasibility Study (RI/FS) Work Plan (ENVIRON 2012b). ENVIRON proceeded with execution of the 2013 GWETS Optimization Project following the Nevada Division of Environmental Protection's (NDEP's) response to comments on the Semi-Annual Performance Report, which requested the immediate implementation of what was at that time called the "GWETS Optimization Study" (NDEP 2013a).

1.1 Project Objectives and Scope

The objectives of the 2013 GWETS Optimization Project were twofold: 1) develop tools to better assess performance of the GWETS now and into the future; and 2) enhance capture zones and mass removal of perchlorate and hexavalent chromium at two of the three well fields through activation of nine previously-installed extraction wells. To move toward these objectives, the following tasks were completed as part of the 2013 GWETS Optimization Project and are described in this report:

1) Review existing data and perform initial updates and refinements to the groundwater model—the Phase I Model Refinement;

2) Develop performance metrics to provide the basis for quantitatively evaluating performance now and in the future;

3) Conduct well and aquifer testing to assess the conditions of wells and to further characterize the hydraulic properties of major geologic units at the IWF and AWF;

4) Update and further refine the groundwater model incorporating data from the well and aquifer testing—the Phase II Model Refinement;

5) Activate nine idle wells and adjust flow rates at the IWF and AWF;

6) Perform capture zone evaluations of all three well fields; and

7) Characterize surface water-aquifer interactions at the SWF using the groundwater model.

Several of these activities completed as part of the 2013 GWETS Optimization Project were reported on previously. Specifically, Items 1 and 2, the Phase I Model Refinement and development of the performance metrics, were previously presented in the 2013 Semi-Annual Remedial Performance Report (ENVIRON 2014a). Item 4, the Phase II Model Refinement, was previously presented in the 2013-2014 Annual Remedial Performance Report (ENVIRON 2014c).

The 2013 GWETS Optimization Project is complete with the submittal of this report (pending NDEP review and comment). As part of the Remedial Investigation/Feasibility Study (RI/FS), a Continuous Optimization Program (COP) is being initiated to build on the 2013 GWETS Optimization Project. The COP is an integral part of the RI/FS and data acquired during the COP will be utilized throughout the RI/FS process and including remedy selection. A timeline for the COP was submitted to NDEP on February 27, 2015 (NERT 2015). A high-level program summary was presented at the Stakeholder Annual Meeting on March 26, 2015. A more detailed task list to support objectives of the COP is currently being developed.

1.2 Report Organization

The remaining sections of this report provide some background and describe the completion of the 2013 GWETS Optimization Project as follows.

- Section 2 provides background information on the Site, including an overview of GWETS operations, a brief description of the Site's geological and hydrological conditions, information on previous aquifer testing, and historical project information.

- Section 3 describes improvements to the Site's groundwater flow model, as well as planned model improvements anticipated as part of the RI.

- Section 4 describes performance metrics developed in order to quantitatively assess the performance of the GWETS.

- Section 5 discuses well and aquifer testing conducted near the IWF and AWF, including step-drawdown, recovery, and slug testing.

- Section 6 describes startup and optimization of the activated wells, including utility construction related to activation of the AWF wells and activation of idle extraction wells in the IWF as well as a discussion of the limitations encountered.

- Section 7 presents capture zone evaluations for the three well fields.

- Section 8 summarizes the findings of the 2013 GWETS Optimization Project

2 Background

2.1 Overview of the GWETS

The GWETS has been in place in essentially its current configuration since 2006, but extraction and on-site treatment of groundwater dates back to the late 1980s with the operation of the IWF and related treatment for removal of hexavalent chromium. The GWETS operates by capturing groundwater from the IWF, AWF, and SWF and treating the captured groundwater via aboveground treatment facilities for subsequent discharge to Las Vegas Wash. A map of the three well fields, the approximate locations of pipelines, and locations other GWETS infrastructure is shown on Figure 1. Cross-sections of the IWF, AWF, and SWF are presented in Figures 2, 3, and 4, respectively.

Hexavalent chromium in extracted groundwater from the IWF is treated via chemical reduction and precipitation using ferrous sulfate at the Groundwater Treatment Plant (GWTP). GWTP effluent is discharged to a series of FBRs, which also receive flow from the SWF and AWF for the biological removal of perchlorate using ethanol as a carbon source. The FBR process design flow is 1,000 gallons per minute (gpm). The maximum loading (nitrate, chlorate, and perchlorate) to the FBR process is 1,893 equivalent pounds per day[1] based on original design drawings (Shaw 2006). Furthermore, the GWETS operator (Envirogen Technologies, Inc.; [Envirogen]) estimates that the current configuration of the GWTP, which treats groundwater extracted from the IWF, can sustain a maximum flow of approximately 85 gpm. The current operation and performance of the GWETS is described in the 2014 Semi-Annual Remedial Performance Report (ENVIRON 2015).

As part of the 2013 GWETS Optimization Project, extraction well data compilations have been prepared consisting of trend charts showing concentration, groundwater elevation, and flow data over time (Appendix A) and specific capacity[2] over time (Appendix B).

2.2 Idle Wells at the IWF and AWF

The activated wells at the IWF (I-AA, I-AB, I-AC, I-AD, I-W, I-X, I-Y) were installed by Tronox LLC (Tronox) and their various consultants as a result of several previous groundwater capture investigations in order to 1) address gaps in capture identified near the west and east ends of the IWF (I-AA, I-AB, I-AC, I-AD) and 2) increase mass removal within the well field (I-W, I-X, and I-Y), as described below. A cross-section of the IWF showing these wells in relation to other wells at the IWF is presented in Figure 3.

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[1] Equivalent pounds per day is calculated with the following formula:
Equivalent Pounds = $((0.90 * NO_3) + (0.17 * ClO_3) + (0.18 * ClO_4)) * ((gpm * 1{,}440) / 1{,}000{,}000) * 8.34$.

[2] The specific capacity plots presented herein are for estimating relative specific capacity over time as a way of evaluating well performance. Long-term trends in specific capacity can be used to identify wells that may require redevelopment and/or rehabilitation. For the ART wells, the “buddy” wells are analyzed together since the pumping well is currently not readily available in the database. This evaluation will be further refined as part of the COP after implementation of the Enhanced Operational Metrics (Tetra Tech 2014), which is expected to enhance data quality from the well fields.

Wells I-W, I-X, and I-Y were installed in 2000, but served as monitoring wells until 2010. Installation of well I-AA was initially proposed in response to perchlorate concentration trends near the western edge of the barrier wall (ENSR/AECOM 2007). Well I-AB (located adjacent to well I-AA) was installed in 2009 to provide additional capture near the western edge of the barrier wall after initial testing data indicated that I-AA could sustainably pump at a relatively modest rate (1.3 gpm) (Northgate 2010a). Wells I-AA, I-AB, I-W, I-X, and I-Y were connected to the GWETS in 2010 in response to Data Gap #3 as described in the 2010 Interim Capture Zone Evaluation (CZE) Report (Northgate 2010a) and the CZE Work Plan (Northgate 2010b).[3] Wells I-AC and I-AD were subsequently installed in order to improve mass capture on the east end of barrier wall as described in the 2010 CZE Report (Northgate 2010c).

These seven wells were connected to the GWETS between 2010 and 2011 based on design specifications (including pumps, piping, and motors) provided by Northgate Environmental Management, Inc. (Northgate). However, these wells were not activated following Tronox's bankruptcy proceedings and transfer of the Site to the Trust.

Additional groundwater wells were also installed near the AWF as part of the 2010 CZE Work Plan (Northgate 2010b) including four large diameter monitoring wells (ART-7B, PC-148, PC-149, and PC-150) that could be used as additional extraction wells. A cross-section of the AWF showing these wells in relation to other wells at the AWF is presented in Figure 4. ART-7B is co-located with the ART-7/ART-7A extraction well pair, but with a screened interval extending deeper to the reported bottom of the eastern alluvial channel encountered at the AWF. PC-150 was constructed west of ART-4/4A the western alluvial channel encountered at the AWF. As part of the 2010 CZE Report, Northgate recommended the connection and activation of ART-7B and PC-150 (Northgate 2010c).

As described in Appendix E of the 2011-2012 Annual Performance Report (ENVIRON 2012a) and Appendix F of the RI/FS Work Plan (ENVIRON 2012b), ENVIRON further evaluated the previously-identified potential capture gaps near the western and eastern end of the barrier wall near the IWF and west of the Upper Muddy Creek Formation (UMCf) ridge near the AWF. Consistent with previous report recommendations approved by NDEP, ENVIRON proposed adjusting pumping rates at existing extraction wells, activating idle extraction wells in the IWF (I-AA, I-AB, I-AC, I-AD, I-W, I-X, I-Y), and converting two monitoring wells located near the AWF (ART-7B and PC-150) to extraction wells (ENVIRON 2012a; ENVIRON 2014a). These nine wells are referred to in this report as the "activated wells" and are shown in Figures 5 and 6.

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[3] In December 2010, Northgate submitted a capture zone evaluation, the "2010 CZE Report," describing groundwater flow, perchlorate and chromium distributions, and performance of the GWETS (Northgate 2010c). The 2010 CZE Report was prepared on behalf of Tronox, the prior owner of the Site. The 2010 CZE Report was a revised and expanded version of Northgate's Interim Capture Zone Evaluation and Vertical Delineation Report dated March 23, 2010, the "2010 Interim CZE Report" (Northgate 2010a). The CZE Work Plan (Northgate 2010b), which outlined additional characterization and modeling of Site groundwater conditions, was performed between submittal of the 2010 Interim CZE Report (Northgate 2010a) and the 2010 CZE Report (Northgate 2010c). Results from the CZE Work Plan were used in the refinement of the 2010 CZE Report. NDEP reviewed and provided comments on the 2010 CZE Report on April 5, 2011, some of which were addressed by the Trust (NDEP 2011). While the CZE Report was not approved by NDEP, the Site's groundwater flow model was approved on April 4, 2013 following revisions by ENVIRON.

Construction information for the activated wells along with other wells tested and/or monitored as part of this scope of work are presented in Table 1.

2.3 Geology

Local hydrology is influenced by two primary geologic units, Quaternary alluvial deposits (Qal) and the UMCf. In some areas, a transitional zone of reworked sediments from the UMCf, known as the Transitional Upper Muddy Creek Formation (xMCf) is encountered at the base of the Qal. Most extraction wells within the IWF are screened within both the Qal and the UMCf, while AWF and SWF extraction wells are screened almost exclusively in the Qal. The following descriptions are summarized from the RI/FS Work Plan, which includes more detailed information on the Site’s geological and hydrological conditions (ENVIRON 2012b).

The Qal consists of a reddish-brown heterogeneous mixture of well-graded sand and gravel with lesser amounts of silt, clay, and caliche. The thickness of the alluvial deposits ranges from less than 1 foot to more than 50 feet beneath the Site. A major feature of the alluvial deposits is the stream-deposited sands and gravels that were laid down within paleochannels eroded into the surface of the UMCf. These generally uniform sand and gravel deposits exhibit higher permeability than the adjacent, well-graded deposits. In general, these paleochannels are linear and trend to the northeast.

In wells near the IWF, the alluvium is approximately 30 feet thick and the Qal/UMCf interface is generally encountered at an elevation of 1715 to 1720 feet above mean sea level [amsl]). In wells near the AWF, the alluvium is approximately 30 to 60 feet thick and the Qal/UMCf interface is generally encountered at an elevation of 1560 to 1590 feet amsl. The larger variation in the Qal/UMCf contact elevation near the AWF is due to a ridge of UMCf encountered near the center of the well field.

The Pleistocene UMCf occurs in the Las Vegas Valley as valley-fill deposits that are coarse-grained near mountain fronts and become progressively finer-grained toward the center of the valley. Where encountered beneath the Site, the Muddy Creek Formation is composed of at least two thicker units of fine-grained sediments of clay and silt (the first and second fine-grained facies) interbedded with at least two thinner units of coarse-grained sediments of sand, silt, and gravel (the first and second coarse-grained facies). Near the IWF, the UMCf has been interpreted as the first fine-grained facies.

The xMCf has been reportedly encountered at the base of the Qal in some areas of the Black Mountain Industrial (BMI) Complex. The xMCf consists of reworked sediments derived from the UMCf. Therefore, the xMCF appears similar to the UMCf, but it consists of reworked, less consolidated and indurated sediments. However, hydraulically, it is believed to be more consistent with the overlying Qal due the coarser nature of the sediments. The xMCf has not historically been interpreted as a prevalent feature at the Site, although this interpretation will be reviewed as part of the Remedial Investigation (RI) data evaluation.

2.4 Hydrogeology

Shallow groundwater is generally encountered between 4 to 50 feet below ground surface (bgs) and is generally deepest in the southernmost portion of the Site, becoming shallower as it approaches the Las Vegas Wash to the north. NDEP has defined three water-bearing zones[4] (WBZs) that are of interest at the Site and surrounding area. The Shallow WBZ, which extends to approximately 90 feet bgs, is unconfined to partially confined, and is considered the "water table aquifer". The Middle WBZ extends from approximately 90 to 300 feet bgs and the Deep WBZ is generally encountered between 300 to 400 feet bgs (NDEP 2009). Investigations of the Middle WBZ at the Site and surrounding sites indicate, with few exceptions, a vertical upward gradient between the Middle and Shallow Zones that generally increases with depth (ENVIRON 2013a; ENVIRON 2014c). The Shallow WBZ, within which all of the NERT extraction wells are screened, includes the Qal and the upper portion of the UMCf.

The groundwater flow direction at the Site is generally north to north-northwesterly. North of the Site, groundwater flow direction changes slightly to the north-northeast. This generally uniform flow pattern may be modified locally by subsurface alluvial channels cut into the underlying UMCf. Groundwater extraction from the IWF, AWF, and SWF and nearby groundwater extraction conducted by Titanium Metals Corporation (TIMET), Olin, Stauffer, Syngenta, and Montrose (OSSM), and American Pacific Corporation (AMPAC) have contributed to dewatering of the Qal and have significant effects on groundwater flow. The on-site bentonite-slurry groundwater barrier wall (the "barrier wall"), as well as a recently installed barrier wall at the adjacent TIMET site to the east also influence groundwater flow. Moreover, localized areas of recharge from on-site storm water retention basins (discussed below) and off-site recharge from the City of Henderson (COH) Bird Viewing Preserve (Bird Viewing Ponds) effect groundwater flow and have been shown to significantly impact concentrations of perchlorate in groundwater extracted by the IWF and SWF.

As discussed in the 2014 Semi-Annual Performance Report (ENVIRON 2015), the creation of the two on-site storm water retention basins, the Central Retention Basin (located approximately 800 feet south [upgradient] of the IWF) and the Northern Retention Basin (located approximately 300 feet north [downgradient] of the IWF), have had significant effects on groundwater conditions at the Site. The effects included elevated water levels in and around the IWF following a series of storm events between August and October 2012. Storm water collected in the retention basins, resulting in the mobilization of perchlorate previously bound in vadose zone soils. It is anticipated that similar effects may be seen in the future following large storm events.

2.5 Review of Previous Aquifer Testing

According to a summary of hydraulic conductivity data presented in the 2010 Capture Zone Evaluation (Northgate 2010c), paleochannels within the Qal exhibit higher permeability than observed in the remainder of the unit, which leads to highly variable conductivity estimates for wells screened in the Qal. Previous hydraulic conductivity estimates for the Qal in the vicinity of the Site range from approximately 0.5 to 500 feet per day (ft/day) (Kleinfelder 2007) with a geometric mean hydraulic conductivity of 22.7 ft/day (Northgate 2010c). Hydraulic conductivity is generally above 100 ft/day in areas where paleochannels have been previously interpreted (Northgate 2010c).

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[4] NDEP guidance for the water bearing zones can be viewed at http://ndep.nv.gov/bmi/docs/090106_hydro_litho.pdf.

Previous hydraulic conductivity estimates for the combined Qal/UMCf and transitional xMCf range from 0.08 to 102 ft/day, with a geometric mean of 1.7 ft/day (TIMET 2009; Geosyntec 2010; Northgate 2010c). Previous hydraulic conductivity measurements of the UMCf range from 0.001 to 4.8 ft/day and have a geometric mean hydraulic conductivity of 0.08 ft/day (Geosyntec 2010; Northgate 2010c). A summary of previous aquifer testing is presented in Table 2.

3 Groundwater Model Refinements

The initial version of the groundwater model for the Site was developed by Northgate and was approved on April 4, 2013 by NDEP for use in capture zone evaluation. This model, referred to as the “Northgate Model”, is a steady-state flow model calibrated to Site conditions in 2008/2009, as documented in the 2010 CZE Report (Northgate 2010c). As described in the 2013 GWETS Optimization Project Work Plan, modifications to the Northgate Model have been implemented by ENVIRON in two phases.

3.1 Phase I Model Refinement

The first phase of modifications included: 1) an update of the model to reflect more recent conditions and pumping and injection rates of the GWETS, AMPAC and OSSM remediation systems; 2) preliminary refinement of the model representation of stream-aquifer interactions near Las Vegas Wash; and 3) other changes to the model requested by NDEP or necessary to support the 2013 GWETS Optimization Project. In addition, a conceptual water budget for the model area was developed as part of the first phase activities.

3.2 Phase II Model Refinement

The second phase of modifications included updating the Phase I Model to incorporate the results of aquifer testing, and further refinement of stream-aquifer interactions at Las Vegas Wash. The conceptual water balance presented in the Phase I Model Refinement report was revised to incorporate additional information received after the Phase I Model Refinement report was submitted. The Phase II Model was also updated to be consistent with the revised conceptual water balance. The Phase II Model was then used to evaluate the performance metrics presented as Attachment A in the 2013-2014 Annual Performance Report (ENVIRON 2014c) and used to evaluate alternative extraction scenarios at the Site well fields as described in this report.

3.3 Phase III Model Refinement

Further refinement of the existing steady-state model and subsequent development of a transient groundwater model are anticipated as part of the ongoing RI. Expansion of the boundaries of the model is also expected to be implemented to support the NDEP Regional Groundwater Investigation. Furthermore, additional updates and enhancements are expected to be made to the model on an expedited timeline to guide optimization efforts related to the COP which will ultimately support the RI/FS. Collectively, these updates will be known as the Phase III Model Refinement.

4 GWETS Performance Metrics

The GWETS performance metrics[5] will be used to quantitatively assess the performance of the GWETS, including evaluating implementation of the proposed COP and the remedial alternatives analysis performed during the Feasibility Study (FS). The most recent evaluation of the performance of the GWETS with respect to the performance metrics is contained in the 2014 Semi-Annual Remedial Performance Report (ENVIRON 2015).

4.1 Development of the Performance Metrics

Performance metrics were developed as part of the 2013 GWETS Optimization Work Plan (ENVIRON 2013b). The metrics include those identified in the October 10, 2013 letter from NDEP (NDEP 2013b) commenting on the 2012-2013 Annual Performance Report, additional data requested in the April 9, 2014 letter from NDEP (NDEP 2014c) on the 2013 Semi-Annual Performance Report, and additional metrics identified by ENVIRON. The approved performance metrics are outlined below:

1. Monthly perchlorate and chromium mass removal rates from the IWF, AWF, and SWF;
2. Perchlorate and chromium plume mass estimates;
3. The concentrations at which the Site is achieving 90% and 99% capture of perchlorate and chromium;
4. Perchlorate and chromium capture efficiency of the IWF, AWF, and SWF;
5. Mass loading of perchlorate and chromium in the Las Vegas Wash at Northshore Road;
6. The fraction of mass loading in Las Vegas Wash at Northshore Road that originates from the Site;
7. The amount of surface water from Las Vegas Wash and the COH Bird Viewing Ponds that is being extracted by the SWF; and
8. The environmental footprint of the GWETS with a focus on energy use.

These metrics are intended to establish a consistent framework for evaluating performance of the GWETS and will serve as discrete measures that will be used to understand and adjust GWETS performance over time.

4.2 Performance Evaluation Approach

An overall approach for evaluating metrics was established in the 2013 GWETS Optimization Project Work Plan (ENVIRON 2013b) and was first described in the 2013 Semi-Annual Performance Report (ENVIRON 2014a). The performance metrics consider both perchlorate

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[5] These metrics are separate and distinct from those being utilized as part of NERT's monthly GWETS operations reporting, which were included in Tetra Tech's Enhanced Operational Metrics Proposal dated August 20, 2014 (Tetra Tech 2014).

and chromium, but certain metrics are focused mainly on perchlorate because the perchlorate plume is the most spatially extensive (i.e., the spatial extent of the chromium plume is contained within the perchlorate plume) and perchlorate represents the more immediate threat to off-site receptors due to its potential impacts on Las Vegas Wash. This is consistent with the focus of previous capture zone evaluations at the Site. The evaluation of GWETS performance using the metrics is consistent with United States Environmental Protection Agency (USEPA) guidance on evaluating capture zones for groundwater pump and treat systems (USEPA 2008).

5 Aquifer Testing

The project's well testing program was designed to further characterize the key geologic units at the Site in order to support groundwater model development and optimization of pumping rates at the IWF and AWF. Three phases of aquifer testing were performed: 1) slug testing at the AWF to further characterize hydraulic properties of areas not currently targeted for extraction; 2) step-drawdown testing of the activated wells (Figures 5 and 6) to determine basic well characteristics and aquifer hydraulic properties; and 3) recovery testing of selected existing extraction wells to determine aquifer hydraulic properties. All tested wells within the IWF and AWF are shown in Figures 7 and 8, respectively. Construction details of the wells that were included in the aquifer testing program are provided in Table 1.

5.1 Slug Testing

The first phase of aquifer testing included slug testing of four AWF wells, as shown in Figure 8. Three of the tested wells (PC-134A, PC-137, and PC-148) are screened in the UMCf, and one well (PC-149) is screened in the Qal and UMCf. These wells were selected for slug testing to characterize the hydraulic conductivity of the formation outside of the paleochannels which form the major flow pathways. It is important to understand the distribution of hydraulic conductivity across the well field, both in areas of higher conductivity that are targeted for extraction and areas of lower conductivity that provide natural barriers to groundwater transport of contaminants.

5.2 Slug Test Procedures

Slug testing at the four wells near the AWF was performed between January 13 and January 15, 2014. Two slugs designed to produce 12 inches (Slug A) and 24 inches (Slug B) of displacement were used during slug testing of 2-inch diameter wells PC-134A and PC-137. The tests at 6-inch diameter wells PC-148 and PC-149 were performed using a slug designed to produce initial displacement of 1.7 feet (Slug D).[6] All slugs were constructed of PVC and equipped with stainless steel "eye bolt" attachment points. Slug tests were conducted at each well by quickly lowering (falling head test) or raising (rising head test) the slug into or out of the well, resulting in a nearly instantaneous change in water level. The slugs were controlled using a custom well sampling reel equipped with Teflon-coated stainless-steel cable, which allowed for rapidly raising and lowering the slugs once the slug was positioned in the well.

Water levels were monitored during testing using In-Situ Level TROLL 700 transducers with integral data loggers. The transducers were securely deployed below the static water level in the well below the maximum depth of the slug by a direct-read cable allowing real-time viewing of data. Manual water level measurements were recorded using an electronic water level indicator accurate to the nearest 0.01 foot before testing to determine the static water level, as well as during the tests to confirm the transducer data. The observed initial water level displacement was compared to the expected initial displacement based on the volume of the slug used. Data logging generally continued during each test until the groundwater level in the

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[6] Actual initial displacements in these wells were lower due to filter pack drainage.

well stabilized. After the completion of each test, the water level data was downloaded from the transducer data logger for analysis.

To prevent cross-contamination, prior to and between uses, the well slugs, transducers, water level indicators, direct-read transducer cables, and other downhole equipment were decontaminated by washing with a Liquinox/water solution followed by distilled water rinses. All wastewater generated during decontamination was discharged to the GWETS.

5.2.1 Slug Analysis and Results

The response data from each slug test was used to estimate hydraulic conductivity (K) in proximity to the tested well using the Kansas Geological Survey (KGS) (Hyder et. al. 1994) and Bouwer-Rice (1976) curve fitting methods as implemented by AQTESOLV software (HydroSOLVE Inc.). For these methods, the aquifer saturated thickness at each well location was assumed to be the difference between the water level measured at the well just prior to the slug test and the depth of the well. The saturated thickness values used for the analyses ranged from approximately 15 to 42 feet (Table 3). The aquifer was assumed to be unconfined, isotropic, and of uniform thickness at each location.

Other input parameters required for each analysis included the casing radius, position of the screened interval, and the effective radius of the well, which was set to the outer radius of the filter pack, as recommended by Butler (1998). When the KGS model was used, the specific storage (Ss) parameter was constrained to the typical range for sand and gravel (1.5E-05 to 3.1E-04 ft^{-1}) (Duffield 2007). The KGS model was fit to the entire set of response data, and the Bouwer-Rice data was fit to data in the recommended normalized head range (20 – 30% recovery) to reduce effects resulting from the filter pack material (Butler 1998).

Wells PC-148 and PC-149 are screened across the top of the water table, and the response data from these wells displayed a “double straight line” effect, with an initial response indicating drainage from the filter pack, followed by the formation response. To account for filter pack drainage, an effective casing radius correction was applied within AQTESOLV for both the KGS and Bouwer-Rice solutions. The Bouwer-Rice correction assumed a filter pack porosity of 0.3, and the KGS model correction used a predicted initial displacement equal to 1.7 feet calculated without considering the sand pack (Butler 1998).

The estimates of K derived from slug testing are provided in Table 3. The response data from each test was analyzed by the KGS and Bouwer-Rice curve fitting methods for both the falling and rising head data sets (Appendix C). The resulting K estimates range from 0.10 to 4.56 ft/day ($3.4x10^{-5}$ to $1.6\ x10^{-3}$ centimeters per second [cm/sec]). The results from these wells generally showed a reasonable level of consistency between falling head and rising head K estimates, between K estimates from the two analytical models used, between repeat tests, and between tests conducted with different initial displacements.

5.3 Step-Drawdown Testing

The second phase of aquifer testing included a series of step-drawdown tests at nine previously idle extraction wells within the IWF (wells I-AA, I-AB, I-AC, I-AD, I-W, I-X, and I-Y) and AWF (wells ART-7B and PC-150), conducted between January 28 to February 8, 2014. The tested wells and their associated monitoring networks are shown in Figures 9 and 10. The pumping schedule and list of monitoring wells for each test are presented in Tables 4 and 5, respectively.

5.3.1 Step Drawdown Test Procedures

Prior to step drawdown testing, shakedown testing was conducted from January 21 to January 23, 2014 to confirm the potential range of sustainable flow rates in IWF Activated Wells. It was found that I-AB, I-AC, I-AD, and I-W could not sustain the step pumping rates proposed in the 2013 GWETS Optimization Project Work Plan (ENVIRON 2013b), and the pumping schedules were adjusted accordingly. The remaining activated wells in the IWF and all activated wells in the AWF were tested using the planned pump schedule presented in the Work Plan.

Prior to conducting each step-drawdown test at the AWF test wells, a submersible pump was installed in the pumping well with the intake set two feet above the base of the well screen. At the IWF test wells, the existing pumps were used. Permanent discharge lines in the IWF and newly-installed temporary discharge lines in the AWF were used to convey the extracted groundwater generated during testing. Water levels at each tested well were monitored for one to three days prior to aquifer testing to determine if any significant background trends were present. Water elevations generally remained constant during the background monitoring period.

Each step-drawdown test was performed by pumping the test well at a set of flow rates, sequentially increasing for most cases, as indicated in Table 4. For most pumping steps, the flow rate was maintained for at least 30 minutes or until drawdown had stabilized. During each test, water levels in the pumping well and nearby monitoring wells were recorded using synchronized vented In-Situ transducer with integral data loggers. Each transducer was securely deployed by a direct-read cable allowing real-time viewing of data. Manual water level measurements were collected using an electronic water level indicator with gradations to the nearest 0.01 foot before testing to determine static water levels, as well as during the tests to confirm transducer data. This technique was used for tests where the water level went below the transducer probe (I-AD and PC-150). The flow rates were continually monitored by a calibrated inline flow meter and adjusted to maintain constant steps. For all tests except those in wells ART-7B, I-AD, and PC-150, the flow rates were further verified by filling graduated measuring containers with pump discharge water over 5, 10, 20, or 30-second time intervals.

A groundwater sample was collected from each of the nine tested wells during step-drawdown testing and analyzed for perchlorate, total chromium, hexavalent chromium, total dissolved solids (TDS), chlorate, and nitrate as nitrogen. Samples were sent to Envirogen's subcontracted analytical laboratory, Test America Laboratories, Inc. (Test America) for analysis. The results, presented in Table 6, were subsequently used to predict how the activation of new extraction wells would impact loading to the GWETS.

At the end of each step-drawdown test, the extraction well was turned off and the water level was allowed to recover. Water level monitoring continued during the recovery period. Following aquifer testing, all field equipment that had contacted groundwater was decontaminated by washing with a detergent solution (Alconox or equivalent) followed by rinsing with deionized water. All wastewater generated during decontamination was discharged to the GWETS.

5.3.2 Step Drawdown Analysis and Results

After the completion of field activities, the water level data were analyzed to evaluate the aquifer response and hydraulic conductivity of the aquifer near each of the tested wells. The water level data were downloaded from the transducer data loggers for analysis. For tests where the water level went below the transducer probe (I-AD and PC-150), manual readings collected using an electronic water level indicator were used to provide supplemental data.

The drawdown responses in extraction wells and observation wells are summarized in Table 7. A range of drawdown responses from 10.9 to 21.1 feet were observed in the IWF pumping wells. Approximately 4.3 and 11.0 feet of drawdown were observed during tests conducted at the AWF in wells ART-7B and PC-150, respectively. Due to the short duration of the pumping period for these tests (2 to 7 hours), limited responses were seen in nearby observation wells. A composite analysis using response data from the extraction well and monitoring wells with noticeable responses (>0.1 feet) was performed for each test in AQTESOLV using the Moench model (1997).

As shown in Table 5, the extraction and monitoring wells used in the step drawdown tests are either screened entirely in the Qal or UMCf, or screened across portions of both units. The analytical methods provided in AQTESOLV for unconfined aquifers assume aquifer homogeneity. For tests at four of the IWF wells (I-AA, I-AD, I-W and I-Y), the response data demonstrated a steep decline in water levels after the water level was drawn below the Qal/UMCf contact, a result of the large variation in hydraulic properties between the Qal and UMCf. This observed condition is inconsistent with the assumption of homogeneity implicit in the aquifer test models. For wells demonstrating this phenomenon, the aquifer test models were preferentially fit to the initial portion of the data record observed prior to the onset of rapid drawdown.

In most analyses, the Moench model, which incorporates wellbore storage and linear well losses (i.e. skin effects), fit the data adequately. Model curve fits for each step-drawdown test analysis are provided in Appendix D. Curve matching parameters and results are summarized in Table 7. The saturated thickness (b) for each analysis was set to be the difference between the initial water level elevation at the start time of each analysis and the defined bottom of aquifer. For analysis in the Qal, the bottom of the aquifer was defined as the Qal/UMCf contact recorded in boring logs (I-AA, I-AD, I-W, I-X, I-Y and ART-7B), or lowest water level elevation during the test (PC-150).[7] For the analysis in the UMCf, the defined bottom of aquifer was the bottom depth of the well screen (I-AB and I-AC). The empirical constant for non-instantaneous drainage at the water table (alpha[8]) was set to a high number in order to represent instantaneous drainage. The well radius (r_w) was set to the actual borehole radius of the pumping well.

For the Moench analyses, the transmissivity (T), storativity (S), specific yield (Sy), anisotropy ratio (Kz/Kr), casing radius (r_c), and skin factor (S_w) were adjusted to optimize the curve fit. For

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[7] At PC-150, the water level at the end of the test was one foot below the Qal/UMCf contact.

[8] The alpha parameter is not a sensitive parameter for the tests.

most analyses, setting Kz/Kr to 1 and Sy to 0.2, produced reasonably good curve fits. The other Kz/Kr and Sy values used for modeling were within a reasonable range for unconfined aquifers.[9] S was not a sensitive parameter and was estimated to be between 1.4 x 10^{-4} and 2 x 10^{-2}, which is within a reasonable range of values given the Site geology.[10] The casing radius (r_c) was estimated to account for wellbore storage in the extraction well.

The Moench model accounts for linear well losses (skin effect) with the skin factor (Sw) (Moench 1997; Walton 2007; Dougherty 1984). A positive skin effect, which is caused by the lower permeability of the formation material near the well bore, results in the water level in a pumping well dropping below the water elevation in the adjacent aquifer during pumping. Incorporating the skin effect produced better curve fits for the composite analyses of both pumping and monitoring wells. Thus, the model results for these cases are expected to be more representative of the regional aquifer as opposed to results from fitting the response data from each well individually. The dimensionless wellbore skin factor is defined by Moench (1997) as follows:

$$S_w = \frac{K_r d_s}{K_s r_w}$$

where K_r is radial hydraulic conductivity in the aquifer, K_s is wellbore skin hydraulic conductivity, d_s is wellbore skin thickness, and r_w is well radius. The storage capacity of the skin is neglected.

For most analyses, setting Sw to 0 (i.e. no skin effect) produced reasonably good curve fits for step response in extraction wells and limited responses in monitoring wells. For the ART-7B test, the Moench analysis produced a good fit for the first three steps with Sw set to 6. This result suggests that ART-7B is subject to some degree of linear well losses and may need to be redeveloped.

As summarized in Table 7, T was estimated to range from 6 to 300 ft^2/day in the IWF Qal, from 0.6 to 3.8 ft^2/day in the IWF UMCf, and from 49 to 3,400 ft^2/day in the AWF Qal. These correspond to K values of 1.2 to 300 ft/day in the IWF Qal, 0.03 to 0.21 ft/day in the IWF UMCf, and 4.5 to 243 ft/day in the AWF Qal. These results are reasonably consistent with previous estimates of K from testing in nearby wells.

As previously mentioned, steep drawdown responses were observed at certain wells after groundwater was pumped below the Qal/UMCf contact during the course of the step drawdown test. The presence of this phenomenon suggests that the pumping rates selected for extraction wells in the IWF must take the position of the contact into account. Pumping at higher rates that pull the water table below the UMCf may produce a deep and narrow capture zone at the extraction well, but not significantly enhance contaminant capture in the Qal.

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[9] The anisotropy ratio of alluvium ranges from 0.1 to 0.5 and possibly as low as 0.01 when clay layers are present (Todd 1980). The Sy of unconfined aquifers ranges from 0.01 to 0.3 (Kruseman and de Ridder 1991).

[10] Aquifer compressibility (α) for sand ranges from approximately 1E-9 to 1E-7 /Pa (Freeze and Cherry 1979). Assuming the effective porosity to be 0.3 implies an overall range of potential specific S values for the Qal of 3.4E-6 to 3E-4 /ft. Aquifer compressibility (α) for clay ranges from approximately 1E-8 to 1E-6 /Pa (Freeze and Cherry 1979). Assuming the effective porosity to be 0.3 implies an overall range of potential specific S values for the UMCf of 3E-5 to 3E-3 per foot.

5.4 Recovery Test

The third phase of aquifer testing included recovery testing in seven extraction wells within the IWF (I-B, I-D, I-N, I-G, I-V, I-J, and I-K) and four extraction wells within the AWF (ART-1, ART-4, ART-9, and ART-7A) between January 22 and February 6, 2014. The locations of tested wells and their monitoring networks are shown in Figures 11 and 12. The testing program is presented in Table 8.

5.4.1 Recovery Test Procedures

Prior to conducting each recovery test, the water level at each tested extraction well was monitored for one to three days to develop a background dataset. The observed water levels were generally stable during the background period, with no observed increasing or decreasing trends, though short period fluctuation due to pump operation (maximum of 1.1 ft) was evident in the transducer records. Long-term pumping rates for each extraction well before the start of recovery testing were relatively stable. The average pumping rates one week before each test are shown in Table 8.

For each test, the extraction well pump was shut off until the water level at the extraction well became stable, at which time the pump was restarted. Water levels in the test well and nearby monitoring wells were monitored using synchronized vented In-Situ transducer with integral data loggers. Each transducer was securely deployed by a direct-read cable allowing real-time viewing of data. Manual water level measurements were collected using an electronic water level indicator with gradations to the nearest 0.01 foot before testing to determine static water levels, as well as during the tests to confirm the transducer data.

All field equipment that had contacted groundwater was decontaminated by washing with a detergent solution (Alconox or equivalent) followed by rinsing with deionized water. All wastewater generated during decontamination was discharged to the GWETS.

5.4.2 Recovery Test Analysis and Results

After the completion of field activities, the recovery test data were analyzed to evaluate the aquifer response and hydraulic conductivity of the aquifer near each of the tested wells. The Agarwal method, which allows the application of standard curve-matching techniques routinely used for drawdown data to the interpretation of recovery data, was used to analyze the data (Agarwal 1980). The data transformation used to analyze recovery test data after constant-rate pumping is shown below.

$$\begin{cases} S_a = S_p - S' \\ t_a = \dfrac{t_p \times t'}{t_p + t'} \end{cases}$$

where S_a is recovery measured since pumping stopped, S_p is total drawdown at the end of pumping, S’ is residual drawdown during recovery, t_a is Agarwal equivalent time, t_p is time since pumping began, and t’ is time since pumping stopped.

The extraction wells used for the recovery tests had each been pumping for an extended period at a relatively stable rate prior to the start of each recovery test. Since each test lasted less than 24 hours, t_p was much greater than t', resulting in t_a approximately equal to t'. The response data was transformed to recovery (S_a) and elapsed time (t'). After the Agarwal transformation, the data was analyzed using the Moench (1997) method for unconfined aquifers available in AQTESOLV software.

The recovery responses in extraction wells and observation wells are summarized in Table 8. Recoveries ranging from 0.3 to 15 feet were observed in the extraction wells. Generally, only monitoring wells within 50 feet of extraction wells showed significant recovery responses. No water level changes related to the tests were observed in monitoring wells located downgradient of the barrier wall.

For each test, a composite analysis was performed with the Moench model incorporating responses from both the extraction well and any monitoring wells where responses exceeded 0.1 feet. The aquifer was assumed to be unconfined, isotropic, homogeneous, and of uniform thickness at each well group in AQTESOLV. For all tests except I-G, I-J, and I-K, the analyses meet this assumption since the water levels remained within a single formation, either the Qal or xMCf/UMCf, during the course of the tests. In tests within wells I-G, I-J and I-K, the water level responses were primarily in the UMCf, though the latter 2 to 4 feet of recovery included the Qal interval. Although the configuration of these three tests is inconsistent with the Moench model assumption of a homogeneous aquifer, the results were analyzed to produce a composite hydraulic conductivity estimate for all units. The results appear most characteristic of the UMCf, where most of the water level recovery occurred.

Model curve fits for each recovery test are provided in Appendix E. The Moench model, which incorporates wellbore storage and skin effects, fit the data adequately. Curve matching parameters and results are summarized in Table 9. The saturated thickness (b) at each pumping well location was set to the difference between the water level at maximum recorded recovery and the Qal/UMCf contact recorded in boring logs (I-D, I-N, I-V, ART-1, ART-4, and ART-9), if the initial water level at the start of the test was above the Qal/UMCf contact, or the bottom depth of the well screen (I-B, I-G, I-J, I-K, and ART-7A) otherwise. The empirical constant for non-instantaneous drainage at the water table, alpha[11], was set to a high number in order to represent instantaneous drainage. The well radius (r_w) was set to the actual borehole radius of the pumping well.

The T, S, Sy, anisotropy ratio (Kz/Kr), nominal casing radius (r_c), and skin factor (Sw) were adjusted to optimize the curve fit. The anisotropy ratio Kz/Kr was set to 1 if reasonably good curve fits could be achieved; otherwise, it was adjusted within a reasonable range for unconfined aquifers (0.05 to 0.5).[12] Sy values used for modeling were within a reasonable

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[11] The alpha parameter is not a sensitive parameter for the tests.

[12] The anisotropy ratio of alluvium ranges from 0.1 to 0.5 and possibly as low as 0.01 when clay layers are present (Todd 1980).

range for unconfined aquifers.[13] S was not a sensitive parameter and was estimated to be between 1.4 x 10^{-4} and 6.8 x 10^{-3}, which is within a reasonable range of values given the Site geology.[14] The nominal casing radius (r_c) was estimated to account for wellbore storage in the extraction well.

For most tests, setting Sw to 0 (i.e. no skin effects) produced reasonably good curve fits to the recovery well and monitoring well responses. For the analyses of the I-N, I-V, and ART-9 tests, the recorded responses in the monitoring network were minimal (0.1-0.2 ft). Due to these relatively small responses, Sw could not be adjusted to fit the response data with a high level of certainty. For these tests, the simulated monitoring well responses with Sw set to zero are slightly higher than the recorded responses. For the analyses for I-J, I-K, ART-4 and ART-7A tests, the estimated skin factors were 2, 3, 8, and 1, respectively.

During the ART-1 test, 13.1 ft of recovery was observed at ART-1; however, there was very little response recorded in the monitoring network. Monitoring well ART-1A, located 7 feet away and screened through a similar depth interval, only exhibited 0.2 feet of recovery during the test. The long-term water level records for ART-1 and ART-1A show that ART-1A has not been responsive to changes in pumping rates at ART-1. The Moench model analysis of this test required a relatively large skin factor (100) to fit both the pumping well response and the minimal responses in the observation wells. The resulting estimate of T (200 ft/day) appears consistent with the relatively high pumping rate at this well (23 gpm). The large skin factor from modeling suggests that ART-1 and/or ART-1A should be inspected and rehabilitated. If ART-1 and ART-1A are redeveloped, a pumping test should be conducted to verify the results of the recovery test.

As summarized in Table 9, T estimates derived from recovery testing range from 330 to 1,100 ft^2/day in the IWF Qal, from 12 to 90 ft^2/day in the IWF UMCf, and from 370 to 5,800 ft^2/day in the AWF Qal. These correspond to a range of K of 28 to 220 ft/day in the IWF Qal, 0.6 to 5.3 ft/day in the IWF UMCf, and 23 to 255 ft/day in the AWF Qal.

5.5 Aquifer Testing Summary

Aquifer testing was conducted to further characterize the hydraulic properties of key geologic units at the Site. The hydraulic testing program included slug tests of four wells near the AWF, step drawdown testing of nine wells in the AWF and IWF, and recovery tests of 11 existing extraction wells in the AWF and IWF. Information obtained through this testing program has been incorporated into the Site groundwater model and applied to the optimization of the IWF and AWF.

The results of this testing are summarized in Table 10, shown in the order of well locations from west to east in each well field. The results are reasonably consistent with previous estimates of

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[13] The Sy of unconfined aquifers ranges from 0.01 to 0.3 (Kruseman and de Ridder 1991).

[14] Aquifer compressibility (α) for sand ranges from approximately 1E-9 to 1E-7 /Pa (Freeze and Cherry 1979). Assuming the effective porosity to be 0.3 implies an overall range of potential specific S values for the Qal of 3.4E-6 to 3E-4 /ft. Aquifer compressibility (α) for clay ranges from approximately 1E-8 to 1E-6 /Pa (Freeze and Cherry 1979). Assuming the effective porosity to be 0.3 implies an overall range of potential specific S values for the UMCf of 3E-5 to 3E-3 /ft.

K discussed in Section 2.4. In the IWF, the measured K values range from 1.2 to 300 ft/day in the Qal and from 0.03 to 5.3 ft/day in the UMCf. In the AWF, the measured K values range from 1.2 to 255 ft/day in the Qal, showing a clear trend of lower K in the middle of the well field and larger K at the two ends (west and east) of the well field. The high skin factors estimated for ART-1 and ART-7B suggest that these wells may require inspection and possibly rehabilitation. The potential benefits of any well inspection/rehabilitation will be further evaluated as part of the COP.

6 Well Activation and Optimization

Prior to initiating extraction at the nine activated wells, existing extraction equipment in the IWF was tested and new extraction equipment was installed in the AWF. Following well startup, flow rates were adjusted using aquifer testing results and performance observations.

6.1 Shakedown Testing of Seven Activated Wells in the IWF

Wells I-AA, I-AB, I-AC, I-AD, I-W, I-X, I-Y were installed by previous consultants on behalf of Tronox. Northgate subsequently prepared plans to install pumps in these wells and connect them to the GWETS. The November 12, 2010 plans issued for construction of this expansion of the IWF are included as Appendix F. However, prior to the implementation of the 2013 GWETS Optimization Project Work Plan, the pumps, sensors, and controls installed in these wells had not been thoroughly tested to evaluate whether or not they functioned properly (ENVIRON 2013b). Shakedown testing was conducted before activation of the IWF wells to identify needs for repair and maintenance. During testing, it was determined that pumps installed in wells I-AC and I-AD turned on, but did not extract water. The remaining wells (I-AA, I-AB, I-W, I-X, and I-Y) were functional at the time of testing. ENVIRON worked with Envirogen personnel to repair pumps and replace non-functioning components in wells I-AC and I-AD, as well as to install new well caps that allowed temporary deployment of transducers into the wells during testing.

6.2 Connection of ART-7B and PC-150 to the GWETS

At the two Activated Wells in the AWF (ART-7B and PC-150), pumps, utility lines (plumbing and electrical), and vaults were installed to connect the two wells to Lift Station #3 for conveyance of the extracted groundwater to the GWETS. ENVIRON retained S&B Christ Consulting (SBCC) of Las Vegas, Nevada to prepare utility plans, assist with COH plan revisions and approval, and provide field oversight during construction. J.A. Tiberti Construction (JATCO) served as the project's general contractor.

A Site walk and survey was performed by SBCC and ENVIRON on January 21, 2014 to confirm conditions and establish locations for well vaults and utility corridors. At this time, the wells ART-7B and PC-150 were fully constructed (i.e., PVC casing and well caps installed), but not completed with the improvements necessary for connection to the GWETS (i.e., pumps, vaults, utility trenches). Following the Site walk, SBCC prepared plans for submittal to the COH. The plans were submitted on February 24, 2014 as modifications to the existing plans finalized by Kerr McGee in 2001 entitled, "Drawings for Construction of Athens Lateral Wellfield and Pump Station #3" with the KIVA Civil (PCVL) project tracking number of 2001705025. Comments on the submittal were received from the COH on March 19, 2014. SBCC submitted a revised plan set on March 26, 2014, which was approved by COH on June 26, 2014 and issued for construction on July 9, 2014. The approved plan set is included in Appendix G.[15]

Upon approval of final plans, JATCO acquired the necessary permits from COH for construction activities, which began in September 2014. Prior to construction, ENVIRON retained a private utility locator, Ground Penetrating Radar Systems (GPRS) Inc., of Las Vegas, Nevada, and

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[15] Record drawings will be provided separately upon NDEP approval of the 2013 GWETS Optimization Project Report.

conducted non-intrusive locating of buried utilities on August 12, 2014. Following utility clearance, ENVIRON notified Underground Service Alert (USA) of the location, extent, and dates of the planned excavations. Installation of vaults was required for both wells, consisting of excavation around the constructed wells to provide space for piping and electrical connections. The vaults were finished with 48-inch manhole covers similar to other AWF wells. ART-7B was connected to the GWETS using the existing utility trench for ART-7 and ART-7A. PC-150, located within the Lift Station #3 compound, required excavation of a utility trench to connect a discharge line to the sump and electrical lines to the control box within the Lift Station #3 compound. Soil excavated for the vaults and discharge lines was reused for backfilling and filling existing depressions within the Lift Station #3 compound. None of the soil was transported off-site for reuse or disposal.

Final connections were made to the GWETS on October 17 and November 11, 2014, respectively, for ART-7B and PC-150. The trenches were immediately backfilled and compacted to COH specifications. Though not required, prior to the activation of the wells, the piping and connections were pressure tested following American Water Works Association (AWWA) specification C-605-13 to ensure their integrity at the anticipated flow rates. A target test pressure of 105 pounds per square inch (1.5 x max operating pressure) was used at a duration of no less than 2 hours.

Following the activation and sustained pumping of the ART-7B and PC-150, inconsistencies were identified between the production capabilities of the pumps and the observed flow rates. Additional transducer monitoring was performed and replacement pumps were installed by JATCO in early January 2015. The replacements consisted of installing a larger pump in ART-7B and a smaller pump in PC-150 to better match the sustained flow rates. In the case of ART-7B, the wiring was also upgraded along with the pump to allow future upgrades as necessary. For consistency in the buddy well, the wiring of ART-7 was also upgraded. These modifications continue to be evaluated and appropriate additional changes may be recommended as part of the RI/FS.

6.3 Startup and Optimization

Following shakedown and aquifer testing, the Activated IWF wells (I-AA, I-AB, I-AC, I-AD, I-W, I-X, and I-Y) began extracting between late April and early May 2014. Soon after the wells were activated it was determined that wells I-AB, I-AC, and I-AD were not capable of pumping at sustainable flows rates with existing equipment and all three ceased operating as extraction wells on May 23, 2014, following approval from NDEP via email (NDEP 2014a). Wells I-AA, I-W, I-X, and I-W continued to operate as extraction wells. Additional adjustments to existing extraction wells resulted in a total increase in total extraction of 9.9% at the IWF.

The table below summarizes extraction rates in the IWF immediately after activation and extraction rates as of December 2014. Extraction rates in wells I-AA and I-W have remained relatively constant since activation, while pumping rates in I-Y have increased and pumping rates in I-X have decreased.

IWF Activation Flow Rates							
Time Period	**I-AA**	**I-AB**	**I-AC**	**I-AD**	**I-W**	**I-X**	**I-Y**
Post-Activation	1.1	0.5	0.2	0.6	1.0	6.4	0.6
December 2014	1.2	NO	NO	NO	1.0	3.3	1.3
NO = not operating							

Following connection of ART-7B and PC-150 to the GWETS at the AWF, the wells began extracting on October 17, 2014 and November 11, 2014, respectively. Wells ART-7B and PC-150 have been extracting at approximately 31.0 gpm and 4.5 gpm since activation, respectively. Additional adjustments to existing extraction wells resulted in an increase in total extraction of 4.5% at the AWF.

Since the activation of PC-150, Envirogen has reported to ENVIRON that the totalizer associated with that well may not be accurately measuring extraction due to the well's low flow relative to the other AWF wells. This issue will be addressed and new equipment will be installed (as necessary) coincident with the implementation of the Enhanced Optional Metrics scope of work.

6.4 Limitations on Optimization

Improvements related to mass removal have been difficult to achieve due to overall gradual reductions in perchlorate concentration during the implementation period and the limited saturated Qal available for extraction. In fact, at the IWF there appears very little capacity for any further optimization of the existing infrastructure due to the lack of saturated Qal. To increase mass removals at the IWF it is likely that water, in the form of artificial recharge, will need to be added to the system.

In order to continue to pump from the low yielding wells, changes to the equipment may be necessary. These changes may include installing smaller pumps and upgrading the control systems to allow controlled cyclic pumping and perhaps initiating an adaptive extraction plan that takes into account seasonal fluctuations in water levels and concentrations. More fundamental changes in the method of extraction could be considered given the current conditions at the IWF. For example, vacuum extraction at the IWF could dewater the Qal further and reduce the maintenance costs by consolidating the number of pumps, but would involve substantial capital costs to implement. Moreover, changing the method of extraction would likely not increase overall flow rates and mass removals substantively without additional input of water to the system as mentioned previously. These options and others will be evaluated in more detail as part of the COP.

As noted in the 2014 Semi-Annual Remedial Performance Report (ENVIRON 2015), groundwater elevations at the east end of the IWF have been increasing throughout 2014. This is the only area of the IWF exhibiting increasing groundwater level trends. The location and timing of this trend corresponds with construction of TIMET's barrier wall at the northern edge of their property. Although this groundwater mounding on the east end of the IWF would tend to help contain Site groundwater, it may also enhance the potential yields from I-AC and I-AD. If this trend continues attempts at extraction from I-AC and I-AD may be reconsidered; however, as discussed above, it is expected that changes to the pumps and controls would be necessary to allow sustainable pumping of these wells.

Limitations to optimization at the AWF appear to be related to location of wells in relation to the paleochannels as well as the reported limits of pump capacity at Lift Station #3. While evaluations of PC-150 and ART-7B will continue, the low yield from PC-150 suggests that it is not located within the paleochannel believed to be a primary transport pathway to downgradient wells. There is likely capacity for increased extraction at the AWF, but it may require additional well installation. Furthermore, upgrades to Lift Station #3 may be necessary to support additional expansion of the AWF. Finally, the current method of tracking data from the AWF, does not indicate which of the “buddy” wells is being pumped at any given time. This makes tracking individual well performance at the AWF difficult. For example, in the specific capacity plots included in Appendix B, the ART wells are analyzed together. This evaluation may be refined after the implementation of the Enhanced Operational Metrics (Tetra Tech 2014), which is expected to enhance data quality from the well fields.

7 Capture Zone Evaluation at Well Fields

Following implementation of the 2013 GWETS Optimization Project and completion of the Phase II Model refinement, which was presented in Attachment A of the 2013-2014 Annual Remedial Performance Report (ENVIRON 2012b), three-dimensional capture zones were estimated for each well field using particle tracking performed using MODPATH code. The results of this capture zone evaluation are described below.

7.1 Interceptor Well Field

As previously discussed, wells I-AA, I-W, I-X, and I-Y were permanently activated in April 2014 to increase capture at the IWF. Extraction wells I-AB, I-AC, and I-AD were initially activated in April 2014 but were turned off the following month because the wells could not support sustainable flow rates with current equipment. There was only a modest increase in total groundwater extraction rates at the IWF following activation, primarily due to desaturation of the Qal within the well field.

Despite the limitations of extraction at the IWF, the well field's capture zone increased by approximately 2% following project implementation. This increase is primarily due to activation of extraction well I-AA on the western edge of the well field. A visual comparison of pre-optimization (fourth quarter 2013) and post-optimization (fourth quarter 2014) capture at IWF simulated with the Phase II Model is presented in Figure 13.

7.2 Athens Road Well Field

Wells ART-7B and PC-150 within the AWF were activated in October 2014 and November 2014, respectively, to address apparent capture gaps on either side of the UMCf ridge located near the center of the well field. As shown in Figure 14, these potential capture gaps were historically evident in higher perchlorate concentrations measured at wells MW-K4 and PC-144 (located downgradient of PC-150) and to a lesser extent in wells PC-145 and ARP-6B (downgradient of wells ART-7B and ART-9). The capture gaps are also visible in the perchlorate mass flux plot presented in 2014 Annual Remedial Performance Report as part of the GWETS Performance Metrics (ENVIRON 2014c).

An evaluation of capture zones presented in Figure 15 shows that the capture efficiency in the AWF increased from 95% prior to optimization (second quarter 2014) to 97% after optimization (fourth quarter 2014). A visual comparison of pre-optimization (fourth quarter 2013) and post-optimization (fourth quarter 2014) capture at AWF simulated with the Phase II Model is presented in Figure 16. Although, as shown in Figure 17, there are lower perchlorate concentrations in groundwater observed in wells PC-144 and MW-K4 downgradient of PC-150, it is premature to conclude that the activation of PC-150 is the cause of the decreasing concentrations. In fact, based on the low flows from PC-150, it is unlikely that the activation of this well has had a significant effect on downgradient wells. Data from ARP-6B, presented in the same figure, suggests that perchlorate concentrations have not yet been influenced by activation of upgradient extraction well ART-7B (and the other adjustments made to the AWF) despite the increase in capture zone in the eastern portion of the well field.

7.3 Seep Well Field

While no changes in extraction were implemented at the SWF as part of the 2013 GWETS Optimization Project, alternative pumping scenarios were evaluated using the Phase II Model. Due to the SWF's location near two surface water bodies (Las Vegas Wash and the COH Bird Viewing Ponds), pumping at the SWF pumping induces surface water flow into the extraction wells. The surface water from both Las Vegas Wash and the Bird Viewing Ponds is comprised primarily of treated municipal wastewater effluent. As part of this evaluation, the amount of water originating at the Bird Viewing Ponds and subsequently captured by the SWF was quantified using the model. Under the current conditions the model indicates that approximately 51% of water extracted at the SWF is consistent with municipal wastewater effluent either from the Bird Viewing Ponds or the Las Vegas Wash.

The model was used to evaluate the potential impact of reduced pumping at the SWF by evaluating expected changes in capture zone if extraction were reduced by 20%, 40%, 60%, and 80%.[16] Figure 18 shows the simulated capture zone for each pumping scenario. The 10 milligrams/liter (mg/L) perchlorate plume boundary and the study area boundaries are also shown. Comparing the target capture zone to the simulated capture zones indicates that the combination of the IWF, AWF and SWF almost completely capture the target area under each scenario, except for a small area between SWF and Las Vegas Wash, where the perchlorate concentrations are generally less than 10 mg/L.

For the above mentioned SWF pumping scenarios, the corresponding rate of effluent water captured by SWF was estimated. As mentioned above, under the current conditions (no reduction in pumping), the model suggests that approximately 51% of water extracted at the SWF is consistent with municipal wastewater effluent. As the SWF pumping is reduced by 20%, 40%, 60%, and 80%, the capture of effluent water at the SWF is estimated to be reduced to 42%, 28%, 14% and, 8% respectively (Figure 19).

The modeling results were confirmed using a simple mixing calculation between effluent (either from the Bird Viewing Ponds or Las Vegas Wash) and Site water using Total Dissolved Solids (TDS) as an indicator compound. The analysis supported the findings of the model and suggested that wells in the western portion of the SWF (wells PC-119, PC-118, and PC-115R) are pumping significant amounts of water (up to about 80%) from effluent sources. Based on the location of the wells, it is likely that the primary source of this water is the Bird Viewing Ponds. In the middle portion of the SWF (wells PC-99R2/R3 and PC-116R) approximately 20-40% of the pumped water is likely from effluent sources. In the eastern portion of the well field (wells PC-117 and PC-133), the portion of the water coming from effluent sources is approximately 40-60%, which may be due to effluent drawn in from Las Vegas Wash.

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[16] SWF pumping rates average extraction rates during second quarter 2014.

8 Conclusions

The objectives of the 2013 GWETS Optimization Project were to 1) develop tools to better assess performance of the GWETS and 2) to enhance capture zones and mass removal of perchlorate and hexavalent chromium. To move toward these objectives, the following tasks were completed as part of the 2013 GWETS Optimization Project.

- Review existing data and perform initial updates and refinements to the groundwater model—the Phase I Model Refinement;
- Develop performance metrics to provide the basis for quantitatively evaluating performance now and in the future;
- Conduct well and aquifer testing to assess the conditions of wells and to further characterize the hydraulic properties of major geologic units at the IWF and AWF;
- Update and further refine the groundwater model incorporating data from the well and aquifer testing—the Phase II Model Refinement;
- Activate nine idle wells and adjust flow rates at the IWF and AWF;
- Perform capture zone evaluations of all three well fields; and
- Characterize surface water-aquifer interactions at the SWF using the groundwater model.

The first objective of the 2013 GWETS Optimization Project has been achieved. Aquifer and well testing data have been used to refine the groundwater model. These data will also be used throughout the RI/FS and COP. Additional updates to the groundwater model have allowed its use as a tool to evaluate GWETS performance and develop the performance metrics. Likely the most far-reaching aspect of the 2013 GWETS Optimization was development of the performance metrics for quantitatively evaluating overall performance of the GWETS and potential future remedies. Mass-based performance metrics include mass removal rates, mass loading to Las Vegas Wash, and plume mass estimates. Other efficiency-based performance metrics include capture zones, capture efficiencies, and energy use. Evaluations of GWETS performance with respect to the performance metrics have been incorporated into the Semi-Annual and Annual Remedial Performance Reports.

Results relating to the second objective of the 2013 GWETS Optimization Project have been mixed. While there have been incremental improvements to the capture zones at the IWF and AWF, improvements related to mass removal have been difficult to achieve due to overall gradual reductions in perchlorate concentration during the implementation period and the limited saturated Qal available for extraction. Nevertheless, the data acquired during this program provide valuable insights necessary for selection of the final remedy for groundwater.

As part of the 2013 GWETS Optimization Project, seven wells were activated in the IWF and two wells were activated in the AWF. Three of the activated wells in the IWF (I-AA, I-AB, and I-

AC) are currently idle because sustainable flow rates could not be maintained. The aquifer testing at these wells and subsequent activation results provided meaningful data regarding the ability of the Qal and UMCf to yield water at the flanks of the IWF, which was used to refine the groundwater model and will be helpful in designing the final groundwater remedy for the Site.

Comparing second quarter 2012 data (pre-optimization) to fourth quarter 2014 data (post-optimization), the IWF's capture zone increased by approximately 2%, extraction rates increased by approximately 10%, and perchlorate mass removal increased by approximately 6%. Similarly, the AWF's capture zone increased and perchlorate concentrations decreased downgradient of PC-150; however, it is too soon to conclude that activation of PC-150 contributed to these reductions. Despite a 4.5% increase in average extraction at the AWF, perchlorate mass removal decreased by approximately 24% due to the overall lower perchlorate concentrations.

While no adjustments were made at the SWF as part of the 2013 GWETS Optimization Project, a SWF capture zone evaluation suggests that alternative pumping scenarios could significantly reduce the capture of Bird Viewing Pond water by the SWF while providing adequate plume capture.

Understanding the limitations encountered during the implementation of the 2013 GWETS Optimization Project will be critical to the successful implementation of the final remedy for groundwater. It is clear that further improvements to perchlorate and chromium removal as part of the COP and the final groundwater remedy will likely require substantial changes in infrastructure and/or approach due to existing limitations, which include unsaturated Qal in areas of elevated perchlorate concentrations, decreasing overall perchlorate concentrations in both well fields, and limits in pumping capacity at the AWF. Well testing also indicates that some extraction wells may benefit from redevelopment (e.g., ART-1 and ART-7B). These issues will be further evaluated as part of the COP utilizing with new data that will be collected following implementation of the Enhanced Operational Metrics.

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Tables

TABLE 1: WELL CONSTRUCTION SUMMARY

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Nevada Environmental Response Trust Site

Henderson, Nevada

Well Name	**Activity Conducted***	**Date Installed**	**Ground Elevation** (ft msl)	**Top of Casing Elevation** (ft msl)	**Top of Screen Elevation** (ft msl)	**Bottom of Screen Elevation** (ft msl)	**Top of Screen Depth** (ft bgs)	**Bottom of Screen Depth** (ft bgs)	**Screen Length** (ft)	**Total Depth of Well** (ft bgs)	**UMCf Contact** (ft msl)	**Boring Diameter** [b] (inches)	**Casing Diameter** (inches)	**Screen Slot Size** (inches/100)
Interceptor Well Field														
I-AA	Activate	12/4/2007	1751.08	1753.93	1727.38	1707.38	23.7	43.7	20	46.0	1721.1	11	6	0.02
I-AB	Activate	8/14/2009	1750.57	1753.89	1725.57	1705.57	25.0	45.0	20	51.0	1723.4	10	6	0.02
I-AC	Activate	6/15/2010	1750.12	1752.76	1725.62	1705.62	24.5	44.5	20	50.0	1717.1	9	6	0.02
I-AD	Activate	6/16/2010	1752.94	1755.39	1728.44	1708.44	24.5	44.5	20	50.0	1721.9	9	6	0.02
I-B	Test	10/1/1986	1750.00	1752.70	1732.20	1707.50	17.8	42.5	24.7	43.0	1723.0	13	6	0.02
I-D	Test	10/1/1986	1750.00	1752.70	1734.00	1705.50	16.0	44.5	28.5	45.0	1721.0	13	6	0.02
I-G	Test	12/1/1986	1749.20	1752.50	1739.70	1710.40	9.5	38.8	29.3	39.3	1721.2	10	6	0.02
I-J	Test	12/1/1986	1746.59	1750.09	1735.39	1706.09	11.2	40.5	29.3	41.0	1718.6	10	6	0.02
I-K	Test	12/1/1986	1743.80	1746.04	1736.80	1708.60	7.0	35.2	28.2	35.8	1719.3	10	6	0.02
I-N	Test	10/1/1993	1747.80	1751.40	1740.80	1710.80	7.0	37.0	30	38.0	1713.8	10.75	6	0.02
I-V	Test	2/1/1999	1749.46	1752.13	1737.46	1707.46	12.0	42.0	30	45.0	1717.0	10.5	6	0.02
I-W	Activate	9/1/2000	1749.12	1751.50	1729.12	1699.12	20.0	50.0	30	50.5	1716.1 [a]	10.75	6	0.02
I-X	Activate	9/1/2000	1746.22	1748.60	1726.22	1696.22	20.0	50.0	30	50.5	1713.2	10.75	6	0.02
I-Y	Activate	9/1/2000	1748.89	1751.40	1728.89	1698.89	20.0	50.0	30	50.5	1720.9	10.75	6	0.02
M-130	Monitor	3/19/2005	1746.55	1749.23	1726.55	1706.55	20.0	40.0	20	40.0	1721.5	8	2	0.01
M-131	Monitor	12/2/2007	1751.05	1754.13	1722.35	1712.35	28.7	38.7	10	39.0	1721.1	8	2	0.01
M-134	Monitor	12/1/2007	1749.39	1752.14	1689.69	1679.69	59.7	69.7	10	70.0	1719.4	8	2	0.01
M-135	Monitor	11/30/2007	1749.17	1751.85	1720.47	1710.47	28.7	38.7	10	39.0	1719.2	8	2	0.01
M-164	Monitor	5/20/2010	1745.19	1747.61	1685.49	1675.49	59.7	69.7	10	70.0	1710.2	6	2	0.01
M-165	Monitor	5/19/2010	1741.25	1743.84	1631.55	1621.55	109.7	119.7	10	120.0	1719.3	6	2	0.01
M-166	Monitor	4/24/2010	1751.49	1751.09	1729.79	1719.79	21.7	31.7	10	32.0	1724.0	6	2	0.01
M-167	Monitor	4/24/2010	1749.84	1749.95	1730.14	1720.14	19.7	29.7	10	30.0	1725.3	6	2	0.01
M-168	Monitor	4/23/2010	1748.71	1748.46	1727.01	1717.01	21.7	31.7	10	32.0	1722.2	6	2	0.01
M-170	Monitor	4/23/2010	1750.51	1750.66	1725.81	1715.81	24.7	34.7	10	35.0	1721.5	6	2	0.01
M-172	Monitor	4/23/2010	1750.39	1750.58	1723.69	1713.69	26.7	36.7	10	37.0	1719.9	6	2	0.01
M-173	Monitor	4/22/2010	1749.83	1749.88	1725.13	1710.13	24.7	39.7	15	40.0	1720.3	6	2	0.01
M-174	Monitor	4/22/2010	1742.16	1742.29	1724.46	1714.46	17.7	27.7	10	28.0	1717.7	6	2	0.01
M-175	Monitor	4/21/2010	1742.79	1742.74	1724.09	1714.09	18.7	28.7	10	29.0	1717.8	6	2	0.01
M-176	Monitor	4/21/2010	1745.45	1745.35	1725.75	1715.75	19.7	29.7	10	30.0	1715.4	6	2	0.01
M-177	Monitor	4/21/2010	1743.26	1743.23	1723.56	1713.56	19.7	29.7	10	30.0	1718.8	6	2	0.01
M-56	Monitor	9/1/1986	1749.65	1750.83	1734.65	1709.65	15.0	40.0	25	40.0	1725.2	6	2	0.01
M-58	Monitor	9/1/1986	1748.72	1751.25	1733.72	1703.72	15.0	45.0	30	45.0	1719.2	5	2	0.01
M-60	Monitor	12/1/1986	1749.31	1750.94	1731.51	1706.51	17.8	42.8	25	43.0	1721.8	5	2	0.01
M-64	Monitor	12/1/1986	1748.80	1749.76	1736.10	1711.50	12.7	37.3	24.6	37.5	1725.8	5	2	0.01
M-65	Monitor	12/1/1986	1751.84	1753.91	1737.44	1712.84	14.4	39.0	24.6	39.2	1722.8	5	2	0.01
M-66	Monitor	12/1/1986	1751.70	1754.24	1734.20	1709.40	17.5	42.3	24.8	42.5	1719.2	5	2	0.01
M-67	Monitor	12/1/1986	1743.64	1745.91	1735.84	1705.84	7.8	37.8	30	38.0	1721.1	5	2	0.01
M-68	Monitor	12/1/1986	1747.16	1750.23	1735.96	1707.36	11.2	39.8	28.6	41.0	1722.7	5	2	0.01
M-69	Monitor	12/1/1986	1747.80	1749.75	1727.90	1708.50	19.9	39.3	19.4	40.0	1718.3	5	2	0.01
M-70	Monitor	12/1/1986	1746.00	1748.25	1730.70	1706.00	15.3	40.0	24.7	40.2	1715.5	5	2	0.01
M-71	Monitor	12/1/1986	1744.87	1747.04	1727.37	1702.87	17.5	42.0	24.5	42.2	1712.4	5	2	0.01
M-72	Monitor	12/1/1986	1744.62	1746.49	1734.52	1709.82	10.1	34.8	24.7	35.0	1720.1	5	2	0.01
M-74	Monitor	12/1/1986	1742.51	1744.38	1733.31	1703.71	9.2	38.8	29.6	39.0	1718.5	5	2	0.01
M-78	Monitor	8/1/1987	1749.54	1751.50	1728.04	1708.04	21.5	41.5	20	43.6	1718.0	5	2	0.01

TABLE 1: WELL CONSTRUCTION SUMMARY

2013 GWETS Optimization Project Report
Nevada Environmental Response Trust Site
Henderson, Nevada

Well Name	Activity Conducted*	Date Installed	Ground Elevation (ft msl)	Top of Casing Elevation (ft msl)	Top of Screen Elevation (ft msl)	Bottom of Screen Elevation (ft msl)	Top of Screen Depth (ft bgs)	Bottom of Screen Depth (ft bgs)	Screen Length (ft)	Total Depth of Well (ft bgs)	UMCf Contact (ft msl)	Boring Diameter [b] (inches)	Casing Diameter (inches)	Screen Slot Size (inches/100)
Athens Road Well Field														
ART-1	Test	10/1/2001	1615.57	1614.47	1601.57	1561.57	14.0	54.0	40	56.0	1562.6	13	6	0.04
ART-1A	Monitor	3/1/2003	1615.80	1614.40	1596.80	1561.80	19.0	54.0	35	56.0	1561.8	13.25	8	0.04
ART-2	Monitor	10/1/2001	1617.42	1617.10	1598.42	1563.42	19.0	54.0	35	56.0	1562.4	13	6	0.04
ART-2A	Monitor	3/1/2003	1618.33	1616.81	1597.33	1562.33	21.0	56.0	35	58.0	1561.3	13.25	8	0.04
ART-3A	Monitor	3/1/2003	1619.14	1617.60	1601.14	1566.14	18.0	53.0	35	55.0	1566.1	13.25	8	0.04
ART-4	Test	10/1/2001	1618.29	1617.39	1598.89	1573.89	19.4	44.4	25	46.4	1573.9	13	6	0.02
ART-4A	Monitor	2/1/2003	1618.29	1617.46	1599.91	1574.91	18.4	43.4	25	45.4	1574.9	13	8	0.04
ART-6	Monitor	10/1/2001	1620.13	1615.31	1602.25	1582.25	17.9	37.9	20	39.9	1582.3	13	6	0.04
ART-7	Monitor	10/1/2001	1617.98	1615.37	1598.98	1578.98	19.0	39.0	20	41.0	NR	13	6	0.04
ART-7A	Test	3/1/2003	1618.02	1614.78	1598.32	1578.32	19.7	39.7	20	41.7	NR	13.25	8	0.04
ART-7B	Activate	6/28/2010	1618.06	1619.62	1588.56	1573.56	29.5	44.5	15	50.0	1573.1	12	8	0.04
ART-9	Test	5/1/2006	1618.68	1614.90	1595.66	1575.66	23.0	43.0	20	45.5	1576.2	14.75	8	0.04
PC-122	Monitor	2/1/2004	1618.43	1618.02	1594.55	1579.55	23.9	38.9	15	38.9	1580.6	8	2	0.02
PC-134A	Test	6/22/2010	1618.84	1618.57	1559.14	1549.14	59.7	69.7	10	70.0	1569.8	6	2	0.01
PC-135A	Monitor	7/2/2010	1618.77	1618.58	1588.07	1568.07	30.7	50.7	20	51.0	1567.8	6	2	0.02
PC-136	Monitor	12/18/2007	1618.78	1618.04	1597.76	1577.76	21.0	41.0	20	40.6	1578.5	8	2	0.01
PC-137	Test	12/17/2007	1618.77	1618.45	1555.49	1545.49	63.3	73.3	10	73.3	1579.2	8	2	0.01
PC-142	Monitor	6/18/2010	1617.14	1619.64	1595.44	1585.44	21.7	31.7	10	32.0	1585.1	6	2	0.02
PC-144	Monitor	7/1/2010	1618.93	1618.63	1589.23	1579.23	29.7	39.7	10	40.0	1581.4	6	2	0.02
PC-148	Test	6/19/2010	1617.79	1617.96	1593.29	1573.29	24.5	44.5	20	50.0	1592.8	9	6	0.01
PC-149	Test	6/23/2010	1618.93	1618.93	1594.43	1574.43	24.5	44.5	20	50.0	1586.9	9	6	0.01
PC-150	Activate	6/30/2010	1618.36	1619.09	1598.86	1578.86	19.5	39.5	20	45.0	1579.4	9	6	0.02
PC-55	Monitor	5/1/1998	1618.67	1618.46	1603.39	1563.39	15.3	55.3	40	56.3	NR	12	4	0.02

Notes:

All data is from the All Wells Database maintained by NERT and other BMI property owners.
*These wells have been identified for monitoring, testing, and activation within this work plan.
For I-series wells, TOC were based on top of stovepipe.
[a] Value corrected based on boring log.
[b] Value obtained from boring log.

ft = feet
ft msl = feet above mean sea level
ft bgs = feet below ground surface
NERT = Nevada Environmental Response Trust
Qal = Quaternary Alluvium
UMCf = Upper Muddy Creek Formation
xMCf = transitional Upper Muddy Creek Formation

TABLE 2: HISTORICAL AQUIFER TESTING RESULTS

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Henderson, Nevada

Hydrologic Unit	Value Type	K (ft/day)
Qal	Geometric Mean	13.3
	Minimum	0.1
	Maximum	510
Qal Interpreted as Channel Deposits	Geometric Mean	235
	Minimum	78.9
	Maximum	618
xMCf	Geometric Mean	2.56
	Minimum	0.15
	Maximum	60.18
UMCf	Geometric Mean	0.2
	Minimum	0.001
	Maximum	7.3

Notes:

Summarized from previous aquifer testing data collected by Northgate and ENVIRON.

K = conductivity

ft/day = feet per day

Qal = Quaternary Alluvium

UMCf = Upper Muddy Creek Formation

xMCf = Transitional Upper Muddy Creek Formation

TABLE 3: SLUG TEST RESULTS
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Henderson, Nevada

Well Name	Test Date	Aquifer Unit [d]	Aquifer Thickness (ft) [c]	Slug Type [a]	Analysis Type	Displacement		Bouwer-Rice Analysis [b]		KGS Analysis [b]		
						Pred. (ft)	**Obs.** (ft)	**K** (ft/day)	**K** (cm/s)	**K** (ft/day)	**K** (cm/s)	**Ss** (ft^{-1})
PC-134A	1/14/14	UMCf	40.55	A	Falling Head	1.0	1.1	3.4	1.2E-03	3.6	1.3E-03	1.5E-05
					Rising Head	1.0	1.1	3.6	1.3E-03	3.9	1.3E-03	1.5E-05
				B	Falling Head	2.0	2.2	3.3	1.1E-03	3.5	1.2E-03	1.5E-05
					Rising Head	2.0	2.2	3.2	1.1E-03	3.5	1.2E-03	1.5E-05
PC-137	1/13/14	UMCf	41.92	A	Falling Head	1.0	1.1	3.9	1.3E-03	4.3	1.5E-03	3.1E-05
					Rising Head	1.0	1.2	4.4	1.5E-03	4.6	1.6E-03	2.6E-05
				B	Falling Head	2.0	2.1	4.0	1.4E-03	4.0	1.4E-03	3.6E-05
					Rising Head	2.0	2.2	4.0	1.4E-03	4.4	1.5E-03	3.2E-05
PC-148	1/15/14	UMCf	16.25	D	Falling Head	1.7	1.0	0.1	3.4E-05	0.1	4.4E-05	1.0E-04
					Rising Head	1.7	1.3	0.1	5.1E-05	0.1	4.9E-05	1.0E-04
PC-149	1/14/14	Qal/UMCf	15.23	D	Falling Head	1.7	0.8	0.8	2.9E-04	1.5	5.1E-04	1.0E-04
					Rising Head	1.7	1.4	1.1	3.9E-04	1.1	3.7E-04	2.4E-05
					Falling Head	1.7	0.8	0.8	2.6E-04	1.3	4.5E-04	1.0E-04
					Rising Head	1.7	1.5	1.1	3.8E-04	1.0	3.6E-04	1.8E-05

Notes:

[a] Slug A: Estimated initial displacement = 1.0 ft in 2-inch casing diameter well
Slug B: Estimated initial displacement = 2.0 feet in 2-inch casing diameter well
Slug D: Estimated initial displacement = 1.7 feet in 6-inch casing diameter well.

[b] Other parameters used in the model included rw (borehole radius), rc (casing radius), transducer depth (set according to field note), and gravel pack porosity (set to 0.3). Well dimensions are presented in Table 1.

[c] Difference between initial water level and depth of bottom screen

[d] The aquifer unit is from the All Wells Database maintained by NERT and other BMI property owners.

Pred. = predicted; Obs. = observed; K = hydraulic conductivity; Ss = specific storage; cm/s = centimeters per second; ft = feet; ft/day = feet per day
KGS = Kansas Geological Survey Method; BR = Bouwer and Rice Method
Qal = Quaternary Alluvium
UMCf = Upper Muddy Creek Formation

TABLE 4: PUMPING SCHEDULE FOR STEP-DRAWDOWN TESTS
2013 GWETS Optimization Project Report
Nevada Environmental Response Trust Site
Henderson, Nevada

Extraction Well	**Test Date**	**Pumping Rate** (gpm)	**Duration** (min)	**Accumulated Drawdown** (ft)
I-AA	2/4/2014	0.39	61	0.12
		0.81	113	0.40
		1.63	42	0.66
		3.00	34	12.31
I-AB	2/6/2014	0.40	160	7.25
		0.59	272	13.42
I-AC	2/3/2014	0.40 [a]	117	18.33
I-AD	1/30/2014	0.40	160	4.47
		0.80	132	20.20
		0.00 [b]	52	4.01 [e]
		0.60	69	8.24
I-W	2/8/2014	0.50	83	1.09
		1.00	66	2.98
		2.00	36	18.78
I-X	2/5/2014	0.51	98	0.57
		1.05	37	0.98
		2.05	48	1.93
		4.04	56	4.21
		7.92	142	10.57
I-Y	2/7/2014	1.03	115	4.37
		2.00	220	19.24
		2.50	6	21.15
ART-7B	1/29/2014	4.60 [c]	42	0.36
		9.40 [c]	40	0.87
		21.80 [c]	72	2.21
		31.30 [c]	60	4.15
		32.00 [d]	10	4.30
PC-150	1/28/2014	0.70	16	1.40
		1.00	64	1.90
		2.00	76	4.78
		3.00	34	10.97

Notes:

[a] The well was dewatered in first step. Test stoped without further step testing.

[b] Groundwater went under probe in the step 2. Pump was turned off until groundwater level recovered to the UMCf contact and the final step was conducted at an intermediate step rate.

[c] Original flow meter malfunctioned. Used a second flow meter to calibrate original flow meter after testing.

[d] Estimated from calibration in note [c] and original flow limit of 31 gpm.

[e] Drawdown from pre-test water level before pump turned back on.

ft = feet
min = minutes
gpm = gallons per minute

TABLE 5: STEP-DRAWDOWN TESTING RESPONSE AT MONITORING WELLS

2013 GWETS Optimization Project Report

Nevada Environmental Response Trust Site
Henderson, Nevada

Extraction Well	Monitoring Well	Distance From Extraction Well (ft)	Screened Geologic Unit[d]	Screened Interval (ft bgs)	UMCf Contact Depth (ft btoc)	Pre-Test Water Level Depth [a] (ft btoc)	Static Water Level [b] (ft msl)	Maximum Drawdown [c] (ft)
I-AA	I-AA	0.0	Qal/UMCf	24 - 44	32.9	32.3	1721.7	12.3
	M-131	16.3	UMCf	29 - 39	33.1	31.7	1722.5	0.2
	M-166	56.3	Qal/UMCf	22 - 32	27.1	27.7	1723.4	<0.1
	I-AB	54.3	Qal/UMCf	25 - 45	30.5	31.1	1722.8	<0.1
	M-135	121.0	UMCf	29 - 39	32.7	33.2	1718.7	<0.1
	M-134	122.0	UMCf	60 - 70	32.8	33.2	1718.9	<0.1
I-AB	I-AB	0.0	Qal/UMCf	25 - 45	30.5	31.1	1722.8	13.4
	M-166	12.1	Qal/UMCf	22 - 32	27.1	27.7	1723.4	<0.1
	I-AA	54.3	Qal/UMCf	24 - 44	32.9	32.3	1721.7	<0.1
	I-B	60.5	Qal/xMCf/UMCf	18 - 43	29.7	43.3	1709.4	<0.1
	M-131	69.8	UMCf	29 - 39	33.1	NR	--	<0.1
	M-69	103.2	Qal/xMCf/UMCf	20 - 39	31.5	32.0	1717.7	<0.1
I-AC	I-AC	0.0	Qal/UMCf	25 - 45	35.6	29.8	1722.9	18.3
	M-68	48.6	Qal/xMCf/UMCf	11 - 40	27.6	26.3	1723.9	<0.1
	M-130	49.5	Qal/UMCf	20 - 40	27.7	27.1	1722.1	<0.1
	I-K	91.3	Qal/UMCf	7 - 35	26.7	37.2	1708.8	<0.1
	I-AD	95.9	Qal/UMCf	25 - 45	33.5	30.4	1725.0	<0.1
	M-177	101.9	Qal/UMCf	20 - 30	24.5	21.7	1721.6	<0.1
I-AD	I-AD	0.0	Qal/UMCf	25 - 45	33.5	30.3	1725.1	20.3
	M-68	89.2	Qal/xMCf/UMCf	11 - 40	27.6	26.3	1724.0	<0.1
	I-AC	95.9	Qal/UMCf	25 - 45	35.6	29.8	1723.0	<0.1
	M-130	127.4	Qal/UMCf	20 - 40	27.7	27.1	1722.1	<0.1
I-W	I-W	0.0	Qal/xMCf/UMCf	20 - 50	35.4	29.7	1721.8	18.8
	M-58	31.1	Qal/xMCf/UMCf	15 - 45	32.0	29.0	1722.3	<0.1
	M-173	67.2	Qal/UMCf	25 - 40	29.5	27.5	1722.4	<0.1
	M-72	109.7	Qal/xMCf/UMCf	10 - 35	26.4	31.5	1715.0	<0.1
	M-66	125.0	Qal/xMCf/UMCf	18 - 42	35.0	30.2	1724.0	<0.1
I-X	I-X	0.0	Qal/xMCf/UMCf	20 - 50	35.4	24.0	1724.6	10.9
	I-N	38.3	Qal/xMCf/UMCf	7 - 37	37.6	27.8	1723.6	0.2
	M-78	63.0	Qal/xMCf/UMCf	22 - 42	33.5	28.0	1723.5	0.2
	M-172	55.1	Qal/UMCf	27 - 37	30.7	26.1	1724.5	0.3
	M-71	102.4	Qal/xMCf/UMCf	18 - 42	34.7	35.7	1711.4	<0.1
	M-164	110.7	UMCf	60 - 70	37.4	33.2	1714.5	<0.1
	M-65	113.5	Qal/xMCf/UMCf	14 - 39	31.1	29.4	1724.5	<0.1
I-Y	I-Y	0.0	Qal/xMCf/UMCf	20 - 50	30.5	27.2	1724.2	21.1
	M-167	13.4	Qal/UMCf	20 - 30	24.6	25.3	1724.6	0.4
	I-B	52.3	Qal/xMCf/UMCf	18 - 43	29.7	43.4	1709.3	<0.1
	M-168	74.4	Qal/UMCf	22 - 32	26.2	23.0	1725.5	<0.1
	M-69	109.1	Qal/xMCf/UMCf	20 - 39	31.5	31.1	1718.6	<0.1

TABLE 5: STEP-DRAWDOWN TESTING RESPONSE AT MONITORING WELLS

2013 GWETS Optimization Project Report

Nevada Environmental Response Trust Site
Henderson, Nevada

Extraction Well	Monitoring Well	Distance From Extraction Well (ft)	Screened Geologic Unit[d]	Screened Interval (ft bgs)	UMCf Contact Depth (ft btoc)	Pre-Test Water Level Depth [a] (ft btoc)	Static Water Level [b] (ft msl)	Maximum Drawdown [c] (ft)
ART-7B	ART-7B	0.0	Qal	30 - 45	46.6	33.0	1586.6	4.3
	ART-7	6.2	Qal	19 - 39	NR	31.8	1583.5	0.8
	ART-7A	10.9	Qal	20 - 40	NR	31.7	1583.1	0.5
	PC-136	70.4	Qal	21 - 41	39.6	32.1	1586.0	0.3
	PC-137	75.2	UMCf	63 - 73	39.3	31.0	1587.5	<0.1
	PC-122	99.2	Qal	24 - 39	37.5	31.3	1586.7	<0.1
PC-150	PC-150	0.0	Qal	20 - 40	39.7	29.8	1589.3	11.0
	ART-4	67.3	Qal	19 - 44	43.5	37.4	1580.0	<0.1
	PC-144	120.2	Qal/UMCf	30 - 40	37.2	30.3	1588.4	<0.1
	PC-134A	144.8	UMCf	60 - 70	48.7	28.9	1589.6	<0.1
	PC-135A	152.8	Qal	31 - 51	50.8	29.1	1589.4	<0.1
	PC-149	203.5	Qal/UMCf	25 - 45	32.0	29.4	1589.6	<0.1

Notes:

[a] Manually measured before test.
[b] Static water level was set as pre-test water level.
[c] Maximum displacement from transducer record and field record.
[d] The aquifer unit is from the All Wells Database maintained by NERT and other BMI property owners.
ft = feet
ft bgs = feet below ground surface
ft btoc = feet below top of casing
ft msl = feet above mean sea level
Qal = Quaternary Alluvium
UMCf = Upper Muddy Creek Formation
xMCf = transitional Upper Muddy Creek Formation
NR = not recorded

TABLE 6: ANALTYCIAL DATA FROM MONITORING WELLS

2013 GWETS Optimization Project Report

Nevada Environmental Response Trust Site

Henderson, Nevada

Well ID	Perchlorate (mg/L)	Chlorate (mg/L)	Nitrate (mg/L)	Total Chromium (mg/L)	Hexavalent Chromium (mg/L)	Total Dissolved Solids (mg/L)
Interceptor Well Field						
I-AA	120	62	14	0.16	0.0013	3,400
I-AB	910	15	120	0.022	0.0049	5,600
I-AC	87	480	20	1.1	1 J-	8,600
I-AD	130	400	11	1.2	1.1	6,000
I-W	1,500	4,100	60	4.3	20	14,000
I-X	1,700	2,600	100	9.1	10	12,000
I-Y	970	360	140 J-	0.21	1.0	7,000
Athens Road Well Field						
PC-150	190	220	15	0.24	0.21	6,000
ART-7B	200	490	27	0.55	0.57	7,600

Notes:

mg/L = milligrams per liter

J- = Estimated concentration, potential negative bias

TABLE 7: STEP-DRAWDOWN TESTING RESULTS

2013 GWETS Optimization Project Report

Nevada Environmental Response Trust Site

Henderson, Nevada

Pumping Well	Additional Observation Wells Used in Model	Pumping Steps Fit By Model	Test Aquifer Unit [e]	Model Parameters [a]							Hydraulic Conductivity	
				T (ft^2/day)	S (-)	Sy (-)	Kz/Kr (-)	Sw (-)	r_c (ft)	b (ft)	K (ft/day)	K (cm/s)
I-AA	M-131	1,2,3 [b]	Qal	300	1.5E-04	0.2	1	0	0.25	1	300	1.1E-01
I-AB		1,2	UMCf	3.8	2.0E-02	0.2	1	0	0.25	18	0.2	7.4E-05
I-AC		1	Qal/UMCf [d]	0.6	5.0E-03	0.2	1	0	0.29	18	0.03	1.2E-05
I-AD		1 [b]	Qal	6	1.9E-04	0.2	1	0	0.27	5	1.2	4.2E-04
I-W		1,2 [b]	Qal	25	1.3E-04	0.2	1	0	0.25	6	4.2	1.5E-03
I-X	I-N, M-78, M-172	1,2,3,4 [c]	Qal	116	1.4E-04	0.06	0.2	0	0.25	12	9.7	3.4E-03
I-Y	M-167	1 [b]	Qal	19	1.4E-04	0.2	0.3	0	0.31	5	3.8	1.3E-03
ART-7B	ART-7, ART-7A, PC-136	1,2,3 [c]	Qal	3,400	3.8E-03	0.2	1	6	0.50	14	243	8.6E-02
PC-150		1,2,3 [c]	Qal	49	3.1E-03	0.06	0.2	0	0.29	11	4.5	1.6E-03

Notes:

[a] Other parameters used in the model included alpha (set to 1E30 sec^{-1}), and rw (borehole radius of pumping well). Well dimensions are presented in Table 1.

[b] Water table went below Qal/UMCf contact in the remaining steps.

[c] Model cannot fit all the steps probably due to heterogeneity of Qal unit.

[d] Qal/UMCf contact is not clear based on boring log. The water level responses were primarily in the UMCf. Test results appear representative of the UMCf.

[e] The aquifer unit is from the All Wells Database maintained by NERT and other BMI property owners.

ft = feet

Qal = Quaternary Alluvium

UMCf = Upper Muddy Creek Formation

T = transmissivity

S = storativity

Sy = specific yield

Kz/Kr = anisotropy ratio

Sw = wellbore skin factor

r_c = casing radius

b = saturated thickness

K = hydraulic conductivity

TABLE 8: RECOVERY TESTING RESPONSE AT MONITORING WELLS

2013 GWETS Optimization Project Report

Nevada Environmental Response Trust Site

Henderson, Nevada

Extraction Well [a]	Monitoring Well	Distance From Extraction Well (ft)	Screened Geologic Unit [e]	Screened Interval (ft bgs)	UMCf Contact Depth (ft btoc)	Pre-Test Water Level Depth [b] (ft btoc)	Maximum Recovery [c] (ft)	Static Water Level [d] (ft msl)
I-B (1.56 gpm) 1/30/2014	I-B	0.0	Qal/xMCf/UMCf	18 - 43	29.7	43.7	14.3	1723.3
	I-Y	52.3	Qal/xMCf/UMCf	20 - 50	30.5	26.9	0.2	1724.7
	M-167	58.5	Qal/UMCf	20 - 30	24.6	25.3	0.1	1724.8
	M-166	60.1	Qal/UMCf	22 - 32	27.1	27.6	<0.1	1723.5
	I-AB	60.5	Qal/UMCf	25 - 45	30.5	31.1	<0.1	1722.8
	M-69	79.1	Qal/xMCf/UMCf	20 - 39	31.5	31.9	<0.1	1717.8
I-D (2.24 gpm) 1/22/2014	I-D	0.0	Qal/xMCf/UMCf	16 - 45	31.7	27.1	0.4	1726.0
	M-170	10.0	Qal/UMCf	25 - 35	29.1	24.9	0.2	1726.0
	M-64	78.6	Qal/xMCf/UMCf	13 - 37	24.0	25.5	<0.1	1724.3
	M-70	100.6	Qal/xMCf/UMCf	15 - 40	32.8	33.6	<0.1	1714.6
I-G (1.03 gpm) 1/22/2014	I-G	0.0	Qal/xMCf/UMCf	10 - 39	31.3	41.5	12.7	1723.7
	M-60	48.8	UMCf	18 - 43	29.1	28.7	<0.1	1722.2
	M-56	50.8	Qal/xMCf/UMCf	15 - 40	25.7	27.5	0.1	1723.5
	M-65	177.6	Qal/xMCf/UMCf	14 - 39	31.1	28.0	<0.1	1725.9
I-J (6.94 gpm) 1/23/2014	I-J	0.0	Qal/xMCf/UMCf	11 - 41	31.5	42.3	15.0	1722.7
	M-176	14.7	Qal	20 - 30	29.9	23.9	1.4	1722.8
	M-175	106.8	Qal/UMCf	19 - 29	24.9	21.0	0.2	1722.0
	M-67	128.5	Qal/xMCf/UMCf	8 - 38	24.8	21.7	0.2	1724.4
I-K (3.92 gpm) 1/27/2014	I-K	0.0	Qal/UMCf	7 - 35	26.7	36.1	12.7	1722.6
	M-177	13.6	Qal/UMCf	20 - 30	24.5	21.7	1.1	1722.7
	M-165	97.5	UMCf	110 - 120	24.6	22.6	<0.1	1721.3
	M-68	99.2	Qal/xMCf/UMCf	11 - 40	27.6	26.4	0.1	1724.0
	M-74	102.3	UMCf	9 - 39	25.9	29.7	<0.1	1714.6
	M-130	103.4	Qal/UMCf	20 - 40	27.7	27.2	<0.1	1722.0

TABLE 8: RECOVERY TESTING RESPONSE AT MONITORING WELLS

2013 GWETS Optimization Project Report

Nevada Environmental Response Trust Site

Henderson, Nevada

Extraction Well [a]	Monitoring Well	Distance From Extraction Well (ft)	Screened Geologic Unit [e]	Screened Interval (ft bgs)	UMCf Contact Depth (ft btoc)	Pre-Test Water Level Depth [b] (ft btoc)	Maximum Recovery [c] (ft)	Static Water Level [d] (ft msl)
I-N	I-N	0.0	Qal/xMCf/UMCf	7 - 37	37.6	26.1	0.3	1725.6
(0.77 gpm)	M-78	24.8	Qal/xMCf/UMCf	22 - 42	33.5	26.0	0.1	1725.6
1/24/2014	I-X	38.3	Qal/xMCf/UMCf	20 - 50	35.4	23.3	0.1	1725.4
	M-172	92.6	Qal/UMCf	27 - 37	30.7	25.9	<0.1	1724.7
	M-71	120.4	Qal/xMCf/UMCf	18 - 42	34.7	34.6	<0.1	1712.4
	M-164	130.8	UMCf	60 - 70	37.4	33.0	<0.1	1714.6
	M-65	133.7	Qal/xMCf/UMCf	14 - 39	31.1	28.1	<0.1	1725.8
I-V	I-V	0.0	Qal/xMCf/UMCf	12 - 42	35.2	31.4	2.2	1722.9
(5.86 gpm)	M-58	50.0	Qal/xMCf/UMCf	15 - 45	32.0	28.9	<0.1	1722.3
1/31/2014	M-174	53.3	Qal/UMCf	18 - 28	24.6	19.9	0.2	1722.6
	I-W	80.4	Qal/xMCf/UMCf	20 - 50	35.4	29.2	0.1	1722.4
ART-1	ART-1	0.0	Qal	14 - 54	51.9	36.8	13.1	1590.8
(23.6 gpm)	ART-1A	7.2	Qal	19 - 54	52.6	23.9	0.2	1590.7
2/3/2014	PC-55	67.4	Qal	15 - 55	--	27.4	0.1	1591.2
	ART-2A	83.6	Qal	21 - 56	55.5	26.6	<0.1	1590.2
	ART-2	89.5	Qal	19 - 54	54.7	27.3	0.1	1590.0
	PC-142	109.1	Qal	22 - 32	34.5	27.6	<0.1	1592.0
ART-4	ART-4	0.0	Qal	19 - 44	43.5	37.4	10.3	1590.3
(11.1 gpm)	ART-4A	6.2	Qal	18 - 43	42.6	29.0	0.8	1589.3
2/6/2014	PC-150	67.3	Qal	20 - 40	39.7	29.9	0.1	1589.3
	ART-3A	82.0	Qal	18 - 53	51.5	43.3	<0.1	1574.4
	PC-134A	94.7	UMCf	60 - 70	48.7	29.0	<0.1	1589.5
	PC-135A	101.3	Qal	31 - 51	50.8	29.2	<0.1	1589.4

TABLE 8: RECOVERY TESTING RESPONSE AT MONITORING WELLS

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Nevada Environmental Response Trust Site

Henderson, Nevada

Extraction Well [a]	**Monitoring Well**	**Distance From Extraction Well** (ft)	**Screened Geologic Unit** [e]	**Screened Interval** (ft bgs)	**UMCf Contact Depth** (ft btoc)	**Pre-Test Water Level Depth** [b] (ft btoc)	**Maximum Recovery** [c] (ft)	**Static Water Level** [d] (ft msl)
ART-7A (31.3 gpm) 1/28/2014	ART-7A	0.0	Qal	20 - 40	--	30.8	2.9	1586.9
	ART-7	6.8	Qal	19 - 39	--	29.6	1.3	1587.0
	PC-136	80.8	Qal	21 - 41	39.6	32.5	0.6	1586.1
	PC-137	85.8	UMCf	63 - 73	39.3	31.1	<0.1	1587.4
	PC-122	92.4	Qal	24 - 39	37.5	31.6	0.5	1586.9
	ART-6	109.9	Qal	18 - 38	33.1	29.0	0.4	1586.7
ART-9 (45.8 gpm) 2/5/2014	ART-9	0.0	Qal	23 - 43	38.7	30.8	2.1	1586.2
	ART-6	52.7	Qal	18 - 38	33.1	28.9	0.2	1586.6
	PC-136	48.7	Qal	21 - 41	39.6	32.5	0.2	1585.7
	PC-137	56.2	UMCf	63 - 73	39.3	31.1	<0.1	1587.4
	PC-122	149.6	Qal	24 - 39	37.5	31.6	<0.1	1586.4

Notes:

[a] Pumping rate is the average rate one week between the start of each test (date shown).

[b] Manually measured before test.

[c] Maximum displacement from transducer record and field record.

[d] Static water level was calculated from pre-test water level plus maximum recovery.

[e] The aquifer unit is from the All Wells Database maintained by NERT and other BMI property owners.

ft = feet

ft bgs = feet below ground surface

ft btoc = feet below top of casing

ft msl = feet above mean sea level

Qal = Quaternary Alluvium

UMCf = Upper Muddy Creek Formation

xMCf = transitional Upper Muddy Creek Formation

TABLE 9: RECOVERY TESTING RESULTS

2013 GWETS Optimization Project Report

Nevada Environmental Response Trust Site

Henderson, Nevada

Pumping Well	Additional Observation Wells Used in Model	Test Aquifer Unit	Moench Model Parameters [a]							Hydraulic Conductivity	
			T (ft^2/day)	S (-)	Sy (-)	Kz/Kr (-)	Sw (-)	r$_c$ (ft)	b (ft)	K (ft/day)	K (cm/s)
I-B	I-Y, M-167	xMCf/UMCf	11.5	6.6E-04	0.2	0.3	0	0.25	16	0.7	2.5E-04
I-D	M-170	Qal	1,100	1.4E-04	0.06	1	0	0.31	5	220	7.8E-02
I-G	M-56	Qal/xMCf/UMCf [b]	9	1.0E-03	0.2	0.3	0	0.18	14	0.6	2.3E-04
I-J	M-176	Qal/xMCf/UMCf [b]	90	1.0E-03	0.2	0.2	2	0.20	17	5.3	1.9E-03
I-K	M-177	Qal/UMCf [b]	67	2.5E-03	0.2	0.2	3	0.20	14	4.8	1.7E-03
I-N	M-78, I-X	Qal	330	1.9E-03	0.1	1	0	0.31	12	28	9.7E-03
I-V	M-174, I-W	Qal	330	1.8E-03	0.2	0.05	0	0.35	6	55	1.9E-02
ART-1	ART-1A	Qal	5,800	6.8E-03	0.2	0.1	100 [c]	0.25	29	200	7.1E-02
ART-4	ART-4A	Qal	370	1.4E-04	0.2	1	8	0.33	16	23	8.2E-03
ART-7A	ART-7, PC-136, PC-122, ART-6	Qal	2,050	7.0E-04	0.3	0.05	1	0.33	9	228	8.0E-02
ART-9	ART-6, PC-136	Qal	2,550	1.9E-04	0.2	0.1	0	0.88	10	255	9.0E-02

Notes:

[a] Other parameters used in the Moench model included alpha (set to 1E30 sec^{-1}), and rw (borehole radius of pumping well). Well dimensions are presented in Table 1.

[b] The water level responses were primarily in the UMCf. Test results appear representative of the UMCf.

[c] Very high skin factor required to fit the response data at monitoring well ART-1A. The resulting estimate of K apprears consistent with the relatively high pumping rate sustained by this well (24 gpm).

ft = feet

Qal = Quaternary Alluvium

UMCf = Upper Muddy Creek Formation

xMCf = transitional Upper Muddy Creek Formation

T = transmissivity

S = storativity

Sy = specific yield

Kz/Kr = anisotropy ratio

Sw = wellbore skin factor

rc = casing radius

b = saturated thickness

K = hydraulic conductivity

TABLE 10: SUMMARY OF AQUIFER TESTING RESULTS
2014 GWETS Optimization Project
Nevada Environmental Response Trust Site
Henderson, Nevada

Well Name [a]	Test Date	Test Method	Test Aquifer Unit [e]	Hydraulic Conductivity	
				(ft/day)	(cm/s)
Interceptor Well Field					
I-AA	2/4/2014	Step-Drawdown (Moench)	Qal	300	1.1E-01
I-AB	2/6/2014	Step-Drawdown (Moench)	UMCf	0.2	7.4E-05
I-B	1/30/2014	Recovery (Moench)	xMCf/UMCf	0.7	2.5E-04
I-Y	2/7'2014	Step-Drawdown (Moench)	Qal	3.8	1.3E-03
I-D	1/22/2014	Recovery (Moench)	Qal	220	7.8E-02
I-N	1/24/2014	Recovery (Moench)	Qal	28	9.7E-03
I-X	2/5/2014	Step-Drawdown (Moench)	Qal	9.7	3.4E-03
I-G	1/22/2014	Recovery (Moench)	Qal/xMCf/UMCf [b]	0.6	2.3E-04
I-W	2/8/2014	Step-Drawdown (Moench)	Qal	4.2	1.5E-03
I-V	1/31/2014	Recovery (Moench)	Qal	6.2	2.2E-03
I-J	1/23/2014	Recovery (Moench)	Qal/xMCf/UMCf [b]	5.3	1.9E-03
I-K	1/27/2014	Recovery (Moench)	Qal/UMCf [b]	4.8	1.7E-03
I-AC	2/3/2014	Step-Drawdown (Moench)	Qal/UMCf [b]	0.03	1.2E-05
I-AD	1/30/2014	Step-Drawdown (Moench)	Qal	1.2	4.2E-04
Athens Road Well Field					
ART-1	2/3/2014	Recovery (Moench) [c]	Qal	200	7.1E-02
PC-134A	1/14/14	Slug (KGS) [d]	UMCf	3.6	1.3E-03
ART-4	2/6/2014	Recovery (Moench)	Qal	23	8.2E-03
PC-150	1/28/2014	Step-Drawdown (Moench)	Qal	4.5	1.6E-03
PC-149	1/14/14	Slug (KGS) [d]	Qal/UMCf	1.2	4.3E-04
PC-148	1/15/14	Slug (KGS) [d]	UMCf	0.1	4.7E-05
PC-137	1/13/14	Slug (KGS) [d]	UMCf	4.1	1.4E-03
ART-9	2/5/2014	Recovery (Moench)	Qal	255	9.0E-02
ART-7A	1/28/2014	Recovery (Moench)	Qal	228	8.0E-02
ART-7B	1/29/2014	Step-Drawdown (Moench)	Qal	243	8.6E-02

Notes:

[a] The order for wells in each field is from West to East.

[b] The water level responses were primarily in the UMCf. Test results appear representative of the UMCf.

[c] Very high skin factor required to fit the response data at monitoring well ART-1A. The resulting estimate of K appears consistent with the relatively high pumping rate sustained by this well (24 gpm).

[d] Average of results from slug testing analyzed by KGS method.

[e] The aquifer unit is from the All Wells Database maintained by NERT and other BMI property owners.

KGS = Kansas Geological Survey Method
Qal = Quaternary Alluvium
UMCf = Upper Muddy Creek Formation
xMCf = transitional Upper Muddy Creek Formation

Figures

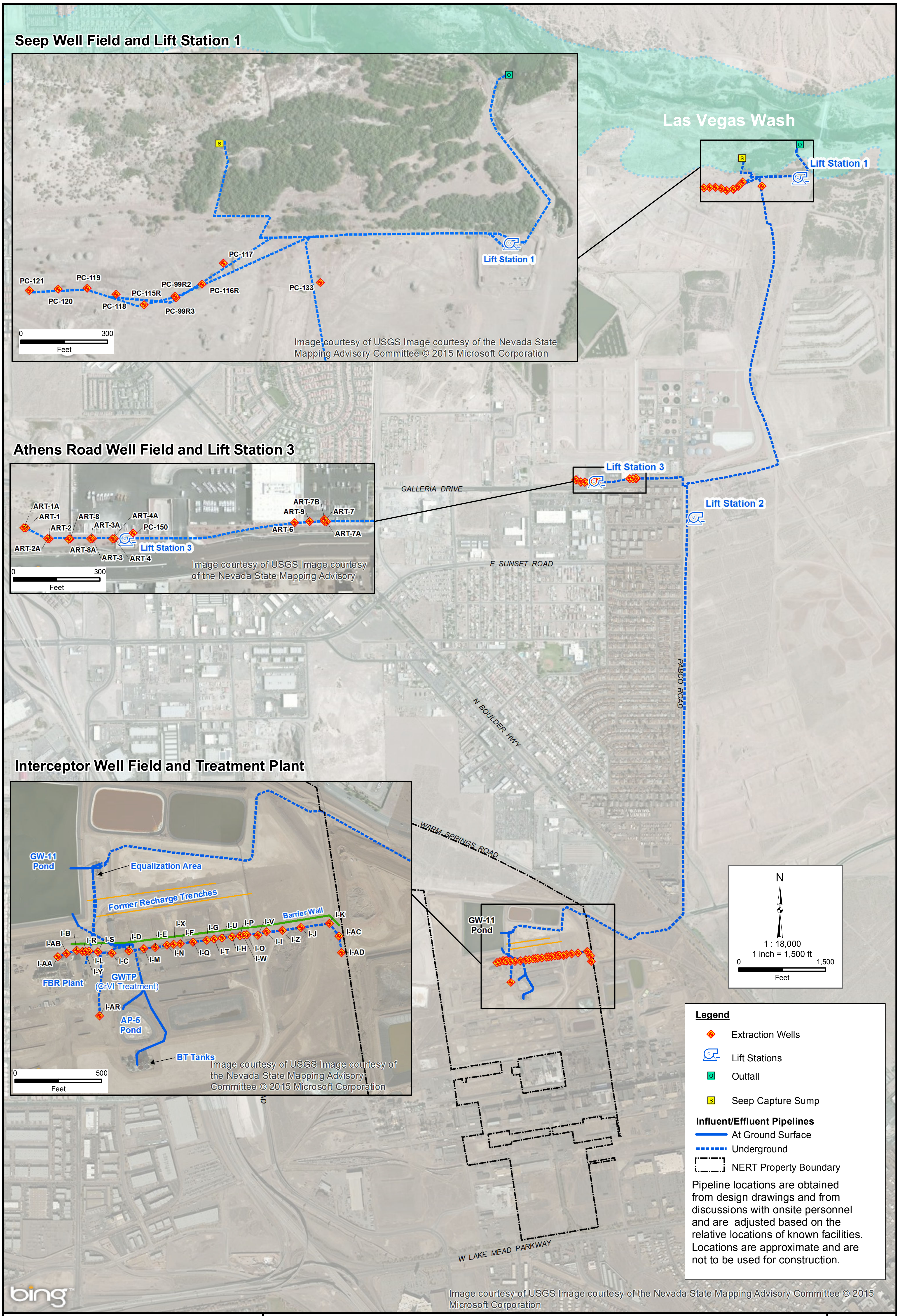

Image courtesy of USGS Image courtesy of the Nevada State Mapping Advisory Committee © 2015 Microsoft Corporation

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Pipeline locations are obtained from design drawings and from discussions with onsite personnel and are adjusted based on the relative locations of known facilities. Locations are approximate and are not to be used for construction.

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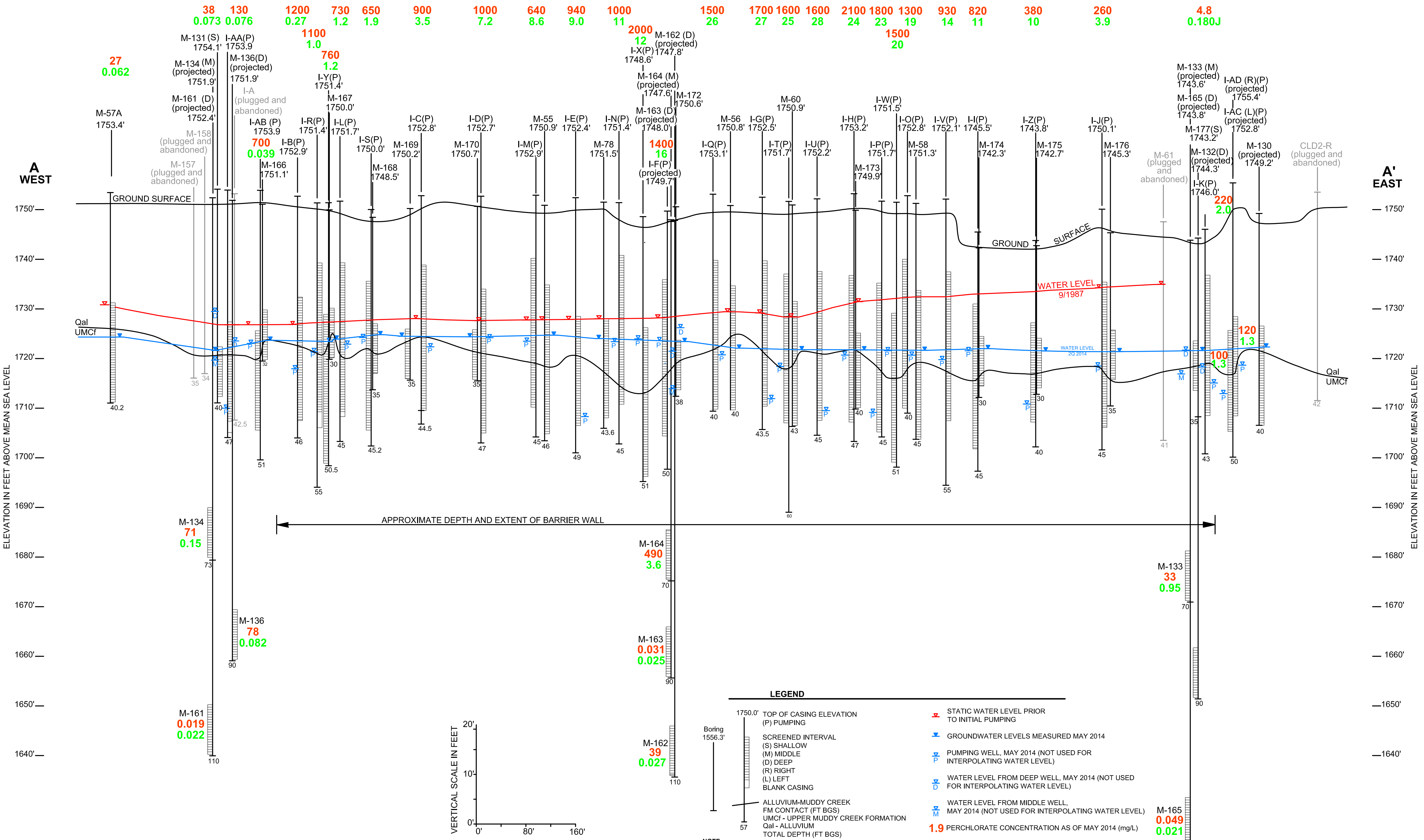
Groundwater Extraction and Treatment System Map

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
1

Drafter: EA Date: 4/15/2015 Contract Number: 21-37300B Approved by: Revised:



NOTE:

The shallow, middle, and deep screened interval designations are used to distinguish well screens in this cross section and do not refer to NDEP's definition of the water bearing zones (WBZs).

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Drafter: RS
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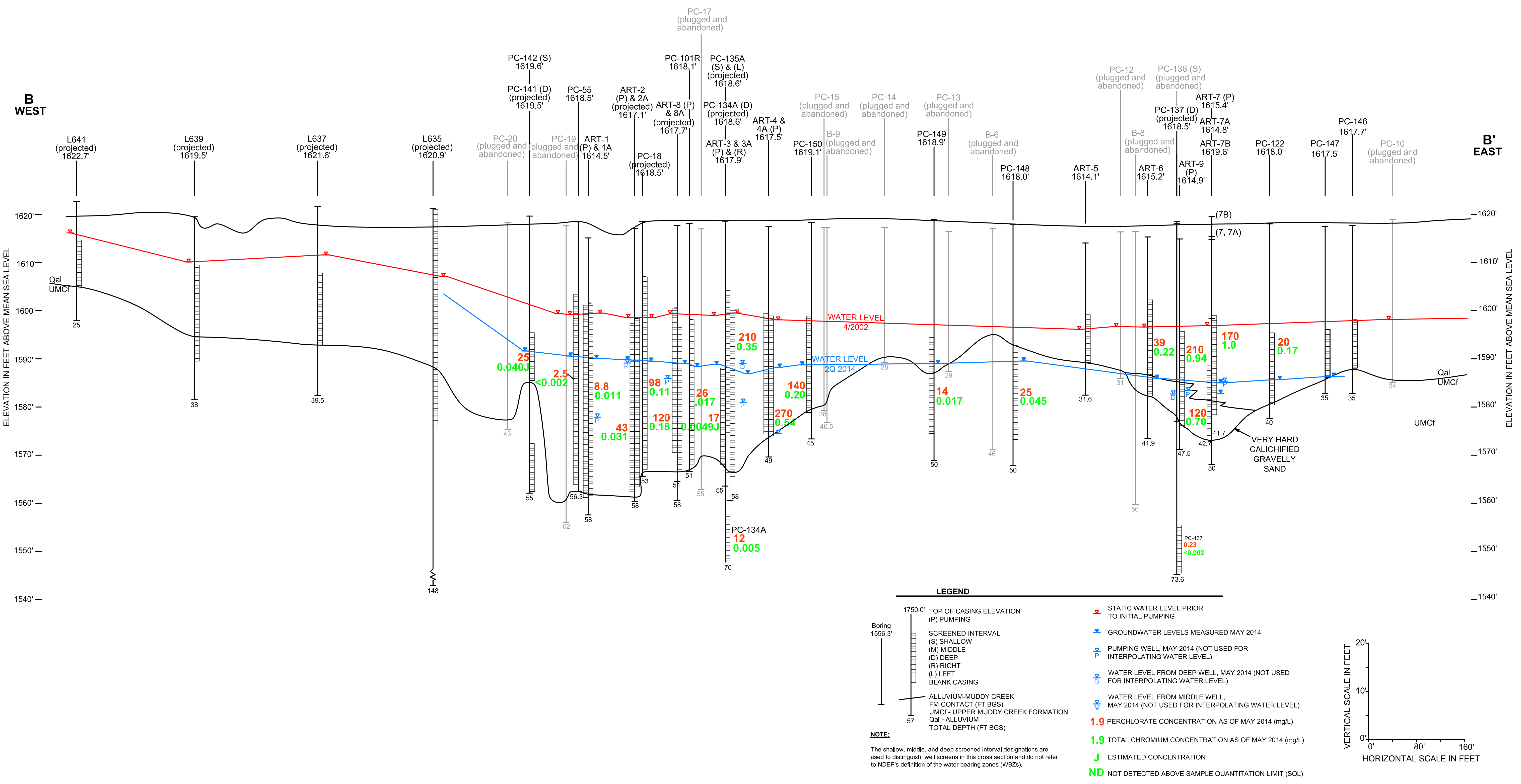
Contract Number: 21-29100G10
Approved:
Revised:

WEST-EAST HYDROGEOLOGIC CROSS SECTION A - A'
INTERCEPTOR WELL FIELD, SECOND QUARTER 2014

Semi-Annual Performance Report
Nevada Environmental Response Trust (NERT) Site
Henderson, Nevada

Figure
2



NOTE:

The shallow, middle, and deep screened interval designations are used to distinguish well screens in this cross section and do not refer to NDEP's definition of the water bearing zones (WBZs).

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Drafter: RS Date: 4/15/15 Contract Number: 21-29100G10

Approved: Revised:

WEST-EAST HYDROGEOLOGIC CROSS SECTION B - B'
ATHENS ROAD WELL FIELD, SECOND QUARTER 2014

Semi-Annual Performance Report
Nevada Environmental Response Trust (NERT) Site
Henderson, Nevada

Figure
3

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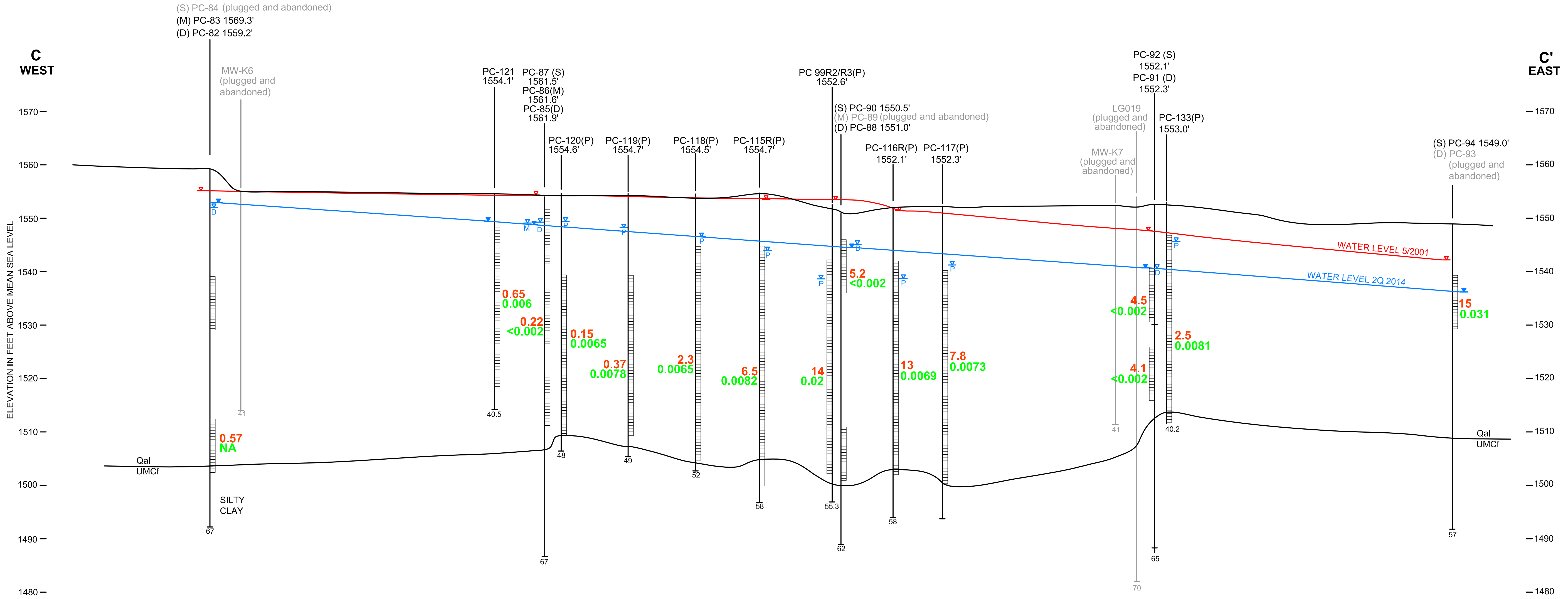


LEGEND

1750.0' TOP OF CASING ELEVATION
(P) PUMPING

Boring
1556.3'

SCREENED INTERVAL
(S) SHALLOW
(M) MIDDLE
(D) DEEP
(R) RIGHT
(L) LEFT
BLANK CASING

ALLUVIUM-MUDDY CREEK
FM CONTACT (FT BGS)
UMCf - UPPER MUDDY CREEK FORMATION
Qal - ALLUVIUM
57 TOTAL DEPTH (FT BGS)

STATIC WATER LEVEL PRIOR
TO INITIAL PUMPING

GROUNDWATER LEVELS MEASURED MAY 2014

P PUMPING WELL, MAY 2014 (NOT USED FOR
INTERPOLATING WATER LEVEL)

D WATER LEVEL FROM DEEP WELL, MAY 2014 (NOT USED
FOR INTERPOLATING WATER LEVEL)

M WATER LEVEL FROM MIDDLE WELL,
MAY 2014 (NOT USED FOR INTERPOLATING WATER LEVEL)

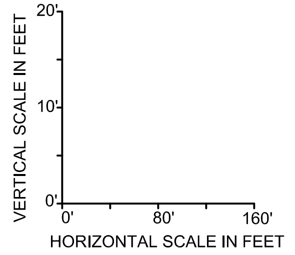
1.9 PERCHLORATE CONCENTRATION AS OF MAY 2014 (mg/L)

1.9 TOTAL CHROMIUM CONCENTRATION AS OF MAY 2014 (mg/L)

<0.002 NOT DETECTED ABOVE THE SAMPLE QUANTITATION LIMIT (SQL)

NOTE:

The shallow, middle, and deep screened interval designations are used to distinguish well screens in this cross section and do not refer to NDEP's definition of the water bearing zones (WBZs).



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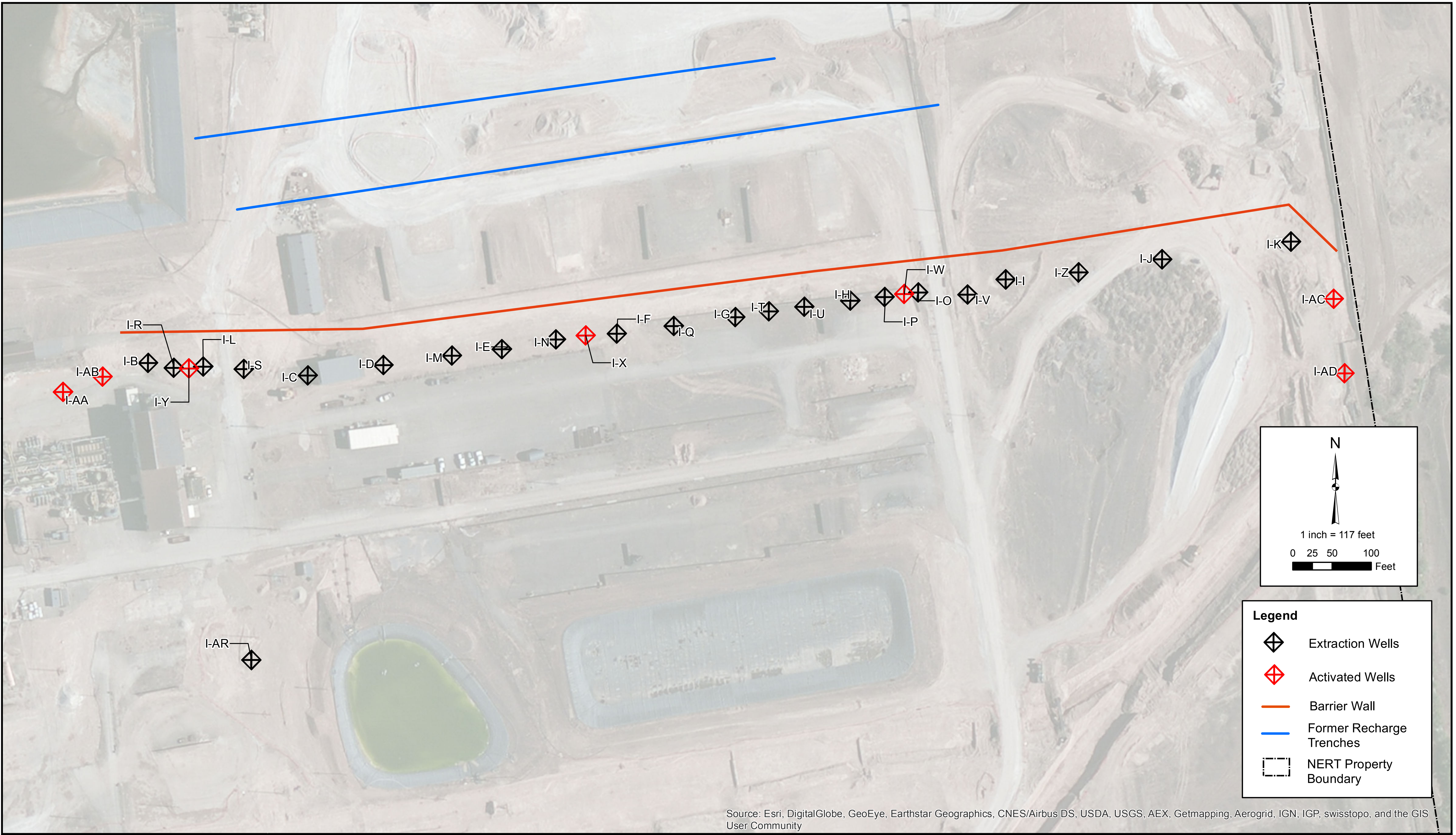
Drafter: RS Date: 4/15/15 Contract Number: 21-29100G10

Approved: Revised:

WEST-EAST HYDROGEOLOGIC CROSS SECTION C - C'
SEEP WELL FIELD, SECOND QUARTER 2014
Semi-Annual Performance Report
Nevada Environmental Response Trust (NERT) Site
Henderson, Nevada

Figure
4



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Activated Wells, Interceptor Well Field
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
5

Drafter: EA
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Approved by:
Revised:

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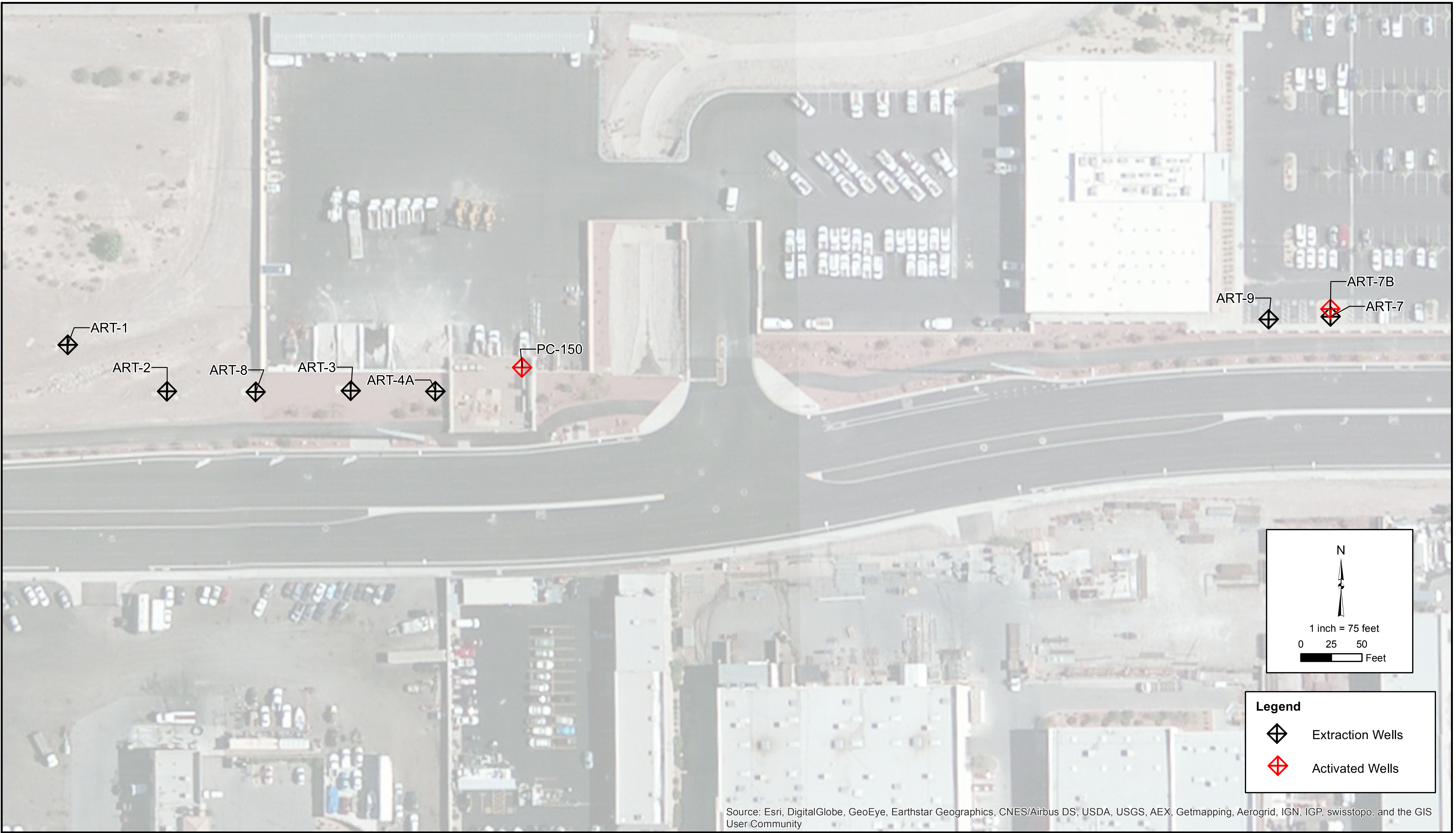

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Activated Wells, Athens Road Well Field

Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
6

Drafter: EA
Date: 4/30/2015
Contract Number: 21-37300B
Approved by:
Revised:

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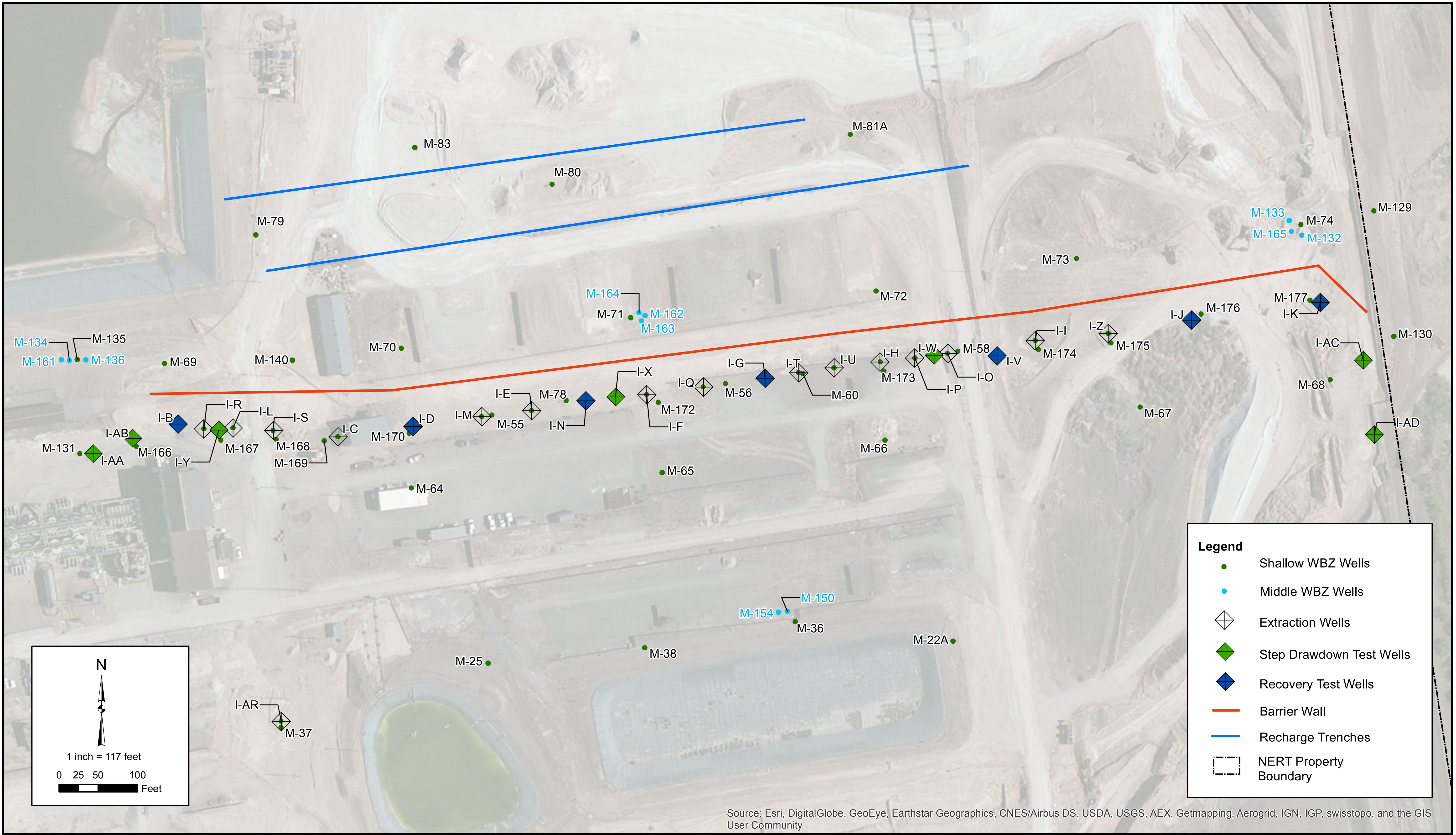

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Hydraulic Testing, Interceptor Well Field

Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
7

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Contract Number: 21-37300B
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Revised:

Path: H:\LePetomane\NERT\GWM\Annual Performance Reports\2014 semi-Annual\Attachment 1 - GWETS Opt Memo\Figures\Figure 7_Hydraulic Tests_IWF.mxd

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Hydraulic Testing, Athens Road Well Field

Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
8

Drafter: KPL
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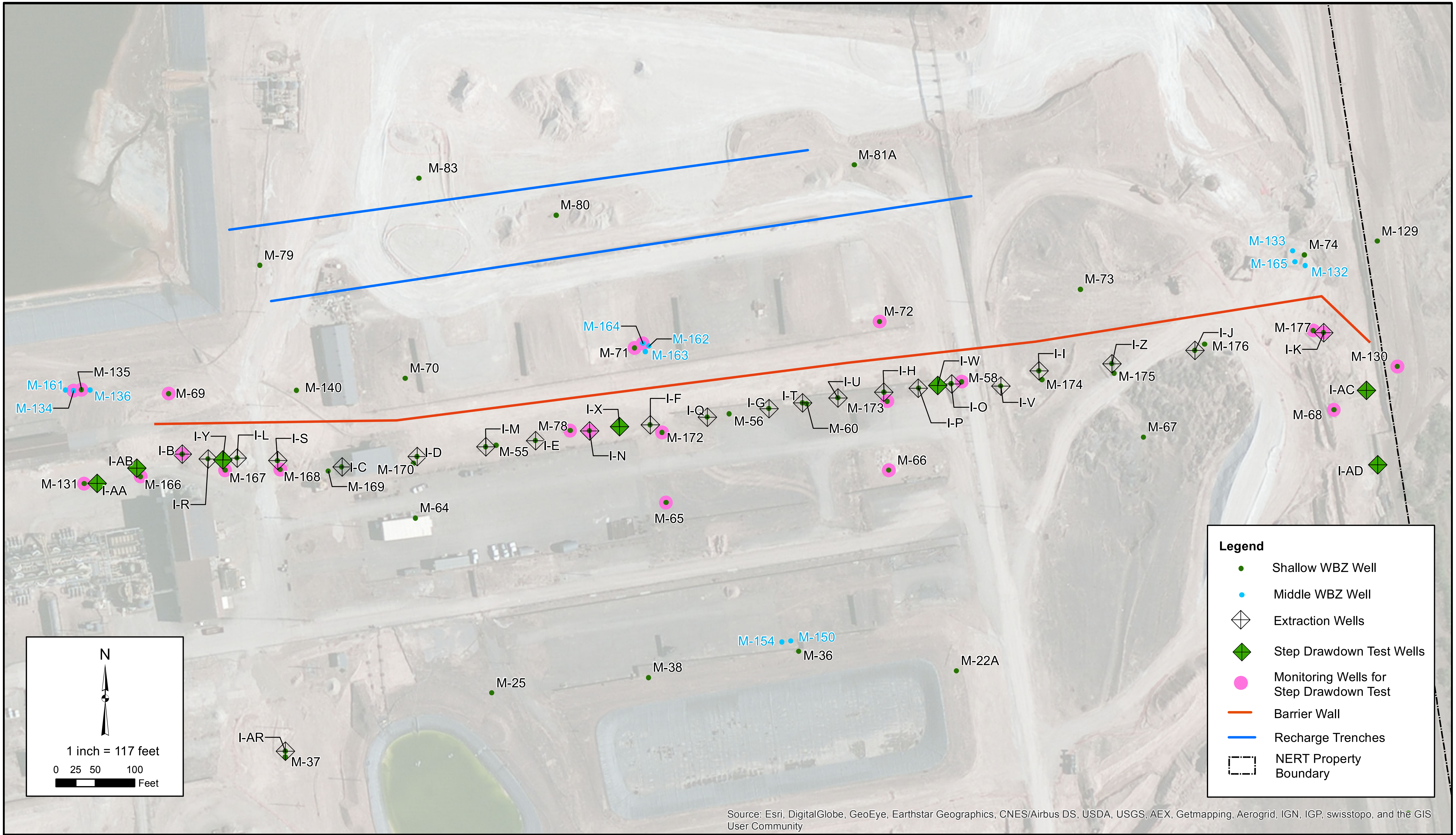
Contract Number: 21-37300B
Approved by:
Revised:



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Well Network for Step Drawdown Tests, Interceptor Well Field

Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
9

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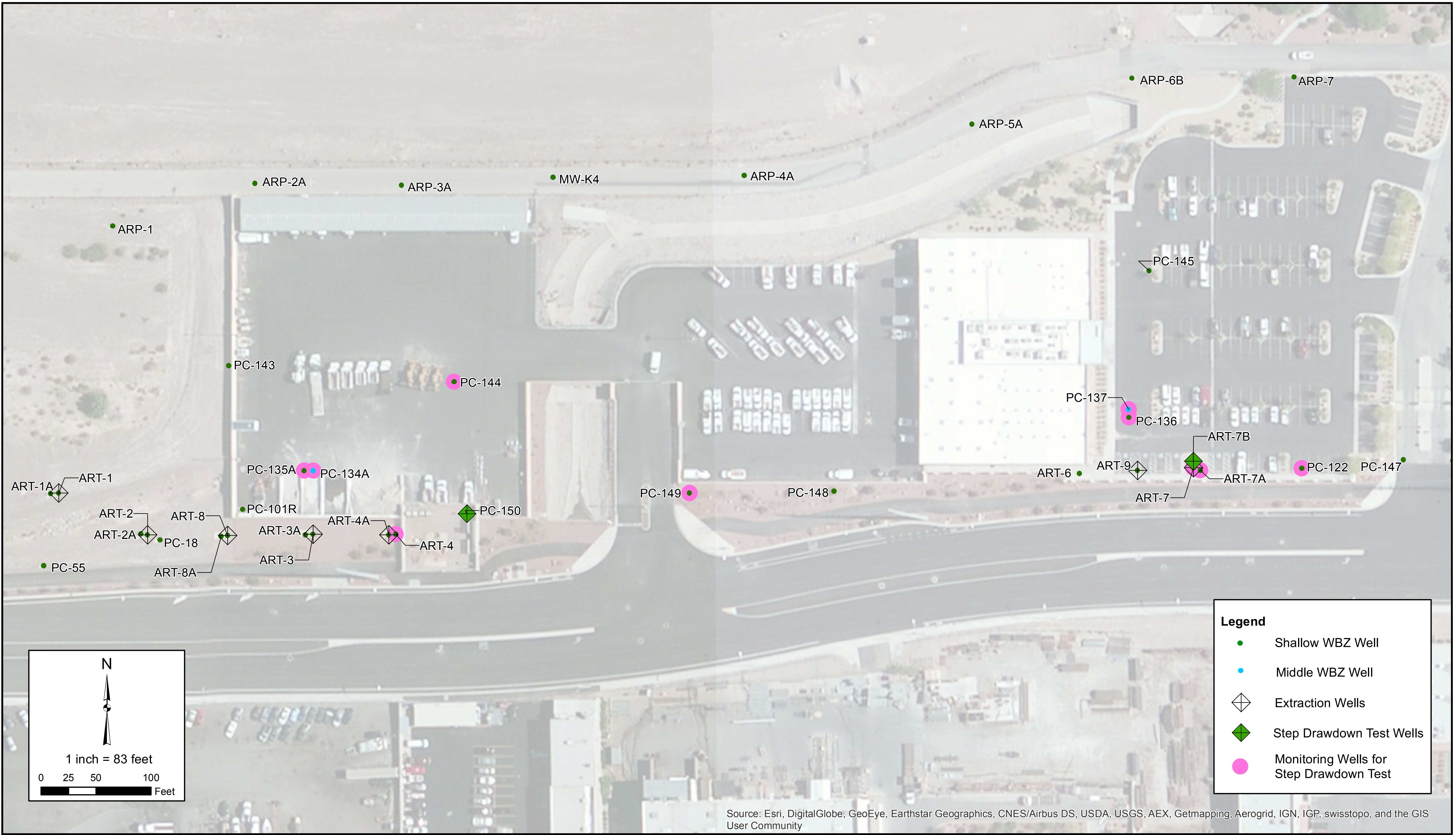

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Well Network for Step Drawdown Tests, Athens Road Well Field

Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
10

Drafter: LAT
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Contract Number: 21-37300B
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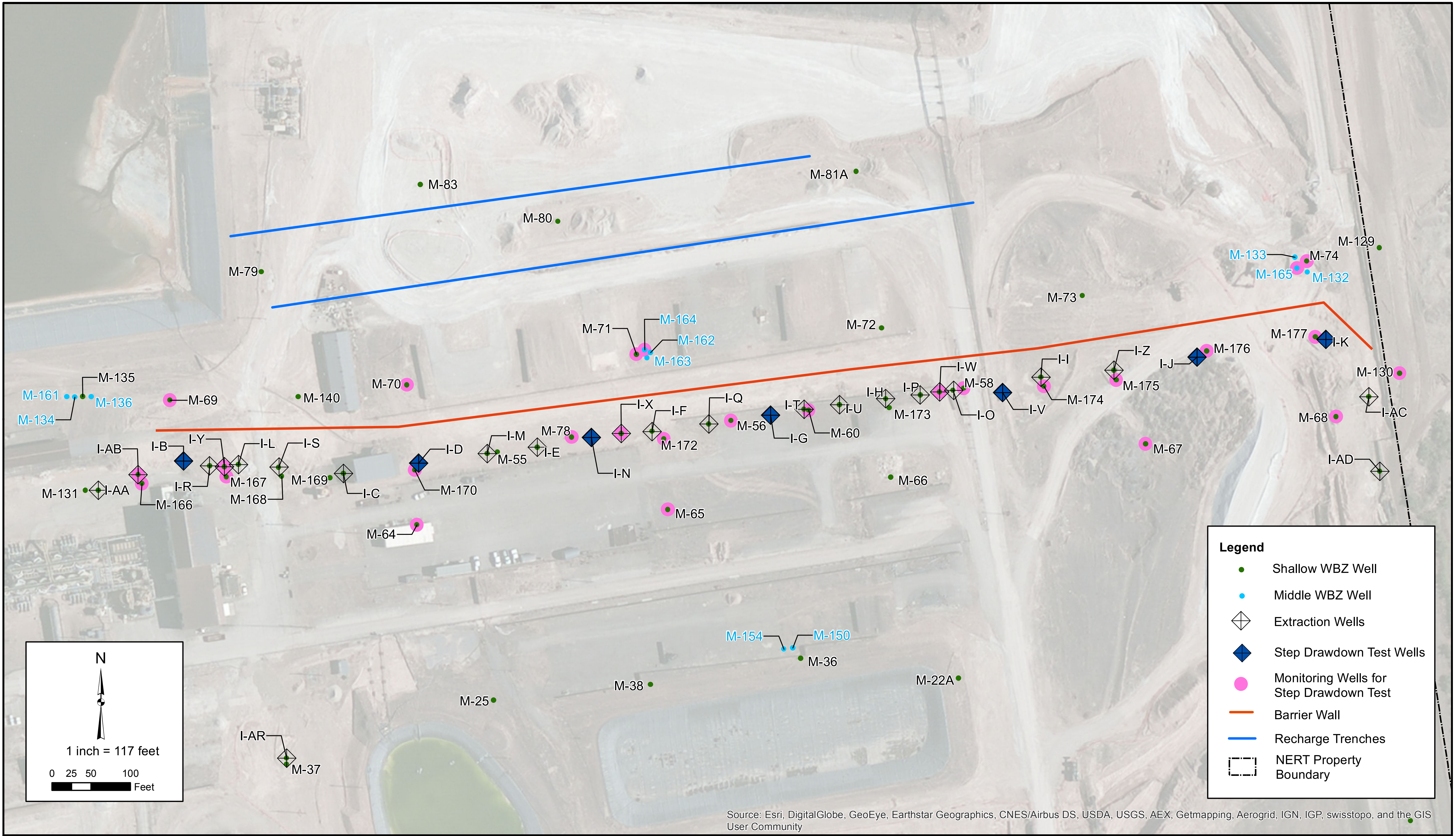

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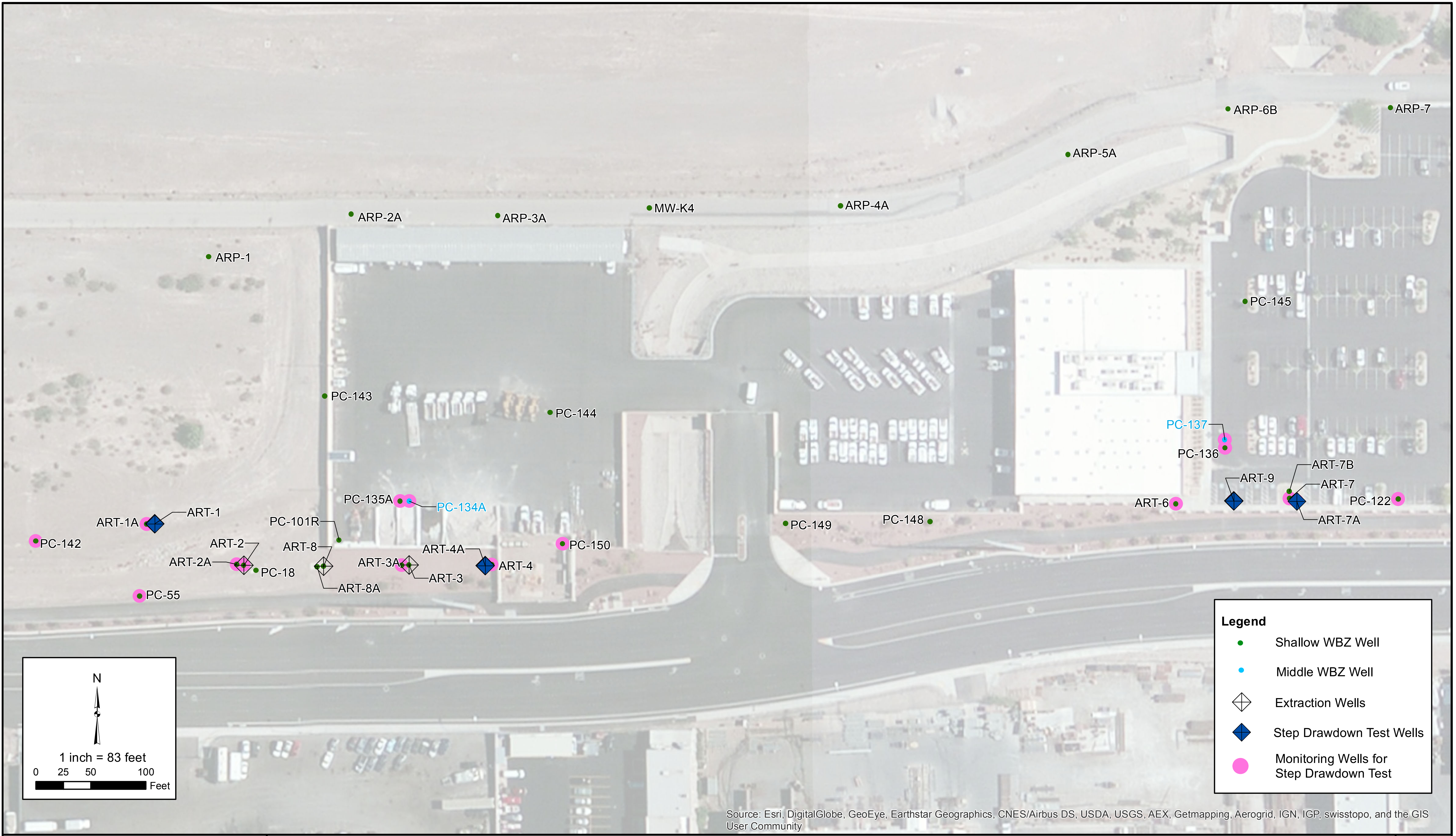
Well Network for Recovery Tests, Interceptor Well Field

Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
11

Drafter: KPL
Date: 4/30/2015
Contract Number: 21-37300B
Approved by:
Revised:



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Well Network for Recovery Tests, Athens Road Well Field

Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
12

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Interceptor Well Field Capture Zone Comparison

Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
13

Drafter: EA
Date: 4/30/2015
Contract Number: 21-37300B
Approved by: AS
Revised: AS

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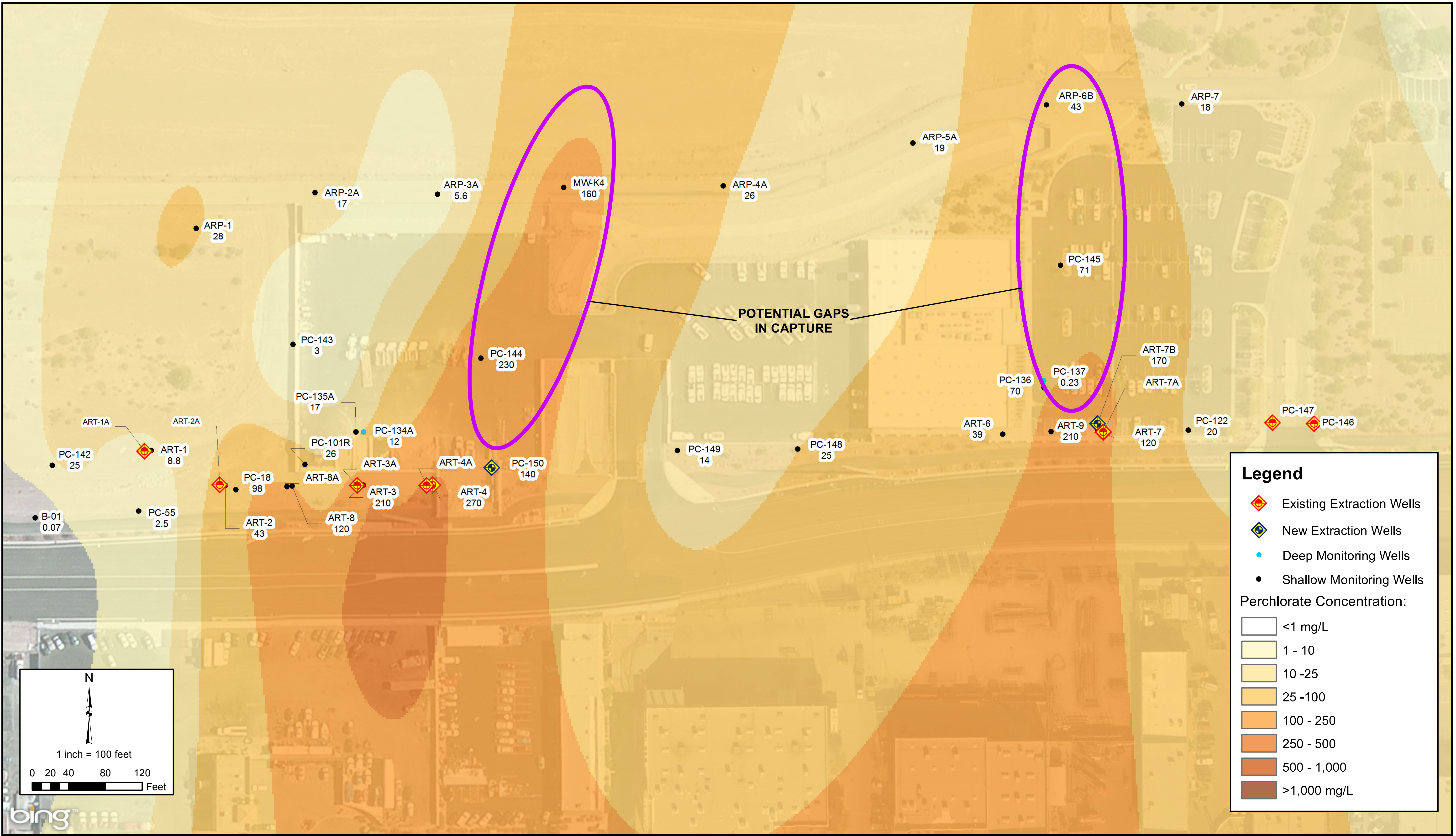

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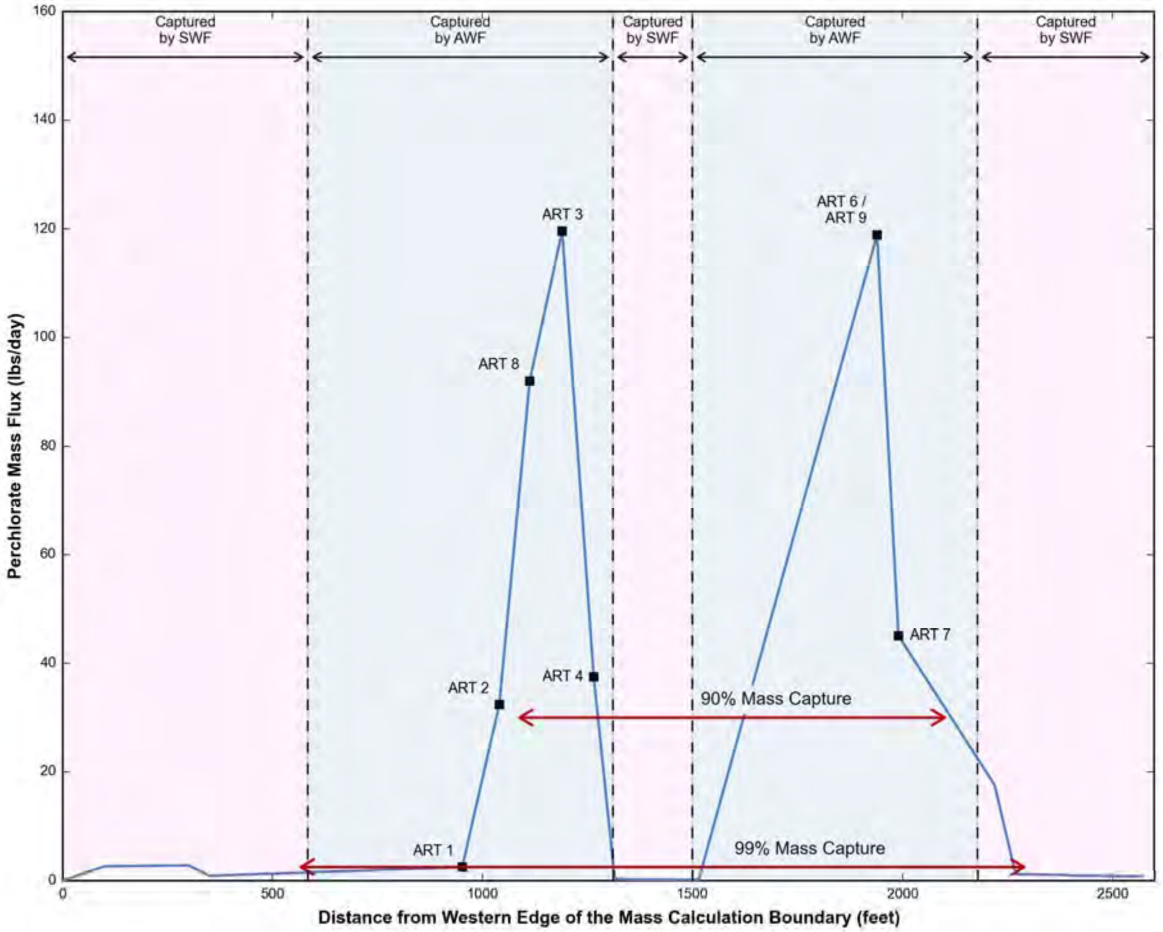
Pre-optimization (Second Quarter 2014) Perchlorate Concentrations at the AWF

Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
14

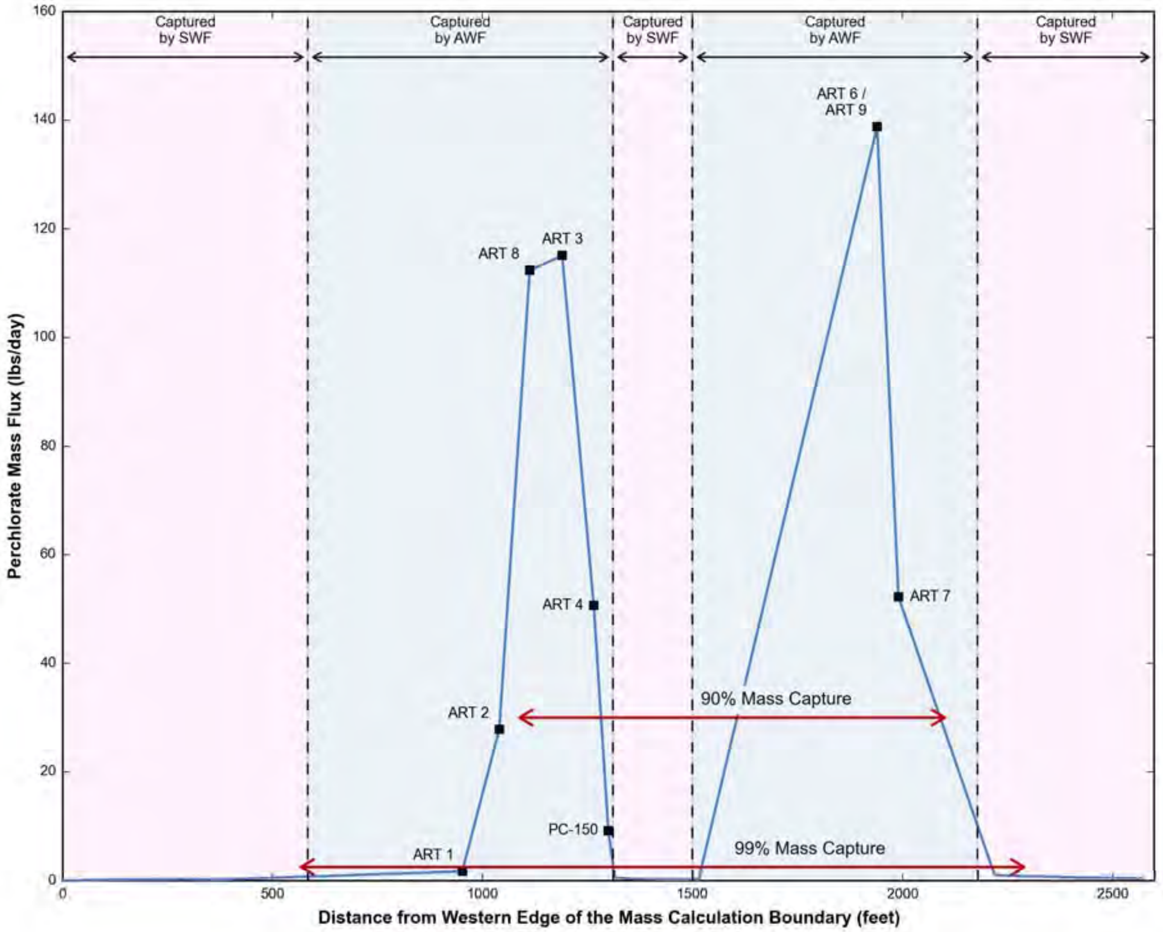
Drafter: AS
Date: 4/30/2015
Contract Number: 21-37300B
Approved by: AS
Revised: AS

2014Q2 Capture Zone



Capture Efficiency =95%

2014Q4 Capture Zone



Capture Efficiency =97%

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CAPTURE EFFICIENCY COMPARISON AT ATHENS WELL FIELD

Nevada Environmental Response Trust Site, Henderson, Nevada

Date: 4/8/2015	Contract Number: 21-37300B	Drafter: AS	Revised: AS	Approved: AS	Figure 15

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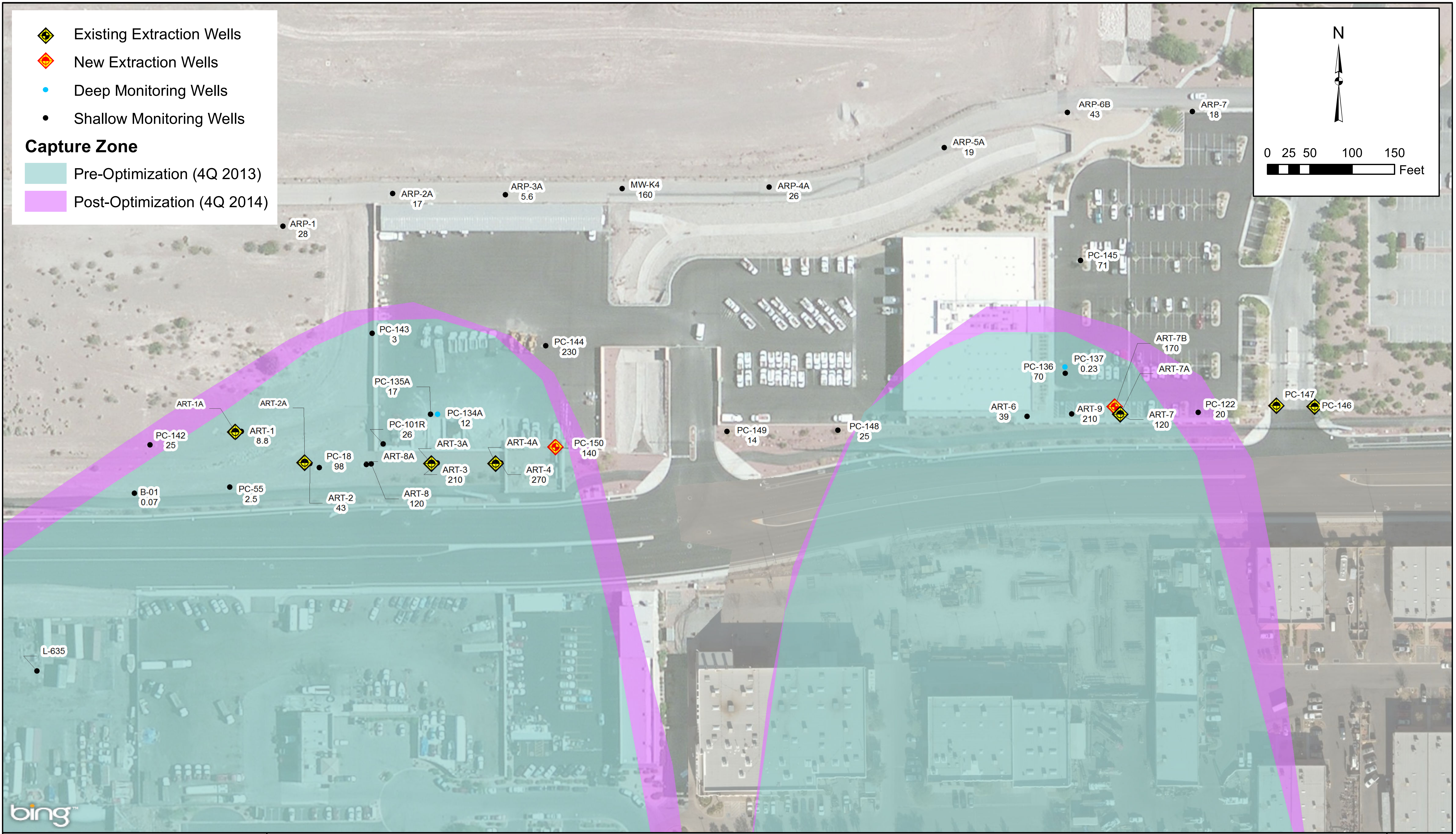

Athens Road Well Field Capture Zone Comparison

Nevada Environmental Response Trust Site
Henderson, Nevada

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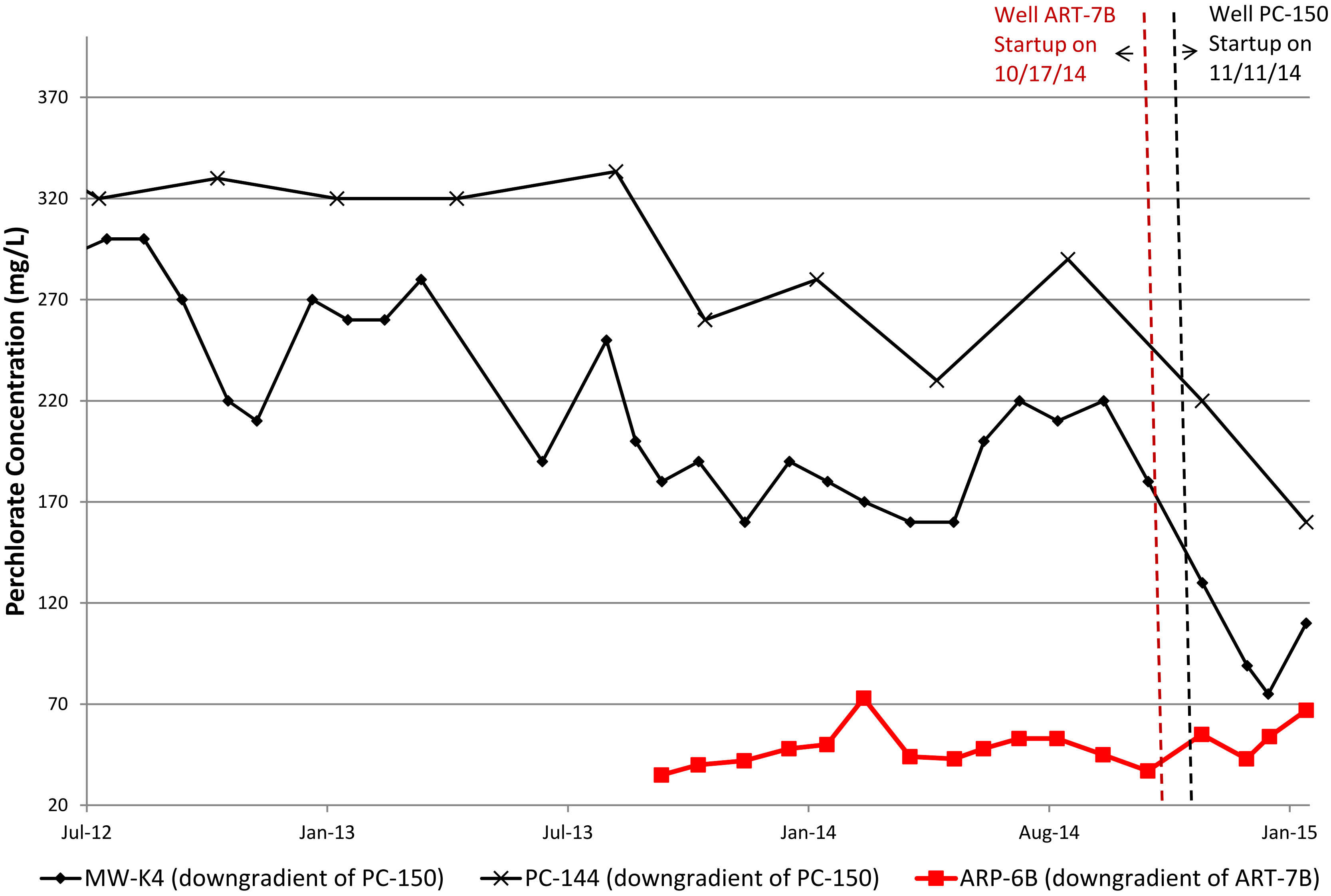
Figure
16

Drafter: AS
Date: 4/30/2015
Contract Number: 21-37300B
Approved by: AS
Revised: AS

Path: H:\LePetomane\NERT\Modeling\Optimization\Optimization Report\Phase 2 Optimization\GIS\Figure 16 - Location Map_ARWF_capture_zones.mxd



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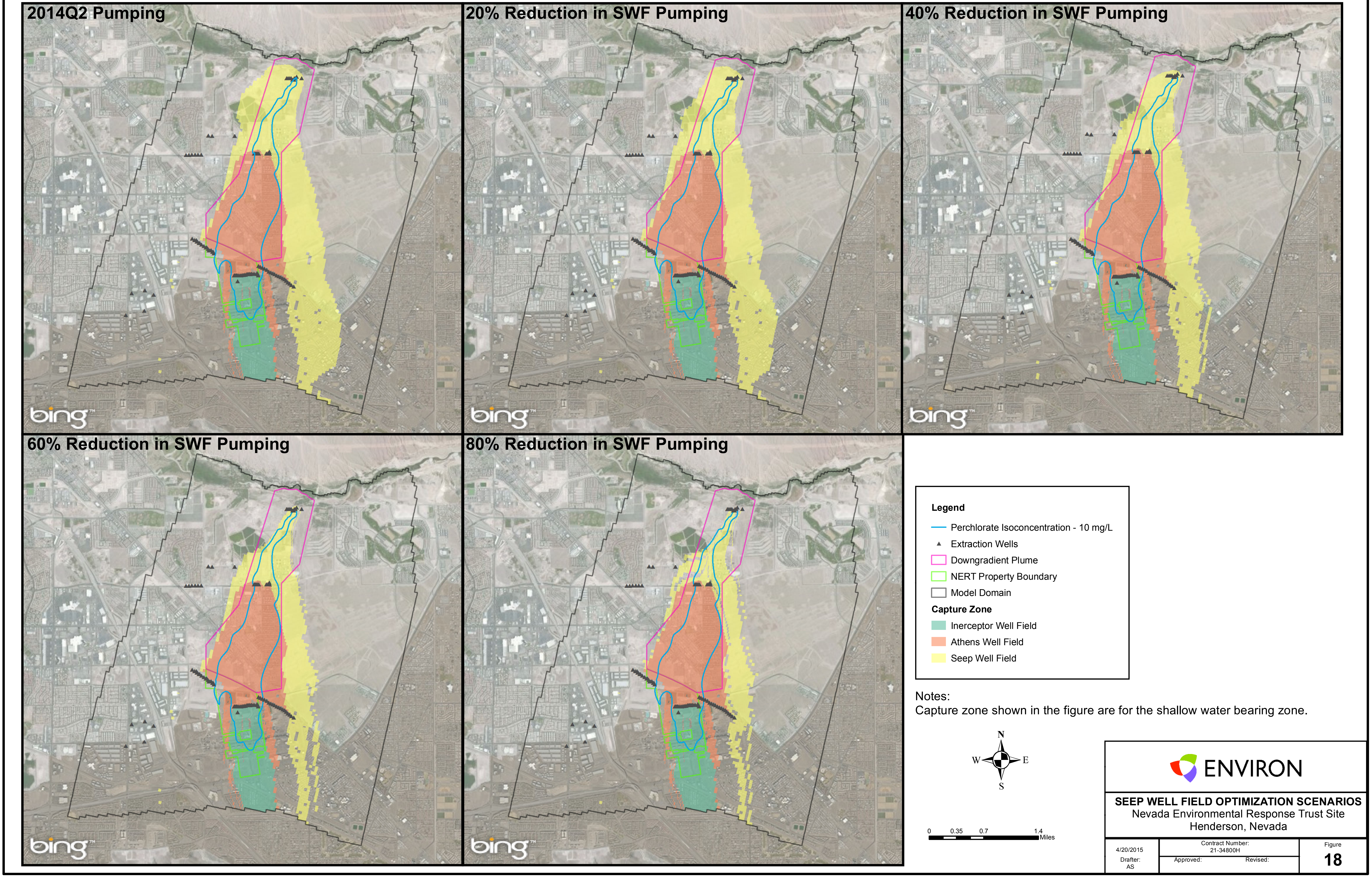
Perchlorate Concentrations Downgradient of AWF Activated Wells
Nevada Environmental Response Trust (NERT) Site
Henderson, Nevada

Figure
17

Drafter: KPL
Date: 10/31/14
Contract Number: 21-37300B
Approved:
Revised:



Notes:
Capture zone shown in the figure are for the shallow water bearing zone.

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SEEP WELL FIELD OPTIMIZATION SCENARIOS
Nevada Environmental Response Trust Site
Henderson, Nevada

4/20/2015 Drafter: AS	Contract Number: 21-34800H Approved:	Revised:	Figure 18

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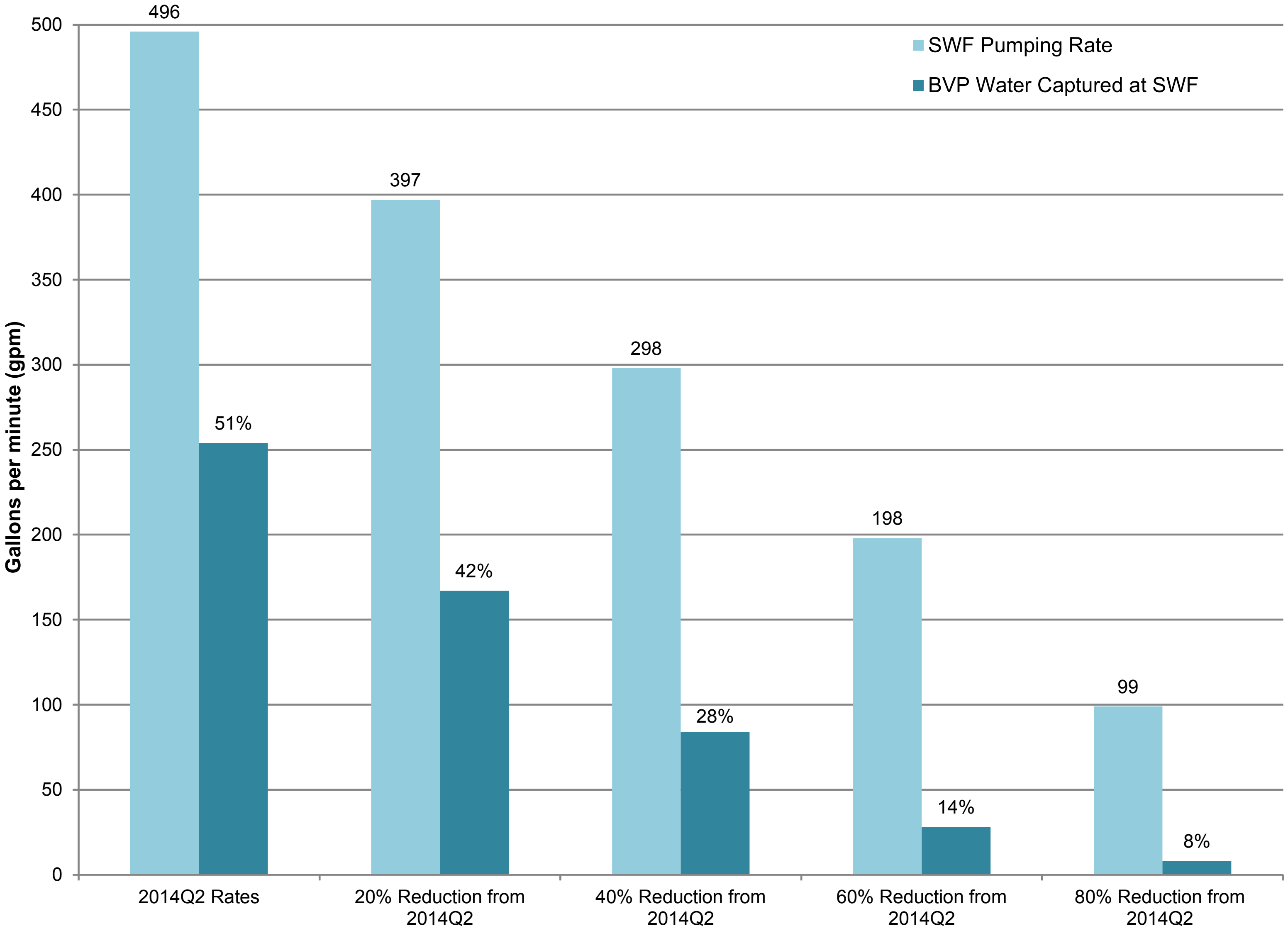

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Birding Pond Water Capture Zone Scenarios
Nevada Environmental Response Trust (NERT) Site
Henderson, Nevada

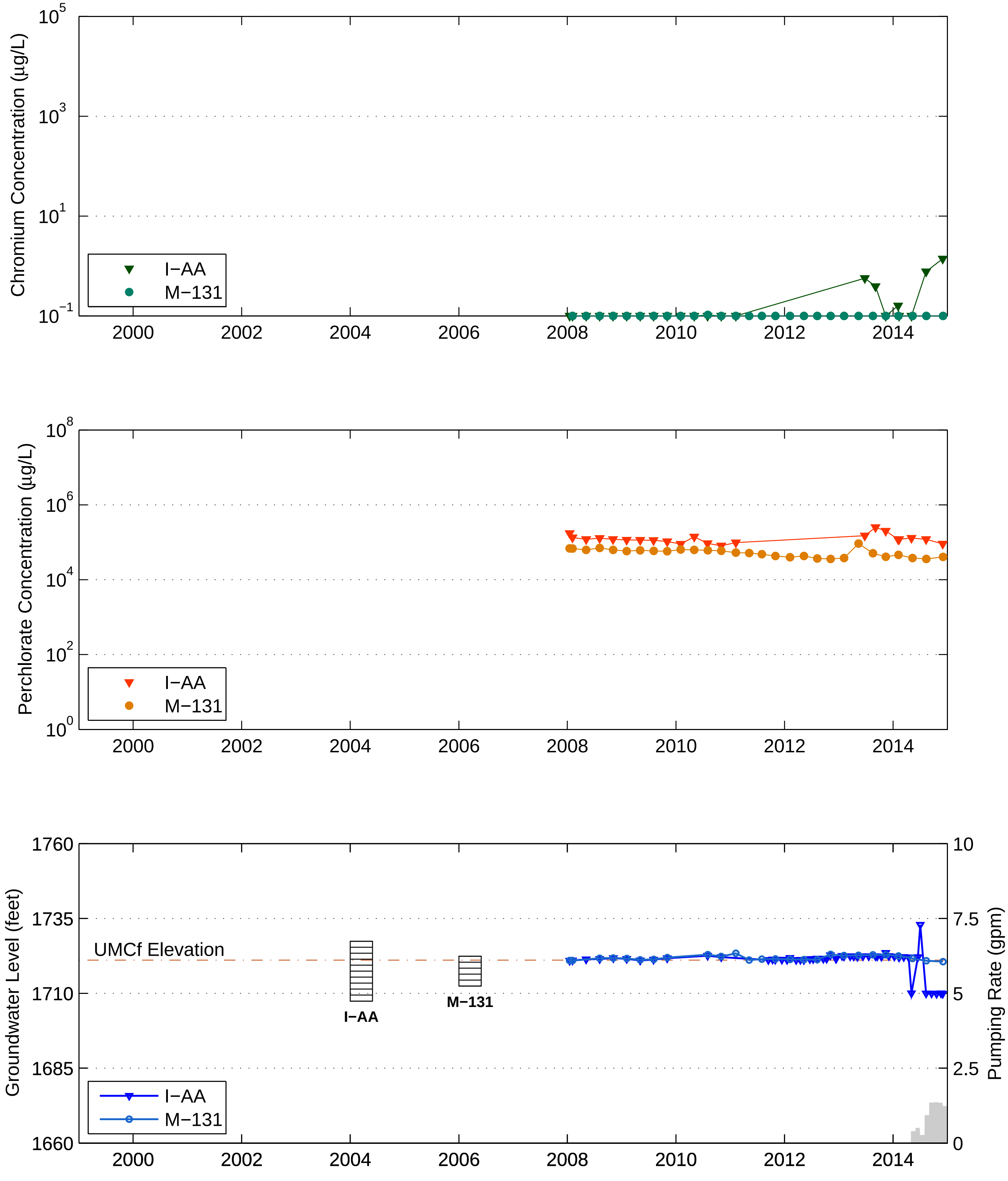
Figure
19

Drafter: KPL Date: 4/30/2015 Contract Number: 21-37300B Approved: Revised:

Appendix A

Well Concentration and Groundwater Elevation Plots

I−AA,M−131 (Location: N4931ft, W834ft)
I−AA:UMCf [1727.4−1707.4 ft]
M−131:UMCf [1722.4−1712.4 ft]



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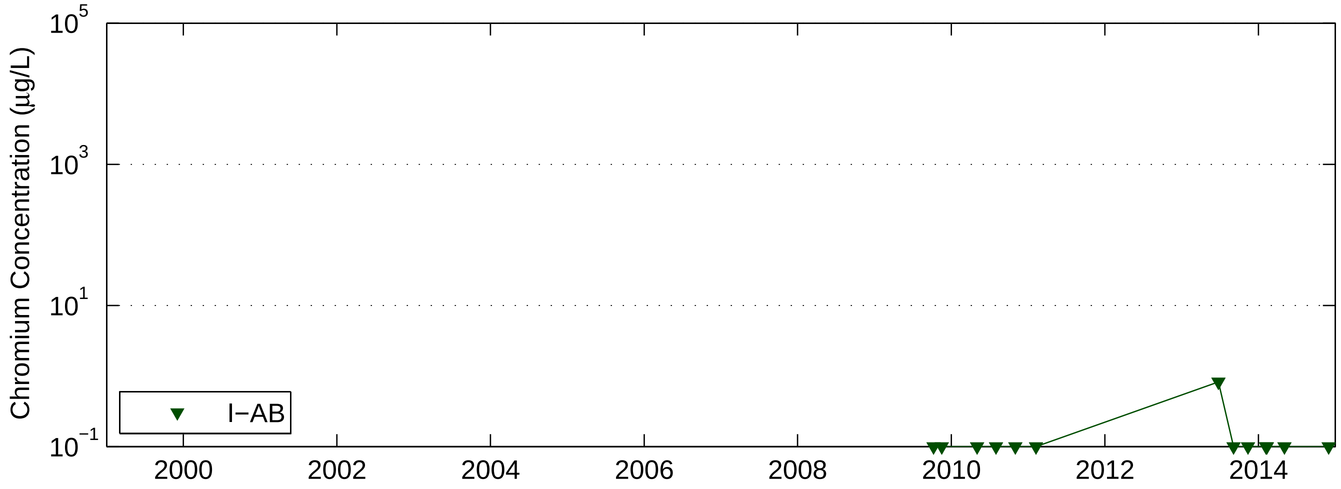
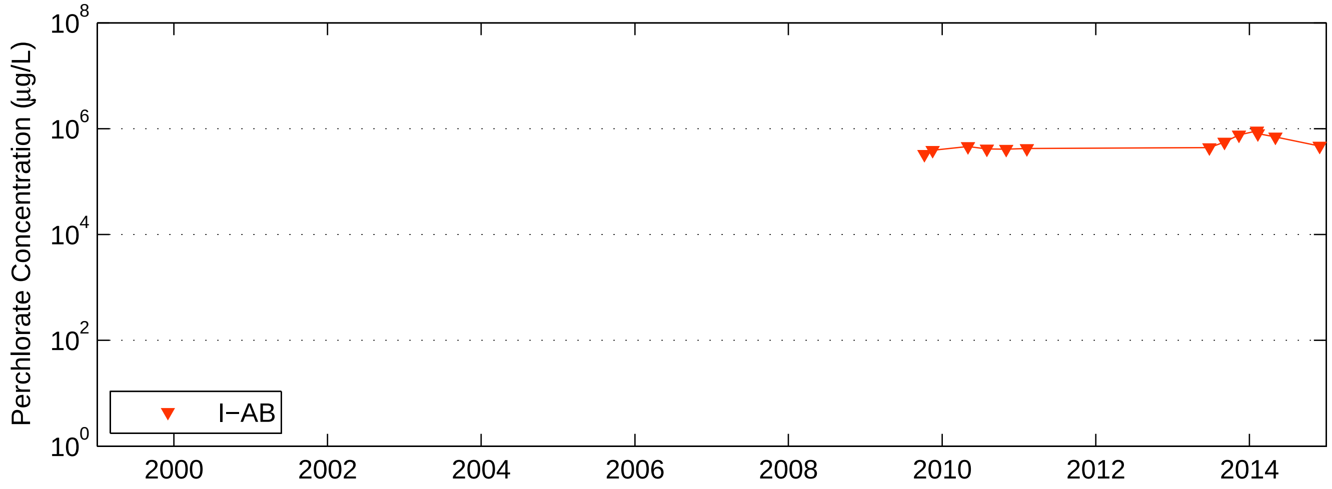
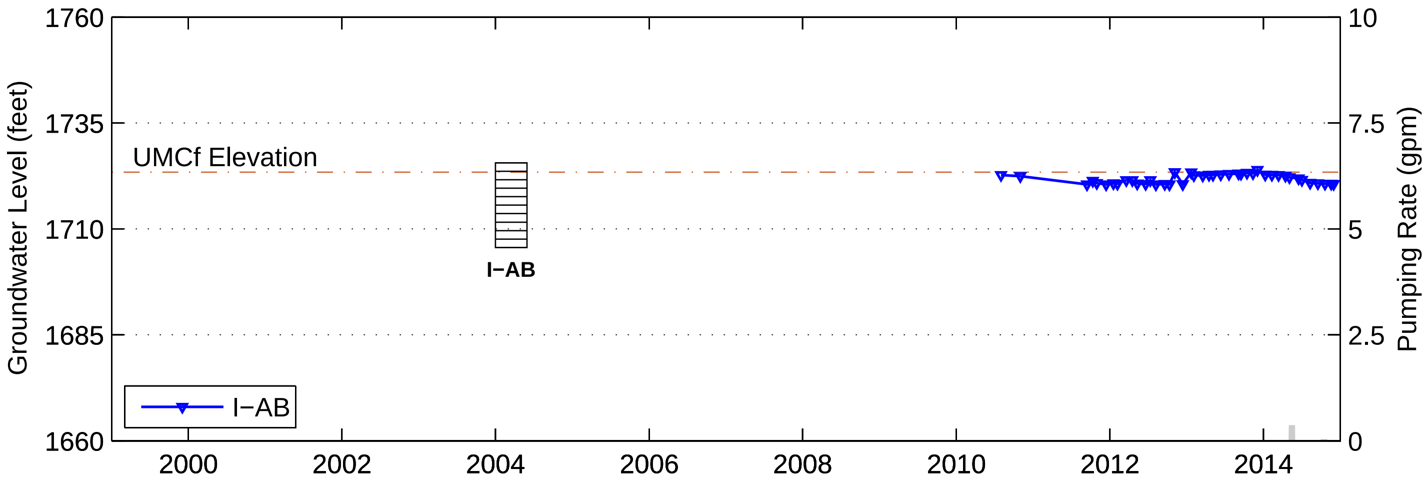
I−AB (Location: N4950ft, W775ft)
I−AB:Qal/UMCf [1725.6−1705.6 ft]







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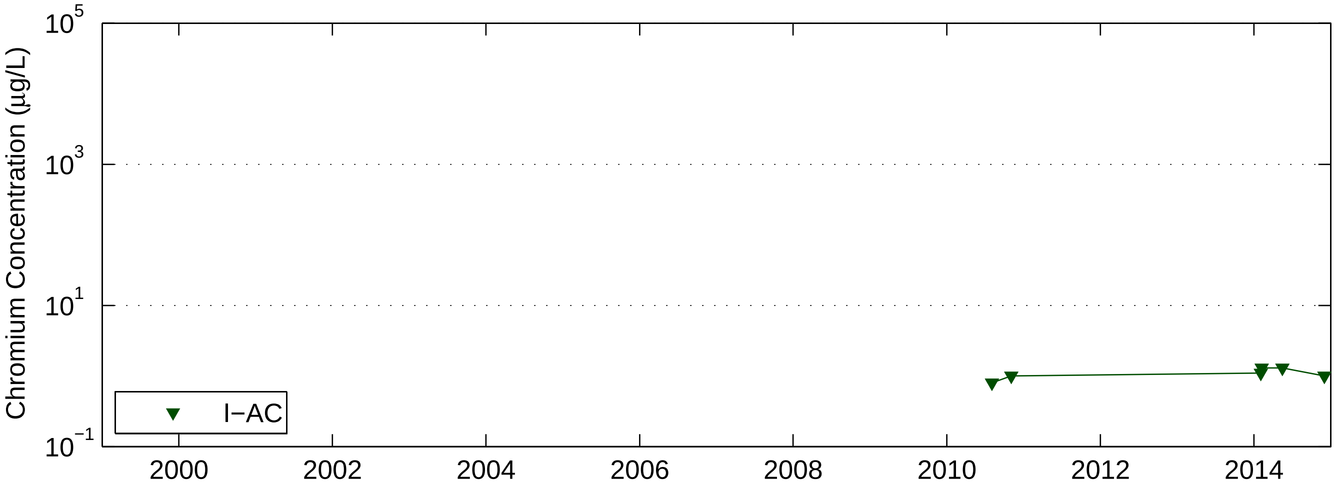
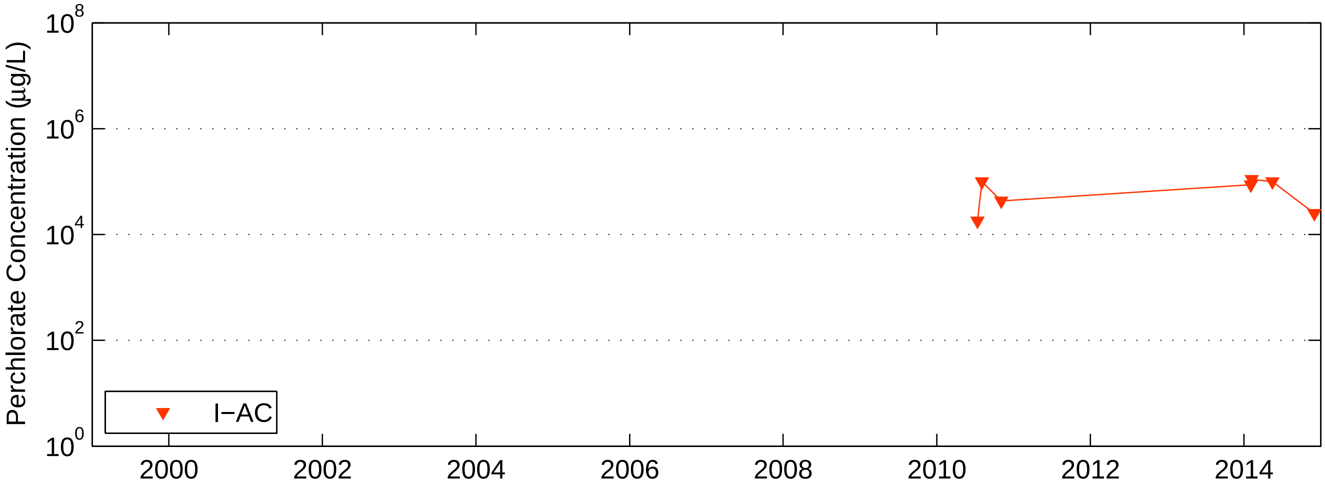
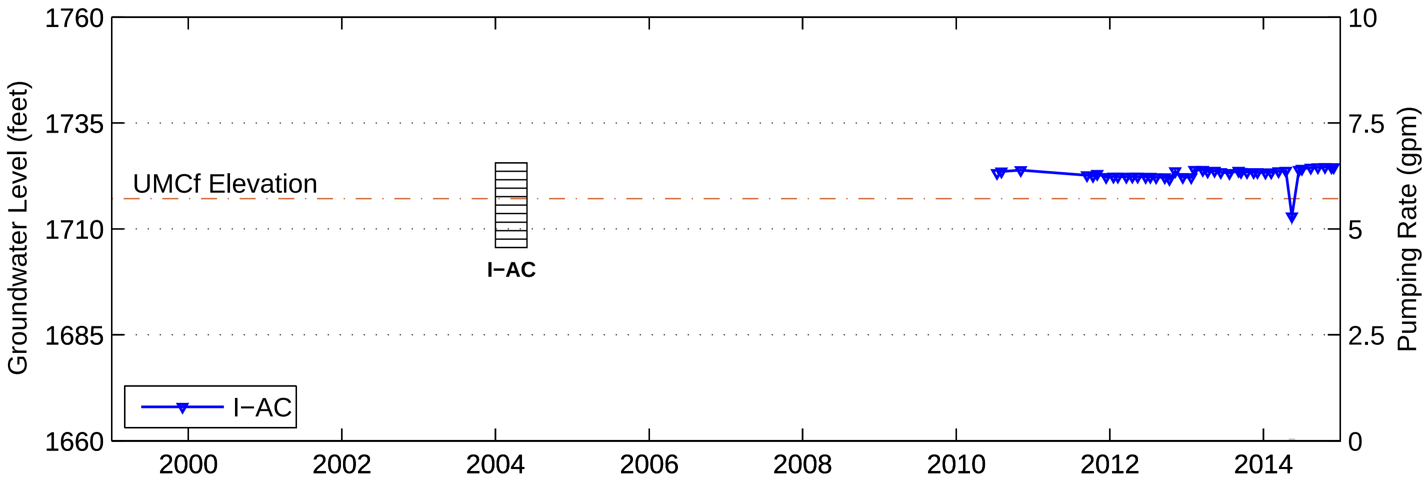
I−AC (Location: N5050 ft, E793 ft)
I−AC:Qal/UMCf [1725.6−1705.6 ft]

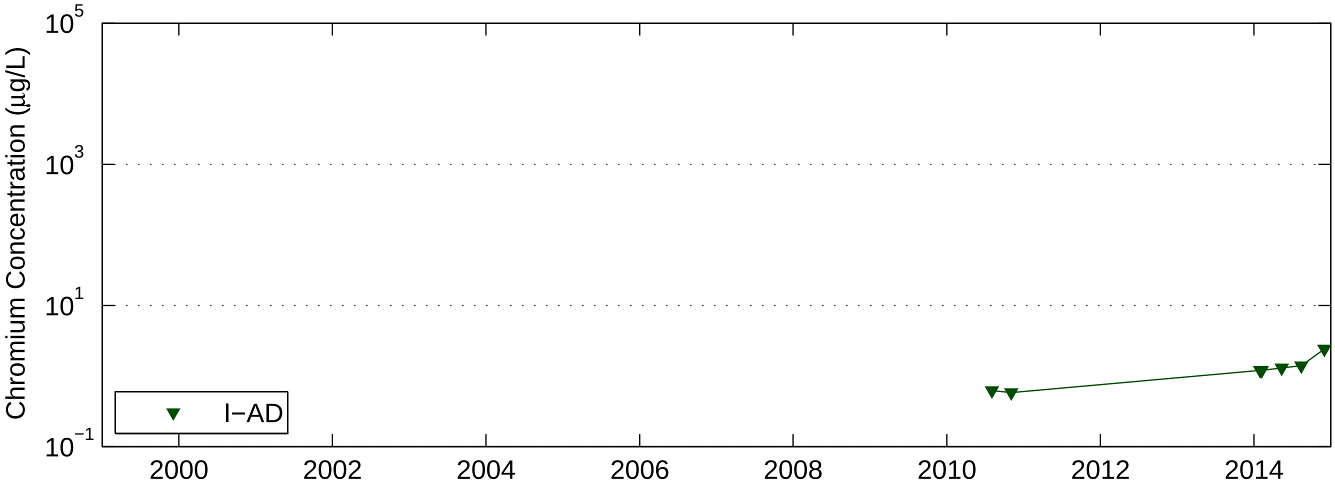


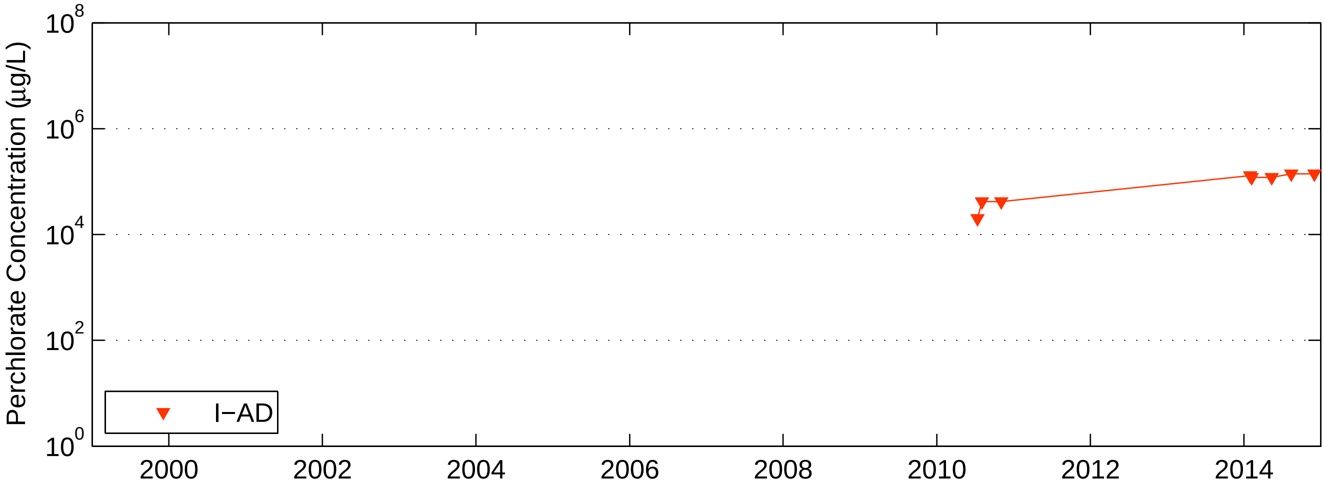


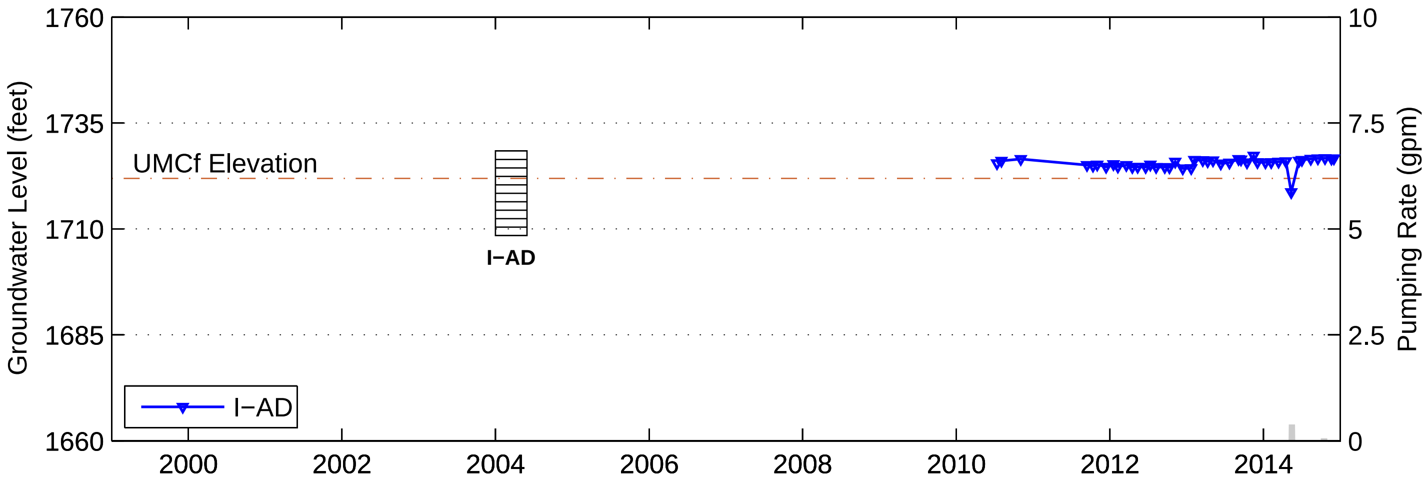


ENVIRON

I−AD (Location: N4955 ft, E807 ft)
I−AD:Qal/UMCf [1728.4−1708.4 ft]

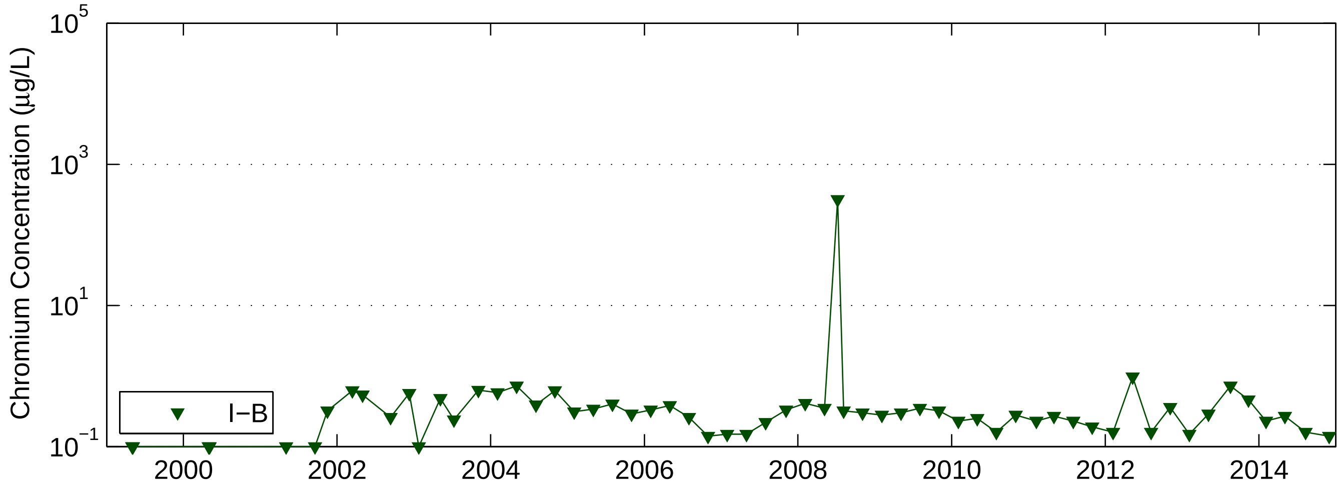


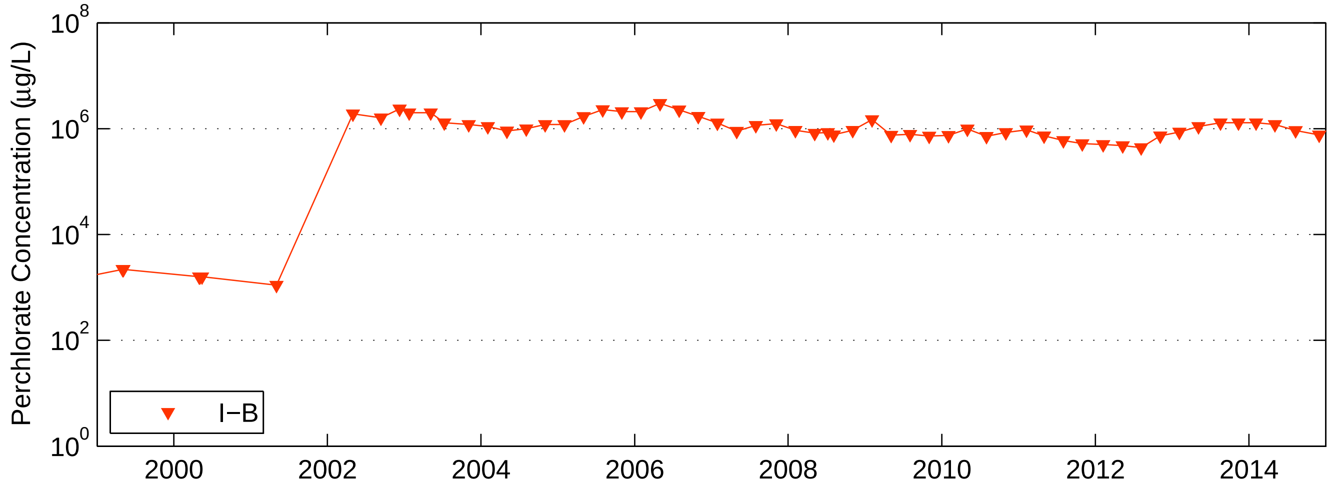


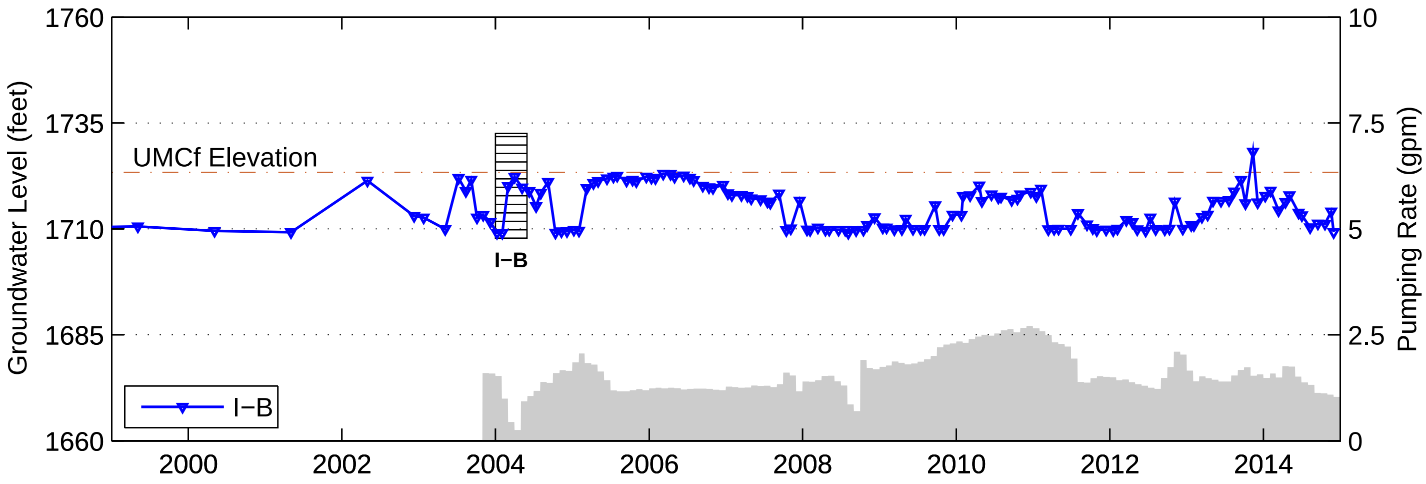


ENVIRON

I−B (Location: N4968ft, W717ft)
I−B:Qal/xMCf/UMCf [1732.5−1707.8 ft]

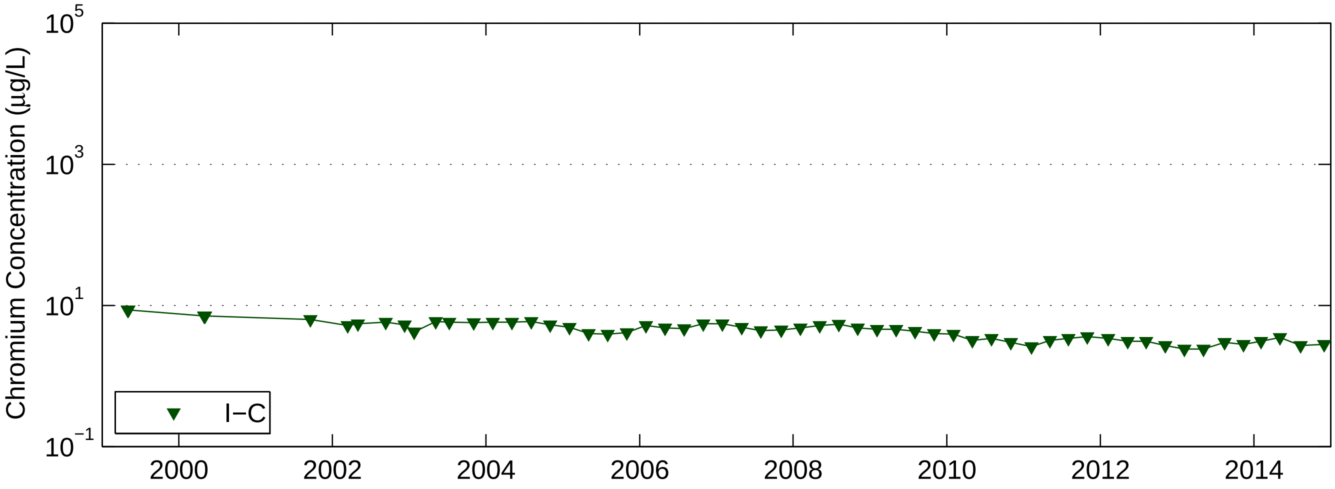


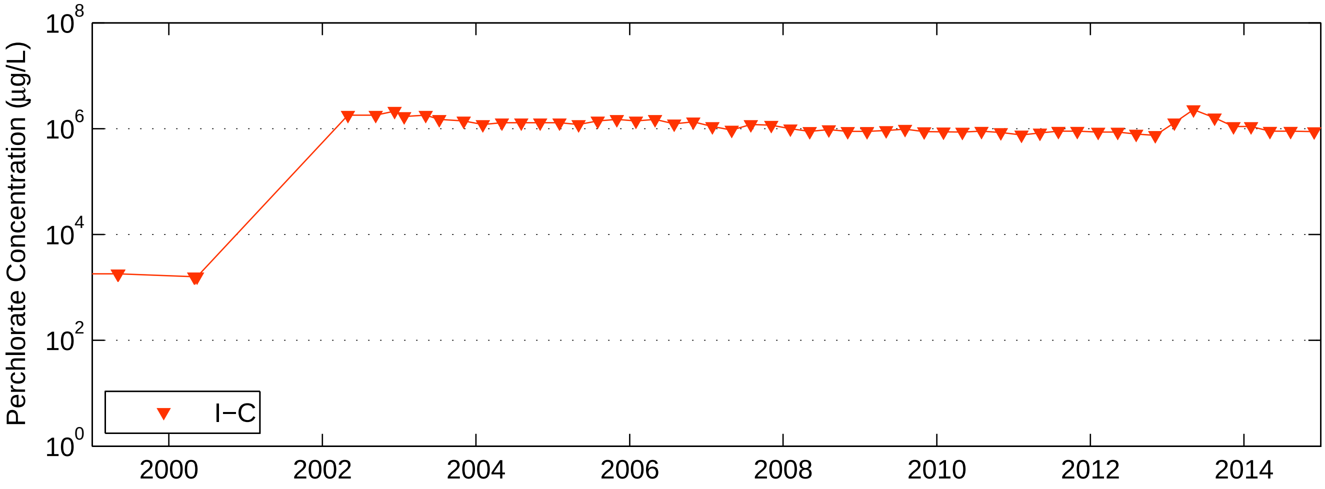


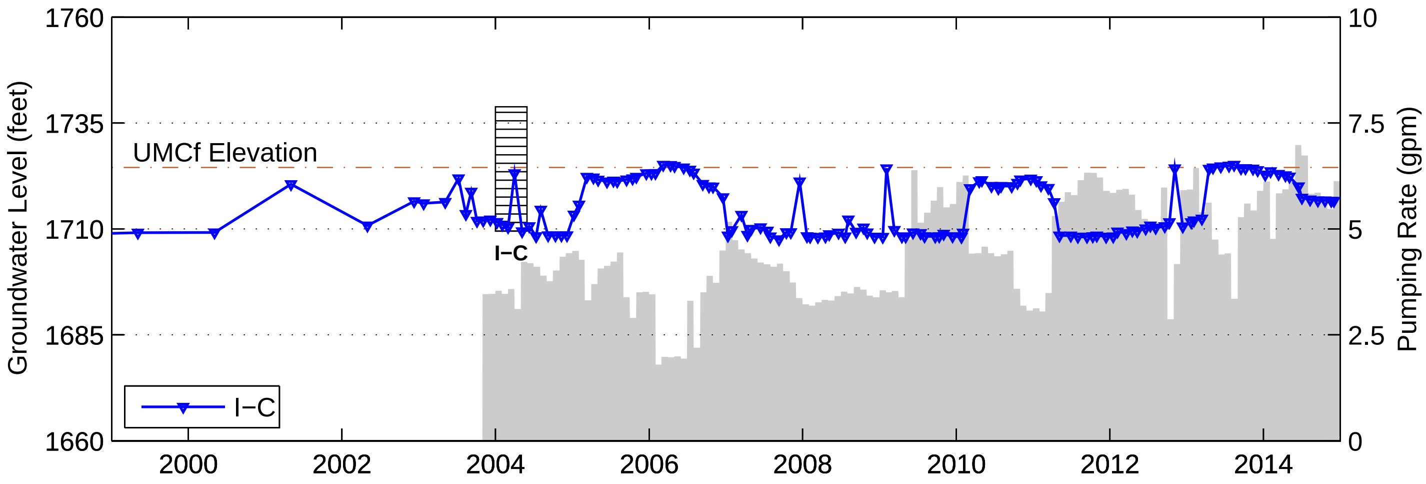


ENVIRON

I−C (Location: N4952ft, W514ft)
I−C:UMCf [1738.8−1709.5 ft]

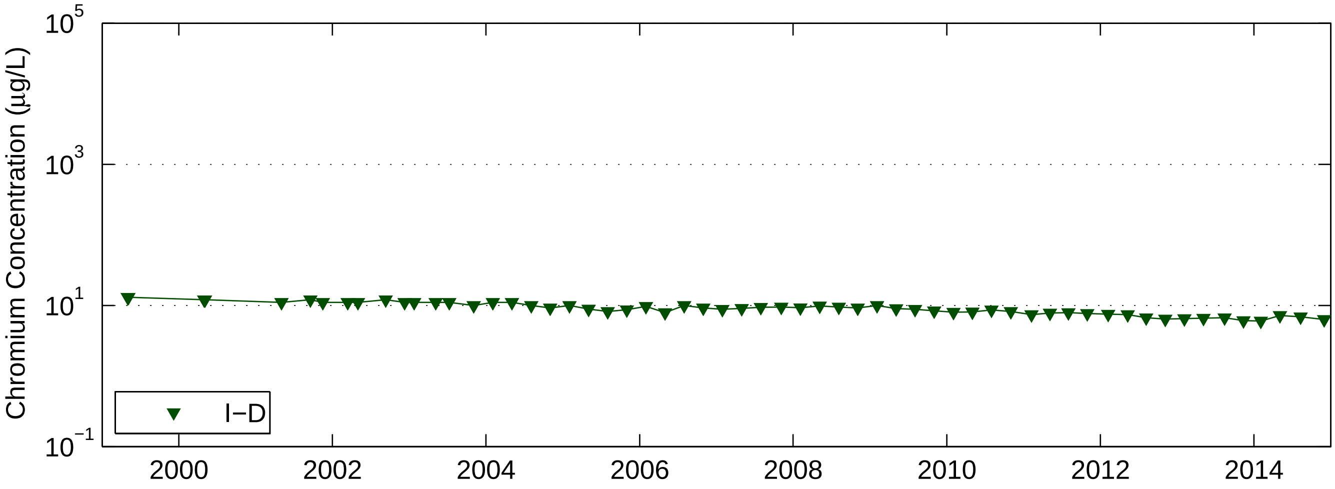


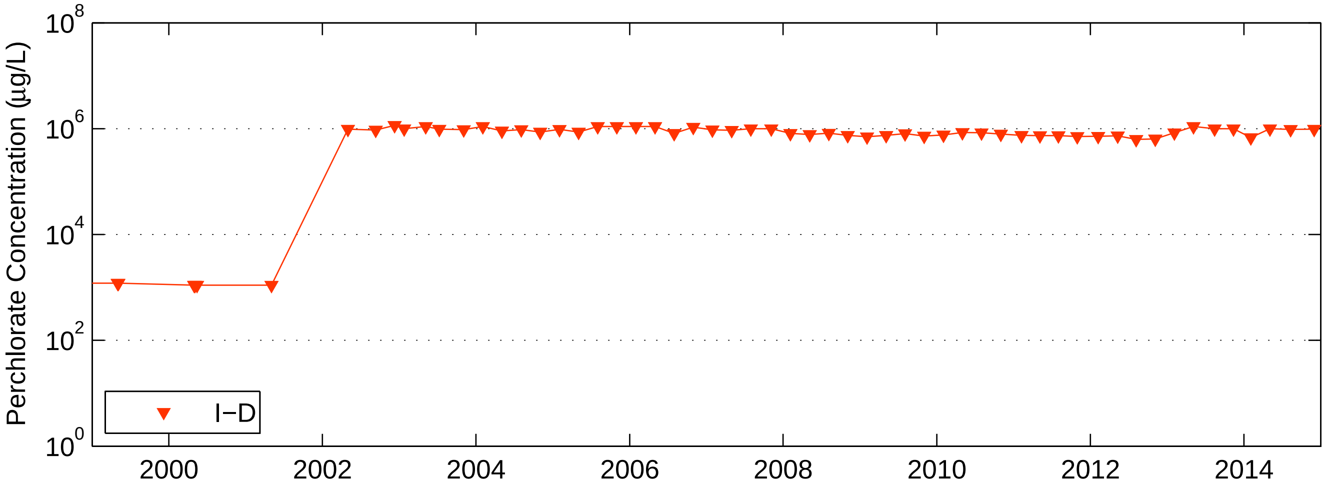


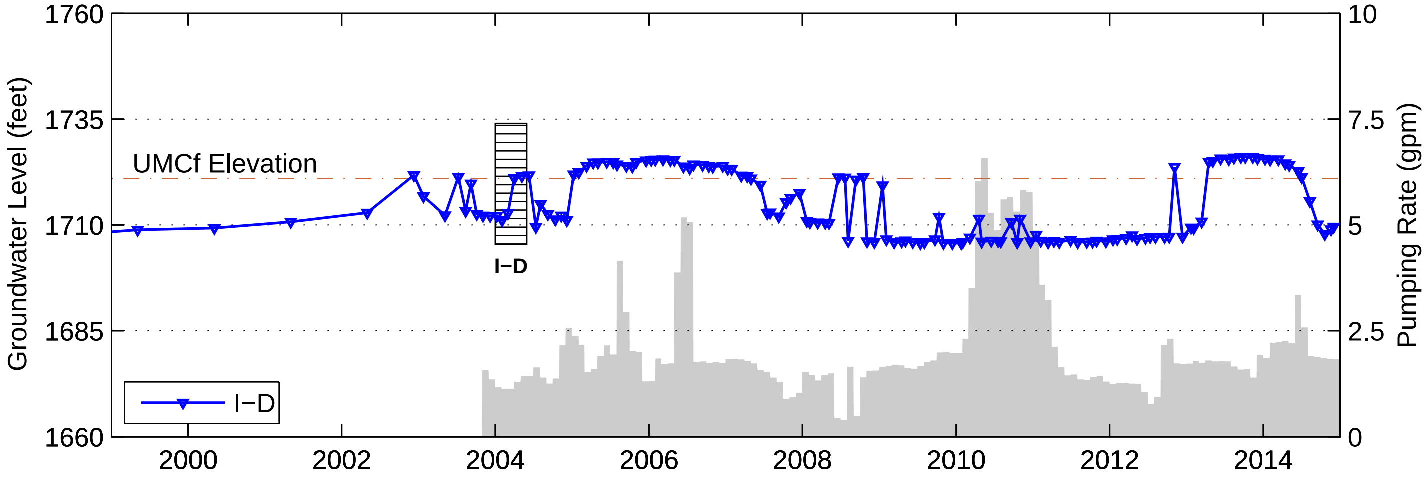


ENVIRON

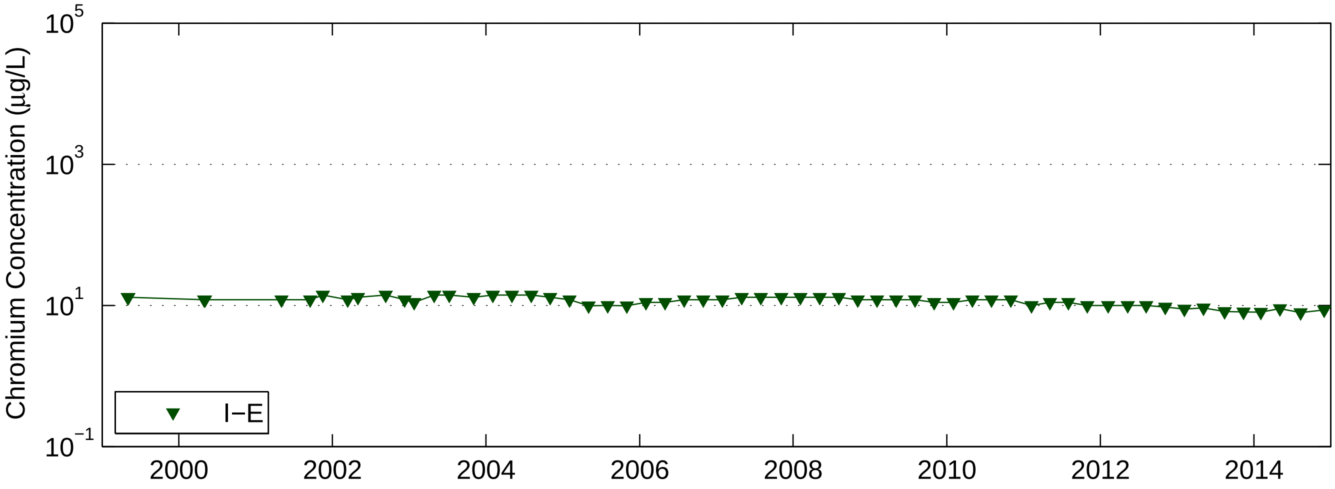
I−D (Location: N4965ft, W418ft)
I−D:Qal/xMCf/UMCf [1734−1705.5 ft]

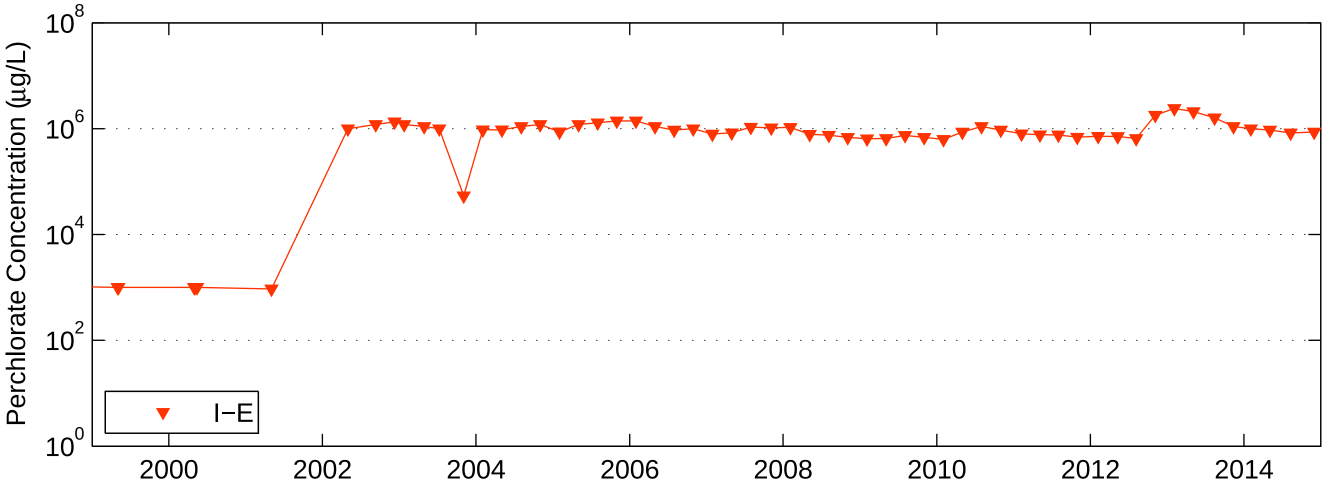


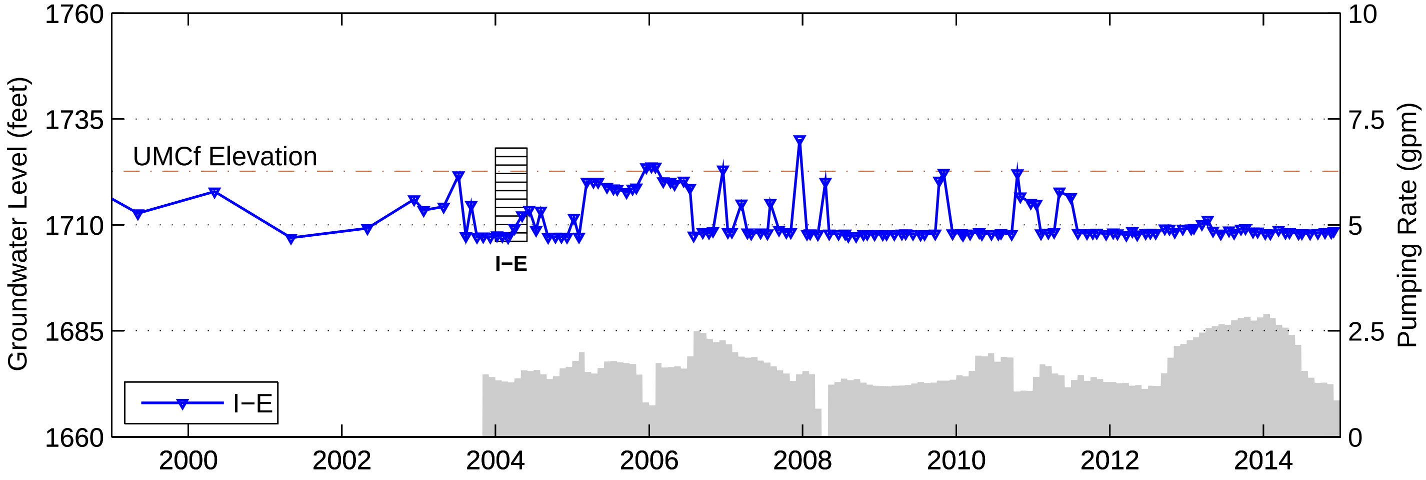




I−E (Location: N4985ft, W267ft)
I−E:UMCf [1728.1−1706.1 ft]

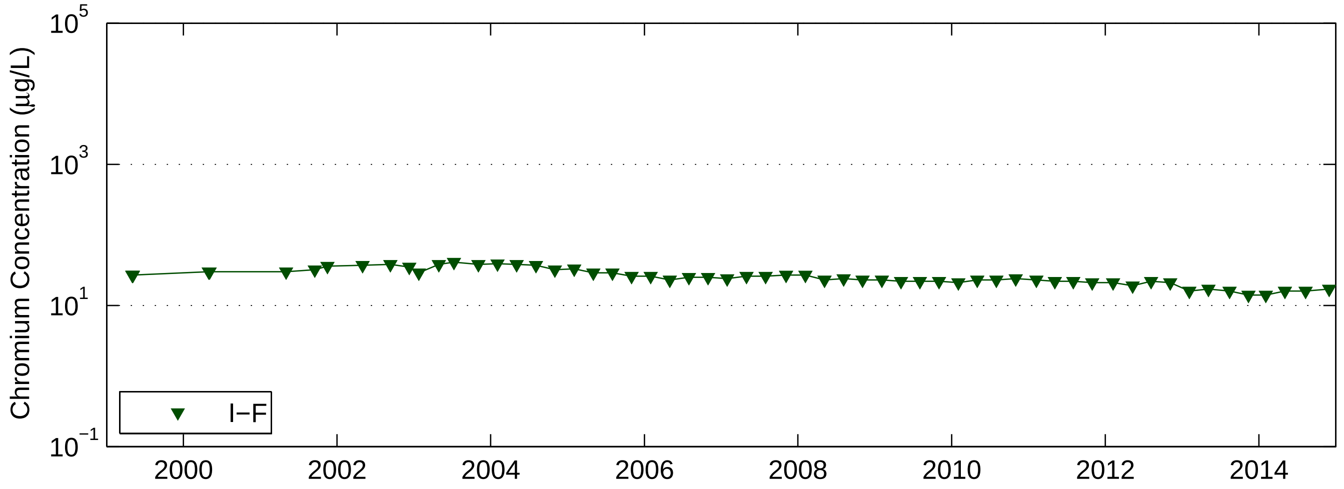


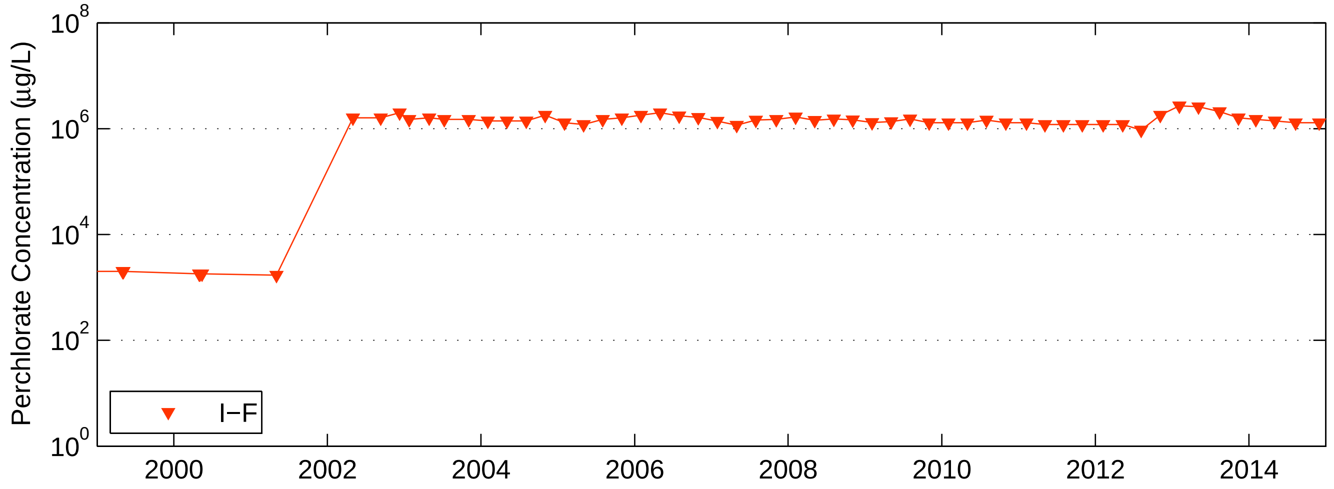


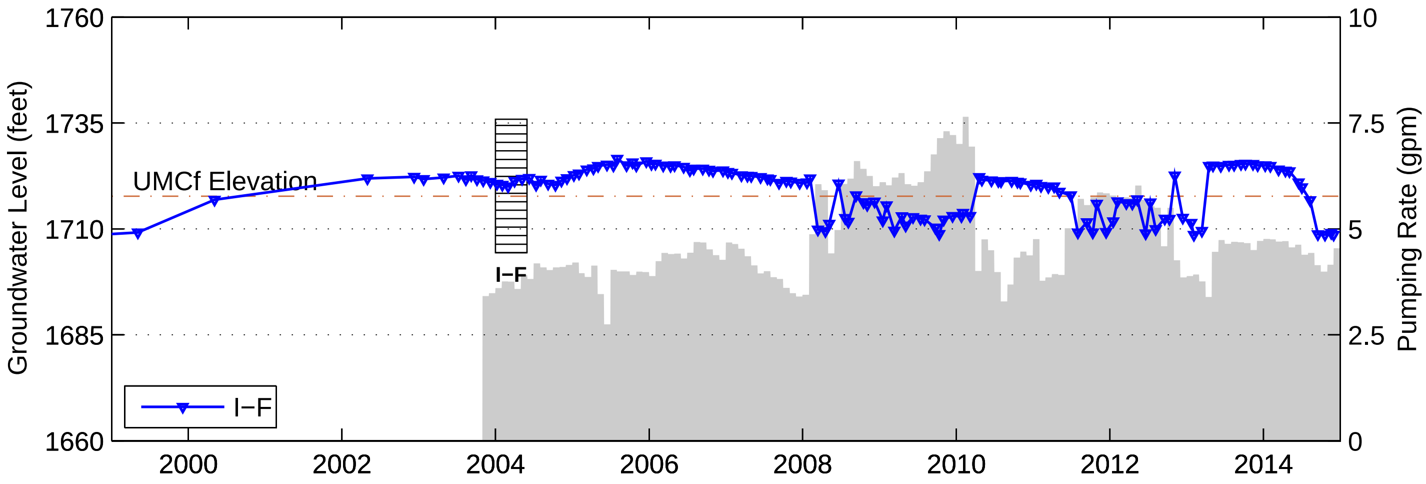


ENVIRON

I−F (Location: N5006ft, W120ft)
I−F:Qal/xMCf/UMCf [1735.9−1704.4 ft]

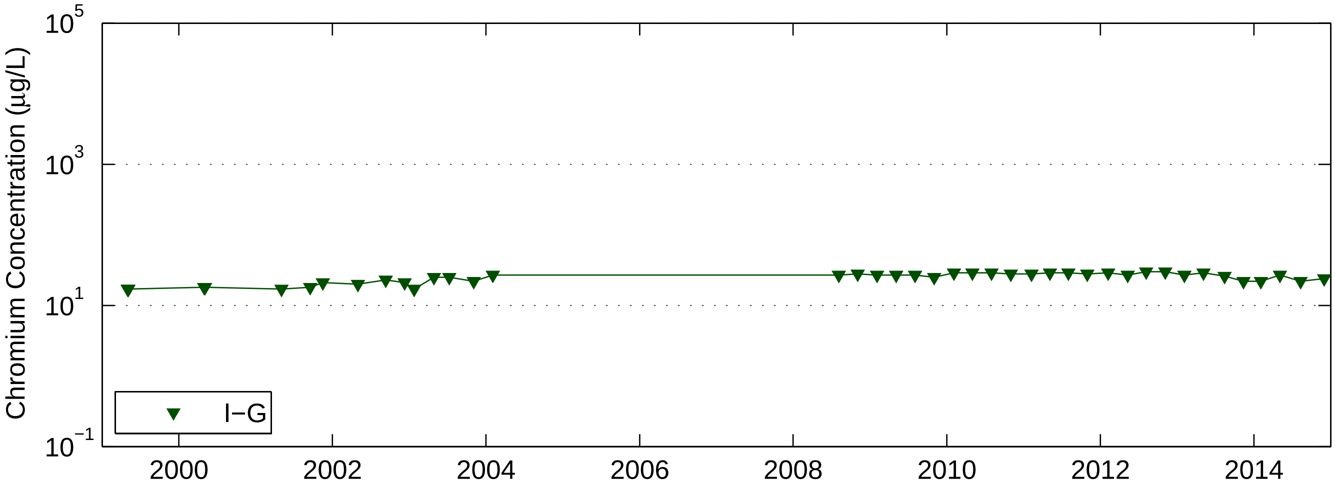


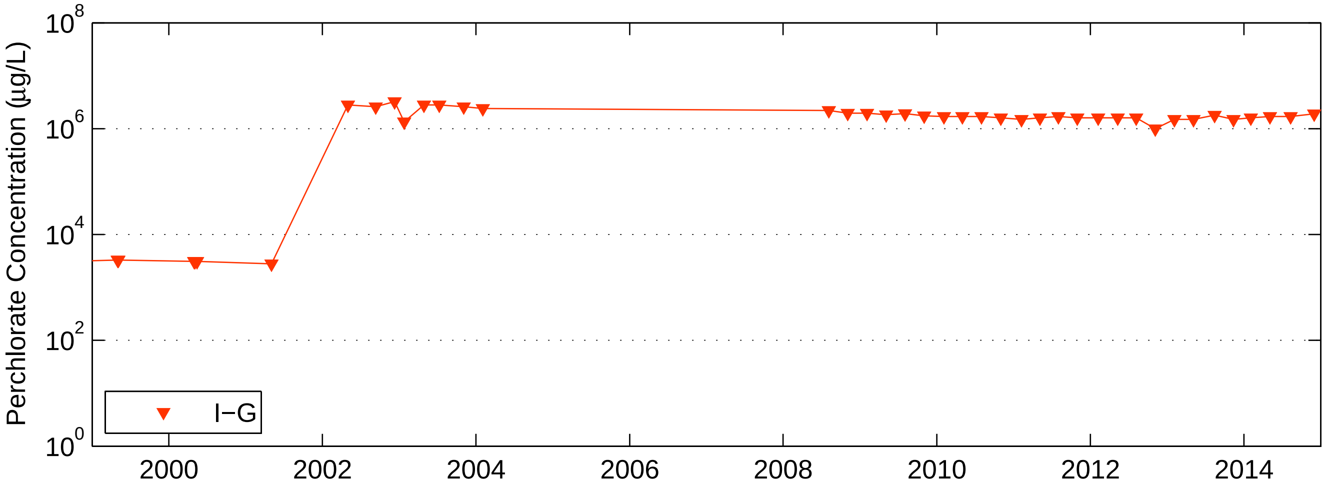


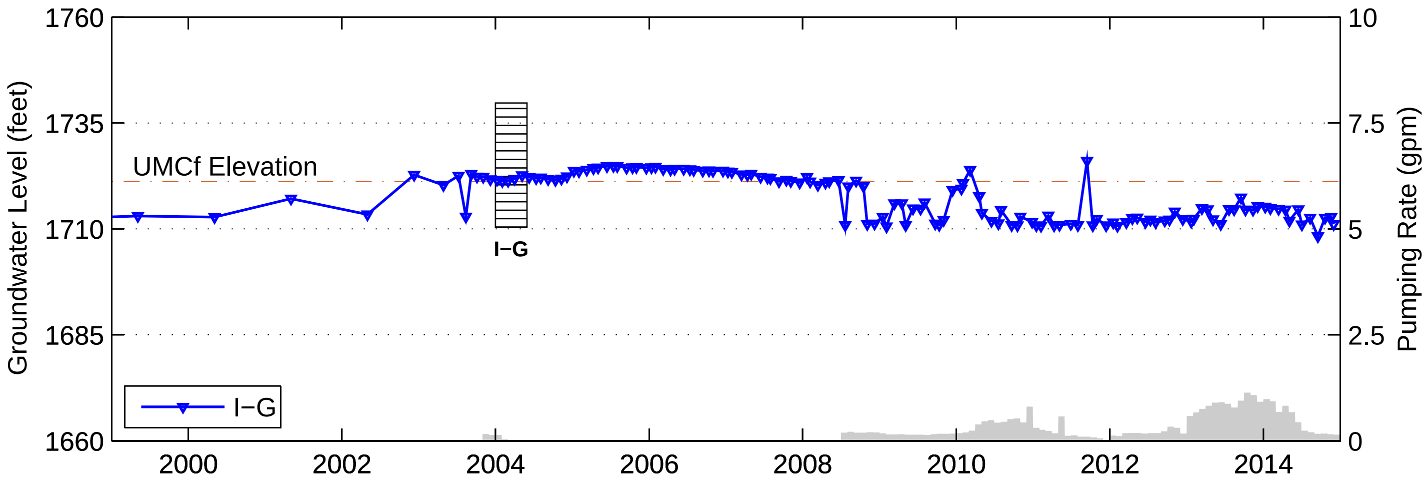


ENVIRON

I−G (Location: N5026 ft, E31 ft)
I−G:Qal/xMCf/UMCf [1739.7−1710.4 ft]

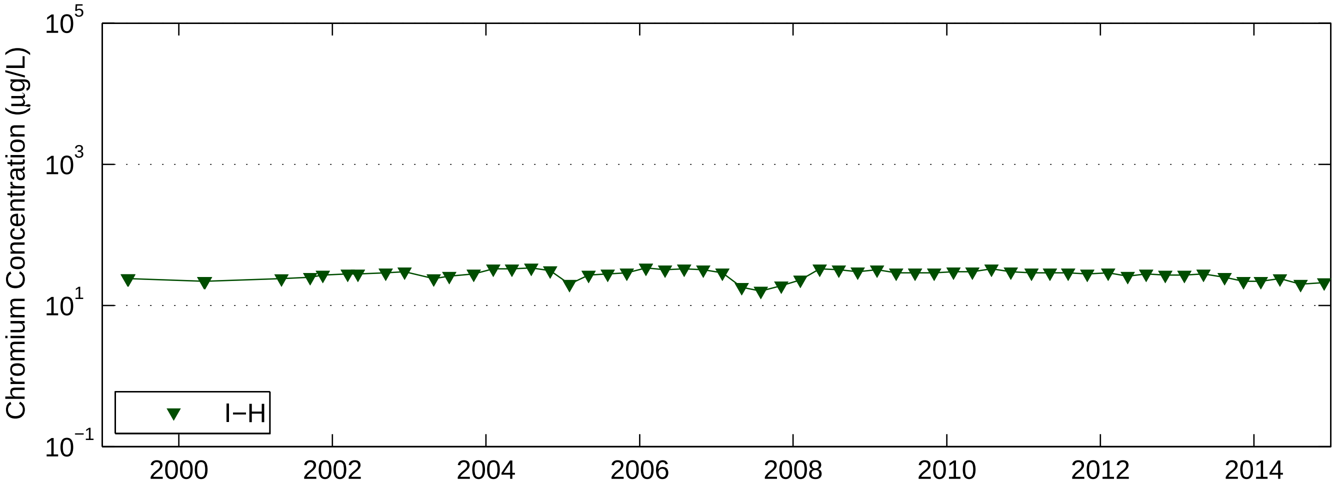


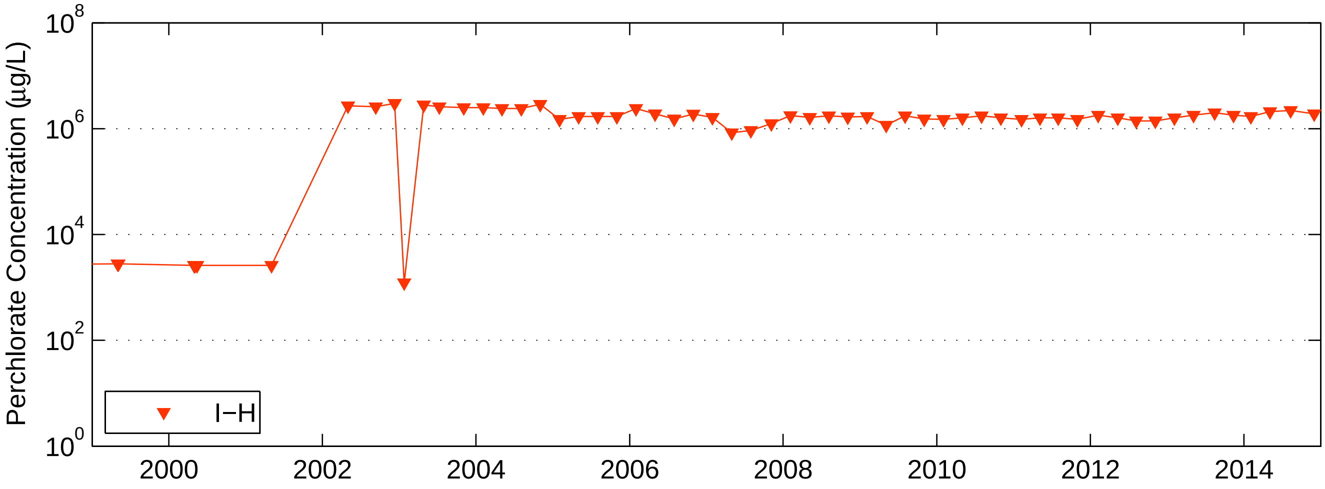


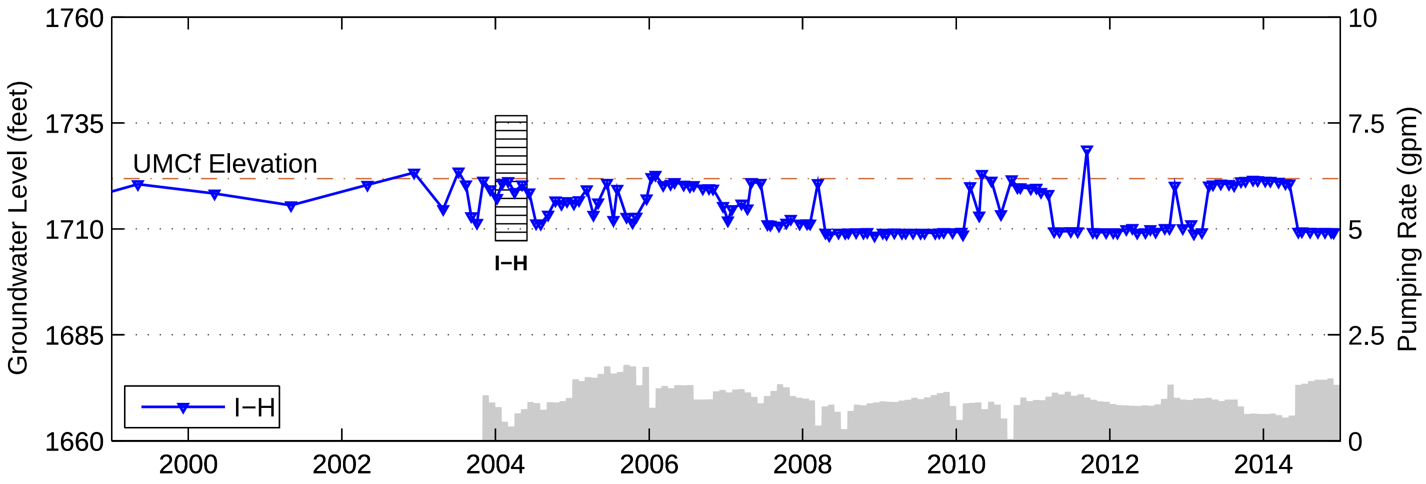


I−H (Location: N5047 ft, E178 ft)

I−H:UMCf [1736.7−1707.2 ft]

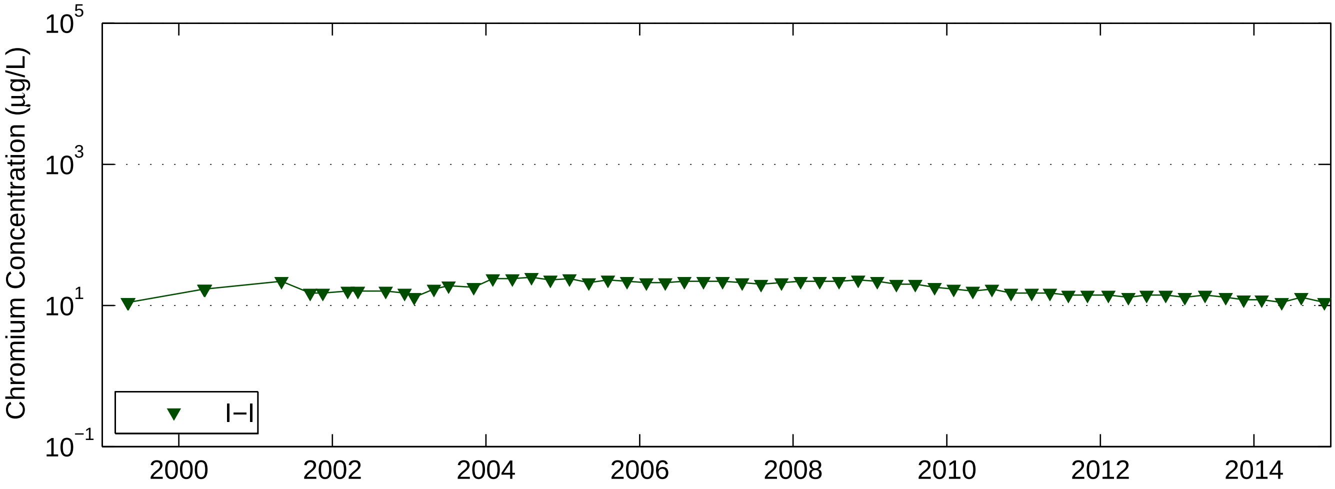


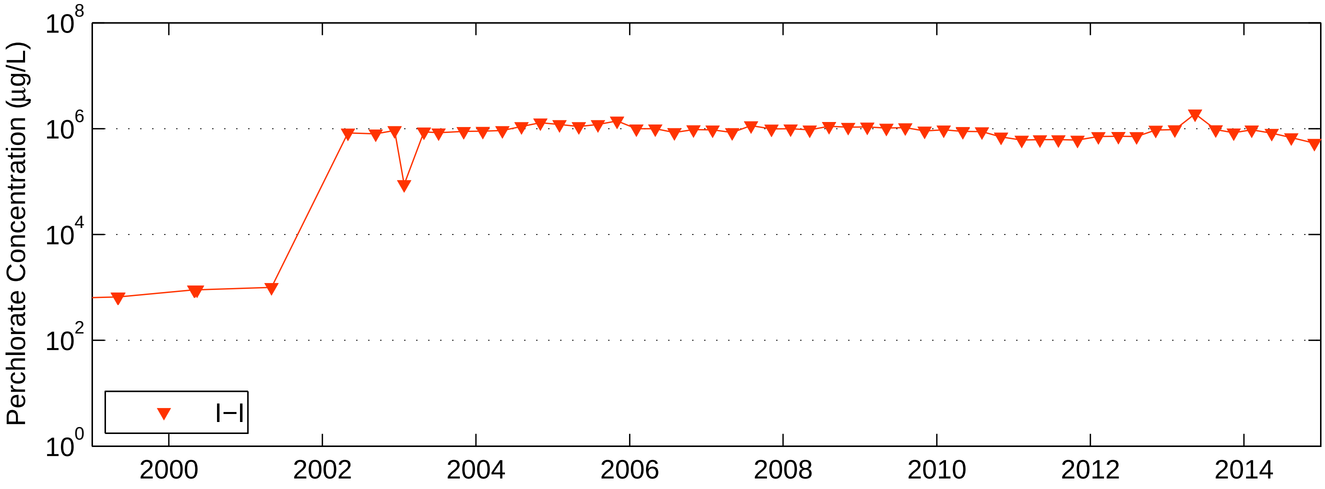


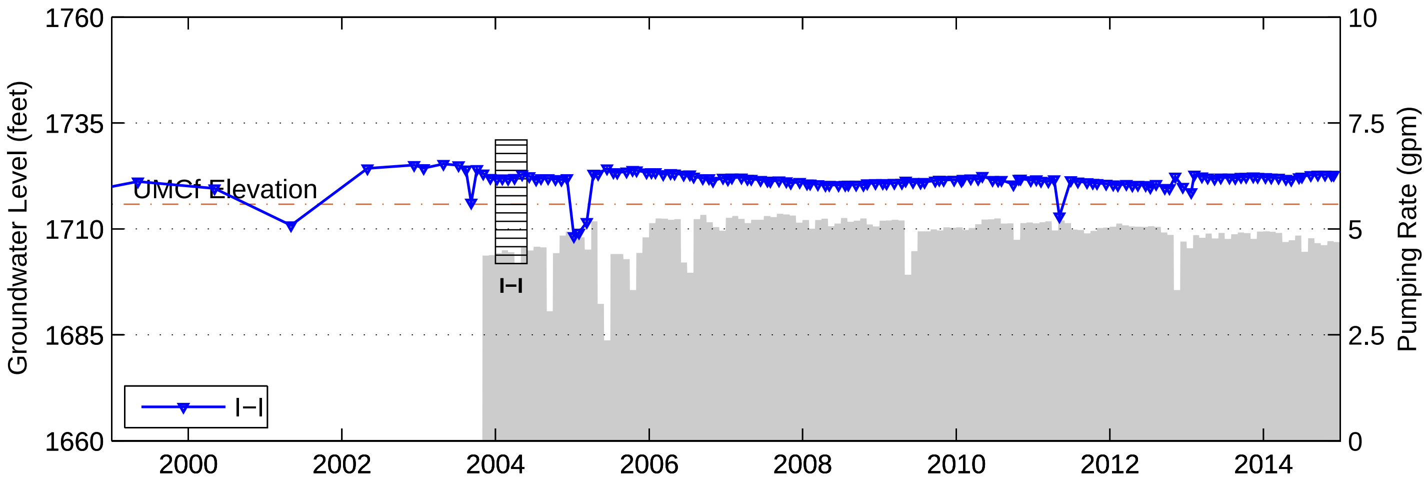


ENVIRON

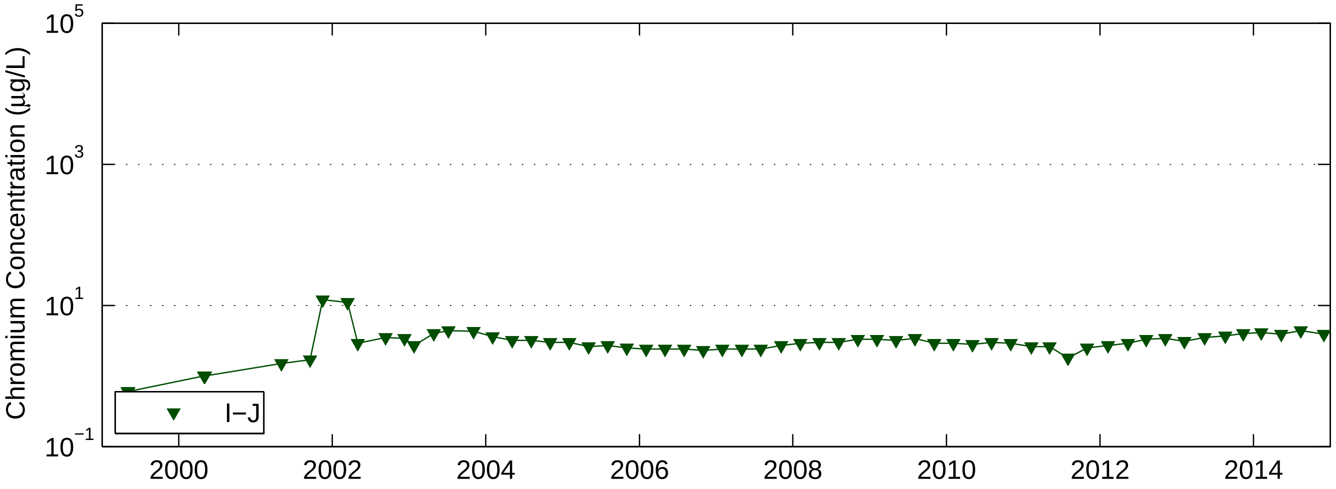
I–I (Location: N5074 ft, E375 ft)
I–I:Qal/xMCf/UMCf [1731−1701.8 ft]

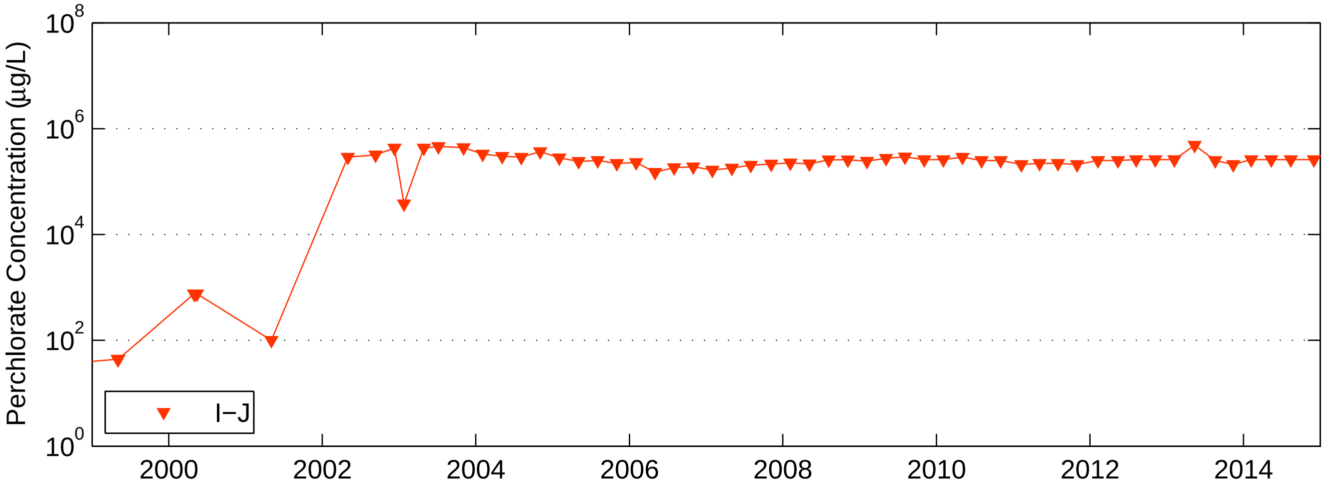


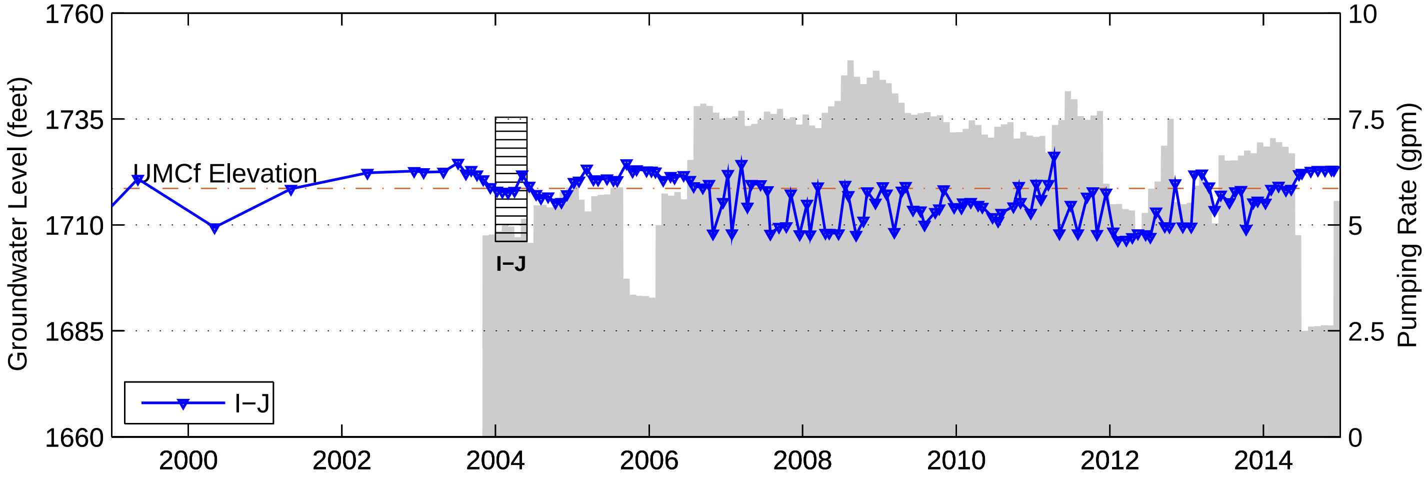




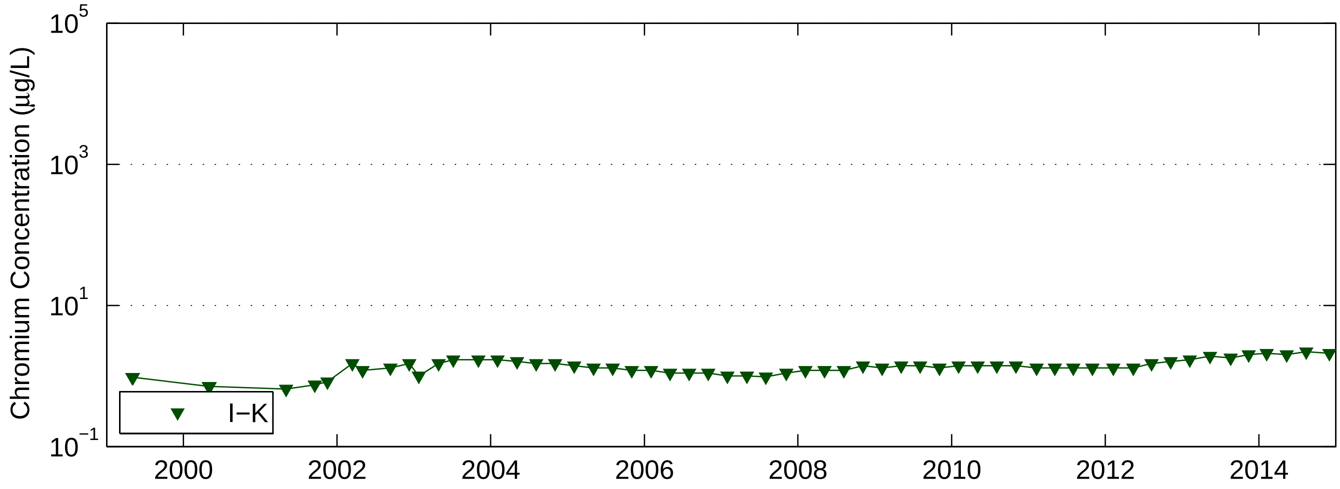
I–J (Location: N5100 ft, E574 ft)
I–J:Qal/xMCf/UMCf [1735.4–1706.1 ft]

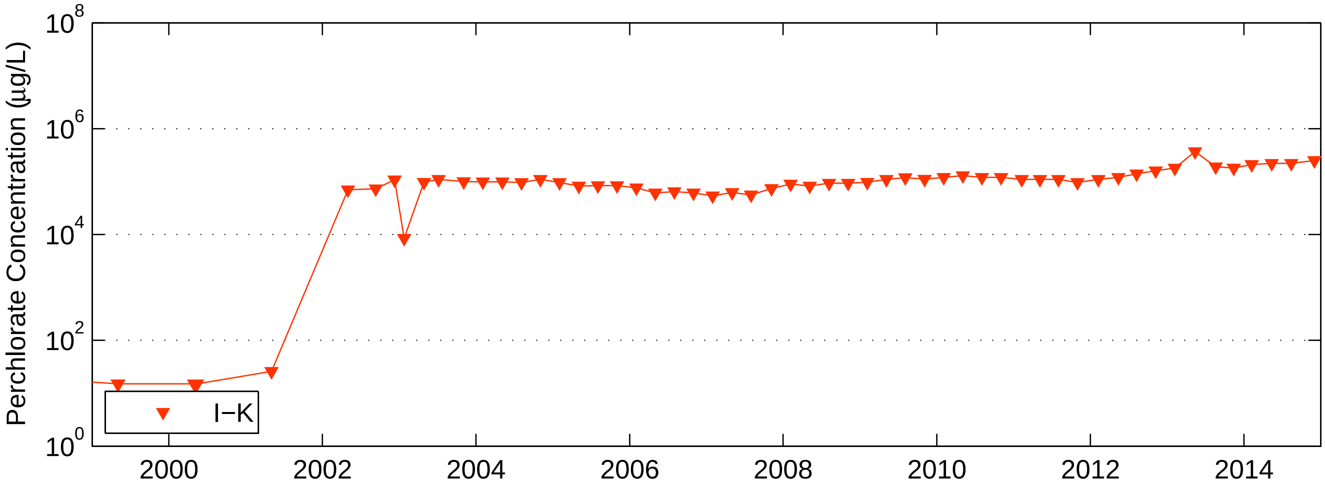


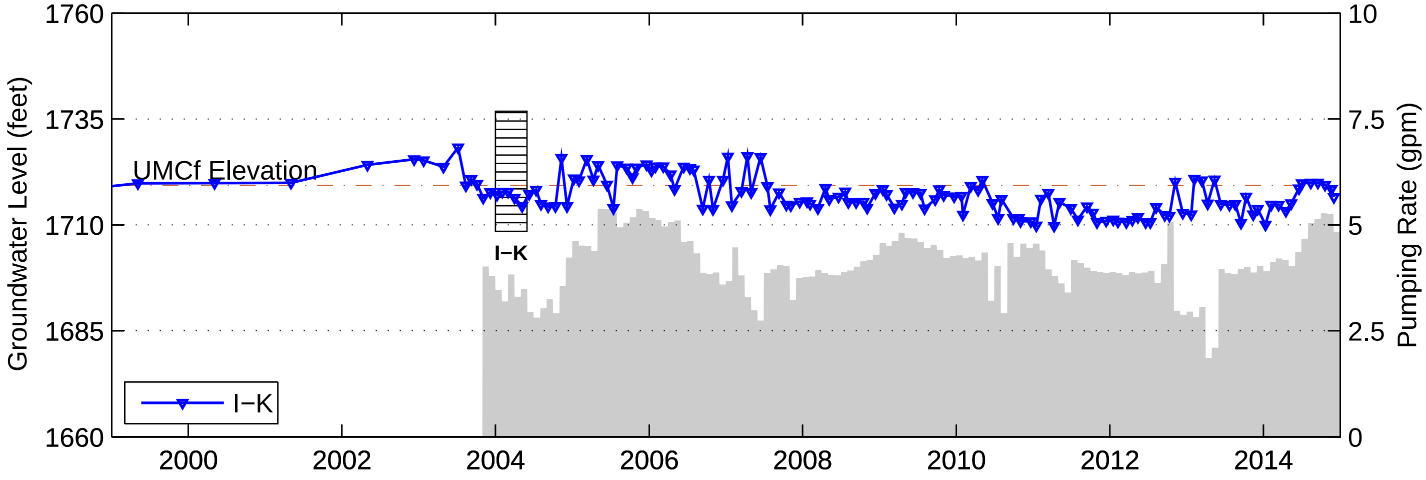




I−K (Location: N5123 ft, E738 ft)
I−K:UMCf [1736.8−1708.5 ft]

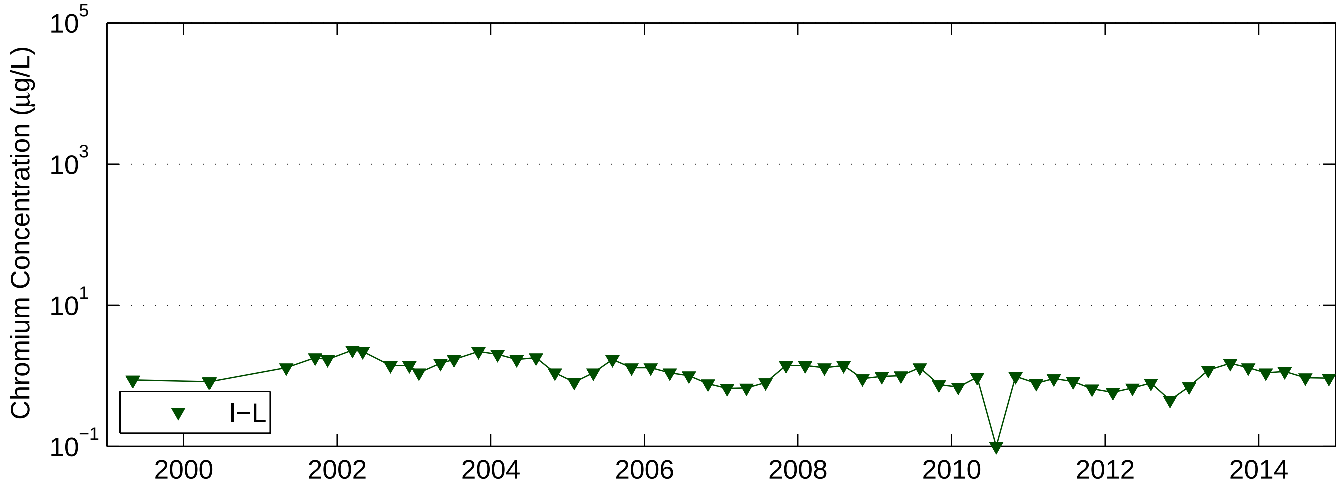


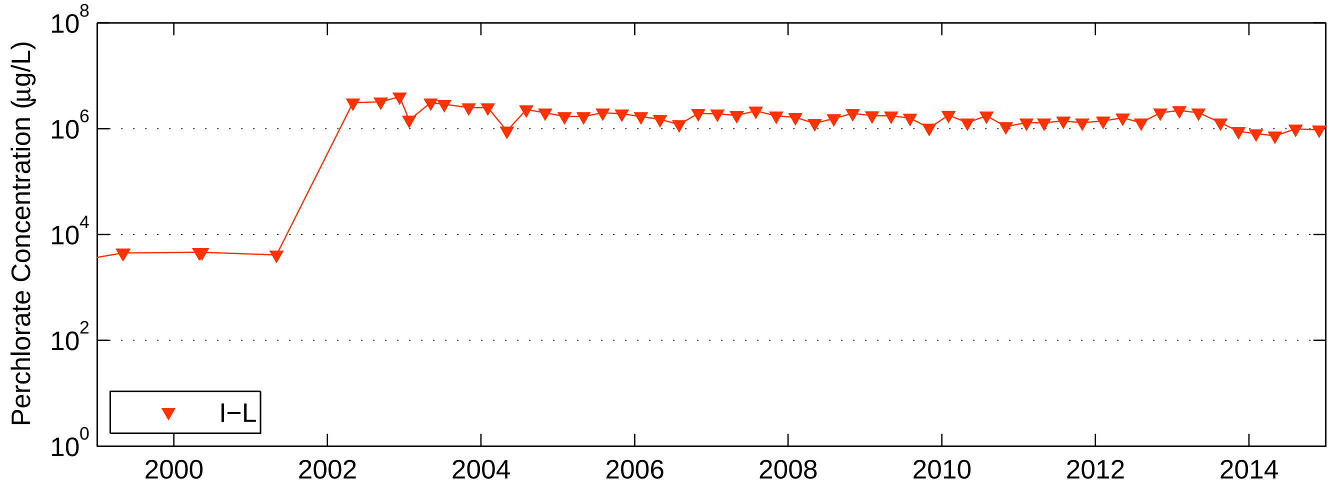


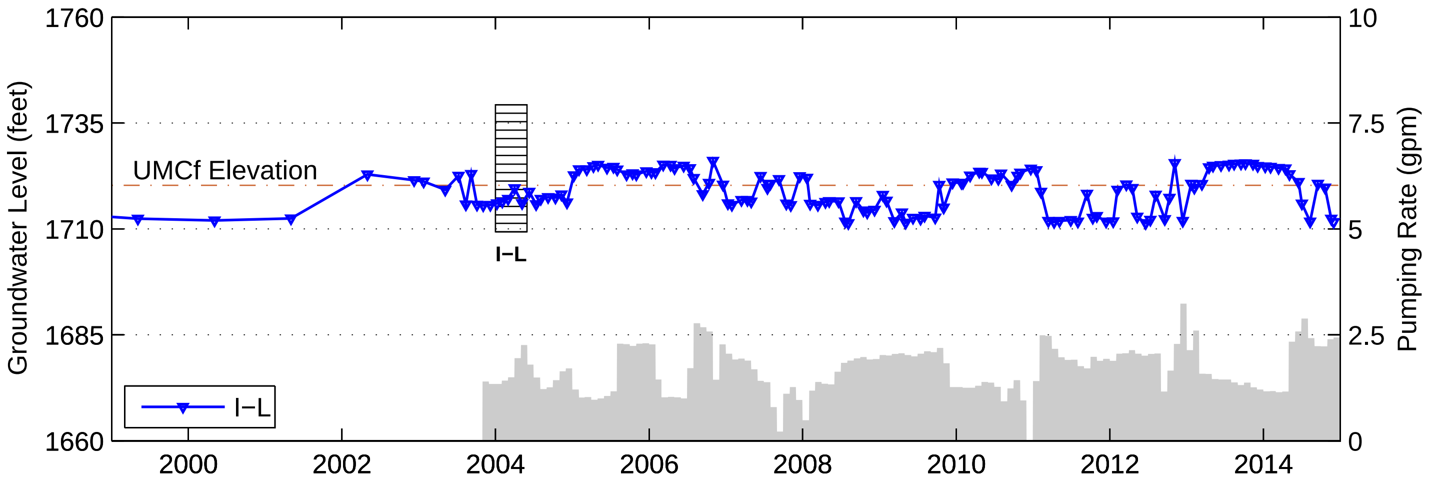


ENVIRON

I−L (Location: N4963ft, W647ft)
I−L:Qal/xMCf/UMCf [1739.3−1709.3 ft]

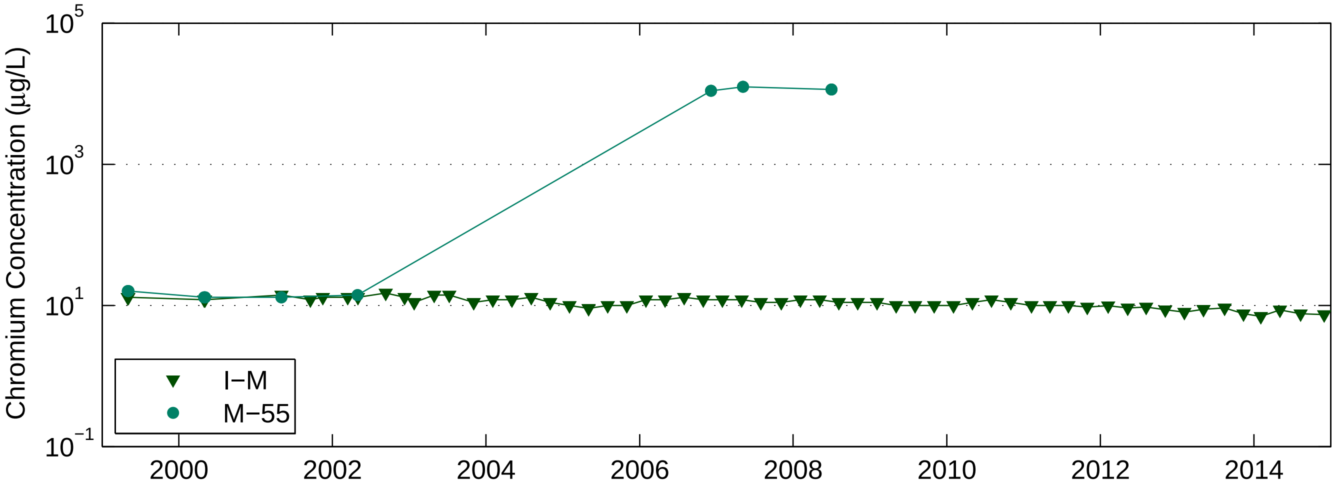


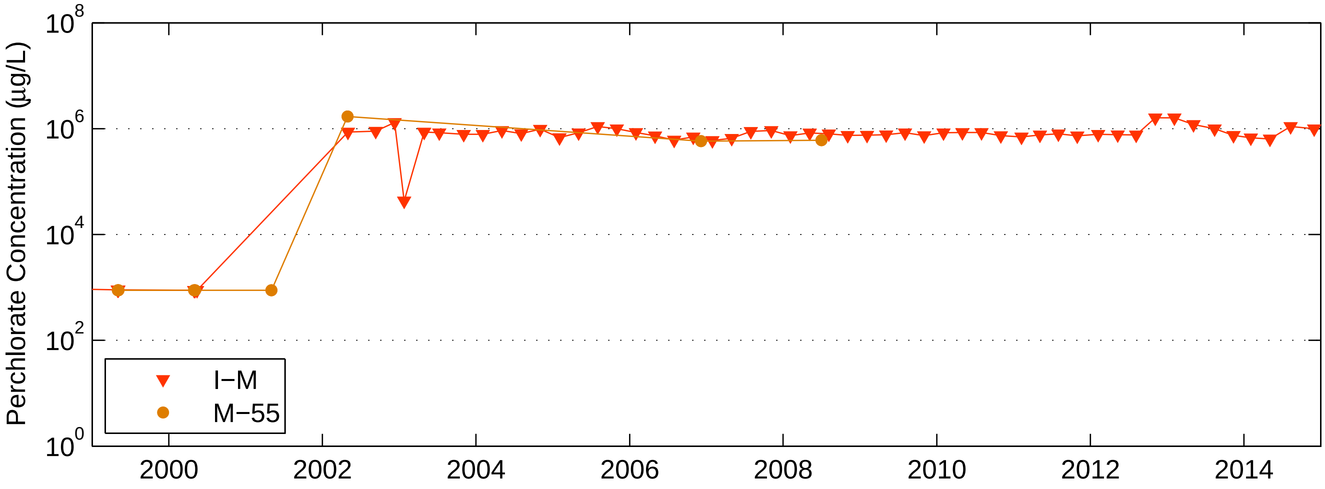


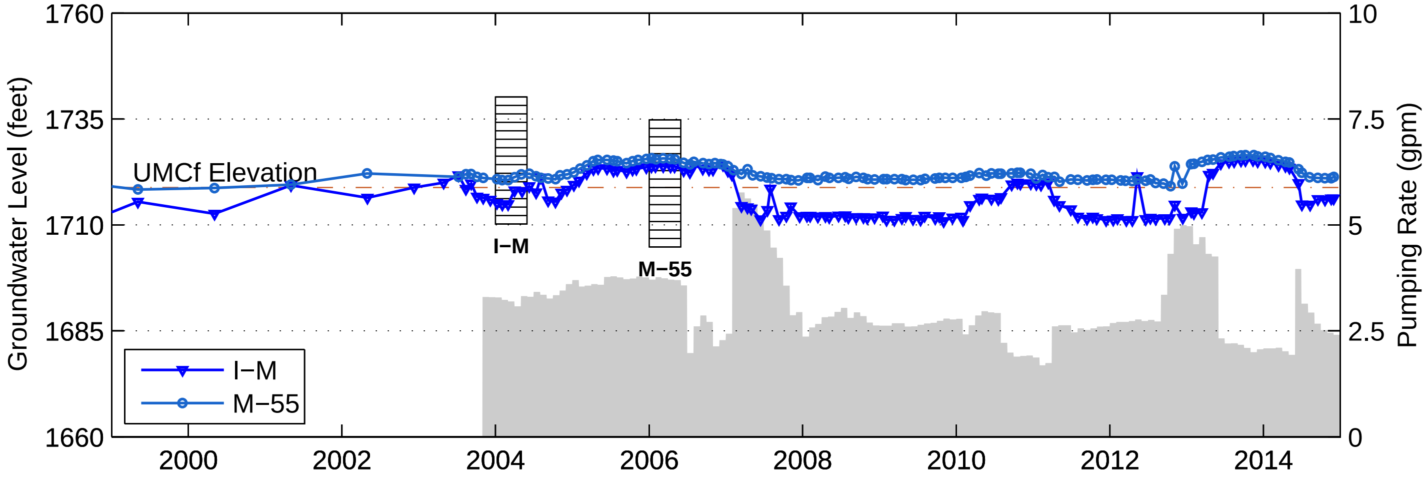


ENVIRON

I−M,M−55 (Location: N4978ft, W324ft)
I−M:Qal/xMCf/UMCf [1740.2−1710.2 ft]
M−55:Qal/xMCf/UMCf [1734.8−1704.8 ft]

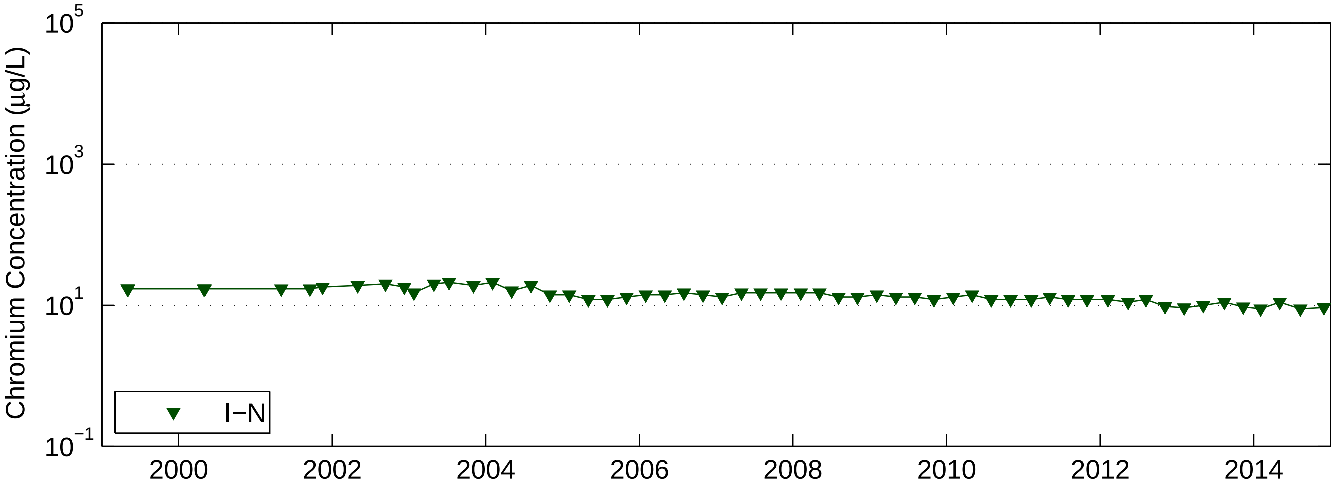


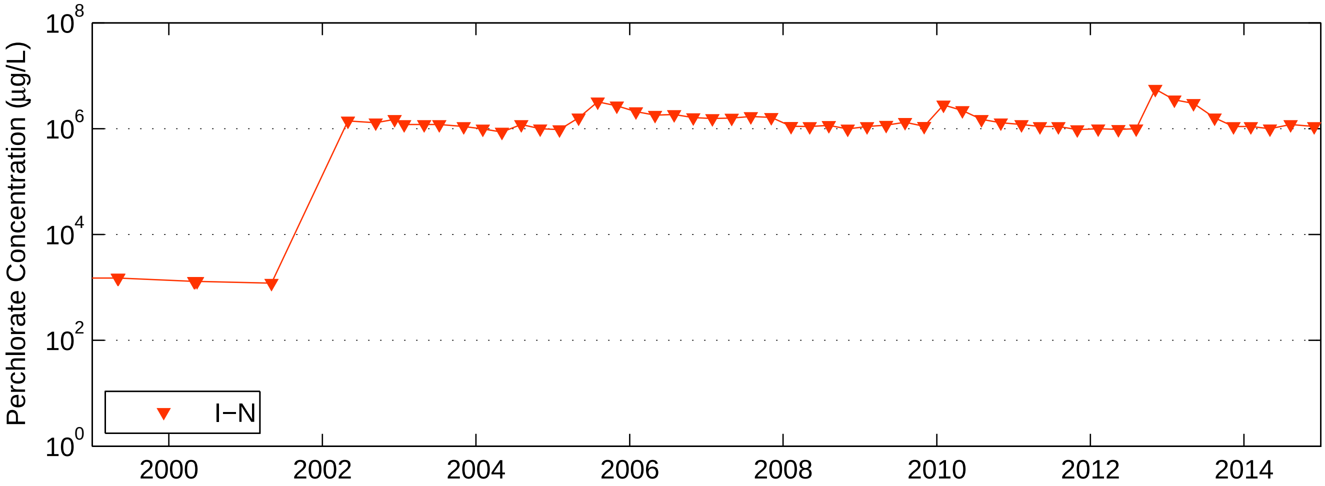


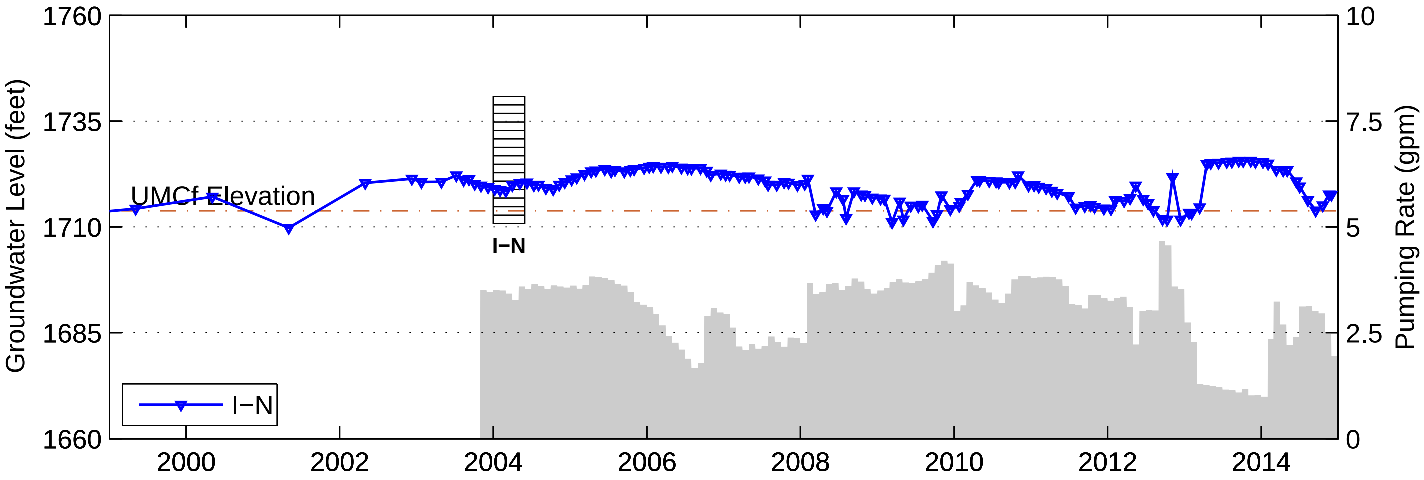


ENVIRON

I−N (Location: N4998ft, W198ft)
I−N:Qal/xMCf/UMCf [1740.8−1710.8 ft]

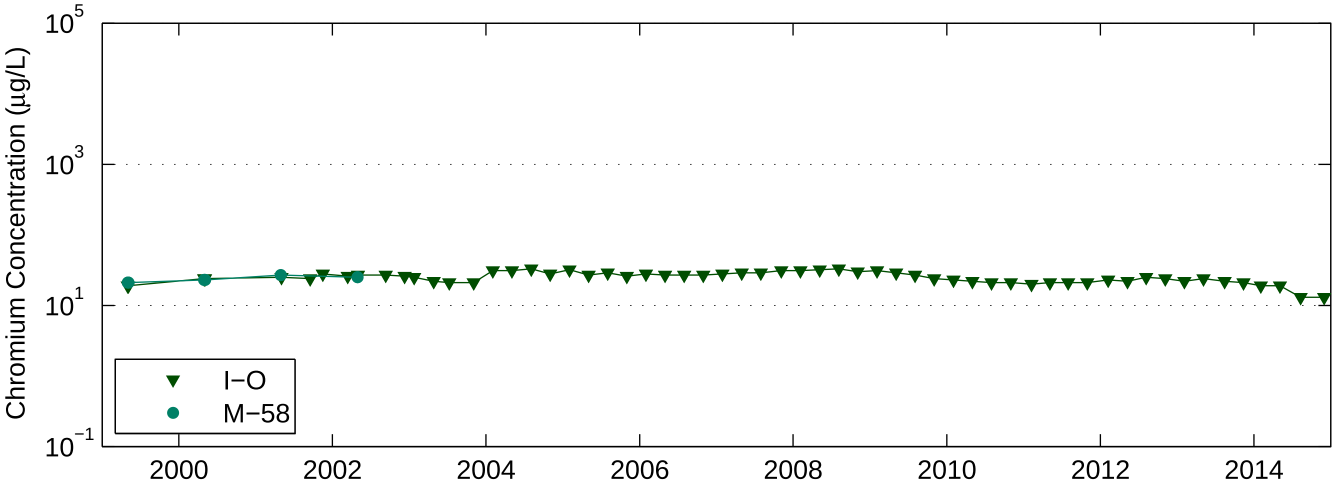


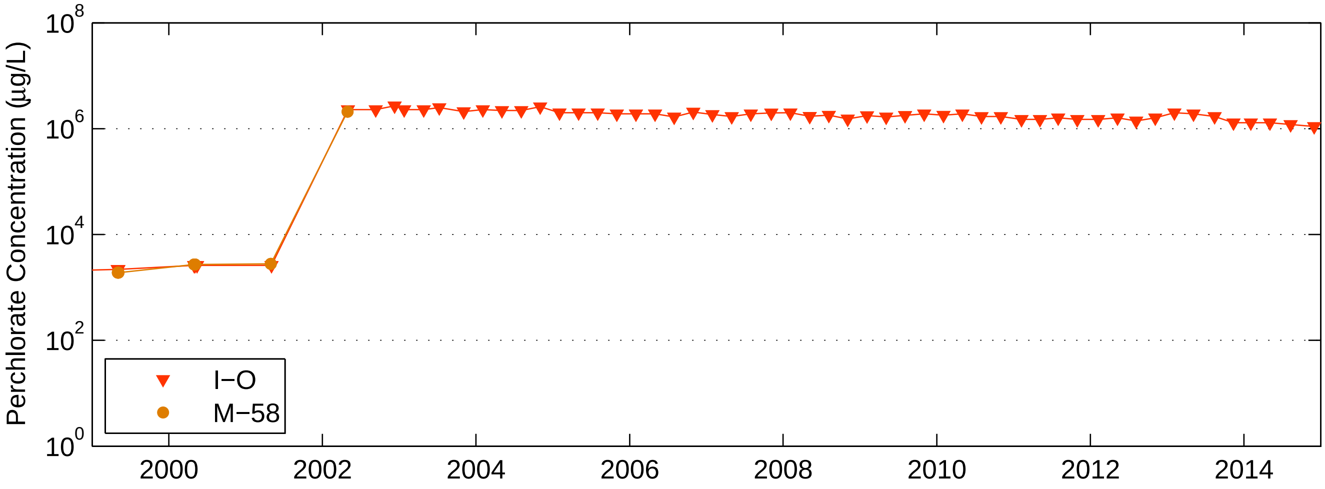


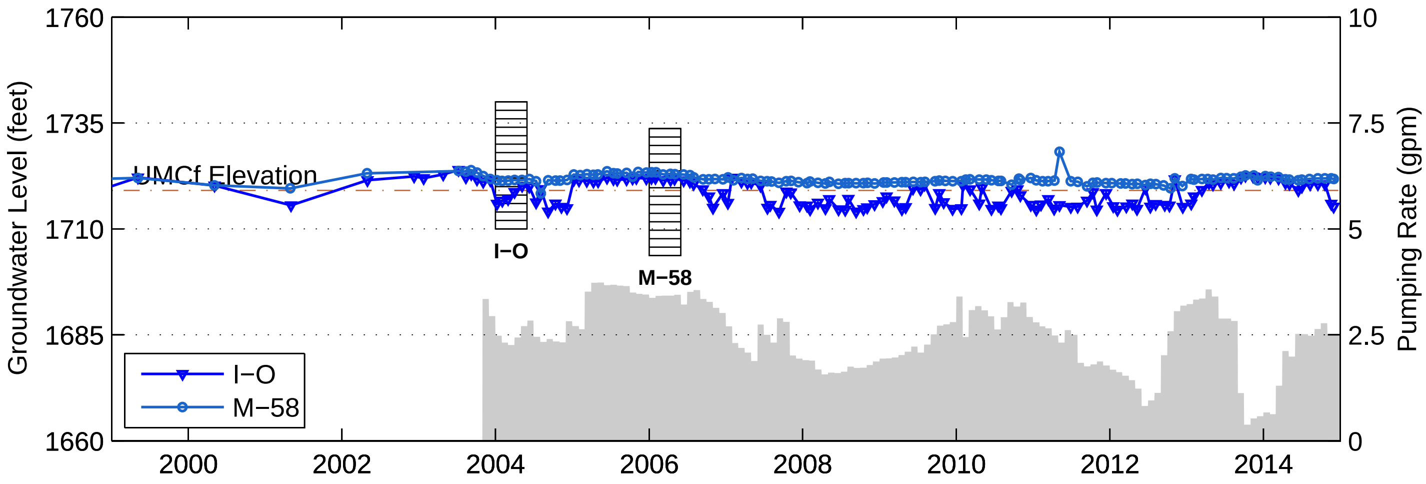


ENVIRON

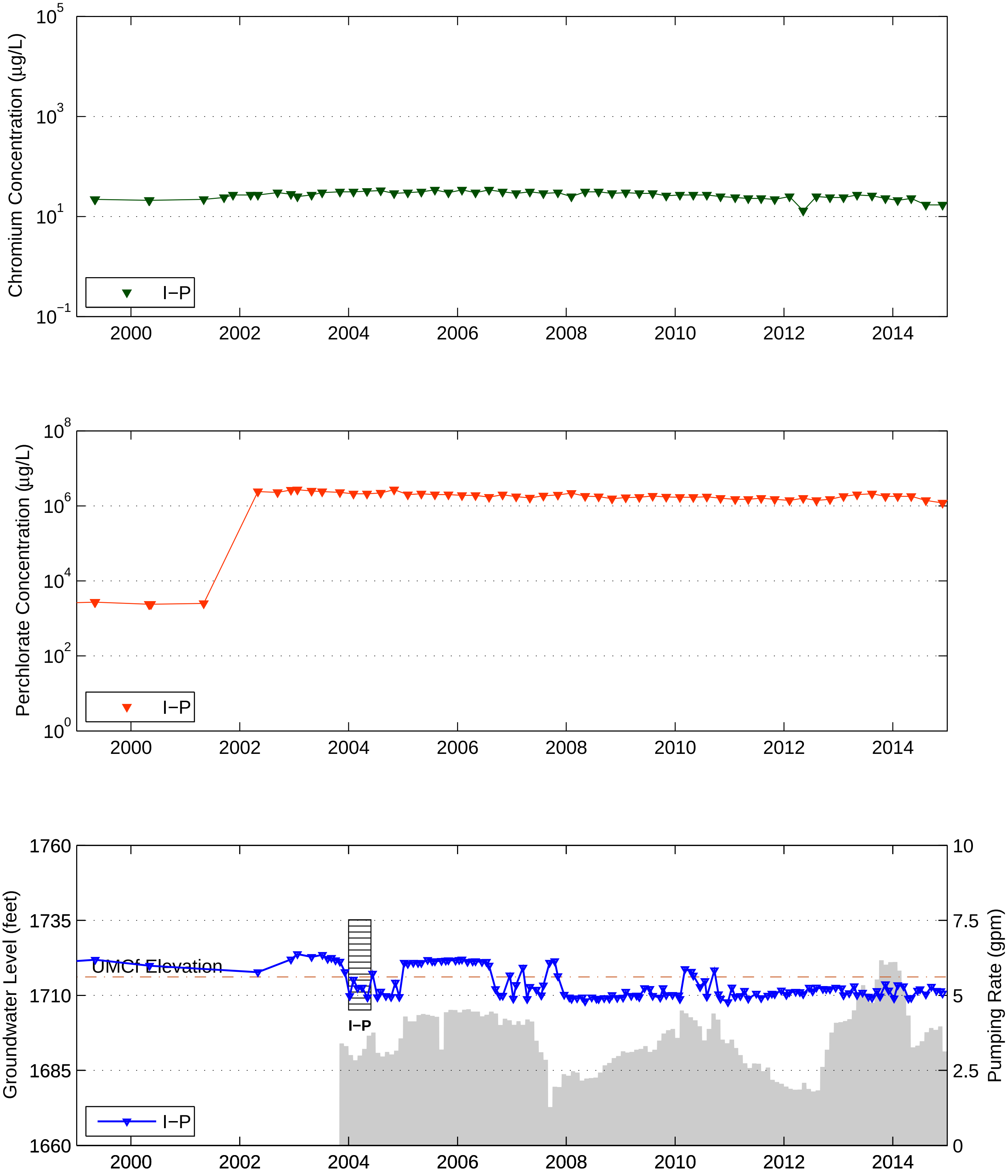
I−O,M−58 (Location: N5059 ft, E270 ft)
I−O:Qal/xMCf/UMCf [1740−1710 ft]
M−58:Qal/xMCf/UMCf [1733.7−1703.7 ft]





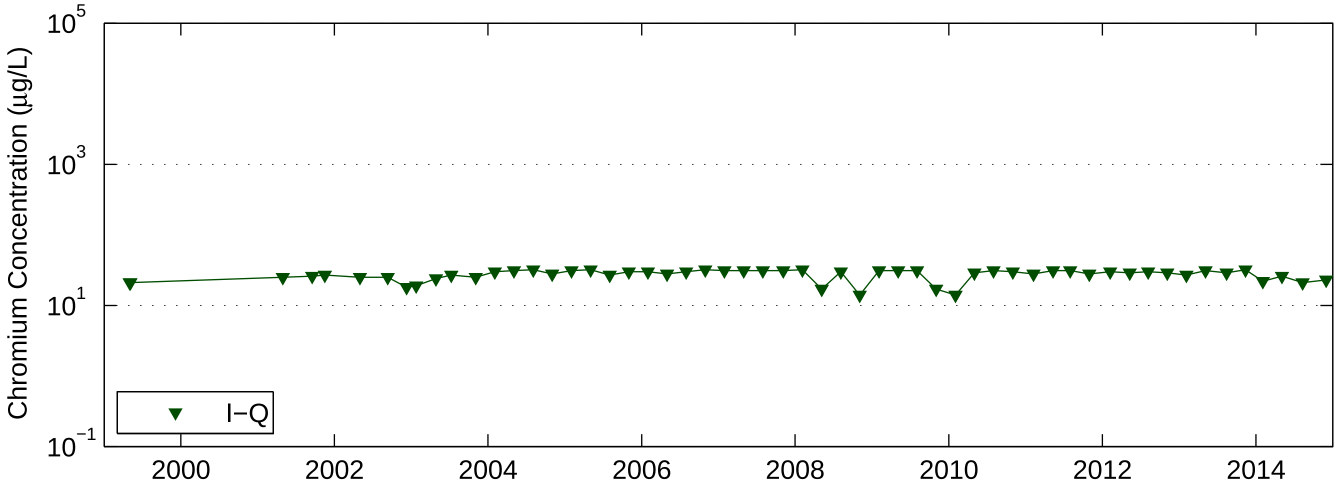


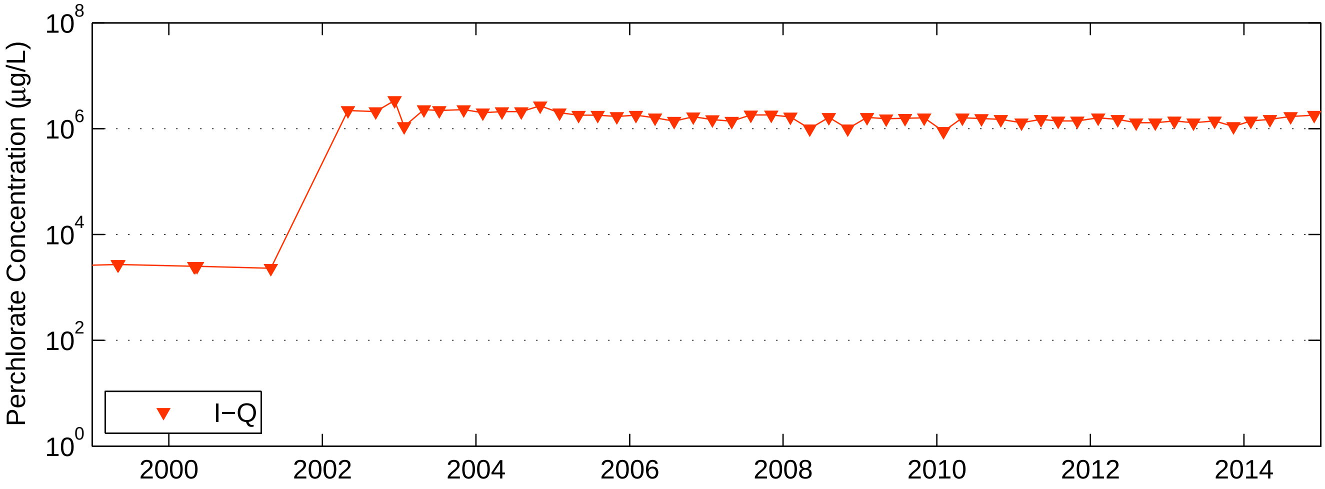
I−P (Location: N5052 ft, E222 ft)
I−P:Qal/xMCf/UMCf [1735.2−1705.1 ft]

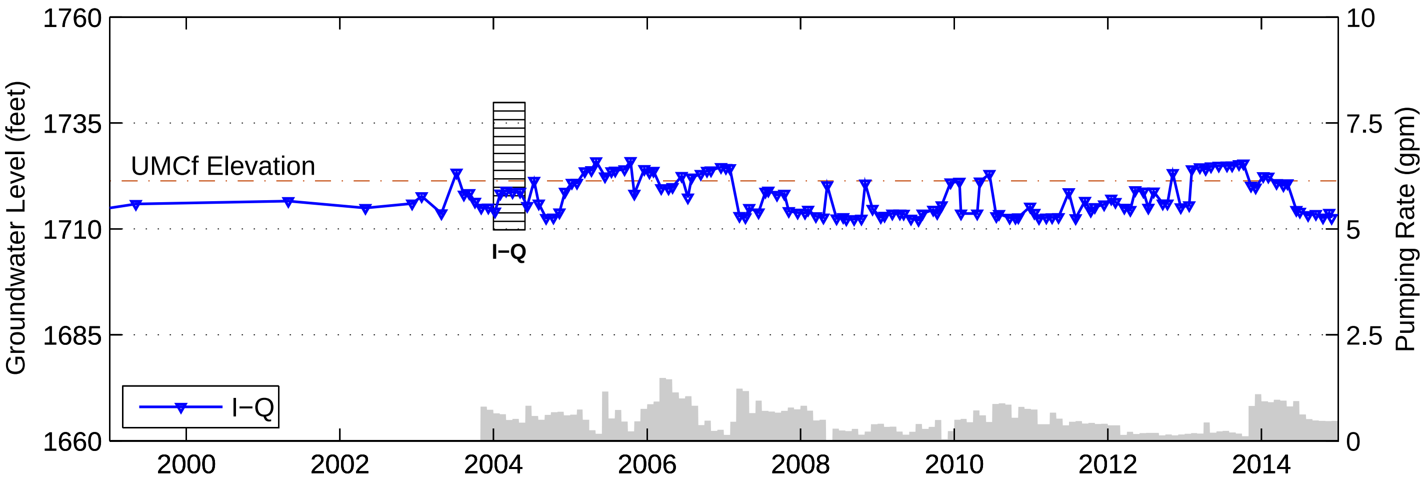


ENVIRON

I−Q (Location: N5015ft, W48ft)
I−Q:Qal/xMCf/UMCf [1739.8−1709.8 ft]

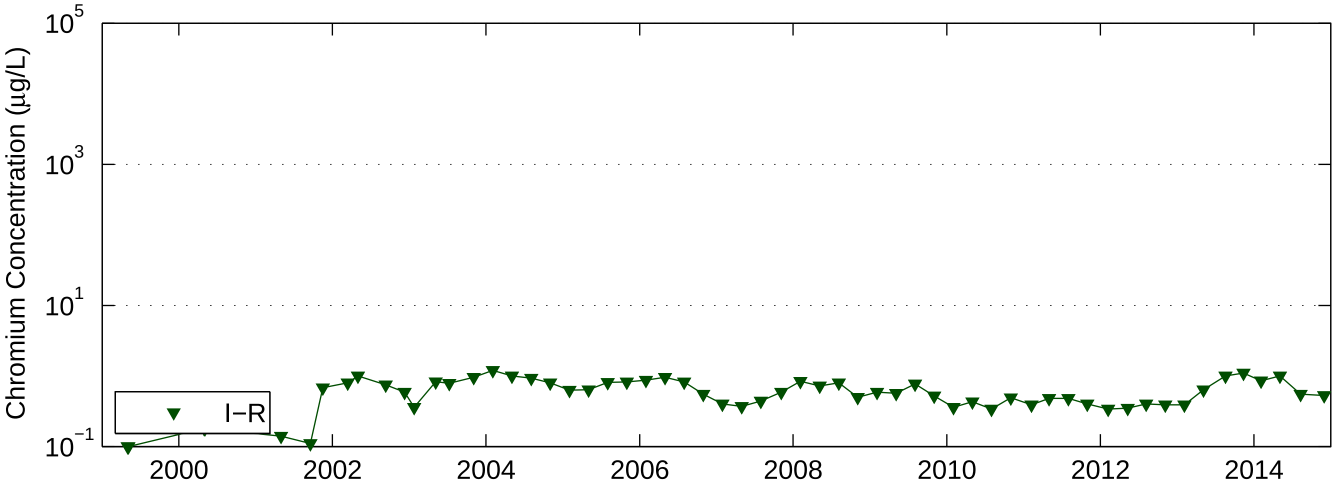


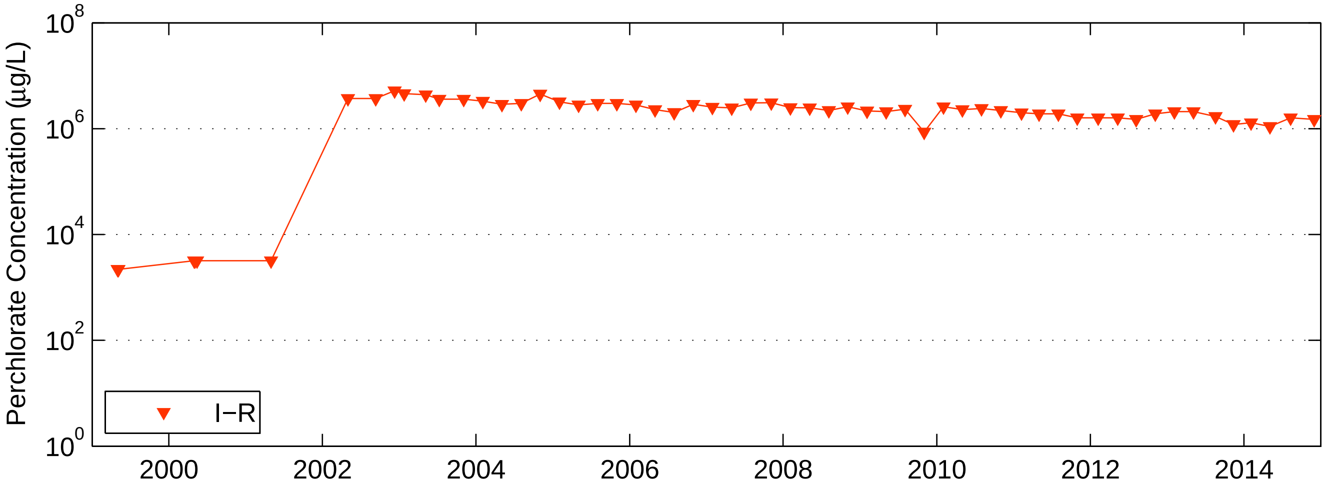


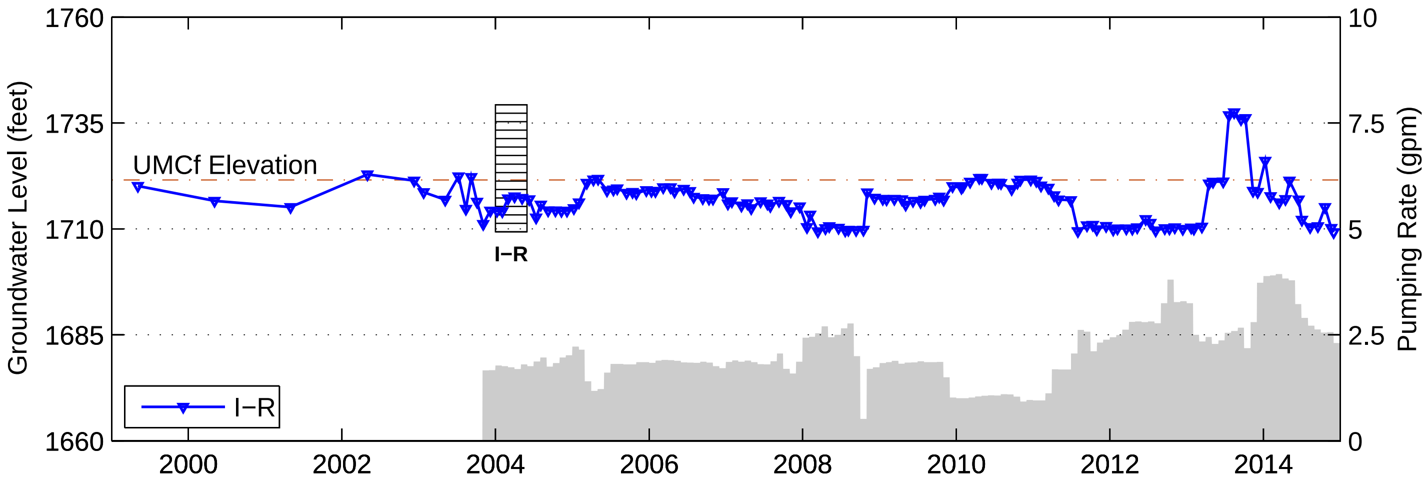


ENVIRON

I−R (Location: N4962ft, W684ft)
I−R:Qal/xMCf/UMCf [1739.3−1709.3 ft]

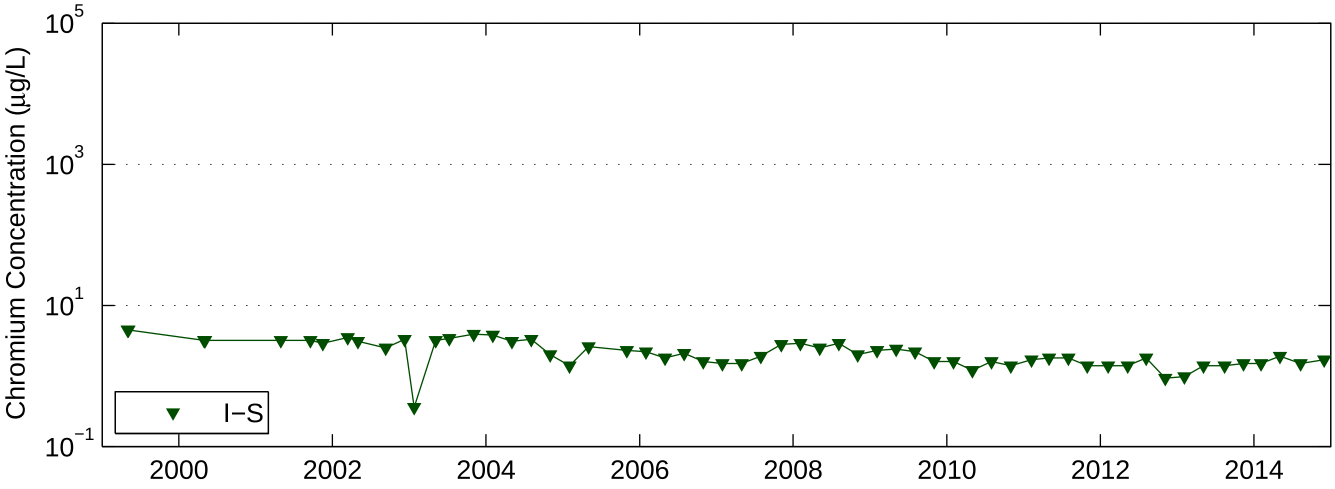


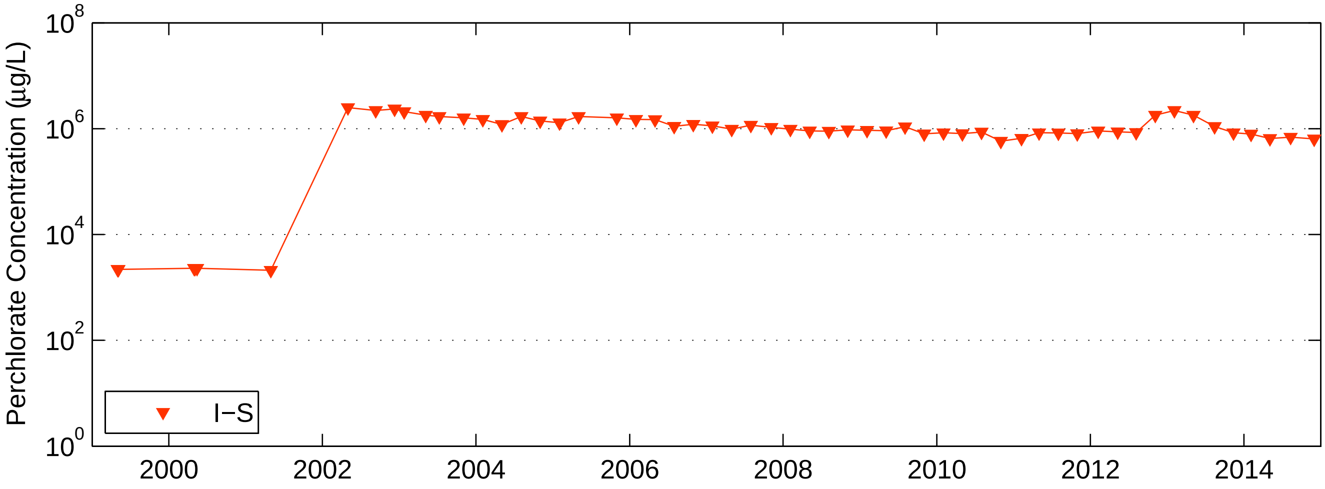


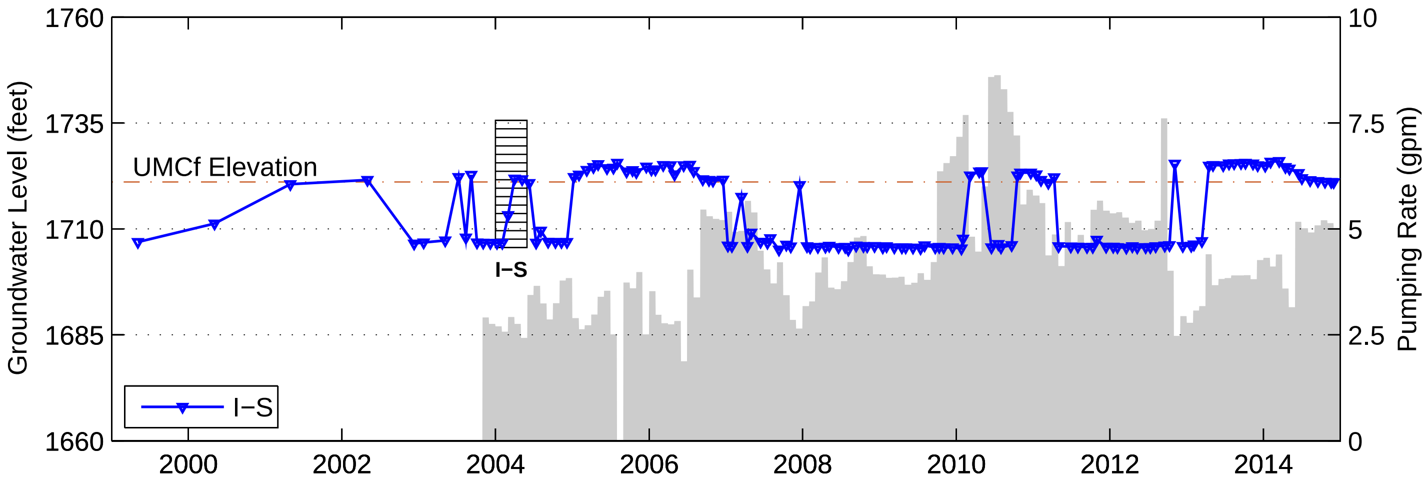


ENVIRON

I−S (Location: N4960ft, W596ft)
I−S:Qal/xMCf/UMCf [1735.6−1705.6 ft]

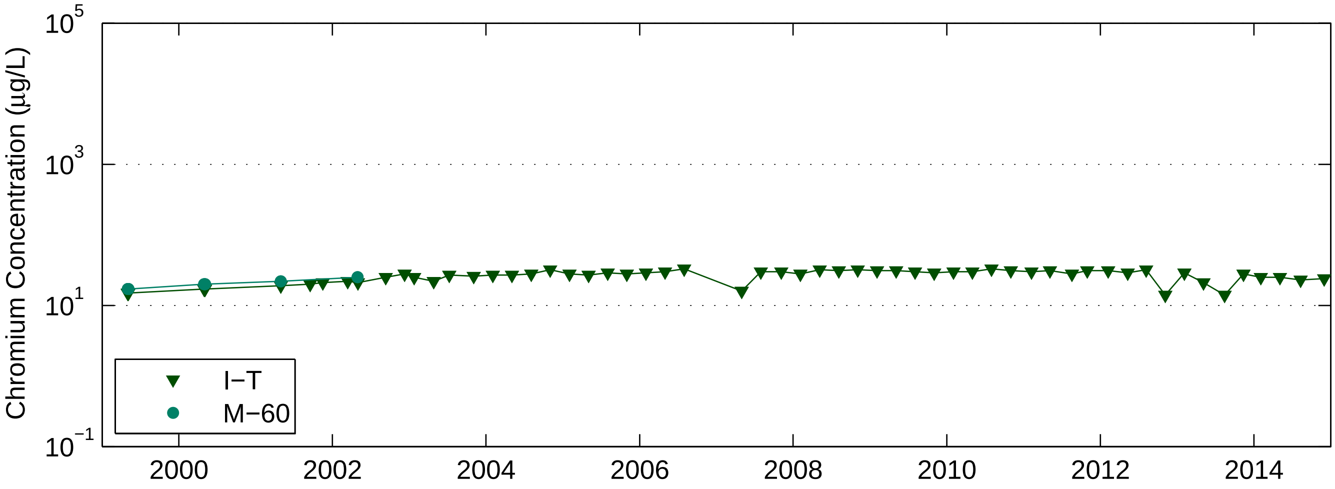


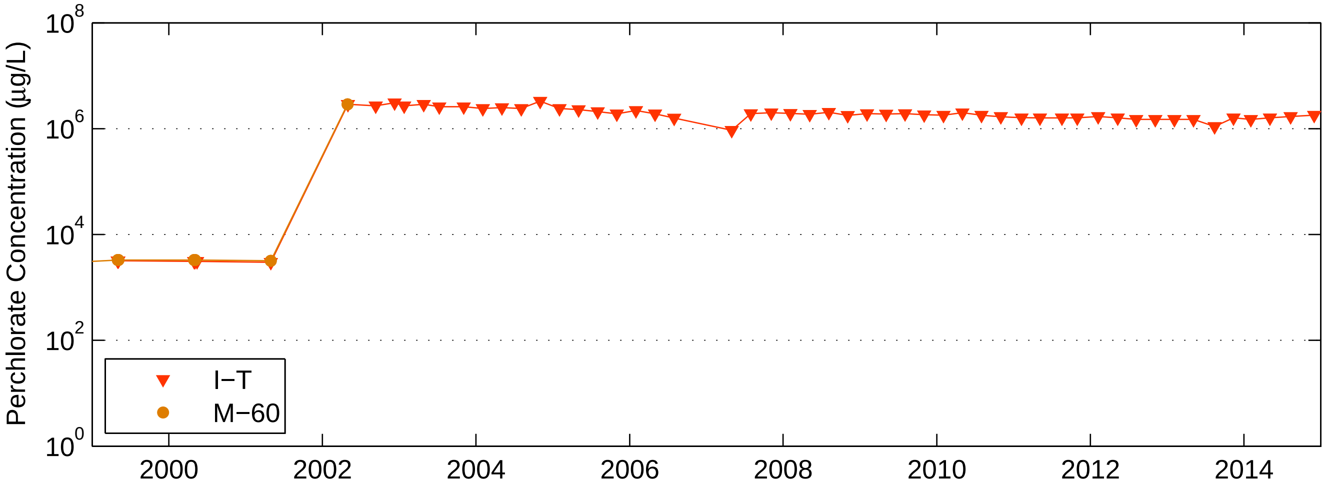


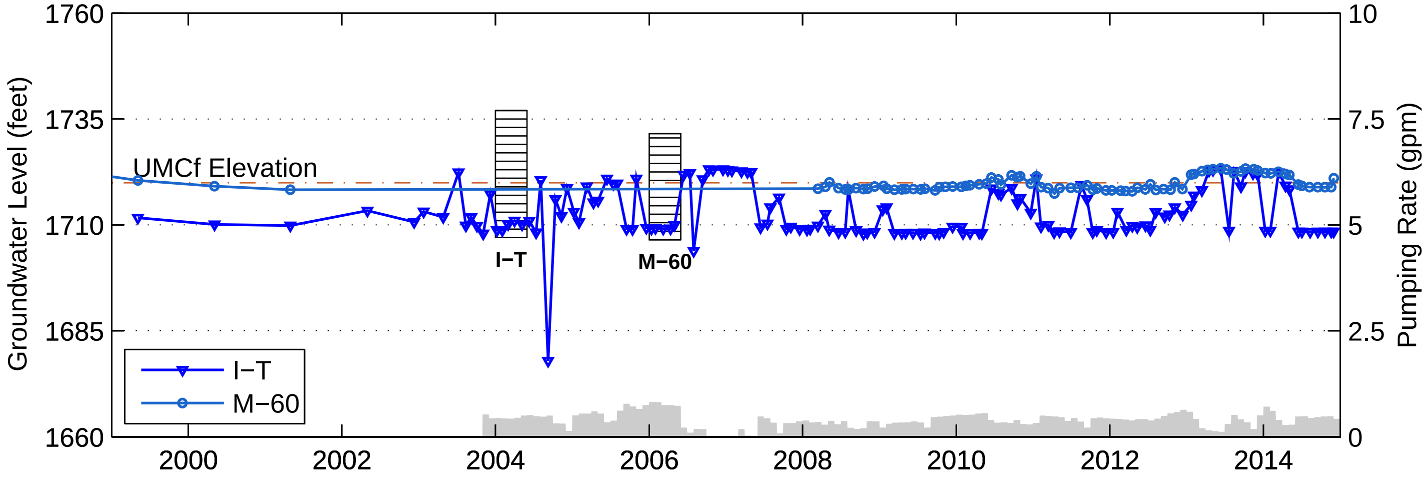


ENVIRON

I−T,M−60 (Location: N5033 ft, E76 ft)
I−T:Qal/xMCf/UMCf [1737−1707 ft]
M−60:UMCf [1731.5−1706.5 ft]

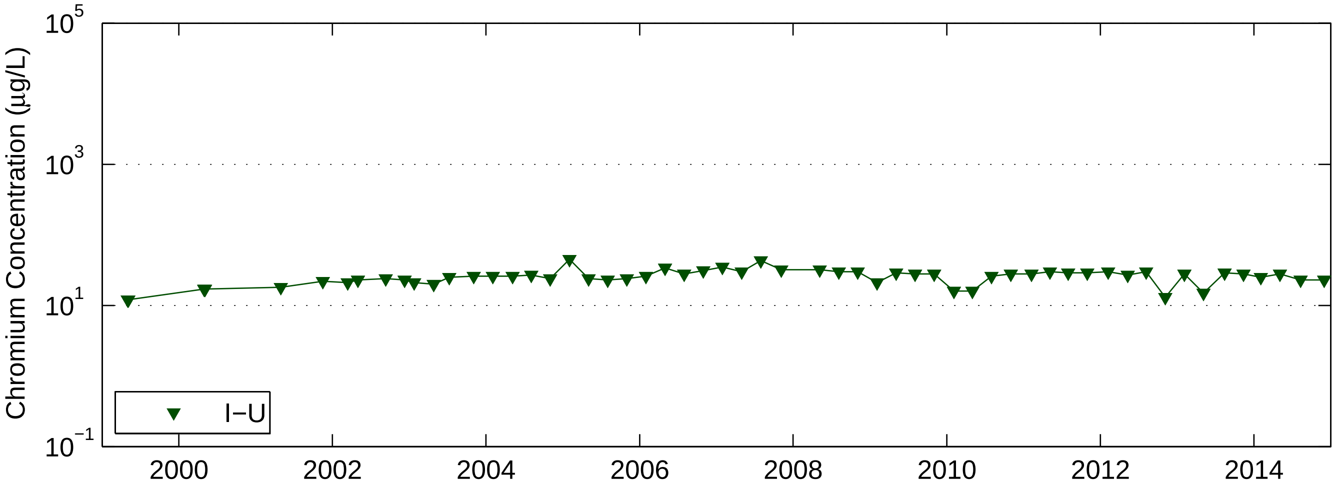


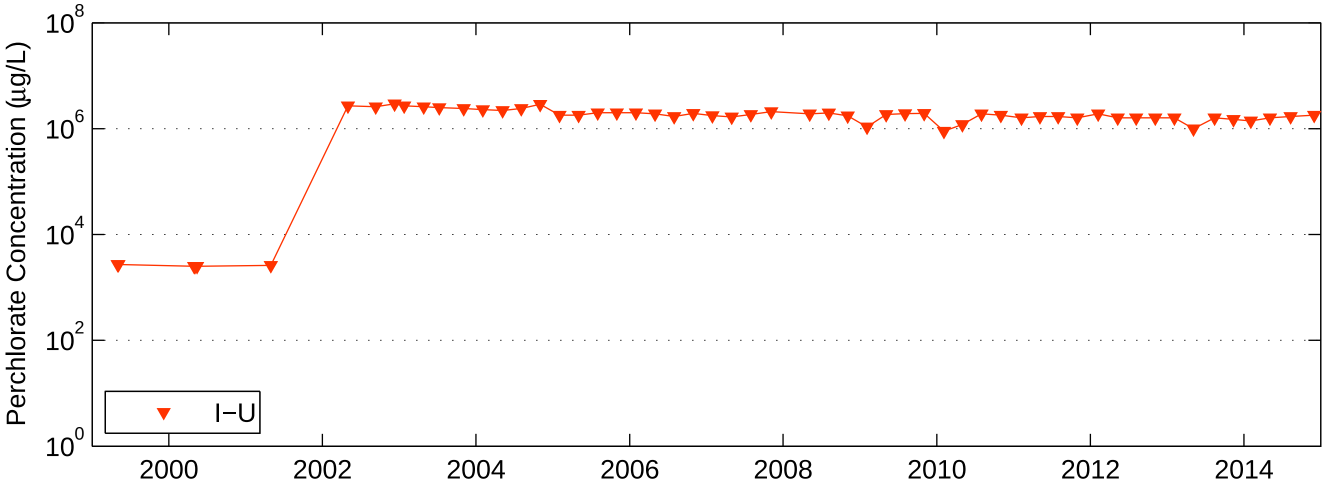


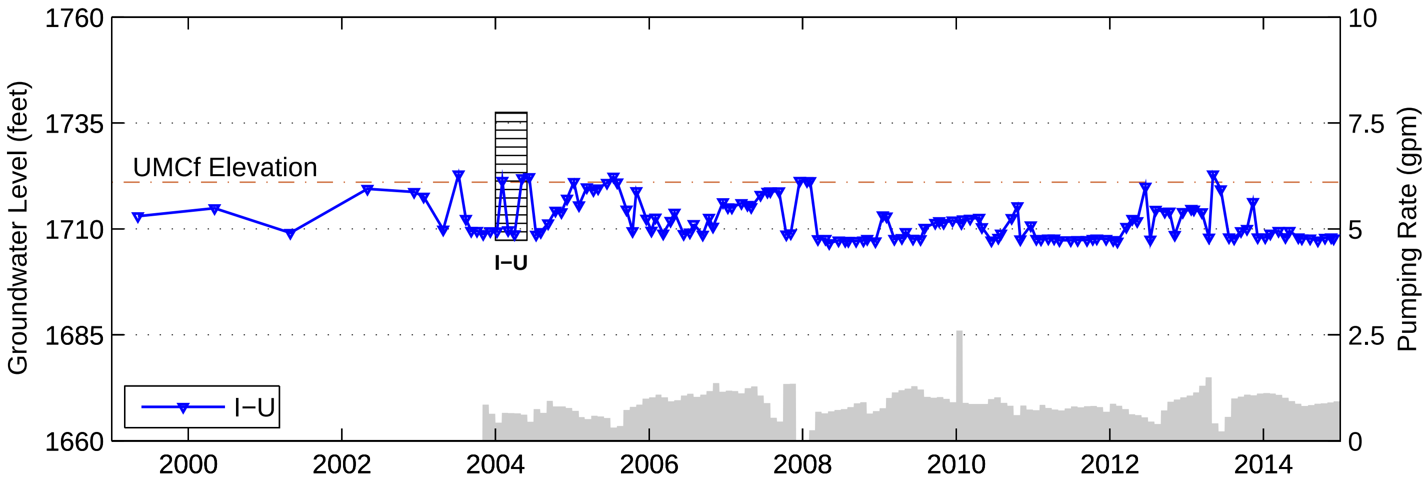


ENVIRON

I−U (Location: N5040 ft, E119 ft)
I−U:Qal/xMCf/UMCf [1737.5−1707.3 ft]

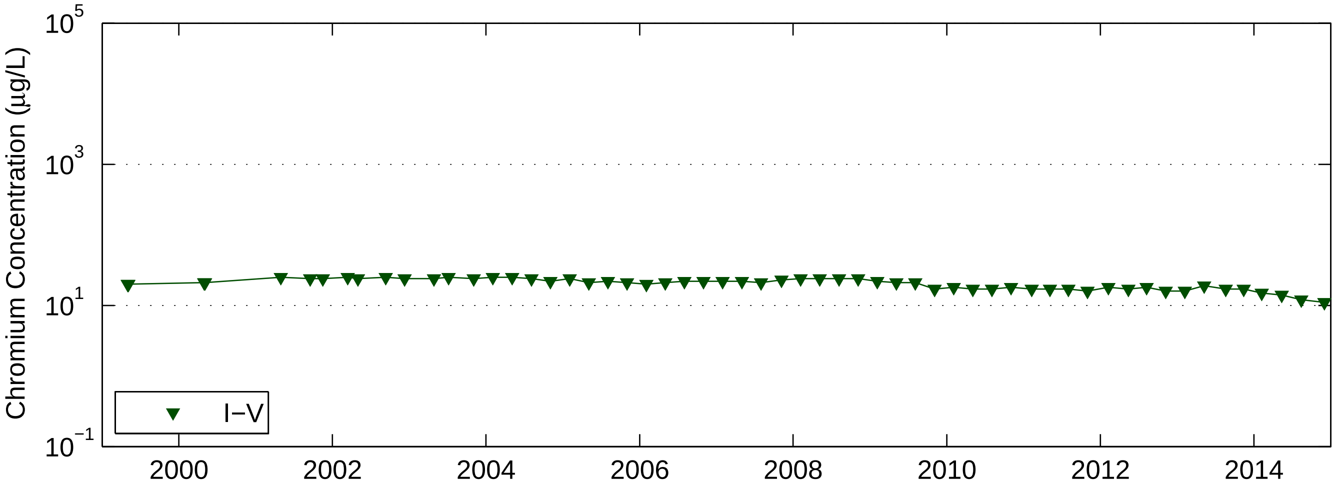


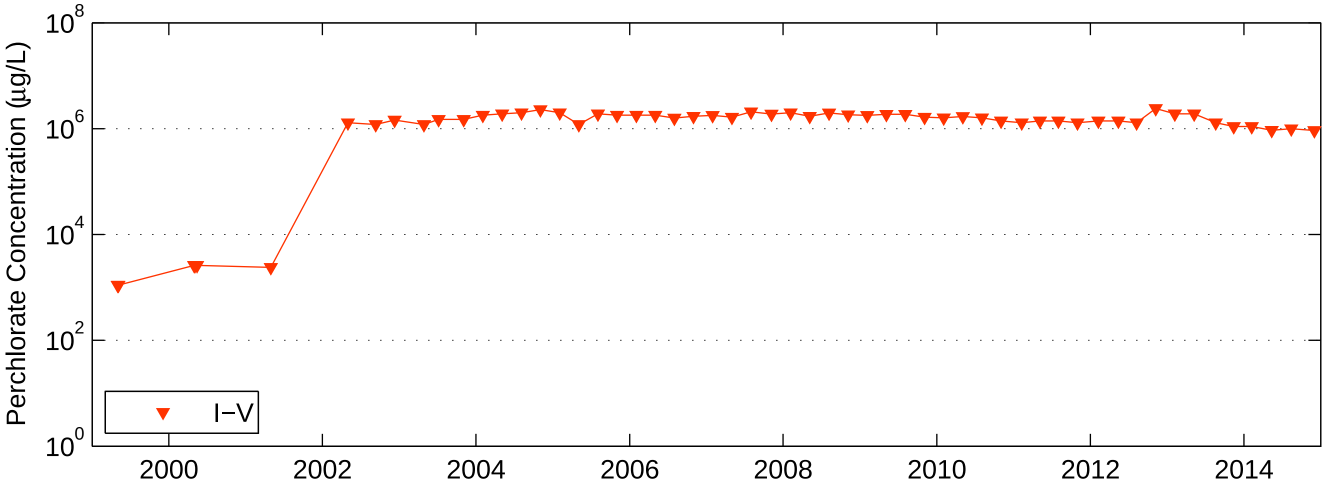


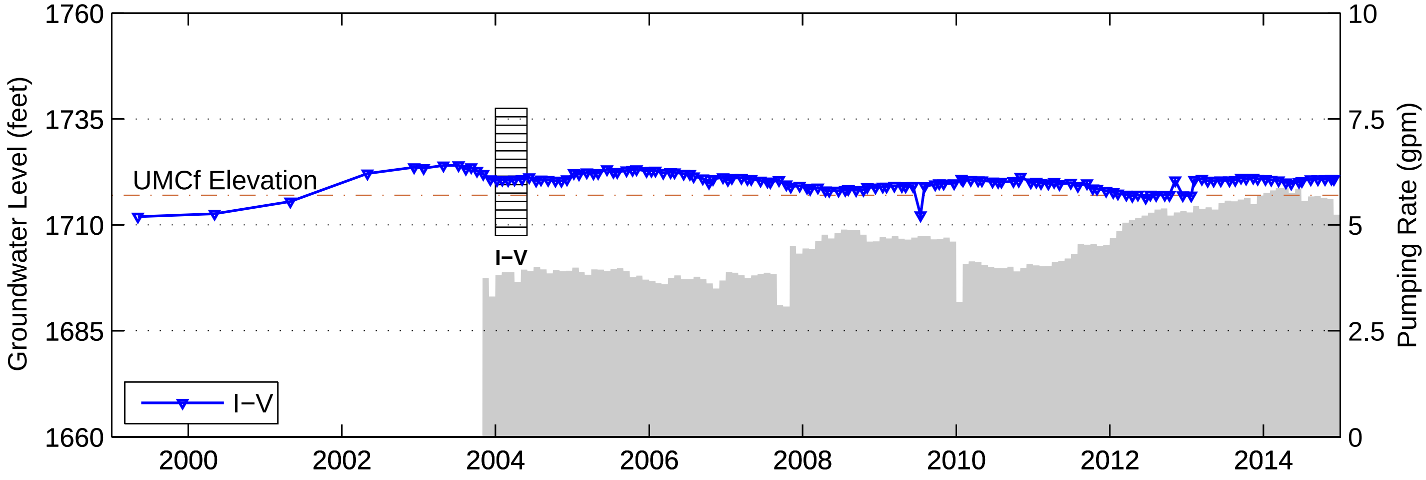


ENVIRON

I–V (Location: N5055 ft, E326 ft)
I–V:Qal/xMCf/UMCf [1737.5–1707.5 ft]

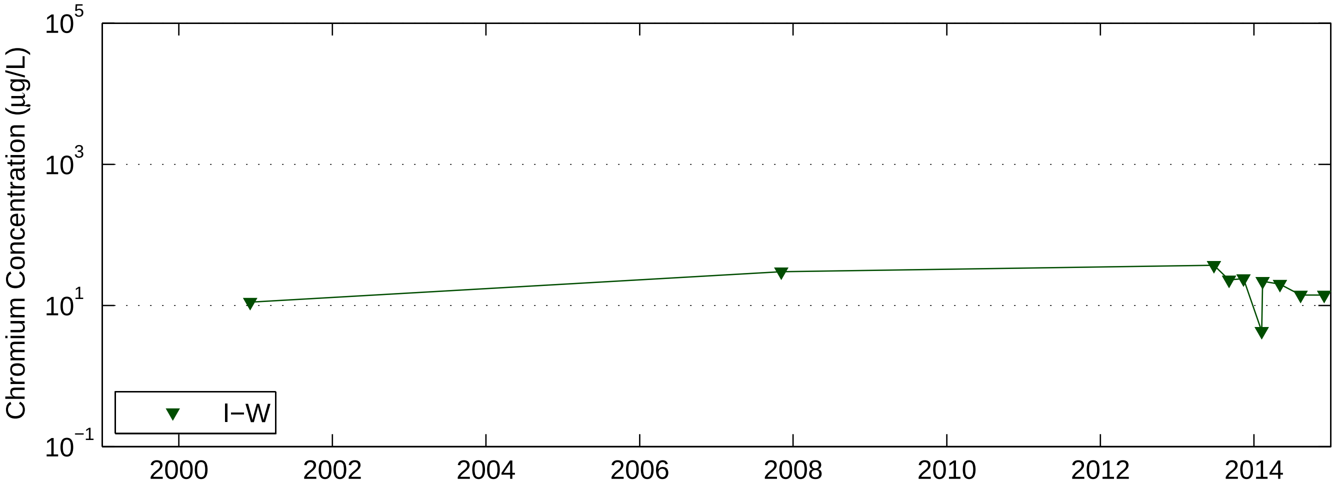


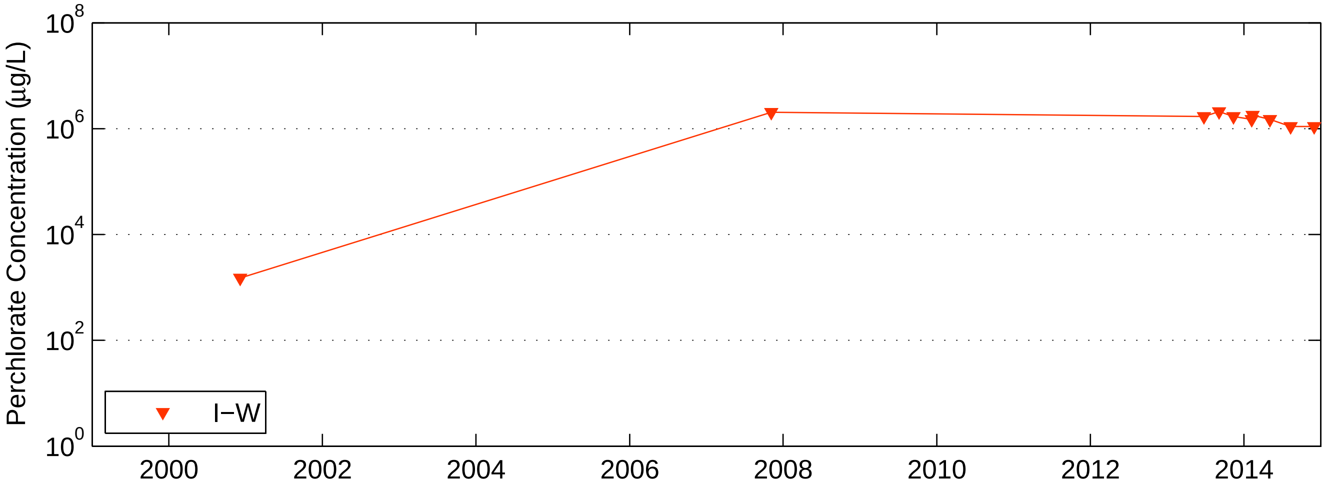


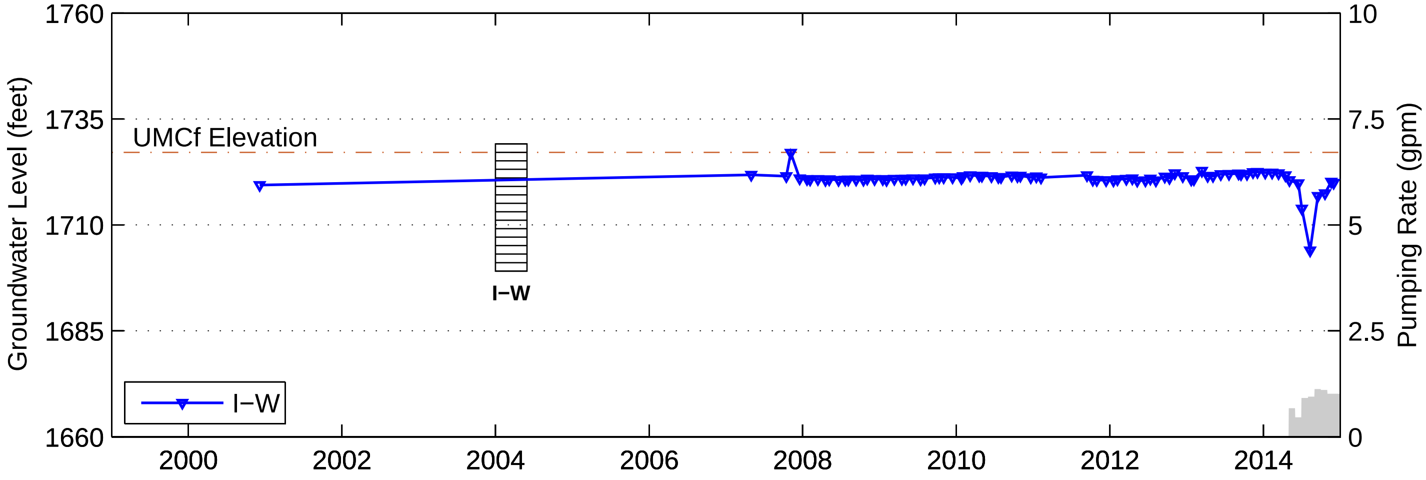


ENVIRON

I−W (Location: N5056 ft, E246 ft)
I−W:Qal/xMCf/UMCf [1729.1−1699.1 ft]

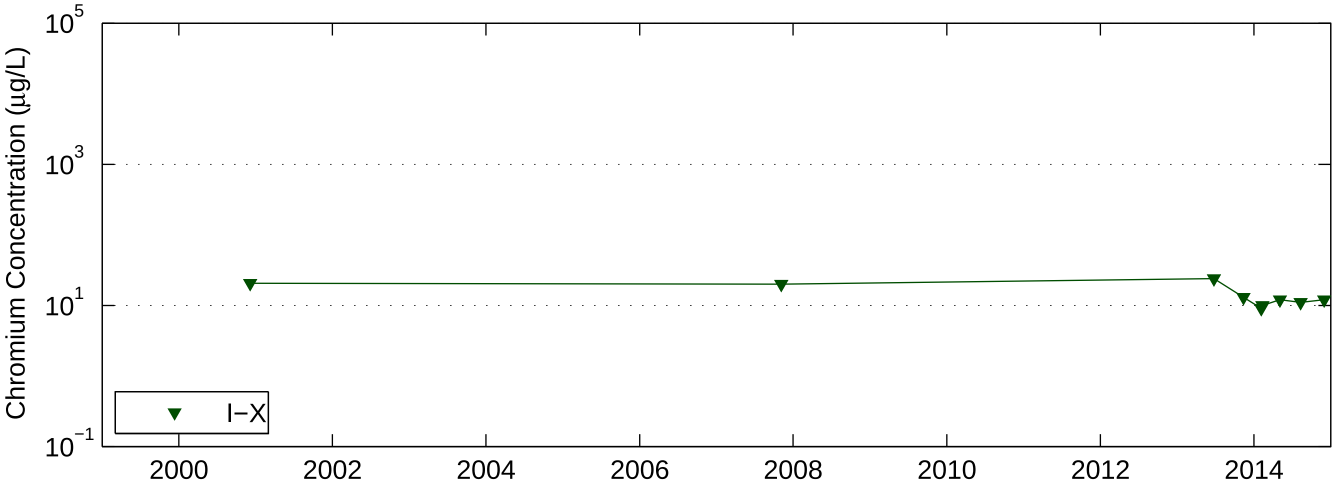


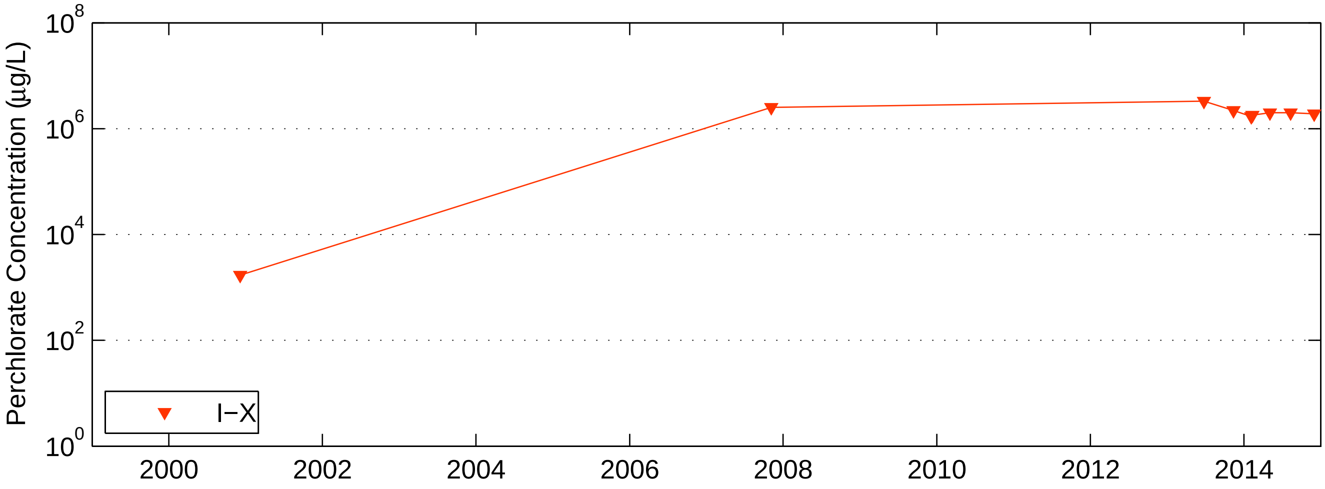


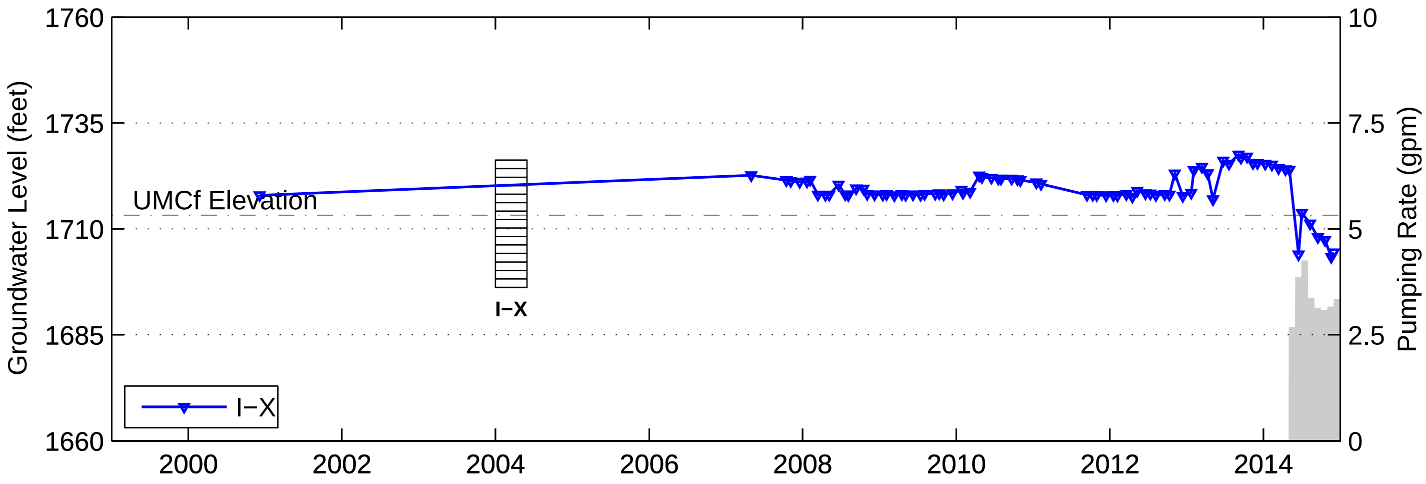


ENVIRON

I−X (Location: N5003ft, W160ft)
I−X:Qal/xMCf/UMCf [1726.2−1696.2 ft]

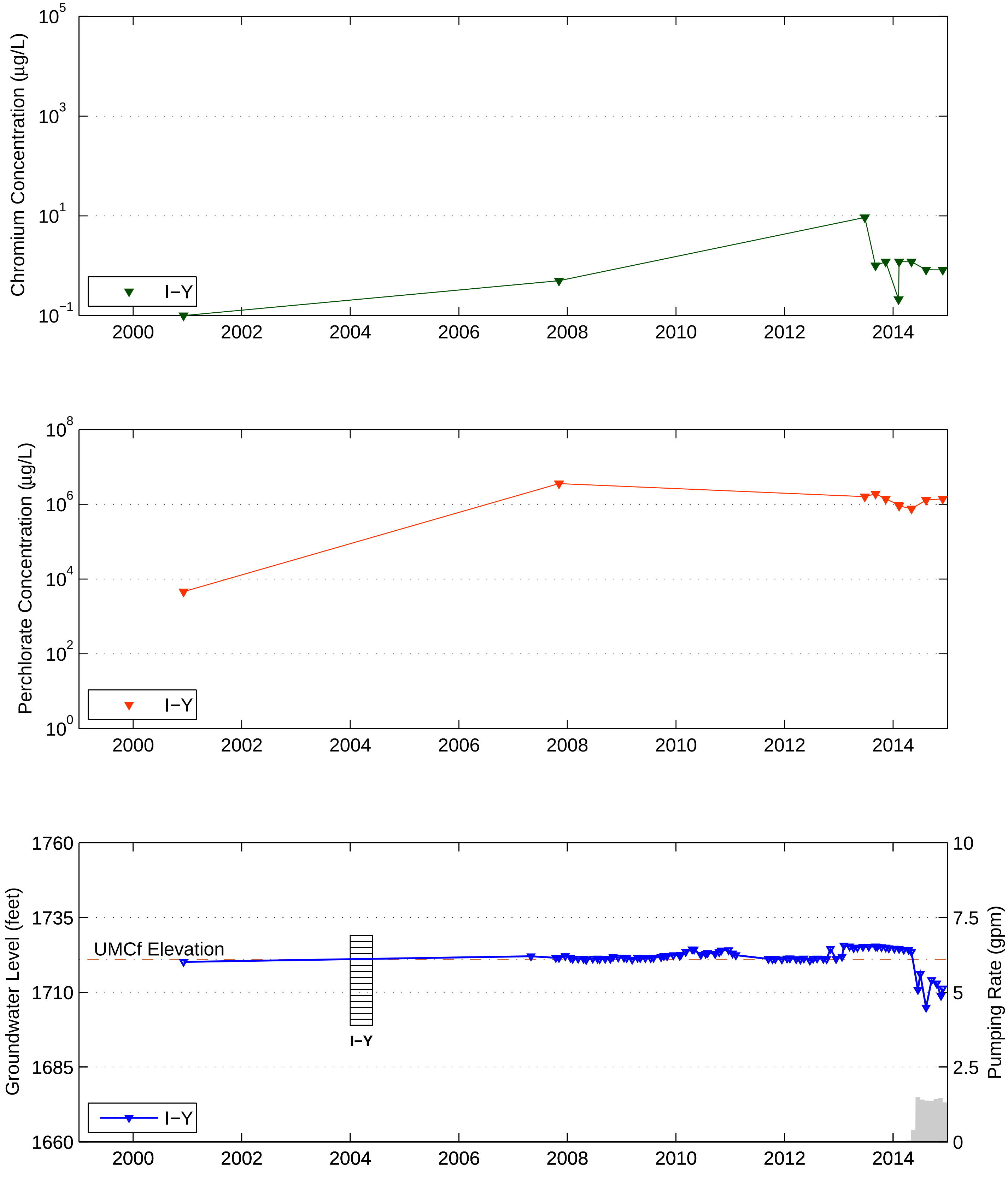




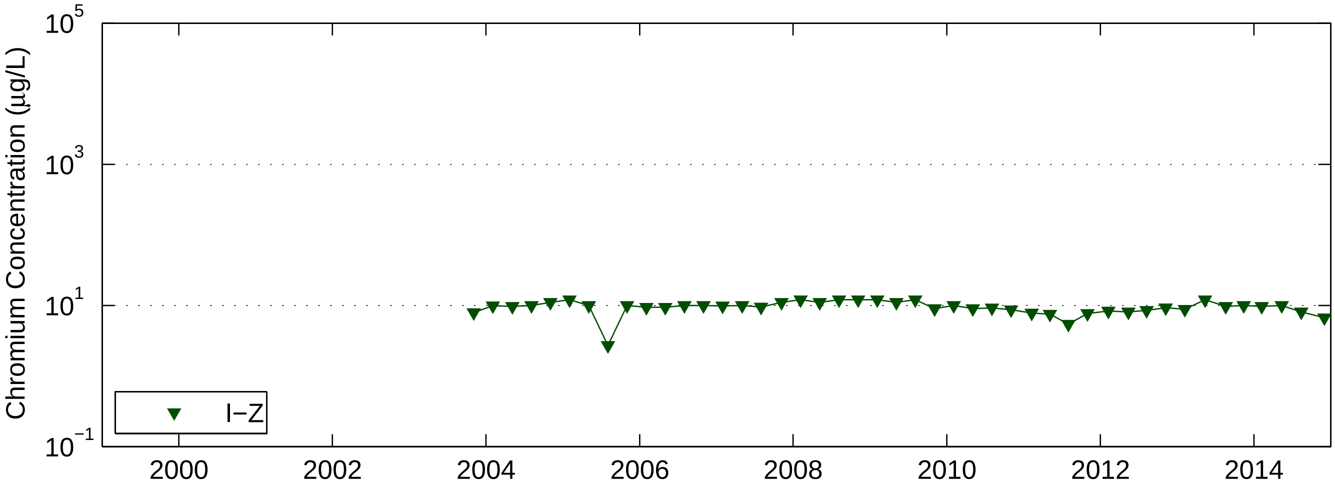


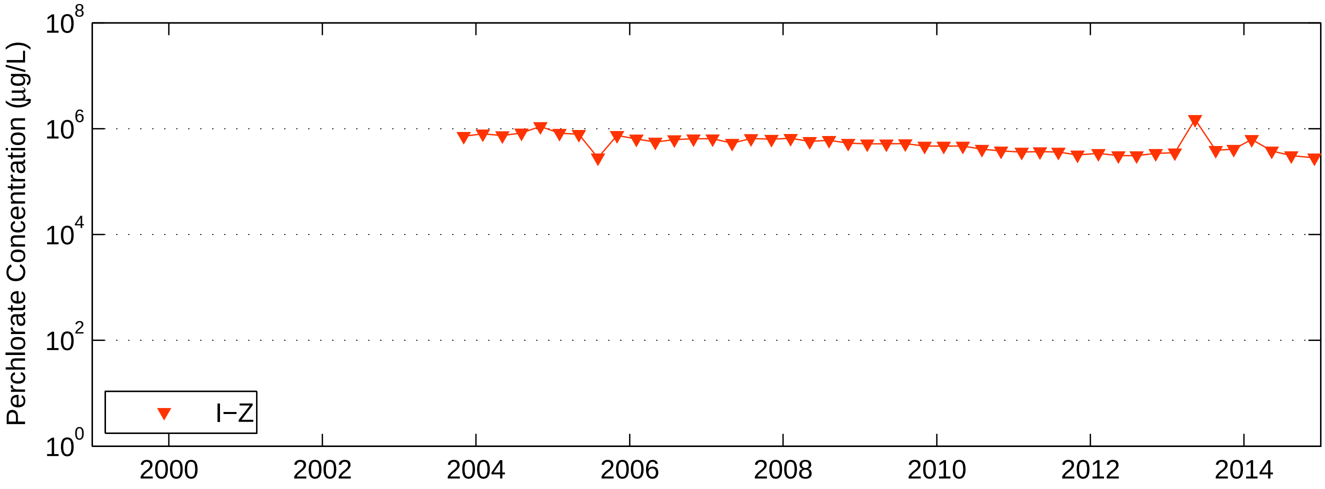
ENVIRON

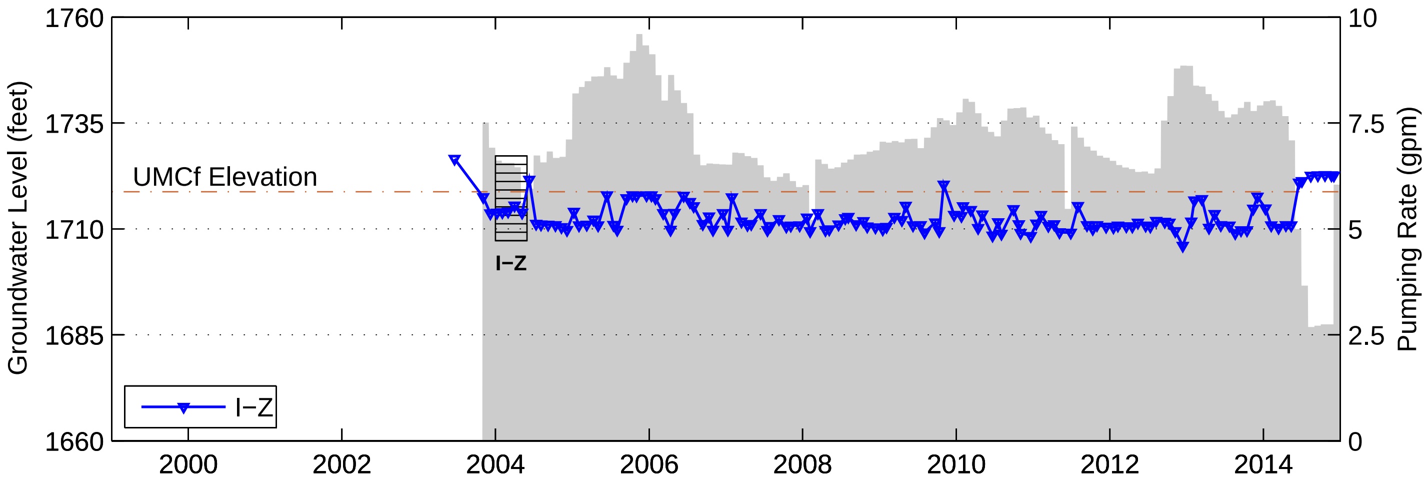
I–Y (Location: N4961ft, W665ft)
I–Y:Qal/xMCf/UMCf [1728.9–1698.9 ft]



I−Z (Location: N5083 ft, E468 ft)
I−Z:Qal/xMCf/UMCf [1727.2−1707.2 ft]







ENVIRON

Appendix B

Extraction Well Specific Capacity Evaluation

Appendix B
Extraction Well Specific Capacity Evaluation

This appendix provides an evaluation of specific capacities of extraction wells at the Site. Specific capacity can be used as an indicator of well performance over time. This particular evaluation using existing data is intended as a preliminary evaluation of long-term trends in well performance. A summary of the evaluation continues in the sections below.

Table B-1 compares initial specific capacity (i.e., early performance) of the wells versus their current specific capacity.

Figures B-1 through B-38 chart “static” groundwater levels from a sentinel monitoring well, groundwater elevation in the extraction well, and the estimated specific capacity trend for each extraction well from 2004 to the present where sufficient data were available.

Methodology

Specific capacity, defined as the flow rate divided by drawdown, was estimated for each of the Site’s extraction wells using the following procedure.

For each extraction well, a nearby sentinel well was identified as representative of static groundwater elevation. The groundwater elevations of these sentinel wells, while representative, are only estimations of static groundwater elevation and were adjusted upward, if necessary, to eliminate calculations that result in negative specific capacity.

In both the sentinel wells and the extraction wells, historical groundwater elevation measurements were smoothed to reduce scatter in the data. The specific capacity of each extraction well was calculated by dividing the historical flow rate by the difference between the historical static water elevation and the groundwater elevation of the extraction well. The specific capacity was then smoothed and filtered to reduce scatter and obvious data anomalies.

Charts for the recently activated IWF wells have not been included because there is not enough data to determine long-term trends.

Specific Capacity Trends

Interceptor Well Field. Specific capacities within the IWF are the lowest of the three well fields and are generally less than 2 gallons per minute of flow per foot of drawdown [gpm/ft].

Athens Road Well Field. Static groundwater elevations near the AWF have decreased by 6 to 14 feet since 2004. The calculated specific capacity of wells within the AWF are typically greatest (generally between 15 and 30 gpm/ft) near the center of the alluvial channels (ART-2 and ART-8 to the west, ART-7 and ART-9 to the east). Well ART-1 is also screened within the interpreted western alluvial channel, but the well’s present specific capacity is less than 5 gpm/ft. This relatively modest specific capacity supports aquifer testing results that suggest ART-1 may benefit from inspection and possibly redevelopment/rehabilitation.

Seep Well Field. Most active wells within the SWF (PC-120 and PC-121 are typically idle) currently have specific capacities of between 20 and 45 gpm/ft, with the exception of PC-99R2/R3 where the specific capacity is approximately 5 gpm/ft. A chart for PC-133 was not included due to a lack of long-term groundwater elevation data.

Summary

This preliminary evaluation of specific capacities of extraction wells at the Site has not identified significant downward trends in specific capacity, which may indicate a need for well rehabilitation, with the possible exceptions of ART-1/1A. Certain limitations were encountered during the analysis of data:

- For the ART wells, the “buddy” wells are analyzed together since the pumping well is currently not readily identifiable in the database.
- PC-99R2/R3 consists of two collocated extraction wells PC-99R2 and PC-99R3, which are pumped in tandem using the same discharge line and totalizer; therefore, the analysis is a composite of these two wells.

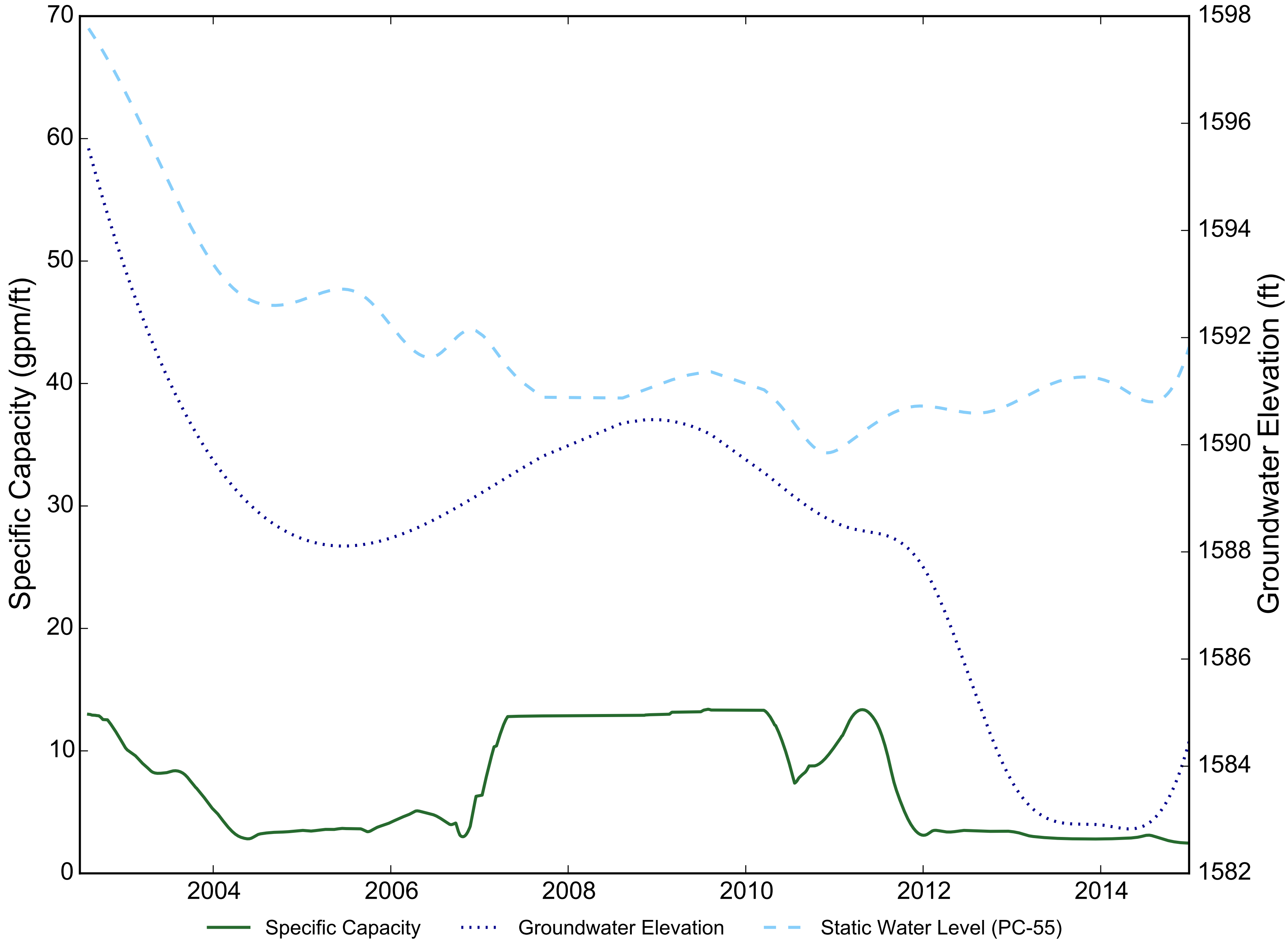
This evaluation will be further refined as part of the Continuous Optimization Program (COP) after implementation of the Enhanced Operational Metrics, which is expected to enhance data quality from the well fields. Specifically, pressure transducers to be installed in all of the extraction wells will provide more complete and more accurate water level data. Moreover, IWF wells will receive updated flow control valves and magnetic flow meters to enhance flow control and measurement.

TABLE B-1: INITIAL AND RECENT SPECIFIC CAPACITIES 2013
GWETS Optimization Project Report
Nevada Environmental Response Trust Site; Henderson, Nevada

Well	Initial Date	Initial Avg Specific Capacity (gpm/ft)	Final Date	Recent Avg Specific Capacity (gpm/ft)
ART-1	08/06/2002	13.5	12/31/2014	1.0
ART-2	08/06/2002	4.8	12/31/2014	31.3
ART-3	08/06/2002	12.4	12/31/2014	4.2
ART-4	09/17/2002	0.3	12/31/2014	1.3
ART-6/9	07/06/2009	5.6	12/31/2014	31.0
ART-7	08/06/2002	1.5	12/31/2014	10.6
ART-8	08/06/2002	19.7	12/31/2014	11.0
I-AA	05/21/2014	0.4	12/31/2014	3.1
I-AR	11/14/2003	0.07	12/31/2014	0.05
I-B	11/14/2003	0.2	12/31/2014	0.1
I-C	11/14/2003	0.3	12/31/2014	0.7
I-D	11/14/2003	0.1	12/31/2014	0.1
I-E	11/14/2003	0.1	12/31/2014	0.1
I-F	11/14/2003	0.6	12/31/2014	0.2
I-G	11/14/2003	0.03	12/31/2014	0.01
I-H	11/14/2003	0.1	12/31/2014	0.1
I-I	11/14/2003	1.0	12/31/2014	2.4
I-J	11/14/2003	0.7	12/31/2014	3.5
I-K	11/14/2003	0.6	12/31/2014	0.8
I-L	11/14/2003	0.2	12/31/2014	0.2
I-M	11/14/2003	0.4	12/31/2014	0.2
I-N	11/14/2003	0.6	12/31/2014	0.2
I-O	11/14/2003	0.6	12/31/2014	0.2
I-P	11/14/2003	0.5	12/31/2014	0.2
I-Q	11/14/2003	0.09	12/31/2014	0.04
I-R	11/14/2003	0.2	12/31/2014	0.1
I-S	11/14/2003	0.2	12/31/2014	1.5
I-T	11/14/2003	0.1	12/31/2014	0.0
I-U	11/14/2003	0.1	12/31/2014	0.1
I-V	11/14/2003	0.9	12/31/2014	1.9
I-W	05/08/2014	0.4	12/31/2014	0.4
I-X	05/13/2014	1.7	12/31/2014	0.2
I-Y	04/29/2014	0.6	12/31/2014	0.1
I-Z	11/14/2003	0.7	12/31/2014	2.0
PC-115R	07/01/2002	4.4	12/31/2014	20.4
PC-116R	07/01/2002	26.7	12/31/2014	22.1
PC-117	03/24/2003	13.1	12/31/2014	25.0
PC-118	03/24/2003	9.4	12/31/2014	38.0
PC-119	03/24/2003	12.3	12/31/2014	29.1
PC-120	03/24/2003	12.6	12/02/2014	2.3
PC-121	06/25/2003	7.7	12/02/2014	3.0
PC-133	10/15/2013	0.2	12/31/2014	0.6
PC-99R2/R3	07/01/2002	21.3	12/31/2014	7.6

Appendix B

Extraction Well Specific Capacity Plots

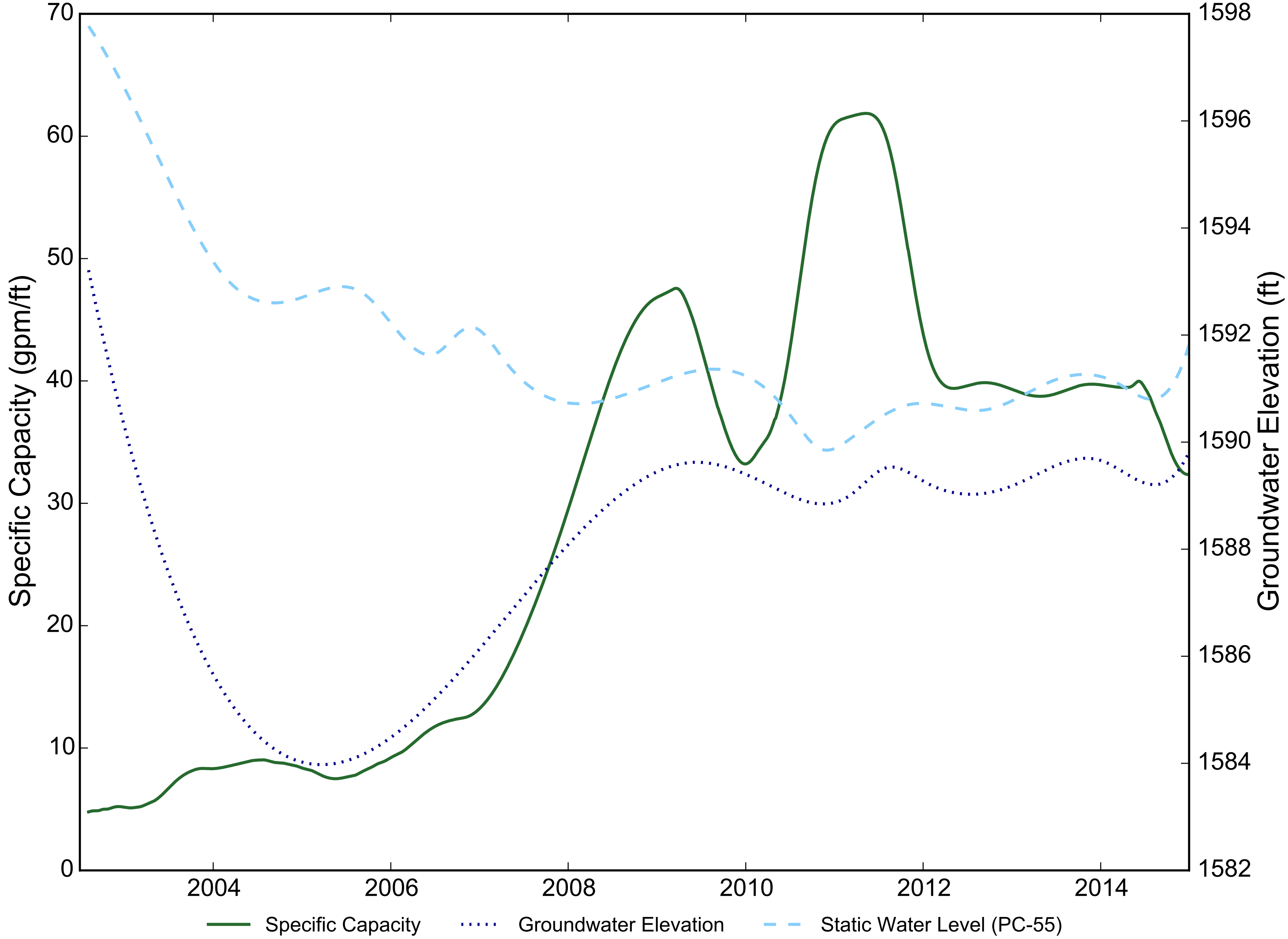


ENVIRON

Specific Capacity of Well ART-1/1A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-1

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:



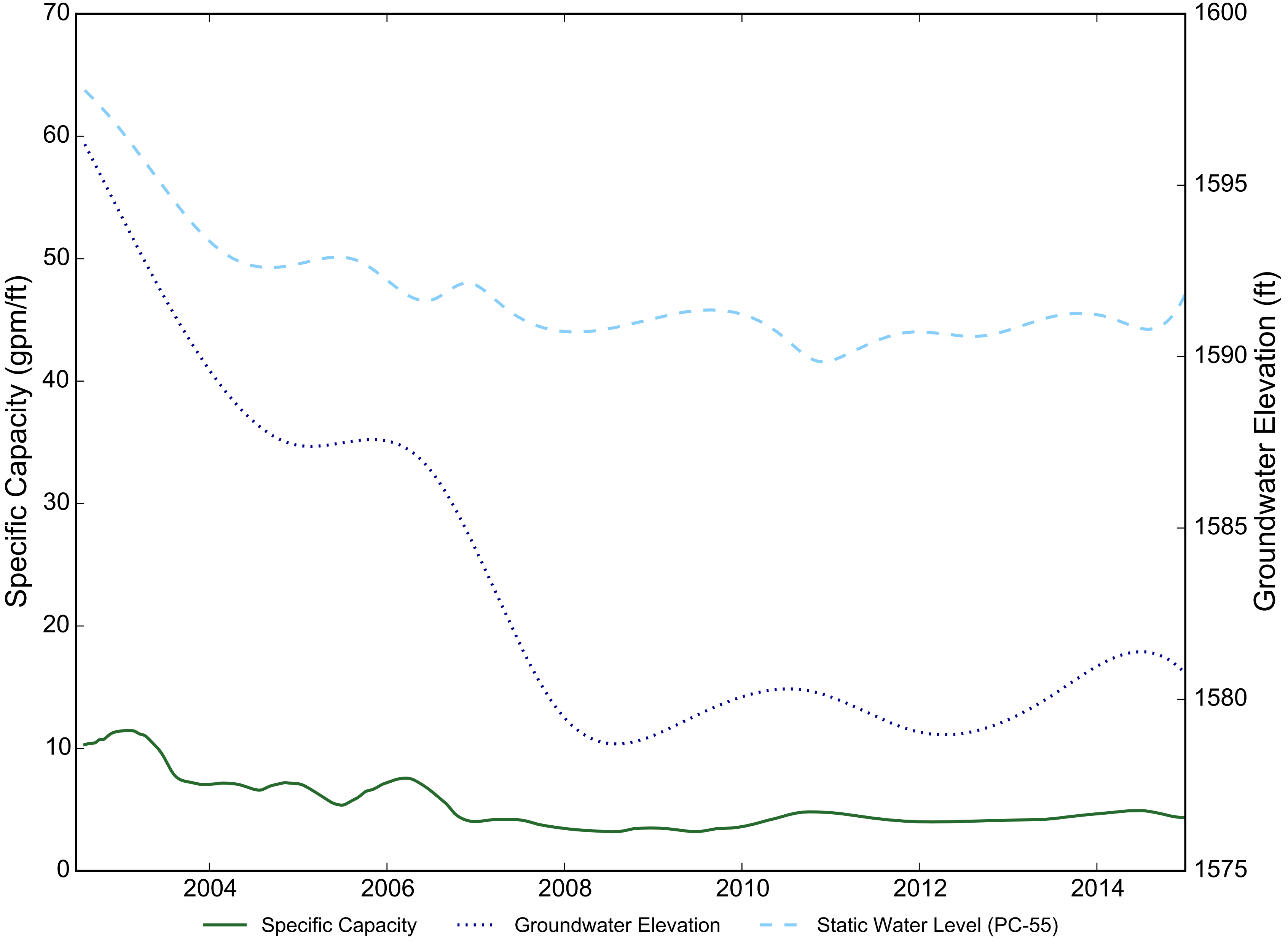
ENVIRON

Specific Capacity of Well ART-2/2A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-2

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:



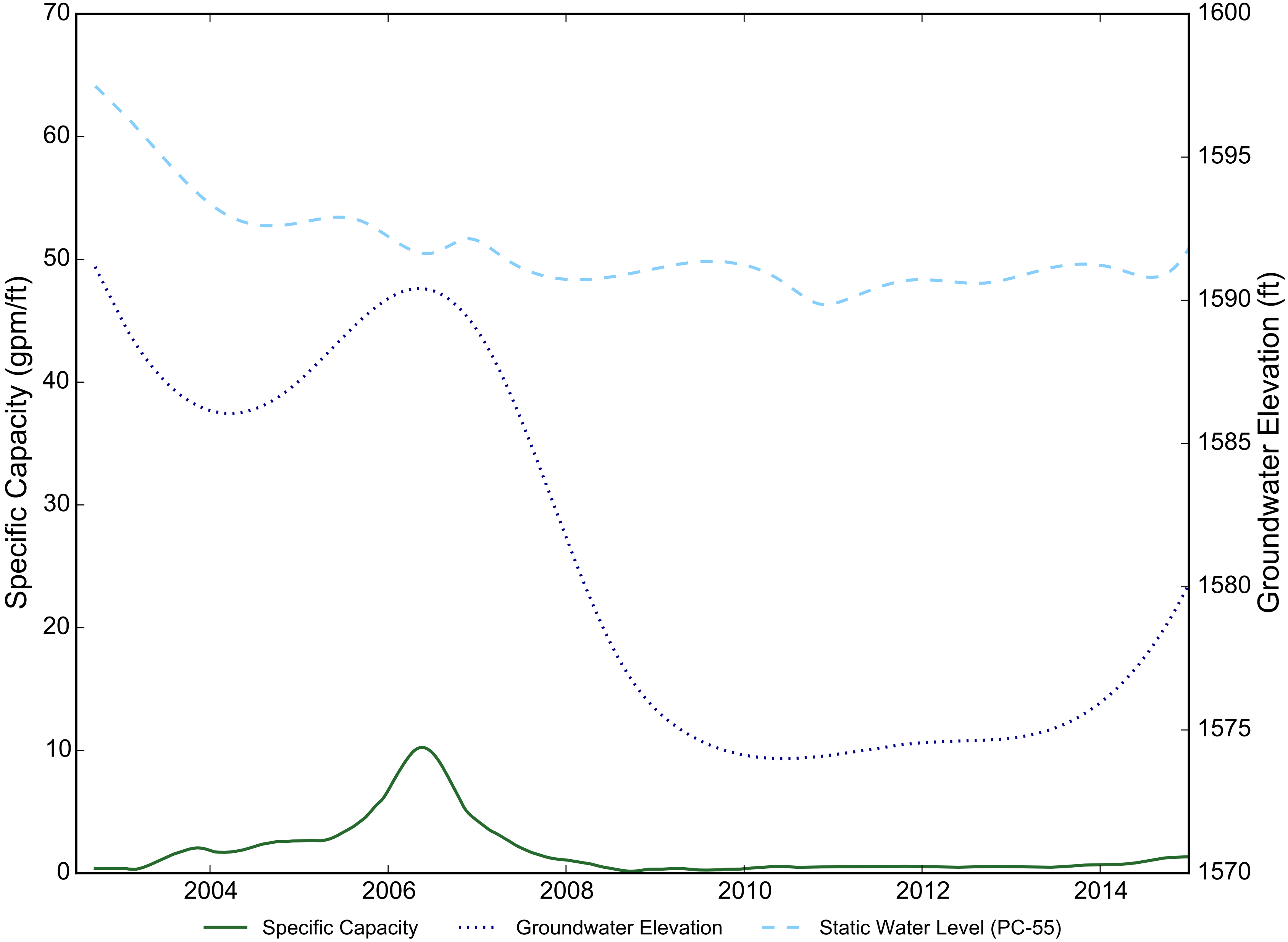
ENVIRON

Specific Capacity of Well ART-3/3A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-3

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:

Path: C:\Users\JHunt\PythonSandbox\SpecCap.py



ENVIRON

Specific Capacity of Well ART-4/4A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-4

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:

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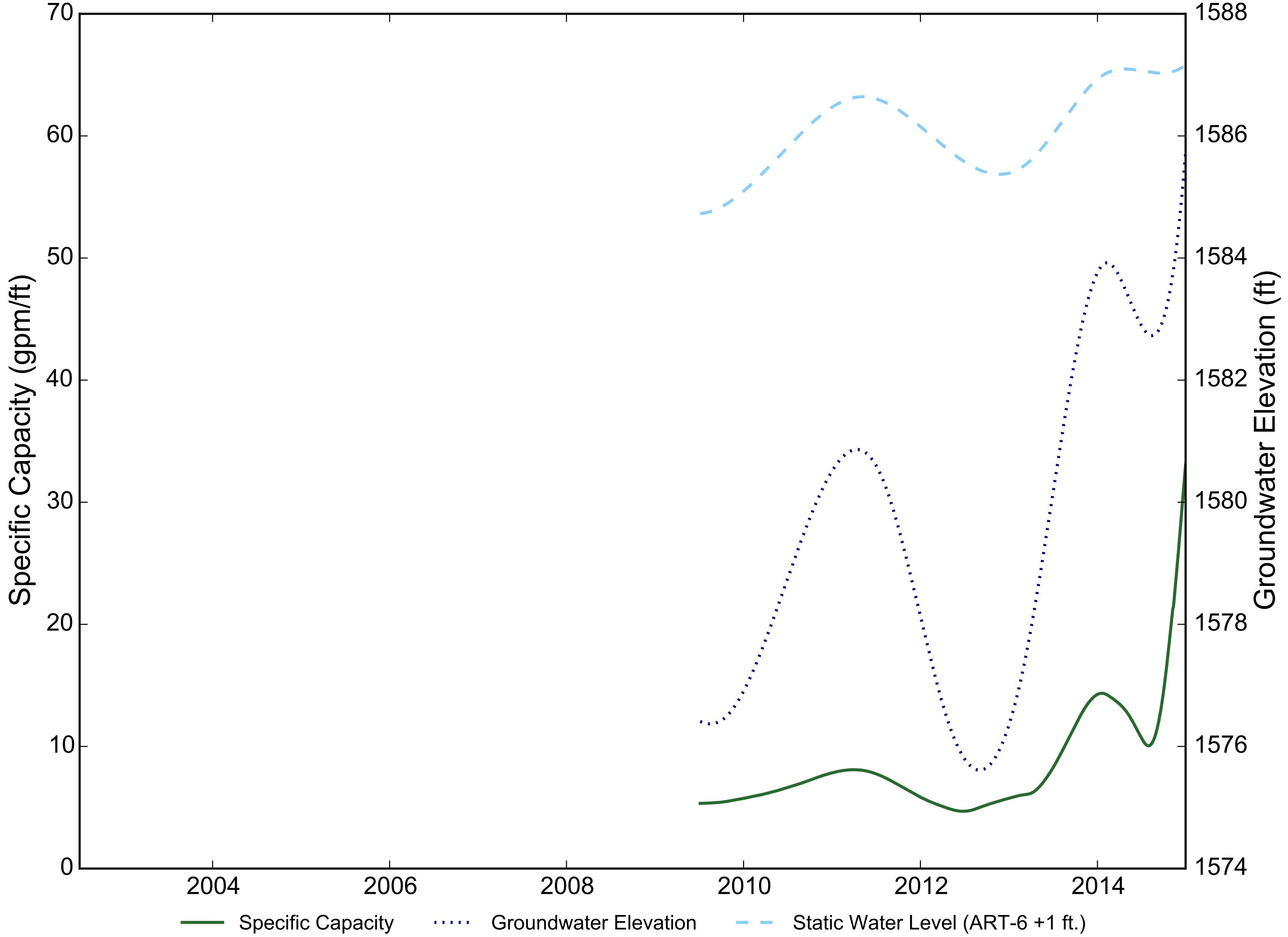


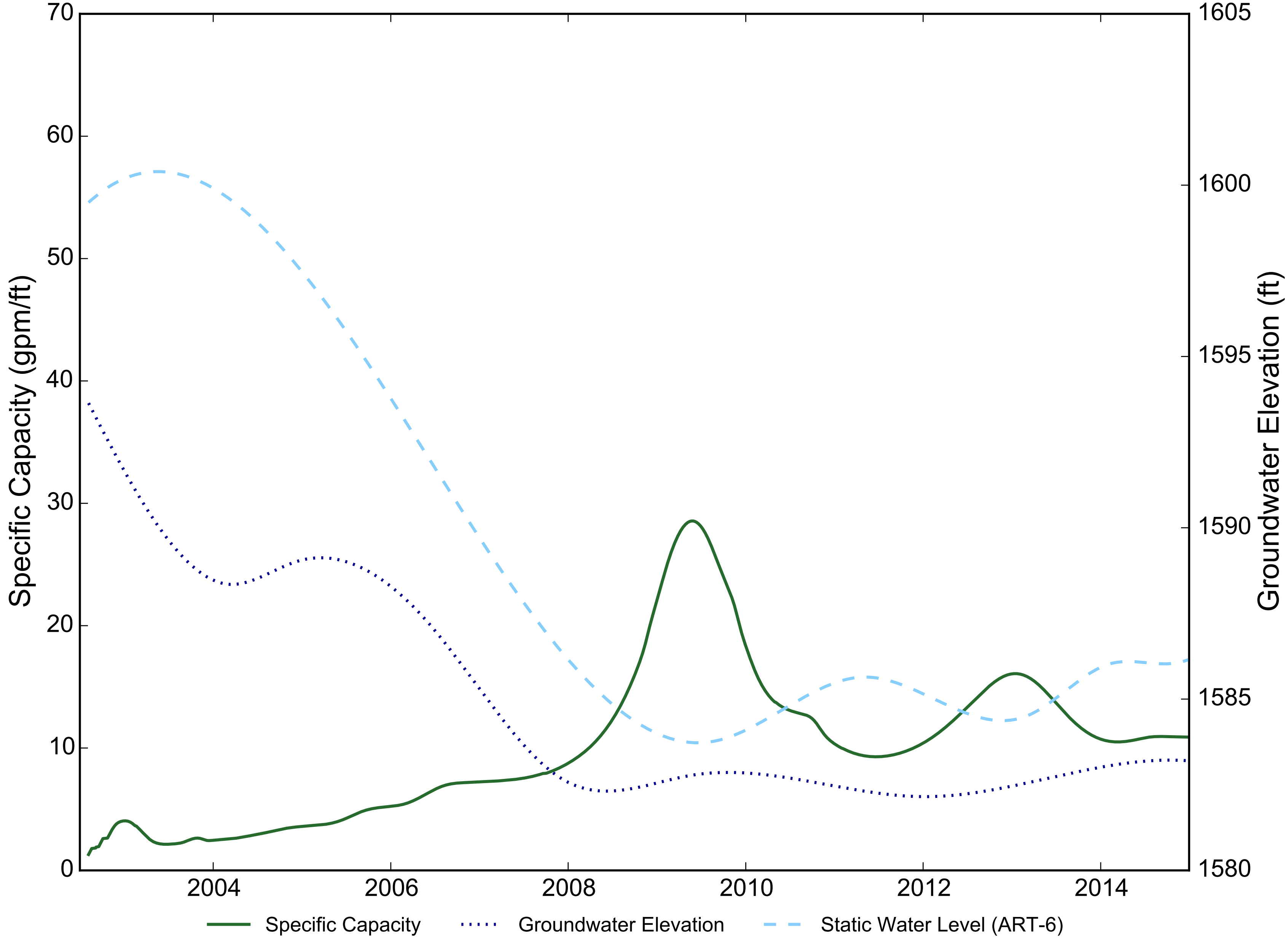
ENVIRON

Specific Capacity of Well ART-6/9
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-5

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:



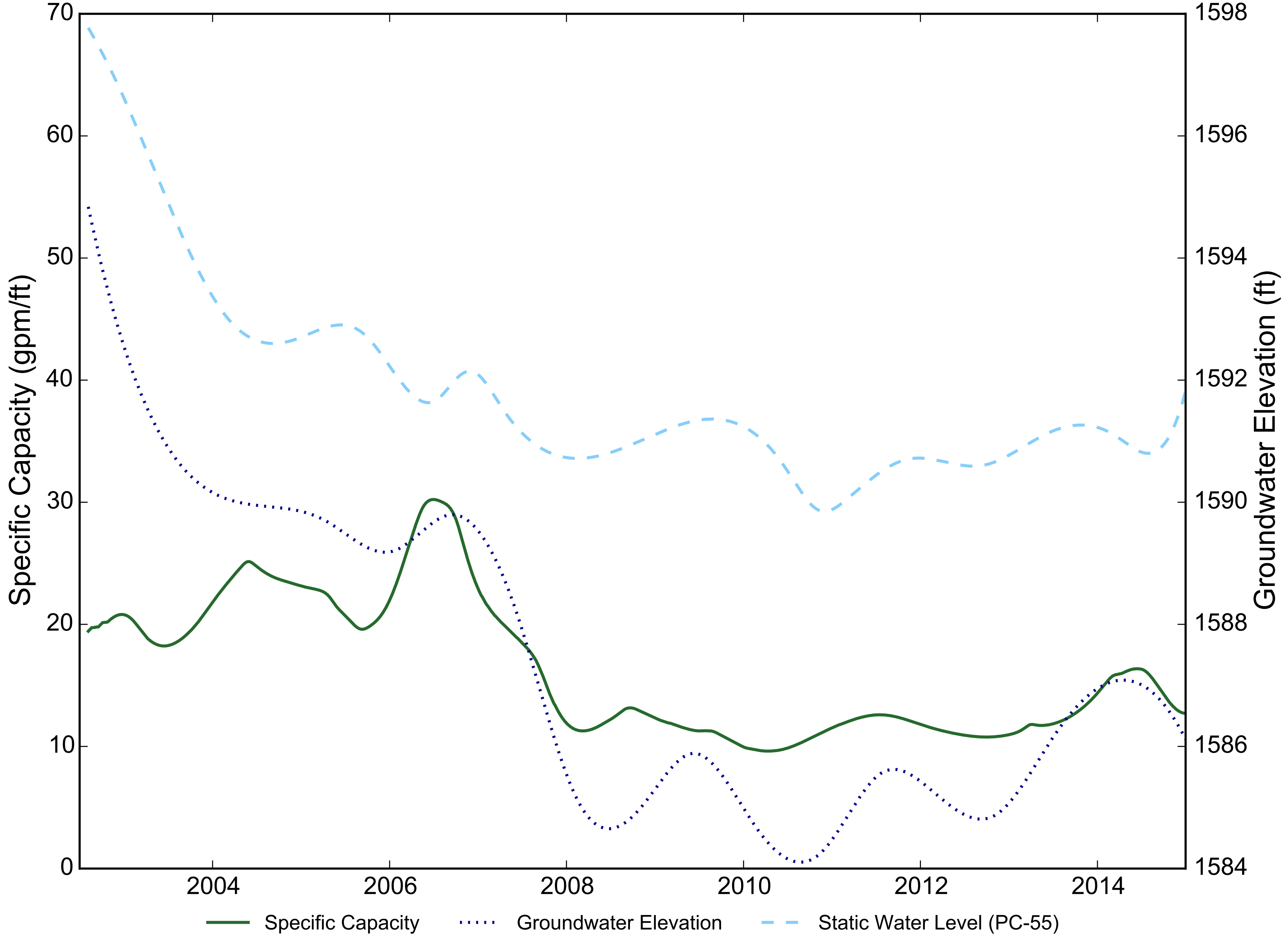
ENVIRON

Specific Capacity of Well ART-7/7A/7B
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-6

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:



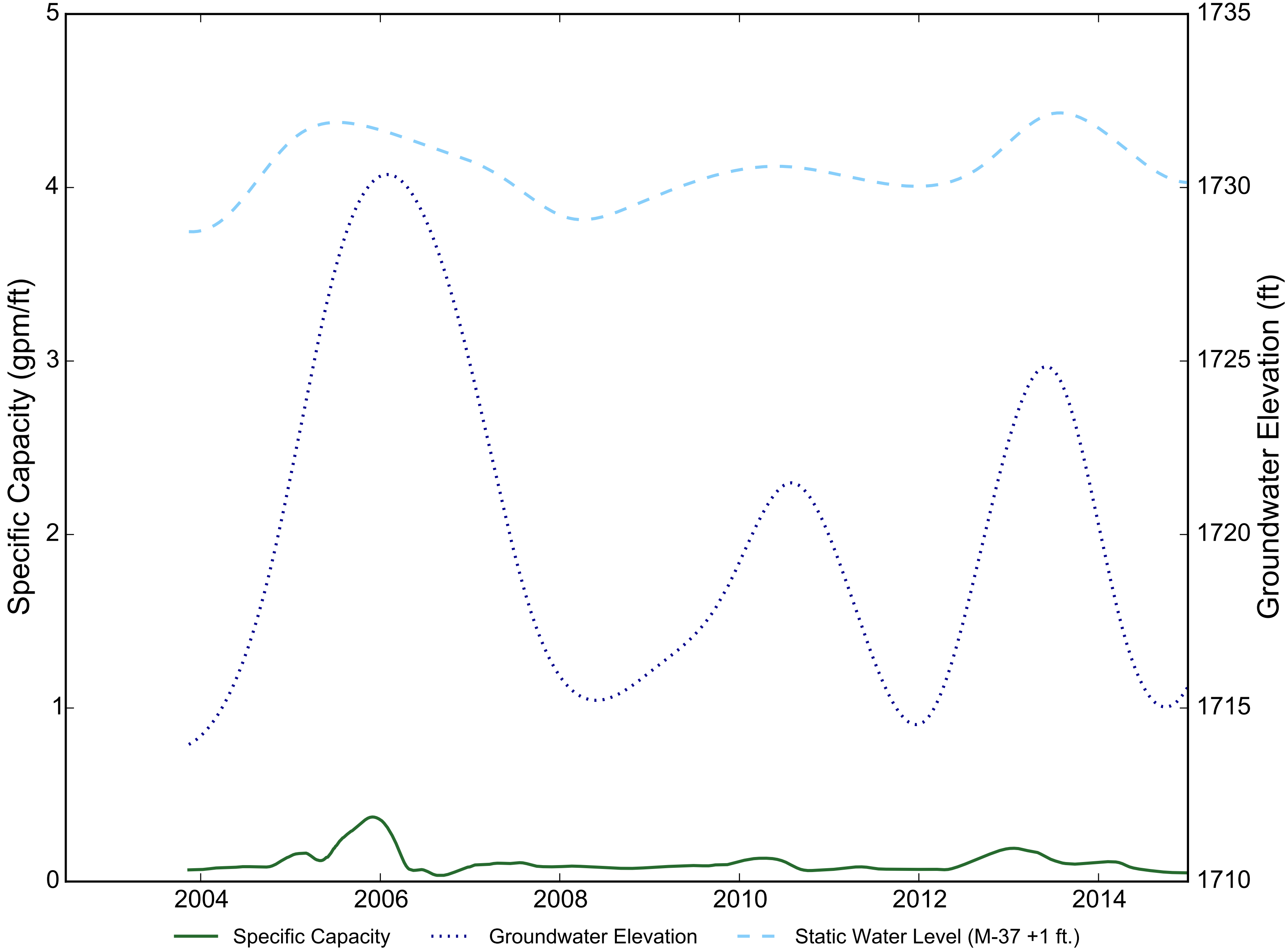
ENVIRON

Specific Capacity of Well ART-8/8A
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-7

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:



ENVIRON

Specific Capacity of Well I-AR
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-8

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:

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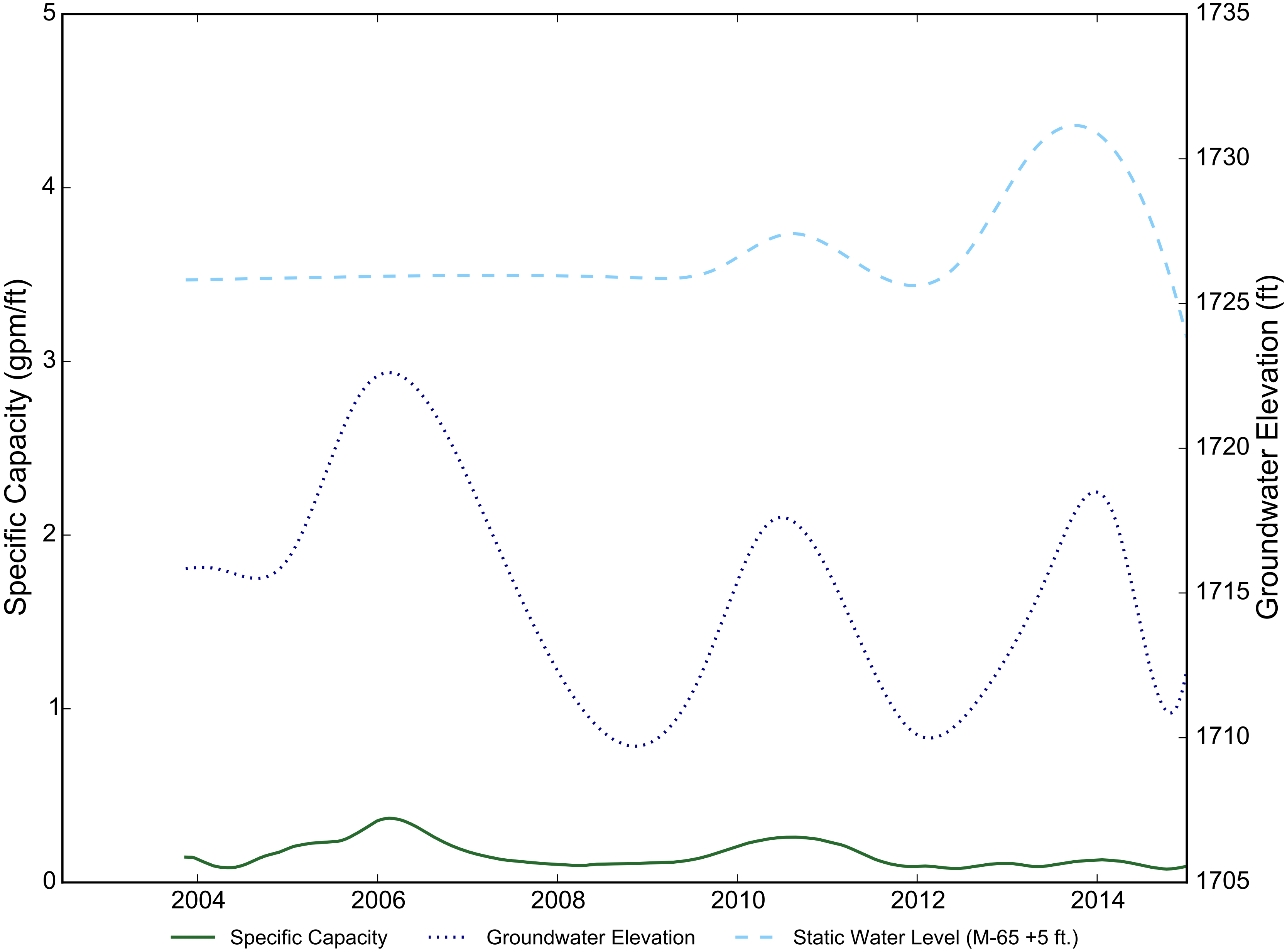

ENVIRON

Specific Capacity of Well I-B
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-9

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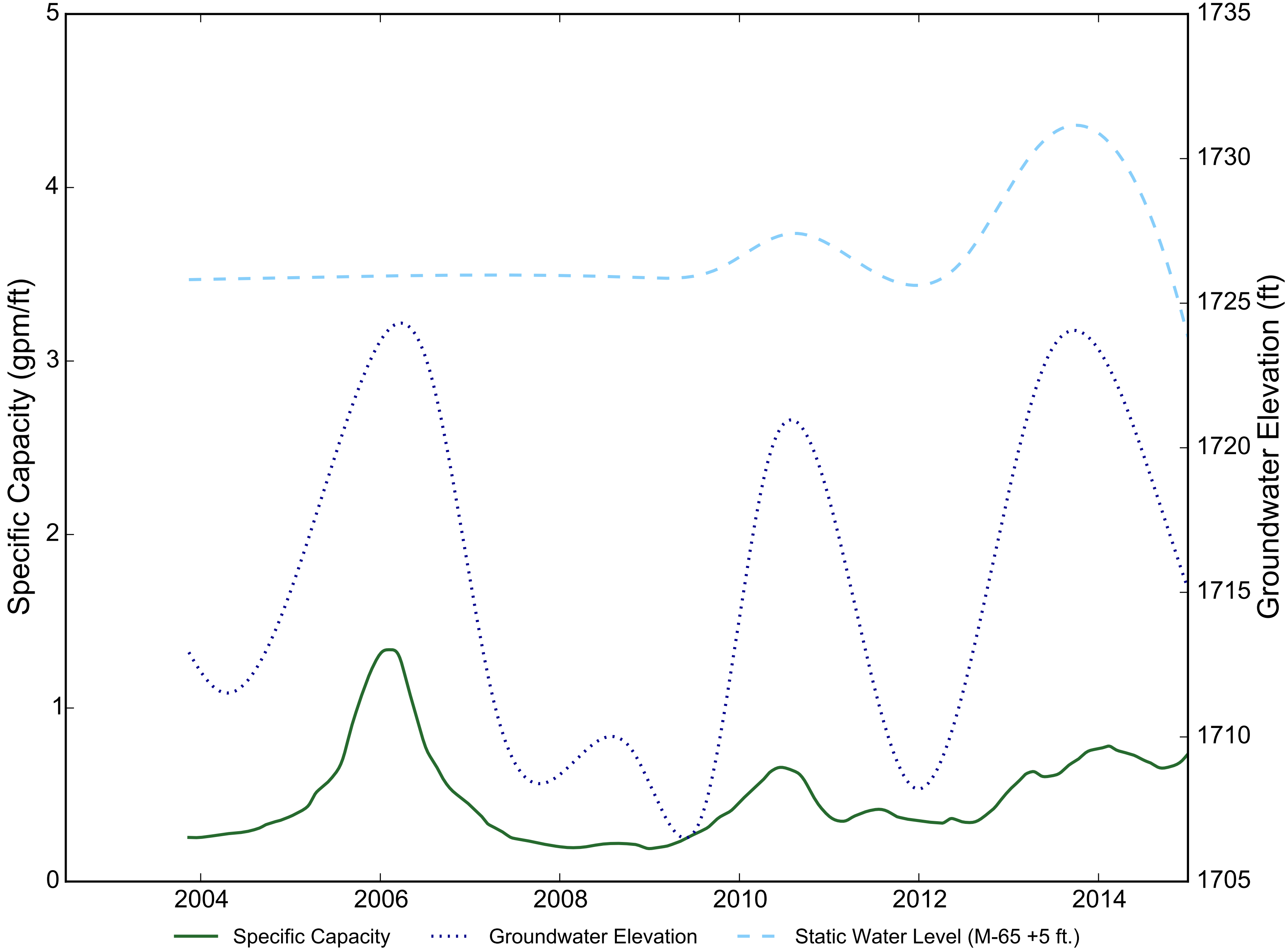
Date: 04/30/15
Contract Number: 21-37300B
Approved:
Revised:



ENVIRON

Specific Capacity of Well I-C
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-10

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

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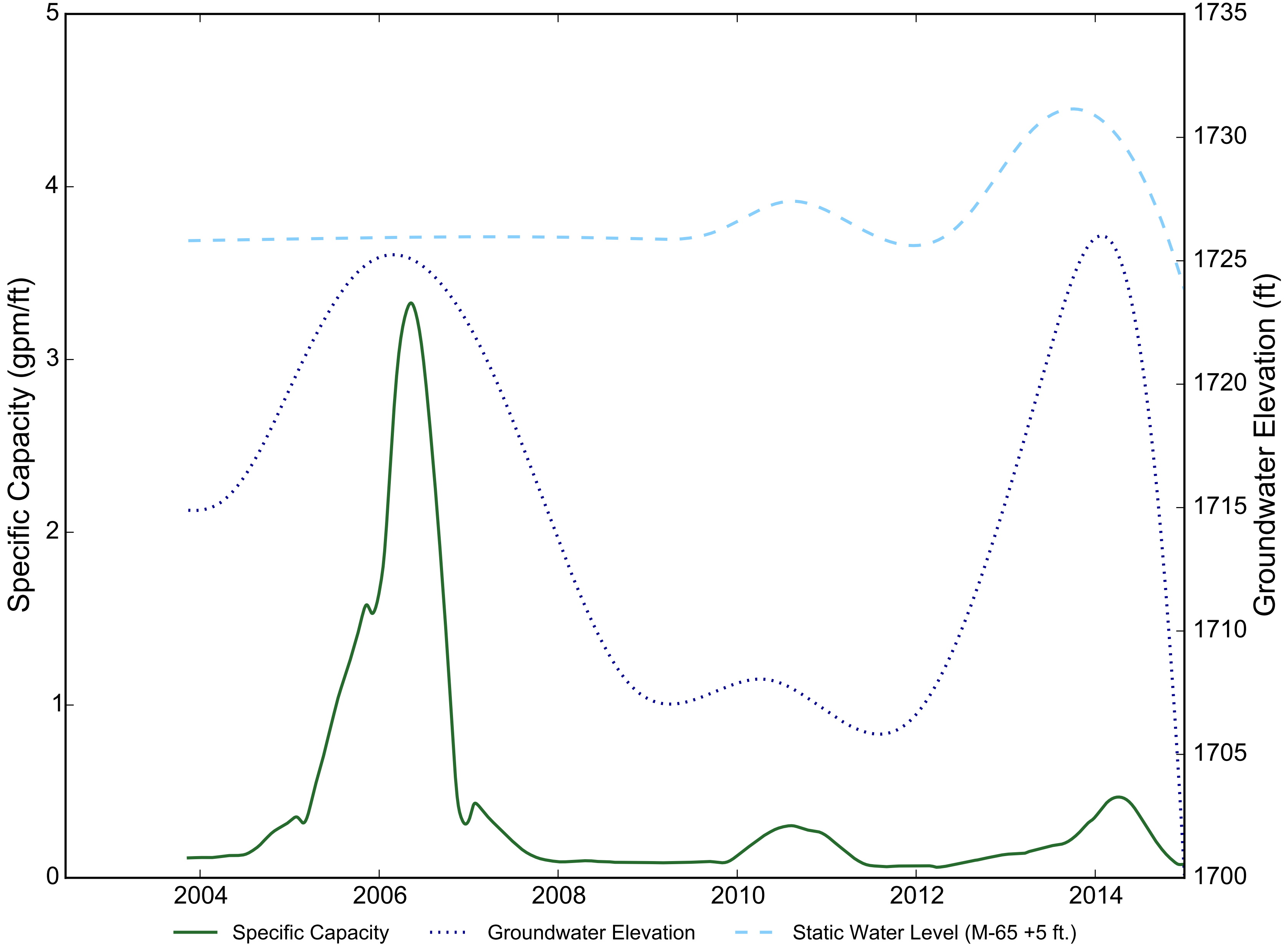

ENVIRON

Specific Capacity of Well I-D
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-11

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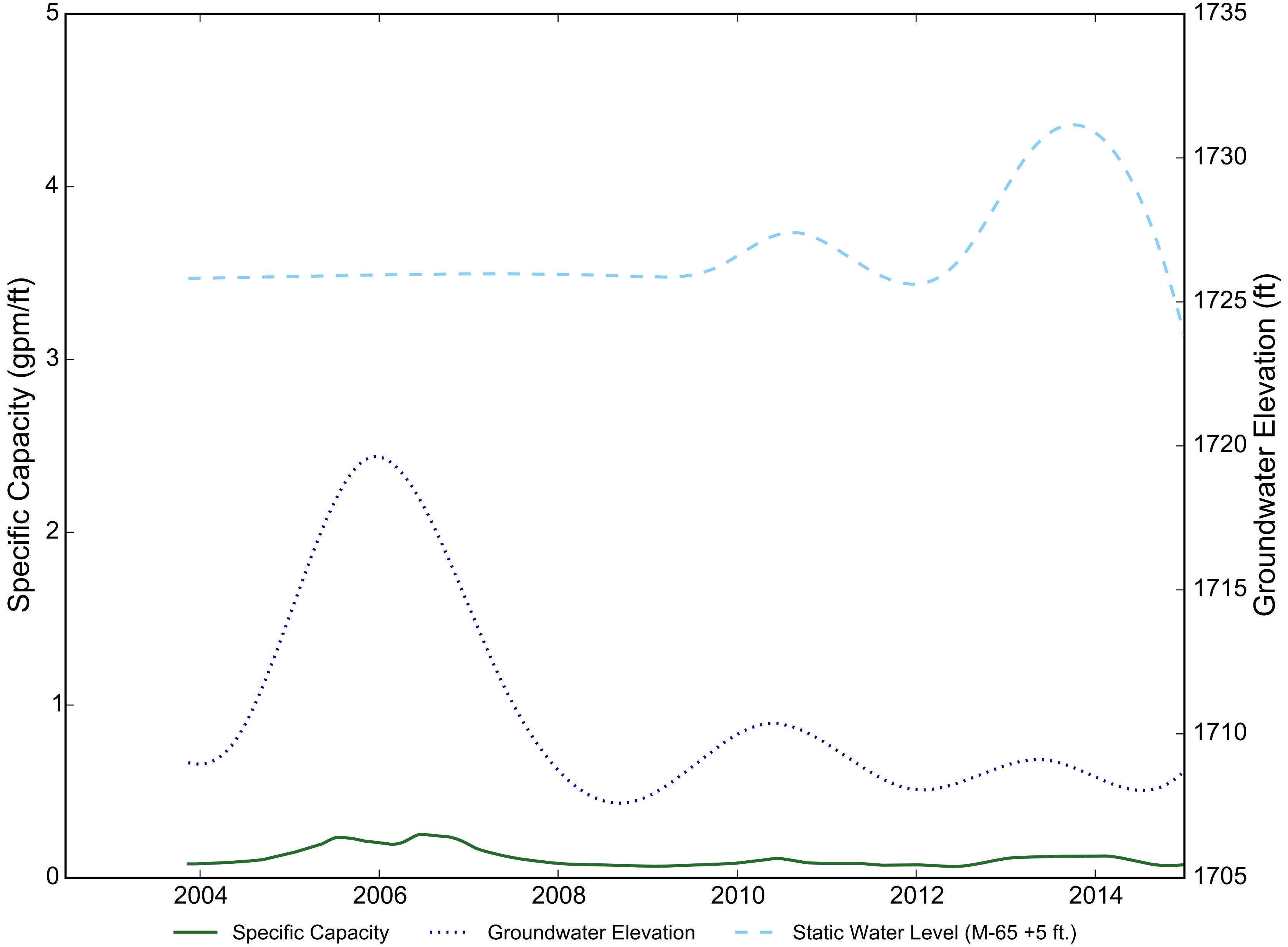

ENVIRON

Specific Capacity of Well I-E
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-12

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

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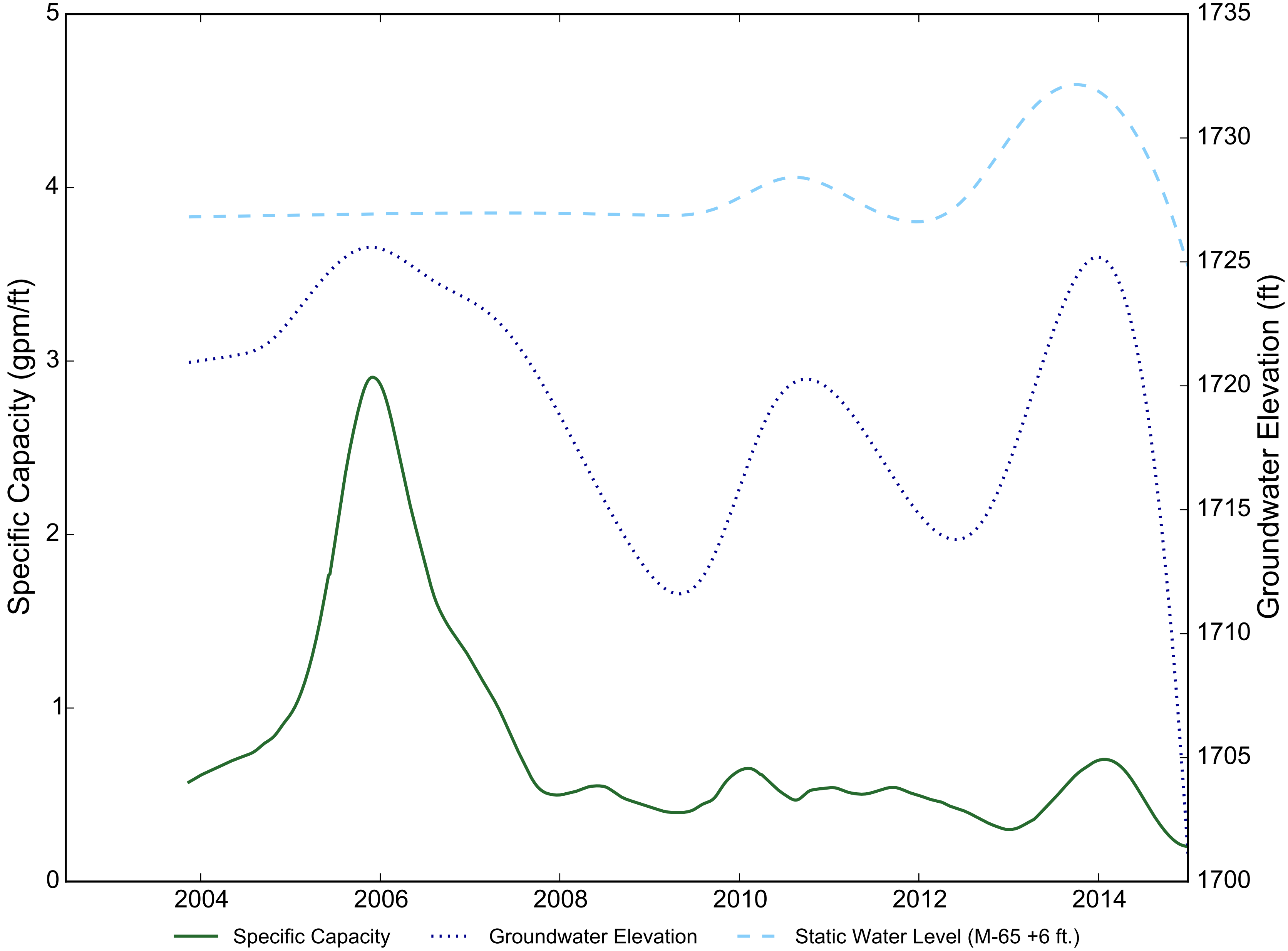

ENVIRON

Specific Capacity of Well I-F
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-13

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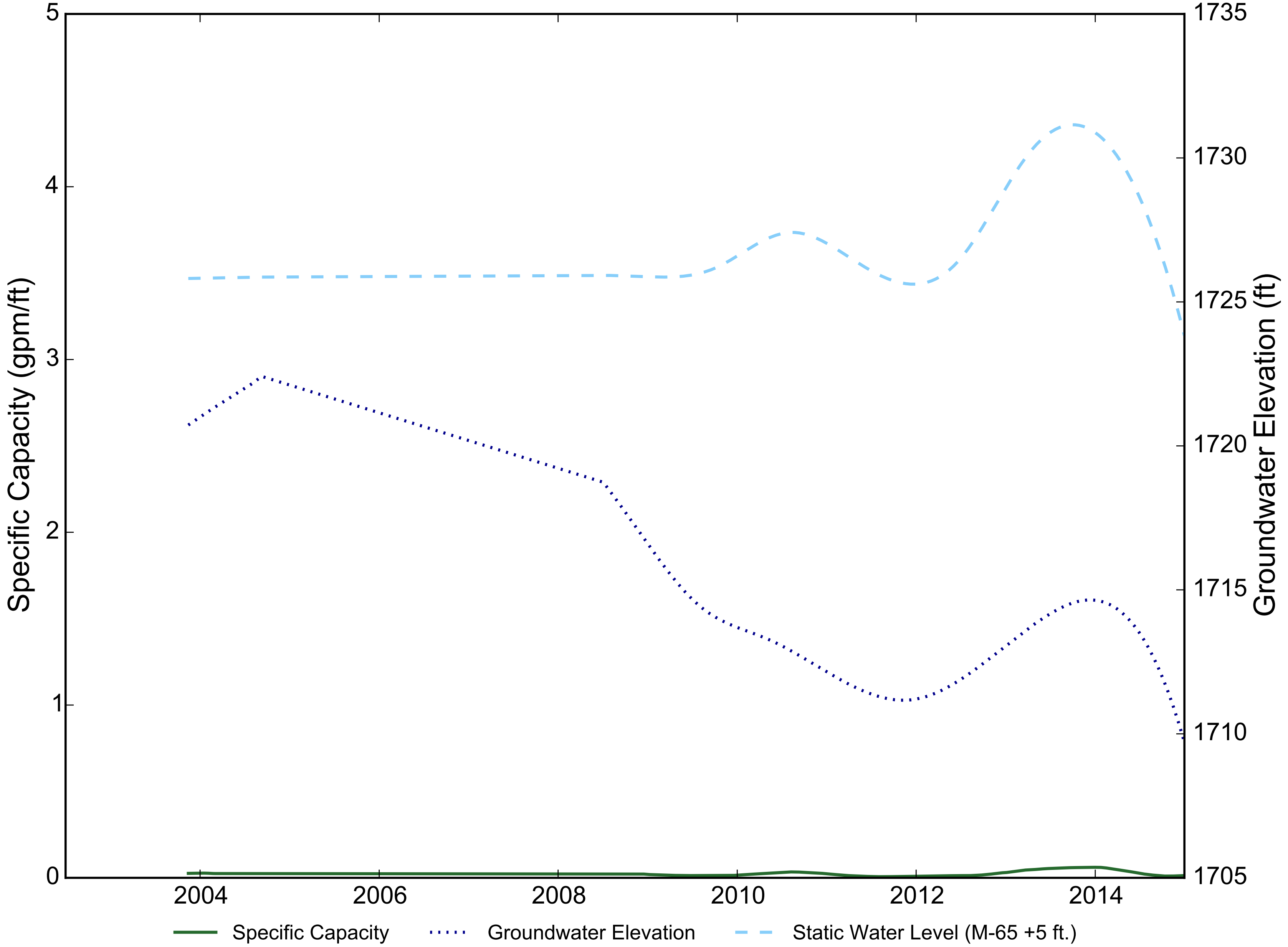

ENVIRON

Specific Capacity of Well I-G
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-14

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

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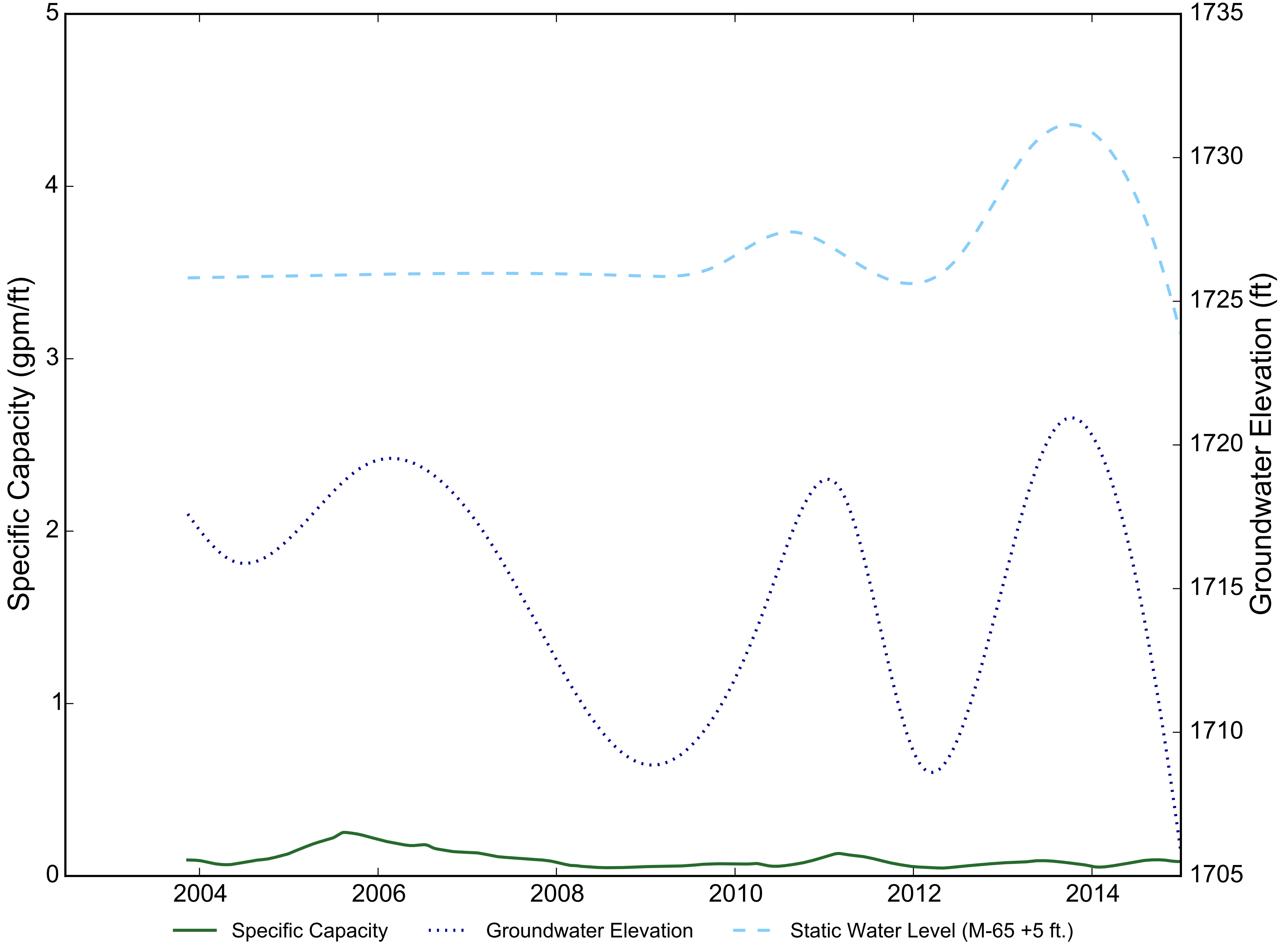

ENVIRON

Specific Capacity of Well I-H
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-15

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

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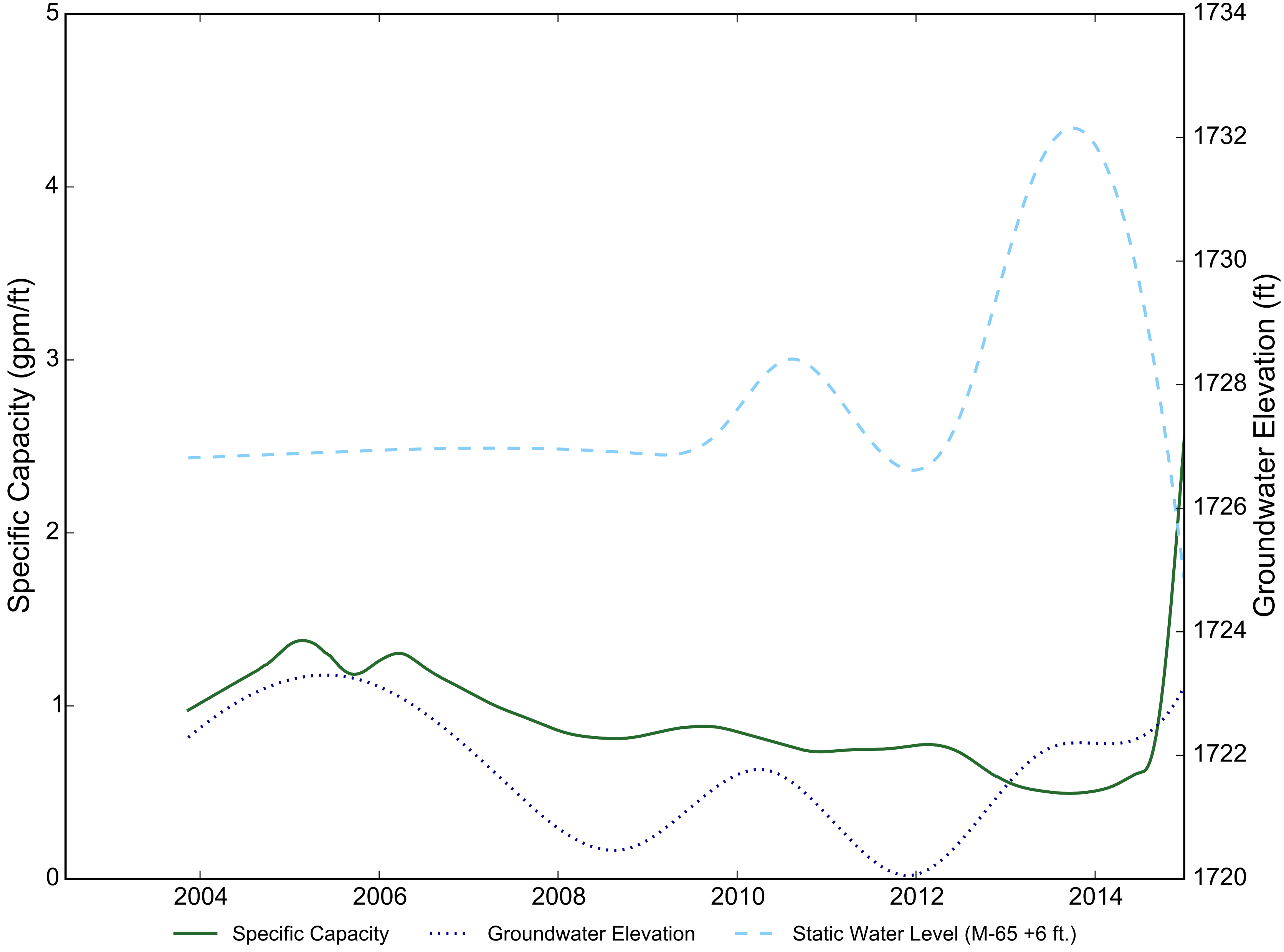

ENVIRON

Specific Capacity of Well I-I
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-16

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

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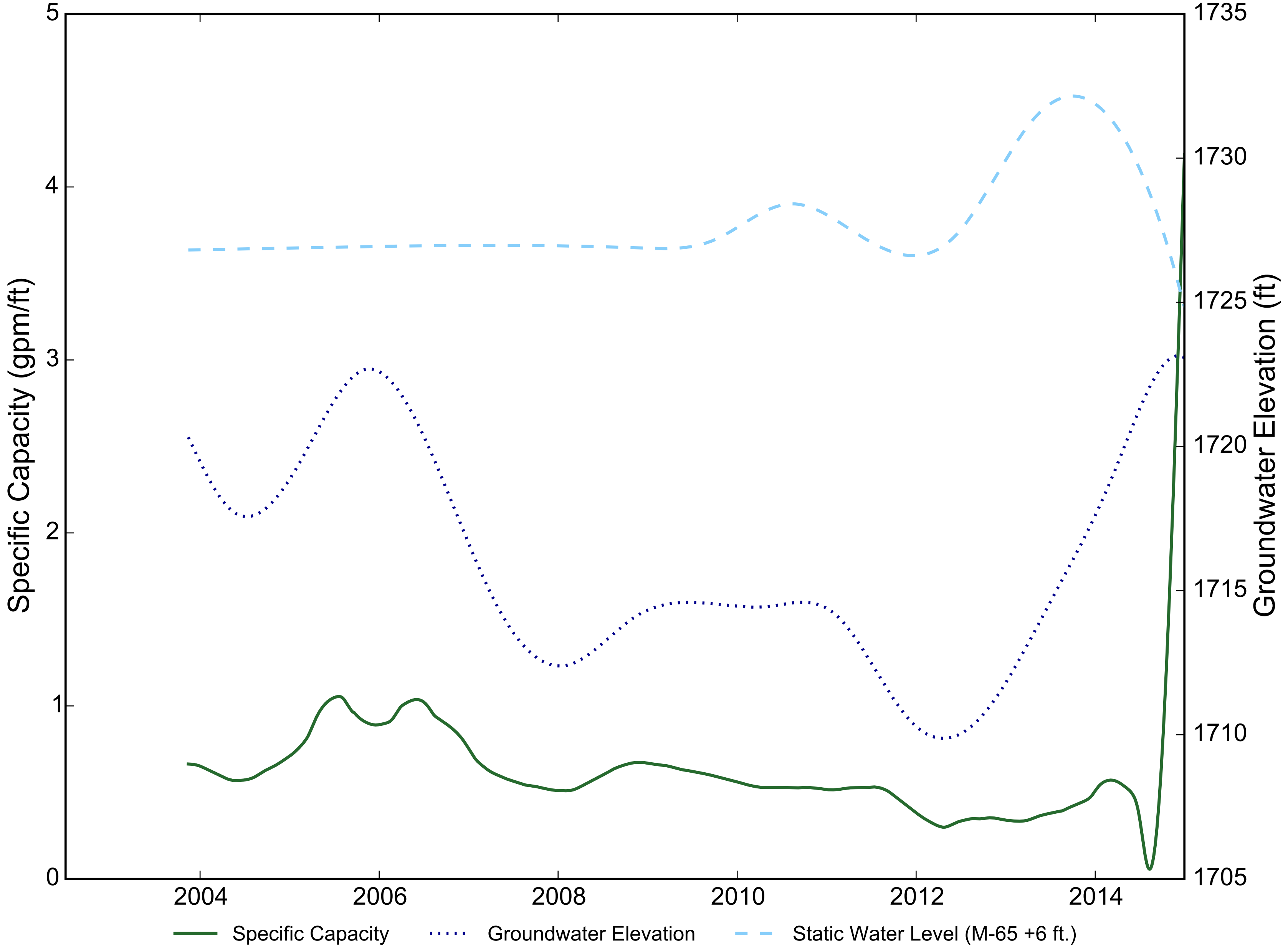

ENVIRON

Specific Capacity of Well I-J
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-17

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

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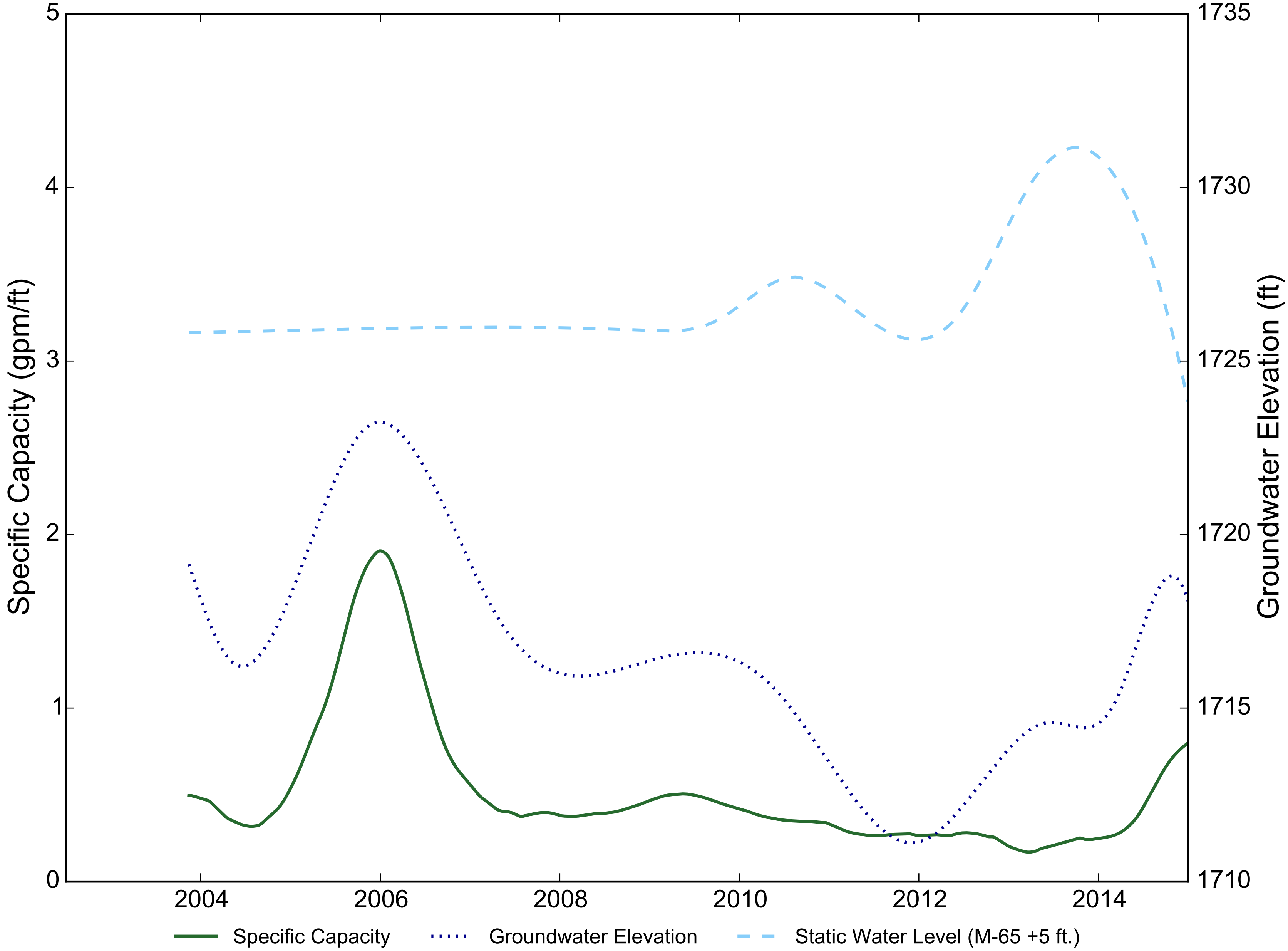


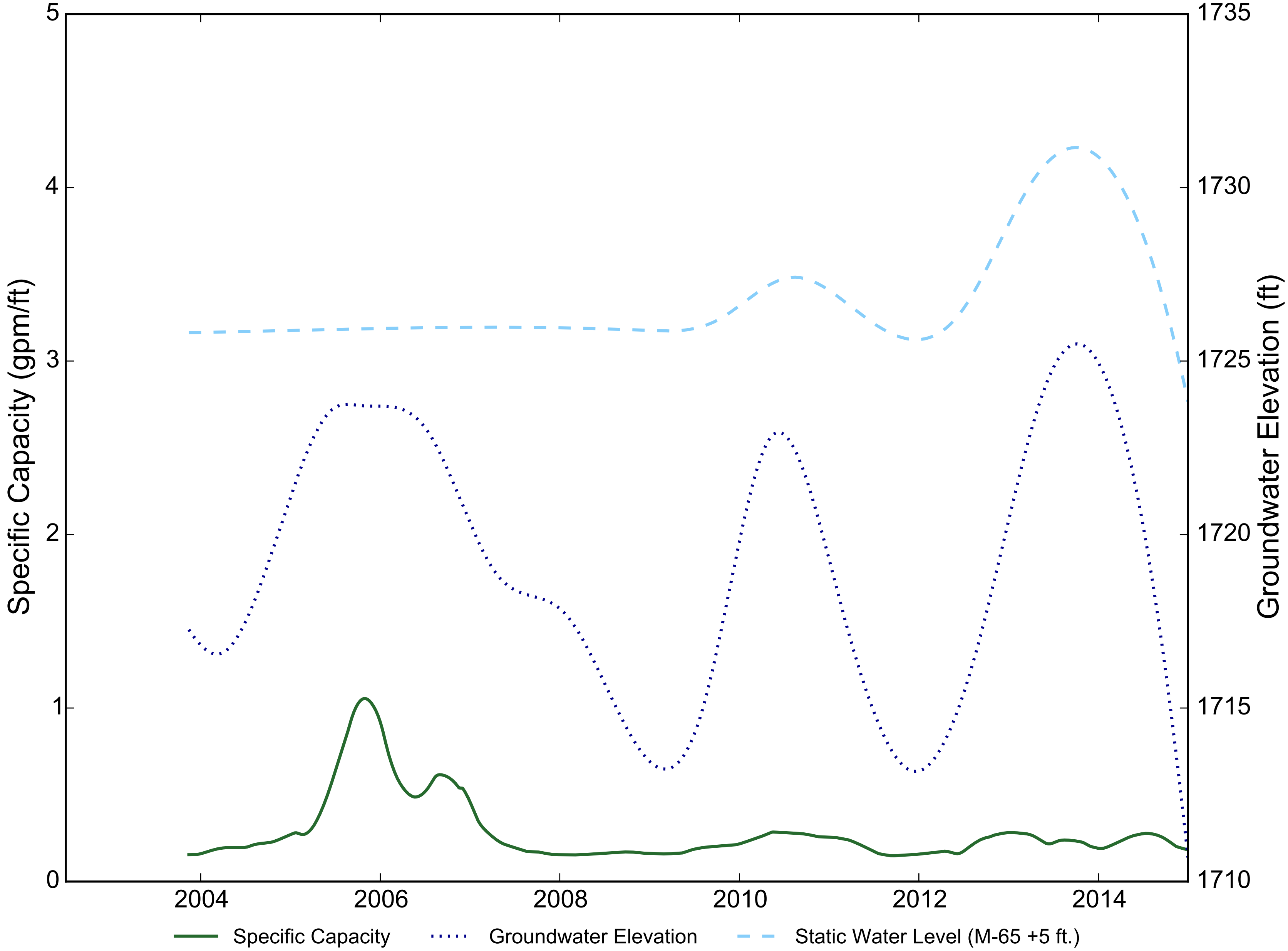
ENVIRON

Specific Capacity of Well I-K
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-18

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:

Path: C:\Users\JHunt\PythonSandbox\SpecCap.py



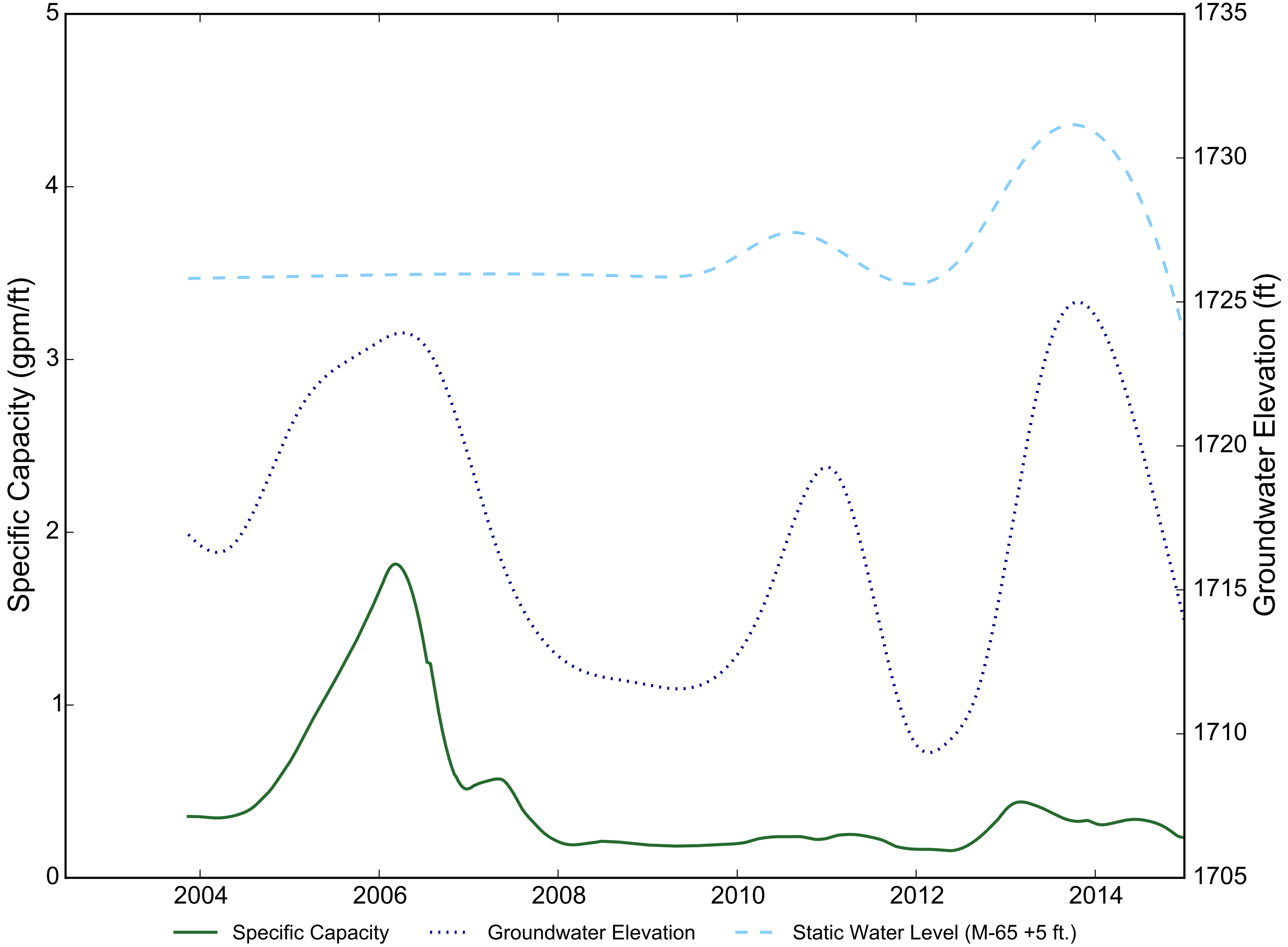
ENVIRON

Specific Capacity of Well I-L
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-19

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

Path: C:\Users\JHunt\PythonSandbox\SpecCap.py

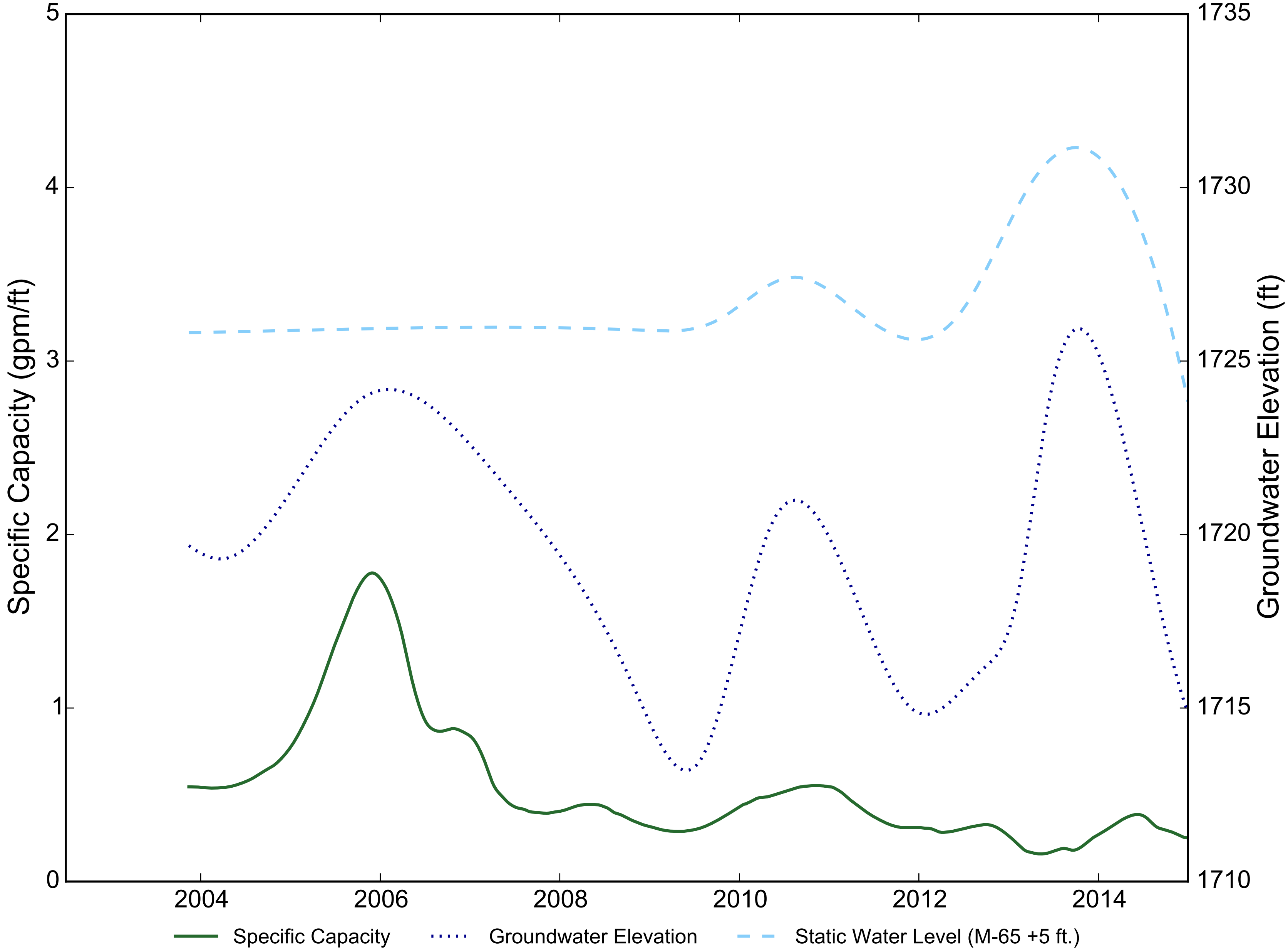


ENVIRON

Specific Capacity of Well I-M
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-20

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:



ENVIRON

Specific Capacity of Well I-N
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-21

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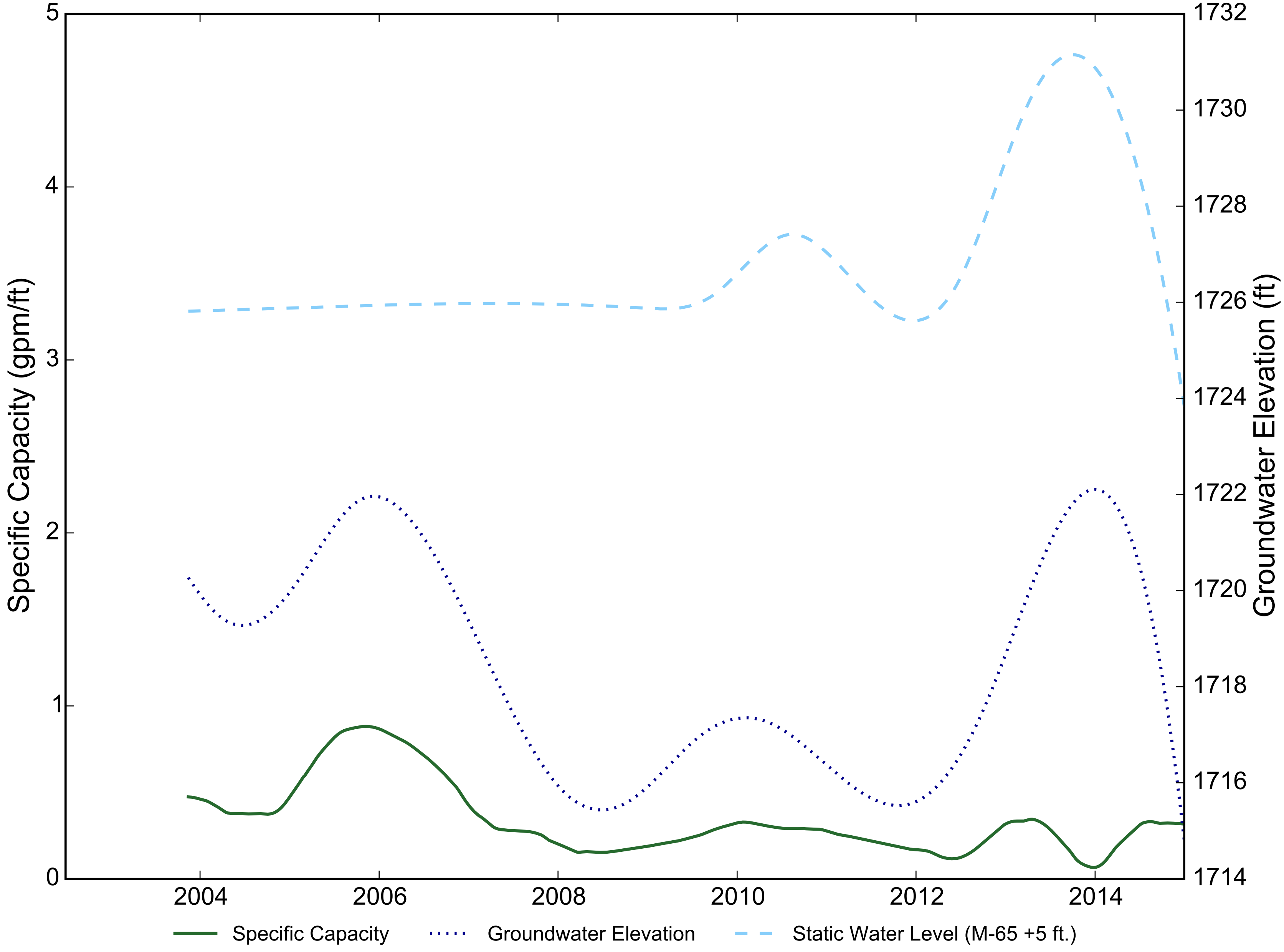
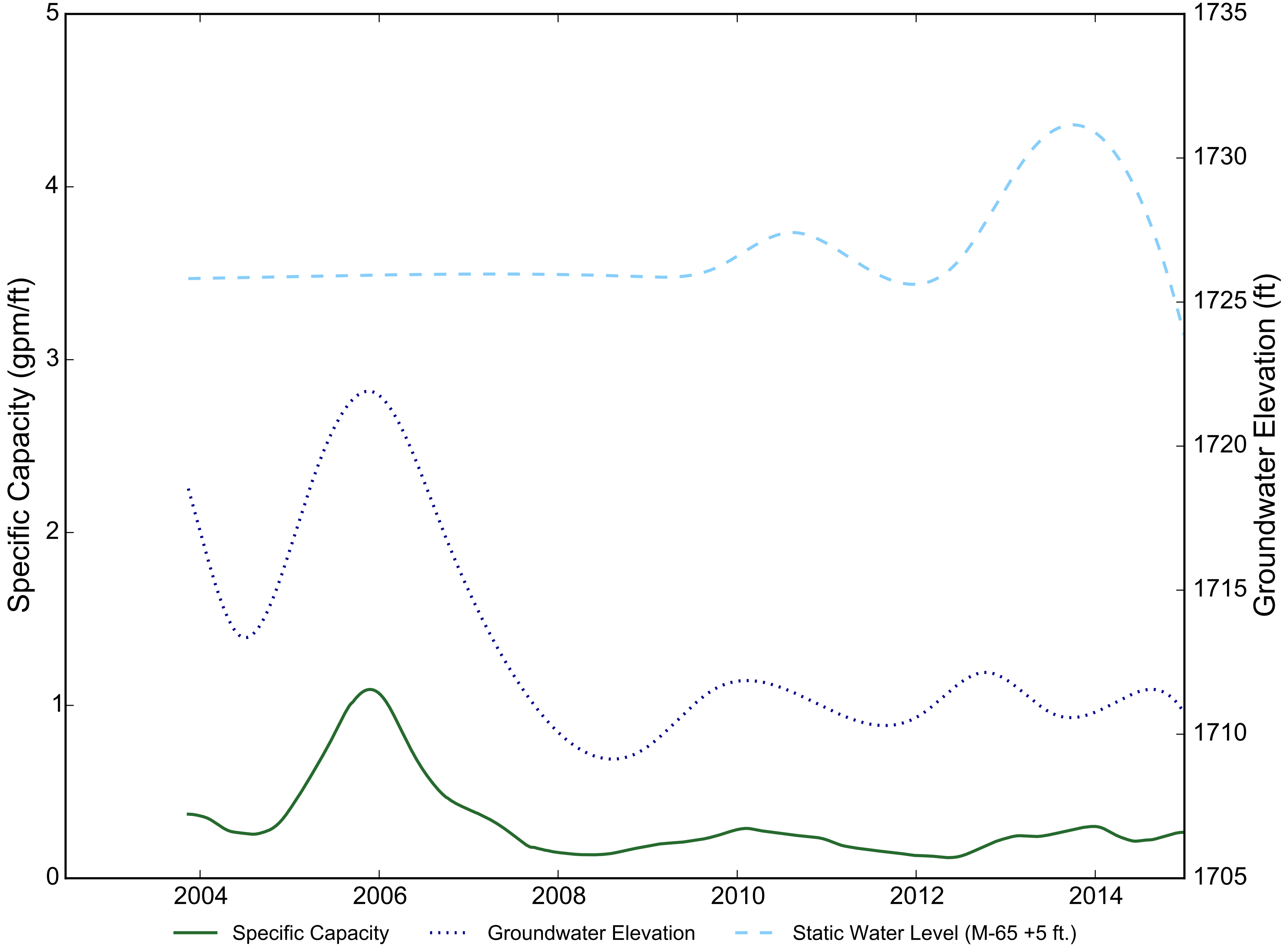


ENVIRON

Specific Capacity of Well I-O
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-22

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:



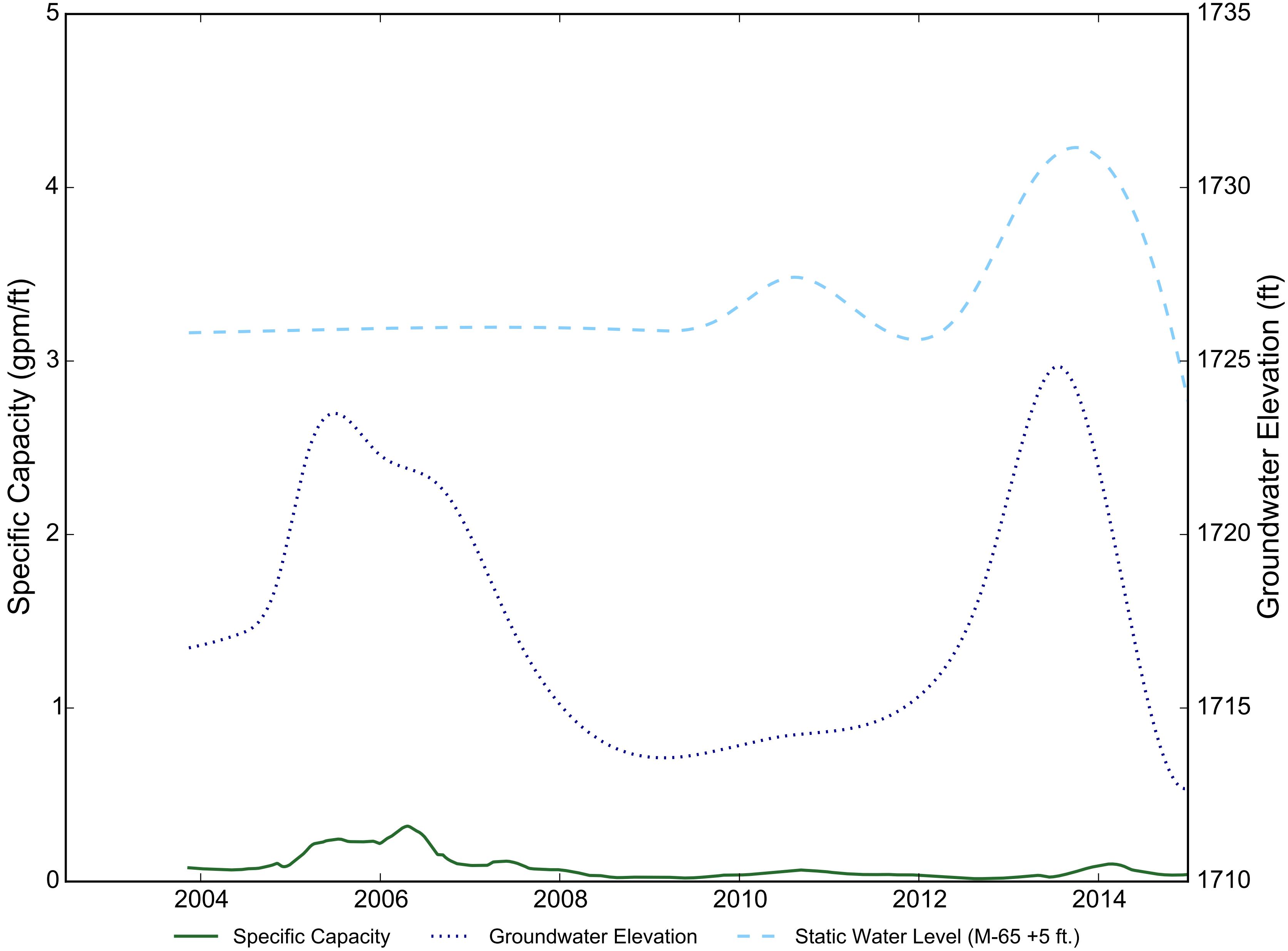
ENVIRON

Specific Capacity of Well I-P
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-23

Drafter: JH | Date: 04/30/15 | Contract Number: 21-37300B | Approved: | Revised:

Path: C:\Users\JHunt\PythonSandbox\SpecCap.py



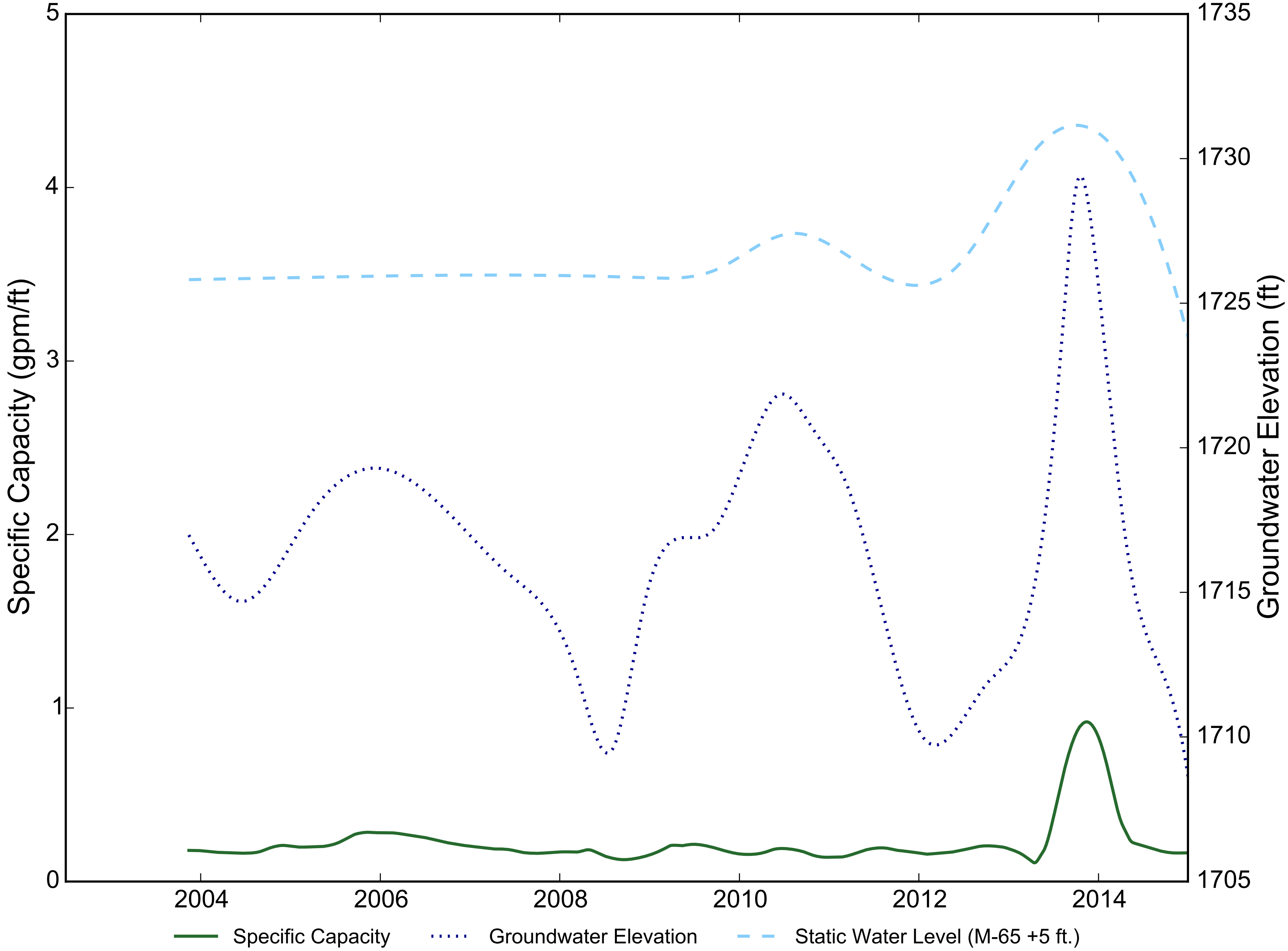
ENVIRON

Specific Capacity of Well I-Q
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-24

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

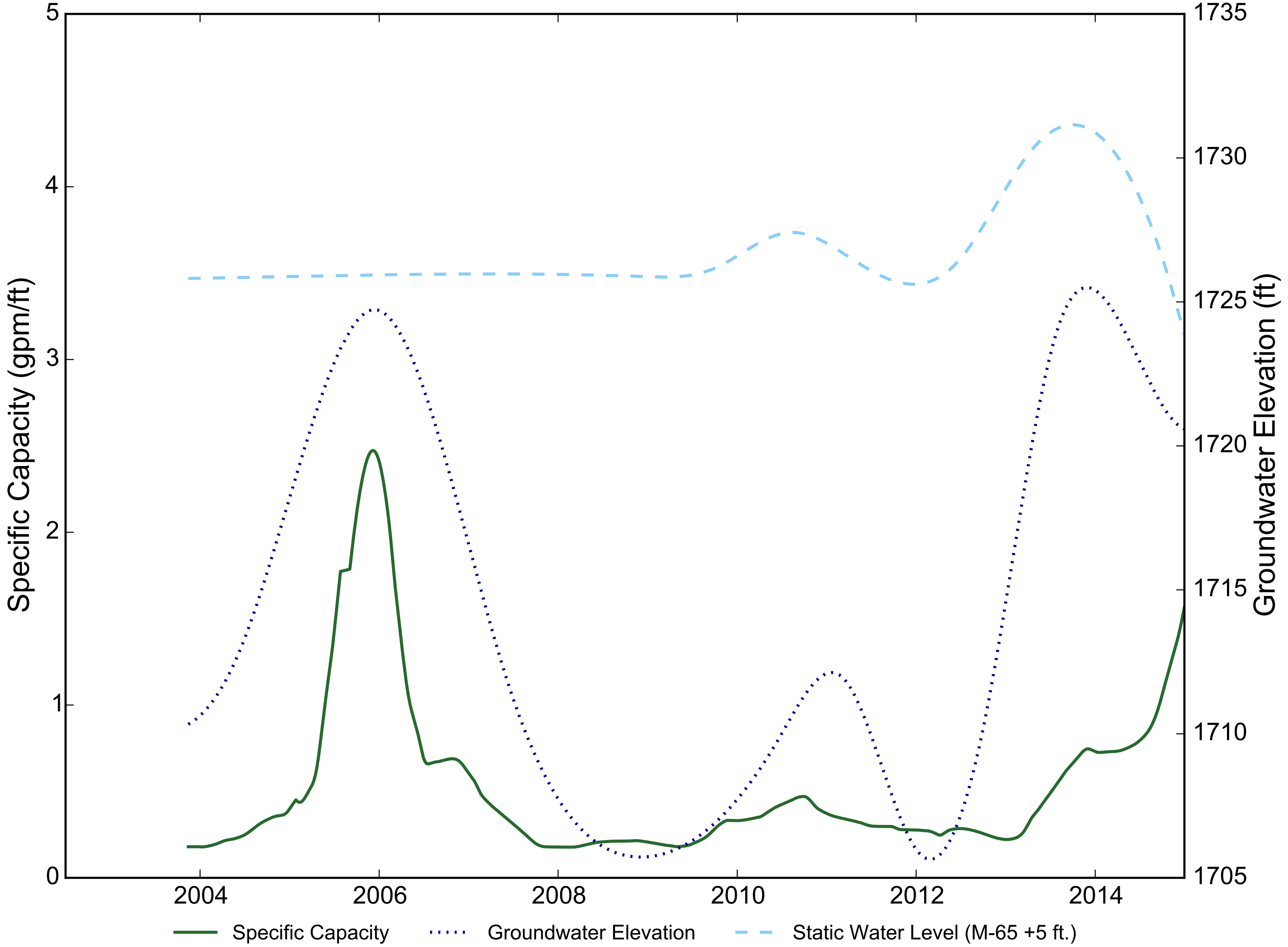


ENVIRON

Specific Capacity of Well I-R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-25

Drafter: JH
Date: 04/30/15
Contract Number: 21-37300B
Approved:
Revised:

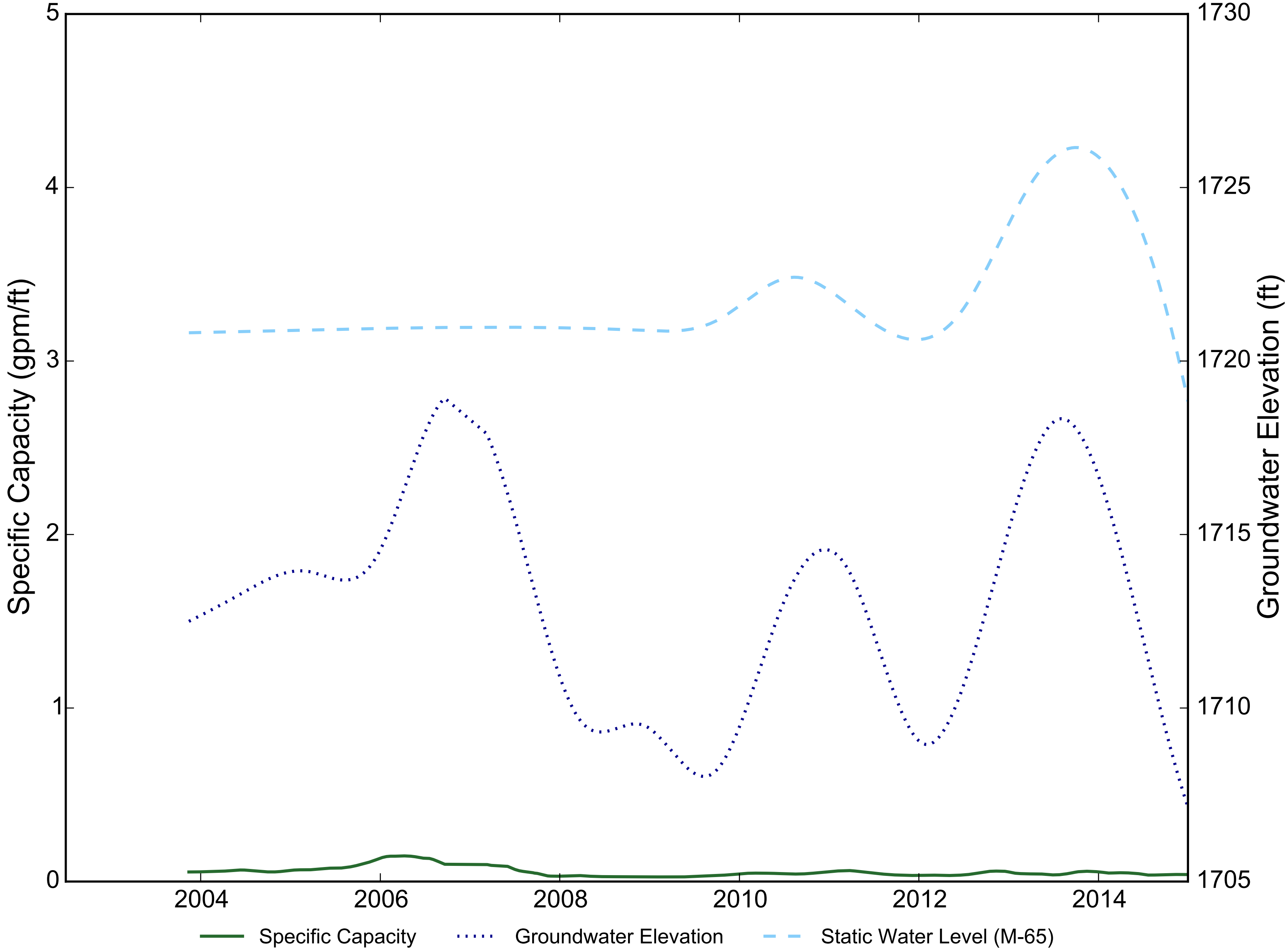


ENVIRON

Specific Capacity of Well I-S
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-26

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:



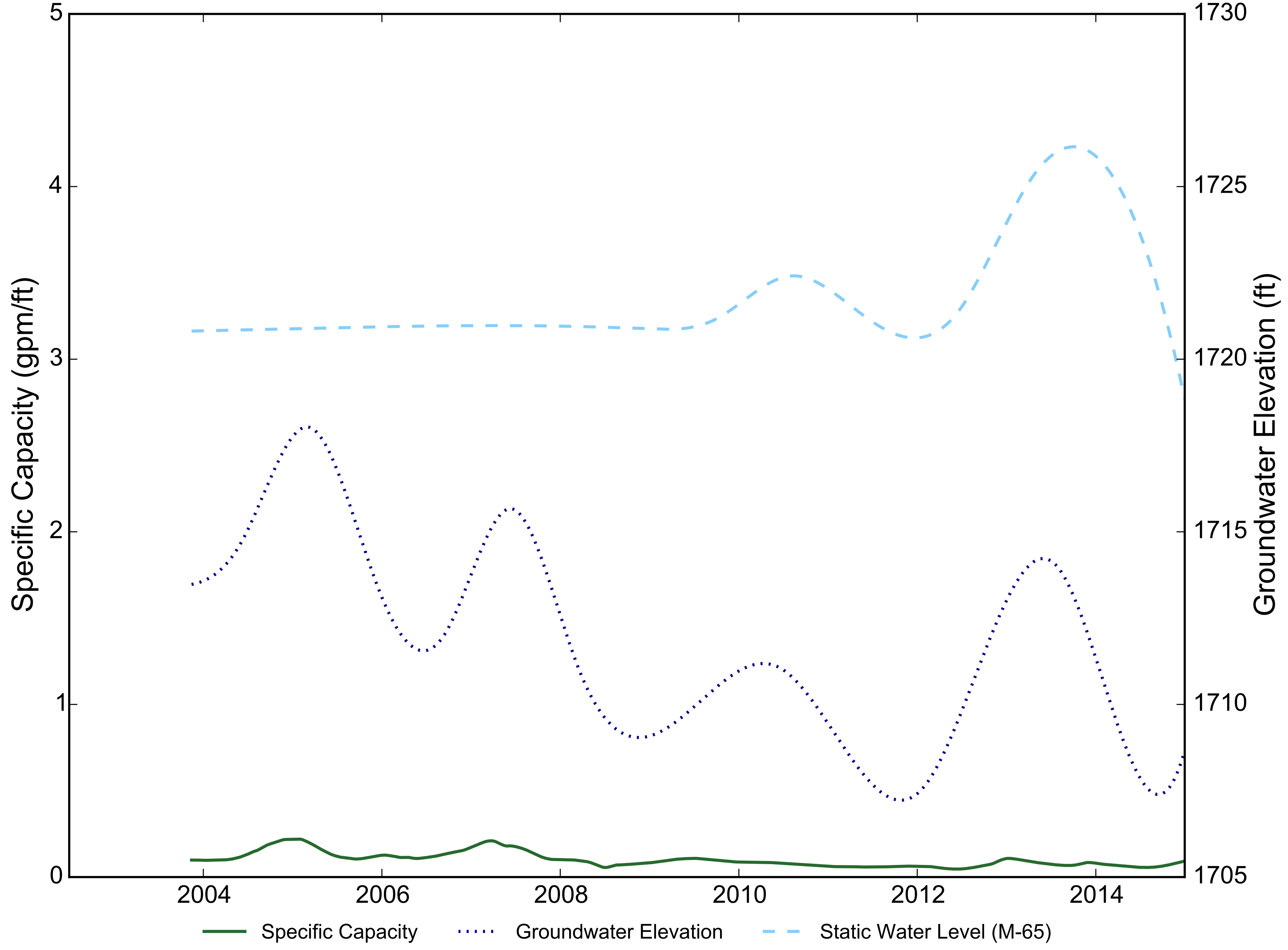
ENVIRON

Specific Capacity of Well I-T
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-27

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:

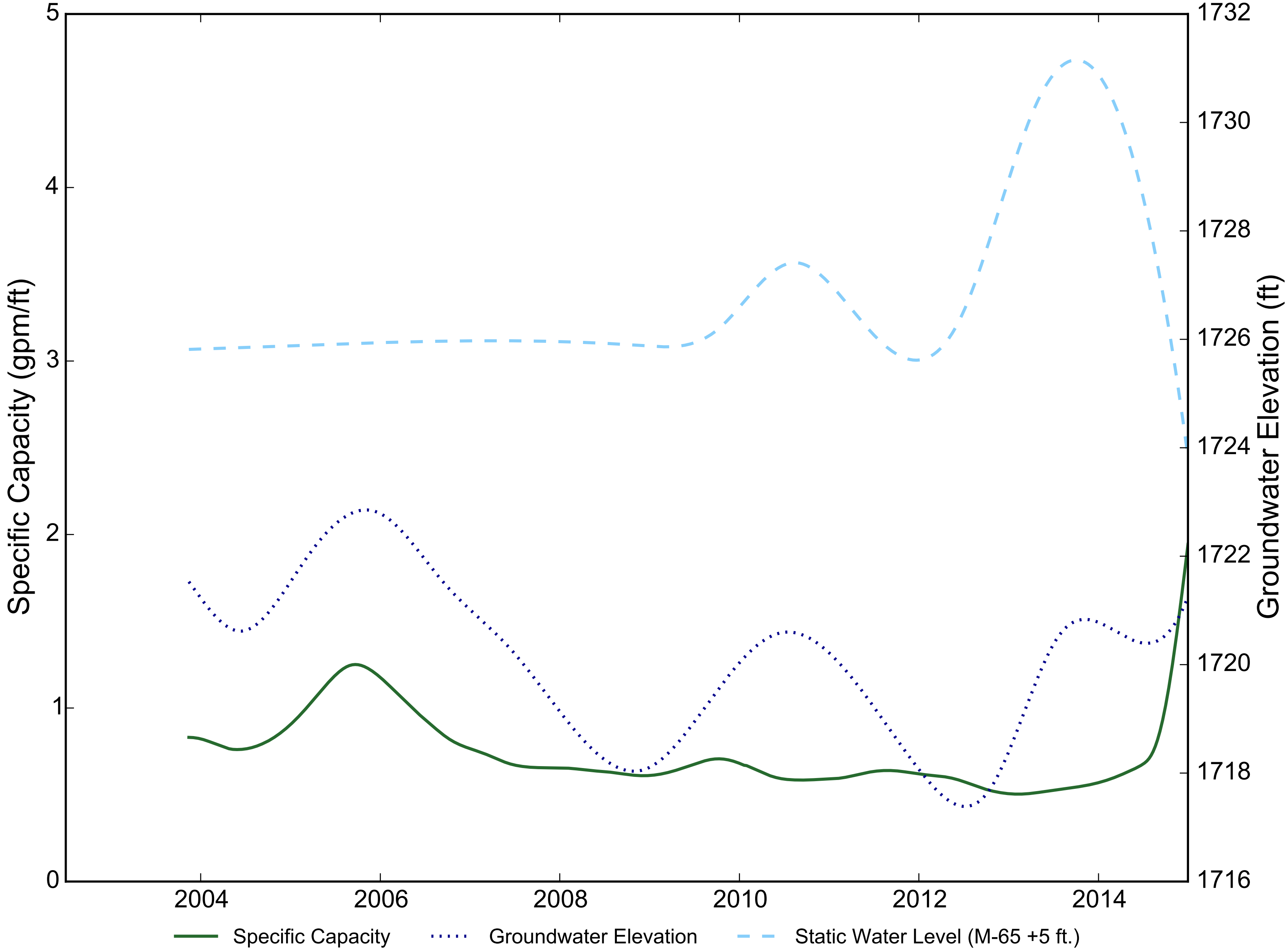


ENVIRON

Specific Capacity of Well I-U
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-28

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

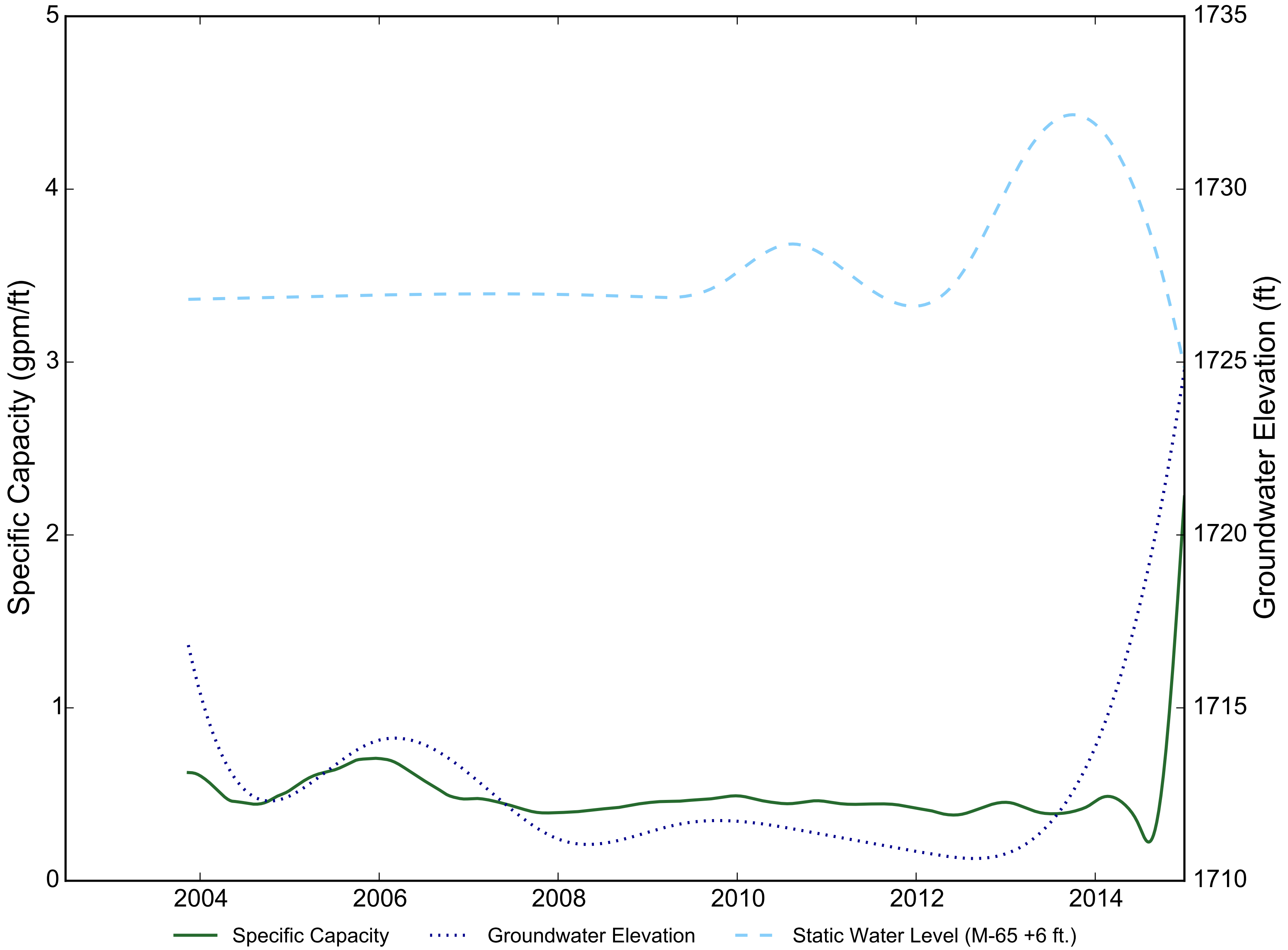


ENVIRON

Specific Capacity of Well I-V
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-29

Drafter: JH | Date: 04/30/15 | Contract Number: 21-37300B | Approved: | Revised:

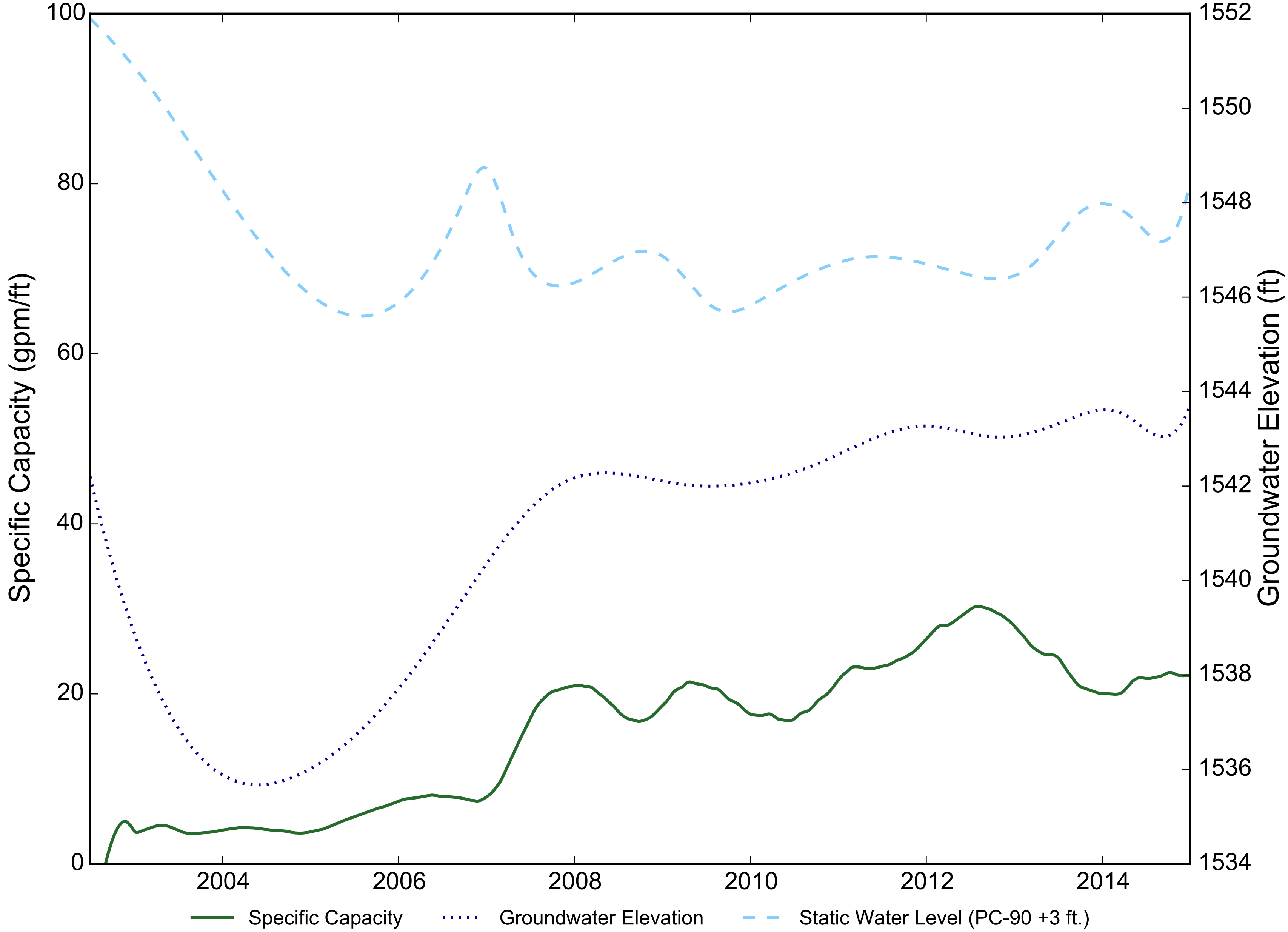


ENVIRON

Specific Capacity of Well I-Z
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-30

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

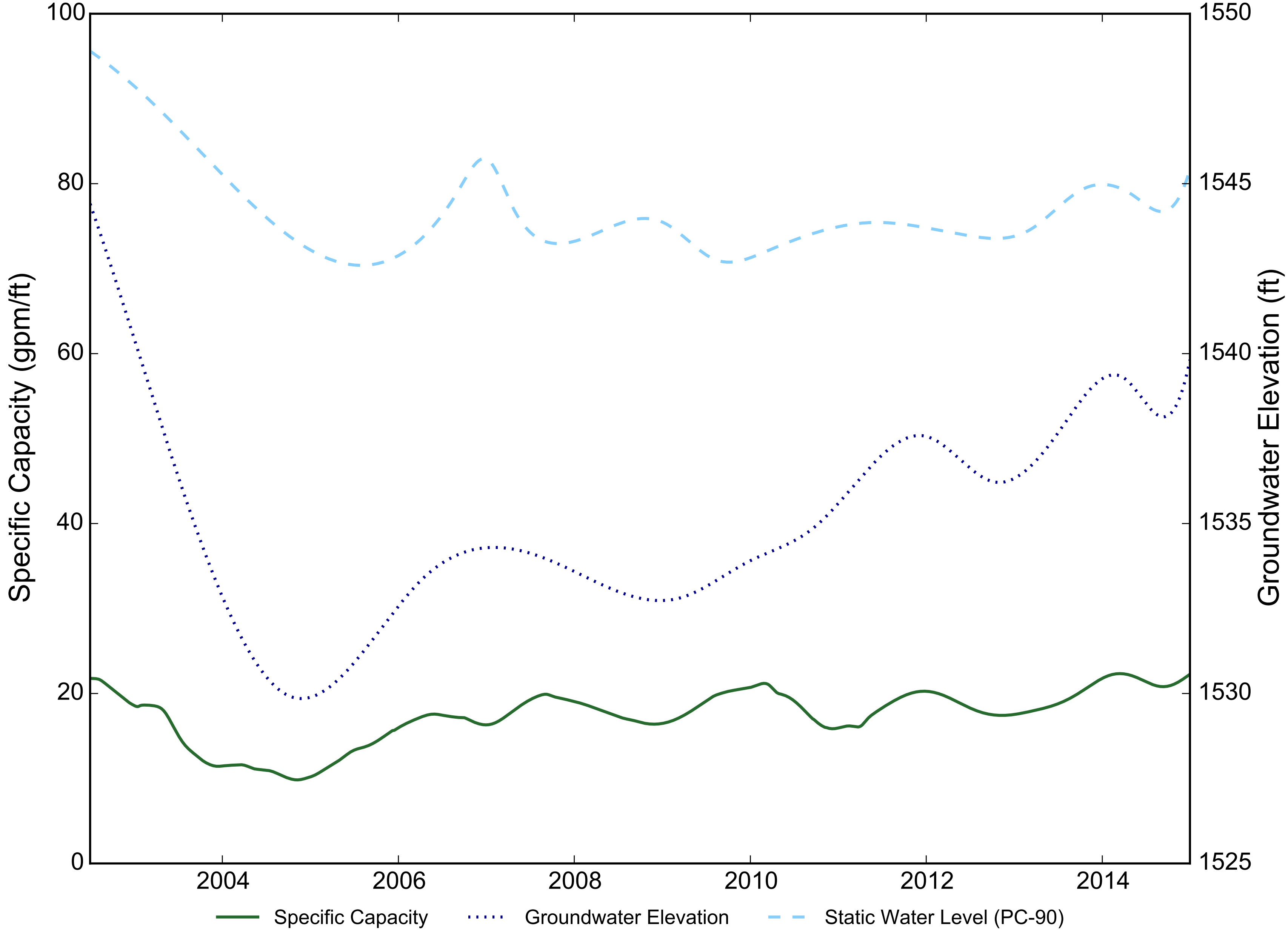


ENVIRON

Specific Capacity of Well PC-115R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-31

Drafter: JH | Date: 04/30/15 | Contract Number: 21-37300B | Approved: | Revised:



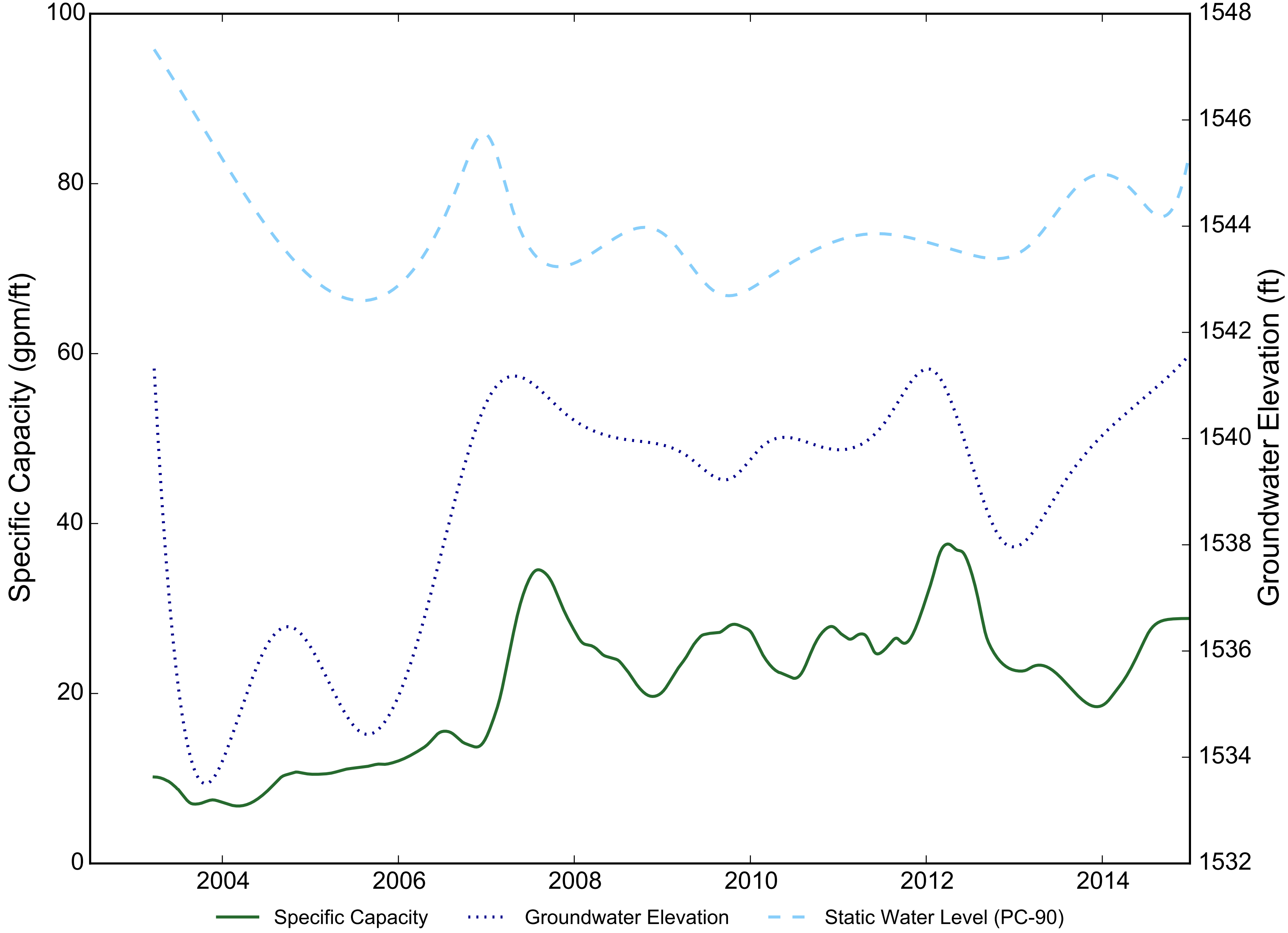
ENVIRON

Specific Capacity of Well PC-116R
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-32

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

Path: C:\Users\JHunt\PythonSandbox\SpecCap.py



ENVIRON

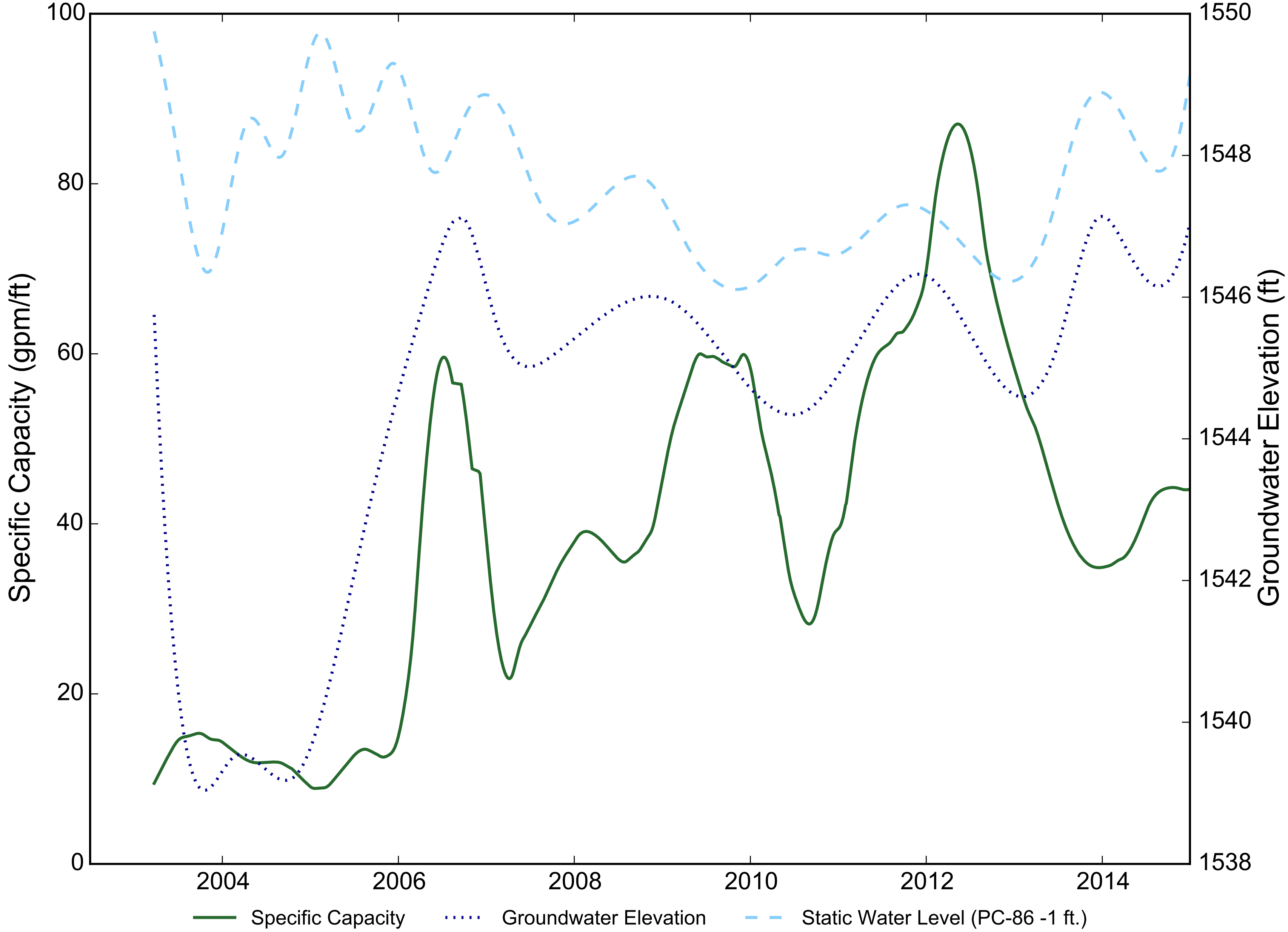
Specific Capacity of Well PC-117
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-33

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:

Path: C:\Users\JHunt\PythonSandbox\SpecCap.py

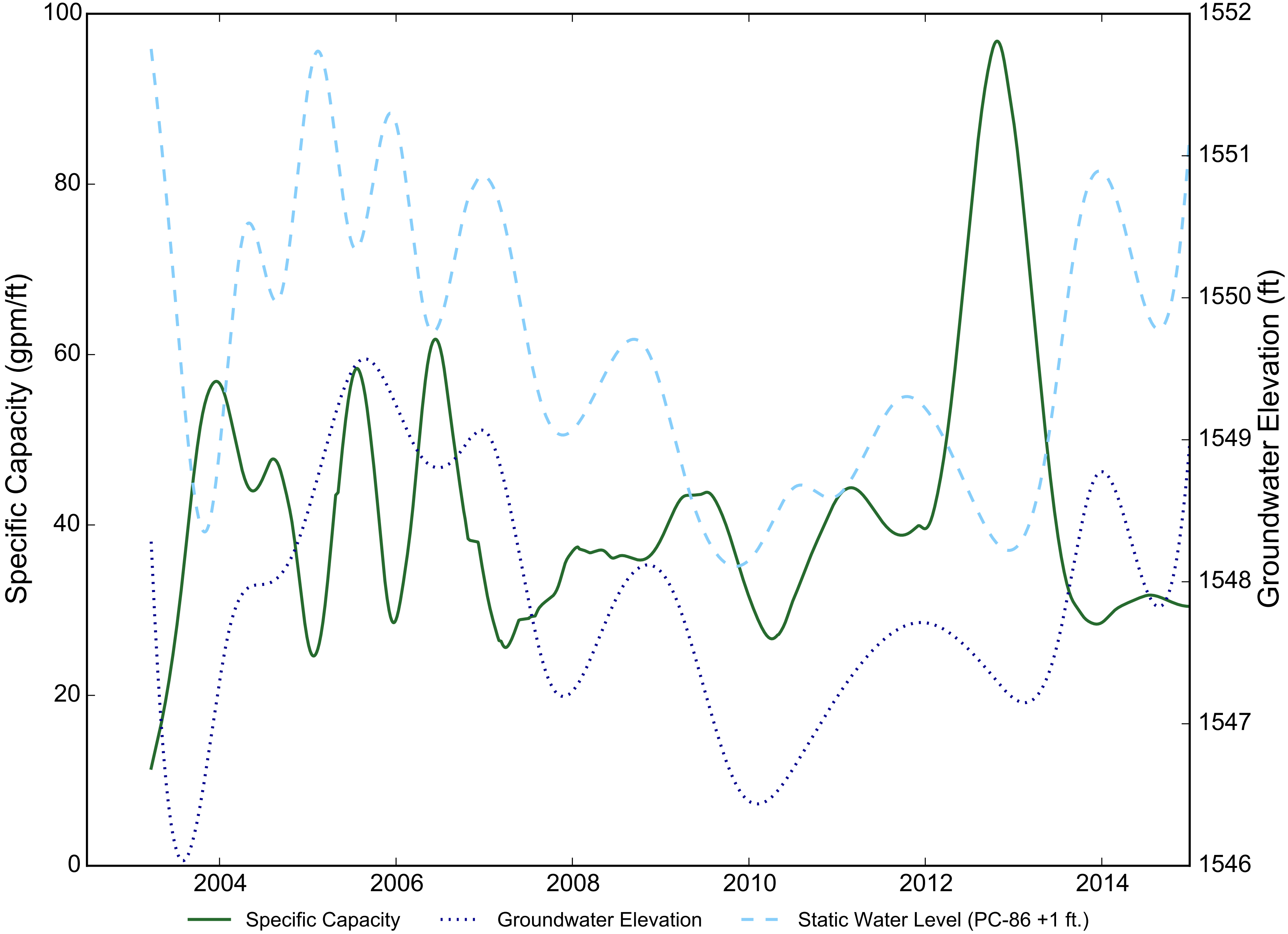


ENVIRON

Specific Capacity of Well PC-118
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-34

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:



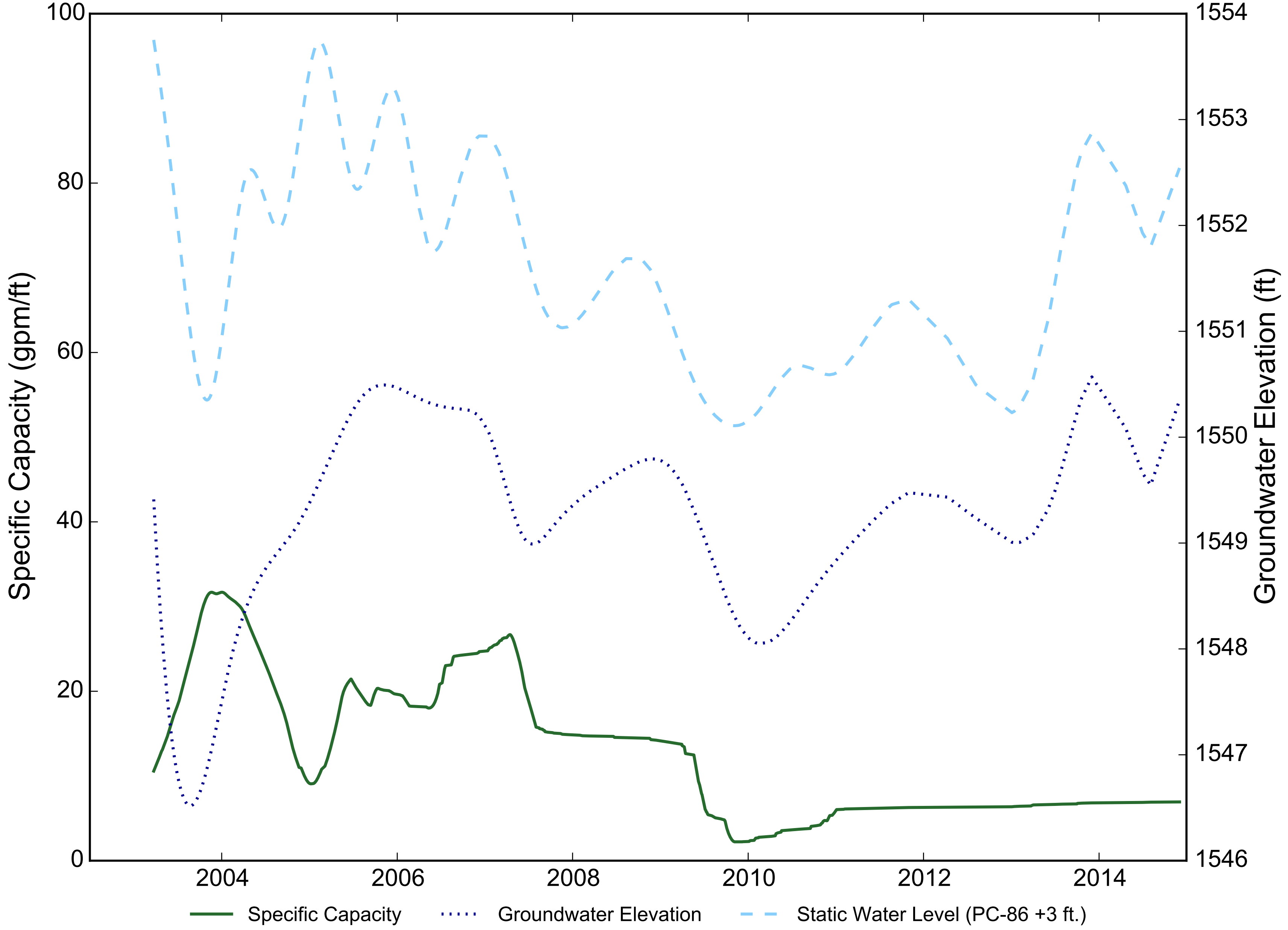
ENVIRON

Specific Capacity of Well PC-119
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-35

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:

Path: C:\Users\JHunt\PythonSandbox\SpecCap.py

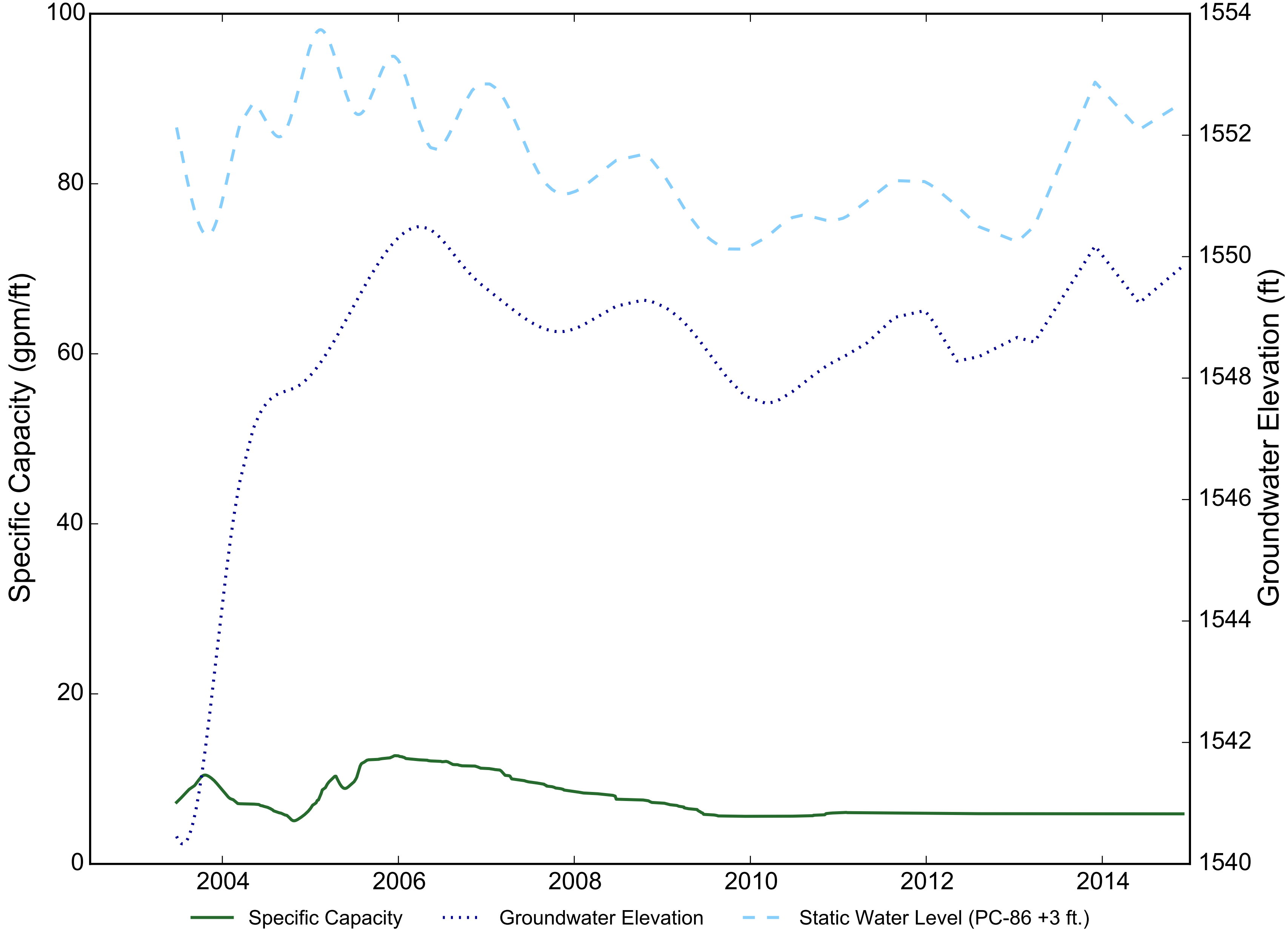


ENVIRON

Specific Capacity of Well PC-120
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure
B-36

Drafter: JH Date: 04/30/15 Contract Number: 21-37300B Approved: Revised:



ENVIRON

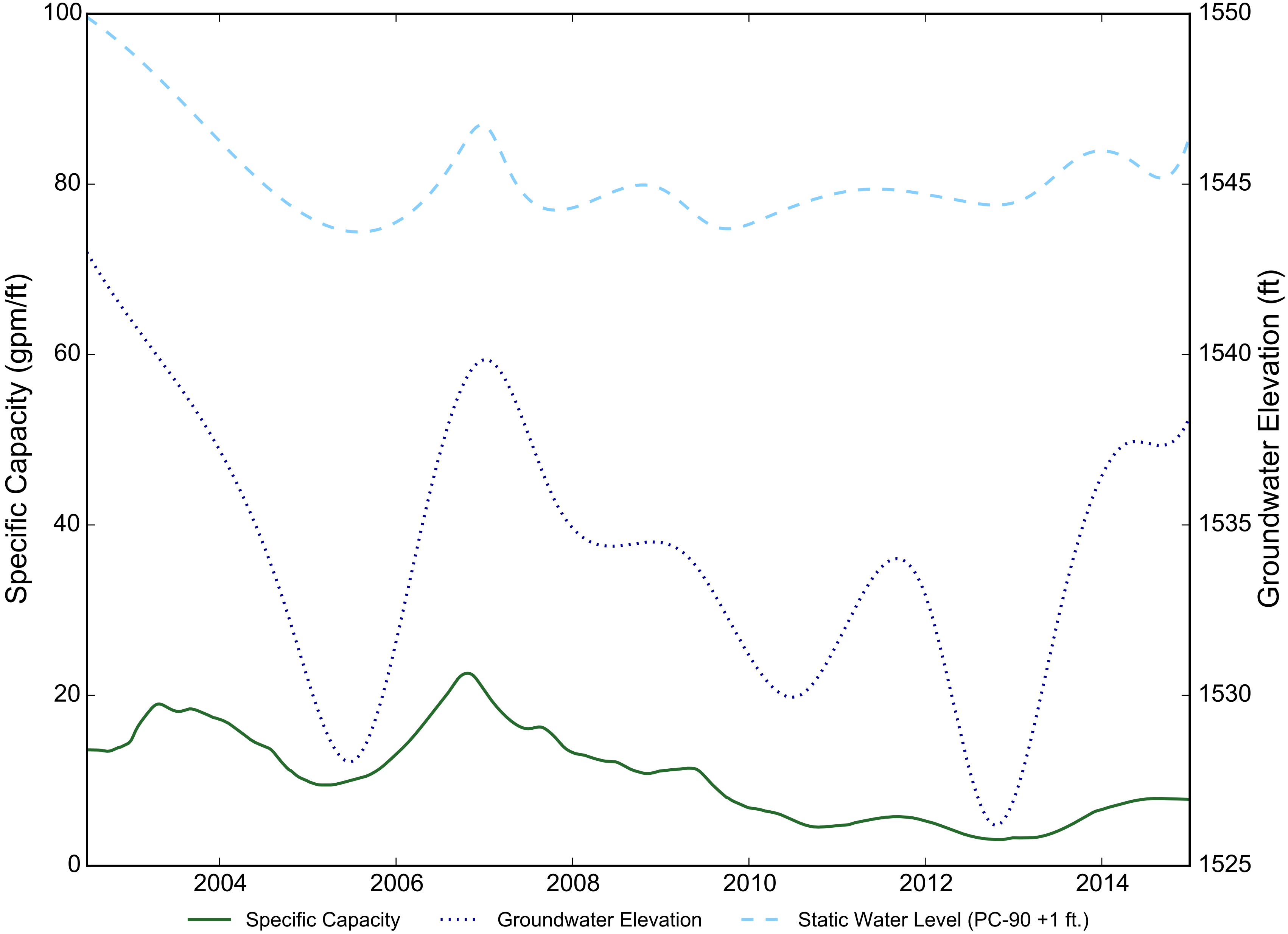
Specific Capacity of Well PC-121
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-37

Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

Path: C:\Users\JHunt\PythonSandbox\SpecCap.py



ENVIRON

Specific Capacity of Well PC-99R2/R3
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

B-38

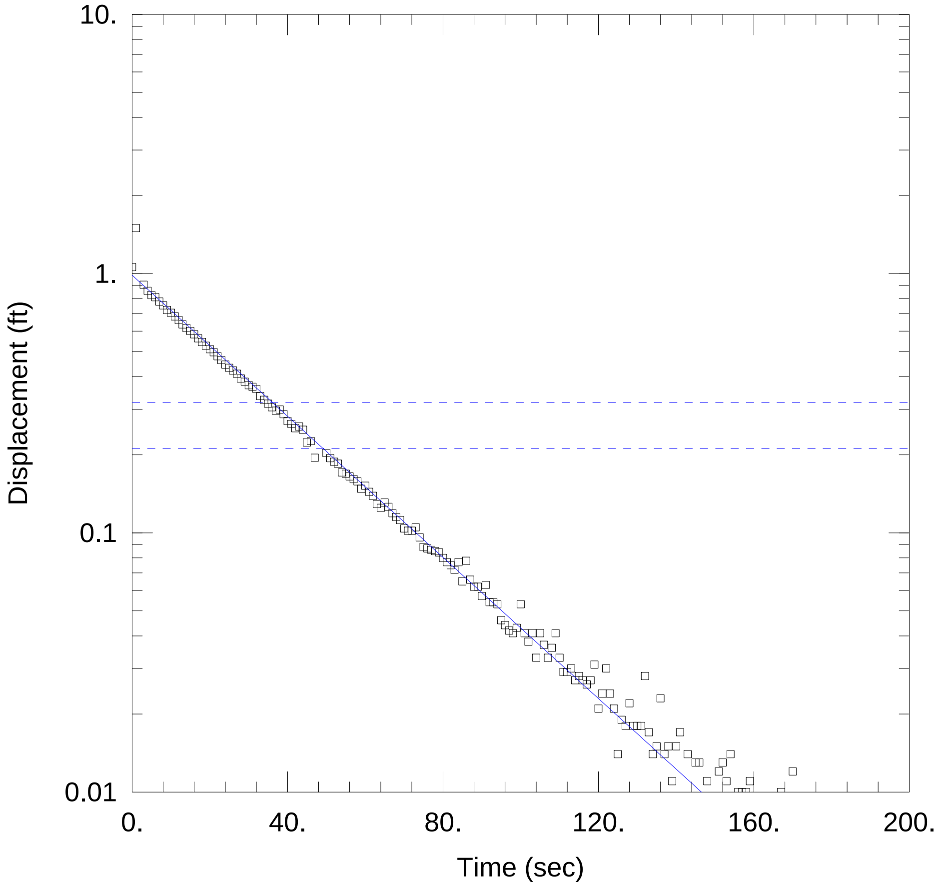
Drafter: JH	Date: 04/30/15	Contract Number: 21-37300B	Approved:	Revised:

Appendix C

Slug Test Results

Appendix C

Slug test Result Plots



WELL TEST ANALYSIS

Data Set: H:\...\PC134A_Test1_FH_12inslug_BR1.aqt
Date: 03/25/15 Time: 16:11:38

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-134A
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 40.55 ft
Anisotropy Ratio (Kz/Kr): 1.

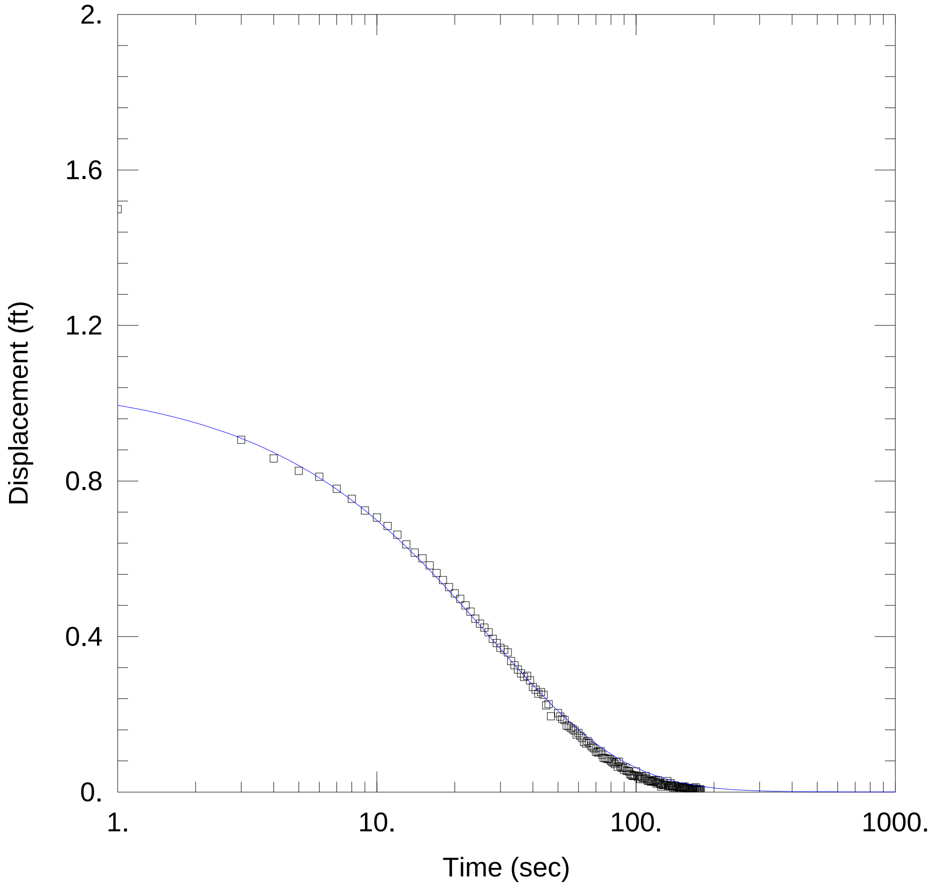
WELL DATA (PC-134A)

Initial Displacement: 1.06 ft
Total Well Penetration Depth: 40.55 ft
Casing Radius: 0.083 ft
Static Water Column Height: 40.55 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 3.409 ft/day
y0 = 0.987 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC134A_Test1_FH_12inslug_KGS1.aqt
Date: 03/25/15 Time: 16:14:28

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-134A
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 40.55 ft

WELL DATA (PC-134A)

Initial Displacement: 1.06 ft
Total Well Penetration Depth: 40.55 ft
Casing Radius: 0.083 ft

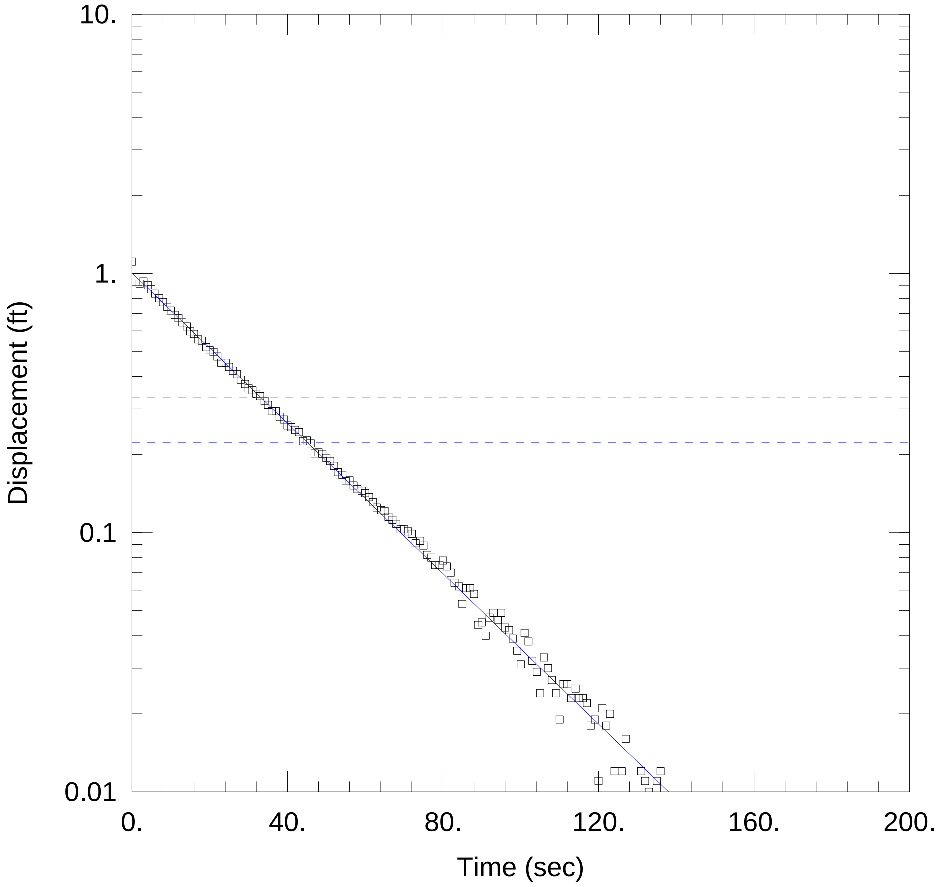
Static Water Column Height: 40.55 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 3.638 ft/day
Kz/Kr = 1.

Ss = 1.5E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC134A_Test2_RH_12inslug_BR1.aqt
Date: 03/25/15 Time: 16:14:20

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-134A
Test Date: 1/14/14

AQUIFER DATA

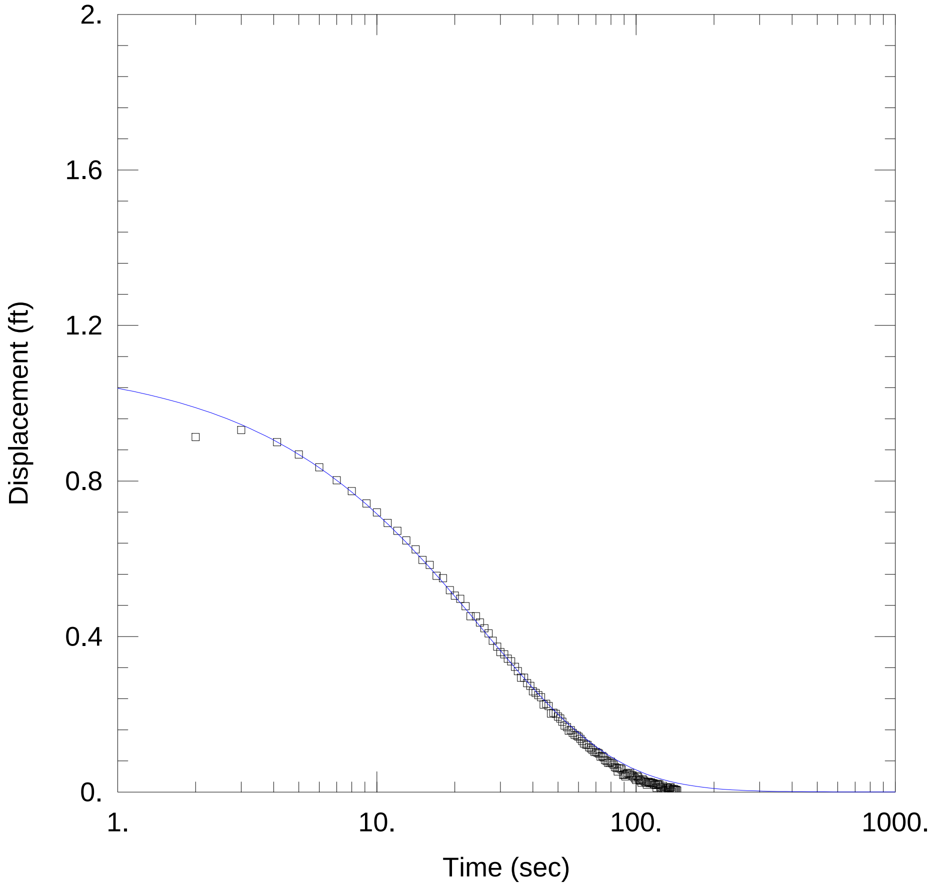
Saturated Thickness: 40.55 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PC-134A)

Initial Displacement: 1.11 ft
Static Water Column Height: 40.55 ft
Total Well Penetration Depth: 40.55 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.634 ft/day
y0 = 1.006 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC134A_Test2_RH_12inslug_KGS1.aqt
Date: 03/25/15 Time: 16:14:12

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-134A
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 40.55 ft

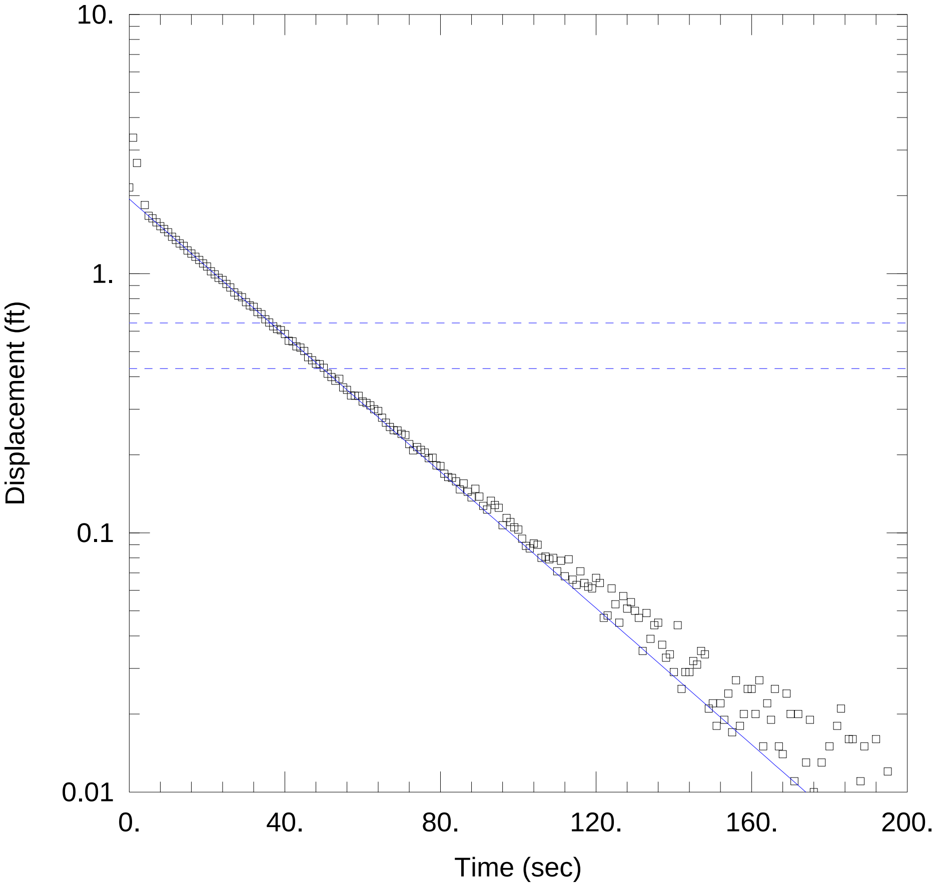
WELL DATA (PC-134A)

Initial Displacement: 1.11 ft
Total Well Penetration Depth: 40.55 ft
Casing Radius: 0.083 ft
Static Water Column Height: 40.55 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 3.873 ft/day
Kz/Kr = 1.
Ss = 1.5E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC134A_Test5_FH_24inslug_BR1.aqt
Date: 03/25/15 Time: 16:14:04

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-134A
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 40.55 ft
Anisotropy Ratio (Kz/Kr): 1.

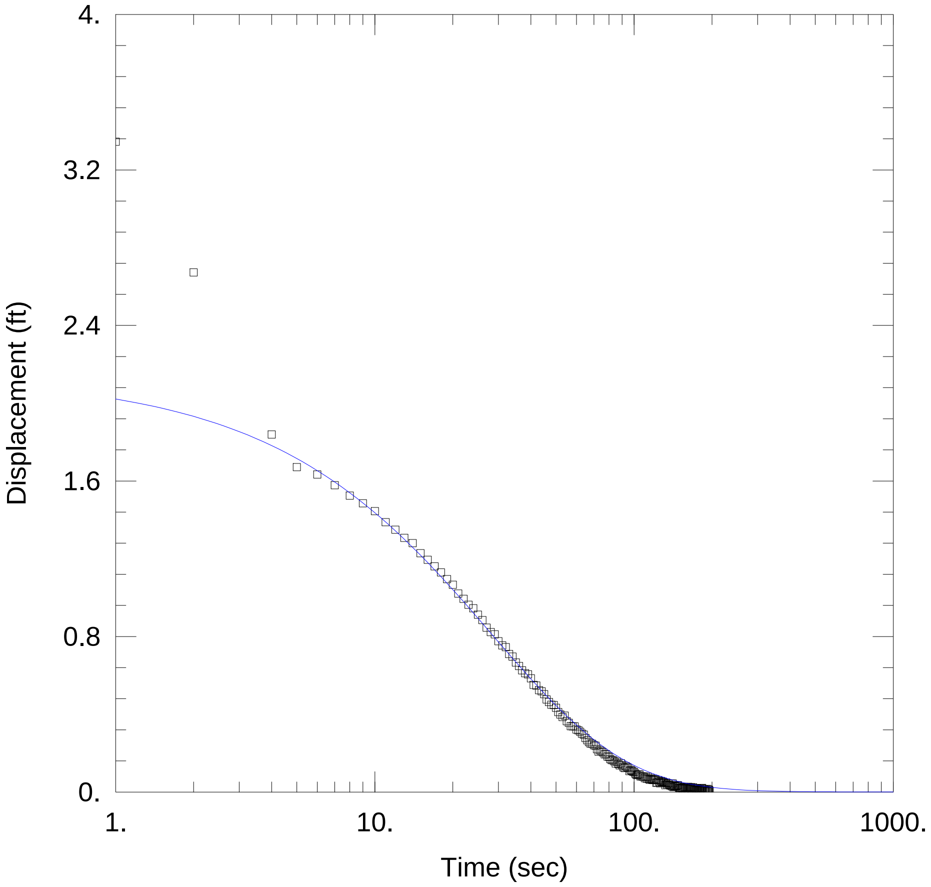
WELL DATA (PC-134A)

Initial Displacement: 2.15 ft
Static Water Column Height: 40.55 ft
Total Well Penetration Depth: 40.55 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 3.295 ft/day
y0 = 1.941 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC134A_Test5_FH_24inslug_KGS1.aqt
Date: 03/25/15 Time: 16:13:53

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-134A
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 40.55 ft

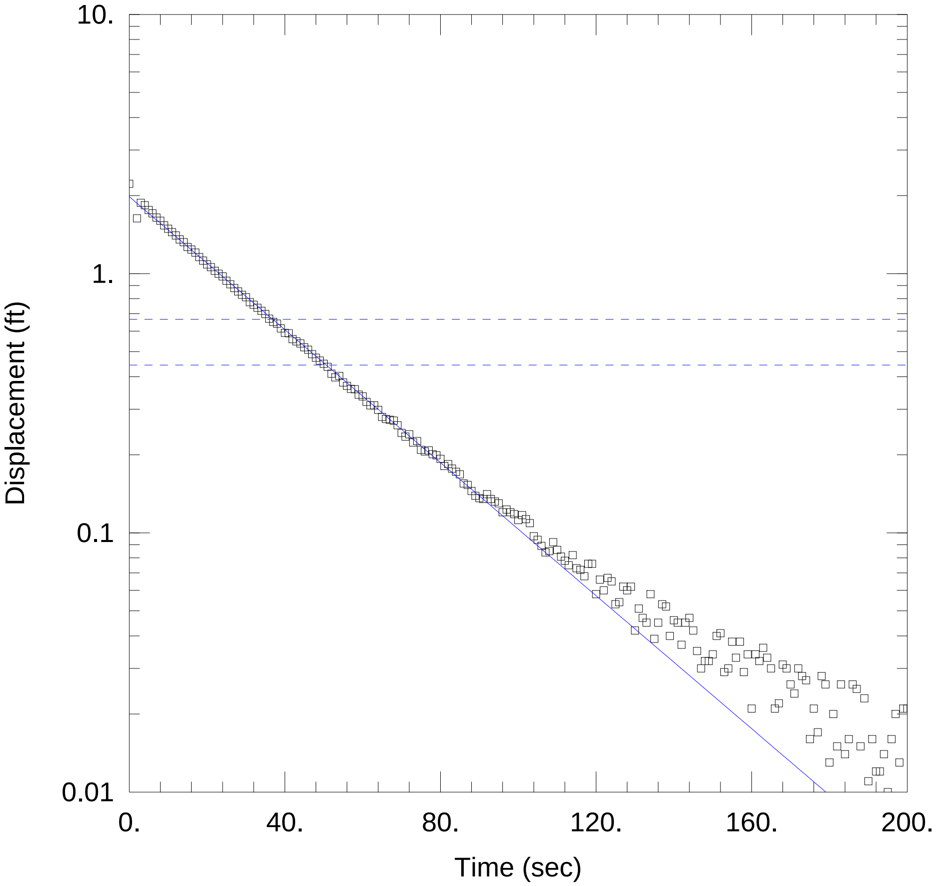
WELL DATA (PC-134A)

Initial Displacement: 2.15 ft
Total Well Penetration Depth: 40.55 ft
Casing Radius: 0.083 ft
Static Water Column Height: 40.55 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 3.5 ft/day
Kz/Kr = 1.
Ss = 1.5E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC134A_Test6_RH_24inslug_BR1.aqt
Date: 03/25/15 Time: 16:13:44

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-134A
Test Date: 1/14/14

AQUIFER DATA

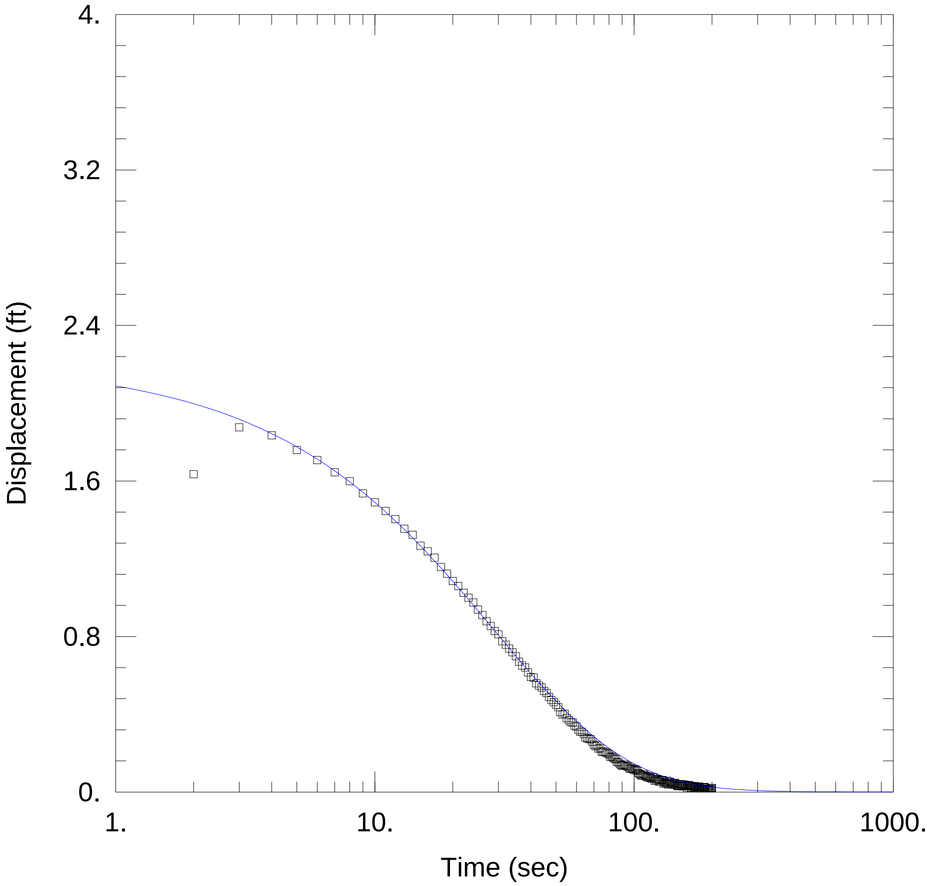
Saturated Thickness: 40.55 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PC-134A)

Initial Displacement: 2.22 ft
Static Water Column Height: 40.55 ft
Total Well Penetration Depth: 40.55 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.213 ft/day
y0 = 1.981 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC134A_Test6_RH_24inslug_KGS1.aqt
Date: 03/25/15 Time: 16:13:37

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-134A
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 40.55 ft

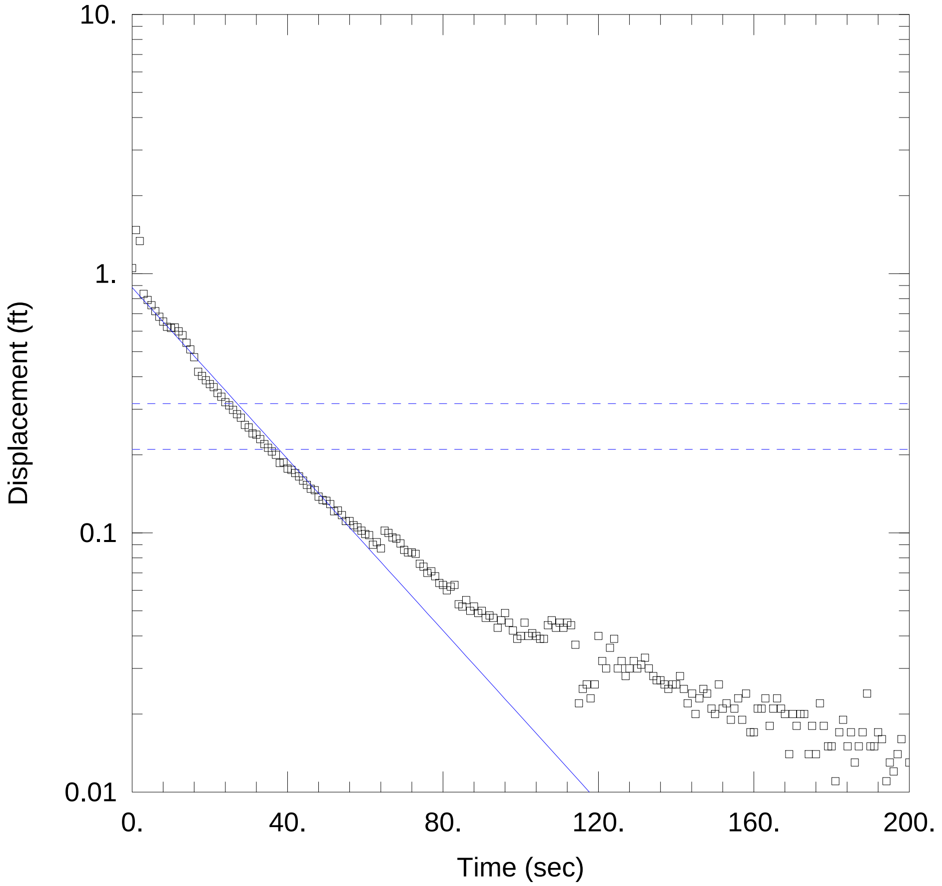
WELL DATA (PC-134A)

Initial Displacement: 2.22 ft
Total Well Penetration Depth: 40.55 ft
Casing Radius: 0.083 ft
Static Water Column Height: 40.55 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 3.454 ft/day
Kz/Kr = 1.
Ss = 1.5E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC137_Test1_FH_12inslug_BR.aqt
Date: 03/25/15 Time: 16:12:47

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-137
Test Date: 1/13/14

AQUIFER DATA

Saturated Thickness: 41.92 ft
Anisotropy Ratio (Kz/Kr): 1.

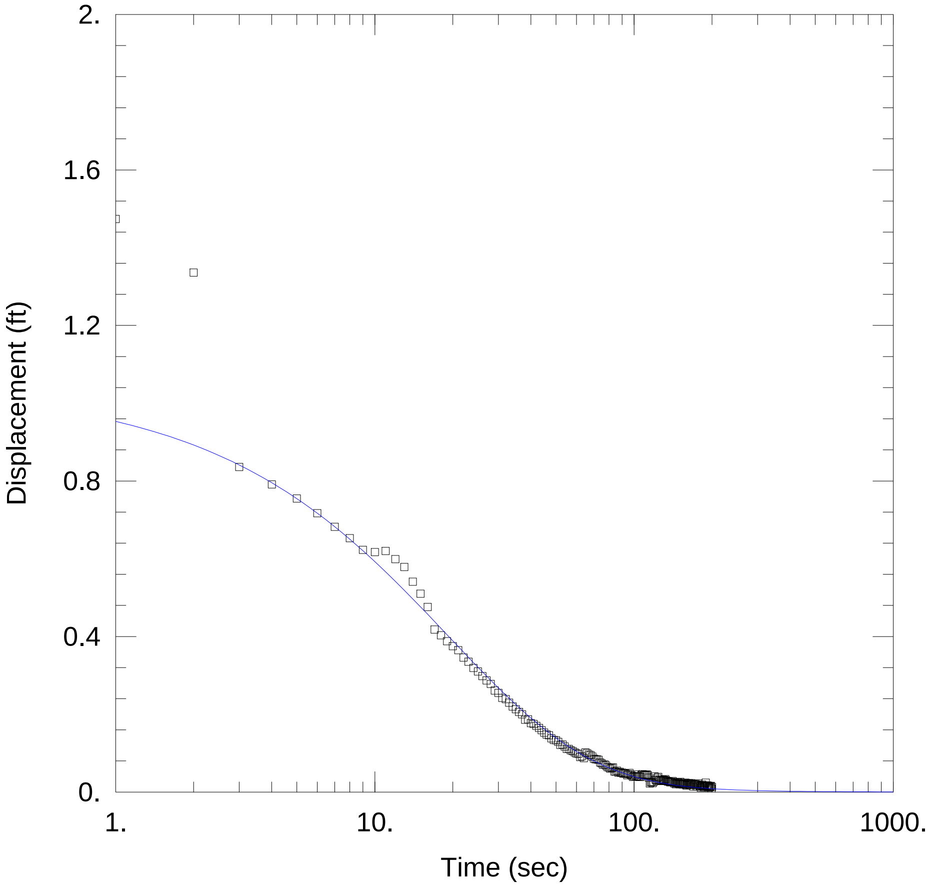
WELL DATA (PC-137)

Initial Displacement: 1.05 ft
Static Water Column Height: 41.92 ft
Total Well Penetration Depth: 41.92 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 3.877 ft/day
y0 = 0.8839 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC137_Test1_FH_12inslug_KGS.aqt
Date: 03/25/15 Time: 16:17:49

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-137
Test Date: 1/13/14

AQUIFER DATA

Saturated Thickness: 41.92 ft

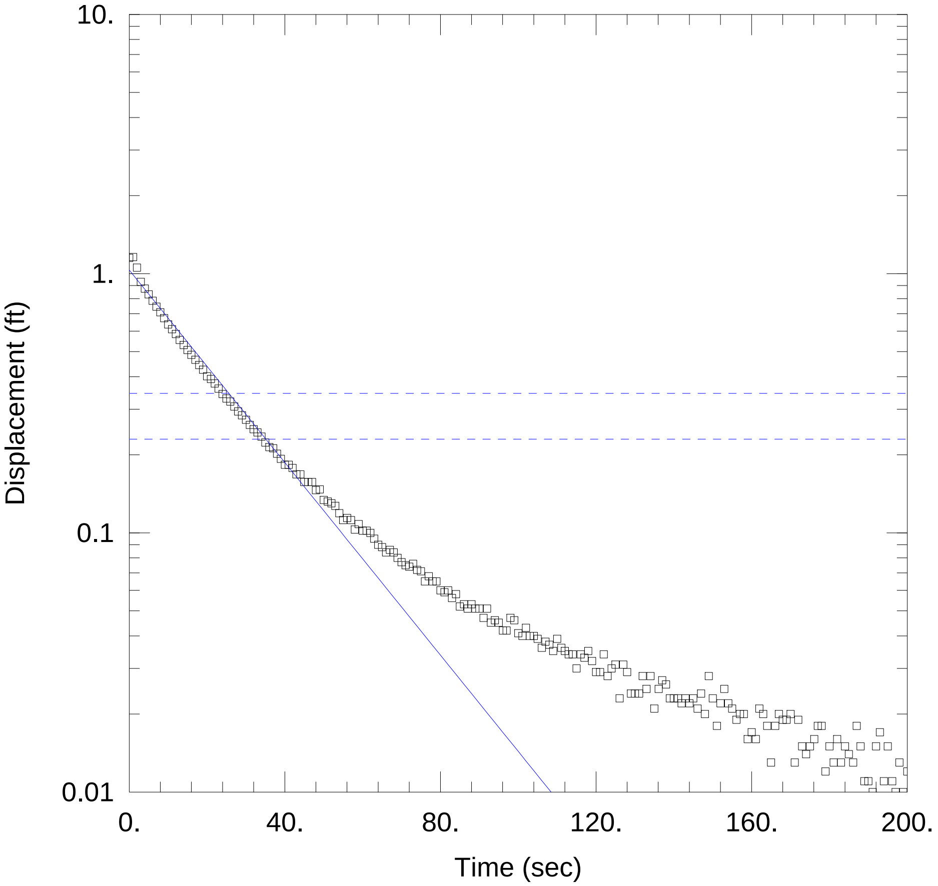
WELL DATA (PC-137)

Initial Displacement: 1.05 ft
Total Well Penetration Depth: 41.92 ft
Casing Radius: 0.083 ft
Static Water Column Height: 41.92 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 4.278 ft/day
Kz/Kr = 1.
Ss = 3.076E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC137_Test2_RH_12inslug_BR.aqt
Date: 03/25/15 Time: 16:16:36

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-137
Test Date: 1/13/14

AQUIFER DATA

Saturated Thickness: 41.92 ft
Anisotropy Ratio (Kz/Kr): 1.

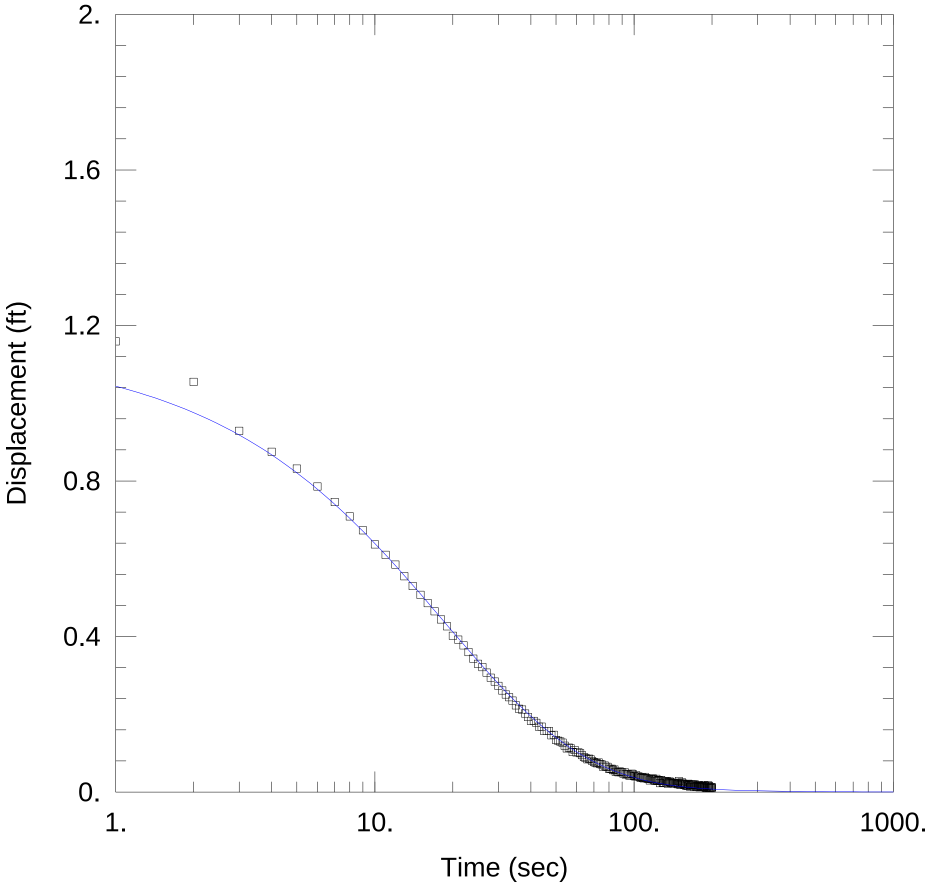
WELL DATA (PC-137)

Initial Displacement: 1.15 ft
Static Water Column Height: 41.92 ft
Total Well Penetration Depth: 41.92 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 4.353 ft/day
y0 = 1.033 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC137_Test2_RH_12inslug_KGS.aqt
Date: 03/25/15 Time: 16:16:31

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-137
Test Date: 1/13/14

AQUIFER DATA

Saturated Thickness: 41.92 ft

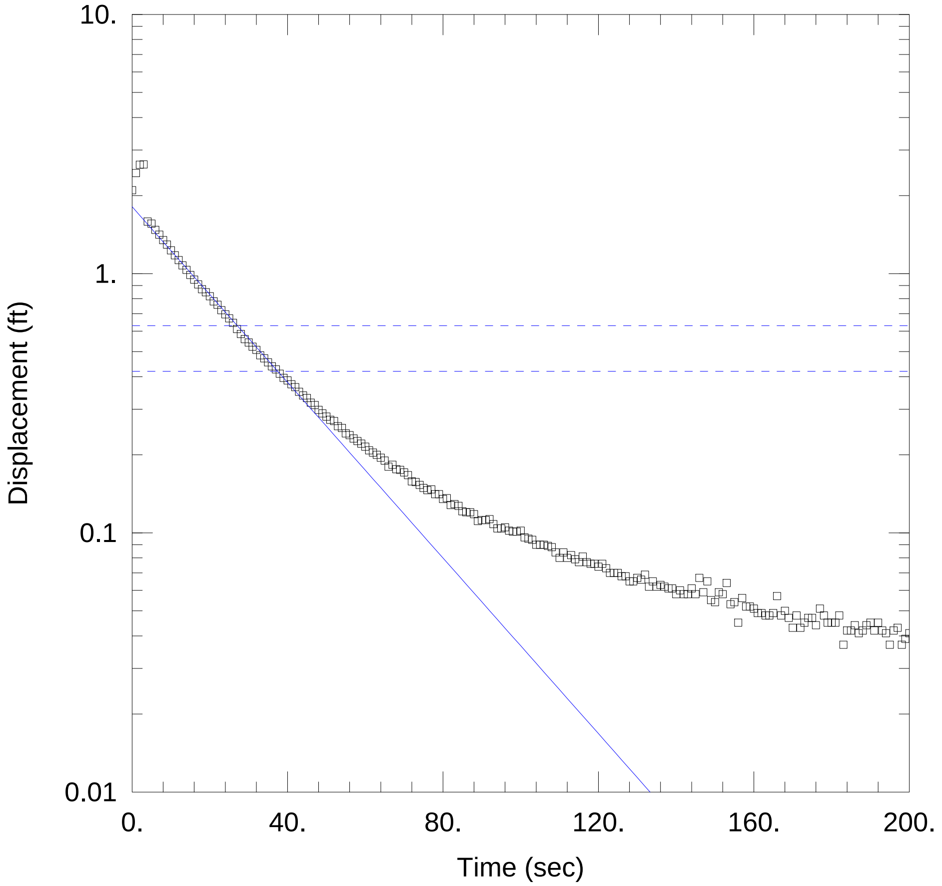
WELL DATA (PC-137)

Initial Displacement: 1.15 ft
Total Well Penetration Depth: 41.92 ft
Casing Radius: 0.083 ft
Static Water Column Height: 41.92 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 4.558 ft/day
Kz/Kr = 1.
Ss = 2.567E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC137_Test5_FH_24inslug_BR.aqt
Date: 03/25/15 Time: 16:16:20

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-137
Test Date: 1/13/14

AQUIFER DATA

Saturated Thickness: 41.92 ft
Anisotropy Ratio (Kz/Kr): 1.

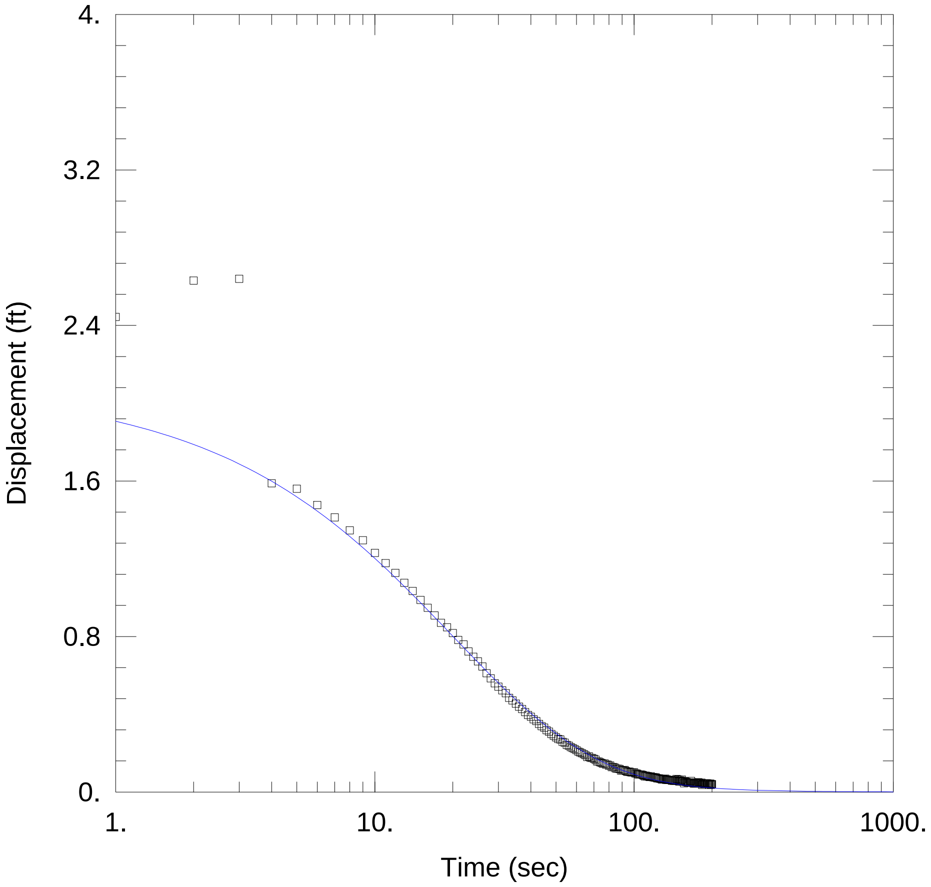
WELL DATA (PC-137)

Initial Displacement: 2.1 ft
Total Well Penetration Depth: 41.92 ft
Casing Radius: 0.083 ft
Static Water Column Height: 41.92 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 3.971 ft/day
y0 = 1.812 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC137_Test5_FH_24inslug_KGS.aqt
Date: 03/25/15 Time: 16:16:02

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-137
Test Date: 1/13/14

AQUIFER DATA

Saturated Thickness: 41.92 ft

WELL DATA (PC-137)

Initial Displacement: 2.1 ft
Total Well Penetration Depth: 41.92 ft
Casing Radius: 0.083 ft

Static Water Column Height: 41.92 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

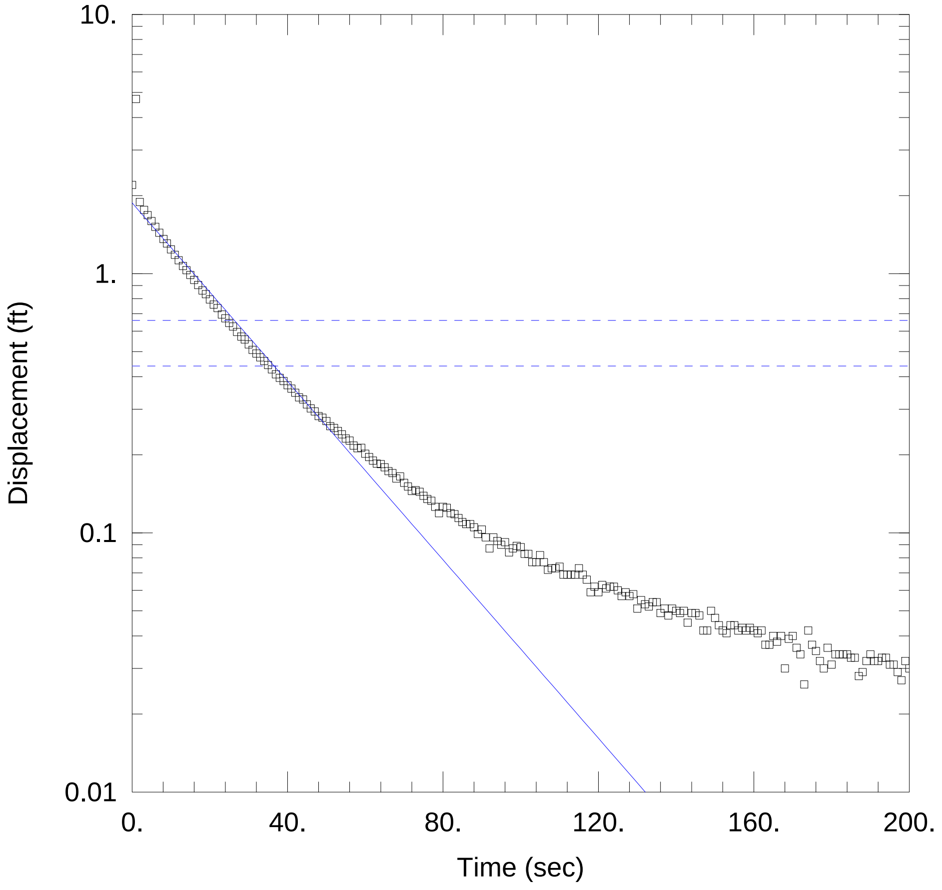
SOLUTION

Aquifer Model: Unconfined

Solution Method: KGS Model

Kr = 4.023 ft/day
Kz/Kr = 1.

Ss = 3.627E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC137_Test6_RH_24inslug_BR.aqt
Date: 03/25/15 Time: 16:15:45

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-137
Test Date: 1/13/14

AQUIFER DATA

Saturated Thickness: 41.92 ft
Anisotropy Ratio (Kz/Kr): 1.

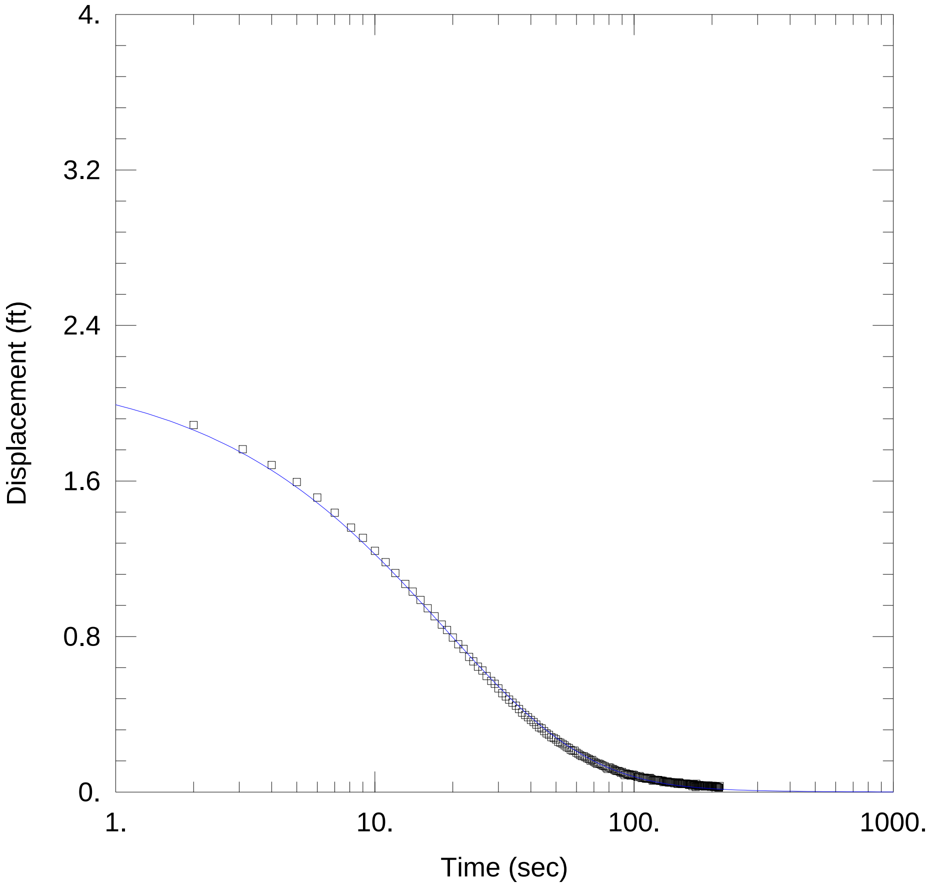
WELL DATA (PC-137)

Initial Displacement: 2.2 ft
Static Water Column Height: 41.92 ft
Total Well Penetration Depth: 41.92 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 4.034 ft/day
y0 = 1.875 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC137_Test6_RH_24inslug_KGS.aqt
Date: 03/25/15 Time: 16:15:40

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-137
Test Date: 1/13/14

AQUIFER DATA

Saturated Thickness: 41.92 ft

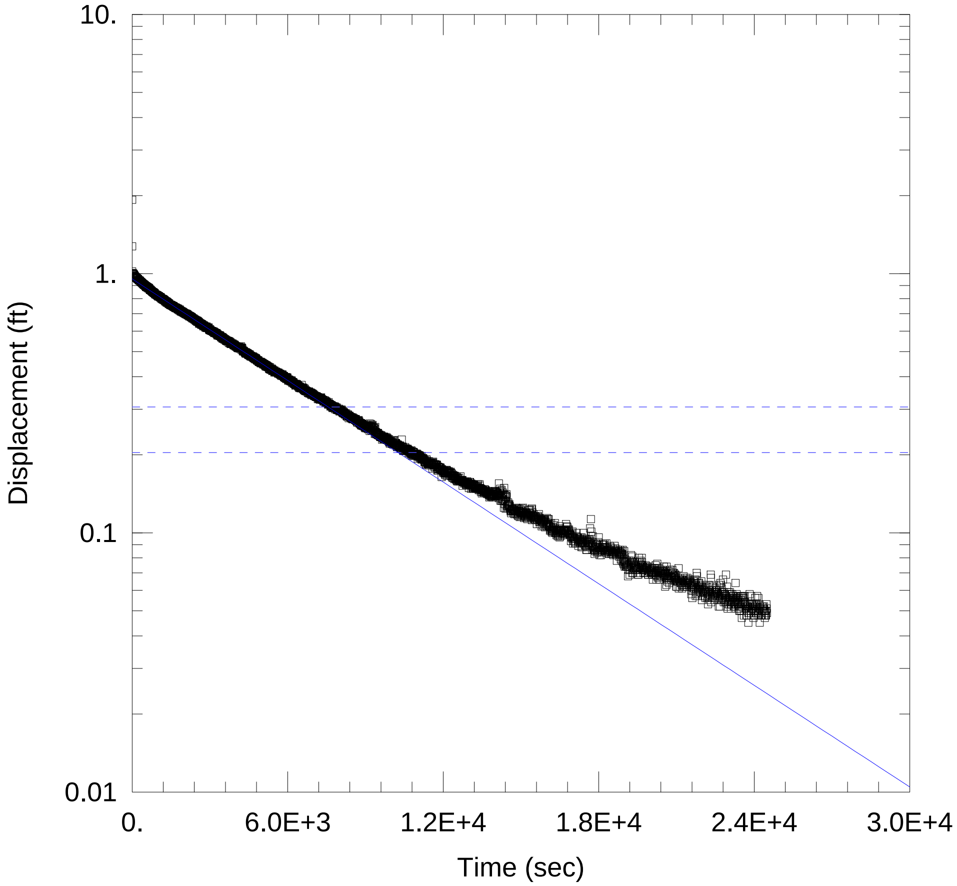
WELL DATA (PC-137)

Initial Displacement: 2.2 ft
Total Well Penetration Depth: 41.92 ft
Casing Radius: 0.083 ft
Static Water Column Height: 41.92 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 4.39 ft/day
Kz/Kr = 1.
Ss = 3.182E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC148_Test1_FH_12inslug_BR2.aqt
Date: 03/25/15 Time: 16:15:35

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-148
Test Date: 1/15/14

AQUIFER DATA

Saturated Thickness: 16.25 ft
Anisotropy Ratio (Kz/Kr): 1.

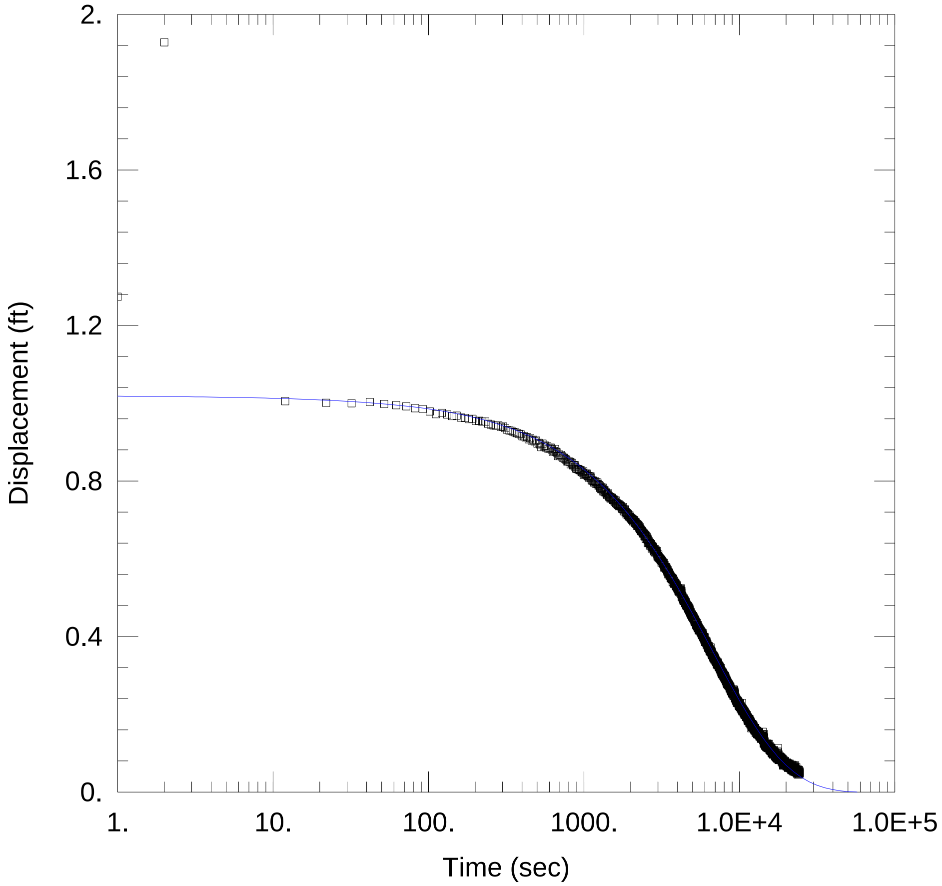
WELL DATA (PC-148)

Initial Displacement: 1.02 ft
Total Well Penetration Depth: 16.25 ft
Casing Radius: 0.25 ft
Static Water Column Height: 16.25 ft
Screen Length: 16.25 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.09893 ft/day
y0 = 0.9547 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC148_Test1_FH_12inslug_KGS2.aqt
Date: 03/25/15 Time: 16:15:28

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-148
Test Date: 1/15/14

AQUIFER DATA

Saturated Thickness: 16.25 ft

WELL DATA (PC-148)

Initial Displacement: 1.02 ft
Total Well Penetration Depth: 16.25 ft
Casing Radius: 0.25 ft

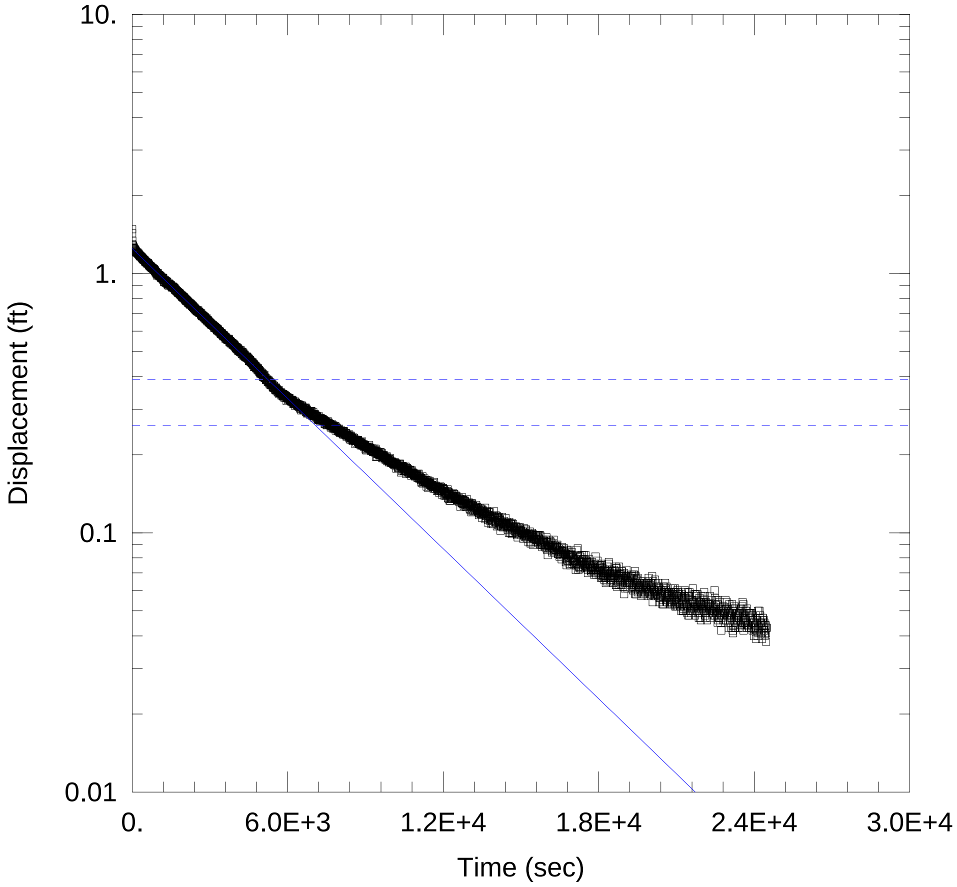
Static Water Column Height: 16.25 ft
Screen Length: 16.25 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.1274 ft/day
Kz/Kr = 1.

Ss = 0.000101 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC148_Test2_RH_12inslug_BR2.aqt
Date: 03/25/15 Time: 16:15:21

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-148
Test Date: 1/15/14

AQUIFER DATA

Saturated Thickness: 16.25 ft
Anisotropy Ratio (Kz/Kr): 1.

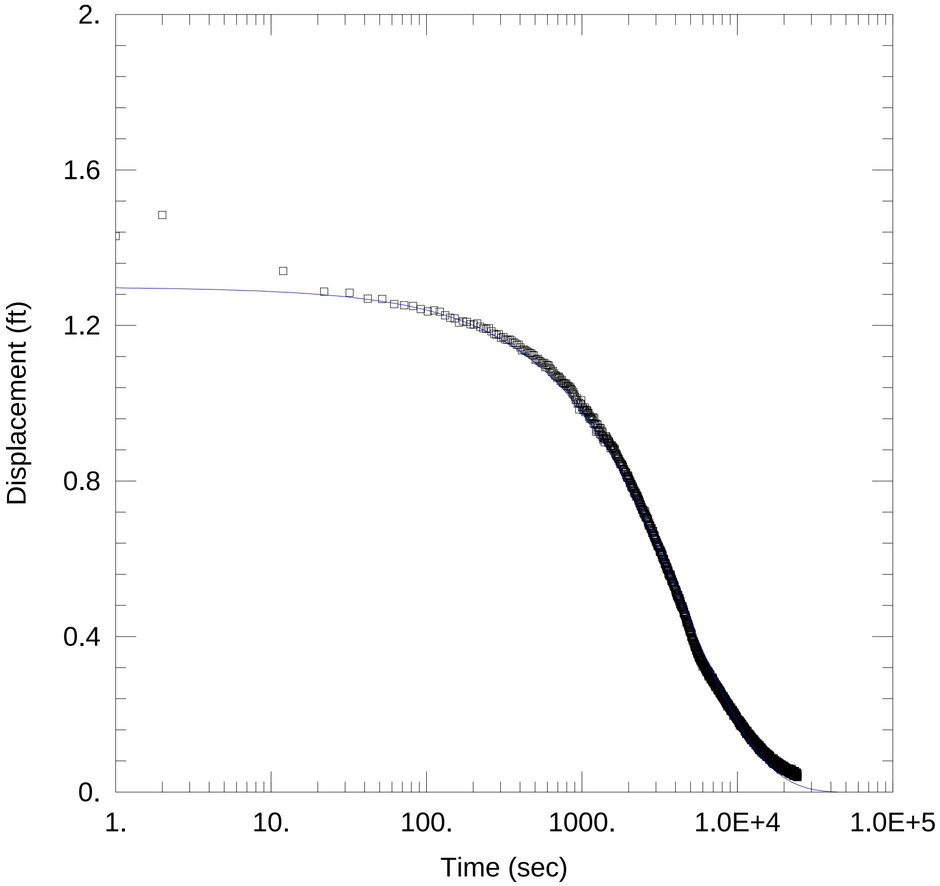
WELL DATA (PC-148)

Initial Displacement: 1.3 ft
Total Well Penetration Depth: 16.25 ft
Casing Radius: 0.25 ft
Static Water Column Height: 16.25 ft
Screen Length: 16.25 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.1461 ft/day
y0 = 1.25 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC148_Test2_RH_12inslug_KGS2.aqt
Date: 03/25/15 Time: 16:15:10

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-148
Test Date: 1/15/14

AQUIFER DATA

Saturated Thickness: 16.25 ft

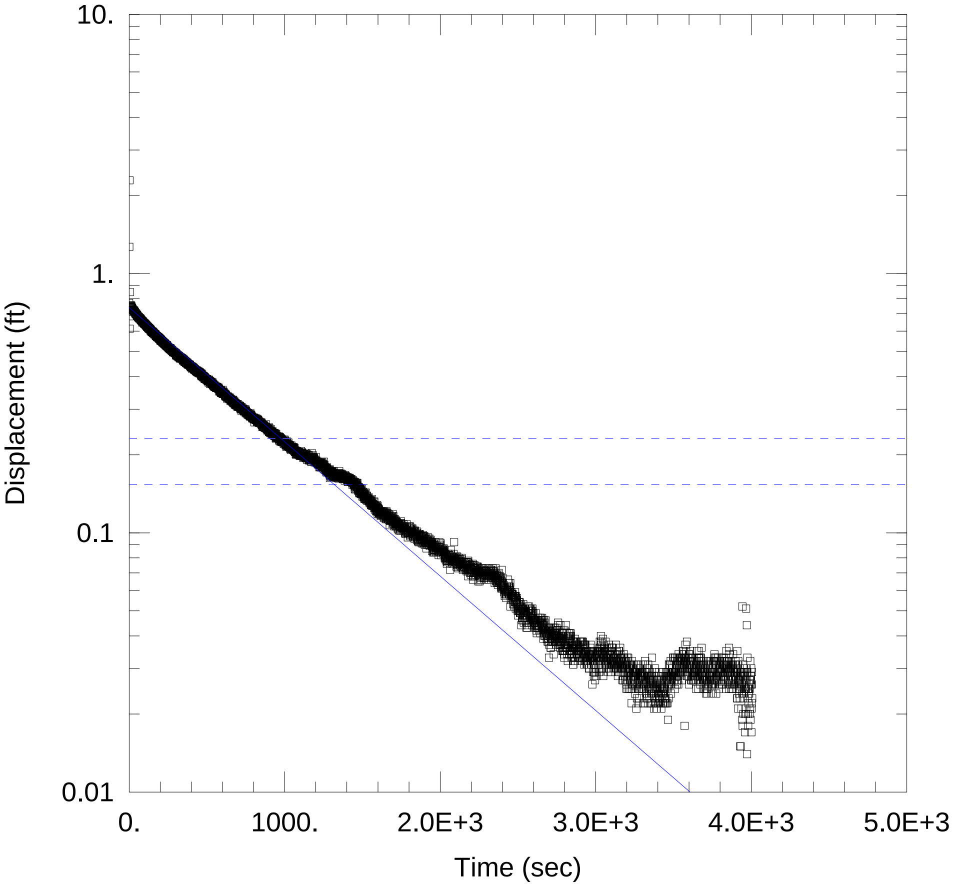
WELL DATA (PC-148)

Initial Displacement: 1.3 ft
Total Well Penetration Depth: 16.25 ft
Casing Radius: 0.25 ft
Static Water Column Height: 16.25 ft
Screen Length: 16.25 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.1404 ft/day
Ss = 0.0001046 ft^{-1}
Kz/Kr = 1.



WELL TEST ANALYSIS

Data Set: H:\...\PC149_Test1_FH_12inslug_BR2.aqt
Date: 03/25/15 Time: 16:15:02

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-149
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 15.23 ft
Anisotropy Ratio (Kz/Kr): 1.

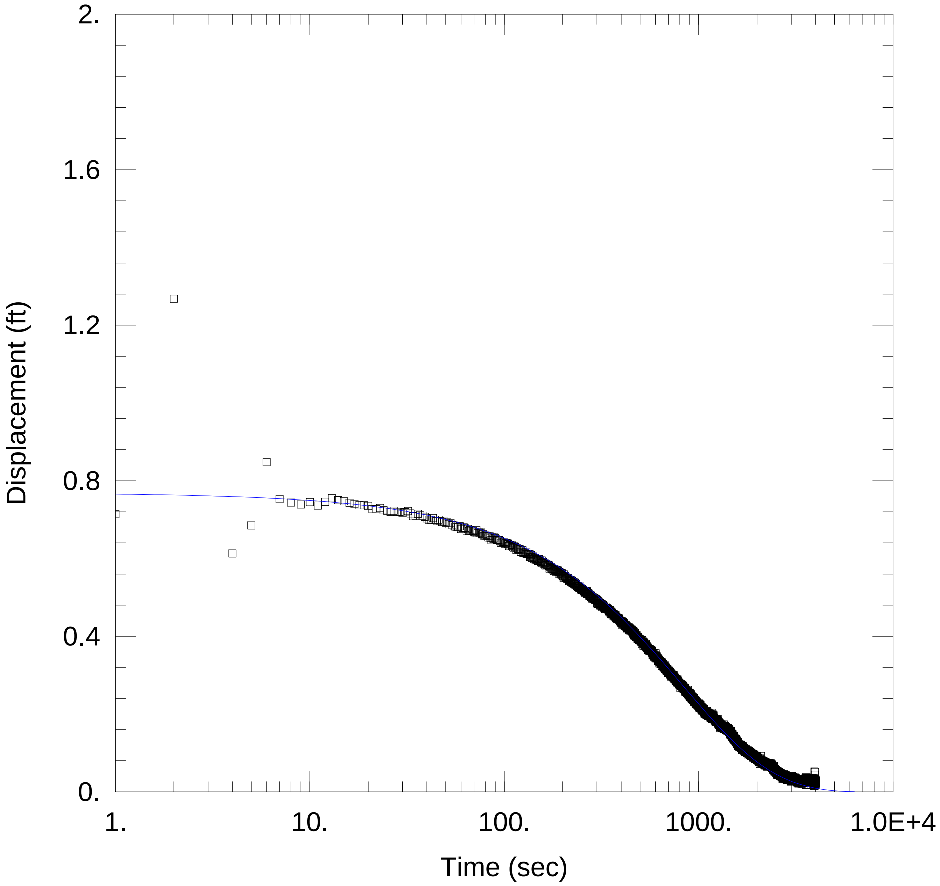
WELL DATA (PC-149)

Initial Displacement: 0.77 ft
Total Well Penetration Depth: 15.23 ft
Casing Radius: 0.25 ft
Static Water Column Height: 15.23 ft
Screen Length: 15.23 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.8219 ft/day
y0 = 0.7409 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC149_Test1_FH_12inslug_KGS2.aqt
Date: 03/25/15 Time: 16:14:56

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-149
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 15.23 ft

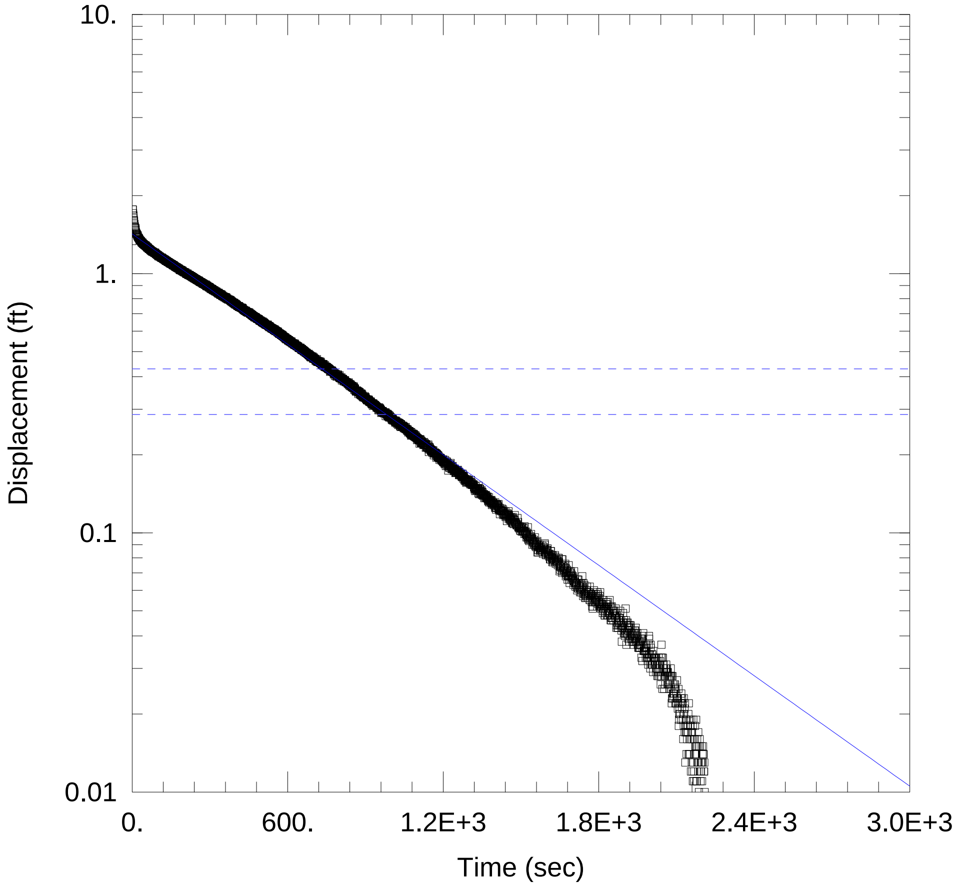
WELL DATA (PC-149)

Initial Displacement: 0.77 ft
Total Well Penetration Depth: 15.23 ft
Casing Radius: 0.25 ft
Static Water Column Height: 15.23 ft
Screen Length: 15.23 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 1.464 ft/day
Kz/Kr = 1.
Ss = 0.0001041 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC149_Test2_RH_12inslug_BR2.aqt
Date: 03/25/15 Time: 16:17:43

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-149
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 15.23 ft
Anisotropy Ratio (Kz/Kr): 1.

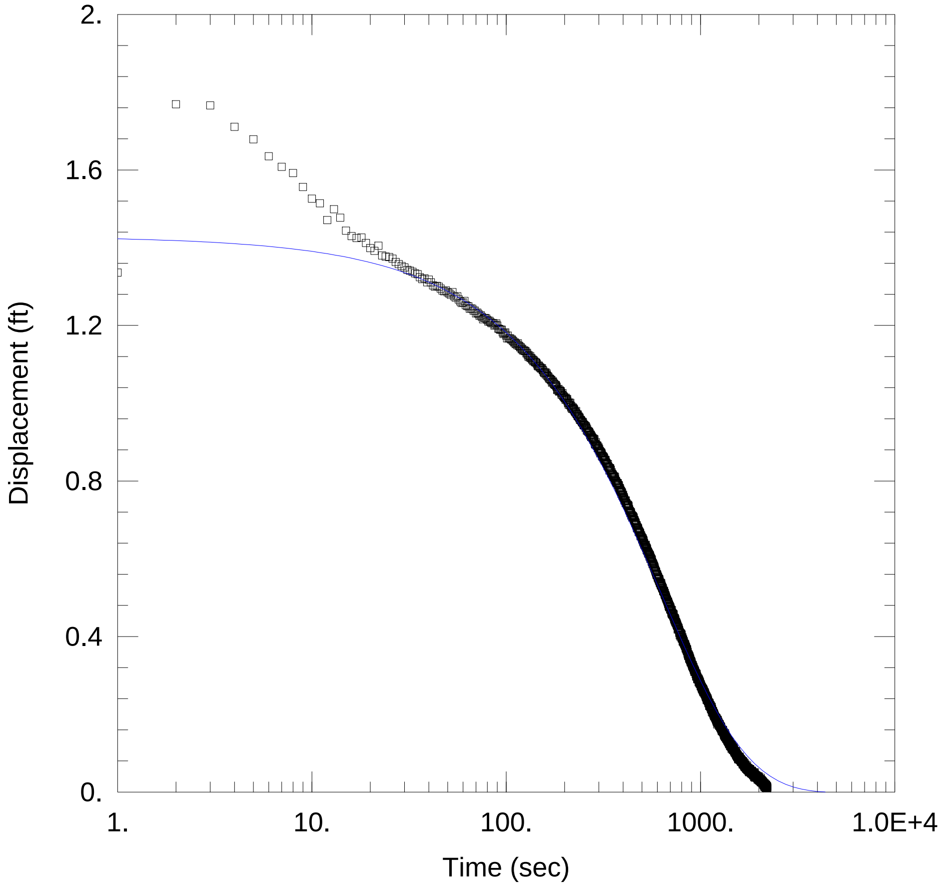
WELL DATA (PC-149)

Initial Displacement: 1.43 ft
Total Well Penetration Depth: 15.23 ft
Casing Radius: 0.25 ft
Static Water Column Height: 15.23 ft
Screen Length: 15.23 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.126 ft/day
y0 = 1.423 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC149_Test2_RH_12inslug_KGS2.aqt
Date: 03/25/15 Time: 16:17:37

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-149
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 15.23 ft

WELL DATA (PC-149)

Initial Displacement: 1.43 ft
Total Well Penetration Depth: 15.23 ft
Casing Radius: 0.25 ft

Static Water Column Height: 15.23 ft
Screen Length: 15.23 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

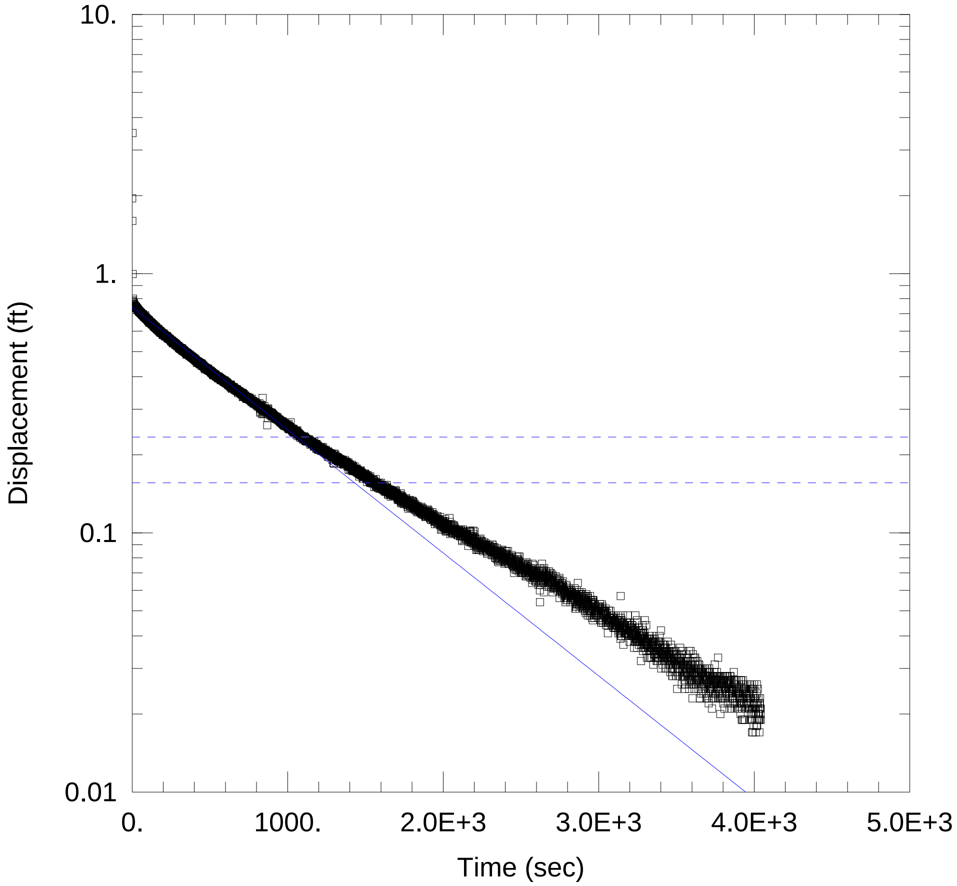
SOLUTION

Aquifer Model: Unconfined

Solution Method: KGS Model

Kr = 1.058 ft/day
Kz/Kr = 1.

Ss = 2.353E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC149_Test3_FH_12inslug_BR2.aqt
Date: 03/25/15 Time: 16:17:31

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-149
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 15.23 ft
Anisotropy Ratio (Kz/Kr): 1.

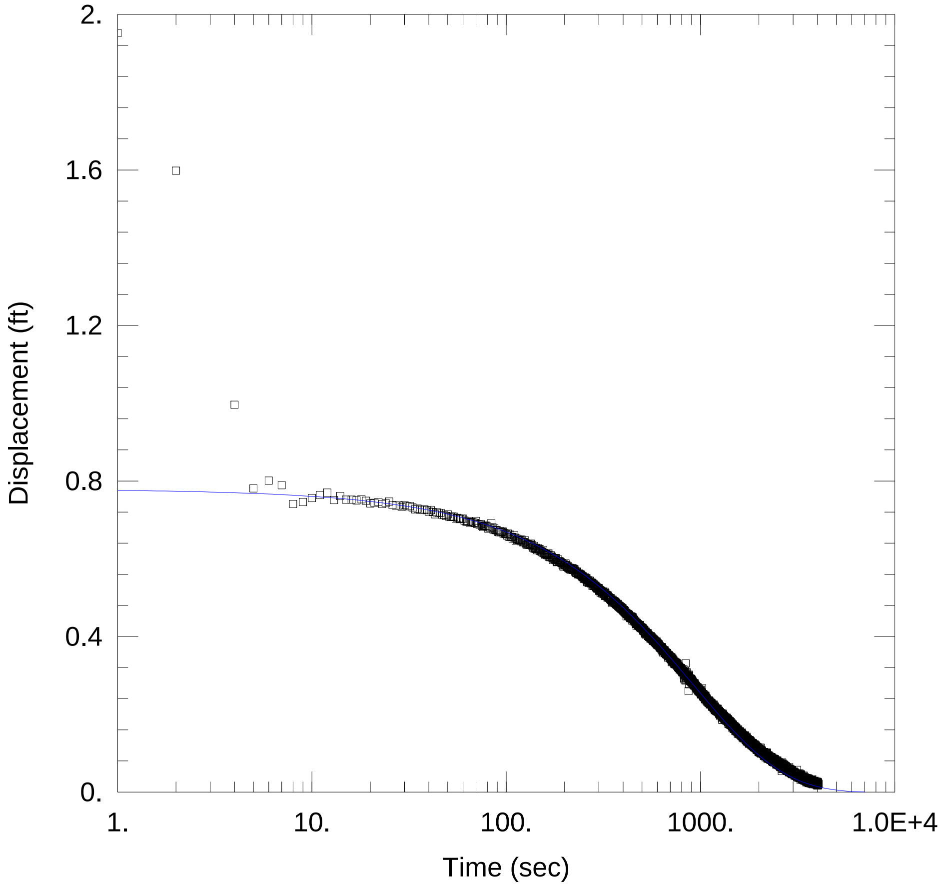
WELL DATA (PC-149)

Initial Displacement: 0.78 ft
Total Well Penetration Depth: 15.23 ft
Casing Radius: 0.25 ft
Static Water Column Height: 15.23 ft
Screen Length: 15.23 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.752 ft/day
y0 = 0.7432 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC149_Test3_FH_12inslug_KGS2.aqt
Date: 03/25/15 Time: 16:17:26

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-149
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 15.23 ft

WELL DATA (PC-149)

Initial Displacement: 0.78 ft
Total Well Penetration Depth: 15.23 ft
Casing Radius: 0.25 ft

Static Water Column Height: 15.23 ft
Screen Length: 15.23 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

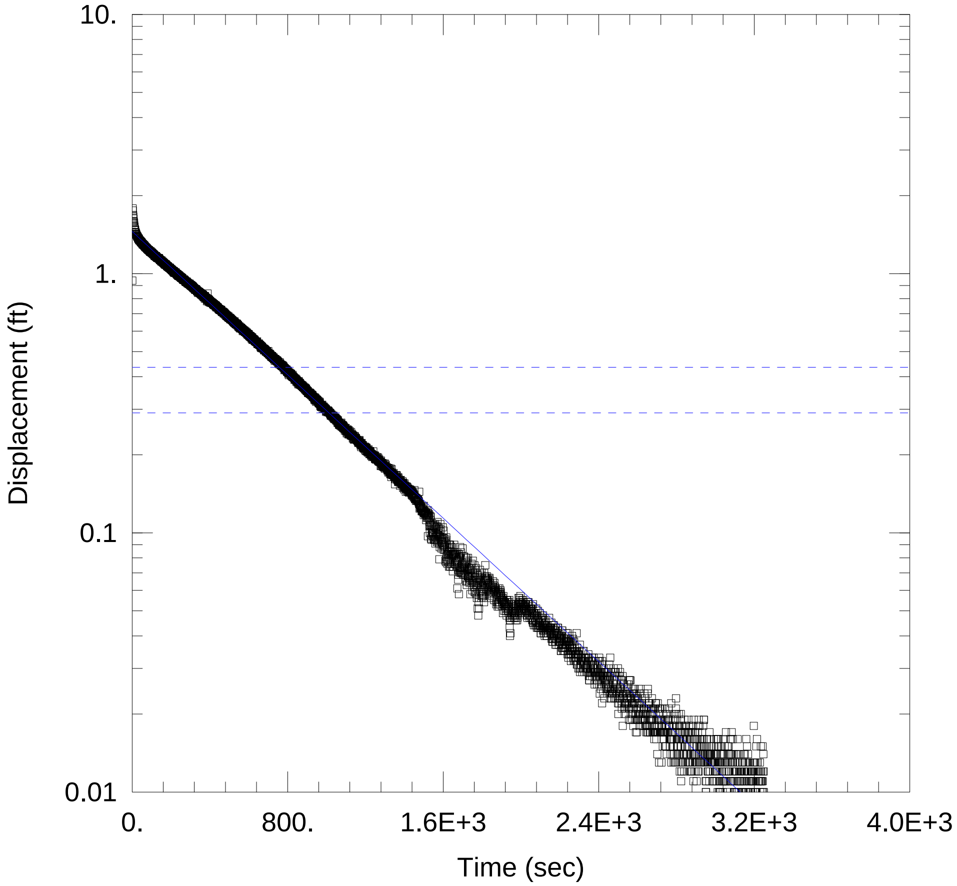
SOLUTION

Aquifer Model: Unconfined

Solution Method: KGS Model

Kr = 1.31 ft/day
Kz/Kr = 1.

Ss = 0.0001024 ft^{-1}



WELL TEST ANALYSIS

Data Set: H:\...\PC149_Test4_RH_12inslug_BR2.aqt
Date: 03/25/15 Time: 16:17:21

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-149
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 15.23 ft
Anisotropy Ratio (Kz/Kr): 1.

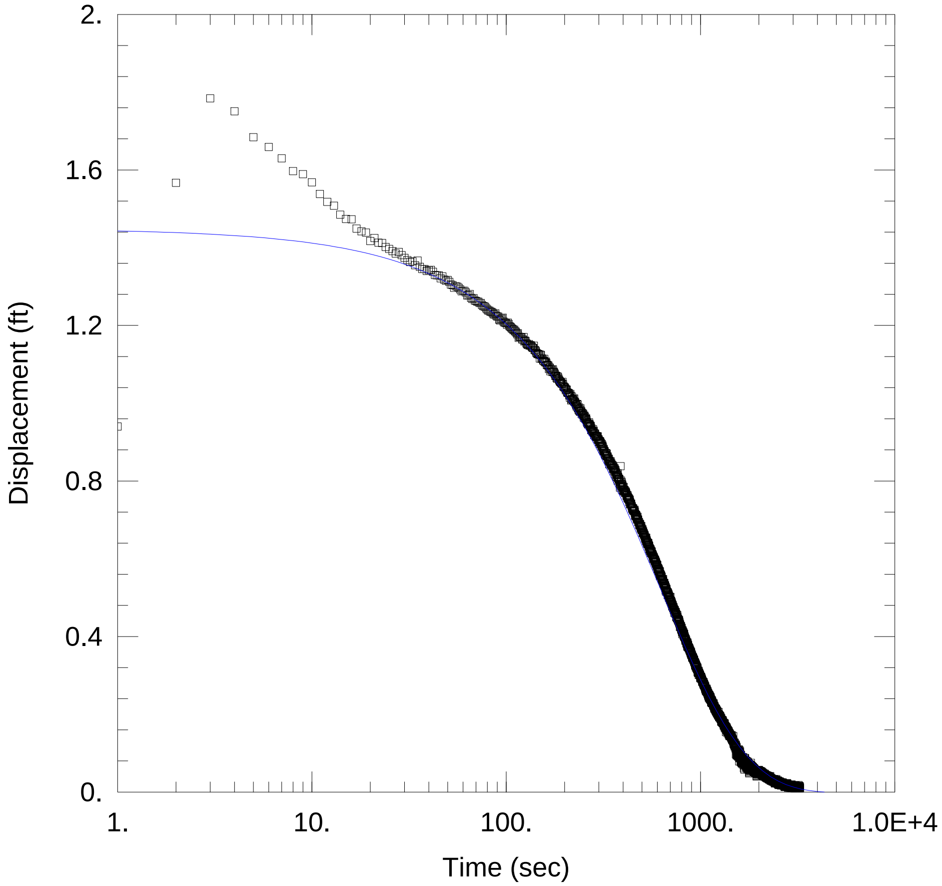
WELL DATA (PC-149)

Initial Displacement: 1.45 ft
Total Well Penetration Depth: 15.23 ft
Casing Radius: 0.25 ft
Static Water Column Height: 15.23 ft
Screen Length: 15.23 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.096 ft/day
y0 = 1.454 ft



WELL TEST ANALYSIS

Data Set: H:\...\PC149_Test4_RH_12inslug_KGS2.aqt
Date: 03/25/15
Time: 16:18:53

PROJECT INFORMATION

Company: ENVIRON
Location: NERT
Test Well: PC-149
Test Date: 1/14/14

AQUIFER DATA

Saturated Thickness: 15.23 ft

WELL DATA (PC-149)

Initial Displacement: 1.45 ft
Total Well Penetration Depth: 15.23 ft
Casing Radius: 0.25 ft
Static Water Column Height: 15.23 ft
Screen Length: 15.23 ft
Well Radius: 0.375 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

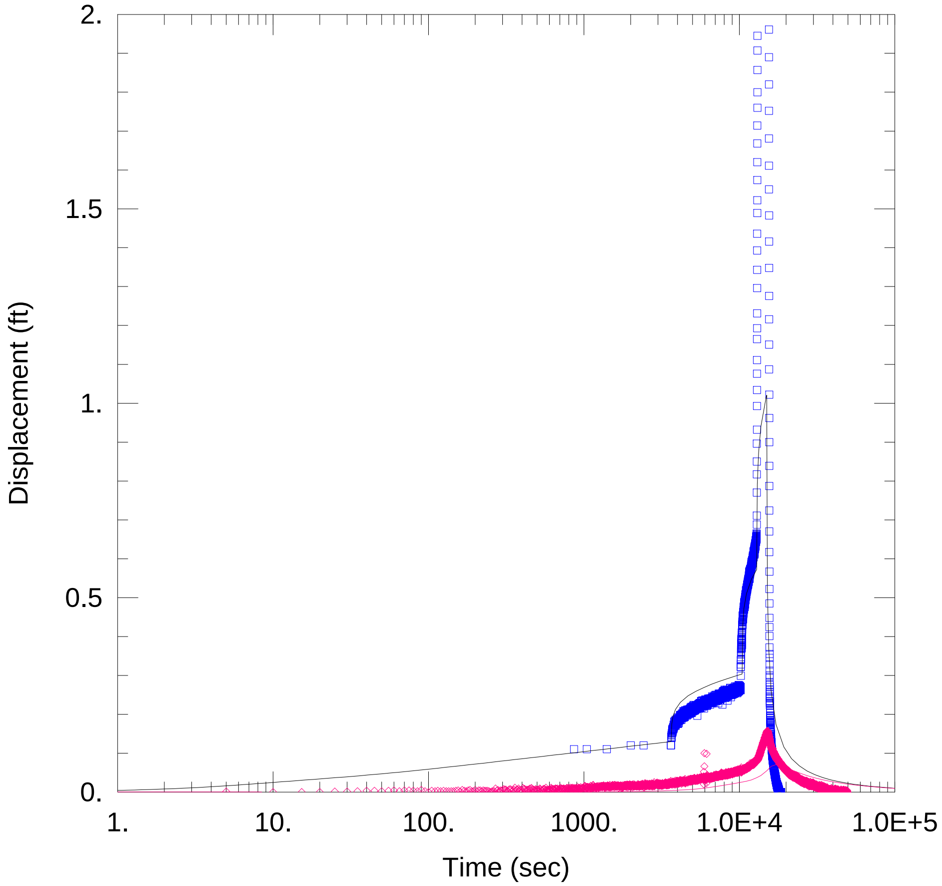
Kr = 1.044 ft/day
Kz/Kr = 1.
Ss = 1.846E-5 ft^{-1}

Appendix D

Step-Drawdown Test Results

Appendix D

Step Drawdown Result Plots



STEP DRAWDOWN TEST ANALYSIS

Data Set: H:\...\I-AA_Qal.aqt
Date: 03/25/15
Time: 16:21:30

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-AA
Test Date: 2013

AQUIFER DATA

Saturated Thickness: 1. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-AA	827174.4	26719770.85

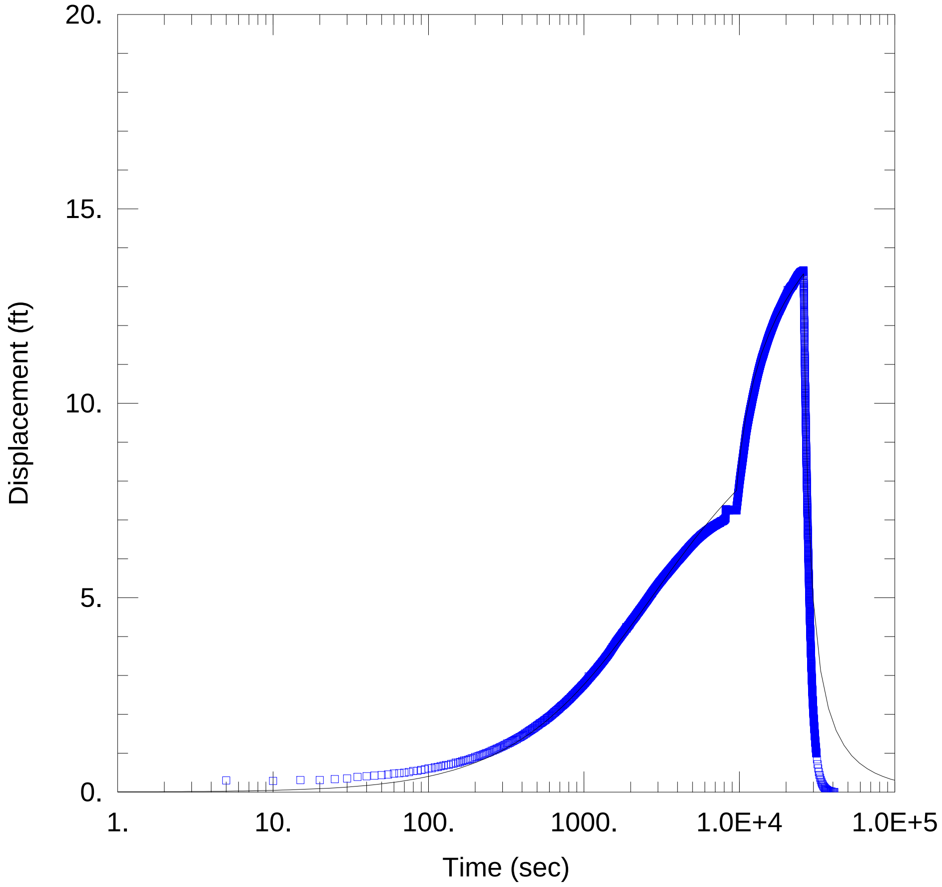
Observation Wells

Well Name	X (ft)	Y (ft)
□ I-AA	827174.4	26719770.85
◇ M-131	827158.077	26719770.57

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 300. ft^2/day
Sy = 0.2
Sw = 0.
r(c) = 0.25 ft
S = 0.0001549
Kz/Kr = 1.
r(w) = 0.458 ft
alpha = 1.0E+30 sec^{-1}



STEP DRAWDOWN TEST ANALYSIS

Data Set: H:\...\I-AB_test.aqt
Date: 03/25/15 Time: 16:21:16

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-AB
Test Date: 2/6/2014

AQUIFER DATA

Saturated Thickness: 18. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-AB	827225.039	26719790.4

Observation Wells

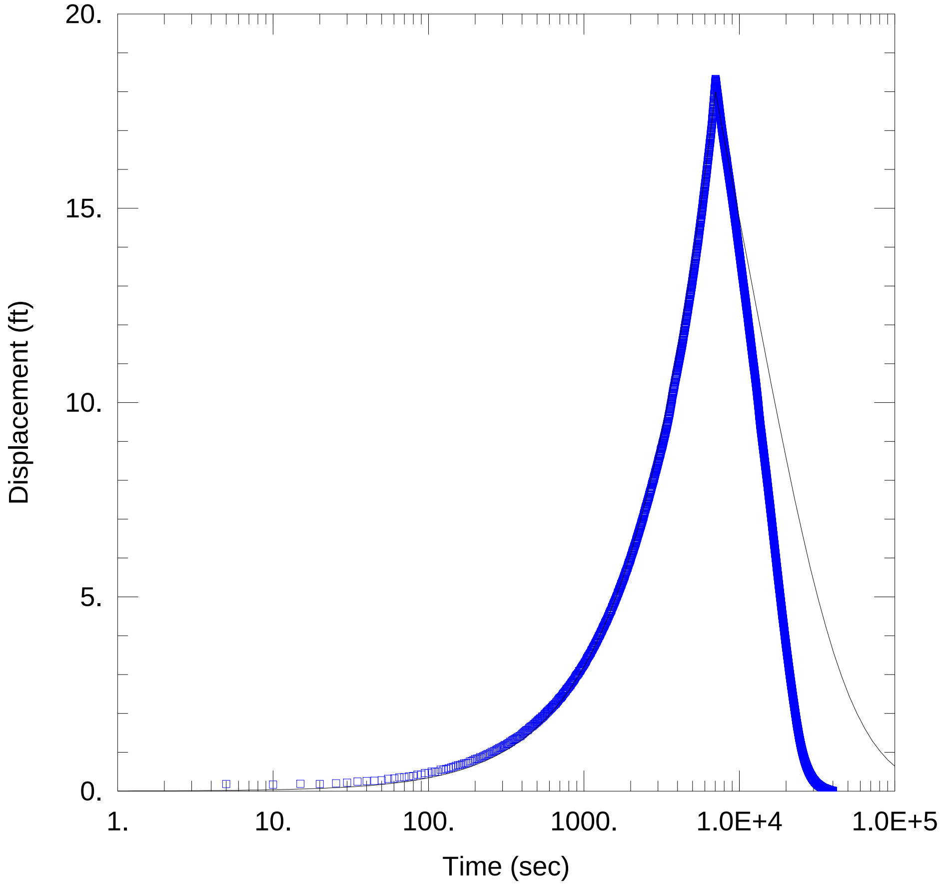
Well Name	X (ft)	Y (ft)
□ I-AB	827225.039	26719790.4

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 3.8 ft^2/day
Sy = 0.2
Sw = 0.
r(c) = 0.25 ft

S = 0.02
Kz/Kr = 1.
r(w) = 0.416 ft
alpha = 1.0E+30 sec^{-1}



STEP DRAWDOWN TEST ANALYSIS

Data Set: H:\...\I-AC_test_Rc.aqt
Date: 03/25/15 Time: 16:21:02

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-AC
Test Date: 2/3/2014

AQUIFER DATA

Saturated Thickness: 18. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-AC	828792.6142	26719889.66

Observation Wells

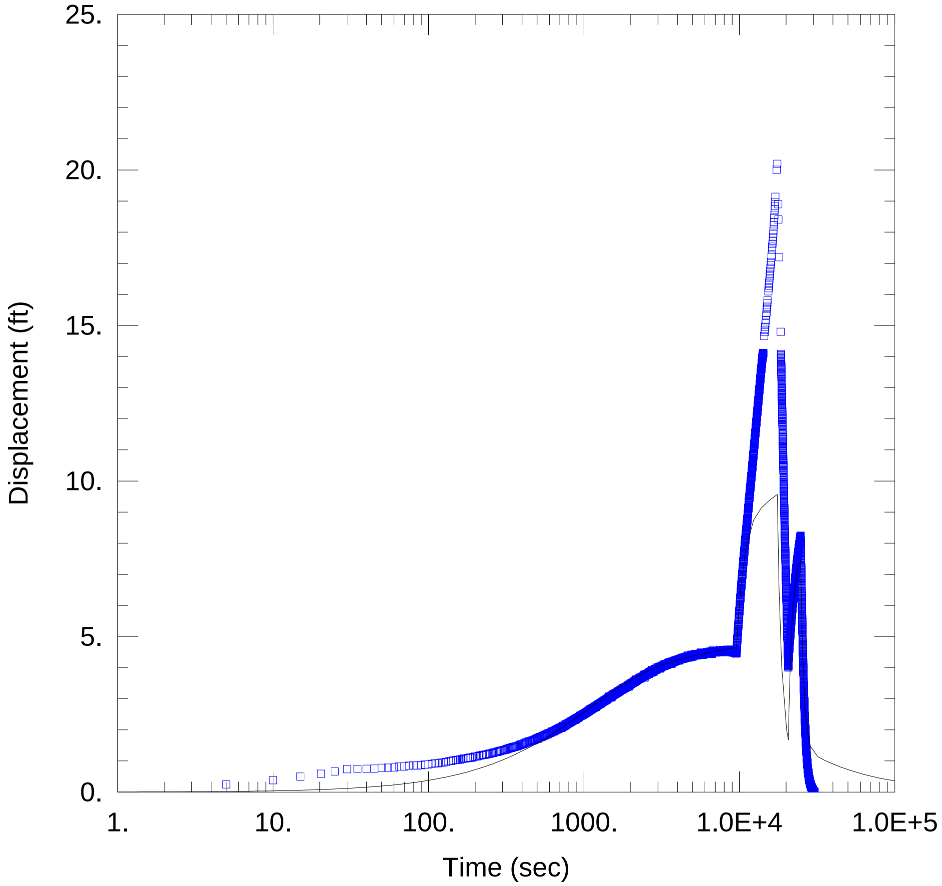
Well Name	X (ft)	Y (ft)
□ I-AC	828792.6142	26719889.66

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 0.6 ft^2/day
Sy = 0.2
Sw = 0.
r(c) = 0.287 ft

S = 0.005
Kz/Kr = 1.
r(w) = 0.375 ft
alpha = 1.0E+30 sec^{-1}



STEP DRAWDOWN TEST ANALYSIS

Data Set: H:\...\I-AD_test.aqt
Date: 03/25/15
Time: 16:20:48

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-AD
Test Date: 1/30/2014

AQUIFER DATA

Saturated Thickness: 5. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-AD	828806.6759	26719794.82
M-130	828832.009	26719919.7

Observation Wells

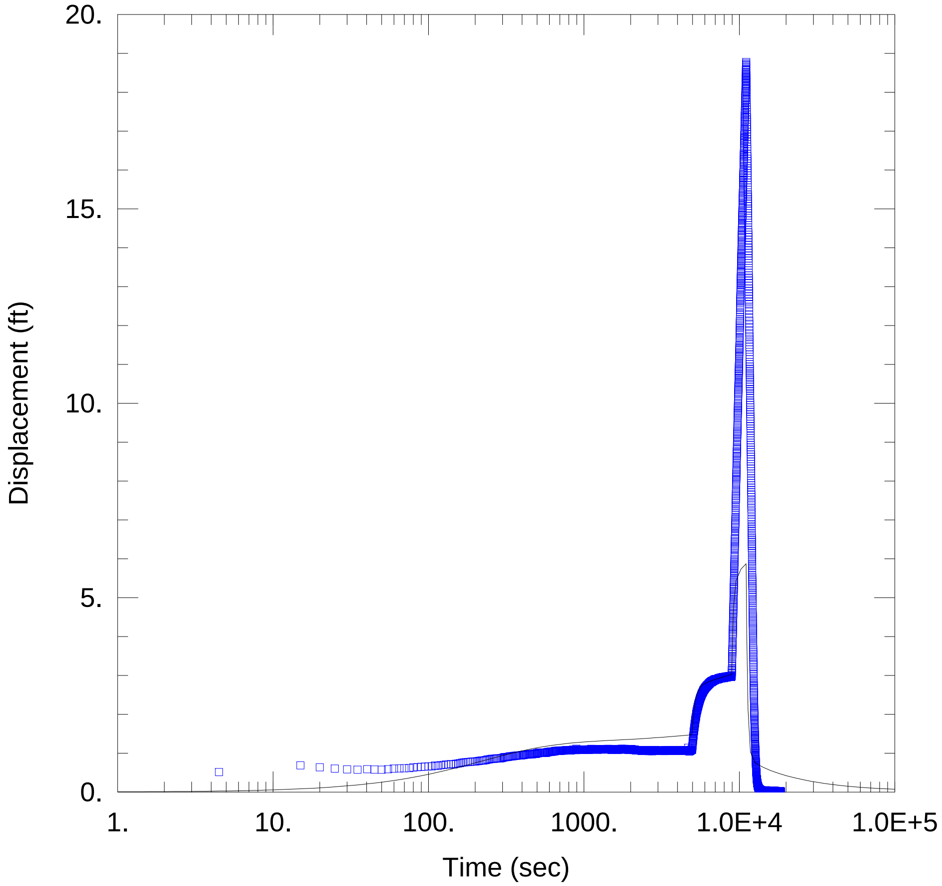
Well Name	X (ft)	Y (ft)
□ I-AD	828806.6759	26719794.82

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 6. ft^2/day
Sy = 0.2
Sw = 0.
r(c) = 0.2679 ft

S = 0.0001905
Kz/Kr = 1.
r(w) = 0.375 ft
alpha = 1.0E+30 sec^{-1}



STEP DRAWDOWN TEST ANALYSIS

Data Set: H:\...\I-W_Qal.aqt
Date: 03/25/15 Time: 16:20:35

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-W
Test Date: 2/8/2014

AQUIFER DATA

Saturated Thickness: 6. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-W	828245.8705	26719895.87

Observation Wells

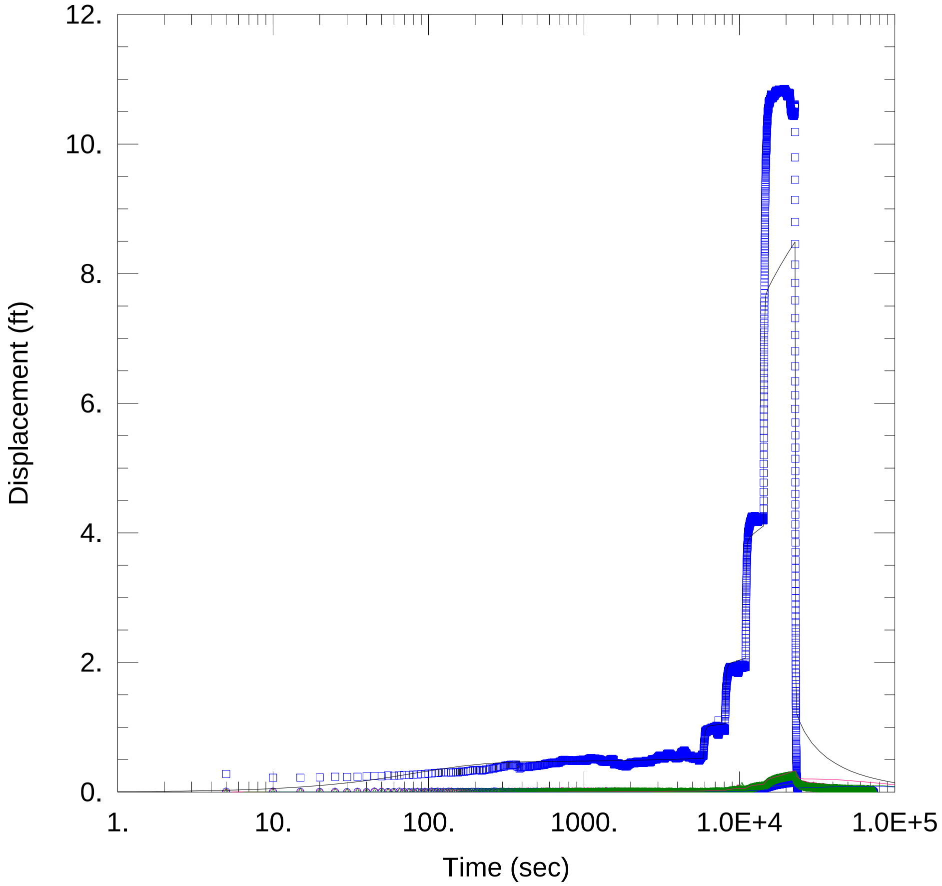
Well Name	X (ft)	Y (ft)
□ I-W	828245.8705	26719895.87

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 25. ft^2/day
Sy = 0.2
Sw = 0.
r(c) = 0.25 ft

S = 0.0001259
Kz/Kr = 1.
r(w) = 0.448 ft
alpha = 1.0E+30 sec^{-1}



STEP DRAWDOWN TEST ANALYSIS

Data Set: H:\...\I-X_test.aqt
Date: 03/25/15
Time: 16:20:19

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-X
Test Date: 2/5/2014

AQUIFER DATA

Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 0.2

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-X	827840.228	26719843.08

Observation Wells

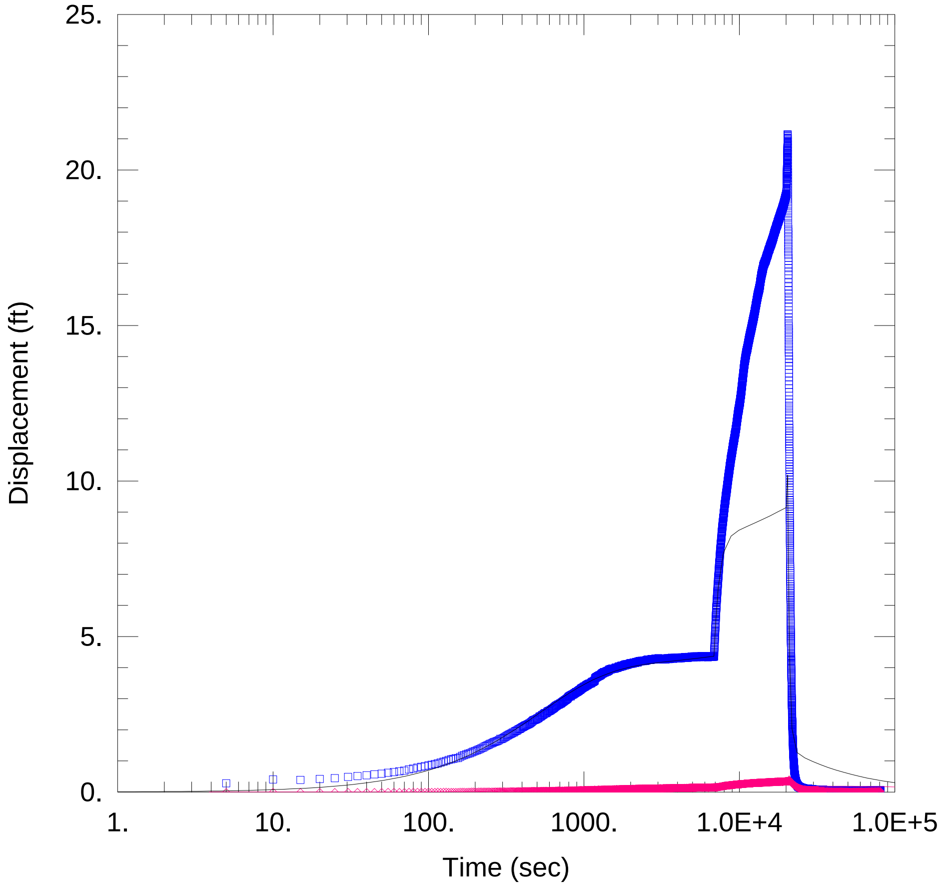
Well Name	X (ft)	Y (ft)
□ I-X	827840.228	26719843.08
◇ I-N	827802.251	26719837.85
○ M-78	827777.453	26719838.17
△ M-172	827894.873	26719835.83

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 116. ft^2/day
Sy = 0.06
Sw = 0.
r(c) = 0.25 ft

S = 0.0001396
Kz/Kr = 0.2
r(w) = 0.448 ft
alpha = 1.0E+30 sec^{-1}



STEP DRAWDOWN TEST ANALYSIS

Data Set: H:\...\I-Y_Qal.aqt
Date: 03/25/15
Time: 16:20:00

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-Y
Test Date: 2/7/2014

AQUIFER DATA

Saturated Thickness: 5. ft
Anisotropy Ratio (Kz/Kr): 0.3

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-Y	827334.6865	26719800.78

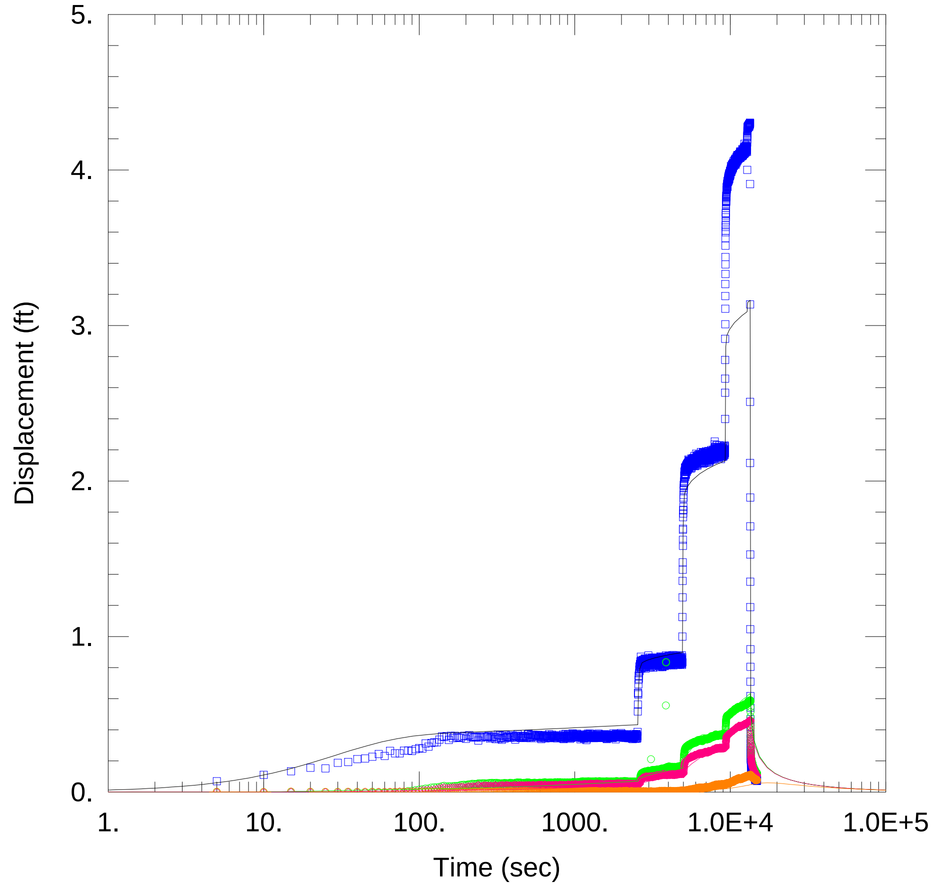
Observation Wells

Well Name	X (ft)	Y (ft)
□ I-Y	827334.6865	26719800.78
◇ M-167	827337.7164	26719787.69

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 19. ft^2/day
S = 0.0001396
Sy = 0.2
Kz/Kr = 0.3
Sw = 0.
r(w) = 0.448 ft
r(c) = 0.3076 ft
alpha = 1.0E+30 sec^{-1}



STEP DRAWDOWN TEST ANALYSIS

Data Set: H:\...\ART-7B_All_Sw.aqt
Date: 03/25/15 Time: 16:21:45

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: ART-7B
Test Date: 1/29/2014

AQUIFER DATA

Saturated Thickness: 14. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ART-7B	829576.2526	26728151.94

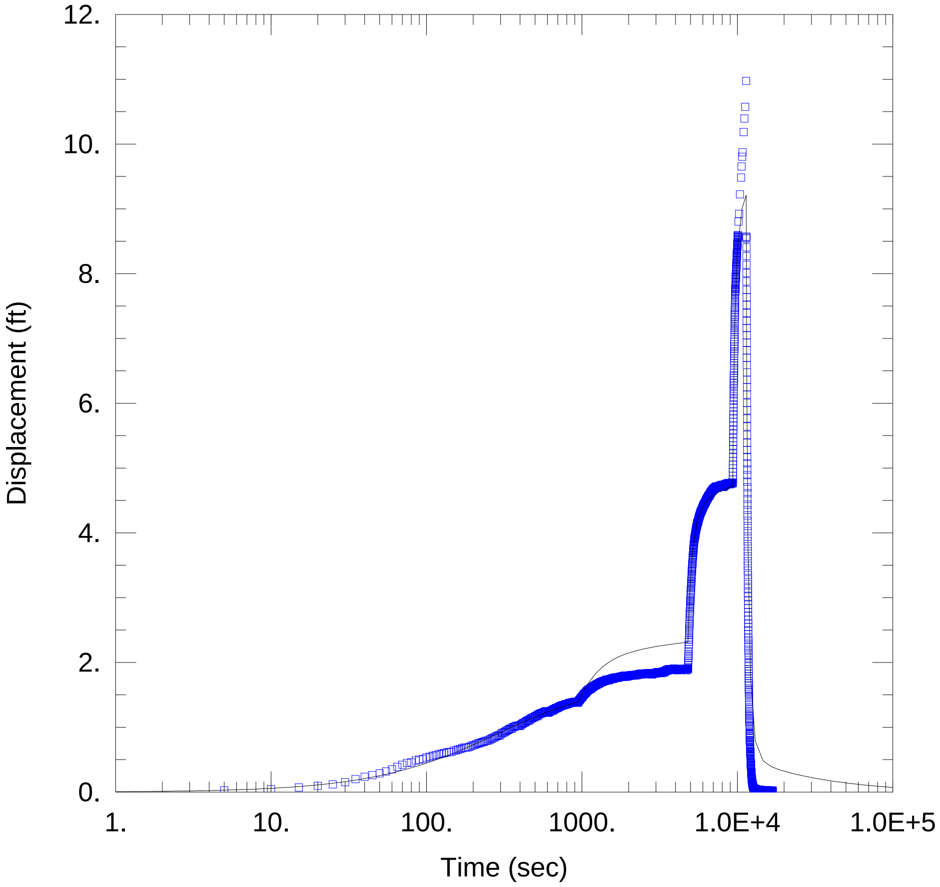
Observation Wells

Well Name	X (ft)	Y (ft)
□ ART-7B	829576.2526	26728151.94
○ ART-7	829576.521	26728145.71
◇ ART-7A	829582.7947	26728143.19
○ PC-136	829517.888	26728191.37

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 3400. ft^2/day
Sy = 0.2
Sw = 6.
r(c) = 0.5 ft
S = 0.003846
Kz/Kr = 1.
r(w) = 0.5 ft
alpha = 1.0E+30 sec^{-1}



STEP DRAWDOWN TEST ANALYSIS

Data Set: H:\...\PC-150_S.aqt
Date: 03/25/15 Time: 16:19:43

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: PC-150
Test Date: 1/28/2014

AQUIFER DATA

Saturated Thickness: 11. ft
Anisotropy Ratio (Kz/Kr): 0.2

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
PC-150	828915.2875	26728104.18

Observation Wells

Well Name	X (ft)	Y (ft)
□ PC-150	828915.2875	26728104.18

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 49. ft^2/day
Sy = 0.06
Sw = 0.
r(c) = 0.287 ft

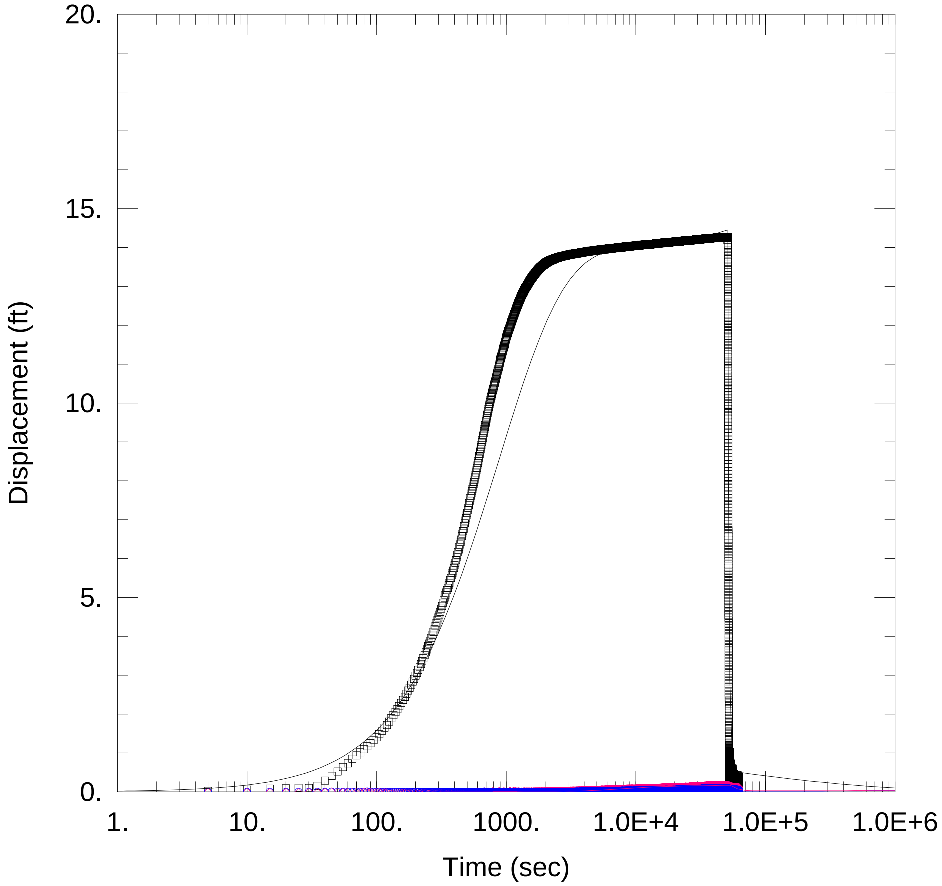
S = 0.003126
Kz/Kr = 0.2
r(w) = 0.375 ft
alpha = 1.0E+30 sec^{-1}

Appendix E

Recovery Test Results

Appendix E

Recovery Test Result Plots



RECOVERY TEST ANALYSIS

Data Set: H:\...\I-B_recovery.aqt
Date: 04/06/15
Time: 15:34:06

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-B
Test Date: 1/30/2014

AQUIFER DATA

Saturated Thickness: 16. ft
Anisotropy Ratio (Kz/Kr): 0.3

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-B	827282.89	26719808.09

Observation Wells

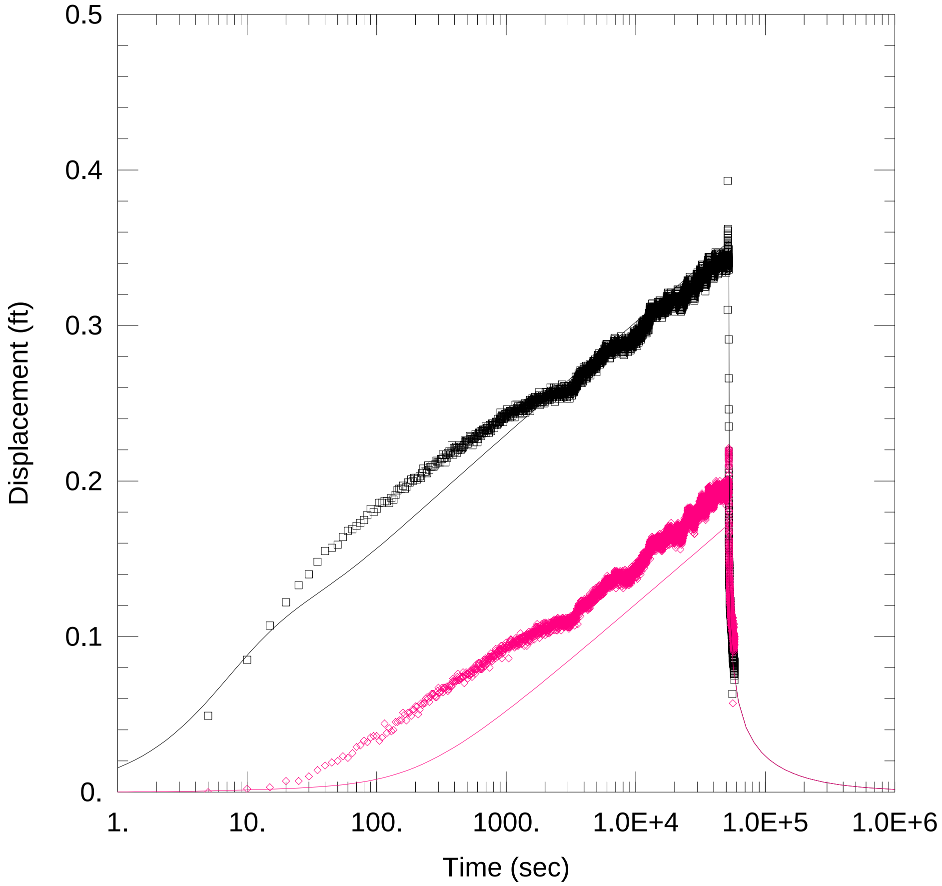
Well Name	X (ft)	Y (ft)
□ I-B	827282.89	26719808.09
◇ I-Y	827334.6865	26719800.78
○ M-167	827337.7164	26719787.69

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 11.5 ft^2/day
Sy = 0.2
Sw = 0.
r(c) = 0.25 ft

S = 0.0006607
Kz/Kr = 0.3
r(w) = 0.542 ft
alpha = 1.0E+30 sec^{-1}



RECOVERY TEST ANALYSIS

Data Set: H:\...\I-D_recovery.aqt
Date: 04/06/15 Time: 15:36:29

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-D
Test Date: 1/22/2014

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-D	827582.207	26719805.21

Observation Wells

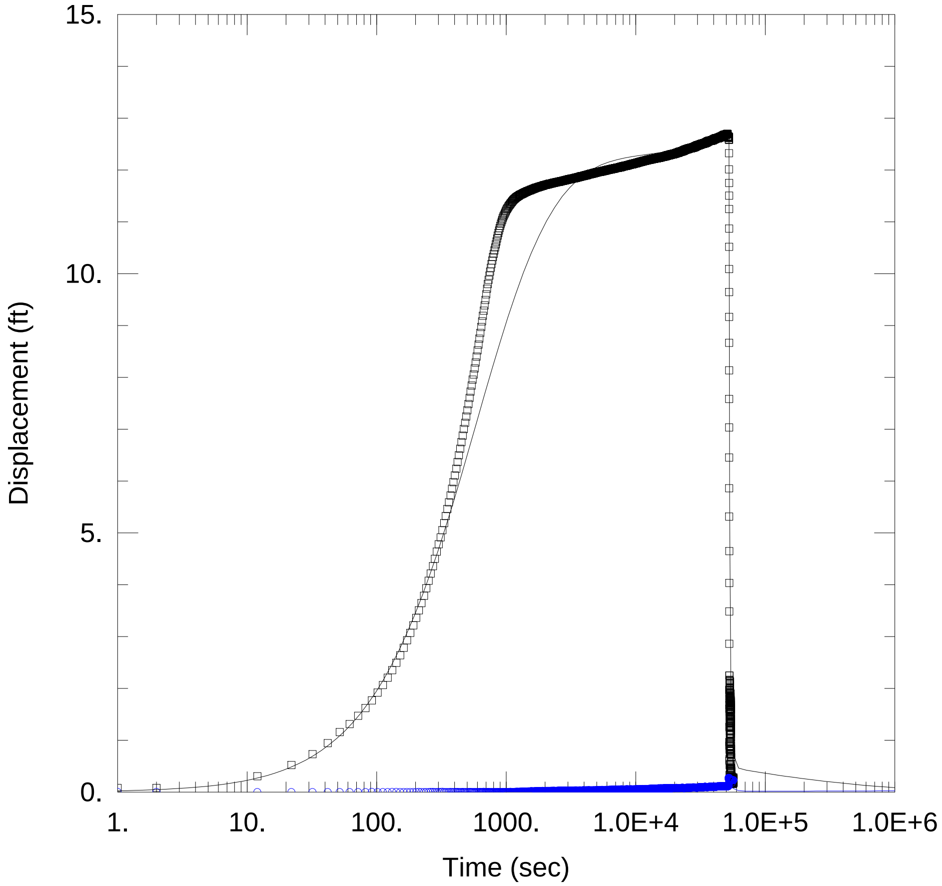
Well Name	X (ft)	Y (ft)
□ I-D	827582.207	26719805.21
◇ M-170	827577.5466	26719796.38

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 1100. ft^2/day
Sy = 0.06
Sw = 0.
r(c) = 0.3076 ft

S = 0.000144
Kz/Kr = 1.
r(w) = 0.542 ft
alpha = 1.0E+30 sec^{-1}



RECOVERY TEST ANALYSIS

Data Set: H:\...\I-G_recovery_S.aqt
Date: 04/06/15 Time: 15:37:02

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-G
Test Date: 1/22/2014

AQUIFER DATA

Saturated Thickness: 14. ft
Anisotropy Ratio (Kz/Kr): 0.3

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-G	828030.702	26719866.33

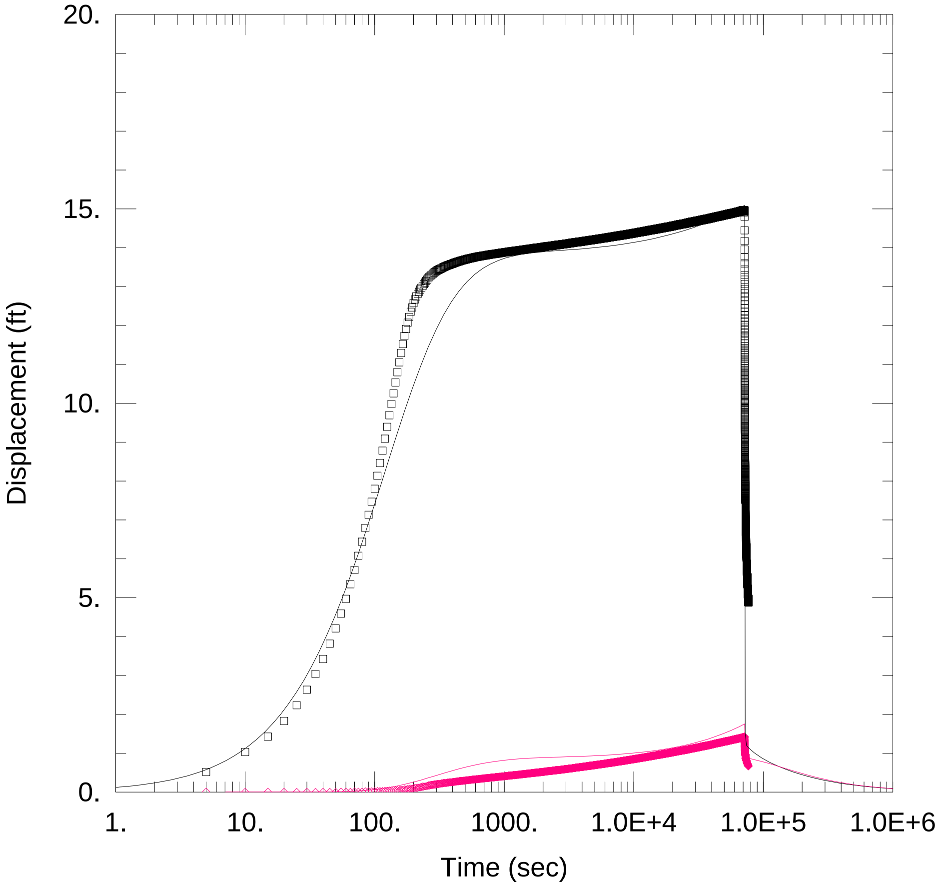
Observation Wells

Well Name	X (ft)	Y (ft)
□ I-G	828030.702	26719866.33
○ M-56	827980.362	26719859.52

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 9. ft^2/day
Sy = 0.2
Sw = 0.
r(c) = 0.177 ft
S = 0.001035
Kz/Kr = 0.3
r(w) = 0.417 ft
alpha = 1.0E+30 sec^{-1}



RECOVERY TEST ANALYSIS

Data Set: H:\...\I-J_recovery_S.aqt
Date: 04/06/15
Time: 15:37:39

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-J
Test Date: 1/23/2014

AQUIFER DATA

Saturated Thickness: 17. ft
Anisotropy Ratio (Kz/Kr): 0.2

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-J	828573.935	26719940.33

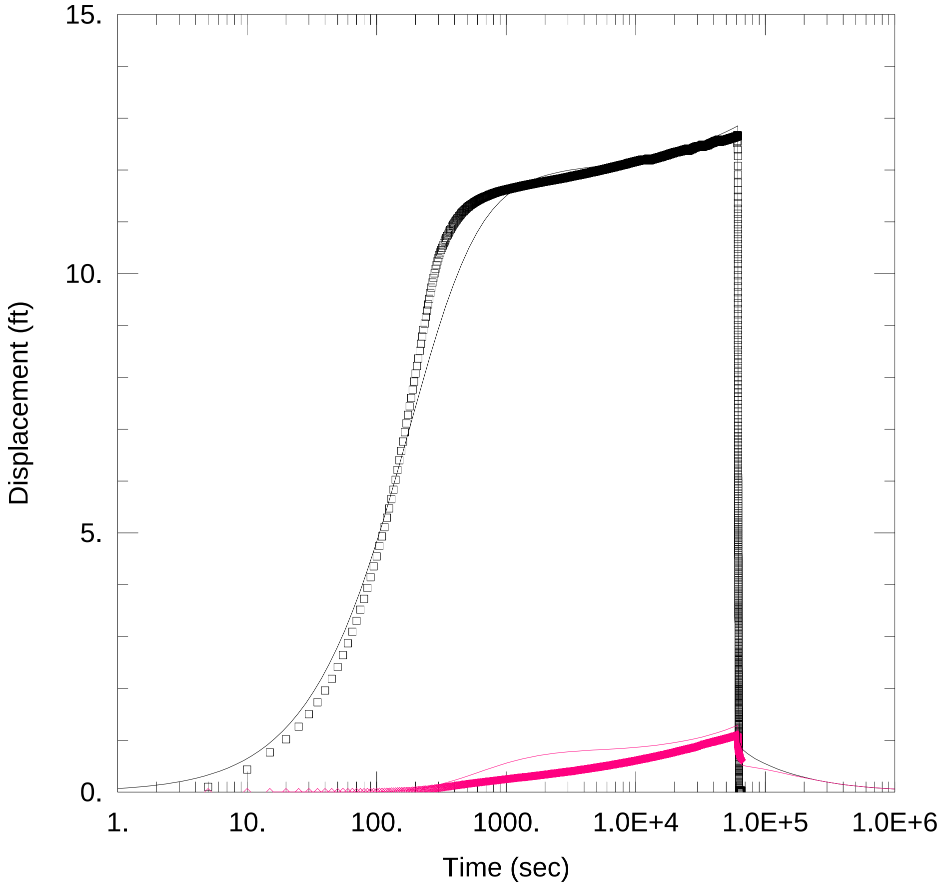
Observation Wells

Well Name	X (ft)	Y (ft)
□ I-J	828573.935	26719940.33
◇ M-176	828586.4177	26719948.07

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 90. ft^2/day
Sy = 0.2
Sw = 2.
r(c) = 0.2032 ft
S = 0.001047
Kz/Kr = 0.2
r(w) = 0.417 ft
alpha = 1.0E+30 sec^{-1}



RECOVERY TEST ANALYSIS

Data Set: H:\...\I-K_recovery_S.aqt
Date: 04/06/15 Time: 15:42:29

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-K
Test Date: 1/27/2014

AQUIFER DATA

Saturated Thickness: 14. ft
Anisotropy Ratio (Kz/Kr): 0.2

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-K	828738.089	26719962.87

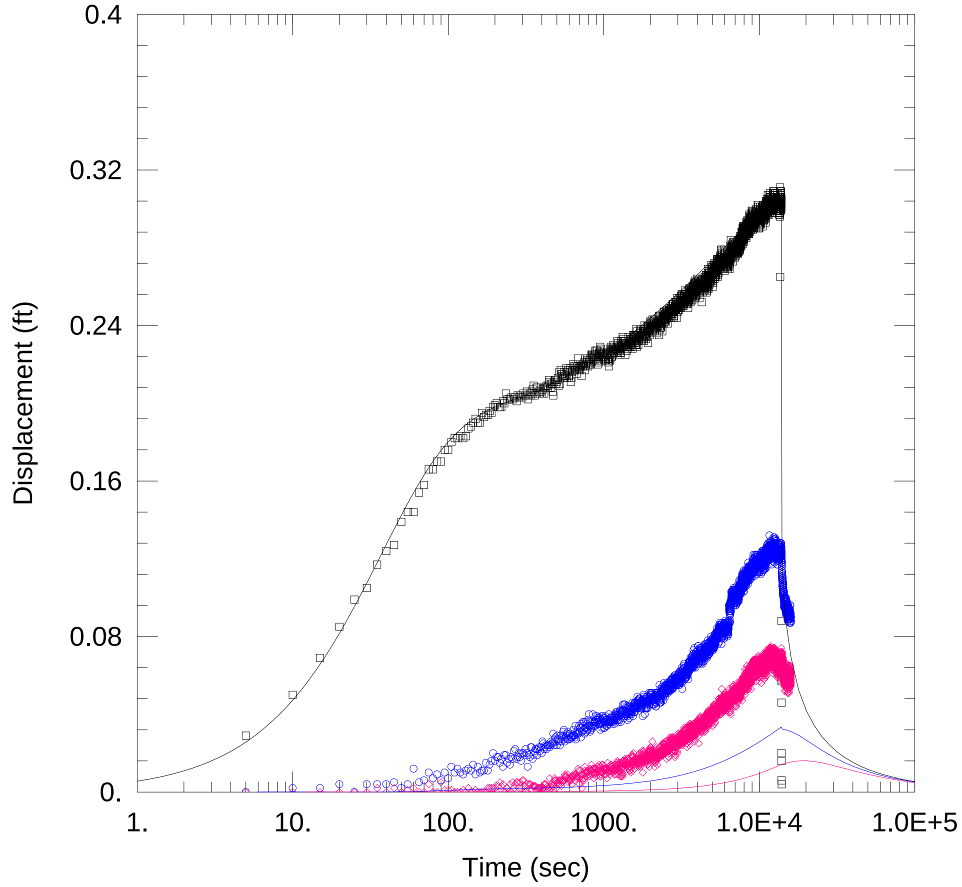
Observation Wells

Well Name	X (ft)	Y (ft)
□ I-K	828738.089	26719962.87
◇ M-177	828724.8315	26719965.79

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 67. ft^2/day
Sy = 0.2
Sw = 3.
r(c) = 0.2032 ft
S = 0.002541
Kz/Kr = 0.2
r(w) = 0.417 ft
alpha = 1.0E+30 sec^{-1}



RECOVERY TEST ANALYSIS

Data Set: H:\...\I-N_recovery.aqt
Date: 04/06/15
Time: 15:43:08

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-N
Test Date: 1/24/2014

AQUIFER DATA

Saturated Thickness: 12. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-N	827802.251	26719837.85

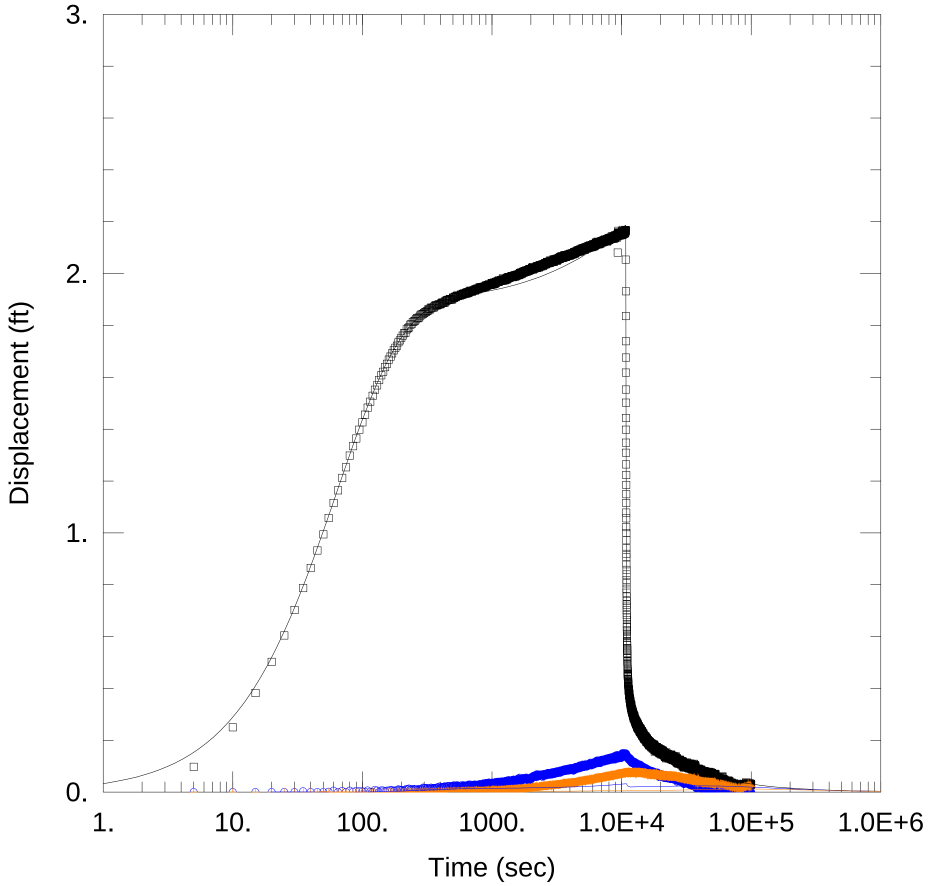
Observation Wells

Well Name	X (ft)	Y (ft)
□ I-N	827802.251	26719837.85
○ M-78	827777.453	26719838.17
◇ I-X	827840.228	26719843.08

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 330. ft^2/day
S = 0.001862
Sy = 0.1
Kz/Kr = 1.
Sw = 0.
r(w) = 0.448 ft
r(c) = 0.3076 ft
alpha = 1.0E+30 sec^{-1}



RECOVERY TEST ANALYSIS

Data Set: H:\...\I-V_recovery.aqt
Date: 04/06/15 Time: 15:44:13

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: I-V
Test Date: 1/31/2014

AQUIFER DATA

Saturated Thickness: 6. ft Anisotropy Ratio (Kz/Kr): 0.05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
I-V	828326.275	26719894.97

Observation Wells

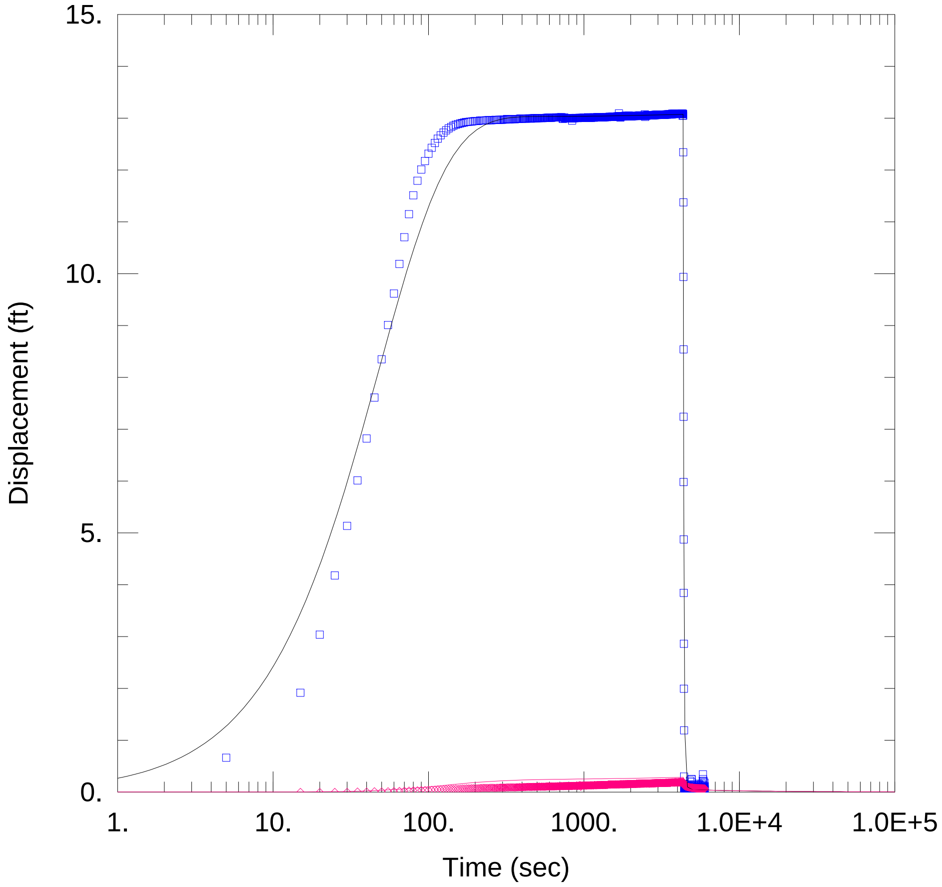
Well Name	X (ft)	Y (ft)
□ I-V	828326.275	26719894.97
○ M-174	828378.9996	26719902.97
+ I-W	828245.8705	26719895.87

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 330. ft^2/day
Sy = 0.2
Sw = 0.
r(c) = 0.3531 ft

S = 0.0018
Kz/Kr = 0.05
r(w) = 0.4375 ft
alpha = 1.0E+30 sec^{-1}



RECOVERY TEST ANALYSIS

Data Set: H:\...\ART-1_recovery_Sw.aqt
Date: 04/06/15 Time: 15:22:21

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: ART-1
Test Date: 2/4/2014

AQUIFER DATA

Saturated Thickness: 29. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ART-1	828543.961	26728122.71

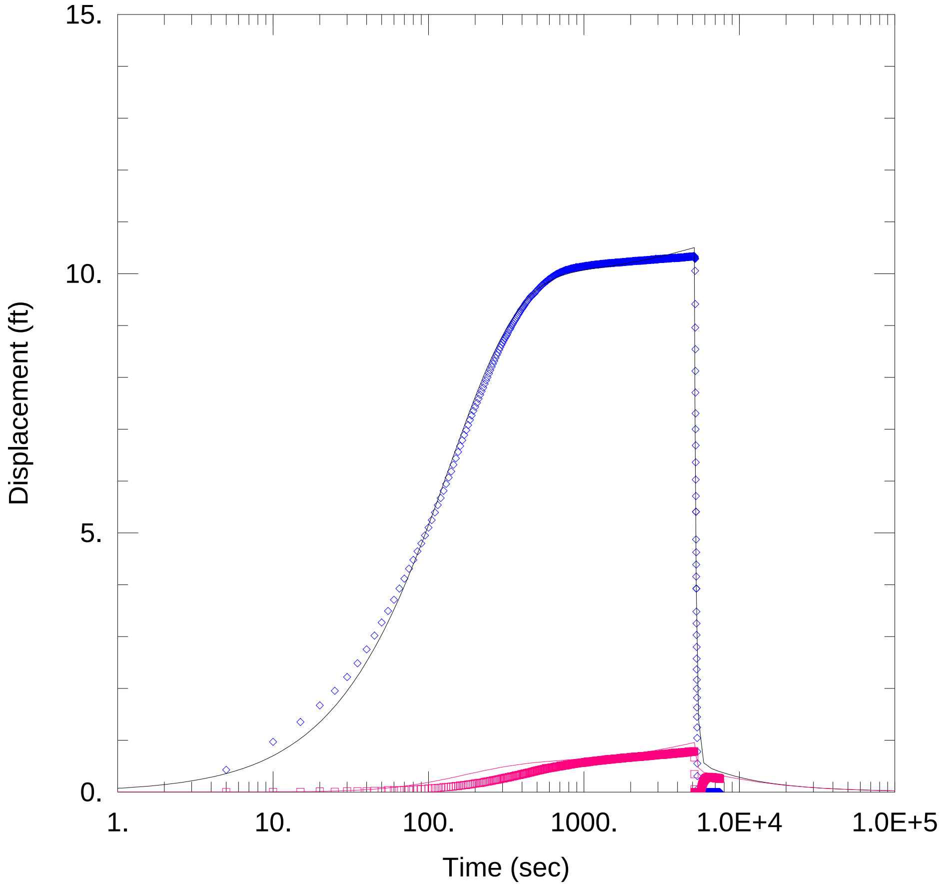
Observation Wells

Well Name	X (ft)	Y (ft)
□ ART-1	828543.961	26728122.71
◇ ART-1A	828536.7809	26728122.21

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 5800. ft^2/day
Sy = 0.2
Sw = 100.
r(c) = 0.25 ft
S = 0.006761
Kz/Kr = 0.1
r(w) = 0.542 ft
alpha = 1.0E+30 sec^{-1}



RECOVERY TEST ANALYSIS

Data Set: H:\...\ART-4A_recovery_Sw.aqt
Date: 04/06/15
Time: 15:22:55

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: ART-4A
Test Date: 2/6/2014

AQUIFER DATA

Saturated Thickness: 16. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ART-4	828850.693	26728085.26

Observation Wells

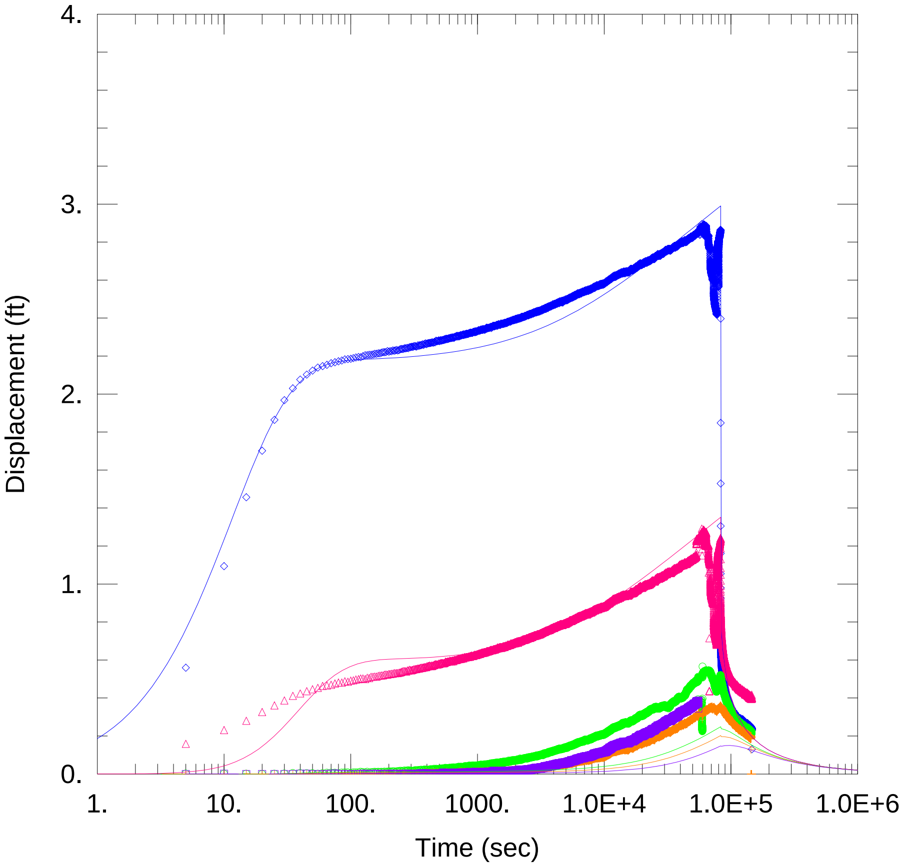
Well Name	X (ft)	Y (ft)
◇ ART-4	828850.693	26728085.26
□ ART-4A	828844.4866	26728084.58

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 370. ft^2/day
Sy = 0.2
Sw = 8.
r(c) = 0.3296 ft

S = 0.0001396
Kz/Kr = 1.
r(w) = 0.542 ft
alpha = 1.0E+30 sec^{-1}



RECOVERY TEST ANALYSIS

Data Set: H:\...\ART-7_recovery2_Sw.aqt
Date: 04/06/15 Time: 15:47:22

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: ART-7
Test Date: 1/28/2014

AQUIFER DATA

Saturated Thickness: 9. ft Anisotropy Ratio (Kz/Kr): 0.05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ART-7A	829582.7947	26728143.19

Observation Wells

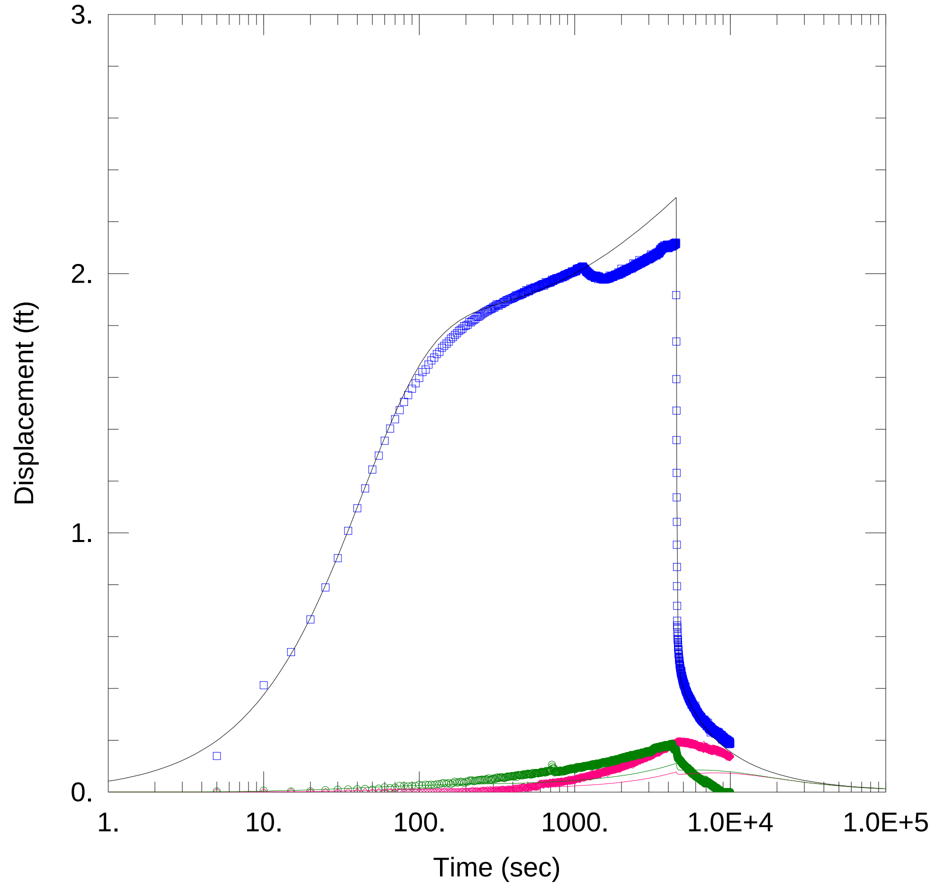
Well Name	X (ft)	Y (ft)
◇ ART-7A	829582.7947	26728143.19
△ ART-7	829576.521	26728145.71
○ PC-136	829517.888	26728191.37
+ PC-122	829675.173	26728145.17
□ ART-6	829472.905	26728140.6

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 2050. ft^2/day
Sy = 0.3
Sw = 1.
r(c) = 0.3333 ft

S = 0.0007032
Kz/Kr = 0.05
r(w) = 0.552 ft
alpha = 1.0E+30 sec^{-1}



RECOVERY TEST ANALYSIS

Data Set: H:\...\ART-9_recovery2.aqt
Date: 04/06/15 Time: 15:31:17

PROJECT INFORMATION

Company: Environ
Client: NERT
Test Well: ART-9
Test Date: 2/5/2014

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ART-9	829525.568	26728143.32
ART-7	829576.521	26728145.71

Observation Wells

Well Name	X (ft)	Y (ft)
□ ART-9	829525.568	26728143.32
◇ ART-6	829472.905	26728140.6
○ PC-136	829517.888	26728191.37

SOLUTION

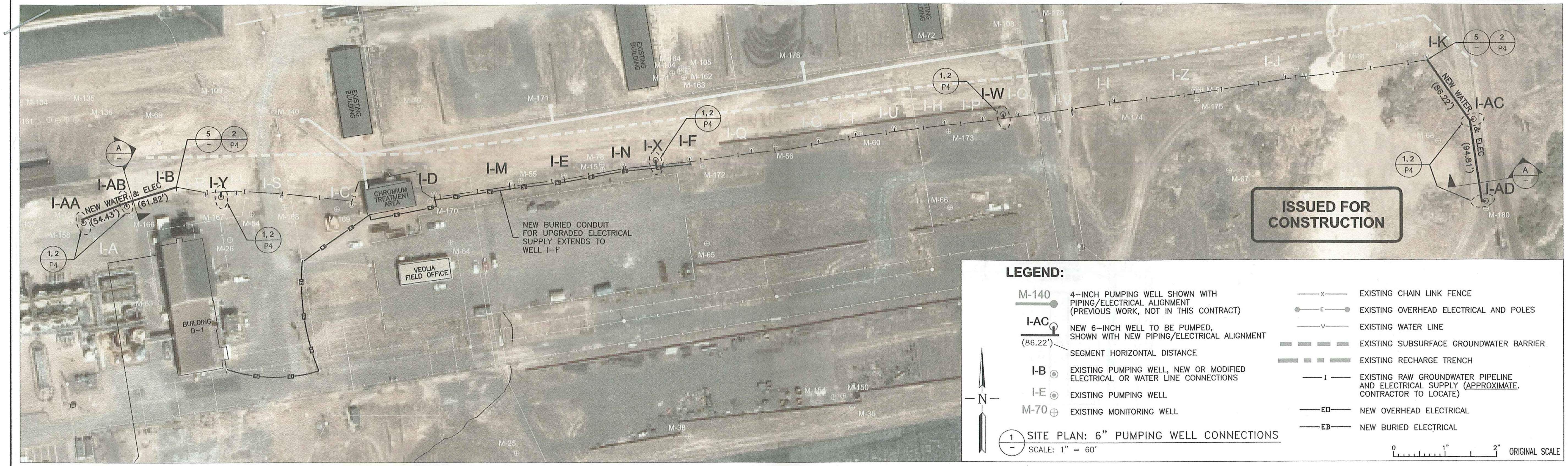
Aquifer Model: Unconfined
Solution Method: Moench

T = 2550. ft^2/day
S = 0.0001937
Sy = 0.2
Kz/Kr = 0.1
Sw = 0.
r(w) = 0.615 ft
r(c) = 0.8767 ft
alpha = 1.0E+30 sec^{-1}

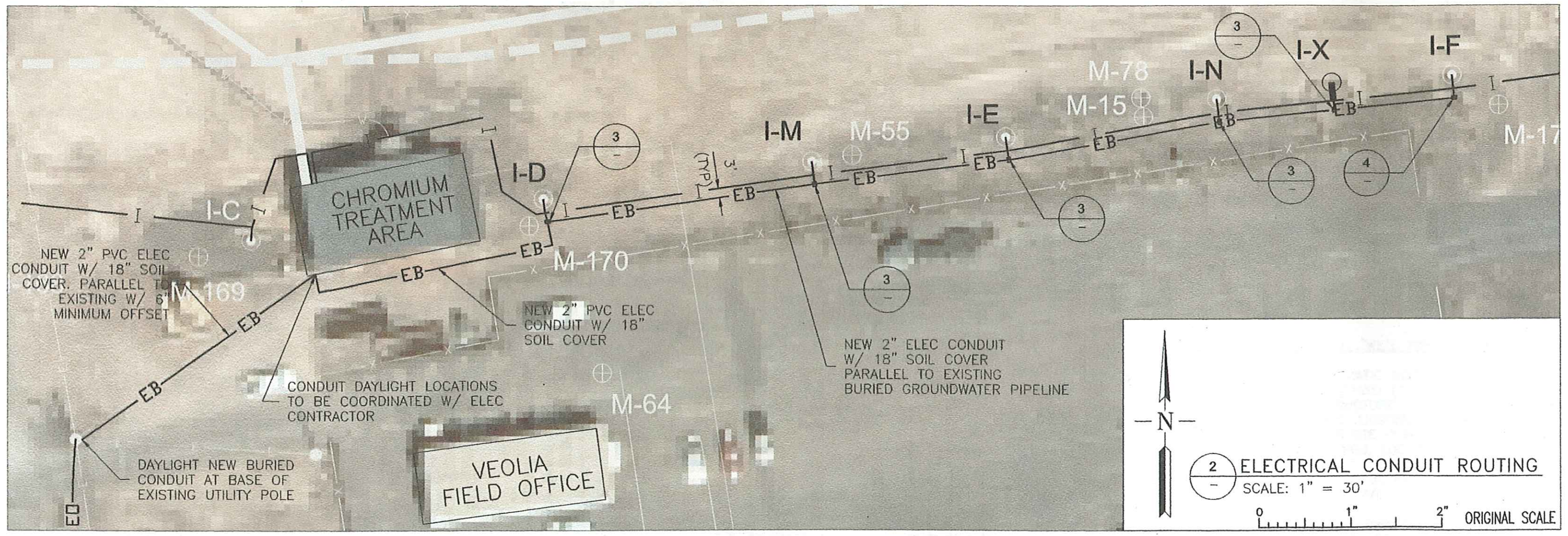
Appendix F

Northgate November 12, 2010 Plans Issued for Construction: Expansion of On-Site Interceptor Well Field, Tronox Facility; Henderson, Nevada

(Provided on CD)



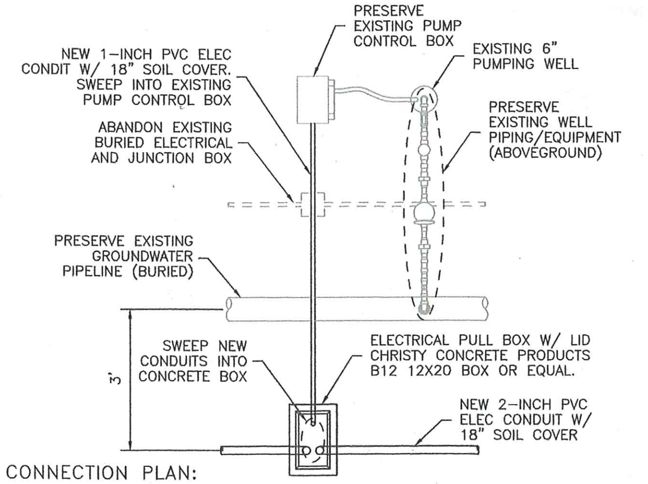
1 SITE PLAN: 6" PUMPING WELL CONNECTIONS
SCALE: 1" = 60'



2 ELECTRICAL CONDUIT ROUTING
SCALE: 1" = 30'

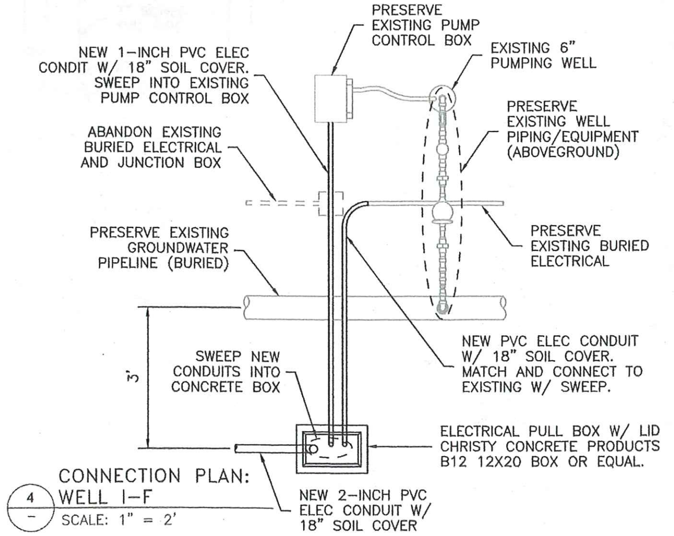
NOTES:

1. LOCATION, SIZING, AND MATERIALS (PVC, HDPE, ETC) OF EXISTING RAW GROUNDWATER PIPELINE AND ASSOCIATED ELECTRICAL IS APPROXIMATE AND SHALL BE VERIFIED BY CONTRACTOR BY EXPLORATORY EXCAVATION PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL EXPOSE EXISTING PIPELINE AND ELECTRICAL AT 5 LOCATIONS TO LOCATE AND CHARACTERIZE EXISTING FACILITIES: ADJACENT TO WELLS I–B, I–Y, I–X, I–W, AND I–K. NEW CONDUIT AND PIPELINE ALIGNMENTS INDICATED SHALL BE ADJUSTED AS NECESSARY BASED ON FINDINGS AND WITH INPUT FROM ENGINEER.
3. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATION BASED UPON RECORD INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF THE PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED AND MERGED IN THE CONTRACT PRICE.
4. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING UTILITIES.
5. CONTRACTOR SHALL PERFORM TRENCHING AND OTHER EXCAVATIONS FOR PIPING, CONDUIT, OR OTHER FACILITIES WITH A BUCKET–TYPE EXCAVATOR SUCH AS A SKID–STEER OR BACKHOE. EXCAVATIONS SHALL NOT BE PERFORMED USING A TRENCHER (E.G., "DITCH WITCH," OR SIMILAR SLOT–TRENCHING EQUIPMENT) WITHOUT ENGINEER'S APPROVAL.
6. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DIFFERENCES IN LOCATIONS OF ANY EXISTING UTILITIES FROM THAT SHOWN, OR OF ANY CONFLICTS WITH THE DESIGN, BEFORE CONTINUING WORK IN THAT AREA.
7. SAND BEDDING FOR NEW PIPES AND CONDUITS SHALL BE CLEAN AND SHALL CONFORM WITH SEIVE SIZE REQIREMENTS FOR FINE AGGREGATE SPECIFIED IN SUBSECTION 706.03.03 OF THE STATE OF NEVADA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
8. TRENCH BACKFILL SHALL CONSIST OF GRANULAR MATERIAL CONTAINING NO PIECES LARGER THAN 1.5" AND FREE OF BROKEN CONCRETE, BROKEN PAVEMENT, WOOD, OR OTHER DELETERIOUS MATERIAL. WITH APPROVAL OF ENGINEER, CONTRACTOR MAY USE EXCAVATED MATERIAL AS BACKFILL PROVIDED IT MEETS SIZE REQUIREMENTS.
9. ALL ELECTRICAL CONDUITS SHALL BE CONSTRUCTED WITH PULL ROPE PRE–INSTALLED AND SECURED AT EACH END.
10. ALL PULL BOXES SHALL BE SET WITH A 8–INCH LAYER OF CLEAN DRAIN ROCK BENEATH. PULL BOX RIMS SHALL BE 1" ABOVE FINISHED GRADE. SEE SECTION B, SHEET P4.

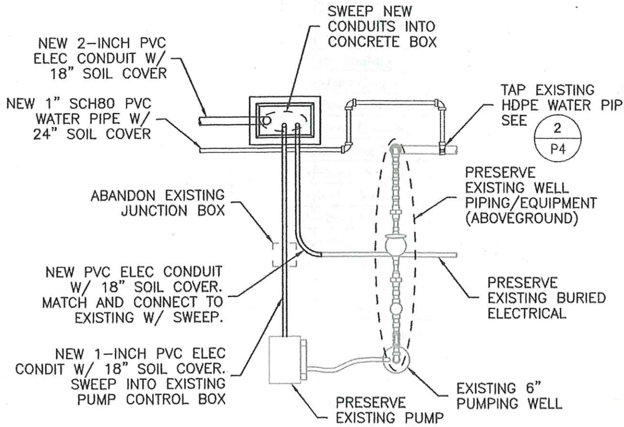


CONNECTION PLAN:
3 WELLS I–D, I–M, I–E, I–N, I–X
SCALE: 1" = 2'

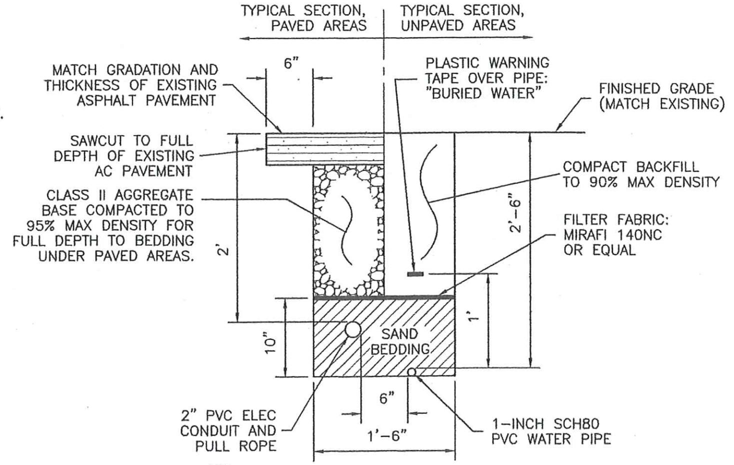
NOTE: FOR WELL I–X, CONTROL BOX, WELL PIPING/EQUIP, AND CONNECTION TO EXISTING GROUNDWATER PIPE WILL BE NEW PER DETAIL 1, SHEET P4.



CONNECTION PLAN:
4 WELL I–F
SCALE: 1" = 2'



CONNECTION PLAN:
5 TYP, WELLS I–B AND I–K
SCALE: 1" = 2'



A TYPICAL PIPE AND CONDUIT TRENCH
SCALE: 1" = 1'

CAUTION: THIS PLAN MAY BE REDUCED 0 1" 2" ORIGINAL SCALE

northgate
environmental management, inc.
www.ngem.com
TRONOX

REVISIONS

NO.:	DESCRIPTION:	DATE:	BY:
0	ISSUED FOR BID	10/14/2010	NGEM
1	ISSUED FOR CONSTRUCTION (NO CHANGES)	11/12/2010	NGEM

DESIGNED BY: NGEM
DRAWN BY: NGEM
CHECKED BY: NGEM
APPROVED BY: NGEM

SITE PLAN: PIPELINE/CONDUIT ROUTING AND WELL CONNECTIONS 6" PUMPING WELLS

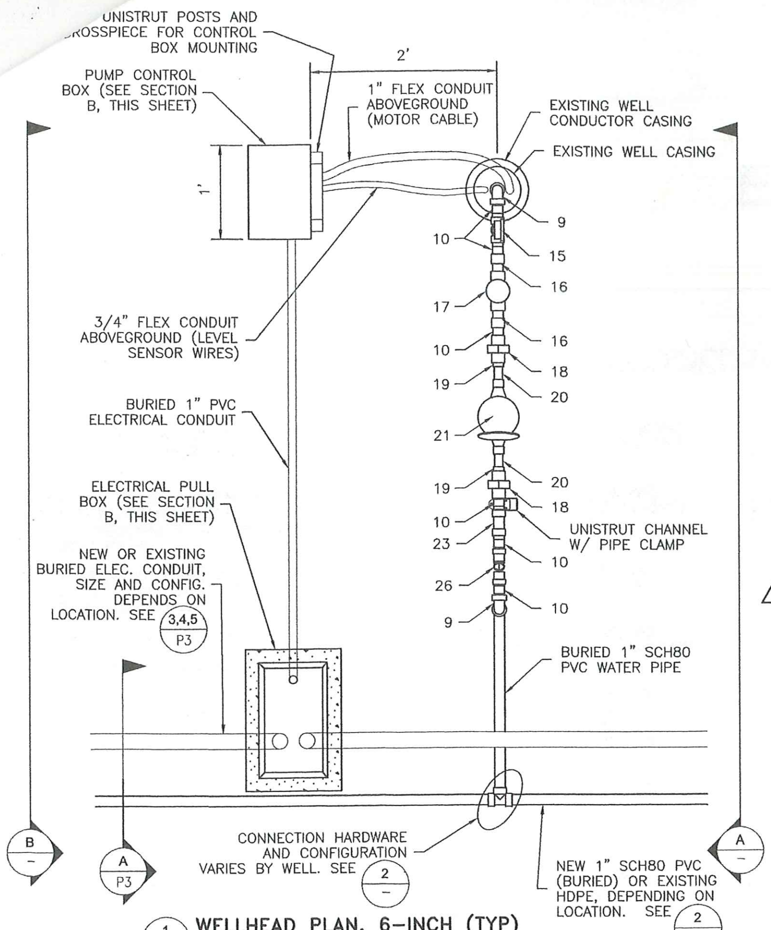
EXPANSION OF ON-SITE INTERCEPTOR WELL FIELD
Tronox Facility, Henderson, Nevada

SCALE: as noted
DATE: 11/12/2010
PROJECT NUMBER: 2027.02

PLATE NUMBER: P3
SHEET NUMBER: 2

CAUTION: THIS PLAN MAY BE REDUCED 0 1" 2" ORIGINAL SCALE

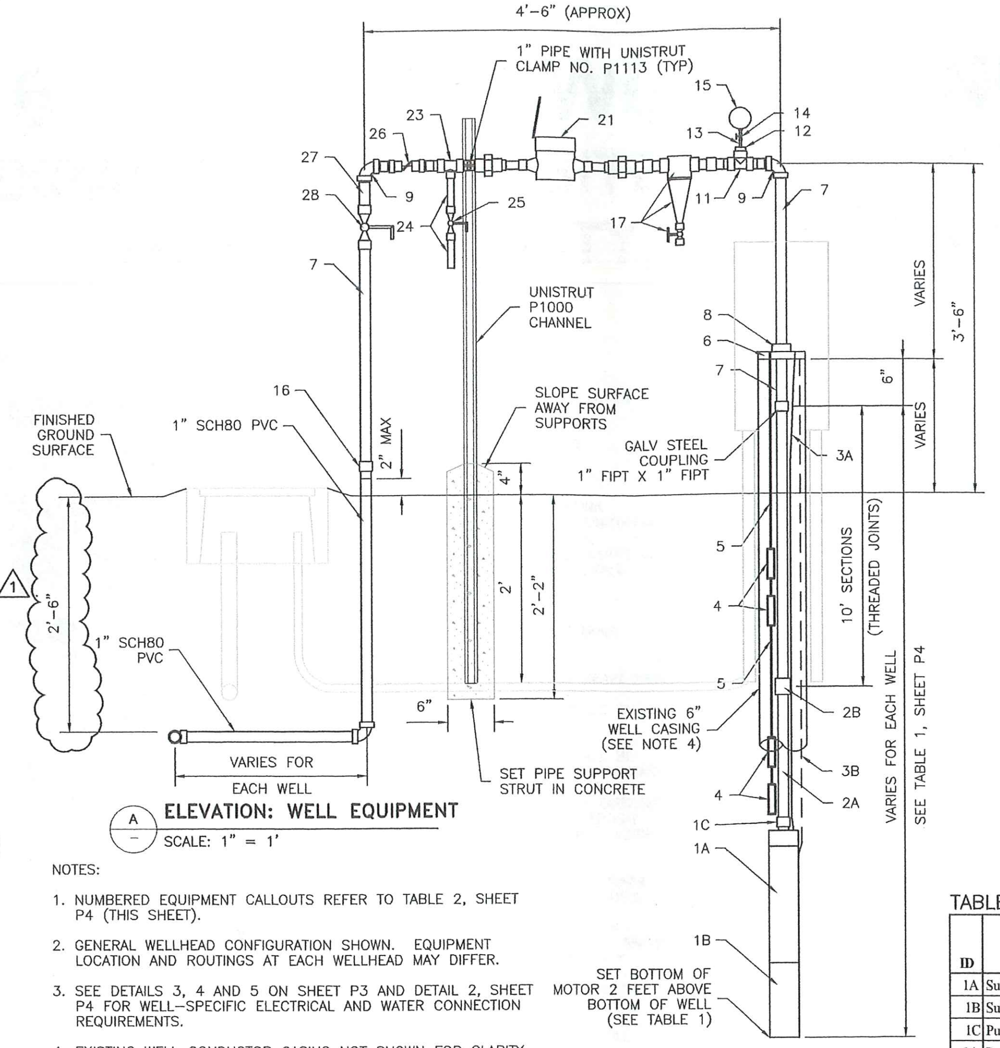
ISSUED FOR CONSTRUCTION



1 WELLHEAD PLAN, 6-INCH (TYP)
P3 SCALE: 1" = 1'

NOTES:

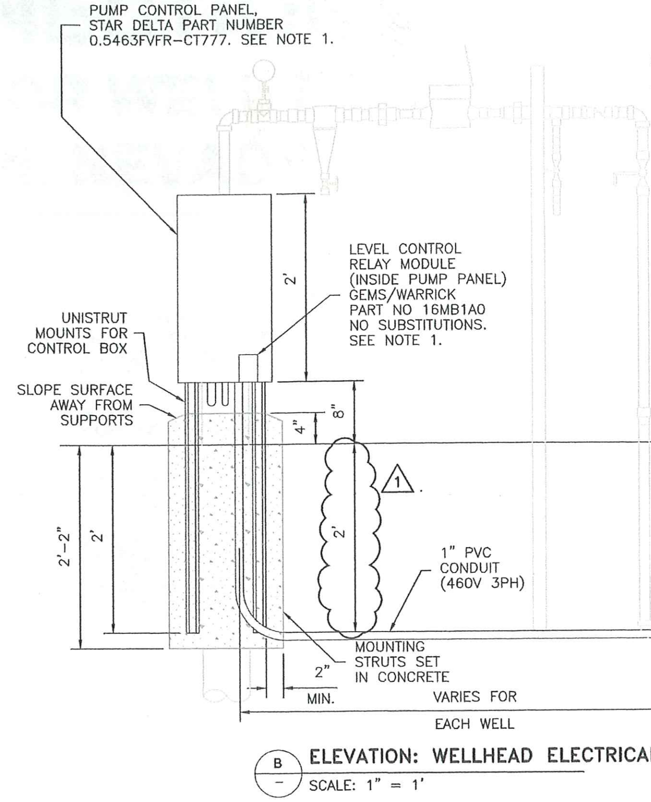
1. NUMBERED EQUIPMENT CALLOUTS REFER TO TABLE 2, SHEET P4 (THIS SHEET).
2. GENERAL WELLHEAD CONFIGURATION SHOWN. EQUIPMENT LOCATION AND ROUTINGS AT EACH WELLHEAD MAY DIFFER.
3. SEE DETAILS 3, 4 AND 5 ON SHEET P3 AND DETAIL 2, SHEET P4 FOR WELL-SPECIFIC ELECTRICAL AND WATER CONNECTION REQUIREMENTS.
4. CONTRACTOR SHALL ESTABLISH FINAL WELLHEAD CONFIGURATIONS TO MINIMIZE INTERFERENCE WITH EXISTING FACILITIES.
5. ELECTRICAL CONDUIT ROUTING AND PULLBOX CONFIGURATIONS TO BE COORDINATED WITH ELECTRICAL CONTRACTOR PRIOR TO INSTALLATIONS.
6. ALL ELECTRICAL CONDUITS SHALL BE CONSTRUCTED WITH PULL ROPES PRE-INSTALLED AND SECURED AT EACH END.



A ELEVATION: WELL EQUIPMENT
SCALE: 1" = 1'

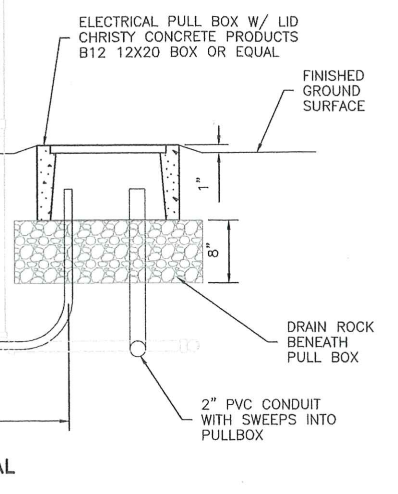
NOTES:

1. NUMBERED EQUIPMENT CALLOUTS REFER TO TABLE 2, SHEET P4 (THIS SHEET).
2. GENERAL WELLHEAD CONFIGURATION SHOWN. EQUIPMENT LOCATION AND ROUTINGS AT EACH WELLHEAD MAY DIFFER.
3. SEE DETAILS 3, 4 AND 5 ON SHEET P3 AND DETAIL 2, SHEET P4 FOR WELL-SPECIFIC ELECTRICAL AND WATER CONNECTION REQUIREMENTS.
4. EXISTING WELL CONDUCTOR CASING NOT SHOWN FOR CLARITY.
5. ALL UNISTRUT CHANNEL AND COMPONENTS SHALL BE SUPPLIED WITH A PREGALVANIZED FINISH CONFORMING TO A G-90 THICKNESS ZINC COATING PER ASTM A653.
6. MOTOR CABLE AND LEVEL SENSOR WIRES SHALL BE SECURED TO THE PUMP COLUMN PIPE AT 3-FOOT INTERVALS USING HEAVY-DUTY PLASTIC ZIP TIES.



NOTES:

1. CONTROL PANEL PART NUMBER, AS WRITTEN, INCLUDES SUPPLIER-INSTALLED SYMCOM MOTORSAVER, MODEL 777. CONTROL PANEL SHALL ALSO INCLUDE WARRICK LEVEL CONTROL RELAY AS NOTED IN DRAWING, WARRICK PART NO. 16MB1A0. LEVEL CONTROL RELAY MAY BE FACTORY- OR FIELD-INSTALLED AT CONTRACTOR'S DISCRETION, AND SHALL BE CONFIGURED TO PROVIDE DIFFERENTIAL SERVICE (DIRECT MODE). LEVEL CONTROL RELAY SHALL BE CONFIGURED TO WORK IN CONCERT WITH SYMCOM MOTORSAVER DEVICE.



B ELEVATION: WELLHEAD ELECTRICAL
SCALE: 1" = 1'

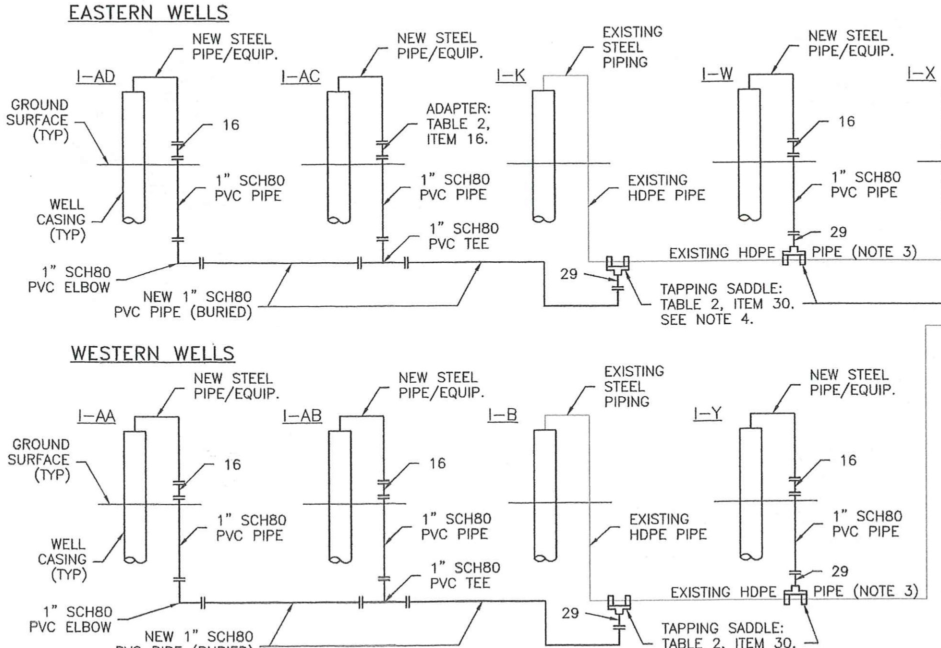
TABLE 2: WELLHEAD EQUIPMENT LIST, 6-INCH PUMPING WELLS

ID	Description	Material	Size	Connections	Brand/ Manufacturer	Part/Model Number	Substitution Permitted?	Project Area Distributor	Quantity Required Per Well
1A	Submersible Pump	SS	4" Submersible	1" FIPT Outlet	Grundfos	5S05-13	No	1	1
1B	Submersible Motor	SS	460V, 3P, 0.5 hp		Franklin Electric	234 521 94 04 S	No	1	1
1C	Pump Adapter	PVC	1" SCH80	1" Socket x 1" MIPT					1
2A	Pump Drop Pipe	PVC	1" SCH80 x 10'	1" MIPT x 1" MIPT					Varies
2B	Drop Pipe Coupling	PVC	1" SCH80	1" FIPT x 1" FIPT					Varies
3A	Motor Cable		14AWG Min		Paige	020026	Yes	1	Varies
3B	Pump Safety Cable	SS	1/8" 7x7 Stranded	1/8" thimble w/ swage, ea. end	Campbell	7000426	Yes		Varies
4	Level Sensors	SS	n/a	Custom (factory)	GEMS/Warrick	3W2	No	7	4
5	Level Sensor Wire	Copper/PVC	n/a		GEMS/Warrick	3Z1A	Yes	7	Varies
6	Well Seal	Steel	6"		NS	NS		1	1
7	Pipe	Galv Steel	1" SCH 40	1" MIPT	NS	NS			TBD
8	Riser Clamp	Galv Steel	1"	n/a	NS	NS			1
9	Elbow (90)	Galv Steel	1"	1" FIPT x 1" FIPT	McMaster-Carr	4368K135	Yes		2
10	Nipple	Galv Steel	1" SCH 40 x 2" L	1" MIPT	McMaster-Carr	4549K612	Yes		6
11	Tee	Galv Steel	1" x 1" x 1"	1" FIPT x 1" FIPT x 1" FIPT	McMaster-Carr	4638K125	Yes		1
12	Hex Bushing	Galv Steel	1" x 1/4"	1" MIPT x 1/4" FIPT	Mueller	511-951	Yes		1
13	Nipple (Pressure)	Galv Steel	1/4" x 1" L	1/4" MIPT x 1/4" MIPT	NS	NS			1
14	Plug Valve (Pressure)	Brass	1/4"	1/4" FIPT x 1/4' FIPT	Nupro	B-4P6T4	No		1
15	Pressure Gage	SS/Brass	2.5" Face	1/4" MIPT	Dwyer Instruments	SGT-D0722N-PY	No	6	1
16	Adapter, Special Reinforced	PVC	1" PVC SCH 80	1" FIPT x 1" Spigot	Spears	878-010SR	Yes	3	3
17	Filter Assembly	PVC/Acrylic	1"	1" Socket x 1" Socket	VuFlow	NT100-P	No	1	1
18	Union	Galv Steel	1"	1" FIPT x 1" FIPT	McMaster-Carr	4638K735	Yes		2
19	Hex Bushing	Galv Steel	1" x 3/4"	1" MIPT x 3/4" FIPT	Mueller	511-954	Yes		2
20	Meter Coupling	Bronze	3/4"	3/4" meter x 3/4" MIPT	Sensus	3/4" Meter Coupling	No	5	1
21	Flow Meter	Bronze	5/8" x 3/4"	3/4" meter x 3/4" meter	Sensus	M20PGI	No	5	1
22	Meter Coupling	Bronze	3/4"	3/4" meter x 3/4" MIPT	Sensus	3/4" Meter Coupling	No	5	1
23	Reducing Tee	Galv Steel	1" x 1/2" BR x 1"	1" FIPT x 1/2" FIPT x 1" FIPT	McMaster-Carr	4638K213	Yes		1
24	Nipple (Sample/Drain)	Galv Steel	1/2" SCH 40 x 4" L	1/2" MIPT x 1/2" MIPT	McMaster-Carr	4549K577	Yes		2
25	Ball Valve (Sample/Drain)	Brass	1/2"	1/2" FIPT x 1/2" FIPT	Apollo	77C-103	Yes	4	1
26	Check Valve	Bronze	1"	1" FIPT x 1" FIPT	Nibco	T-433-B	Yes		1
27	Nipple	Galv Steel	1" SCH 40 x 4" L	1" MIPT	McMaster-Carr	4549K616	Yes		1
28	Ball Valve	Brass	1"	1" FIPT x 1" FIPT	Apollo	77C-105	Yes	4	1
29	Adapter, Reinforced	PVC/SS	1"	1" Reinf MIPT x 1" Socket	Spears	836-010R	Yes	3	1
30	Service Saddle	Coated/SS	TBD	?" MAIN X 1" FIPT	JCM Industries	406-????	No	2	1

Note: n/a = Not Applicable, NS = Not Specified

Project Area Distributors (Provided for Information Only)

1 Preferred Pump and Equipment, Adam Singletary, (702) 891-4925
2 Ferguson Enterprises, Henderson, (702) 564-2660
3 Harrington Industrial Plastics, Henderson, (702) 566-5690
4 Consumer's Pipe and Supply, Robert Balthizar, Las Vegas, (702) 362-7473
5 Aquametrics, "Chad", Riverside, CA, (951) 637-1400
6 Dwyer Instruments, Inc., Michigan City, IN, (800) 872-9141
7 Guy L. Warden and Sons, Cerritos, CA, (562) 926-6682



2 WELL PIPING SCHEMATIC
SCALE: NOT TO SCALE

NOTES (FOR DETAIL 2, "WELL PIPING SCHEMATIC")

1. WELL PIPING SCHEMATIC DOES NOT SHOW ALL PUMPING WELLS. WELLS SHOWN INCLUDE: (1) NEW WELLS TO BE CONNECTED TO EXISTING INFRASTRUCTURE, AND (2) WELLS WHERE CONNECTIONS BETWEEN NEW AND EXISTING CONVEYANCE PIPES ARE TO BE MADE. REFER TO SITE PLAN ON SHEET P3 FOR COMPLETE INFORMATION ON WELL LOCATIONS.
2. NUMBERED CALLOUTS IN WELL PIPING SCHEMATIC REFER TO EQUIPMENT LIST IN TABLE 2 ON SHEET P4.
3. EXISTING HDPE PIPE DIAMETERS AT CONNECTION LOCATIONS ARE UNKNOWN AND SHALL BE DETERMINED BY CONTRACTOR.
4. TAPPING SADDLES SHALL BE SIZED BASED ON OBSERVATIONS MADE AT CONNECTION LOCATIONS DURING EXPLORATORY TRENCHING, AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
5. CONTRACTOR SHALL COORDINATE TAPPING AND CONNECTIONS TO MINIMIZE INTERRUPTIONS IN WELL FIELD OPERATION, INSTALLING TEMPORARY PIPE CAPS OR TAKING OTHER MEASURES AS NECESSARY.

TABLE 1: WELL PUMP AND SENSOR SETTING INFORMATION

Well ID	TOC Elevation[A,B] (ft msl)	Ground Surface Elevation[A,B] (ft msl)	Well Bottom Elevation (ft msl)	Target, Bottom of Motor (ft msl)	Drop Pipe Length[C] (ft)	Level Sensor Probe Installation Requirements: Low Reference Probe (ft msl)	Low Level Probe[D] (ft msl)	High Reference Probe (ft msl)	High Level Probe[E] (ft msl)
I-AA	1753.93	1751.08	1705.08	1707.08	44.2	1709.53	1710.03	1716.00	1716.50
I-AB	1754.03	1753.89	1702.89	1704.89	46.4	1707.34	1707.84	1716.00	1716.50
I-Y	1751.40	1748.89	1698.39	1700.39	48.3	1702.84	1703.34	1716.00	1716.50
I-X	1748.60	1746.22	1695.72	1697.72	48.2	1700.17	1700.67	1710.72	1711.22
I-W	1751.50	1749.12	1698.62	1700.62	48.2	1703.07	1703.57	1713.62	1714.12
I-AC	1752.76	1750.12	1700.12	1702.12	47.9	1704.57	1705.07	1714.62	1715.12
I-AD	1755.39	1752.94	1702.94	1704.94	47.8	1707.39	1707.89	1719.44	1719.94

Notes:
- A Vertical datum = NAVD88.
- B Elevations and depth measurements from as-built well data, July 2010 and sitewide well database.
- C PVC drop pipe length accounts for length of pump/motor assembly (2.20 feet) and 6-inch extension of galvanized well piping into well casing.
- D "Pump Stop" signal sent when water level drops below this elevation
- E "Pump Start" signal sent when water level rises above this elevation

northgate
environmental management, inc.
www.ngem.com

TRONOX

REVISIONS			
NO.:	DESCRIPTION:	DATE:	BY:
0	ISSUED FOR BID	10/14/2010	NGEM
1	ISSUED FOR CONSTRUCTION	11/12/2010	NGEM

DESIGNED BY: NGEM
DRAWN BY: NGEM
CHECKED BY: NGEM
APPROVED BY: NGEM

TYPICAL WELLHEAD PLAN AND DETAILS
6" PUMPING WELLS

EXPANSION OF ON-SITE INTERCEPTOR WELL FIELD
Tronox Facility, Henderson, Nevada

SCALE: as noted
DATE: 11/12/2010
PROJECT NUMBER: 2027.02

PLATE NUMBER: P4

SHEET NUMBER: 3

ISSUED FOR CONSTRUCTION

6" PUMPING WELL CONNECTIONS

EXPANSION OF ON-SITE INTERCEPTOR WELL FIELD

TRONOX FACILITY, HENDERSON, NEVADA

SPECIFICATIONS AND GENERAL NOTES FOR CONSTRUCTION

A. GENERAL

1. CONTRACTOR SHALL COORDINATE ALL WORK WITH TRONOX FACILITIES (ROBERT SALDIVAR, PH: (702) 499–4978) AND WITH VEOLIA WATER PERSONNEL (JEFF LAMBETH, PH: (702) 289–3185).
2. CONTRACTOR AND CONTRACTOR'S PERSONNEL MUST COMPLY WITH ALL TRONOX AND VEOLIA REQUIRMENTS FOR SITE ACCESS, INCLUDING HEALTH AND SAFETY REQUIREMENTS (E.G., PERSONAL PROTECTIVE EQUIPMENT) AND ANY REQUIRED TRAINING OR CERTIFICATIONS.
3. CONTRACTOR'S ACTIVITIES SHALL BE STAGED AND PERFORMED SUCH THAT REGULAR ACCESS TO SITE AND TO EXISTING ON–SITE FACILITIES IS MAINTAINED FOR VEOLIA, TRONOX PERSONNEL, AND OTHER TRONOX CONTRACTORS.
4. CONTRACTOR SHALL SECURE WORK AREAS SITE DURING NON–WORKING HOURS, AND SHALL BE FULLY RESPONSIBLE FOR THE SECURITY OF CONTRACTOR'S TOOLS, EQUIPMENT, AND CONSTRUCTION MATERIALS.
5. USE OF ON–SITE SPACE FOR TEMPORARY STORAGE OF CONTRACTOR EQUIPMENT AND CONSTRUCTION MATERIALS IS SUBJECT TO APPROVAL BY TRONOX AND VEOLIA. CONTRACTOR IS RESPONSIBLE FOR SEEKING APPROVAL FOR TEMPORARY STORAGE AND SHALL BE WHOLLY RESPONSIBLE FOR THE SECURITY AND SAFETY OF EQUIPMENT AND MATERIALS.
6. CONTRACTOR SHALL DISPOSE AND BEAR THE DISPOSAL COST FOR ALL CONSTRUCTION DEBRIS.
7. ALL WORK SHALL BE PERFORMED AND COMPLETED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES.
8. ALL ALIGNMENTS, OFFSETS, AND GRADES SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD USING A METHOD APPROVED BY THE ENGINEER. IF ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY AND OBTAIN APPROVAL FROM THE ENGINEER BEFORE PROCEEDING WITH ANY ALTERATION TO THE LOCATIONS SHOWN.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING DUST CONTROL MEASURES DURING CONSTRUCTION. MEASURES SHALL COMPLY WITH TRONOX FACILITY REQUIREMENTS AND SHALL BE IN PLACE DURING ANY AND ALL CONSTRUCTION ACTIVITIES THAT MAY GENERATE DUST.
10. "ENGINEER" = NORTHGATE ENVIRONMENTAL MANAGEMENT, INC.
11. "OWNER" = TRONOX, LLC

B. SITE CONDITIONS AND UTILITIES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND ALL SITE CONDITIONS BEFORE STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY.
2. LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXTENT AND LOCATION OF UTILITIES INCLUDING BUT NOT LIMITED TO WELLS, SEWER LINES, WATER LINES, TELEPHONE LINES, ELECTRICAL LINES, UNDERGROUND STORAGE TANKS, PRODUCT LINES, AND OTHER LINES. FOR UTILITY LINES ON PRIVATE PROPERTY, CONTRACTOR MAY ELECT TO RETAIN A PRIVATE UTILITY LOCATOR FOR THIS PURPOSE AT HIS OWN EXPENSE.
3. ANY ADDED COST ON THE PART OF THE CONTRACTOR RESULTING FROM ENCOUNTERING UNKNOWN OR UNDOCUMENTED EXISTING UTILITIES, OR FROM ACTUAL LOCATIONS OF KNOWN UTILITIES BEING DIFFERENT FROM THOSE SHOWN ON THE PLANS SHALL BE BORNE BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL BEAR THE COMPLETE COST TO REPAIR OR REPLACE ANY UTILITIES DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES. UTILITIES SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND UTILITY OWNER. REPAIRS SHALL BE IN ACCORDANCE WITH ALL UTILITY OWNERS' STANDARDS, SPECIFICATIONS, AND REQUIREMENTS AS APPLICABLE, OR AS APPROVED BY THE ENGINEER.
5. CONTRACTOR SHALL REPLACE ANY FENCING, PAVEMENT, LANDSCAPING, OR IRRIGATION PIPING REMOVED, DAMAGED, OR ALTERED AT CONTRACTORS OWN EXPENSE.
6. ANY PROPERTY DAMAGED BY THE CONTRACTOR SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE. CONTRACTOR SHALL NOTIFY ENGINEER AND OWNER OF ANY AND ALL PROPERTY DAMAGE AT THE TIME IT OCCURS.

C. PERMITS

1. A GROUNDBREAKING PERMIT, ISSUED BY TRONOX, IS REQUIRED FOR ANY AND ALL EXCAVATION WORK, INCLUDING TRENCHING. CONTRACTOR MUST COMPLY WITH ALL PROVISIONS OF TRONOX PERMIT. TRONOX PERMIT CONTACT: ROBERT SALDIVAR, (702) 499–4978.
2. A DUST CONTROL PERMIT, ISSUED BY THE CLARK COUNTY DEPARTMENT OF AIR QUALITY AND ENVIRONMENTAL MANAGEMENT, IS REQUIRED FOR THIS WORK. CONTRACTOR SHALL APPLY FOR AND OBTAIN THIS PERMIT, AND SHALL COMPLY WITH ALL PERMIT PROVISIONS.

D. HEALTH AND SAFETY

1. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE AT ALL TIMES INCLUDING SAFETY OF PERSONS AND PROPERTY, AND FOR ALL NECESSARY INDEPENDENT ENGINEERING REVIEWS OF THESE CONDITIONS. CONTRACTOR SHALL PLAN, PROVIDE EQUIPMENT FOR, AND IMPLEMENT ALL NECESSARY HEALTH AND SAFETY PROCEDURES.
2. CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNALS, BARRICADES, FLAGMAN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR SAFETY.
3. CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING, SHORING, AND BRACING OR EQUIVALENT METHODS FOR THE PROTECTION OF THE WORKERS

E. CONTRACTOR COORDINATION AND RESPONSIBILITIES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING WORK PERFORMED BY SUBCONTRACTORS AS NEEDED TO DELIVER A COMPLETE AND FUNCTIONAL PROJECT. CONTRACTOR–PERFORMED TASKS INCLUDING TRENCHING, EXCAVATION, BACKFILL, COMPACTION, AND PAVING, SHALL BE SCHEDULED, PHASED, AND EXECUTED AS NEEDED TO ACCOMMODATE SUBCONTRACTORS' WORK AND TO MAINTAIN THE OVERALL PROJECT SCHEDULE.

F. TRENCHING, EXCAVATION, AND COMPACTION

1. CONTRACTOR SHALL KEEP THE VOLUME OF EXCAVATED SOIL TO A MINIMUM DURING EXCAVATIONS REQUIRED IN THESE CONSTRUCTION ACTIVITIES.
2. DURING THE TIME EXCAVATIONS ARE OPEN, IF IMPENDING WEATHER INCLUDES HEAVY RAIN, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE SURFACE WATER FROM ENTERING EXCAVATION. ABSOLUTELY NO LEACHATE FROM THE DEBRIS OR EXCAVATED SOILS SHALL BE ALLOWED TO ENTER STORM DRAINS.
3. CONTRACTOR SHALL ASSUME THAT SOIL EXCAVATED DURING CONSTRUCTION SHALL BE USED AS BACKFILL AND REPLACED IN EXCAVATIONS IF IT MEETS PHYSICAL REQUIREMENTS FOR BACKFILL. IF OFFSITE DISPOSAL OF EXCAVATED SOIL IS REQUIRED, EXCESS MATERIAL SHALL BE PLACED IN A LINED AND COVERED STOCKPILE ON–SITE AS DIRECTED BY ENGINEER AND COSTS FOR ONSITE TRANSPORT, LOADING, OFFHAUL, AND DISPOSAL WILL BE BORNE BY OWNER. IF EXCAVATED SOIL IS REUSED AS BACKFILL, CONTRACTOR SHALL BEAR ALL ASSOCIATED COSTS.
4. CONTRACTOR SHALL BARRICADE, DELINEATE, COVER WITH STEEL PLATES, OR OTHERWISE PROTECT ALL TRENCHES AND EXCAVATIONS FROM VEHICULAR AND PEDESTRIAN TRAFFIC.
5. ALL EXCAVATIONS OR TRENCHES SHALL BE SHORED, BRACED, AND/OR SHEETED IN COMPLIANCE WITH STATE AND OSHA REQUIREMENTS. MEASURES SHALL PRECLUDE EARTH FROM SLIDING OR SETTLEMENT SUCH THAT ALL EXISTING IMPROVEMENTS ARE FULLY PROTECTED FROM DAMAGE. ANY DAMAGE RESULTING FROM A LACK OF ADEQUATE SHORING, BRACING OR SHEETING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND ANY NECESSARY REPAIRS WILL BE AT CONTRACTOR'S EXPENSE.
6. UNLESS OTHERWISE INDICATED IN THE DRAWINGS, ALL GRANULAR FILL AND BACKFILL MATERIALS SHALL BE PLACED IN LIFTS NOT THICKER THAN 8 INCHES PRIOR TO COMPACTION.
7. COMPACTION OF FILL AND BACKFILL MATERIALS SHALL BE BY MECHANICAL TAMPING OR OTHER METHOD APPROVED BY ENGINEER. COMPACTION BY FLOODING OR JETTING SHALL NOT BE PERMITTED.
8. FIELD COMPACTION TESTING RESULTS SHALL BE COMPARED TO MAXIMUM DRY UNIT WEIGHT VALUES. CONTRACTOR SHALL PROVIDE A COMPACTION CURVE FOR EACH BEDDING AND BACKFILL MATERIAL TO BE USED. COMPACTION CURVES SHALL INDICATE VALUES FOR MAXIMUM DENSITY AND OPTIMUM MOISTURE CONTENT DETERMINED IN ACCORDANCE WITH ASTM D1557.
9. FIELD COMPACTION TESTING OF GRANULAR FILL AND BACKFILL MATERIALS SHALL BE PERFORMED IN ACCORDANCE WITH ASTM D6938 (NUCLEAR METHOD) OR OTHER STANDARD TEST METHOD APPROVED BY ENGINEER.
10. CONTRACTOR SHALL RETAIN A THIRD–PARTY CERTIFIED TESTING AGENCY TO PERFORM COMPACTION TESTING SERVICES. TEST RESULTS SHALL BE PROVIDED FOR EVERY 500 SQUARE FEET (AND FRACTION THEREOF) OF COMPACTED MATERIAL, INCLUDING BUT NOT LIMITED TO BACKFILL, AGGREGATE BASE, ASPHALT SUBGRADE, AND ASPHALT PAVEMENT. CONTRACTOR SHALL SCHEDULE ALL TESTS AS NEEDED TO FACILITATE THE WORK.

G. POLYVINYL CHLORIDE (PVC) PIPING

1. ALL PVC PIPE SHALL BE SOLVENT–WELDED SCHEDULE 80 PIPE CONFORMING TO ASTM D1785, TYPE 1 (NORMAL IMPACT), GRADE 1 (HIGH CHEMICAL RESISTANCE). PVC FITTINGS SHALL BE SCHEDULE 80 CONFORMING TO ASTM D2467 AND SHALL BE SOCKET TYPE FOR SOLVENT WELDING UNLESS OTHERWISE SHOWN OR SPECIFIED IN THE DRAWINGS.
2. CEMENTS AND PRIMERS FOR JOINING PVC PIPE AND FITTINGS SHALL COMPLY WITH ASTM D2564 AND ASTM F656 AND SHALL BE DESIGNATED AS "LOW–VOC" (VOLATILE ORGANIC COMPOUNDS) PRODUCTS.
3. PVC PIPE SHALL BE JOINED ACCORDING TO ASTM D2855 AND IN ACCORDANCE WITH MANUFACTURER?S RECOMMENDATIONS. PIPE COUPLINGS SHALL COME TOGETHER AT THE PROPER ORIENTATION AND SHALL SLIP FREELY INTO PLACE. IF THE PROPER FIT IS NOT OBTAINED, PIPNG SHALL BE REMOVED, ADJUSTED, AND REINSTALLED. PIPE AND FITTINGS SHALL GENERALLY BE LEVEL AND SQUARE TO WALLS, SUPPORTS, AND EACH OTHER.
4. BEFORE JOINING, REAM ENDS OF PIPES AND TUBES AND REMOVE BURRS. REMOVE DIRT AND DEBRIS FROM INSIDE PIPES TUBES AND FITTINGS. ALL PIPE AND FITTINGS SHALL BE CLEAN AND DRY BEFORE APPLYING PRIMER AND PIPE CEMENT.
5. VALVES AND APPURTENANCES SHALL BE OF THE TYPE AND MODEL SPECIFIED ON THE DRAWINGS OR IN THE CONTRACT DOCUMENTS, OR EQUIVALENT AS APPROVED BY THE ENGINEER.
6. ALL ABOVEGROUND PIPING SHALL BE SUPPORTED TO PREVENT DISTORTION OR SPRINGING OF PIPE AND CONNECTIONS. PIPE SUPPORT ELEMENTS, INCLUDING FRAMING AND PIPE CLAMPS, SHALL BE UNISTRUT BRAND OR EQUIVALENT AS APPROVED BY ENGINEER. PIPE SUPPORTS SHOWN ON THE DRAWINGS REPRESENT BASIC REQUIREMENTS. CONTRACTOR SHALL PROVIDE INTERMEDIATE SUPPORTS AND BRACES AS NEEDED TO PROVIDE A FULLY BRACED AND SUPPORTED SYSTEM.
7. IN GENERAL, BURIED PVC PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2774, "UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPING."
8. THE BOTTOM OF PIPELINE TRENCHES SHALL BE SMOOTH AND FREE OF ROCKS, PROVIDING A FIRM, CONTINUOUS BEARING SURFACE ALONG THE ENTIRE LENGTH OF THE PIPE RUN. WHERE HARDPAN, LEDGE ROCK OR BOULDERS ARE PRESENT, THE TRENCH BOTTOM SHALL BE CUSHIONED WITH AT LEAST FOUR (4) INCHES OF SAND OR COMPACTED FINE–GRAINED SOILS.
9. PIPELINE REACHES SHALL BE "SNAKED," LAYING WITHIN THE TRENCH IN GENTLE, ALTERNATIVE CURVES TO HELP COMPENSATE FOR COOLING AND CONTRACTION AFTER TRENCH IS BACKFILLED.
10. PRIOR TO BACKFILLING, SOLVENT–CEMENTED JOINTS SHALL BE COMPLETELY DRIED AND PIPELINE REACHES SHALL BE FULLY CONTRACTED (COOLED TO NEAR THE TEMPERATURE OF THE SOIL) TO AVOID CONTRACTION–INDUCED JOINT SEPARATION.
11. PVC PIPE AND FITTINGS THAT WILL BE EXPOSED TO SUNLIGHT UPON PROJECT COMPLETION SHALL BE PAINTED WITH AN EXTERIOR WATER–BASED, LOW–VOC, FLAT LATEX PAINT SUCH AS SHERWIN–WILLIAMS SUPERPAINT, COLOR 7567 "NATURAL TAN," OR APPROVED EQUAL. PIPE AND FITTING SURFACES TO RECEIVE PAINT SHALL BE LIGHTLY SANDED BEFORE PAINT IS APPLIED, AND SHALL BE CLEAN AND DRY BEFORE PAINTING.

H. ASPHALT CONCRETE PAVEMENT

1. SURFACE PREPARATION
   - i. SURFACES TO RECEIVE ASPHALT PAVEMENT SHALL BE GRADED, COMPACTED, AND PREPARED AS DESCRIBED IN THIS SECTION AND AS SHOWN ON THE DRAWINGS.
   - ii. FILL MATERIAL SHALL BE SOIL OR ROCK MATERIAL THAT IS EITHER REMOVED FROM EXCAVATIONS PERFORMED IN CONJUNCTION WITH THE WORK OR IMPORTED TO THE SITE. IT SHALL BE FREE OF ROCK AND GRAVEL LARGER THAN 1.5 INCHES IN ANY DIMENSION AND SHALL NOT INCLUDE ROOTS, DEBRIS, WASTE, VEGETATION, OR OTHER DELETERIOUS MATTER.
   - iii. AGGREGATE BASE MATERIAL SHALL CONFORM TO NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) SPECIFICATIONS FOR TYPE 2 CLASS A AGGREGATE BASE. NEW MATERIAL SHALL BE SUPPLIED.
   - iv. IN AREAS TO RECEIVE ASPHALT, CONTRACTOR SHALL REMOVE ALL EXISTING ASPHALT, CONCRETE, VEGETATION, AND DEBRIS. WHERE ASPHALT OR CONCRETE SURFACES ARE TO BE PARTIALLY REMOVED, THEY SHALL BE SAWCUT TO A CLEAN EDGE A MINIMUM OF 1 FOOT BEYOND THE PLANNED LIMITS OF NEW CONSTRUCTION. SUFFICIENT MATERIAL SHALL BE REMOVED TO ESTABLISH A SMOOTH UNIFORM SURFACE FOR NEW CONSTRUCTION.
   - v. GRADING SHALL BE PERFORMED AS REQUIRED TO ACHIEVE THE SUBGRADE AND FINAL SURFACE ELEVATIONS INDICATED ON THE DRAWINGS. AREAS SHALL BE GRADED TO A SMOOTH UNIFORM SURFACE AND SHALL BE SLOPED UNIFORMLY BETWEEN POINTS WHERE ELEVATIONS ARE GIVEN OR BETWEEN SUCH POINTS AND THE EXISTING GRADE.
   - vi. WHERE FILL IS REQUIRED TO ACHIEVE DESIGN GRADES, EXISTING MATERIAL SHALL BE SCARIFIED AND COMPACTED TO A DEPTH OF 6 INCHES BEFORE PLACING FILL MATERIAL. FILL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8 INCHES AND COMPACTED TO 90% MAXIMUM DENSITY, EXCEPT THAT THE TOP 6 INCHES OF MATERIAL SHALL BE COMPACTED TO 95% MAXIMUM DENSITY.
   - vii. WHERE EXCAVATION IS REQUIRED TO ACHIEVE DESIGN GRADES, CONTRACTOR SHALL SCARIFY THE EXPOSED EXCAVATED SURFACE TO A DEPTH OF AT LEAST 6 INCHES AND RECOMPACT TO 95% MAXIMUM DENSITY BEFORE PLACING AGGREGATE BASE.
   - viii. A LAYER OF AGGREGATE BASE SHALL BE PLACED BENEATH ALL NEW ASPHALT PAVEMENT. UNLESS OTHERWISE SHOWN IN THE DRAWINGS, THE THICKNESS OF THE AGGREGATE BASE LAYER SHALL BE 6 INCHES, OR SHALL MATCH THAT BENEATH EXISTING ADJACENT PAVING, WHICHEVER IS GREATER.
2. PAVEMENT MATERIALS
   - i. ASPHALT PAVEMENT AGGREGATES SHALL BE TYPE 2 AS DESCRIBED IN SECTION 705 OF THE NDOT SPECIFICATIONS.
   - ii. PAINT BINDER (TACK COAT) SHALL BE TYPE SS–1H, SS1, CSS–1, OR CSS–1H ASPHALTIC EMULSION CONFORMING TO SECTION 405, "TACK COAT," OF THE NDOT SPECIFICATIONS.
   - iii. ASPHALT CONCRETE SHALL CONFORM TO SECTIONS 401 AND 402 OF THE NDOT SPECIFICATIONS. ASPHALT CONCRETE THICKNESS SHALL MATCH EXISTING ADJACENT ASPHALT BUT SHALL NOT BE LESS THAN 4 INCHES THICK.
   - iv. BITUMINOUS BINDERS SHALL BE SELECTED BASED ON NDOT SPECIFICATIONS AND SHALL CONFORM TO SECTION 703, "BITUMINOUS MATERIALS."
   - v. WATER SHALL BE POTABLE.
3. PLACEMENT
   - i. PLACE ASPHALT ON PREPARED SURFACE, SPREAD UNIFORMLY, AND STRIKE OFF. PLACE ASPHALT MIX BY HAND TO AREAS INACCESSIBLE TO EQUIPMENT IN A MANNER THAT PREVENTS SEGREGATION OF THE MIX. PLACE EACH COURSE TO REQUIRED GRADE, CROSS GRADE, CROSS SECTION, AND THICKNESS WHEN COMPACTED. PLACE ASPHALT IN NUMBER OF LIFTS AS REQUIRED BY THE STATE SPECIFICATIONS.
   - ii. SPREAD MIX AT MINIMUM TEMPERATURES INDICATED IN SECTION 401 OF THE NDOT SPECIFICATIONS. SPREADING AND COMPACTING OF ASPHALT CONCRETE SHALL CONFORM TO THE PROVISIONS IN SECTION 402 OF THE NDOT SPECIFICATIONS.
   - iii. STEPS SHALL BE TAKEN TO ENSURE THAT A CLEAN SURFACE EXISTS BETWEEN LIFTS.
   - iv. ASPHALT CONCRETE SHALL BE COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 402 OF THE NDOT SPECIFICATIONS. THE COMPLETE PAVEMENT SHALL HAVE AN AVERAGE DENSITY OF NOT LESS THAN 92% NOR GREATER THAN 96% OF THE LABORATORY MAXIMUM DENSITY DERIVED FROM COMPACTING AND TESTING THE MIXTURE IN ACCORDANCE WITH NEVADA TEST T335. FIELD TESTING OF COMPLETED ASPHALT DENSITY SHALL BE IN ACCORDANCE WITH ASTM D2950 (NUCLEAR METHOD) OR OTHER METHODS APPROVED BY ENGINEER.

I. APPLICABLE STANDARDS

1. ALL MATERIALS AND WORKMANSHIP SHALL FULLY CONFORM TO THE SPECIFICATIONS, STANDARDS, AND ORDINANCES OF THE CLARK COUNTY, NEVADA PUBLIC WORKS DEPARTMENT. IF THE SPECIFICATIONS DO NOT ADDRESS AN ITEM, THE WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS FROM STANDARD DRAWINGS FROM THE STATE OF NEVADA DEPARTMENT OF TRANSPORTATION, UNLESS OTHERWISE NOTED IN THESE PLANS AND SPECIFICATIONS.

J. CHANGES IN THE WORK

1. THESE PLANS AND SPECIFICATIONS ARE SUBJECT TO MODIFICATIONS DURING CONSTRUCTION IF CONDITIONS ARISE THAT WERE NOT APPARENT DURING DESIGN. ANY SUCH MODIFICATION SHALL BE APPROVED BY THE ENGINEER.
2. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER.
3. ONLY OWNER MAY AUTHORIZE A CONTRACT "CHANGE ORDER." SHOULD THE CONTRACTOR BELIEVE A CHANGE ORDER IS WARRANTED, HE SHOULD IMMEDIATELY COMMUNICATE WITH THE ENGINEER AND BE PREPARED TO QUOTE A FIRM PRICE OR A "NOT TO EXCEED" PRICE.

K. SCHEDULE

1. TIME IS OF ESSENCE FOR THIS PROJECT. THE CONTRACTOR, ENGINEER, AND OWNER SHALL AGREE UPON A START DATE AT THE TIME OF CONTRACT AWARD. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLETE THE WORK WITHIN TIME FRAME AGREED UPON PRIOR TO START OF WORK.

L. ACCEPTANCE TESTING AND COMMISSIONING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING AND DEMONSTRATING OPERABILITY OF ALL IMPROVEMENTS INSTALLED BY CONTRACTOR. DEMONSTRATIVE TESTS WILL INCLUDE PIPELINE PRESSURE TESTING AS DESCRIBED BELOW, VISUAL EQUIPMENT AND LEAK INSPECTIONS, AND TRIAL OPERATION OF ALL WELL PUMPS, CONTROL VALVES, FLOW METERS, PRESSURE GAGES, AND FILTER UNITS. PROPER OPERATION OF ALL ELECTRICAL AND CONTROL COMPONENTS INCLUDING SWITHCHES, BREAKERS, STARTERS, LEVEL SENSORS, AND LEVEL SENSOR RELAYS MUST ALSO BE DEMONSTRATED. ALL WELL PUMPS MUST BE DEMONSTRATED TO OPERATE SUCESSFULLY IN MANUAL MODE AND ALSO IN "AUTO" MODE, RELYING ON SENSOR RELAY CONTROLS FOR STARTING AND STOPPING, FOR A MINIMUM OF ONE (1) HOUR.
2. ALL DEMONSTRATIVE TESTS SHALL BE OBSERVED BY ENGINEER, OWNER, OR ANOTHER REPRESENTATIVE DESIGNATED BY ENGINEER OR OWNER. ALL TESTS SHALL BE SCHEDULED BY CONTRACTOR AT LEAST 24 HOURS IN ADVANCE. FOR OPERATIONAL TESTS INVOLVING PUMPING FROM EXTRACTION WELLS, VEOLIA PERSONNEL MUST BE CONSULTED IN ADVANCE SO THAT PUMPED WATER CAN BE ADEQUATELY MANAGED AT THE ON–SITE TREATMENT FACILITY.
3. CONTRACTOR SHALL PERFORM LOW–PRESSURE AIR TESTING OF ALL NEW BURIED WATER PIPE AND FITTINGS BEFORE BACKFILLING. PNEUMATIC TESTING SHALL BE PERFORMED IN GENERAL CONFORMANCE WITH ASTM F1417 USING A TEST PRESSURE OF AT LEAST 3.5 PSI AND NO MORE THAN 5 PSI. TEMPORARY PLUGS OR PIPE CAPS SHALL BE INSTALLED AS NEEDED TO FACILITATE TESTING AND REMOVED UPON TEST COMPLETION. TEST PRESSURE MUST BE MAINTAINED FOR A MINIMUM OF 30 MINUTES, OR SUFFICIENTLY LONG TO PERMIT ENGINEER TO MAKE AN INSPECTION OF THE SYSTEM AND VERIFY THE ADEQUACY OF THE TEST. DURING THE TEST, ALL PIPE, FITTINGS, JOINTS, VALVES, AND APPURTENANCES SHALL BE COMPLETELY TIGHT.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIRS OR REINSTALLATIONS NECESSARY TO ACHIEVE ACCEPTABLE TEST RESULTS.

M. WARRANTY

1. THE CONTRACTOR SHALL WARRANTY ALL CONTRACTOR–PROVIDED MATERIALS AND CONSTRUCTION FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER/ENGINEER. ANY REQUIRED WARRANTY WORK SHALL BE PROMPTLY MADE BY THE CONTRACTOR AT NO COST TO OWNER. IN THE EVENT OF CONTRACTOR SUPPLIED EQUIPMENT FAILURE, THE CONTRACTOR SHALL RESPOND WITHIN 48 HOURS. WARRANTY REPAIRS SHALL COMPLY WITH THE PROVISIONS OF THIS SPECIFICATION.

N. AS–BUILT DRAWINGS AND SURVEYING

1. CONTRACTOR SHALL PROVIDE THE ENGINEER A SET OF AS–BUILT DRAWINGS DEPICTING THE PRECISE LOCATION OF ALL INSTALLED SYSTEMS AND ELECTRICAL COMPONENTS.
2. CONTRACTOR SHALL RETAIN A LICENSED LAND SURVEYOR TO DOCUMENT COMPLETED PIPING AND CONDUIT LOCATIONS, INCLUDING THE LOCATION AND ELEVATION OF ALL NEWLY CONSTRUCTED CONDUITS, PIPELINES, PIPELINE BENDS AND JUNCTIONS, PULL BOXES, ABOVEGROUND EQUIPMENT, AND SURFACE FEATURES. SITE FEATURES IDENTIFIED DURING ANY EXPLORATORY EXCAVATION OPERATIONS PERFORMED DURING THE WORK SHALL ALSO BE SURVEYED.
3. HORIZONTAL SURVEYED COORDINATES SHALL BE REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83), NEVADA STATE PLANE EAST FIPS ZONE 2701. VERTICAL SURVEY DATA SHALL BE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. AS–CONSTRUCTED SURVEY DATA SHALL BE PROVIDED IN DIGITAL TABULAR FORMAT (EXCEL SPREADSHEET OR SIMILAR) AND IN DIGITAL DRAWING FORMAT (E.G., AUTOCAD .DWG FORMAT). TABULAR DATA SHALL INCLUDE ALL SURVEY POINT NUMBERS, DESCRIPTIONS, LATERAL COORDINATES, AND ELEVATIONS. AUTOCAD FILES SHALL INCLUDE ALL SURVEYED POINTS, CLEARLY POSTED AT ACCURATE LOCATIONS AND ELEVATIONS. EACH GRAPHIC POINT SHALL BE LABELED WITH AN ACCOMPANYING POINT NUMBER AND DESCRIPTION. TEXT SHALL BE INCLUDED IN EACH CAD FILE TO CLEARLY INDICATE APPLICABLE COORDINATE SYSTEM AND VERTICAL DATUM.
5. LAND SURVEYOR SHALL PROVIDE A TEXT SUMMARY (ASCII .TXT FILE) OF FIELD ACTIVITIES, INCLUDING FIELD SURVEY DATES, SURVEYOR'S PROJECT NAME AND PROJECT NUMBER, RELEVANT BENCHMARK AND TIE INFORMATION (CONTROL POINT ID'S AND COORDINATES), BASIS OF BEARINGS, AND SITE CONTROL POINT DATA (I.E., NAMES, COORDINATES, AND APPLICABLE COORDINATE SYSTEM FOR LOCAL CONTROLS SUCH AS TEMPORARY BENCHMARKS, LOCAL CONTROL POINTS, ETC.).

northgate
environmental management, inc.
www.ngem.com

TRONOX

REVISIONS

NO.:	DESCRIPTION:	DATE:	BY:
0	ISSUED FOR BID	10/14/2010	NGEM
1	ISSUED FOR CONSTRUCTION	11/12/2010	NGEM

DESIGNED BY: NGEM
DRAWN BY: NGEM
CHECKED BY: NGEM
APPROVED BY: NGEM

TITLE SHEET AND SPECIFICATIONS
6" PUMPING WELL CONNECTIONS

EXPANSION OF ON-SITE INTERCEPTOR WELL FIELD
Tronox Facility, Henderson, Nevada

SCALE: as noted
DATE: 11/12/2010
PROJECT NUMBER: 2027.02

PLATE NUMBER:
G1

SHEET NUMBER:
1

Appendix G

Drawings for Construction of Athens Lateral Well Field and Pump Station #3

(Provided on CD)

Avoid overhead power line contact. It's costly.

Call before you Overhead

1-702-593-6111

NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

Avoid cutting underground utility lines. It's costly.

Call before you Dig

1-800-227-2600

DRAWINGS FOR CONSTRUCTION OF ATHENS LATERAL WELLFIELD AND PUMP STATION #3

LEGAL DESCRIPTION

COMMENCING AT THE SOUTHEAST CORNER (SE COR) OF SAID SECTION 36; THENCE ALONG THE SOUTH LINE THEREOF, SOUTH 89°39'26" WEST, 2687.96 FEET TO THE SOUTH ONE QUARTER CORNER (S 1/4 COR) OF SAID SECTION 36; THENCE NORTH 86°49'17" EAST, 1111.63 FEET TO THE POINT OF BEGINNING; THENCE NORTH 00°00'00" EAST, 73.95 FEET; THENCE SOUTH 90°00'00" EAST, 69.13 FEET; THENCE SOUTH 00°00'00" EAST, 67.23 FEET TO A POINT OF NON-TANGENCY; THENCE A CURVE, CONCAVE NORTHWESTERLY, WHENCE IT'S RADIUS POINT BEARS NORTH 06°58'17" WEST WITH A RADIUS OF 1692.00 FEET; ALONG SAID CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 02°13'22" AND AN ARC LENGTH OF 65.64 FEET TO A POINT ON THE NORTHERLY LINE OF A SOUTHERN NEVADA POWER COMPANY 30.00 FOOT WIDE RIGHT-OF-WAY/EASEMENT; THENCE ALONG SAID NORTHERLY LINE, SOUTH 89°39'26" WEST, 3.83 FEET TO THE POINT OF BEGINNING, SAID PUMP STATION SITE CONTAINS APPROXIMATELY 4,906 SQ. FT. (0.113 ACRES) OF LAND.

SHEET INDEX

REVISION SHEET INDEX

1

MONUMENTATION

OWNER IS RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

BENCHMARK

CITY OF HENDERSON BENCHMARK NO. 91. A BRASS CAP LOCATED IN THE TOP OF CURB SOUTHEAST CORNER OF ATHENS AVENUE AND MOSER DRIVE AT ELEVATION (494.301 METERS) 1621.719 (NAVD '88). SUBTRACT 2.4790 FEET FOR NAV '29 ELEVATIONS. THESE PLANS REFLECT NAVD '88 ELEVATIONS.

BASIS OF BEARING

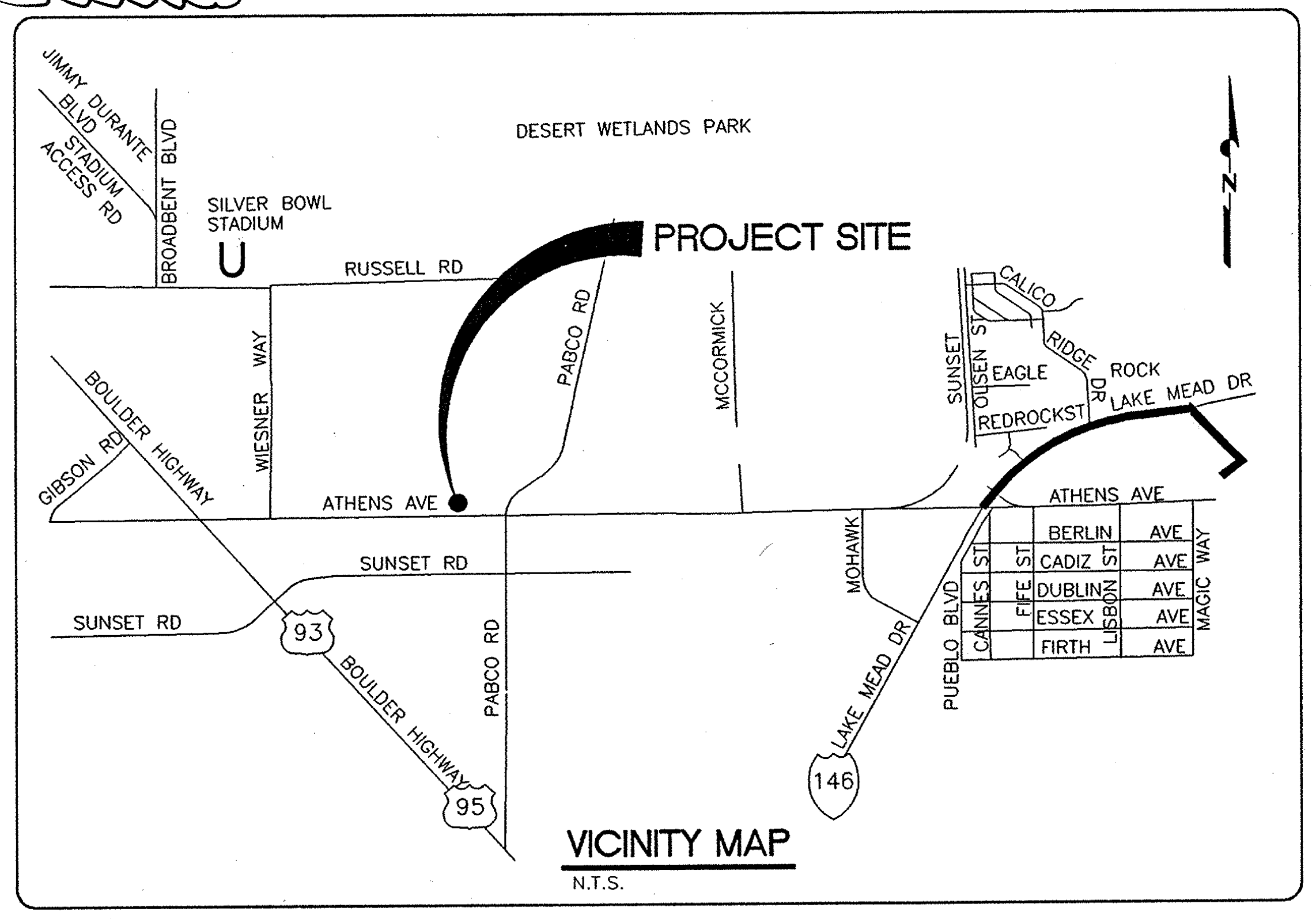
SOUTH 89°39'26" WEST, BEING THE SOUTH LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 36, TOWNSHIP 21 SOUTH, RANGE 62 EAST, M.D.M., CLARK COUNTY, NEVADA AS SHOWN UPON THE CITY OF HENDERSON WATER RECLAMATION FACILITY, PHASE 1A IMPROVEMENTS PROJECT SITE PLAN, FACILITIES INDEX AND GENERAL CIVIL NOTES, DWG C-1, SHEET 9 OF 142 SHEETS, BY MONTGOMERY WATSON PLAN SET DATED 7/27/98, COMMONLY REFERRED TO AS "HENDERSON WRF PLANT".

KERR-McGEE CHEMICAL LLC

CONSTRUCTION NOTE:

NO LESS THAN TWO (2) WEEKS PRIOR TO BEGINNING SITE CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL CALL (702) 267-2700 BETWEEN THE HOURS OF 6AM AND 4PM, AND NOTIFY THE CITY OF HENDERSON WASTEWATER OPERATIONS MANAGER OR UNIT SUPERVISOR REGARDING THE PENDING SITE CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION SCHEDULE TO THE CITY OF HENDERSON REPRESENTATIVE, INCLUDING AN ESTIMATE OF OVERALL CONSTRUCTION DURATION AT THE SITE. AN ON-SITE MEETING SHALL BE SCHEDULED PRIOR TO INITIATING CONSTRUCTION TO DISCUSS AND REVIEW THE NATURE AND EXTENT OF CONSTRUCTION IMPACT ON EXISTING SITE OPERATIONS, TO INCLUDE: SITE SECURITY PROCEDURES AND PROTOCOL; CONSTRUCTION CREW AND VEHICLE SITE INGRESS AND EGRESS PROCEDURES; CONSTRUCTION VEHICLE PATH OF TRAVEL; CONSTRUCTION WORK ZONE DELINEATION AND EXCLUSION; AND, CONSTRUCTION MATERIALS STAGING NEEDS.

OCTOBER 2001



VICINITY MAP

N.T.S.

FOR CONSTRUCTION
11/12/01

OWNER/DEVELOPER

CONTACT: SUSAN CROWLEY
KERR-McGEE CHEMICAL LLC
8000 WEST LAKE MEAD DRIVE
HENDERSON, NEVADA 89015
(702) 651-2200

ENGINEER

PBS&J INC.
901 N. GREEN VALLEY PKWY, SUITE 100
HENDERSON, NEVADA 89014
CONTACT: RICHARD CAPP, P.E.
(702) 263-7275

REVISION
1 ONLY

JONATHAN D. TULL
Exp. 06/30/2016
CIVIL
No. 14581

6-24-14

2001705025

RICHARD J. CAPP
CIVIL
No. 12877

THIS SET OF PLANS IS CERTIFIED TO CONFORM TO THE REQUIREMENTS OF THE TRAFFIC STUDY ACCEPTANCE LETTER.

N/A
RICHARD J. CAPP P.E. NO. 12877 DATE

6-11-02
CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT
DATE

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY June 11, 20 03

"APPROVAL OF THESE PLANS BY THE CITY OF HENDERSON IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHTS-OF-WAY AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE THE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIFICALLY IDENTIFIED AS "DEVIATIONS FROM STANDARDS". THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN "DEVIATIONS FROM STANDARDS" IN FAVOR OF THE UNIFORM STANDARDS DRAWINGS AND SPECIFICATIONS CLARK COUNTY AREA NEVADA".

APPROVALS

Michael A. Moine for KRS 5.9.02
KURT SEGLER, P.E.
DIRECTOR OF UTILITY SERVICES
CITY OF HENDERSON
DATE

-NA-
MICHAEL W. BOUSE
DIRECTOR OF BUILDING AND SAFETY
CITY OF HENDERSON
DATE

2-12-01
JOHN E. BARTELS, P.E.
CITY TRAFFIC ENGINEER
CITY OF HENDERSON
DATE

-NA-
JAMES MADDEN
FIRE MARSHALL
CITY OF HENDERSON
DATE

for WCC 3/18/02
CURT CHANDLER, ~~P.E.~~
FLOOD CONTROL COORDINATOR
CITY OF HENDERSON
DATE

Patrick R. Richardson 11-20-01
SPRINT PATRICK R. RICHARDSON
DATE

11-26-01
SOUTHWEST GAS CORPORATION Craig S. Sisco
DATE

COX COMMUNICATIONS DAN [illegible]
DATE

11/20/01
NEVADA POWER COMPANY
JOHN WOODARD
DATE

Leanne Miller 11/30/01
SNWA
DATE

NOTE:
EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS CALL BEFORE YOU DIG 1 (800) 227-2600

(06009)

PAPER SIZE	DRAWING NO.	SHEET
D	G01	1 OF 34
		REVISION

KERR-McGEE CHEMICAL LLC

P.O. BOX 55 HENDERSON, NEV. 89009-7000

DESIGN	DATE	APPROVED FOR CONSTRUCTION	BY	DATE		BY	DATE
DRAWN BY C. LANA	XX/XX/XX	SAFETY			PROCESS ENGR.		
PROJ. ENGR. R. CAPP		ENVIRONMENTAL			PROJECT ENGR.		
ENGR. MNGR.		OPERATIONS MNGR.			ENGR. MNGR.		
		PRODUCTION SUPT.			PLANT MNGR.		
		QLTY. CONTROL					

ATHENS LATERAL
WELLFIELD AND PUMP STATION #3
COVER SHEET

DATE: 10/01/01 SCALE: AS NOTED

TOLERANCE UNLESS OTHERWISE SPECIFIED FRACTIONS ± 0.00 ± 0.000 ±

AFE No. JOB No. 511330.00

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV.	DESCRIPTION	BY	DATE
1	FIX AND REVISE SHEET INDEX TO ADD SHEETS 24-34, ADDED CONSTRUCTION NOTE	JDT	3/24/14

PBS&J
901 N. Green Valley Pkwy.
Suite 100
Henderson, Nevada 89014
Telephone: 702/263-7275
Fax: 702/263-7200
ENGINEERING • PLANNING • SURVEYING • CONSTRUCTION SERVICES

ABBREVIATIONS

@	AT
AC	ASPHALTIC CONCRETE
AHD	AHEAD
ALUM	ALUMINUM OR ALUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APN	ASSESSORS PARCEL NUMBER
APPROX	APPROXIMATE
AR	AIR RELEASE VALVE ASSEMBLY
ASA	AMERICAN STANDARDS ASSOCIATION (NOW ANSI)
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIAL
ATT	AMERICAN TELEGRAPH &TELEPHONE
AV/AR	AIR VACUUM / AIR RELEASE VALVE ASSEMBLY
BC	BEGIN CURVE
BCR	BEGIN CURB RETURN
BK	BACK
BLDG	BUILDING
BM	BEAM OR BENCH MARK
BOT/B	BOTTOM
BVC	BEGIN VERTICAL CURVE
BFV	BUTTERFLY VALVE
CAP	CAPACITY
CATV	CABLE TELEVISION
CB	CATCH BASIN
CC	CENTER TO CENTER
CCFR	CENTRIFUGALLY CAST FIBERGLASS REINFORCED
CCN	CLARK COUNTY NEVADA
CCRFCD	CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
C/L	CENTERLINE
CHG	CHANGE
CJ	CONSTRUCTION JOINT
CLR	CLEAR
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMLC	CEMENT MORTAR LINED / COATED
CML/ TWCMC	CEMENT MORTAR LINED/ TAPE WRAPPED CEMENT MORTAR COATED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
COH	CITY OF HENDERSON
COL	COLUMN
CONC	CONCRETE OR CONCENTRIC
CONT	CONTINUED, CONTINUOUS, CONTINUATION
CONTR	CONTRACTOR
CONST	CONSTRUCTION
CP	CONTROL POINT OR CATHODIC PROTECTION
CTR	CENTER
CPTS	CATHODIC PROTECTION TEST STATION
CU	CUBIC
CYL	CYLINDER
DET	DETAIL
DFT	DRIED FILM THICKNESS
DIP	DUCTILE IRON PIPE
DIA	DIAMETER
DISCH	DISCHARGE
DV	DRAIN VALVE
DWG	DRAWING
E	EAST, ELECTRIC
EA	EACH
EC	END CURVE
ECC	ECCENTRIC
ECR	END CURB RETURN
EF	EACH FACE
EFF	EFFLUENT
ELV/ELEV	ELEVATION
ENCSD	ENCASED
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EQUIP	EQUIPMENT
EVC	END VERTICAL CURVE
EW	EACH WAY
EXIST/EX	EXISTING
EXP JT	EXPANSION JOINT
FF	FINISH FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FIG	FIGURE
FIN	FINISHED
FL	FLOWLINE OR FLOOR
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FO	FIBER OPTIC
FT	FEET
FTG	FOOTING
G	GAS
GALV	GALVANIZED
GND	GROUND
GRD	GRADE OR GROUND
GR BRK	GRADE BREAK OR GRADE CHANGE
GRTG	GRATING
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH PRESSURE
HPI	HORIZONTAL POINT OF INTERSECTION
HORIZ	HORIZONTAL
HWL	HIGH WATER LEVEL
HV	HORIZONTAL & VERTICAL CONTROL POINT
HYD	HYDRAULIC OR HYDRANT
ID	INSIDE DIAMETER
IN	INCH
INV	INVERT
IRR	IRRIGATION
KM	KERR MCGEE
LB	POUND
LG	LENGTH
LP	LIGHT POLE
LF	LINEAR FEET
LT	LEFT
LVVWD	LAS VEGAS VALLEY WATER DISTRICT
MAX	MAXIMUM
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM OR MINUTE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
ML	MONUMENT LINE
MLCP	MORTAR LINED/COATED PIPE
MON	MONUMENT
MTH	MONTH
N	NORTH
NIC	NOT IN CONTRACT
NO/#	NUMBER
NTS	NOT TO SCALE
NPC	NEVADA POWER COMPANY
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
ORIG	ORIGINAL
P&P	PLAN & PROFILE
P	PIPE
PC	POINT OF CURVATURE, PRIME CABLE
PCC	POINT OF COMPOUND CURVATURE
PE	PERMANENT EASEMENT
PI	POINT OF INTERSECTION
PL	PLATE, PROPERTY LINE OR PLACE
POB	POINT OF BEGINNING
POT	POINT ON TANGENT
PP	PANEL POINT, POWER POLE
PR	PAIR
PRC	POINT OF REVERSE CURVE
PRESS	PRESSURE
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENT
PVC	POLYVINYL CHLORIDE
PUE	PATENT UTILITY EASEMENT
PVMT	PAVEMENT
QTY	QUANTITY
R	RADIUS, RISER, RETURN OR RATE OF SLOPE
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RED	REDUCER OR REDUCING
REF	REFERENCE OR REFER
REIN	REINFORCE OR REINFORCED
REQD	REQUIRED
REQ'D	REQUIRED
REV	REVISION
RLS	REGISTERED LAND SURVEYOR
RR	RAILROAD
RSG	RESILIENT SEATED GATE
RT	RIGHT
ROW, R/W	RIGHT OF WAY
S	SOUTH OR SLOPE
SC	SCALE
SCD	SCREWED
SCH	SCHEDULE
SD	STORM DRAIN
SEC	SECTION
SHT	SHEET OR SHELF
SIM	SIMILAR
SL	SLUDGE OR SLOPE
SMH	SEWER MANHOLE
SNWA	SOUTHERN NEVADA WATER AUTHORITY
SNWS	SOUTHERN NEVADA WATER SYSTEM
SPEC	SPECIFICATION
SPT	SPRINT
SQ	SQUARE
SS	SANITARY SEWER
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STN STL	STAINLESS STEEL
STRUCT	STRUCTURAL
SWG	SOUTHWEST GAS
T	TOP
TAN	TANGENT
TBM	TEMPORARY BENCH MARK
TC	TELEMETRY CABLE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEL	TELEPHONE
THRD	THREAD
TF	TOP OF FOOTING
TM	TELEPHONE MANHOLE
TMH	TOP OF MANHOLE
TOL	TOLERANCE
TOW	TOP OF WALL
TP	TELEPHONE POLE OR TELEGRAPH POLE
TYP	TYPICAL
UG	UNDERGROUND
UGC	UNDERGROUND CONDUIT
UGP	UNDERGROUND POWER
UNK	UNKNOWN
VAR	VARIES OR VARIABLE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VOL	VOLUME
VPI	VERTICAL POINT OF INTERSECTION
W	WEST, WASTE OR WATER
W/	WITH
WP	WEATHERPROOF
WS	WATER SURFACE
WSP	WELDED STEEL PIPE
WSTP	WATER STOP
WT	WEIGHT
YD	YARD

DETAIL CALLOUT LEGEND

X	DETAIL (LETTER) OR SECTION (NUMBER) DESIGNATION
X	DRAWING NUMBER WHERE CORRESPONDING DETAIL OR SECTION IS SHOWN OR CALLED OUT. (REPLACED WITH A LINE IF SHOWN ON SAME SHEET).

LEGEND

①	COORDINATE LOCATION
•	SECTION CORNER
▲	BENCH MARK
B -123 ◒	BOREHOLE
△	HORIZONTAL AND VERTICAL CONTROL POINT
▭	PROP STRUCTURE OR FACILITY
□	PROP WELL
━━━━	PROP HDPE PIPELINE
⊗	WATER VALVE
○	UTILITY POLE
━⋈━	BUTTERFLY VALVE
AV/AR OR AR	AIR VACUUM AND/OR AIR RELEASE ASSEMBLY
━⋈━	GATE VALVE
━▽━	PLUG VALVE
——W——	FUTURE WATER LINE
T	TEST STATION (CATHODIC)
—— – —— – ——	CENTERLINE
—‑‑‑—‑‑‑—	SECTION LINE
—‑·‑—‑·‑—	ROW LINE
– – – – – – –	PERMANENT EASEMENT
— — — —	TEMPORARY CONSTRUCTION EASEMENT
————————	PROPERTY LINE
▭	EXISTING / UNDER CONSTRUCTION STRUCTURE OR FACILITY
— —x— —	EXISTING FENCE
═╪══╪═	RAILROAD
>-------<	EXISTING CULVERT
----FO---	EXISTING FIBER OPTICS LINE
----UGP--	EXISTING UNDERGROUND POWER LINE
----OHP--	EXISTING OVERHEAD POWER LINE
----G----	EXISTING GAS LINE
---FM---	EXISTING/FUTURE FM
---TEL---	EXISTING TELEPHONE LINE
----SS---	EXISTING SANITARY SEWER LINE
----SD---	EXISTING STORM DRAIN
----W---	EXISTING WATER LINE
---CATV--	EXISTING CABLE TELEVISION LINE
----IRR---	IRRIGATION WATER LINE OR RECLAIMED WATER LINE
····· 123 ·····	CONTOUR LINE, EXISTING GRADE
x 79.23	SPOT ELEVATION
X	EXIST MONITORING WELL
⊛	EXIST SEWER MANHOLE

GENERAL NOTES

1. UTILITIES SHOWN ON THE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS BY CALLING 1-800-227-2800 AT LEAST TWO WORKING DAYS PRIOR TO COMMENCEMENT OF WORK.
2. IN PREPARATION OF THE CONTRACT DOCUMENTS, THE FOLLOWING REPORT OF EXPLORATIONS AND TESTS OF SUBSURFACE CONDITIONS ALONG THE PIPELINE ALIGNMENT WAS RELIED UPON:

   GEOTECHNICAL EVALUATION, KERR MCGEE LIFT STATION NO.3, CLARK COUNTY, NV,

   THE LOCATIONS OF BOREHOLES ARE SHOWN ON THE DRAWINGS. CONTRACTOR MAY RELY UPON THE GENERAL ACCURACY OF THE "TECHNICAL DATA" CONTAINED IN THIS REPORT BUT THE REPORT IS NOT A PART OF THIS CONTRACT.
3. PROTECTION OF EXISTING SURVEY MONUMENTS OR PROPERTY STAKES, WHETHER SHOWN ON THE DRAWINGS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

6-11-02

CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT

DATE

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY June 11, 20 03

2001705025

PROFESSIONAL ENGINEER STATE OF NEVADA
RICHARD J. CAPP
CIVIL
No. 12877

(06009)

KERR-McGEE CHEMICAL LLC
P.O. BOX 55 HENDERSON, NEV. 89009-7000

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
0.00 ±
0.000 ±
AFE No. ______
JOB No. 511330.00

PBS&J
901 N. Green Valley Pkwy.
Suite 100
Henderson, Nevada 89014
Telephone: 702/263-7275
Fax: 702/263-7200
ENGINEERING • PLANNING • SURVEYING • CONSTRUCTION SERVICES

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE

ATHENS LATERAL
WELLFIELD AND PUMPSTATION #3
ABBREVIATION, LEGEND, AND GENERAL NOTES

DATE: 11/13/01
SCALE: AS NOTED

DESIGN		DATE
DRAWN BY	C. LANA	XX/XX/XX
PROJ. ENGR.	R. CAPP	
ENGR. MNGR.		

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

PAPER SIZE	DRAWING NO.	SHEET
D	G02	2 OF 34
		REVISION

Drawing: 511330-G02 / Date: 04/13/01 / Time:

CITY OF HENDERSON
GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFFSITE IMPROVEMENTS, CLARK COUNTY ARE, NEVADA, 1986, AND THE UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, 1988.
2. APPLICATION FOR INSPECTION BY THE CITY OF HENDERSON PUBLIC WORKS SHALL BE MADE BY THE CONTRACTOR AT LEAST 24 HOURS BEFORE THE INSPECTION SERVICE WILL BE REQUIRED, 558–3144.
3. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
4. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH SUBDIVISION CONSTRUCTION.
5. PRIOR TO FINAL ACCEPTANCE, BOND RELEASES, AND A CERTIFICATE OF OCCUPANCY, A CERTIFIED LEGIBLE AS–BUILT DRAWING MUST BE SUBMITTED TO THE CITY OF HENDERSON. AS–BUILT MUST SHOW ALL CHANGES AND ACTUAL FIELD LOCATIONS. IN THE ABSENCE OF CHANGES, A COPY OF APPROVED DRAWINGS WILL BE REQUIRED STATING "INSTALLED AS PER DRAWINGS," AND CERTIFIED AS SUCH BY THE DEVELOPER'S ENGINEER.
6. APPROVAL OF THESE PLANS IS FOR THE CONSTRUCTION OF OFFSITE IMPROVEMENTS ONLY. ALL ONSITE IMPROVEMENTS, AS DEFINED BY THE CITY OF HENDERSON, INCLUDING BLOCK WALLS, MUST BE APPROVED BY THE BUILDING AND PLANNING DIVISIONS OF THE CITY OF HENDERSON.
7. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF TRANSITIONS TO BE DETERMINED BY THE CITY ENGINEER.
8. EXISTING UTILITIES ARE LOCATED ON PLANS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE PROTECTION OF UTILITIES AND THE ENGINEER BEARS NO RESPONSIBILITY FOR UTILITIES NOT SHOWN ON THE PLANS OR NOT IN THE LOCATION SHOWN ON THE PLANS. THIS INCLUDES ALL SERVICE LATERALS OF ANY KIND.
9. POWER POLES AND/OR OTHER EXISTING FACILITIES NOT IN THE PROPER LOCATION BASED ON IMPROVEMENTS SHOWN HERON WILL BE RELOCATED AT NO EXPENSE TO THE CITY OF HENDERSON.
10. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING No. 235. EXACT LOCATION OF RAMPS SHALL BE DETERMINED IN THE FIELD BY A CITY INSPECTOR, OR AS SHOWN ON PLAN.
11. CURB AND GUTTER WITH A GRADE OF LESS THAN FIVE–TENTHS OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.
12. ALL GRADING SHALL CONFORM TO THE SOILS REPORT:
    ENGINEER:
    DATE:
    JOB NUMBER:
13. EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PRELIMINARY GEOTECHNICAL REPORT.
14. ALL STREET STRUCTURAL SECTIONS SHALL BE PER THE RECOMMENDATIONS OF THE SOILS ENGINEER. BASED ON CBR OR R–VALUES. NO PAVING OR BASE WORK SHALL COMMENCE UNTIL A STREET STRUCTURAL SECTION IS APPROVED BY THE CITY ENGINEER, CITY OF HENDERSON.
15. BEFORE ANY WORK IS STARTED IN THE RIGHT–OF–WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING PUBLIC STREETS IMMEDIATELY AFTER THE FIRST GRADING WORK IS ACCOMPLISHED AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "NEVADA TRAFFIC CONTROL MANUAL" – CURRENT EDITION AND TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" – CURRENT EDITION AND BE APPROVED BY THE CITY OF HENDERSON BEFORE CONSTRUCTION BEGINS.
16. WHERE EXISTING PAVEMENT IS CUT TO INSTALL UTILITY SERVICE LINES, BACKFILL AND PAVEMENT REPLACEMENT SHALL BE DONE PER STANDARD DRAWING 5502 AND SECTION 206, 207, AND 208 OF THE STANDARD SPECIFICATION ISSUE, 1986.
17. ALL STATIONING IS REFERENCED TO CENTERLINE.
18. EXACT LOCATION OF ALL SAWCUT LINES SHALL BE DETERMINED IN THE FIELD BY A CITY OF HENDERSON INSPECTOR.
19. PROTECTION AND REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES NOT DELINEATED ON THE CONTRACT DRAWINGS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES SHALL BE DONE TO THE COH SURVEY SECTION'S SATISFACTION.
20. AFFECTED UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
21. CALL BEFORE YOU DIG, 1–800–227–2600.
22. MODIFICATIONS TO EXISTING UTILITIES SHALL CONFORM TO THE OWNER'S UTILITY STANDARDS AND SPECIFICATIONS.
23. THE CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING IMPROVEMENTS FROM DAMAGE AND ALL SUCH IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR RECONSTRUCTED TO THE ENGINEER'S SATISFACTION AT THE EXPENSE OF THE CONTRACTOR.
24. CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE SUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY ____________, 20__.
25. ALL OFFSITE AND ONSITE WATER AND SEWER FACILITIES UP TO WITHIN 5 FEET OF BUILDINGS SHALL BE CONSTRUCTED TO PUBLIC WORKS STANDARDS.
26. IF SEWER OR WATER LINES WITHIN THE PUBLIC UTILITY EASEMENTS REQUIRE REPAIRS, ALL SUCH REPAIRS WILL BE DONE IN ACCORDANCE WITH PUBLIC WORKS DEPARTMENT STANDARDS. CURBS AND GUTTERS AND SPECIAL PAVING REPAIRS SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION.
27. IF SIGNS ARE PRESENT ON THIS CONSTRUCTION SITE, PLEASE CONTACT THE SIGN COMPANY LISTED ON THE SIGN 24 HOURS PRIOR TO COMMENCING CONSTRUCTION IN THE SIGN'S LOCATION. CITY OWNED AND CITY SPONSORED SIGNS (KIOSKS) SHALL BE REMOVED AND REPLACED FOLLOWING CONSTRUCTION IN THEIR ORIGINAL LOCATION IN LIKE–NEW CONDITION AT CONSTRUCTION CONTRACTOR'S EXPENSE. ANY CONTRACTOR HAVING TO REMOVE A SIGN WHICH WAS DAMAGED PRIOR TO THE CONTRACTOR OCCUPYING THE SITE SHALL ARRANGE FOR VERIFICATION OF THE SIGN'S CONDITION BY A CITY INSPECTOR PRIOR TO REMOVAL. ALL SIGNS NOT PREVIOUSLY VERIFIED BY A CITY INSPECTOR SHALL BE ASSUMED TO BE IN LIKE–NEW CONDITION PRIOR TO REMOVAL.

KERR MCGEE WATER NOTES

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN RELEASED FOR CONSTRUCTION BY THE AGENCY. FOLLOWING WATER PLAN APPROVAL, 48 HOUR NOTICE SHALL BE GIVEN TO THE CITY'S QUALITY CONTROL SECTION PRIOR TO THE START OF CONSTRUCTION. NOTICE MUST BE GIVEN BY 2:00 P.M. OF THE BUSINESS DAY PRIOR TO ANY AGENCY INSPECTION SUBSEQUENT TO THE START OF CONSTRUCTION.
2. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
3. ALL VALVE BOXES SHALL HAVE CONCRETE COLLARS AT SURFACE OF PAVED AREAS PER CLARK COUNTY AREA UNIFORM STANDARD DRAWING NUMBER 517.
4. NO OTHER UTILITY LINES MAY BE PLACED IN THE SAME TRENCH WITH WATER LINES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL MATERIAL SPILLED ON EXISTING ROADWAYS ON A DAILY BASIS.
6. ANY CONFLICT WITH EXISTING UTILITIES SHALL BE IMMEDIATELY CALLED TO THE ATTENTION OF THE ENGINEER.
7. ALL PIPING SHALL BE HDPE.

CITY OF HENDERSON
FIRE HYDRANT SPACING AND LAYOUT

ALL FIRE HYDRANT SYSTEMS SHALL BE INSTALLED IN SUCH A MANNER AS TO PROVIDE THE MAXIMUM PROTECTION AS INTENDED IN THE UNIFORM FIRE CODE. ALL INTERSECTIONS SHALL HAVE A MINIMUM OF ONE (1) HYDRANT INSTALLED A MAXIMUM OF TWENTY (20) FEET FROM A CORNER OF THE INTRSECTION. THIS LOCATION SHALL BE MEASURED FROM THE INTERSECTION OF TWO LINES DRAWN ALONG THE FACE OF THE CURB SECTIONS PERPENDICULAR TO EACH OTHER. ONCE THESE POSITIONS ARE LOCATED, ADDITIONAL HYDRANTS SHALL BE ADDED TO DEVELOP A GRID WITH A MAXIMUM SPACING OF FIVE HUNDRED (500) FEET BETWEEN HYDRANTS IN AREAS OF SINGLE FAMILY DETACHED HOMES ON SIX THOUSAND (6000) SQUARE FEET OR LARGER LOTS; ALL OTHER AREAS SHALL HAVE A MAXIMUM SPACING OF THREE HUNDRED (300) FEET BETWEEN HYDRANTS. ALL HYDRANTS SHALL BE INSTALLED PER THE SPECIFICATIONS IN THE "UNIFORM STANDARD DRAWINGS", 1988 EDITION, DRAWING No. 516, PAGE 138, AS ADOPTED BY THE CITY OF HENDERSON.

EXCEPTION: ANY INTERSECTION THAT MEASURES TWO HUNDRED (200) FEET OR LESS APART MAY HAVE ONE (1) HYDRANT SET AT THE MID POINT BETWEEN THE TWO INTERSECTIONS.

CONDUIT NOTE

ALL CONDUIT (BOX CULVERT, REINFORCED CONCRETE PIPE, CAST–IN–PLACE PIPE, AND/OR CORRUGATED METAL PIPE) SHOWN ON THESE PLANS ARE DESIGNED FOR STANDARD HIGHWAY LOADINGS. THE STANDARD SATISFACTORY IN. COVERAGE REQUIREMENTS AS ESTABILISHED BY THE CONDUIT MANUFACTURER MAY NOT ALWAYS BE ADEQUATE DURING CONSTRUCTION. WHEN CONSTRUCTON EQUIPMENT FREQUENTLY HEAVIER THAN TRAFFIC LOADS FOR WHICH CONDUIT HAS BEEN DESIGNED, IS TO BE DRIVEN OVER OR CLOSE TO THE BUTIED CONDUIT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE ADDITIONAL COVERAGE REQUIRED TO AVOID DAMAGE TO THE CONDUIT. THE ADEQUACY OF THE COVERAGE REQUIREMENTS FOR CONDUITS SHALL BE ANALYZED AND CHECKED BY THE CONTRACTOR TO ADDRESS LOADING CONDITIONS IMPOSED BY CONSTRUCTION ACITIVITY. ANY CONDUIT DAMAGE BY CONSTRUCTION ACTIVITY SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.

APPROVAL

6-11-02

NEW DEVELOPMENT ENGINEER – KEN KOSHIRO, P.E. DATE

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY June 11 20 03.

FIRE DEPARTMENT GENERAL NOTES:

FIRE HYDRANTS:

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH UNIFORM FIRE CODE APPENDIX III–B, FIRE HYDRANT LOCATIONS AND DISTRIBUTIONS, AS AMENDED.
2. FIRE HYDRANTS SHALL BE IN MAINTAINED IN AN OPERATIVE CONDITION AT ALL TIMES WITH THE REQUIRED WATER SUPPLY AND SHALL BE ACCEPTED BY PUBLIC WORKS DEPARTMENT.
3. FIRE HYDRANT SHALL HAVE PERMANENT MARKINGS IDENTIFYING: MANUFACTURER, SIZE OF THE MAIN VALVE OPENING, YEAR OF MANUFACTURE, MODEL NUMBER, DIRECTION OF OPENING AND BURY DEPTH. ALL HYDRANTS SHALL MEET THE REQUIREMENTS OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS.
4. ALL PUBLIC FIRE HYDRANTS SHALL HAVE A SIX DIGIT NUMBER (AS DESIGNATED BY PUBLIC WORKS) PAINTED ON THE BARREL BY THE HYDRANT INSTALLER. THE NUMBER SHALL BE IN 1" HIGH BLOCK NUMBERS USING BLACK ENAMEL PAINT. ALL NUMBERS SHALL MATCH APPROVED PLANS.
5. ALL FIRE DEPARTMENT CONNECTIONS (FDC) FOR FIRE SPRINKLER OR STANDPIPE SYSTEMS SHALL BE LOCATED WITHIN 100 FEET OF A FIRE HYDRANT. THE 100 FEET SHALL BE MEASURED BY AN APPROVED UNOBSTRUCTED ROUTE. THE FDC SHALL BE LOCATED IN AN APPROVED LOCATION ON THE STREET OR FIRE LANE SIDE OF THE BUILDING BEING PROTECTED.
6. FIRE HYDRANTS SHALL BE IN CONFORMANCE WITH THE FIRE PREVENTION DIVISIONS UNIFORM GUIDELINES.

UNDERGROUND PIPING & VALVES:

7. PRIOR TO CLOSING ANY WATER SUPPLY CONTROL VALVE OR PLACING ANY FIRE HYDRANT OUT OF SERVICE, THE HENDERSON FIRE DEPARTMENT DISPATCH CENTER (565–1214) OR THE HENDERSON FIRE PREVENTION DIVISION (565–2300) SHALL BE CONTACTED.
8. ALL SECTIONAL CONTROL VALVES CONTROLLING WATER SUPPLIES ON PRIVATE FIRE SERVICE MAINS SHALL BE LISTED AND INDICATING OR A DEBRIS "LOCKOUT" CAP APPROVED BY THE HENDERSON FIRE PREVENTION DIVISION. ALL VALVES THAT CONTROL THE WATER SUPPLY OF A FIRE SPRINKLER SYSTEM OR STANDPIPE SYSTEM SHALL BE ELECTRICALLY SUPERVISED.
9. ALL PIPING AND VALVES SUPPLYING FIRE SPRINKLER SYSTEMS SHALL BE PROTECTED FROM FREEZING WHEN EXPOSED TO TEMPERATURES LESS THAN 40° F. FREEZE PROTECTION SHALL BE PROVIDED IN SUCH A MANNER THAT IT SHALL LAST THE LIFETIME OF THE VALVING & PIPING.
10. ALL BACKFLOW OR CROSS CONNECTION REQUIREMENTS OF THE PUBLIC WORKS UTILITY DIVISION SHALL BE INSTALLED UPSTREAM OF THE FIRE SPRINKLER OF STANDPIPE SYSTEM "POST INDICATOR VALVE."
11. ALL REQUIRED TESTING AND FLUSHING OF THE UNDERGROUND FIRE SPRINKLER/STANDPIPE WATER SUPPLY PIPING SHALL BE PERFORMED IN THE PRESENCE OF THE AUTHORITY HAVING JURISDICTION (AHJ). THE INSTALLING COMPANY SHALL FURNISH A "CONTRACTOR'S MATERIAL AND TESTING CERTIFICATE" (CM&T) COUNTERSIGNED BY THE PROPERTY OWNER OR REPRESENTATIVE. THE CM&T SHALL BE FILLED OUT COMPLETELY WITH THE AHJ'S INITIALS, WITNESSING EACH TEST. WRITTEN APPROVAL SHALL BE OBTAINED FROM THE FIRE DEPARTMENT PREVENTION DIVISION BEFORE THE UNDERGROUND SUPPLY IS CONNECTED TO THE FIRE SPRINKLER OR STANDPIPE SYSTEM.

FIRE LANES:

12. FIRE APPARATUS ACCESS ROADS AND FIRE HYDRANTS INSTALLED FOR FIRE PROTECTION SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING THE TIME OF CONSTRUCTION.
13. ACCESS TO BUILDINGS FOR THE PURPOSE OF FIREFIGHTING SHALL BE PROVIDED. CONSTRUCTION MATERIAL SHALL NOT BLOCK FIRE LANES, ACCESS TO BUILDINGS, HYDRANTS OR FIRE APPLIANCES.
14. FIRE LANES SHALL BE IN CONFORMANCE WITH THE FIRE PREVENTION DIVISION'S UNIFORM GUIDELINES.

GATES:

15. SHOP DRAWINGS FOR ALL GATES AND OPENERS SHALL BE SUBMITTED SEPARATELY FOR REVIEW AND APPROVAL. OBTAIN A COPY OF THE UNIFORM GUIDELINE FOR DETAILS.

TRAFFIC REQUIREMENTS

1. ANY EXISTING TRAFFIC CONTROL DEVICES AND/OR SIGNS SHALL BE MAINTAINED DURING THE PERIOD OF CONSTRUCTION, AND SHALL BE REPOSITIONED AS REQUIRED, PER THE M.U.T.C.D. AND CITY STANDARDS, UPON COMPLETION OF THE PROJECT.
2. DEVELOPERS/CONTRACTORS ARE RESPONSIBLE FOR SUBMITTING TRAFFIC CONTROL/BARRICADING PLANS NOT LESS THAN THREE (3) WORKING DAYS BEFORE OBSTRUCTING AND BEGINNING OF CONSTUCTION WITHIN THE PUBLIC RIGHT OF WAY, INCLUDING SIDEWALKS. BEFORE ANY WORK IS STARTED IN THE RIGHT OF WAY, THE CONTRACTOR WILL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR WILL INSTALL TEMPORARY GROUND MOUNTED STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND WILL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
3. LOCATION AND DESCRIPTION OF NEW AND EXISTING TRAFFIC CONTROL DEVICES, STREET STRIPING, MEDIAN ISLANDS, DRIVEWAYS AND TRAFFIC SIGNALS MUST BE SHOWN ON PLANS SUBMITTED TO THE CITY FOR APPROVAL. ALL NEW TRAFFIC SIGNS WILL BE FABRICATED WITH HIGH INTENSITY GRADE (CLASS 4) REFLECTIVE SHEETING. ALL NEW TRAFFIC SIGNS, EXCEPT STREET NAME SIGNS, WILL HAVE "F–CAL" OR 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI–GRAFFITI PROTECTIVE FILM.
4. LOCATION AND DESCRIPTION OF NEW AND EXISTING STREET NAME SIGNS MUST BE SHOWN ON PLANS SUBMITTED TO THE CITY FOR APPROVAL. STREET NAME SIGNS WILL COMPLY WITH CLARK COUNTY STANDARD DRAWINGS NO. 249, 250 AND 251. ALL STREET NAME SIGNS WILL BE FABRICATED WITH DIAMOND GRADE VIP (CLASS 6) REFLECTIVE SHEETING. ALL INTERSECTIONS WITH 100' OR GREATER R/W ROADWAYS WILL HAVE THE CITY OF HENDERSON TRAFFIC SHOP THREE(3) WORKING DAYS IN ADVANCE, MONDAY THROUGH THURSDAY, AT 565–2148 TO RECEIVE LOGO TO BE APPLIED BY THE CONTRACTOR TO THE STREET NAME PANELS PER CITY OF HENDERSON STANDARD DETAIL.
5. BLUE REFLECTORIZED PAVEMENT MARKINGS MUST BE INSTALLED AND CURB MUST BE PAINTED AT EVERY FIRE HYDRANT LOCATION PER CITY OF HENDERSON FIRE DEPARTMENT STANDARDS.
6. ALL CONSTRUCTION SIGNING, BARRICADING AND PAVEMENT MARKINGS WILL CONFORM TO THE NEVADA WORK ZONE TRAFFIC CONTROL HANDBOOK – 1986 AND TO THE M.U.T.C.D. LATEST EDITION WITH ANY ADDENDAS AND REVISIONS.
7. WHERE STREETS END AT THE PROJECT BOUNDARY, THREE(3) 18" DIAMOND (MINIMUM), REFLECTORIZED, RED PANELS SHALL BE INSTALLED AT THE END OF THE ROADWAY AND MAINTAINED UNTIL ADJOINING PROJECT IS BUILT.
8. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL, OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING WILL BE STORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.

FIRE NOTES – PRIVATE SERVICE

1. A PRIVATE FIRE SERVICE MAIN IS THAT PIPE AND ITS APPURTENANCES ON PRIVATE PROPERTY.
   - A. BETWEEN A SOURCE OF WATER AND THE BASE OF THE RISER (NOT OVER 6 IN. ABOVE FLOOR) FOR WATER–BASED FIRE PROTECTION SYSTEMS.
   - B. BETWEEN A SOURCE OF WATER AND THE BASE ELBOW OF PRIVATE HYDRANTS OR MONITOR NOZZLES.
   - C. THE NEVADA STATE FIRE MARSHAL HAS DETERMINED THAT THE UNDERGROUND PORTIONS OF A SPRINKLER SYSTEM ARE DEFINED AS: THAT PORTION OF THE PIPING BETWEEN A SOURCE OF PUBLIC WATER (USUALLY IN A PUBLIC STREET) AND THE BASE OF THE SPRINKLER RISER (NOT OVER 6 IN. ABOVE THE FLOOR).
2. THE UNDERGROUND CONTRACTOR INSTALLING THE PRIVATE FIRE SERVICE MAIN SUPPLYING ANY AUTOMATIC FIRE SPRINKLER SYSTEM MUST BE LICENSED BY THE STATE OF NEVADA, STATE FIRE MARSHAL DIVISION, FOR THE UNDERGROUND INSTALLATION OF SPRINKLER PIPING.
3. THE INSPECTION AND TESTING OF ALL PRIVATE FIRE SERVICE MAINS SHALL BE WITNESSED AND APPROVED BY THE FIRE PREVENTION DIVISION.
4. ALL VALVES CONTROLLING CONNECTIONS TO WATER SUPPLIES AND TO SPRINKLER PIPING SHALL BE LISTED INDICATING VALVES OR AS APPROVED BY THE FIRE PREVENTION DIVISION.
5. ALL VALVES CONTROLLING CONNECTIONS TO WATER SUPPLIES AND TO SPRINKLER PIPING SHALL BE PROTECTED FROM FREEZING WHEN EXPOSED TO TEMPERATURES LESS THAN 40° F. FREEZE PROTECTION SHALL BE PROVIDED IN SUCH A MANNER THAT IT WILL LAST THE LIFETIME OF THE VALVE.
6. ALL VALVES CONTROLLING THE FLOW OF WATER THROUGH A PRIVATE FIRE SERVICE MAIN SUPPLYING WATER FOR AUTOMATIC FIRE SPRINKLER SYSTEMS SHALL BE ELECTRICALLY SUPERVISED WHEN REQUIRED BY THE UNIFORM FIRE CODE. WHEN REQUIRED, VALVE SUPERVISION AND TROUBLE SIGNALS SHALL BE CONNECTED TO A FIRE ALARM PANEL FOR RETRANSMISSIONS TO AN APPROVED CENTRAL STATION.
7. ALL FIRE DEPARTMENT CONNECTIONS (FDC) FOR FIRE SPRINKLER SYSTEMS SHALL BE LOCATED WITHIN 10.0 FEET OF FIRE HYDRANT.
8. ALL WORK SHALL BE IN ACCORDANCE WITH NFPA 24, STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVE MAINS AND THEIR APPURTENANCES.

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2001705025

RICHARD J. CAPP
CIVIL
No. 12877
2-7-02

(06009)

KERR-McGEE CHEMICAL LLC

P.O. BOX 55 HENDERSON, NEV. 89009-7000

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
0.00 ±
0.000 ±

AFE No.

JOB No. 511330.00

PBS&J
901 N. Green Valley Pkwy.
Suite 100
Henderson, Nevada 89014
Telephone: 702/263-7275
Fax: 702/263-7200
ENGINEERING · PLANNING · SURVEYING · CONSTRUCTION SERVICES

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE

DESIGN	DATE
DRAWN BY C. LANA	XX/XX/XX
PROJ. ENGR. R. CAPP	
ENGR. MNGR.	

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

ATHENS LATERAL
WELLFIELD AND PUMP STATION #3
GENERAL NOTES

DATE: 10/24/01
SCALE: AS NOTED

PAPER SIZE: D
DRAWING NO. G03
SHEET 3 OF 34
REVISION

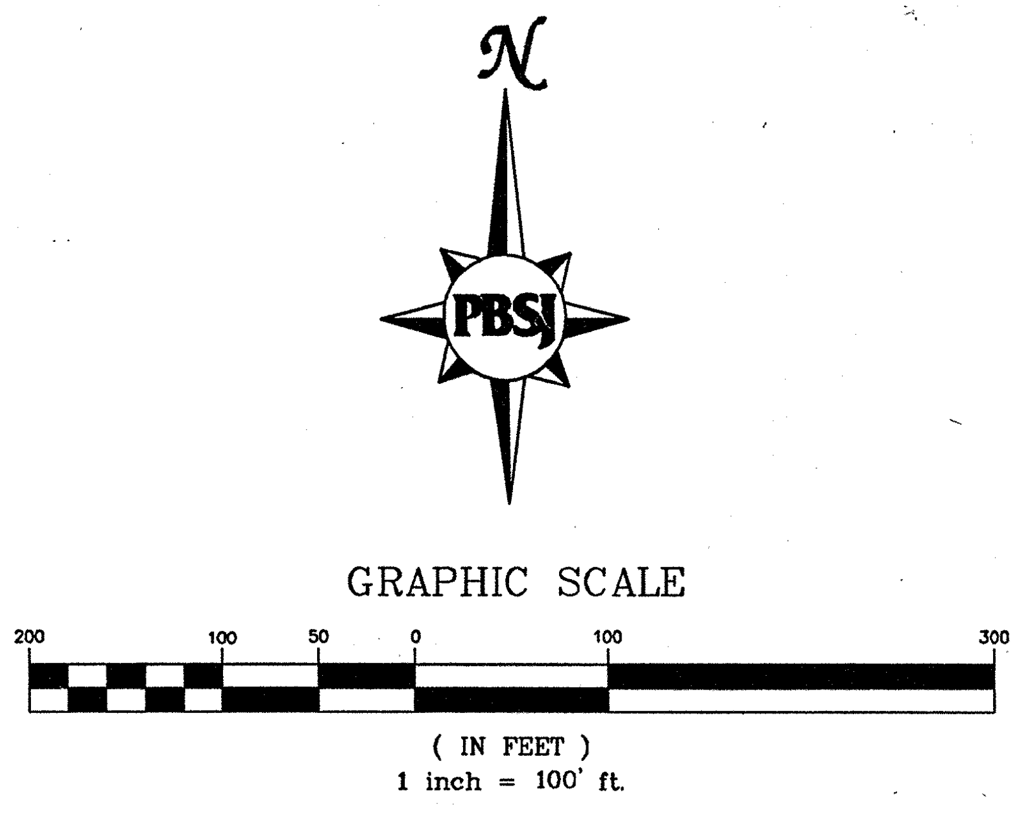
Drawing: 511330–G03 / Date: 04/13/01 / Time:

NOTES

1. FUTURE FLEET MAINTENANCE AND ADMINISTRATION FACILITIES BASED UPON LUCCHESI-GALATI "PUBLIC WORKS COMPREHENSIVE MASTER SITE PLAN" DATED APRIL 2001
2. FUTURE ATHENS ROADWAY ALIGNMENT BASED UPON BLACK & VEATCH/PBS&J ATHENS ROAD 60% PLANS DATED APRIL 2001
3. FUTURE HENDERSON WATER RECLAMATION FACILITIES EXPANSION BASED UPON BLACK & VEATCH/PBS&J PLANS DATED FEBRUARY 2001

LEGEND

▨	PROP PIEZOMETER CORRIDOR
▩	PROP VERTICAL WELL CORRIDOR
━	PROP PIPE
─	CITY ℄
■	PROP LIFT STATION SITE = 5000 SQ. FT.
□	NEW WELL



(IN FEET)
1 inch = 100' ft.

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NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

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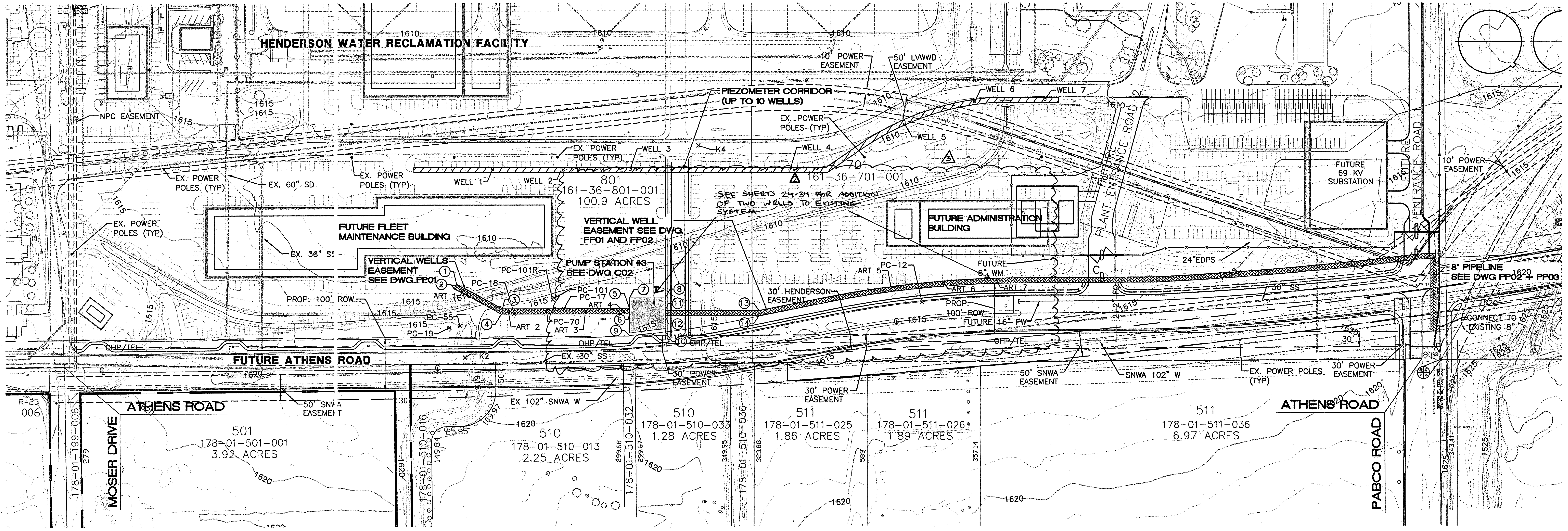


COORDINATE TABLE			
ITEM#	DESCRIPTION	NORTHING	EASTING
①	NW OF VERTICAL WELL	481468.8356	672608.0265
②	SW OF VERTICAL WELL	481460.0553	672603.2403
③	NW MID OF NORTH VERTICAL WELL	481420.0101	672697.9966
④	SW MID OF NORTH VERTICAL WELL	481410.0101	672708.5724
⑤	NW MID OF PUMP STATION SITE	481420.0345	672944.7303
⑥	SW MID OF PUMP STATION SITE	481410.0345	672944.7303
⑦	℄ NW OF PUMP STATION SITE	481441.1314	672944.7303
⑧	℄ NE OF PUMP STATION SITE	481441.1307	673013.8571
⑨	℄ SW OF PUMP STATION SITE	481367.7335	672944.7303
⑩	℄ SE OF PUMP STATION SITE	481374.6289	673014.0661
⑪	NE MID OF PUMP STATION SITE	481416.5106	673014.1640
⑫	SE MID OF PUMP STATION SITE	481406.5106	673013.9659
⑬	NW OF VERTICAL WELL	481416.5532	673196.6473
⑭	SW OF VERTICAL WELL	481406.5532	673196.6473
⑮	NE OF VERTICAL WELL	481481.8391	673787.7154
⑯	SE OF VERTICAL WELL	481471.8392	673787.7748

PRODUCTION WELL COORDINATE TABLE			
ITEM#	DESCRIPTION	NORTHING	EASTING
ART 1	VERTICAL WELL	481456.1893	672620.7793
ART 2	VERTICAL WELL	481415.0101	672708.5801
PC 70	VERTICAL WELL	481415.0101	672783.5801
ART 3	VERTICAL WELL	481415.0101	672858.5801
ART 4	VERTICAL WELL	481415.0101	672933.5801
ART 5	VERTICAL WELL	481458.8510	673454.1194
ART 6	VERTICAL WELL	481469.9947	673556.1100
ART 7	VERTICAL WELL	481475.6324	673659.7169

PIEZOMETER WELL COORDINATE TABLE △2			
ITEM#	DESCRIPTION	NORTHING	EASTING
WELL 1	PIEZOMETER WELL	481694.8099	672678.1401
WELL 2	PIEZOMETER WELL	481693.0009	672811.4721
WELL 3	PIEZOMETER WELL	481694.1709	672945.7801
WELL 4	PIEZOMETER WELL	481692.9289	673256.8831
WELL 5	PIEZOMETER WELL	481782.2679	673480.4721
WELL 6	PIEZOMETER WELL	481826.2639	673616.6031
WELL 7	PIEZOMETER WELL	481830.3939	673753.3871

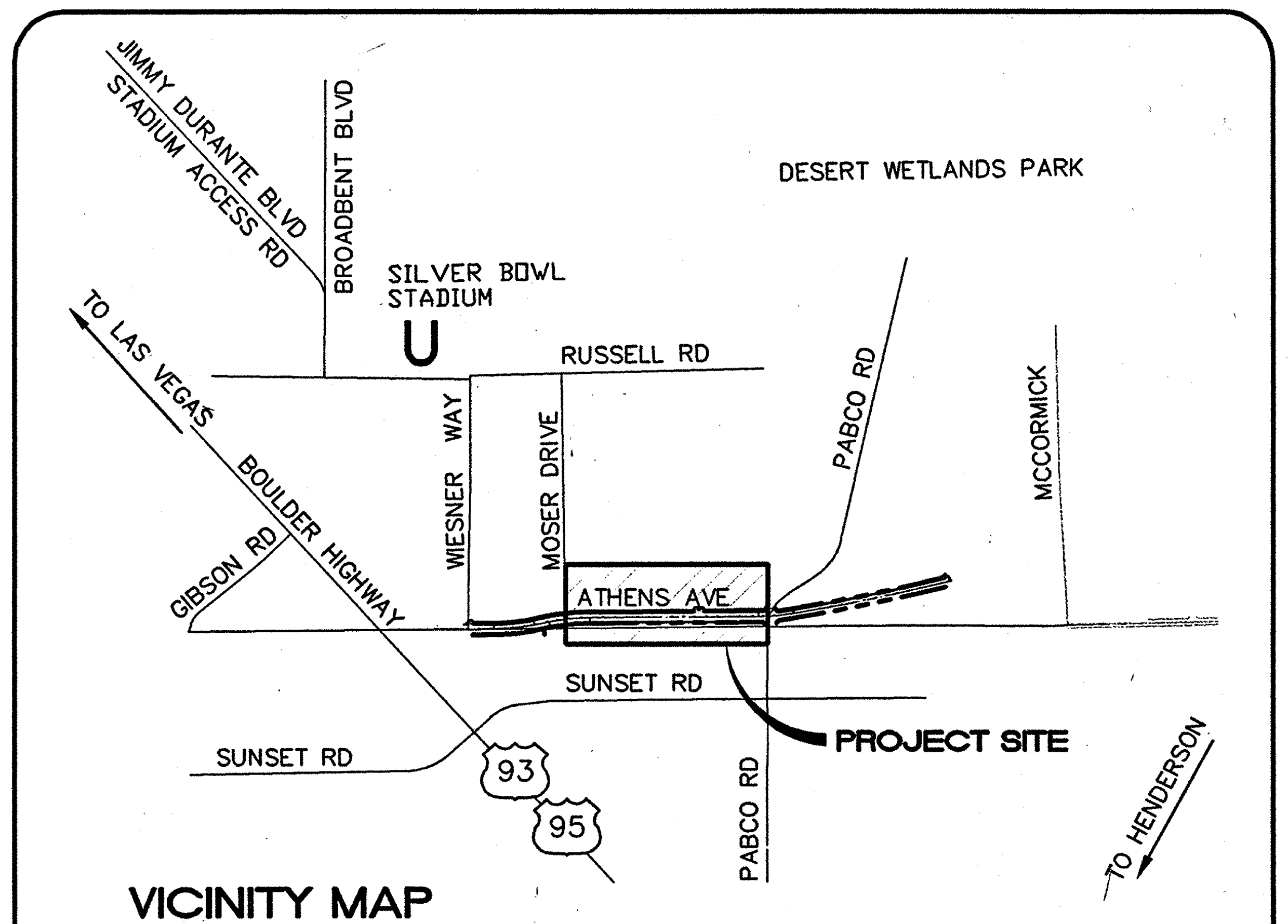
6-11-02

CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT
DATE

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY June 11, 2003.

MONUMENTATION

OWNER IS RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.



VICINITY MAP

N.T.S.

2001705025

REVISION 3 ONLY

JONATHAN D. TULL
Exp. 06/30/2016
CIVIL
No. 14581

6-24-14

RICHARD J. CAPP
CIVIL
No. 12877

(06009)

1-7-02

KERR-McGEE CHEMICAL LLC

P.O. BOX 55 HENDERSON, NEV. 89009-7000

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
0.00 ±
0.000 ±
AFE No.
JOB No. 511330.00

ATHENS RD LATERAL WELLFIELD AND PUMP STATION OVERALL SITE PLAN △3

DATE: 01/10/02
SCALE: 1" = 100'

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE
1	REVISED WELLS	RJC	9/01
2	SURVEY PIEZOMETER WELLS	RJC	12/01
3	ADDED REFERENCE NOTE FOR THE ADDITION OF TWO WELLS TO THE SYSTEM	JDT	3/24/14

PBSJ
901 N. Green Valley Pkwy. Suite 100 Henderson, Nevada 89014 Telephone 702/263-7275 Fax 702/263-7200
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DESIGN		DATE
DRAWN BY	CLL	
PROJ. ENGR.		
ENGR. MNGR.	RJC	

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

PAPER SIZE	DRAWING NO.	SHEET
D	C01	4 OF 34
		REVISION

Drawing: C01 / Date: / Time:

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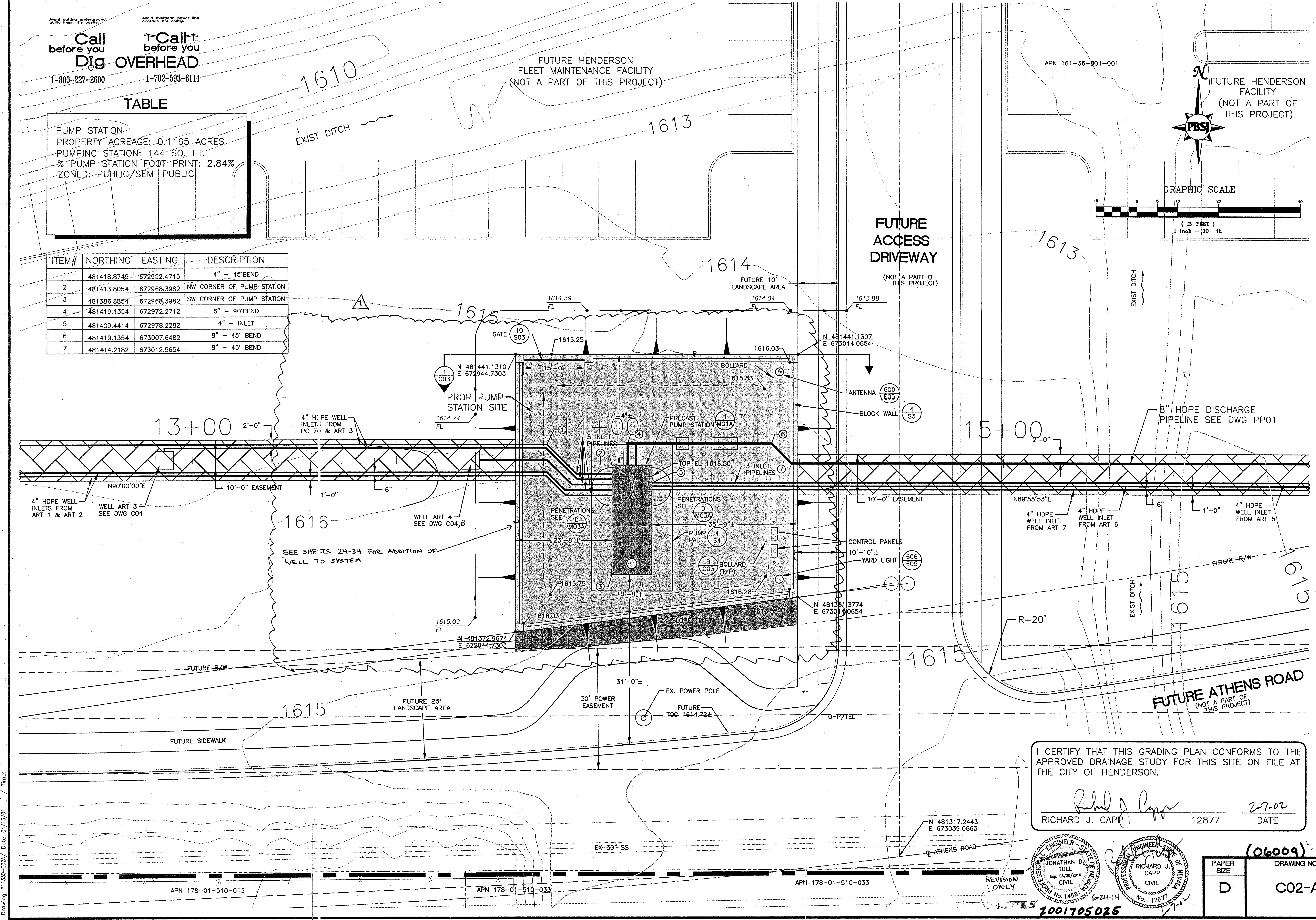
TABLE

PUMP STATION
PROPERTY ACREAGE: 0.1165 ACRES
PUMPING STATION: 144 SQ. FT.
% PUMP STATION FOOT PRINT: 2.84%
ZONED: PUBLIC/SEMI PUBLIC

ITEM#	NORTHING	EASTING	DESCRIPTION
1	481418.8745	672952.4715	4" – 45°BEND
2	481413.8054	672968.3982	NW CORNER OF PUMP STATION
3	481386.8854	672968.3982	SW CORNER OF PUMP STATION
4	481419.1354	672972.2712	6" – 90°BEND
5	481409.4414	672978.2282	4" – INLET
6	481419.1354	673007.6482	8" – 45° BEND
7	481414.2182	673012.5654	8" – 45° BEND



I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF HENDERSON.

RICHARD J. CAPP 12877

2-7-02
DATE

JONATHAN D. TULL Exp. 06/30/2016 CIVIL No. 14581

6-24-14

RICHARD J. CAPP CIVIL No. 12877

2-7-02

2001705025

(06009)

PAPER SIZE	DRAWING NO.
D	C02-A

SHEET 5 OF 34

REVISION

KERR-McGEE CHEMICAL LLC

P.O. BOX 55 HENDERSON, NEV. 89009-7000

DESIGN	DATE	APPROVED FOR CONSTRUCTION	BY	DATE		BY	DATE
DRAWN BY C. LANA	XX/XX/XX	SAFETY			PROCESS ENGR.		
PROJ. ENGR. R. CAPP		ENVIRONMENTAL			PROJECT ENGR.		
ENGR. MNGR.		OPERATIONS MNGR.			ENGR. MNGR.		
		PRODUCTION SUPT.			PLANT MNGR.		
		QLTY. CONTROL					

ATHENS LATERAL
PUMP STATION #3
GRADING PLAN

DATE: 11/20/01

SCALE: 1" = 10'

1

TOLERANCE UNLESS OTHERWISE SPECIFIED

FRACTIONS ±
0.00 ±
0.000 ±

AFE No.

JOB No. 511330.00

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE
1	ADDED REFERENCE NOTE FOR	JDT	3/24/14
	THE ADDITION OF WELL TO		
	SYSTEM		

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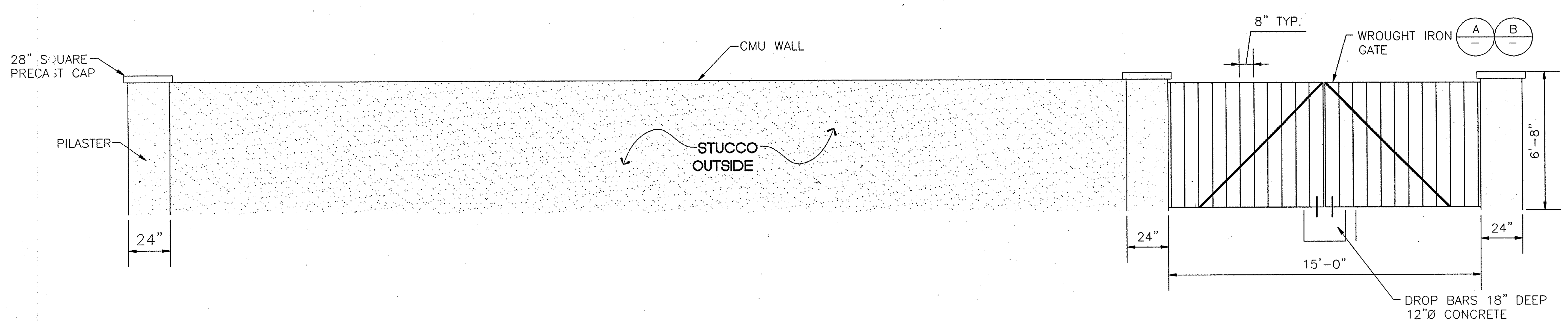
Drawing: 511330-C02A/ Date: 04/13/01 / Time:

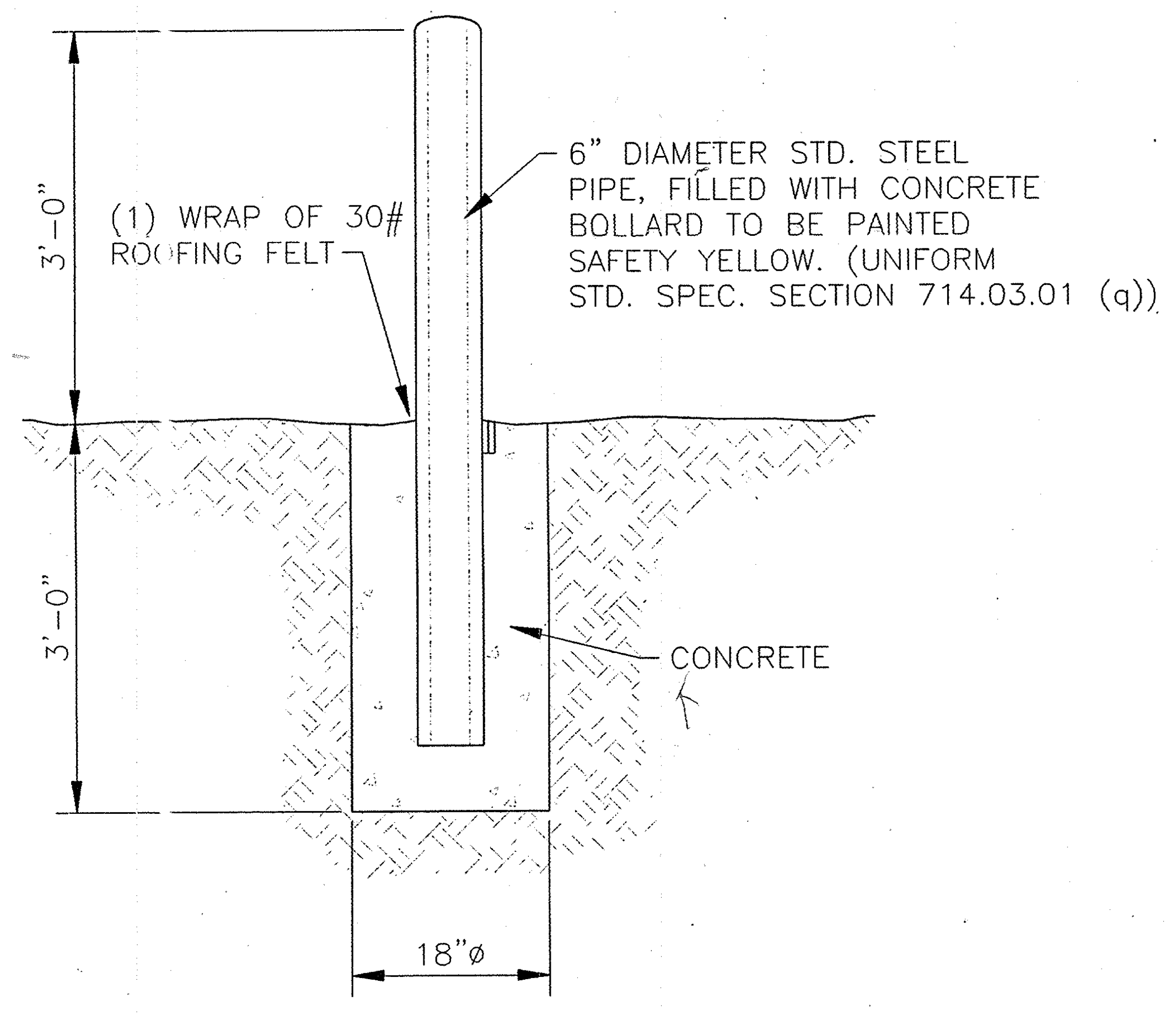


ELEVATION @ NORTH WALL OF PUMP STATION #3 (1/–)

SCALE: 1/4"=1'-0"

NOTES

1. COLOR OF STUCCO (DUNN EDWARDS SP177)
2. WALLS TO HAVE MINIMUM VERTICAL STEP OF 16 INCHES AND MAX VERTICAL STEP OF 24 INCHES. MIN HORIZONTAL SPACING OF STEPS IS 32 FEET.
3. FINISH TO BE MACHINE DASHED



BOLLARD DETAIL (B/–)

NOT TO SCALE

CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT

DATE 6-11-02

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2001705025

RICHARD J. CAPP
CIVIL
No. 12877
-1-02

(06009)

PAPER SIZE	DRAWING NO.	SHEET
D	C03	6 OF 34
		REVISION

KERR-McGEE CHEMICAL LLC

P.O. BOX 55 HENDERSON, NEV. 89009-7000

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
AFE No. 0.00 ±
0.000 ±

JOB No. 511330.00

DESIGN	DATE
DRAWN BY C. LANA	XX/XX/XX
~~PROJ. ENGR. J. FARRE~~	
ENGR. MNGR. R. CAPP	

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

ATHENS LATERAL
PUMP STATION #3
WALL AND GATE DETAILS

DATE: 11/19/01 SCALE: AS NOTED

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE

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Suite 100
Henderson, Nevada 89014
Telephone: 702/263-7275
Fax: 702/263-7200
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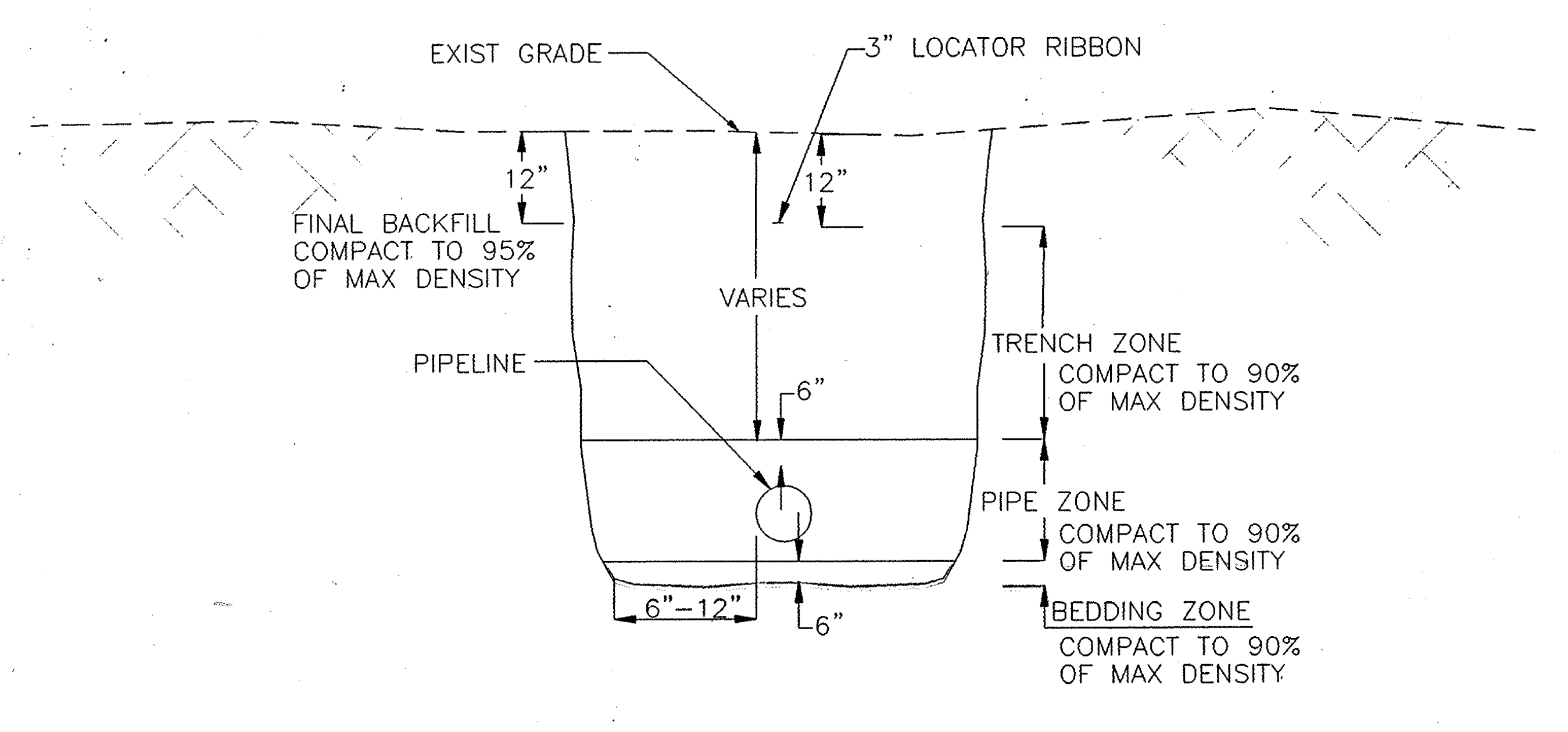
Drawing: 511330-C03 / Date: 04/13/01 / Time:



NOTES:
1. MECHANICALLY COMPACTION REQUIRED

2. BEDDING, PIPE ZONE, TRENCH ZONE, AND FINAL BACKFILL TO BE SELECTED BACKFILL PER CLARK COUNTY UNIFORM STANDARD SPECIFICATION 207.02.01

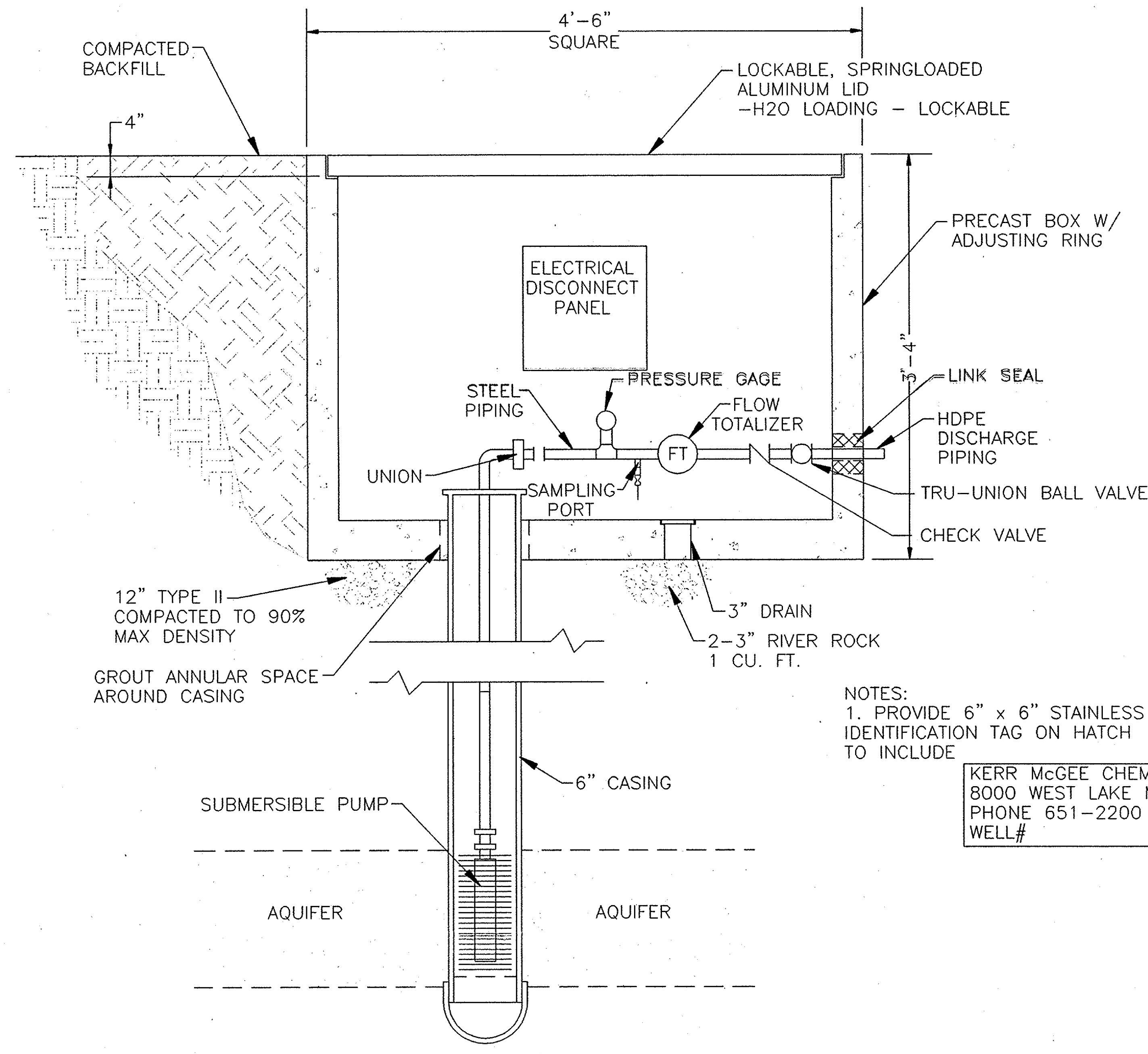
3. TRENCH EXCAVATION SHALL COMPLY WITH ALL CURRENT OSHA REGULATIONS.

4. PIPE COVER VARIES, SEE PIPE PROFILES

TYPICAL TRENCH

NOT TO SCALE

A
–



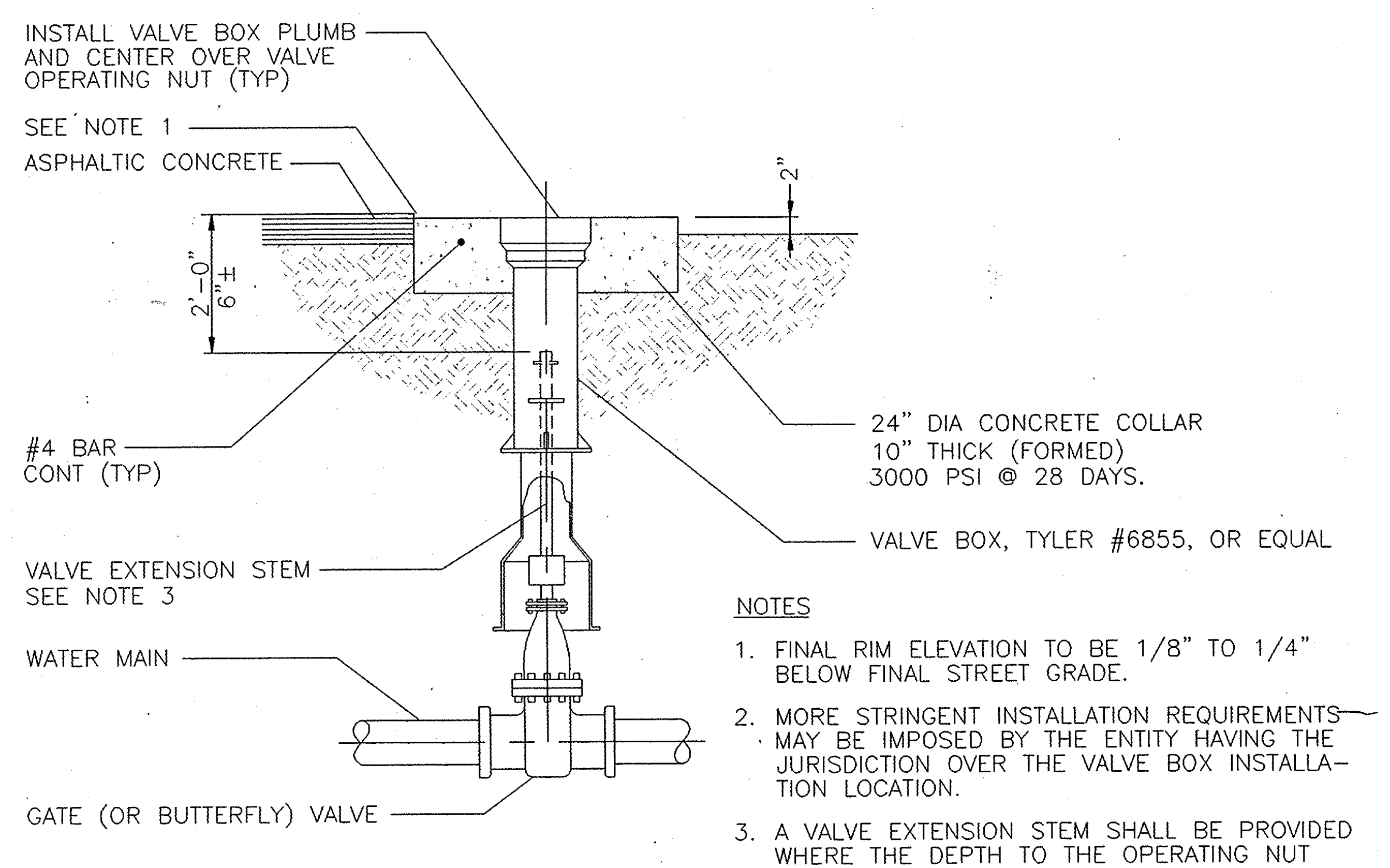
NOTES:
1. PROVIDE 6" x 6" STAINLESS STL IDENTIFICATION TAG ON HATCH TO INCLUDE

KERR McGEE CHEMICAL
8000 WEST LAKE MEAD
PHONE 651-2200
WELL#

EXTRACTION WELL DETAIL

NOT TO SCALE

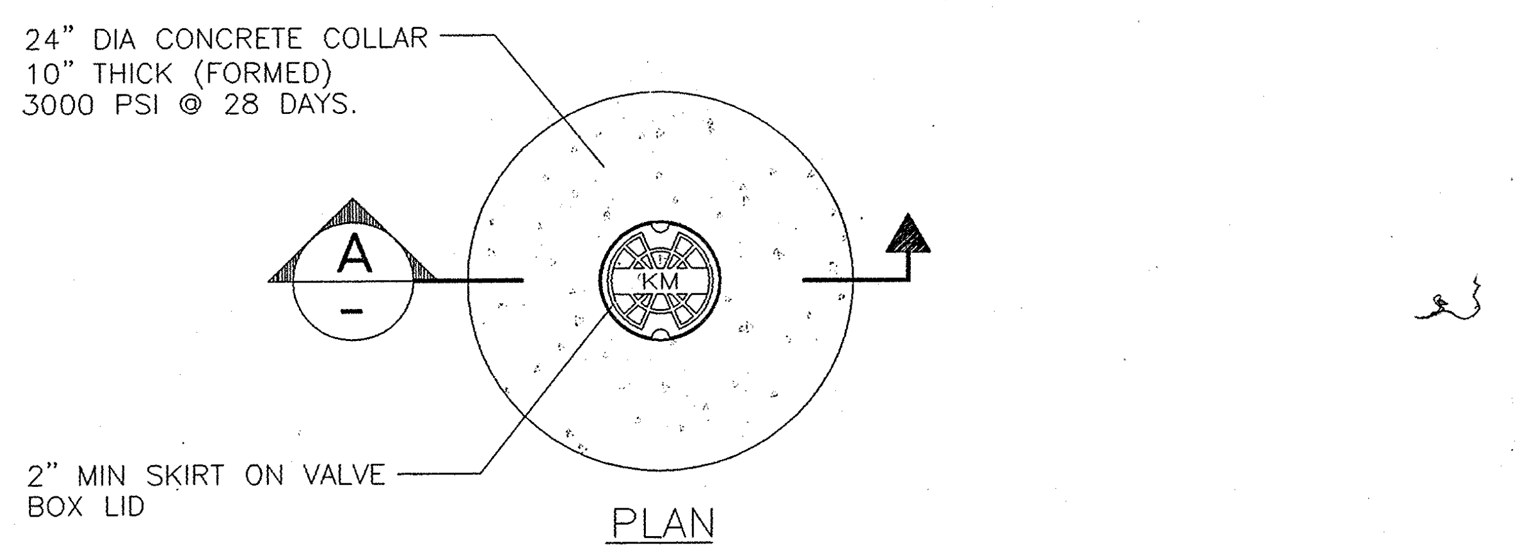
B
–



SECTION "A"

NOTES

1. FINAL RIM ELEVATION TO BE 1/8" TO 1/4" BELOW FINAL STREET GRADE.
2. MORE STRINGENT INSTALLATION REQUIREMENTS MAY BE IMPOSED BY THE ENTITY HAVING THE JURISDICTION OVER THE VALVE BOX INSTALLATION LOCATION.
3. A VALVE EXTENSION STEM SHALL BE PROVIDED WHERE THE DEPTH TO THE OPERATING NUT EXCEEDS FIVE (5) FEET.
4. INSTALL CARSONITE MARKER (BLUE) IN CONCRETE COLLAR IN UNIMPROVED AREAS.

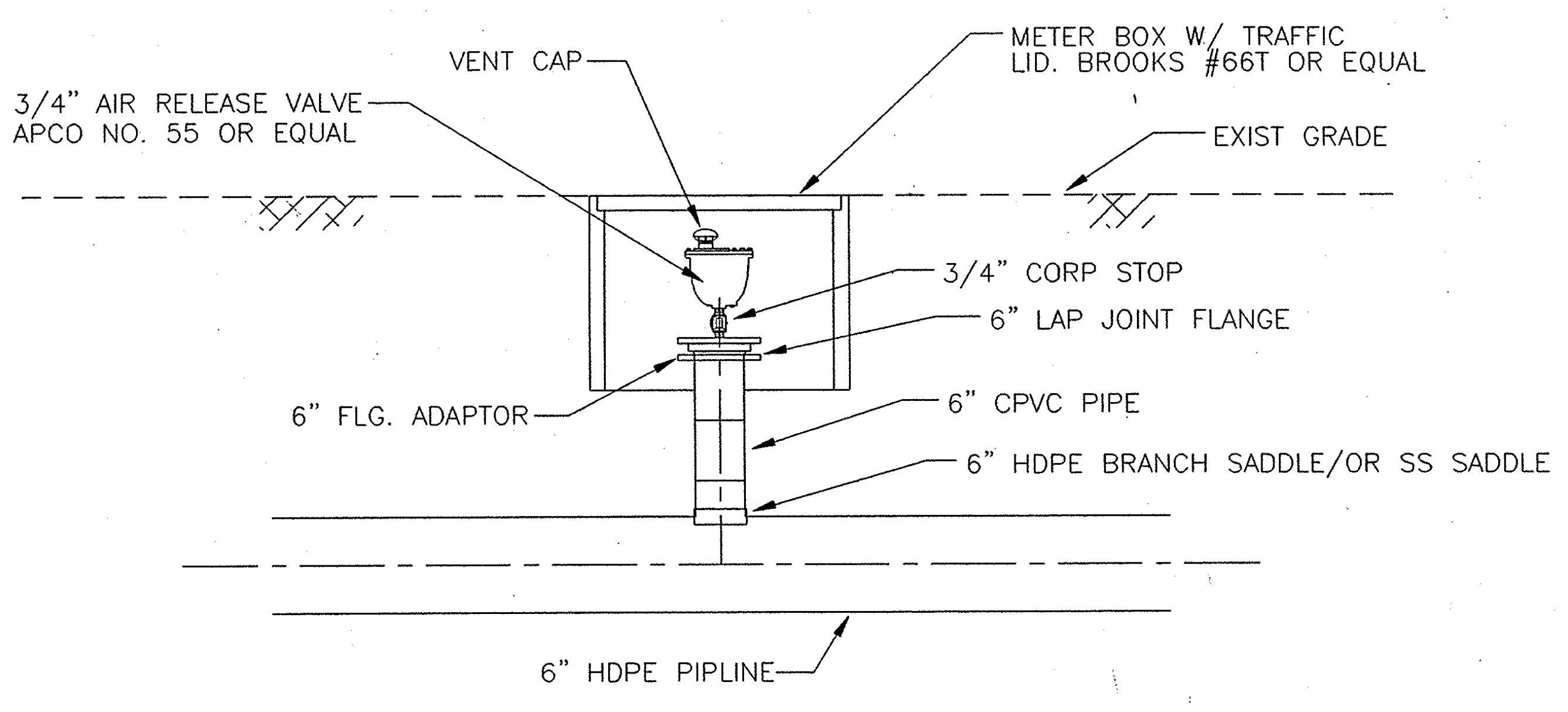


PLAN

VALVE DETAIL

NOT TO SCALE

C
–



AIR RELEASE VALVE

NOT TO SCALE

D
M01

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2001705025

RICHARD J. CAPP
CIVIL
No. 12877
6/7/02

(06009)

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FRACTIONS ± ± ±
AFE No. 0.00 0.000
JOB No. 511330.00

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REVISIONS (DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)			
REV	DESCRIPTION	BY	DATE

ATHENS LATERAL
WELLFIELD AND PUMP STATION #3
CIVIL DETAILS

DATE: 11/20/01
SCALE: AS NOTED

DESIGN		DATE
DRAWN BY	C. LANA	XX/XX/XX
PROJ. ENGR.	R. CAPP	
ENGR. MNGR.		

APPROVED FOR CONSTRUCTION	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

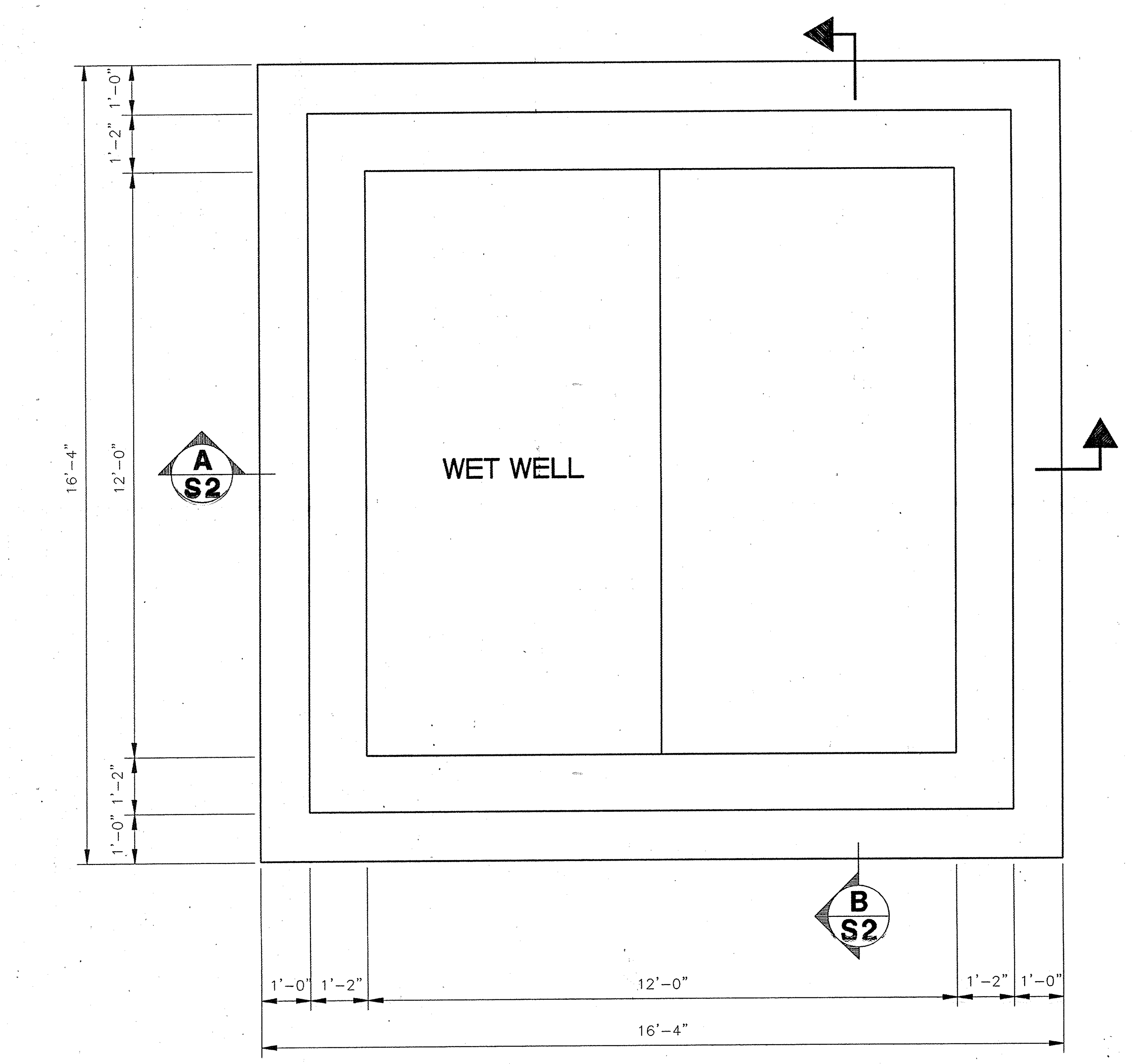
PAPER SIZE
D

DRAWING NO.
C04

SHEET
7
OF 34

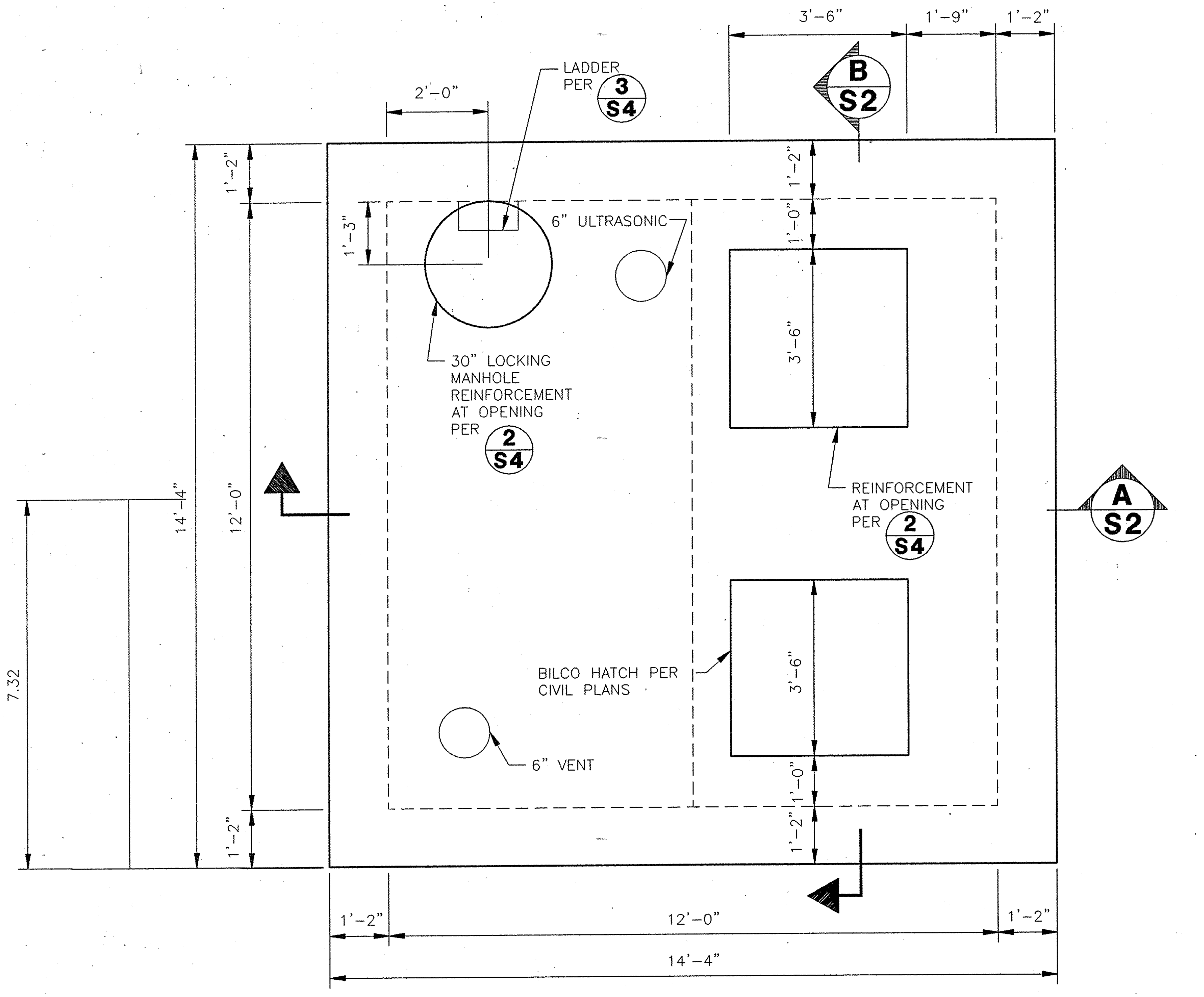
REVISION

Drawing: 511330-C04 / Date: 05/25/01 / Time:



FOUNDATION PLAN

SCALE: 1/2" = 1'-0"



TOP PLAN

SCALE: 1/2" = 1'-0"

GENERAL NOTES

1. SEE ARCHITECTURAL, CIVIL, MECHANICAL, HVAC, AND ELECTRICAL DRAWINGS FOR EXACT SIZE AND LOCATION OF ALL OPENINGS.
2. COORDINATE LOCATIONS AND QUANTITIES OF EMBEDS AND PIPE PENETRATIONS WITH OWNER PRIOR TO CONSTRUCTION.
3. COORDINATE SIZE AND LOCATION OF ALL EQUIPMENT PADS WITH MANUFACTURER PRIOR TO CONSTRUCTION. TOP OF PADS SHALL BE 6" MIN. ABOVE FINISH FLOOR. TANK AND EQUIPMENT PADS SHALL HAVE DIMENSIONS 1'-4" MIN. FROM EDGE OF TANK AND EQUIPMENT TO SIDE OF THE BASE AT ALL SIDES, UNLESS OTHERWISE NOTED.
4. LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED BY THE OWNER. ALL CONSTRUCTION JOINTS LOCATED ON THE DRAWINGS OR REQUIRED FOR CONSTRUCTION, BUT NOT SHOWN ON THE DRAWINGS SHALL HAVE A 6" FLATSTRIP WATERSTOP. IN ADDITION, JOINTS IN ALL SLABS SHALL HAVE BOTH A 6" FLATSTRIP WATERSTOP AND A SEALANT GROOVE.
5. BACKFILL BEHIND WALLS SHALL BE COMPACTED TO 90% MAXIMUM. DRY DENSITY PER ASTM D1557.
6. SOILS REPORT ADDENDUM GEOTECHNICAL RECOMMENDATIONS BY: "NINYO & MOORE" DATED: JULY 16,2001

   A) ALLOWABLE SOILS BEARING = 3000 PSF
   B) SOIL PASSIVE PRESSURE = 270 PCF
   C) SOIL AT-REST PRESSURE = 61 PCF
   D) COEFFICIENT OF FRICTION = 0.41

7. HEAVY CONSTRUCTION EQUIPMENT SHALL BE MAINTAINED A DISTANCE OF AT LEAST 1/2 OF THE TOTAL DESIGN WALL HEIGHT AWAY FROM THE WALLS WHILE THE BACKFILL SOILS ARE PLACED. BACKFILL BEHIND THE WALL SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OUTLINED IN THE SOILS REPORT DESCRIBED IN NOTE 6. HAND OPERATED COMPACTION EQUIPMENT SHOULD BE USED TO COMPACT BACKFILL SOILS WITHIN A 5 FOOT WIDE ZONE BEHIND WALLS UNLESS OTHERWISE NOTED IN THE SOILS REPORT. THE CONTRACTOR SHALL EXERCISE CARE DURING BACKFILL OPERATIONS IN ORDER TO ASSURE THAT EXCESSIVE STRESSES ARE NOT INDUCED ON THE WALL DUE TO OVERCOMPACTION.
8. TRENCH EXCAVATION SHORING SHALL CONFORM TO OSHA REGULATIONS 29 CFR PART 1926, SUBPART C.
9. ALL WELDING SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS. ALL WELDING TO BE DONE IN ACCORDANCE WITH THE AWS STRUCTURAL WELDING CODE D1.1. SPECIAL INSPECTION SHALL BE REQUIRED PER THE 1997 UBC, SECTION 1707 FOR FIELD WELDING UNLESS OTHERWISE NOTED.

MASONRY

1. REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615 "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT" GRADE 60.
2. CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 4500 psi AT 28 DAYS USING TYPE V CEMENT PER ASTM C-150. (DESIGN BASED ON f'c=4000 psi) SPECIAL INSPECTION SHALL BE REQUIRED ON ALL WALLS AND FOOTINGS UNLESS OTHERWISE NOTED.
3. MASONRY UNITS SHALL BE ASTM C-90, GRADE N-1 HOLLOW CONCRETE UNITS. MASONRY DESIGN STRESSES ARE AS FOLLOWS: f'm=1500 psi. FULL STRESSES FOR MASONRY HAVE BEEN USED. SPECIAL INSPECTION SHALL BE REQUIRED PER THE 1997 UBC, SECTION 1701, UNLESS OTHERWISE NOTED.
4. MORTAR SHALL BE ASTM C270, TYPE "M" or "S" WITH A MINIMUM STRENGTH OF 1900 psi AT 28 DAYS.
5. GROUT SHALL HAVE A MINIMUM STRENGTH OF 2000 psi AT 28 DAYS USING TYPE V CEMENT PER ASTM C-150.
6. FOOTINGS SHALL BE CAST AGAINST NATIVE MATERIAL FOR FULL DEPTH OF THE FOOTING OR FOOTING SHALL BE COMPLETELY BACKFILLED AND COMPACTED PER SPECIFICATIONS, AND THE RECOMMENDATIONS CONTAINED IN THE SOILS REPORT DESCRIBED IN GENERAL NOTES 6, PRIOR TO PLACEMENT OF ANY BACK FILL BEHIND THE WALL.
7. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION SHALL CONFORM TO THE UNIFORM BUILDING CODE, LATEST EDITION, AND PER STANDARD SPECIFICATIONS FOR CLARK COUNTY, NEVADA, BUILDING DEPARTMENT.
8. ALL WALLS ARE SUBJECT TO APPROVAL BY CITY OF HENDERSON, NEVADA, BUILDING DEPARTMENT.
9. SOLID GROUT ALL MASONRY UNITS THAT ARE BELOW THE HIGHEST FINISH GRADE OF THE WALL UNLESS OTHERWISE NOTED ON THE PLANS.
10. ALL CORNERS OR ANGLES SHALL BE TIED TOGETHER WITH REINFORCING STEEL AND GROUTED SOLID.
11. WHERE VERTICAL GROUT POURS ARE NOT CONTINUOUS FOR THE ENTIRE HEIGHT OF THE WALL, THE LIFTS SHALL BE TERMINATED 1 1/2" BELOW THE TOP OF THE TOP BLOCK TO FORM A KEY FOR FUTURE LIFTS.
12. CONSTRUCTION JOINTS IN RETAINING WALL SHALL BE LOCATED AT A MAXIMUM SPACING OF 30'-0".
13. JOINT REINFORCING AND BOND BEAMS SHALL NOT BE CONTINUOUS THROUGH WALL CONSTRUCTION JOINTS.
14. WALLS SHALL BE STEPPED IN INCREMENTS OF NOT MORE THAN 2'. UNLESS OTHERWISE SHOWN ON WALL PROFILE.

CONCRETE

1. CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 4500 psi AT 28 DAYS USING TYPE V CEMENT PER ASTM C-150. (DESIGN BASED ON f'c=4000 psi) SPECIAL INSPECTION SHALL BE REQUIRED ON ALL WALLS AND FOOTINGS UNLESS OTHERWISE NOTED.
2. REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615 "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT" GRADE 60.
3. ALL DETAILING FABRICATION AND PLACING OF REINFORCING BARS, UNLESS OTHERWISE INDICATED, SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES". LATEST EDITION.
4. TOLERANCES IN PLACING REINFORCEMENT SHALL BE:

   ±3/4 INCH FOR MEMBERS WITH D < 8 INCHES
   ±1/2 INCH FOR MEMBERS WITH D > 8 INCHES

5. ALL CONSTRUCTION JOINTS, WHERE SHOWN, SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND.
6. DOWELS, PIPE, WATERSTOPS, AND OTHER INSTALLED MATERIALS AND ACCESSORIES SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.
7. DOWELS OR REINFORCEMENT SHALL NOT BE PLACED AFTER CONCRETE HAS BEEN POURED.
8. REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH METAL PARTS EMBEDDED IN CONCRETE.
9. ALL BENDS, UNLESS OTHERWISE SHOWN, SHALL BE A 90 DEGREE STANDARD HOOK AS DEFINED IN THE LATEST EDITION OF ACI 318. ALL NON-NINETY DEGREE BENDS SHALL HAVE EXTENSION OF STANDARD EMBEDMENT UNLESS OTHERWISE NOTED.
10. UNLESS OTHERWISE INDICATED, ASIDE FROM NORMAL ACCESSORIES USED TO HOLD REINFORCING BARS FIRMLY IN POSITION, THE FOLLOWING SHALL BE ADDED.

    A) IN SLABS #5 RISER BARS AT 36 INCHES OC MAXIMUM TO SUPPORT TOP REINFORCING BARS.

    B) IN WALLS WITH 2 CURTAINS #3 U OR Z SHAPE SPACERS AT 6 FEET OC EACH WAY.

11. ON THE DRAWINGS CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS.

    FOR CONCRETE PLACED AGAINST EARTH _ _ _ 3"

    FOR SURFACES IN CONTACT WITH WATER OR WEATHER AND FORMED SURFACES IN CONTACT WITH EARTH _ _ _ _ 3"

    FOR CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH WATER OR EARTH _ _ _ 1-1/2"

12. SLABS WITH SLOPING SURFACES SHALL HAVE THE INDICATED SLAB THICKNESS MAINTAINED AS THE MINIMUM. SLAB BOTTOMS MAY EITHER SLOPE WITH THE TOP SURFACE OR BE LEVEL. REINFORCING IN SLABS WITH SLOPING SURFACES SHALL BE PLACED AT THE REQUIRED CLEARANCE FROM THE SLAB SURFACES.

FOUNDATION

1. PREPARATION OF FOUNDATION MATERIAL LOCATED BELOW THE BOTTOM OF WALL FOOTINGS SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATION CONTAINED IN THE SOILS REPORT DESCRIBED IN GENERAL NOTES 6 OF THESE PLANS.
2. ALL FOUNDATION SHOULD BE FOUNDED ON NATIVE UNDISTURBED MEDIUM DENSE TO DENSE, GRANULAR SOILS, OR STIFF TO VERY STIFF, FINE-GRAINED SOILS, OR ADEQUATELY PLACED AND COMPACTED STRUCTURAL FILL.
3. THE FULL DEPTH OF UNDOCUMENTED FILL AND ANY LOOSE AND/OR DISTURBED NATIVE SOIL SHALL BE REMOVED. THE EXPOSED GROUND SURFACE SHALL BE SCARIFIED TO A DEPTH OF A MINIMUM 6 INCHES, MOISTURE-CONDITIONED, AND COMPACTED TO A RELATIVE COMPACTION OF 95 PERCENT, AS EVALUATED BY ASTM D 1557.

PRECAST WETWELL NOTE

1. A PRECAST WET WELL OPTION IS OFFERED. CONTRACTOR SHALL SUPPLY SIGNED AND SEALED DRAWINGS BY NEVADA P.E. FOR THE PRECAST OPTION.

6-11-02

CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT
DATE

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PROFESSIONAL ENGINEER-STATE OF NEVADA
JOSEPH E. FARRÉ
CIVIL
No. 13678
02/06/02

PAPER SIZE: D
DRAWING NO.: S1
SHEET 8 OF 34
REVISION

KERR-McGEE CHEMICAL LLC
P.O. BOX 55 HENDERSON, NEV. 89009-7000

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FRACTIONS ±
AFE No. 0.00 ±
0.000 ±
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REVISIONS (DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)			
REV	DESCRIPTION	BY	DATE

PBS&J
901 N. Green Valley Pkwy.
Suite 100
Henderson, Nevada 89014
Telephone: 702/263-7275
Fax: 702/263-7200
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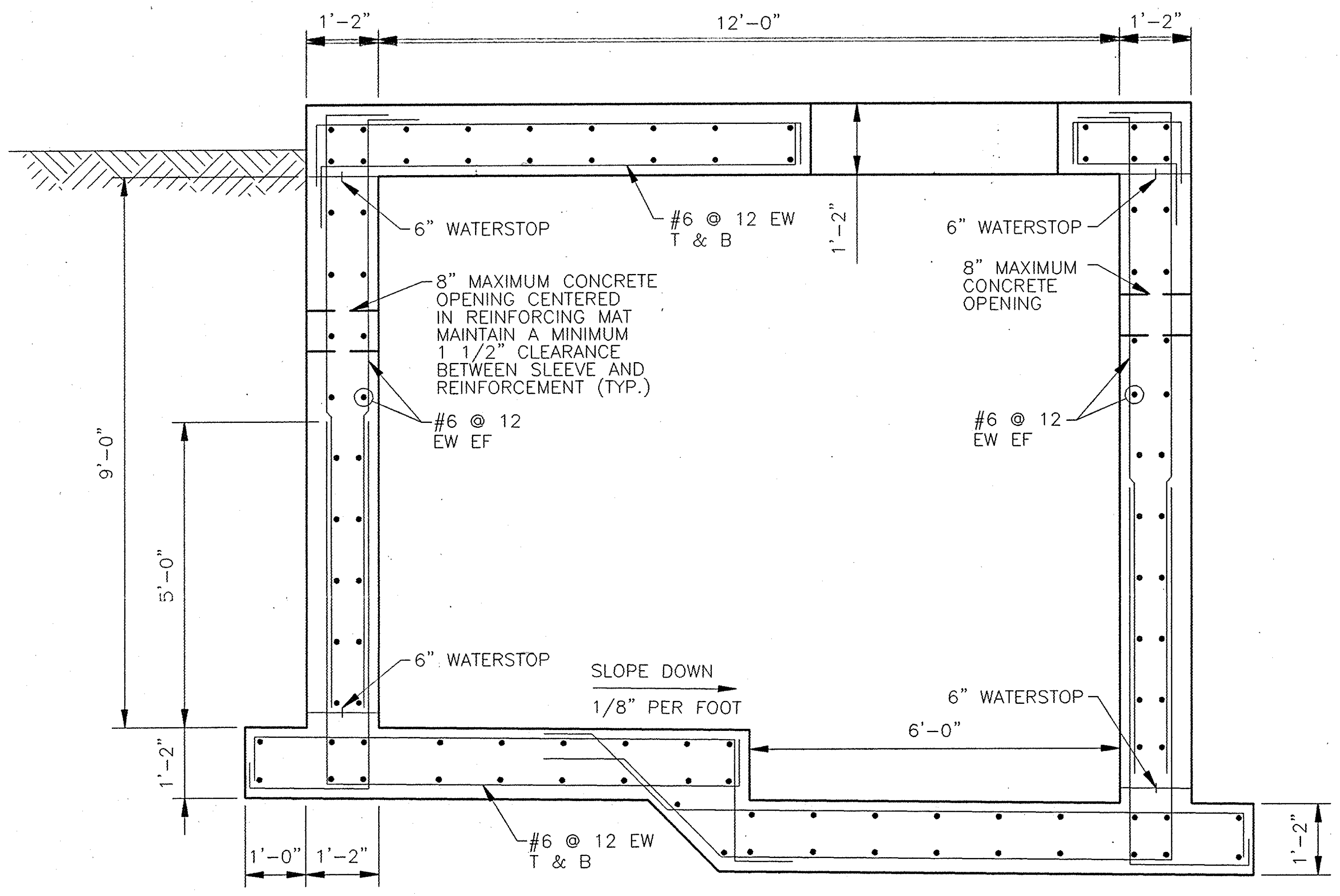
DESIGN		DATE
DRAWN BY	R. WATSON	08/08/01
PROJ. ENGR.	E. MIRANDA	09/26/01
ENGR. MNGR.	R. CAPP	

APPROVED FOR CONSTRUCTION	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

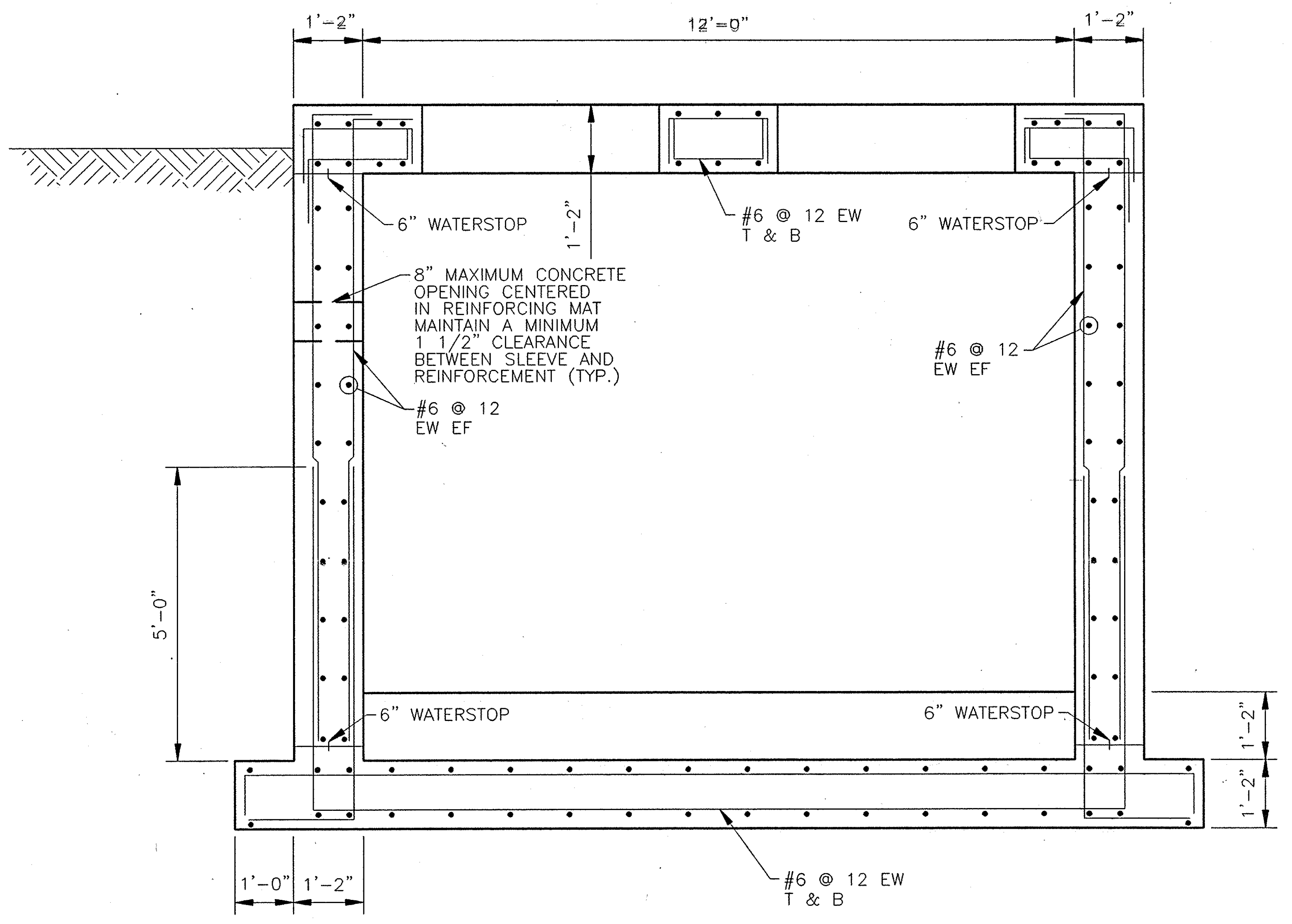
ATHENS LATERAL
PUMP STATION #3
CAST-IN-PLACE WET WELL SECTIONS

DATE: 08/08/01
SCALE: 1/2" = 1'-0"



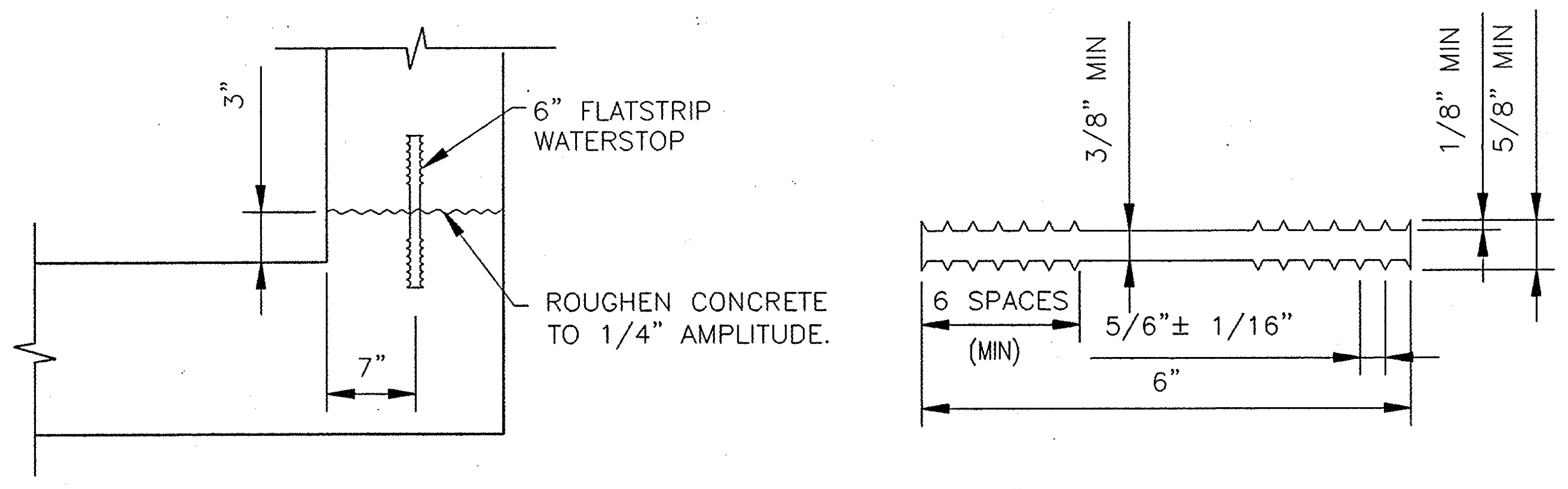
SECTION A

SCALE: 1/2" = 1'-0"



SECTION B

SCALE: 1/2" = 1'-0"



WATERSTOP

Clen Cearl 6-11-02

CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT

DATE

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BY June 11, 20 03

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JOSEPH E. FARRÉ
CIVIL
No. 13678
02/06/02

2001705025

(06009)

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OF 34

REVISION

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0.000 ±

AFE No.
JOB No. 511330.00

DESIGN		DATE
DRAWN BY	R. WATSON	08/08/01
PROJ. ENGR.	E. MIRANDA	09/26/01
ENGR. MNGR.	R. CAPP	

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
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OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

ATHENS LATERAL
PUMP STATION #3
CAST-IN-PLACE WET WELL SECTIONS

DATE: 08/08/01
SCALE: 1/2" = 1'-0"

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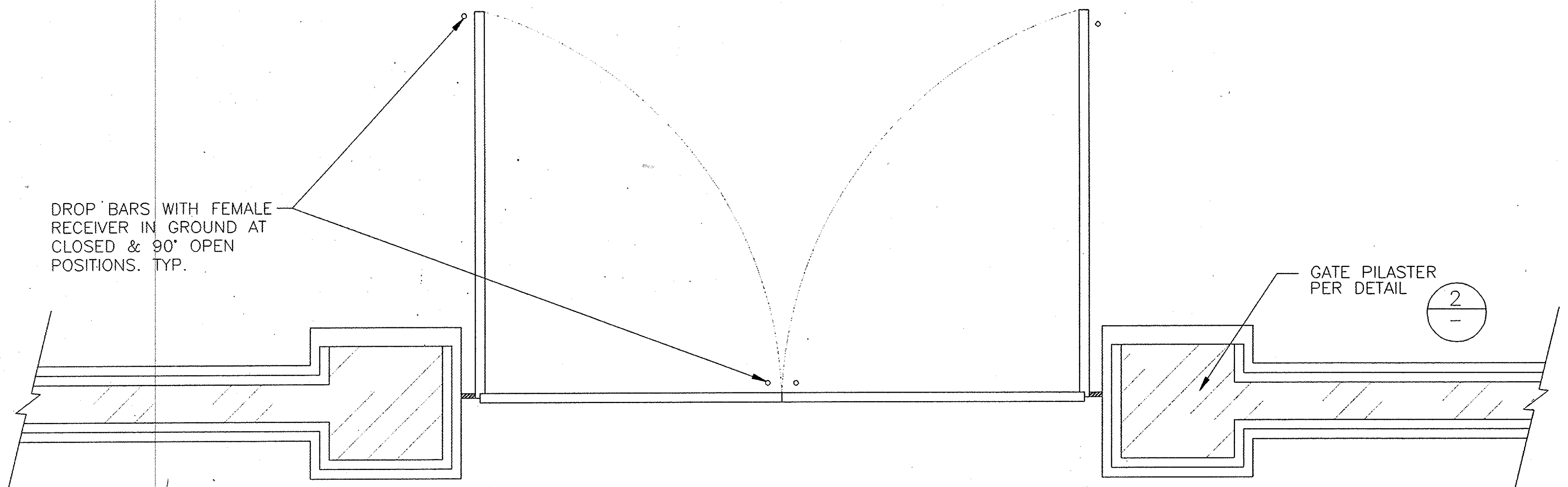
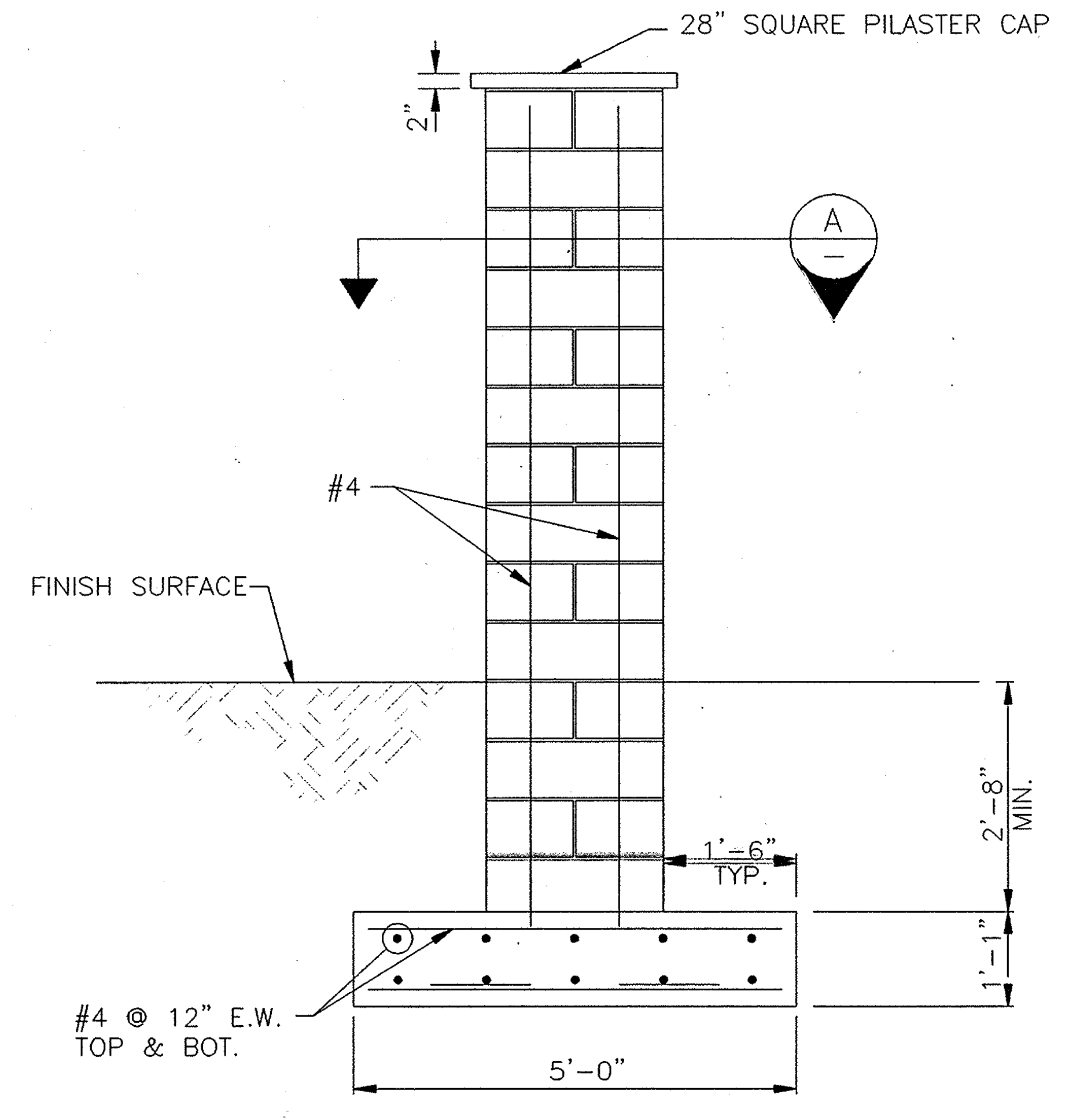


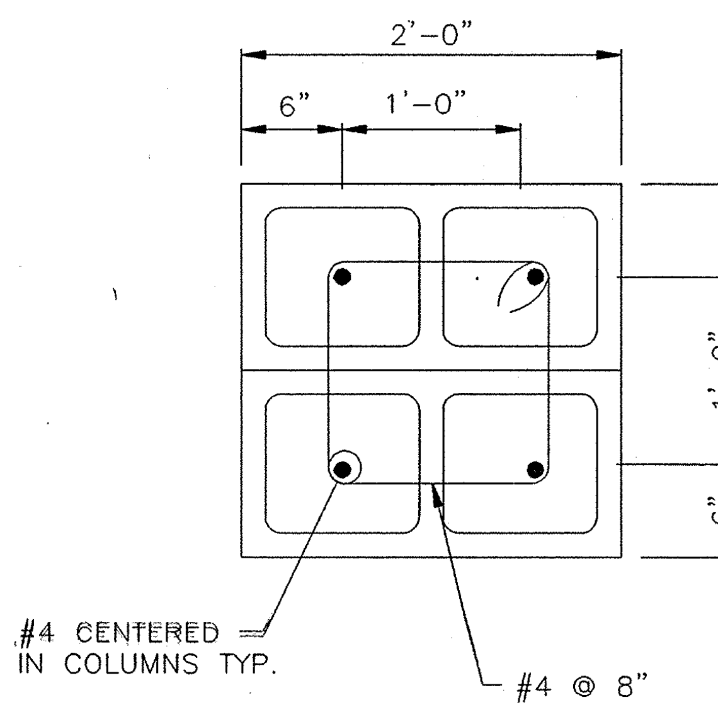
GATE AND FENCE PLAN
1
-

NOT TO SCALE



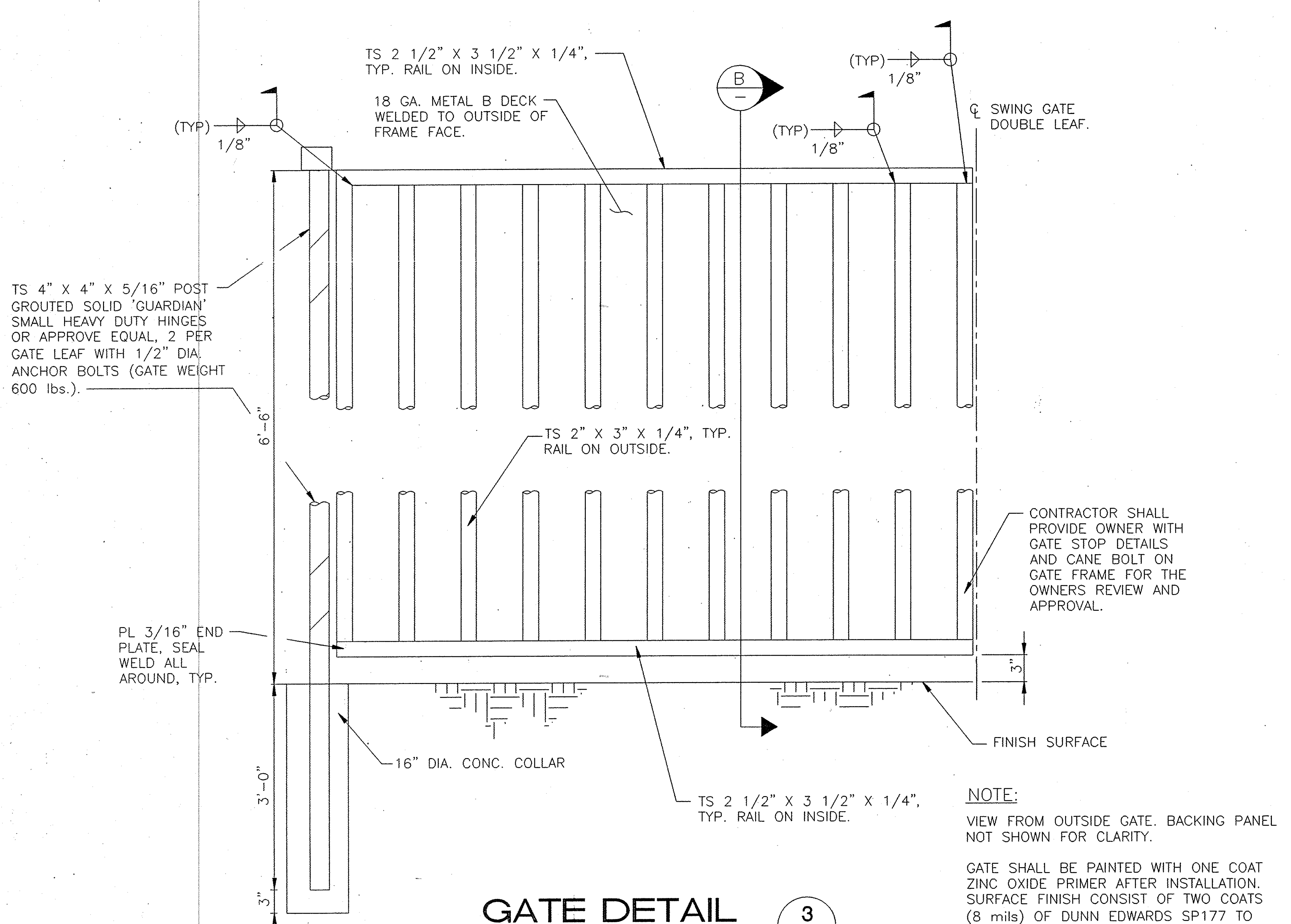
PILASTER PROFILE
2
-

SCALE: 1/2" = 1'



PILASTER SECTION
A
-

NOT TO SCALE



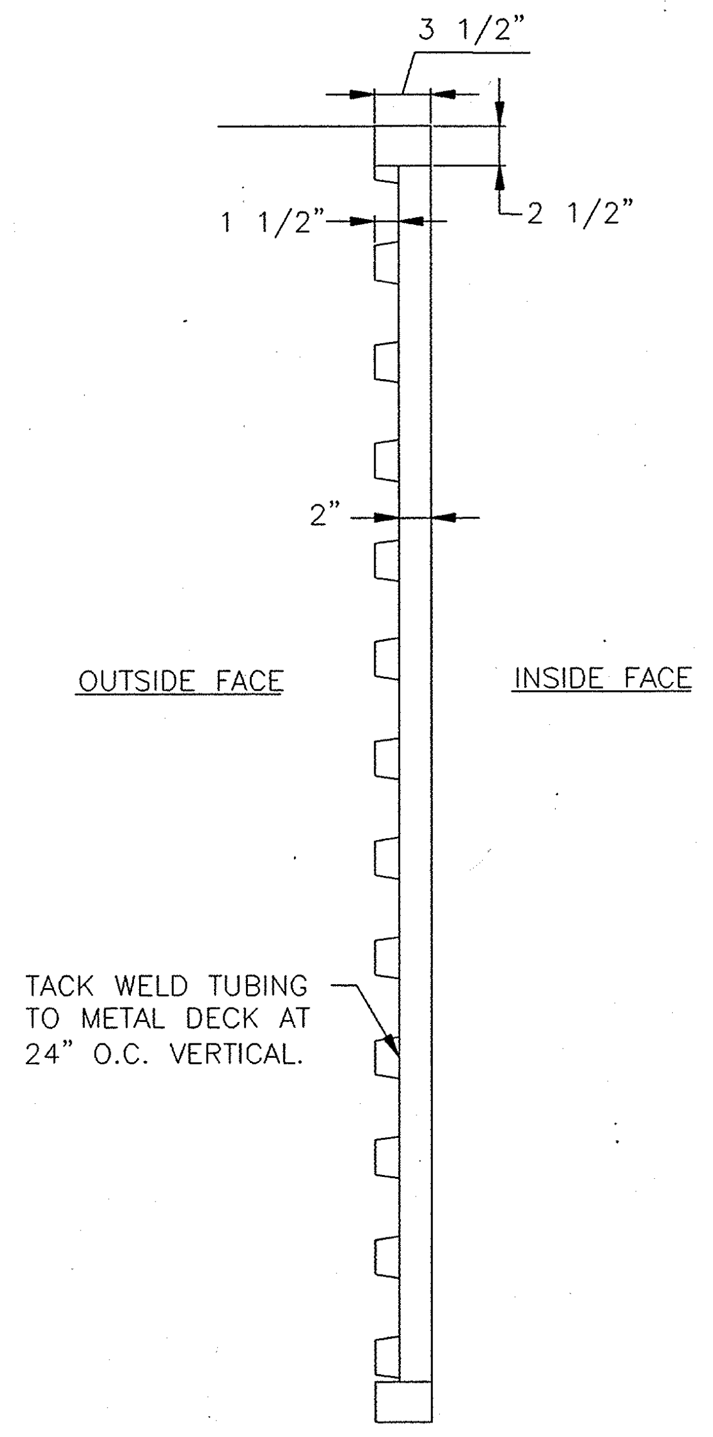
NOTE:

VIEW FROM OUTSIDE GATE. BACKING PANEL NOT SHOWN FOR CLARITY.

GATE SHALL BE PAINTED WITH ONE COAT ZINC OXIDE PRIMER AFTER INSTALLATION. SURFACE FINISH CONSIST OF TWO COATS (8 mils) OF DUNN EDWARDS SP177 TO MATCH STUCCO WALL.

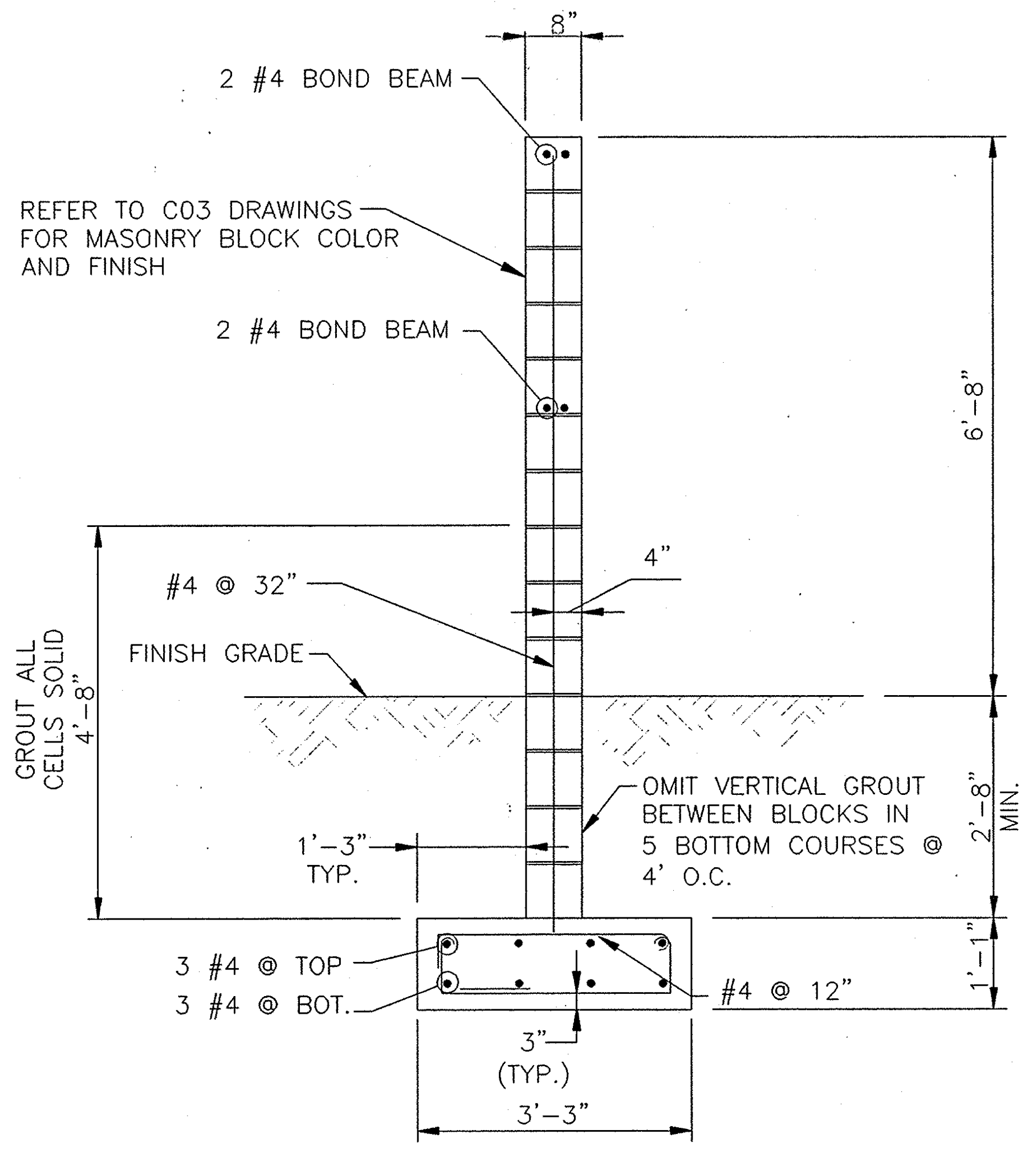
GATE DETAIL
3
-

NOT TO SCALE



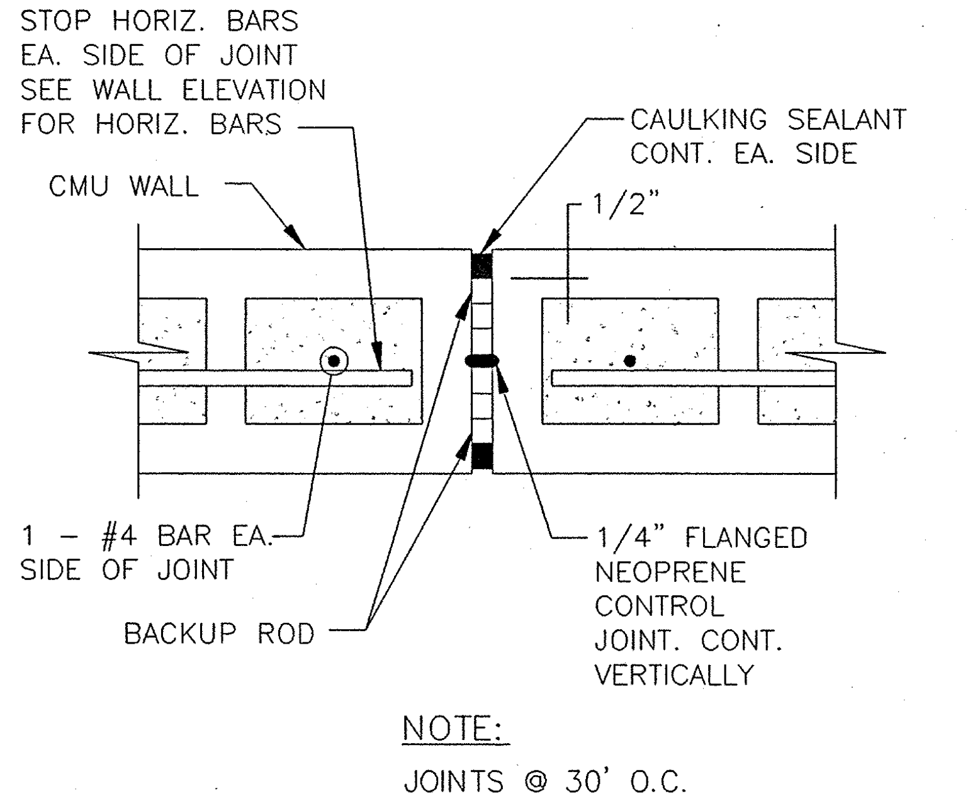
GATE SECTION
B
-

SCALE: 1" = 1'



BLOCK WALL SECTION
4
-

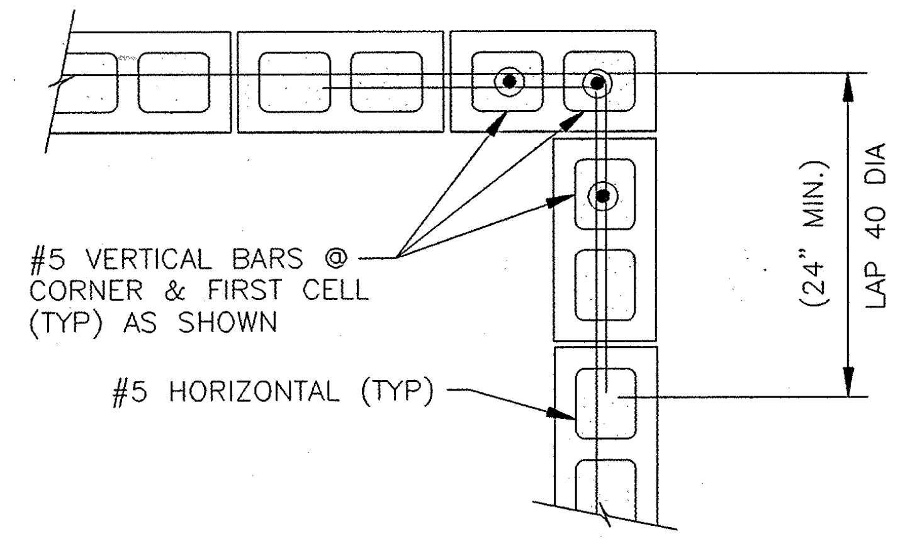
SCALE: 1/2" = 1'

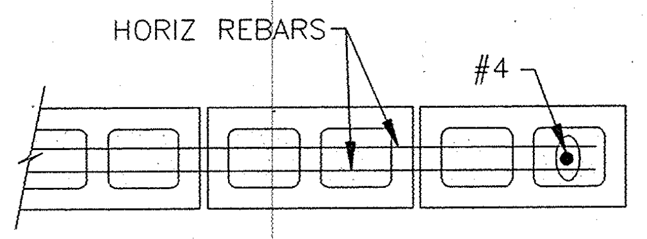


NOTE:

JOINTS @ 30' O.C.

CMU WALL CONTROL JOINT
5
-





CMU WALL SECTION
6
-

AT OPENING

TYPICAL CORNER REINFORCING
7
-

Clan Cros 6-11-02

CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT

DATE

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No. 13678
02/06/02

2001705025

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JOB No. 511330.00

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Fax: 702/263-7200
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ATHENS LATERAL
PUMP STATION #3
STRUCTURAL DETAILS

SCALE: AS NOTED

DATE: 09/26/01

DESIGN		DATE
DRAWN BY	J. MARTINEZ	08/08/01
PROJ. ENGR.	E. MIRANDA	09/26/01
ENGR. MNGR.	R. CAPP	

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

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DRAWING NO.
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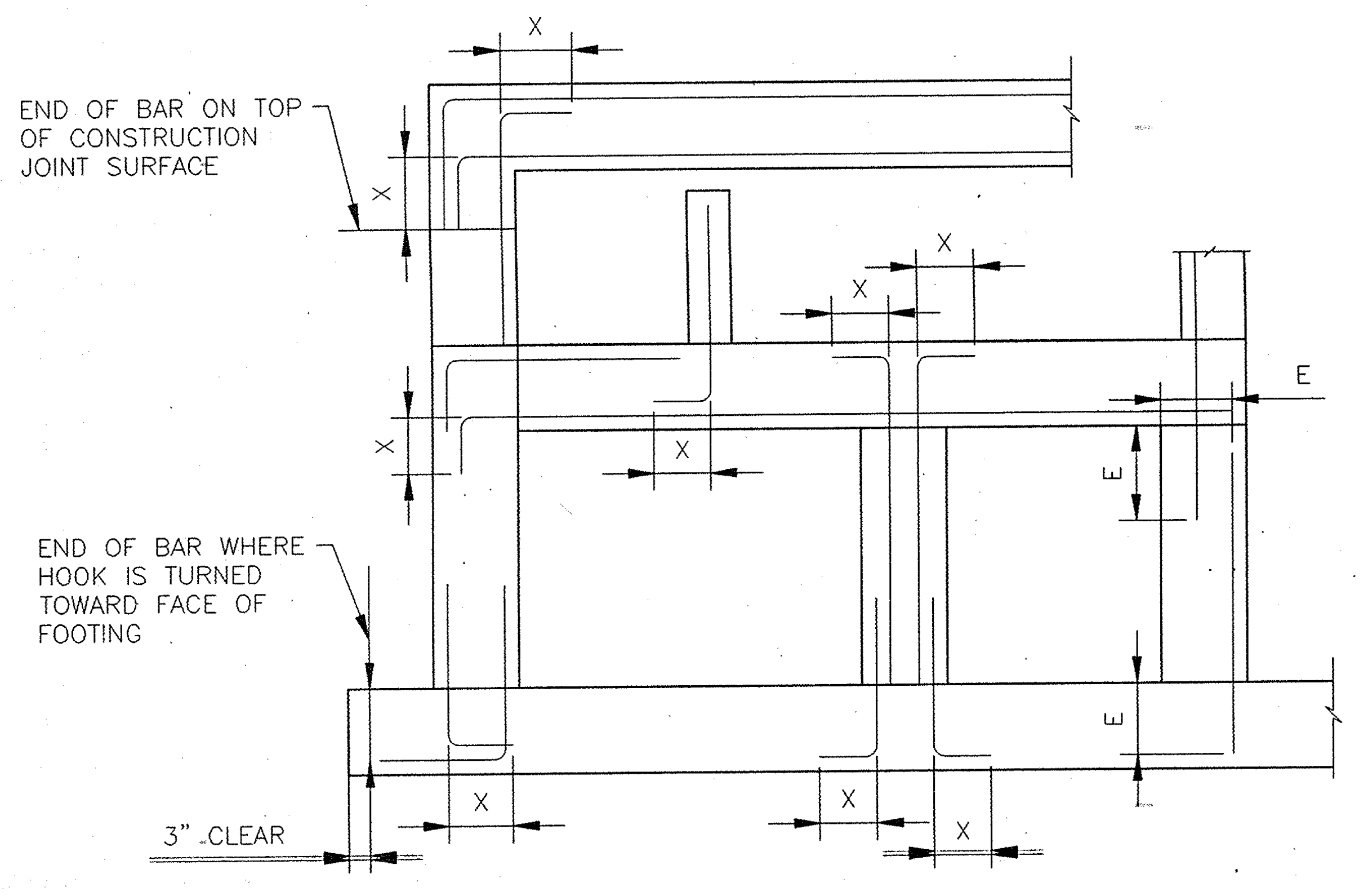
10
OF 34

REVISION

Drawing: 1330-S03 / Date: 09/26/01 / Time: 16:00



SECTION

BAR SIZE	HOOK X	LAP	EMBEDMENT E
#3	6"	18"	12"
#4	8"	18"	14"
#5	10"	23"	18"
#6	12"	28"	22"
#7	14"	33"	25"
#8	16"	SEE TABLE BELOW	SEE TABLE BELOW
#9	18"		
#10	22"		
#11	24"		

REBAR SIZE	FOR 1" TO < 2" CONCRETE COVER		FOR 2" TO < 3" CONCRETE COVER		FOR 3" AND LARGER CONCRETE COVER	
	REBAR SPACING (CENTER TO CENTER)		REBAR SPACING (CENTER TO CENTER)		REBAR SPACING (CENTER TO CENTER)	
	< 8"	± 8"	< 8"	± 8"	< 8"	± 8"
LAP						
#8	62"	62"	37"	37"	37"	37"
#9	99"	79"	69"	55"	49"	42"
#10	125"	100"	88"	70"	63"	50"
#11	154"	123"	108"	86"	77"	82"
EMBEDMENT E						
#8	48"	48"	29"	29"	29"	29"
#9	77"	61"	54"	43"	38"	33"
#10	97"	77"	68"	54"	49"	39"
#11	119"	95"	84"	67"	50"	48"

NOTES:

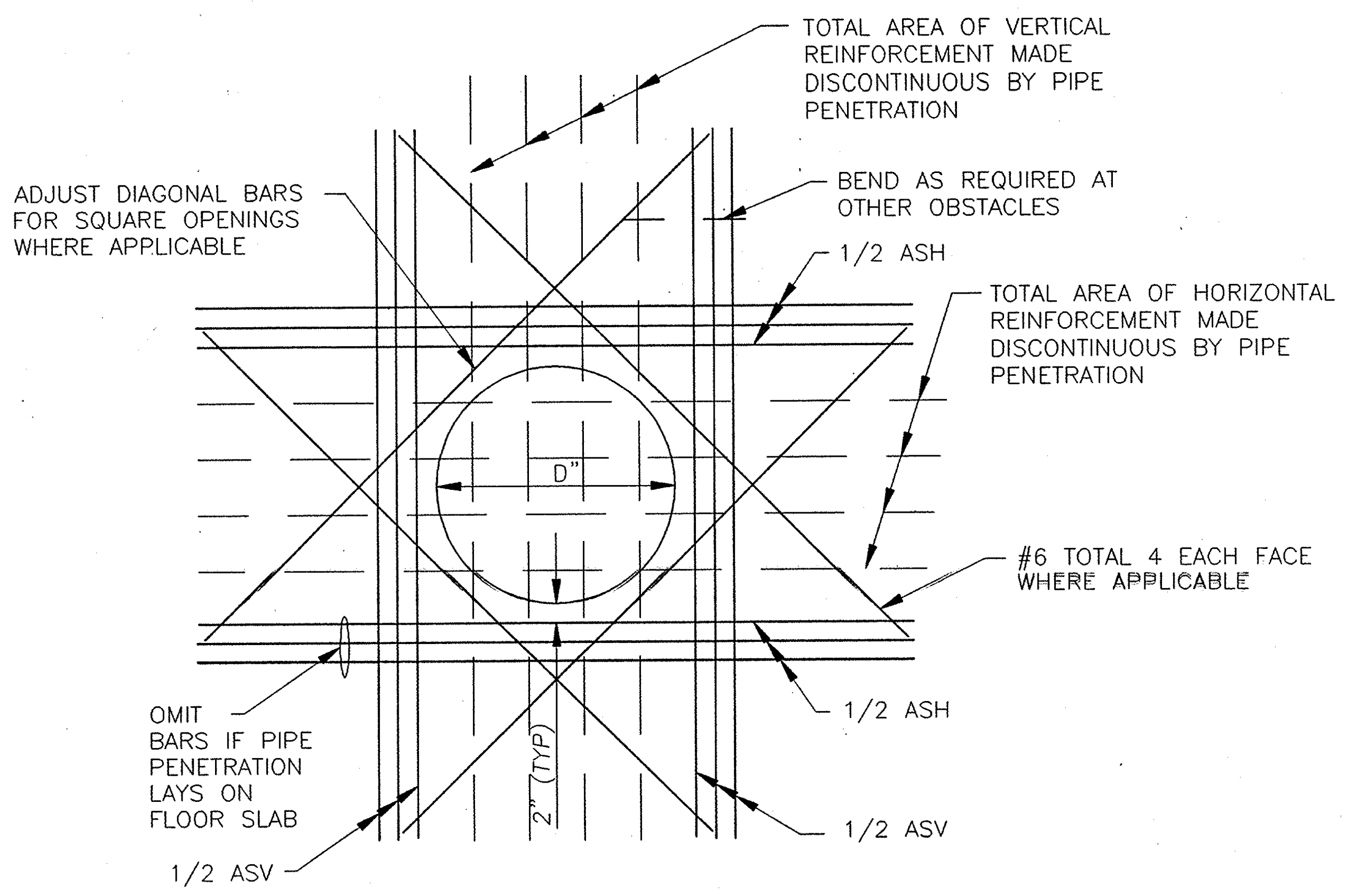
1. USE LAP LENGTHS AS DETERMINED FROM THESE TABLES.
2. THE TABLES SHOWN ARE FOR f'_c –4000 PSI AND f_y –60,000 PSI.
3. MULTIPLY THE LAP SHOWN IN THESE TABLES BY 1.3 FOR WALL HORIZONTAL REBARS AND SLAB BARS WITH 12" OR MORE FRESH CONCRETE UNDERNEATH.
4. WHEN BARS OF DIFFERENT SIZE ARE LAP SPLICED, LAP LENGTH SHALL BE THE LARGER OF:

   EMBEDMENT LENGTH OF LARGER BAR
   LAP LENGTH OF SMALLER BAR
5. USE REBAR COUPLERS FOR SPLICES OF #11 AND LARGER BARS.
6. ALL DOWEL BARS SHALL EXTEND AN EMBEDMENT LENGTH E INTO ANOTHER MEMBER OR ACROSS A CONSTRUCTION JOINT UNLESS SHOWN TO SPLICE WITH OTHER BARS OR TO EXTEND TO THE FAR FACE OF THE MEMBER AND END WITH A STANDARD HOOK.

STANDARD 90° BAR HOOKS, EMBEDMENT LENGHTS AND LAP LENGHTS

1 / –

NOT TO SCALE



NOTES:

1. ALL BAR LENGTHS TO BE D"+3'–10"
2. ASH = TOTAL AREA OF HORIZONTAL REINFORCEMENT MADE DISCONTINUOUS BY PIPE PENETRATION.

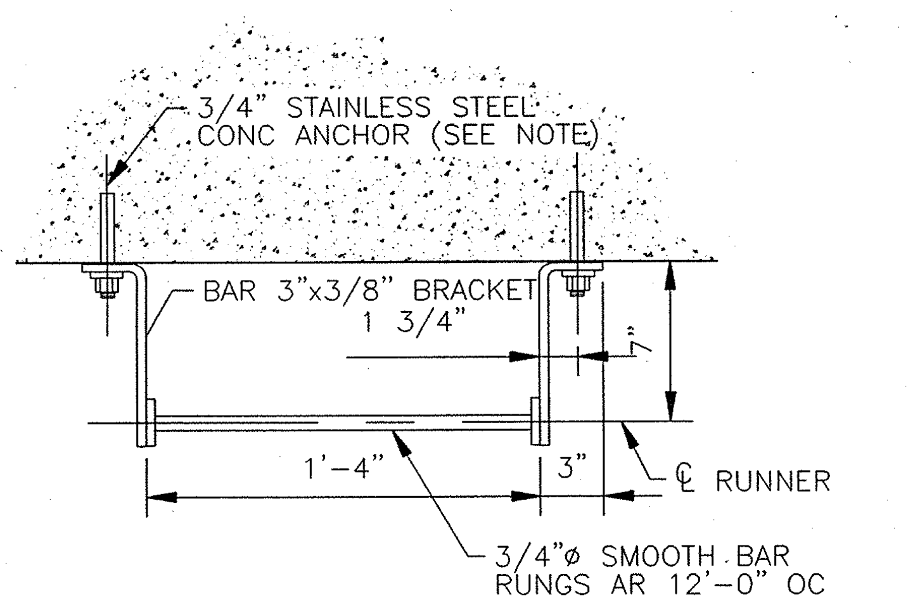
   ASV = TOTAL AREA OF VERTICAL REINFORCEMENT MADE DISCONTINUOUS BY PIPE PENETRATION.
3. ASH AND ASV BARS SHALL BE EVENLY DISTRIBUTED ON EACH SIDE OF PIPE PENETRATION, AND PLACED IN ADDITION TO TYPICAL WALL REINFORCEMENT SHOWN.

   ASH AND ASV BARS SHALL BE UNIFORMLY SPACED OVER A DISTANCE NOT TO EXCEED 1/4D ON EACH SIDE OF THE PIPE PENETRATION.
4. BEND BARS AS REQUIRED TO FIT WALL DIMENSIONS.

REINFORCEMENT AT PENETRATIONS

2 / –

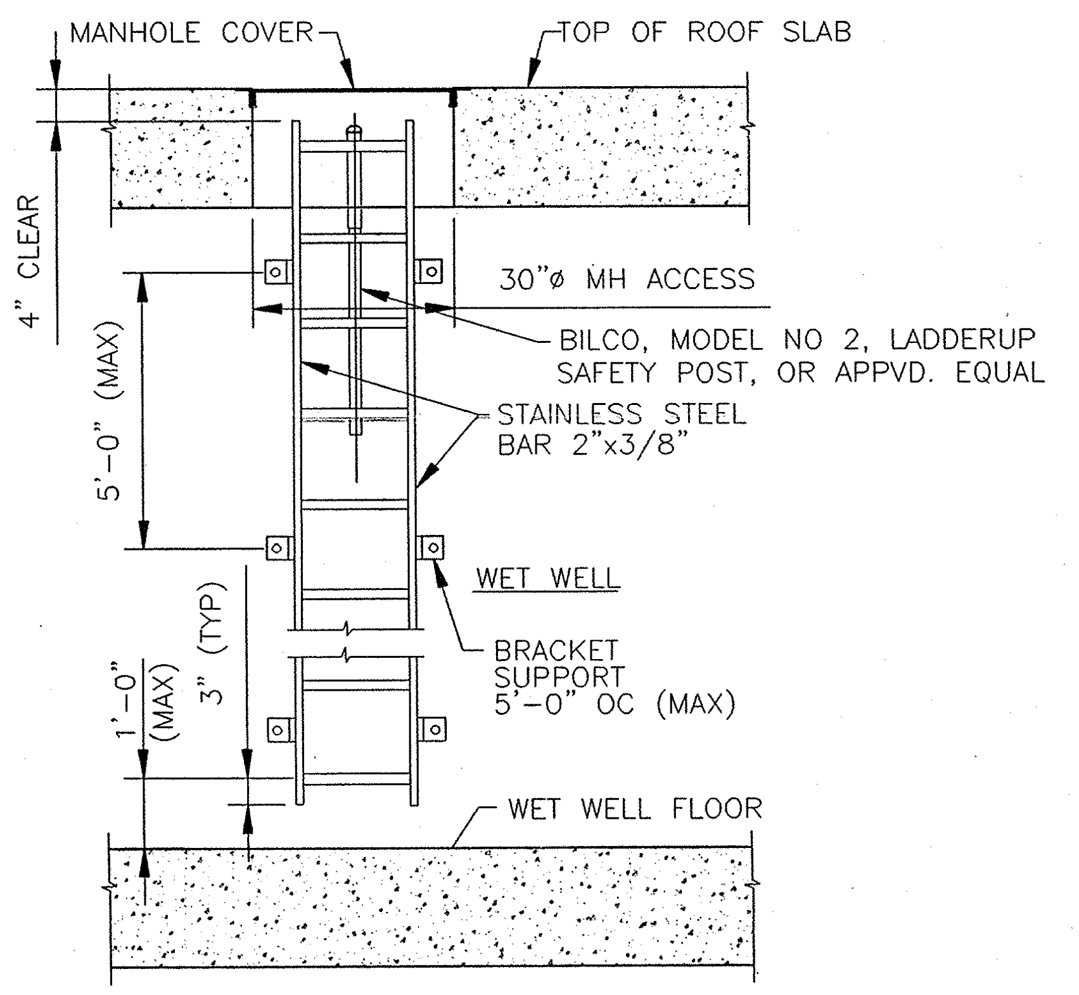
NOT TO SCALE



PLAN

NOTES:

1. PROVIDE ANCHOR BOLT INSERTS FOR WALL OR SLAB.
2. PROVIDE FALL PREVENTION SYSTEMS AS INDICATED.
3. ALL LADDER COMPONENTS ARE STAINLESS STEEL.

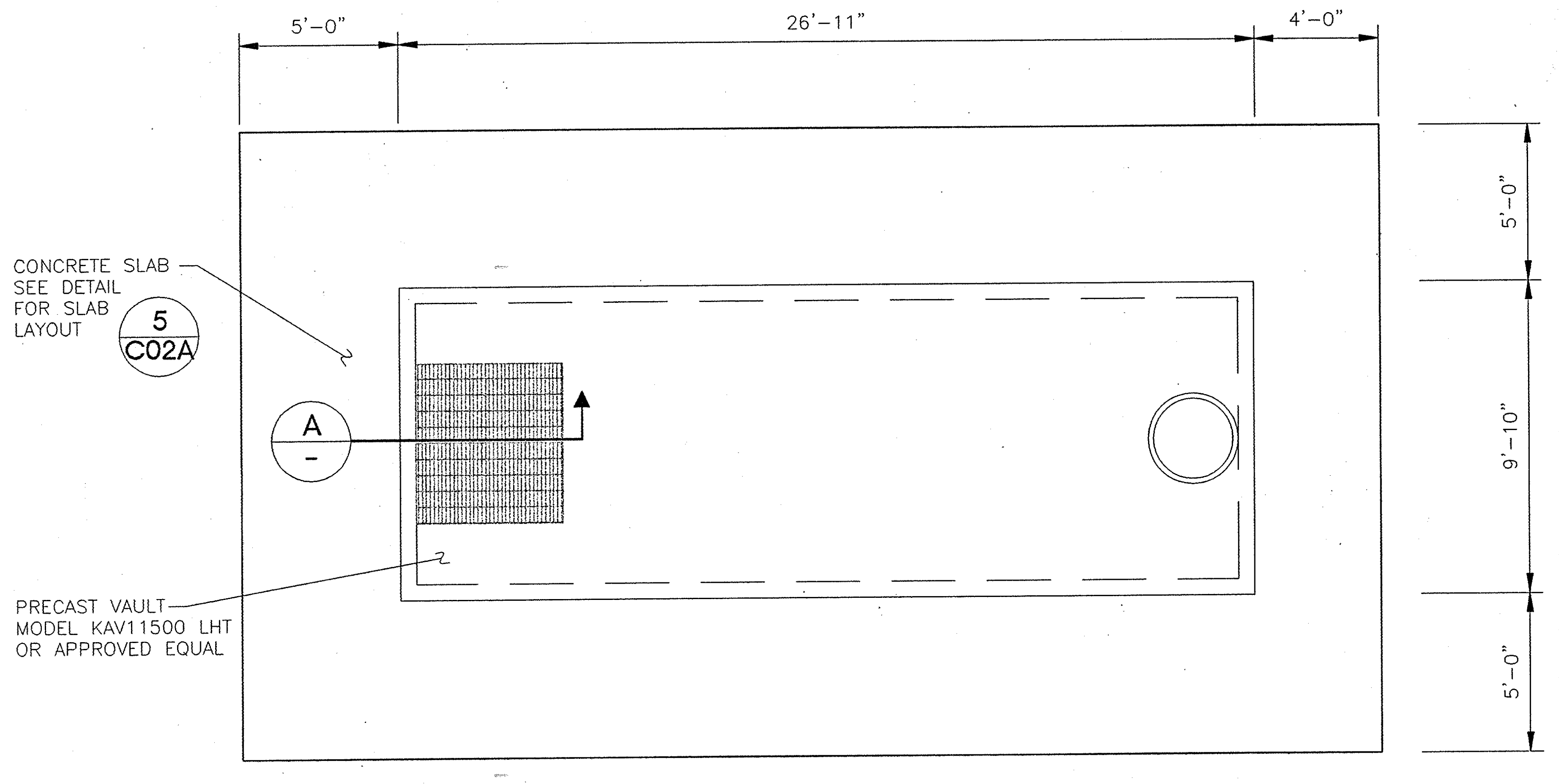


ACCESS LADDER

ACCESS LADDER DETAIL

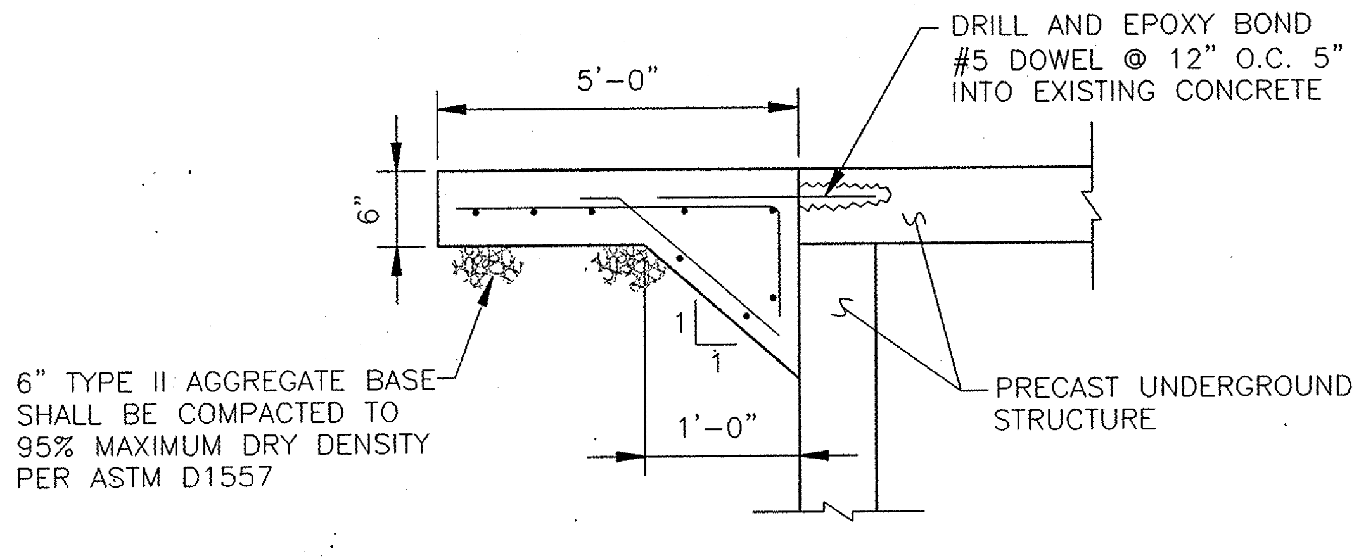
3 / –

NOT TO SCALE



PLAN VIEW

SCALE: 1/4" = 1'–0"

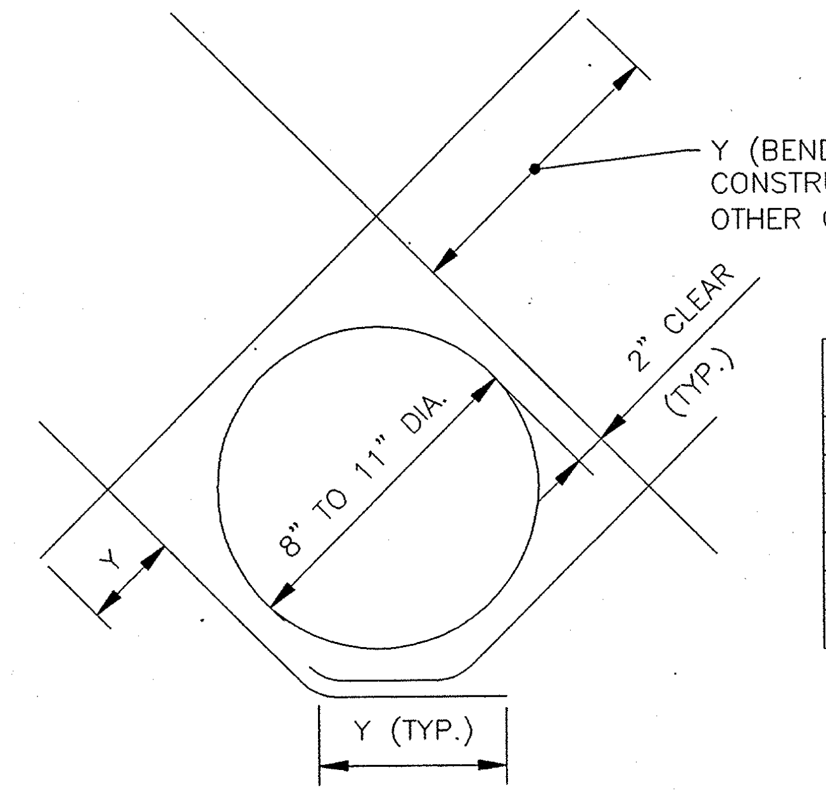


SECTION

SLAB AROUND ALTERNATE PRECAST OPTION

4 / –

NOT TO SCALE



BAR SIZE	Y GRADE 60
#4	15"
#5	21"
#6	24"
#7	27"
#8	36"
#9	42"

NOTES:

1. CUT NORMAL REINFORCEMENT 2" CLEAR OF OPENING.
2. DIAGONAL BAR TO BE PLACED:
   - A) AT CENTERLINE OF WALL OR SLAB WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   - B) AT EACH FACE OF WALL OR SLAB WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
3. UNLESS OTHERWISE NOTED, SIZE OF DIAGONAL BARS SHALL BE THE SIZE OF THE LARGEST NORMAL REINFORCING BAR CUT.
4. THIS DETAIL TO BE USED ONLY WHEN CALLED FOR ON THE DRAWINGS OR WHEN NO OTHER DETAILS IS SPECIFIED.

DIAGONAL REINFORCEMENT AT CIRCULAR OPENINGS (8" - 11" DIA.)

5 / –

NOT TO SCALE

6-11-03

CITY OF HENDERSON
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LAND DEVELOPMENT

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BY June 11, 2003

(06009)

JOSEPH E. FARRÉ
CIVIL
No. 13678
03/06/02

2001705025

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ATHENS LATERAL
PUMP STATION #3
STRUCTURAL NOTES AND DETAILS

DATE: 08/08/01
SCALE: NOT TO SCALE

DESIGN		DATE
DRAWN BY	R. WATSON	08/08/01
PROJ. ENGR.	E. MIRANDA	09/26/01
ENGR. MNGR.	R. CAPP	

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	BY	DATE		BY	DATE
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QLTY. CONTROL					

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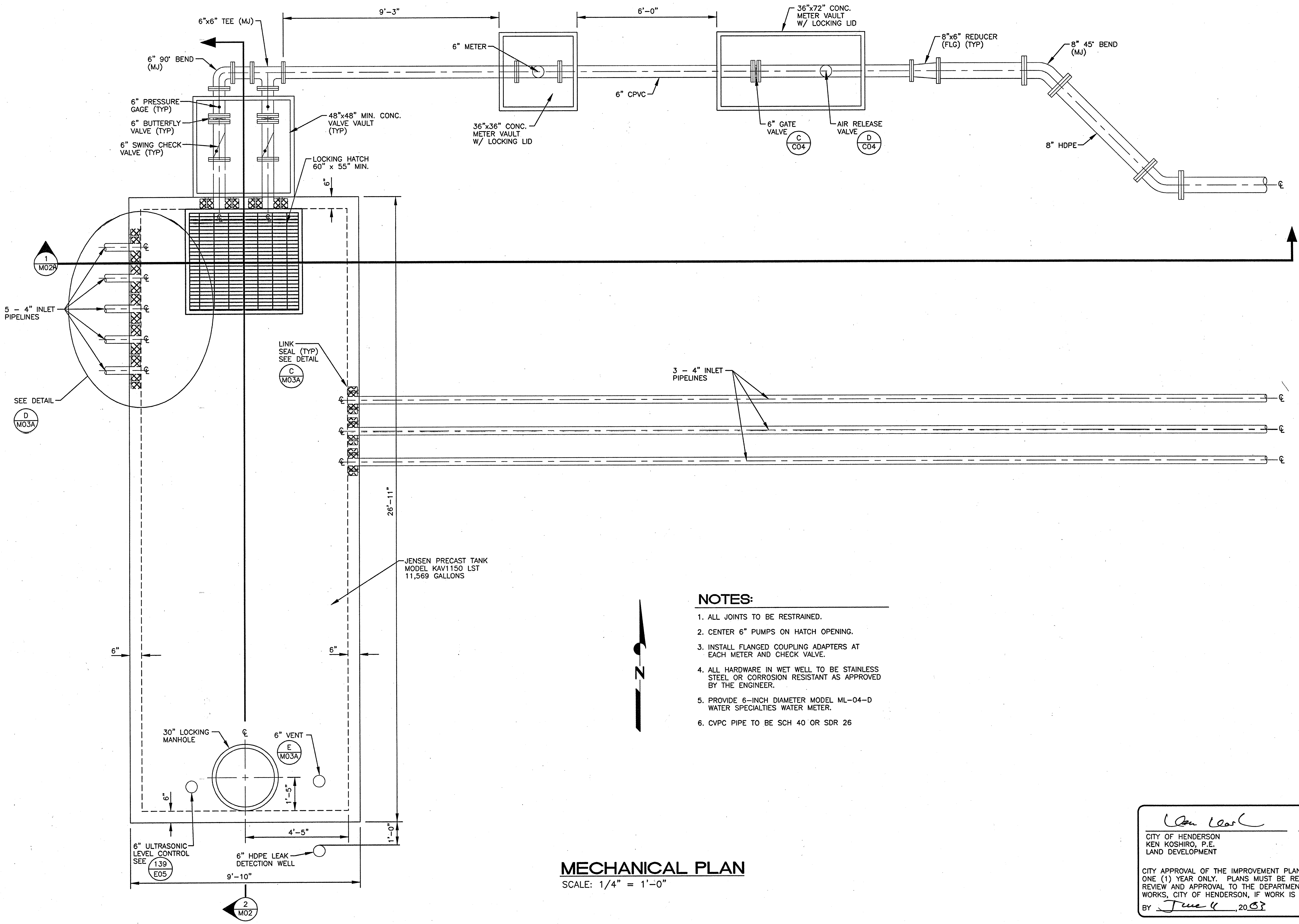
SHEET 11 OF 34
REVISION



NOTES:

1. ALL JOINTS TO BE RESTRAINED.
2. CENTER 6" PUMPS ON HATCH OPENING.
3. INSTALL FLANGED COUPLING ADAPTERS AT EACH METER AND CHECK VALVE.
4. ALL HARDWARE IN WET WELL TO BE STAINLESS STEEL OR CORROSION RESISTANT AS APPROVED BY THE ENGINEER.
5. PROVIDE 6-INCH DIAMETER MODEL ML-04-D WATER SPECIALTIES WATER METER.
6. CVPC PIPE TO BE SCH 40 OR SDR 26

MECHANICAL PLAN

SCALE: 1/4" = 1'-0"

Ken Kosh 6-11-02

CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT

DATE

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CIVIL
No. 12877

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		REVISION

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DESIGN		DATE
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PROJ. ENGR.		
ENGR. MNGR.	R. CAPP	

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	BY	DATE		BY	DATE
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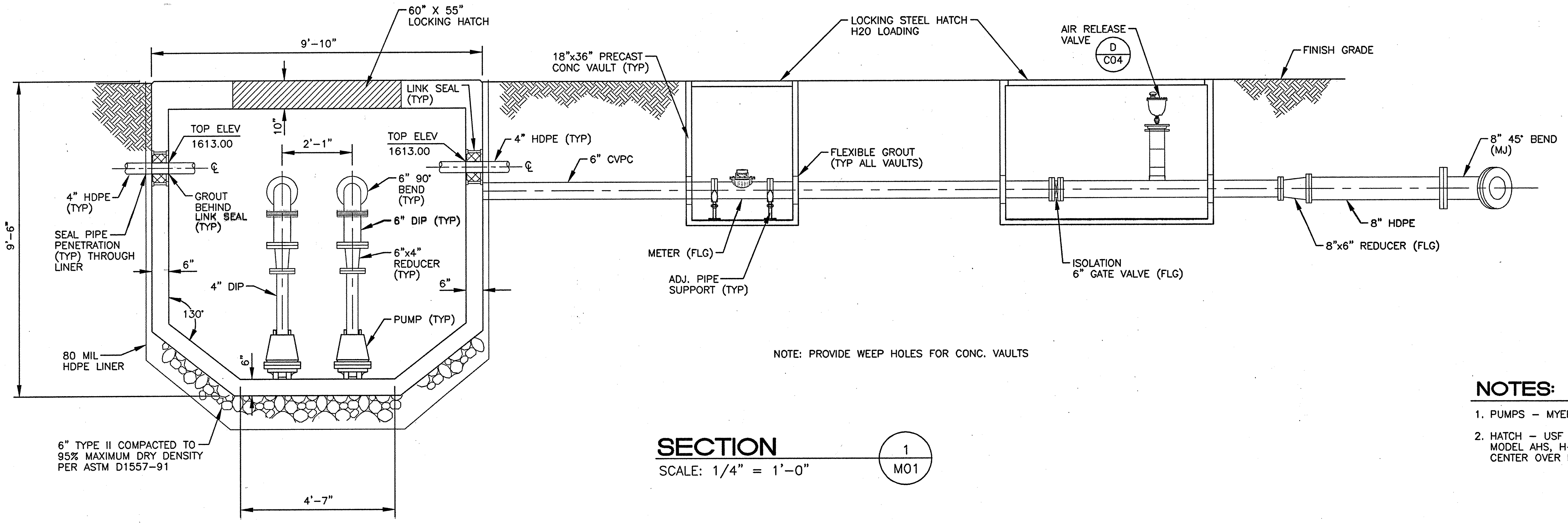
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

ATHENS LATERAL
PUMP STATION #3
PRECAST WETWELL MECHANICAL PLAN

DATE: 11/20/01 SCALE: 3/8" = 1'-0"



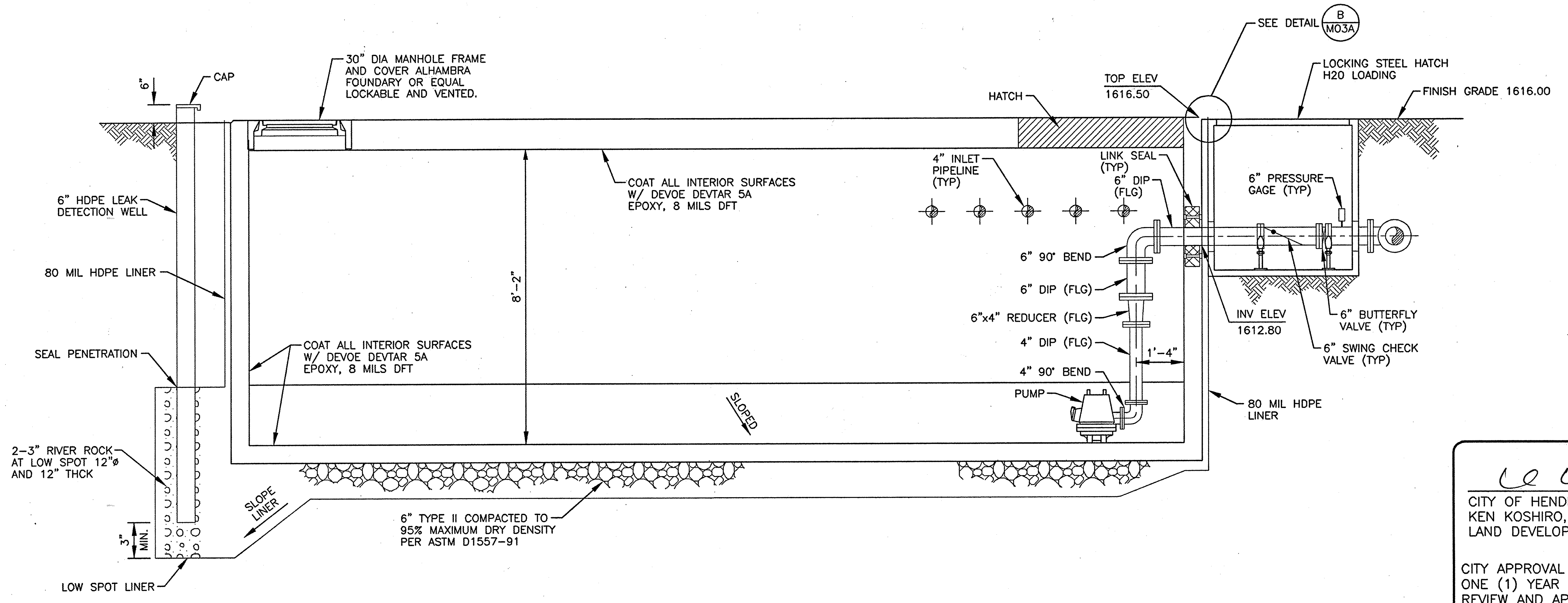
SECTION

SCALE: 1/4" = 1'-0"

1
M01

NOTES:

1. PUMPS – MYERS 4V-10HP
2. HATCH – USF FABRICATION MODEL AHS, H-20 LOADING CENTER OVER PUMPS.



SECTION

SCALE: 1/4" = 1'-0"

2
M01

CITY OF HENDERSON KEN KOSHIRO, P.E. LAND DEVELOPMENT	DATE

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BY __________, 2003

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RICHARD J. CAPP
CIVIL
No. 12877

(06009)

2001705025

Drawing: 51330-M02 / Date: 04/13/01 / Time:

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ATHENS LATERAL
PUMP STATION #3
PRECAST WETWELL MECHANICAL SECTIONS

DATE: 11/20/01
SCALE: 1/2"=1'-0"

DESIGN		DATE
DRAWN BY	C. LANA	XX/XX/XX
PROJ. ENGR.	R. CAPP	
ENGR. MNGR.	EM SPORE	

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
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OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

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M02-A

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OF 34

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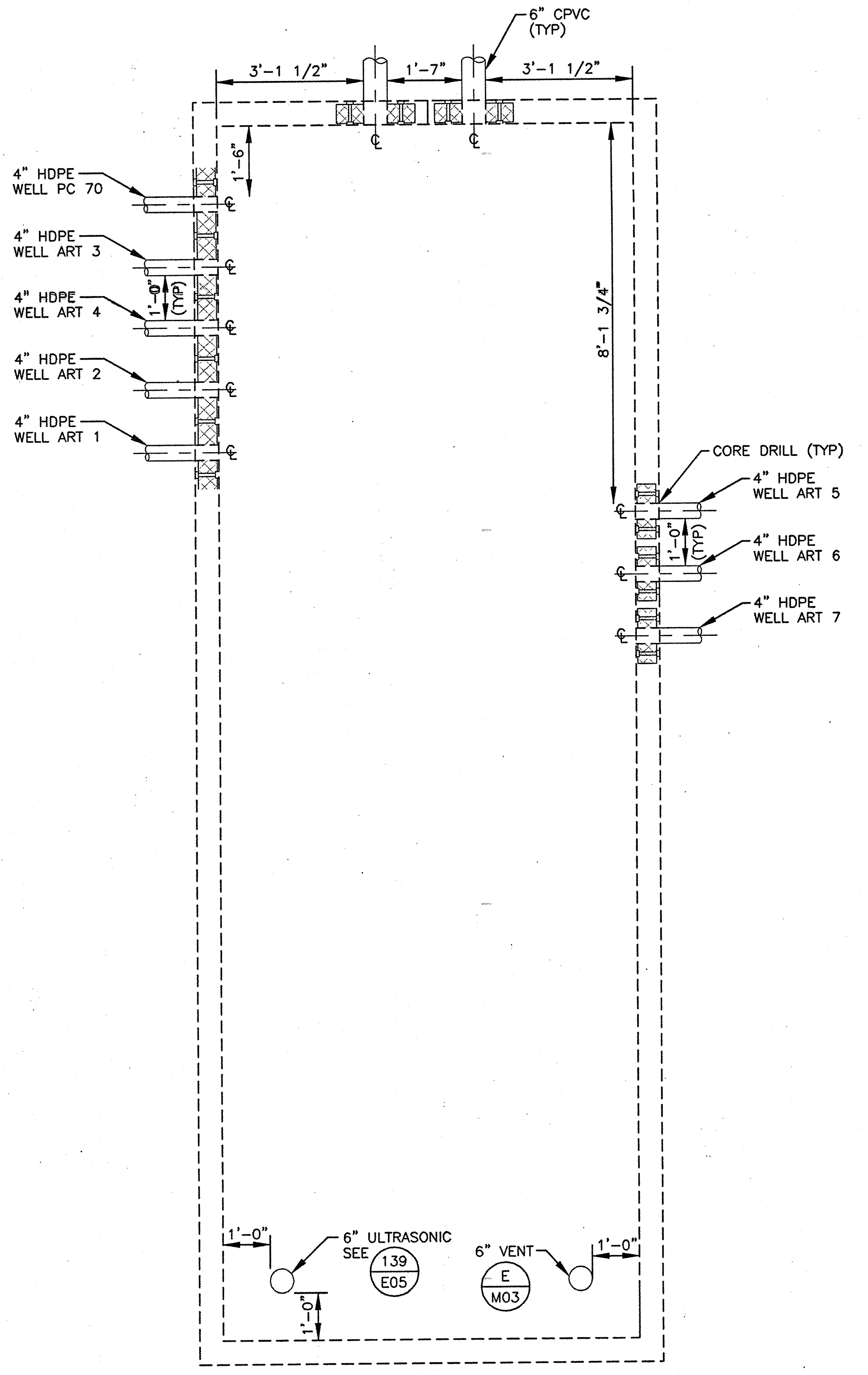
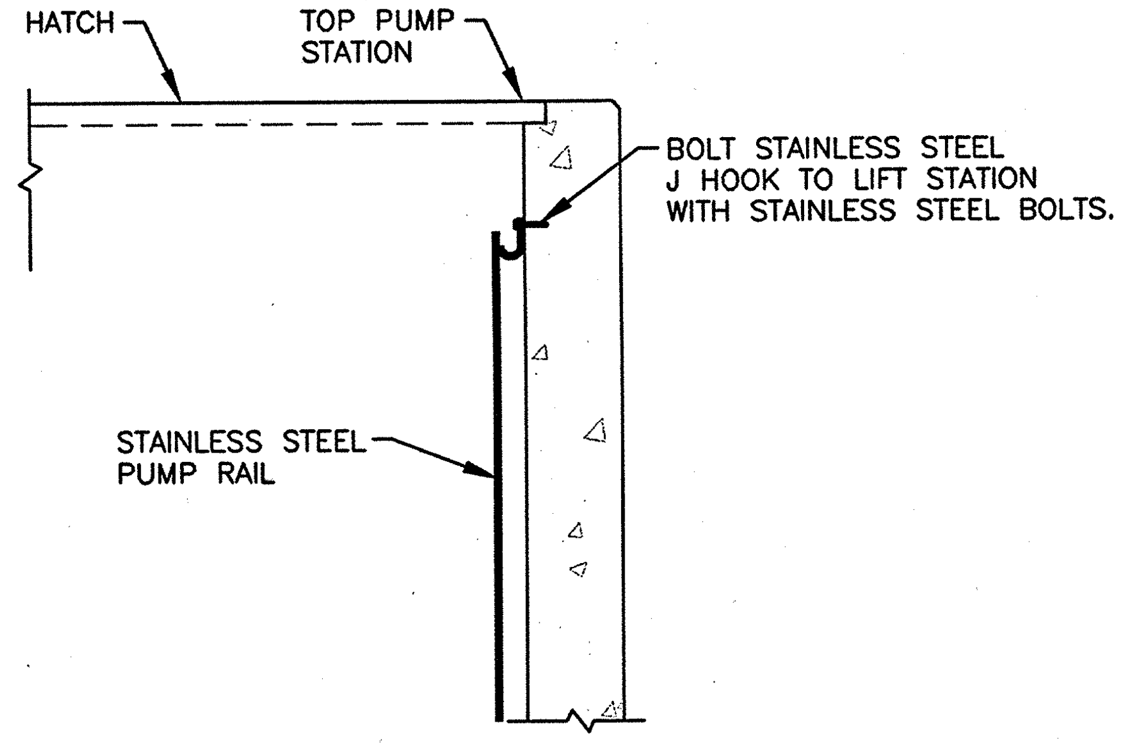
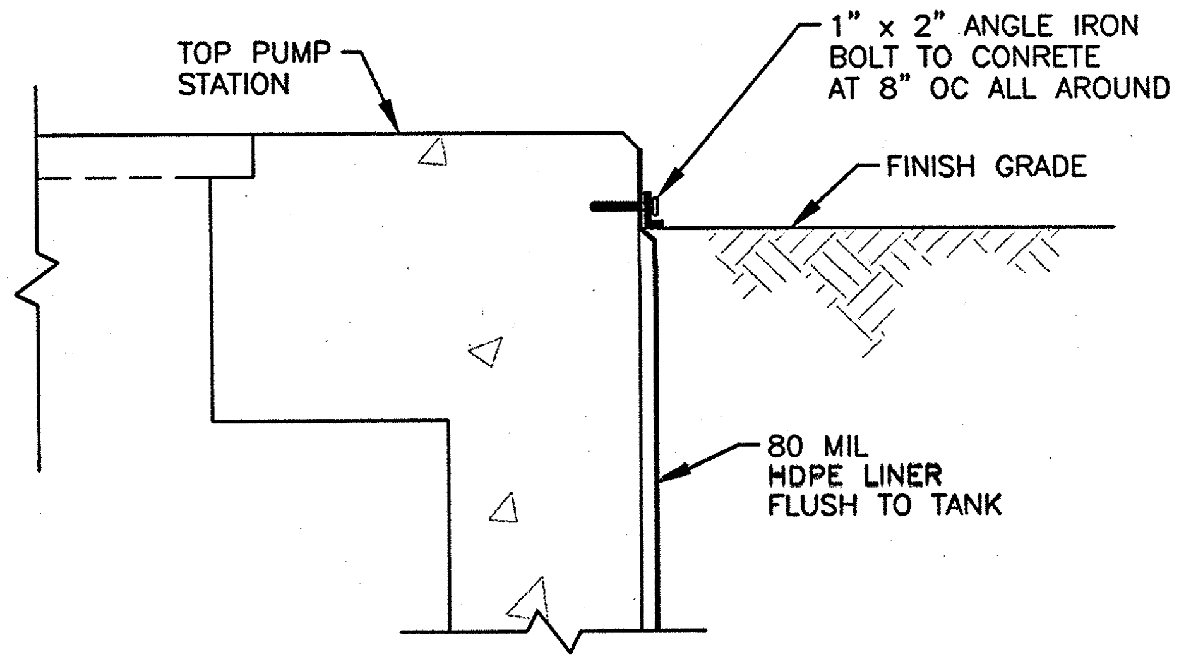


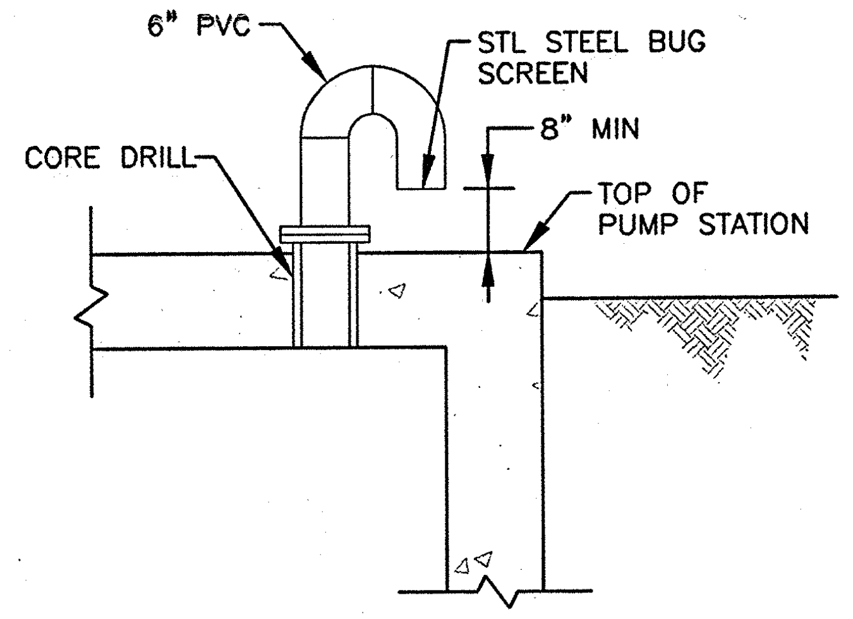
PIPE PENETRATIONS-PUMPSTATION
SCALE: 1/4" = 1'-0"
D
C02



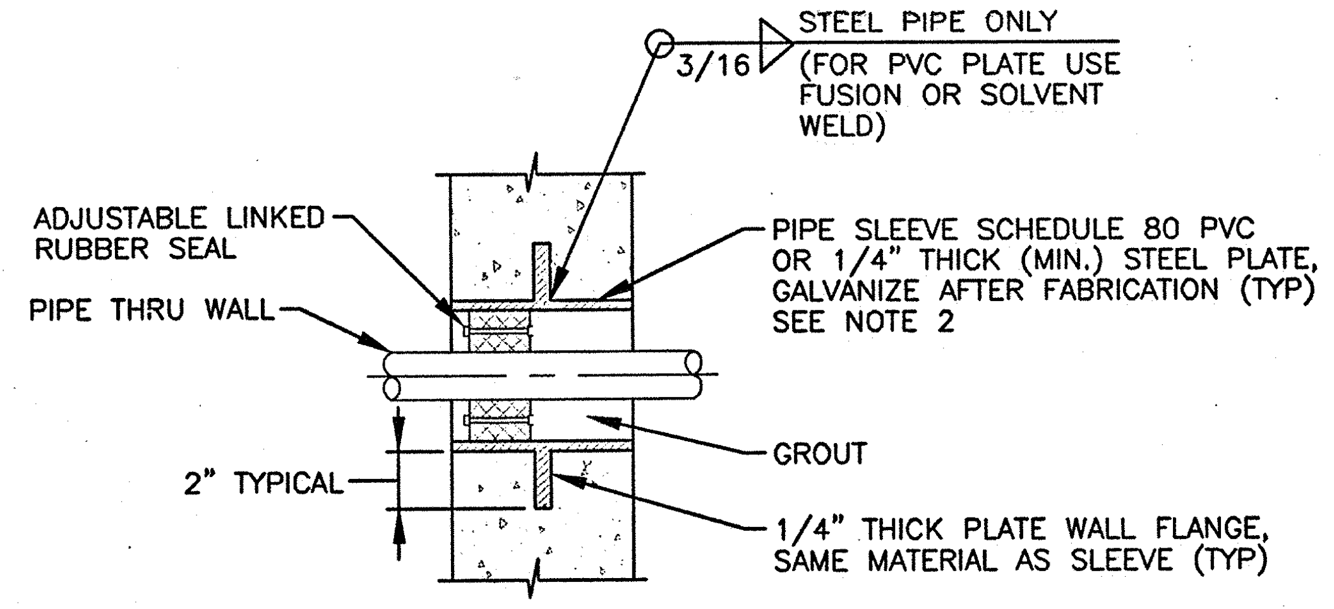
PUMP RAIL CONNECTION
NOT TO SCALE
A
M02



HDPE LINER CONNECTION
NOT TO SCALE
B
M01



VENT
SCALE: 1/4" = 1'-0"
E
M01



SLEEVE PIPE OPENING
NOT TO SCALE
C
M01

6-18-02

CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT

DATE

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED

BY June 11, 2003

Avoid cutting underground utility lines. It's costly.
Call before you Dig
1-800-227-2600

Avoid overhead power line contact. It's costly.
Call before you OVERHEAD
1-702-593-6111

RICHARD J. CAPP
CIVIL
No. 12877

2001705025

(06009)

KERR-McGEE CHEMICAL LLC

P.O. BOX 55 HENDERSON, NEV. 89009-7000

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
0.00 ±
0.000 ±

AFE No.

JOB No. 511330.00

PBS&J

ATHENS LATERAL
PUMP STATION #3
MECHANICAL DETAILS

DATE: 11/20/01
SCALE: AS NOTED

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE

DESIGN	DATE
DRAWN BY C. LANA	XX/XX/XX
PROJ. ENGR. R. CAPP	
ENGR. MNGR. EM SPORE	

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

PAPER SIZE	DRAWING NO.	SHEET
D	M03-A	14 OF 34

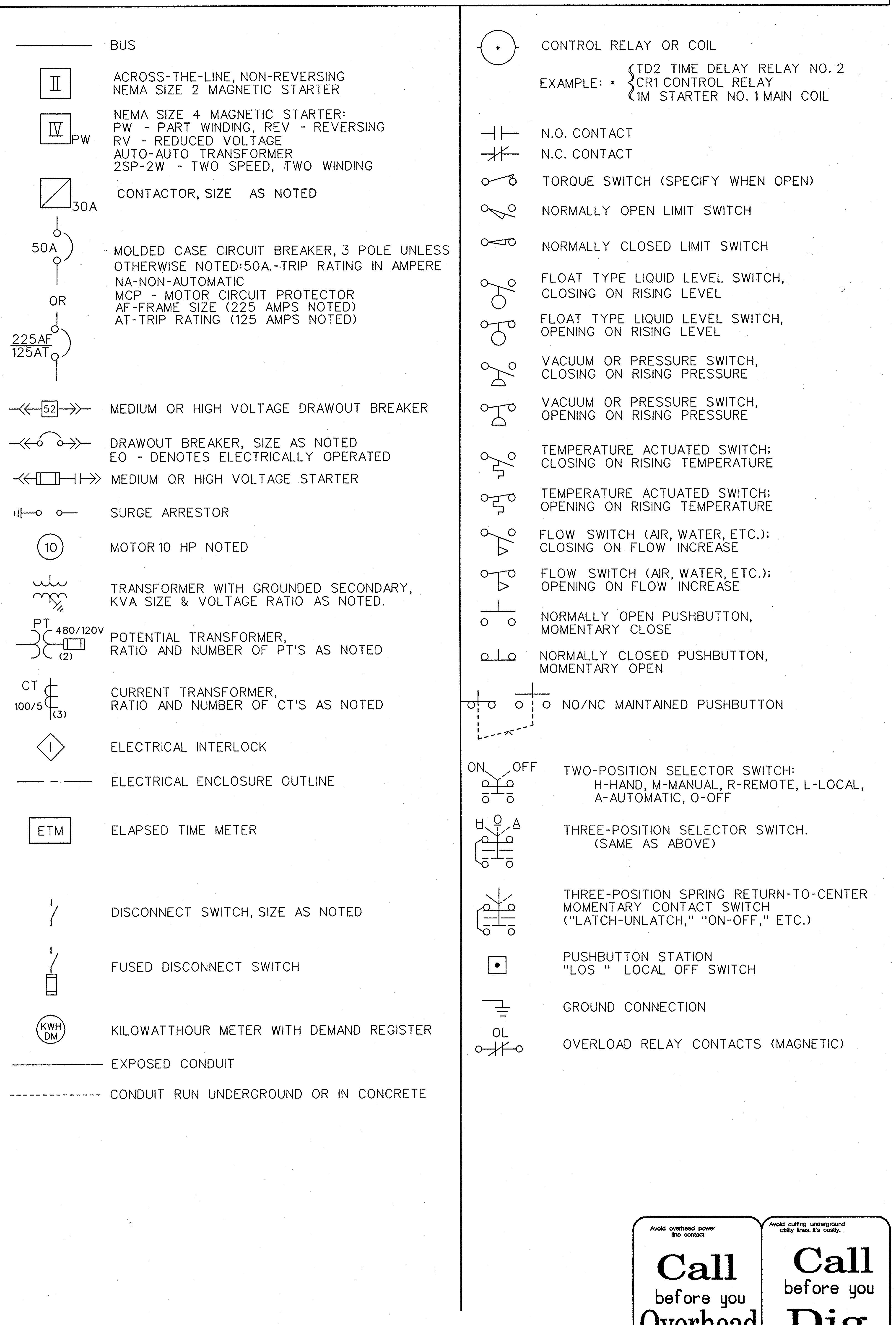
REVISION

Drawing: 51130-M03 / Date: 04/13/01 / Time:

ABBREVIATIONS

A	AMPERE, AMMETER
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONING
AF	AMPERE FRAME SIZE OF CKT. BRKRS.
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
AN	AMMETER
ANN	ANNUNCIATOR
AMP	AMPERES, AMPERAGE
APPR	APPROVED
AS	AMMETER SWITCH, ADJUSTABLE SPEED
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BKR	BREAKER
BBL	BUBBLER
BLDG	BUILDING
C	CONDUIT, CLOSED
CAB	CABINET
CB	CIRCUIT BREAKER
CC	CENTER TO CENTER
CKT	CIRCUIT
CO	CONDUIT ONLY
COND	CONDUIT
COMPT	COMPARTMENT
COMPR	COMPRESSOR
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER (IN INDIVIDUAL STARTER CUBICLE)
CR	CONTROL RELAY (MAGNETICALLY HELD)
CR	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DH	DATA HIGHWAY
DISC	DISCONNECT
DISTR	DISTRIBUTION
DOT	DIRECTION OF TRAVEL
DPDT	DOUBLE POLE DOUBLE THROW
DWG	DRAWING
E	EMPTY, EMERGENCY
ELEV	ELEVATION
EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EP	EXPLOSION PROOF
EQPT	EQUIPMENT
ER	CONDUCTANCE LEVEL RELAY
ETM	ELAPSED TIME METER
EXH	EXHAUST
EXIST	EXISTING
F<	FREQUENCY
FDR	FEEDER
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FM	FREQUENCY METER
FUT	FUTURE
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
FWD	FORWARD CONTACTOR COIL
GALV	GALVANIZED
GEN	GENERATOR
GRD	GROUND
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HIGH	HIGH SPEED CONTACTOR
HOA	HAND-OFF-AUTOMAITC
HP	HORSE POWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HZ	HERTZ
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IND	INDICATION (SYSTEM)
I/O	INPUT/OUTPUT
INST	INSTANTANEOUS (TD CONTACT)
INSTR	INSTRUMENT
ISC	SHORT CIRCUIT CURRENT (AMPS)
INVT	INVERT
JB	JUNCTION BOX
J BOX	JUNCTION BOX
KVA	KILO (1000) VOLT AMPS
KW	KILOWATTS
KWH	KILOWATT HOUR
LC	LIGHTING CONTACTOR
LCB	LOCAL CONTROL BOARD
LCP	LOCAL CONTROL PANEL
LOC	LOCAL
LOS	PUSHBUTTON W/ "LOCK-OUT-STOP"
LS	LEVEL SWITCH
LT	LIGHT
LTS	LIGHTS
LTG	LIGHTING
LOW	LOW SPEED CONTACTOR
M	MOTOR CONTACTOR COIL
MA	MILLIAMPS
MAN	MANUAL
MAG	MAGNETIC
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCB	MAIN CONTROL BOARD
MCM	THOUSAND CIRCULAR MILS
MD	MOTORIZED DAMPER
MH	MANHOLE
MIN	MINUTES, MINIMUM
MLO	MAIN LUGS ONLY
MOV	MOTOR OPERATED VALVE
MS	MOTOR STARTER
MT	MOUNT
MTD	MOUNTED
MTR	MOTOR
MUX	MULTIPLEXING PANEL
N	NEUTRAL
NA	NON-AUTOMATIC
NC	NORMALLY CLOSED
NO	NUMBER, NORMALLY OPEN
NOS	NUMBERS
NP	NAMEPLATE
NIC	NOT IN CONTRACT
NITS	NOT IN THIS SECTION
NTS	NOT TO SCALE
O	OPEN
OC	ON CENTER
OL	OVERLOAD RELAY
P	POLE
PB	PULL BOX
PCM	PROCESS CONTROL MODULE
PCP	PROESS CONTROL PANEL
PF	POWER FACTOR
PH, O	PHASE
PNL	PANEL
PNLBD	PANELBOARD
POS	POSITION
POT	POTENTIOMETER
PRI	PRIMARY
PS	POWER SOURCE
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PW	PART WINDING
PWR	POWER
REC	RECEPTACLE
RECPTS	RECEPTACLES
REQ'D	REQUIRED
REV	REVERSE CONTACTOR COIL
RGS	RIGID GALVANIZED STEEL
RUN	RUN CONTACTOR COIL
RTU	REMOTE TERMINAL UNIT
RVAT	REDUCED VOLTAGE AUTO-TRANSFORMER
RVNR	REDUCED VOLTAGE NON-REVERSING
SCH	SCHEDULE
SEC	SECONDS, SECONDARY
SECT	SECTION
SEL SW	SELECTOR SWITCH
SEQ	SEQUENCE
SHLD	SHIELDED
SHT	SHEET
SIG	SIGNAL
S1, S2	START CONTACTOR COILS
SP	SPARE
SPDT	SINGLE POLE DOUBLE THROW
SPECS	SPECIFICATIONS
SP HTR	SPACE HEATER
SPST	SINGLE POLE SINGLE THROW
ST, SH	SHUNT TRIP
STA	STATION
STD	STANDARD
STL	STEEL
STR	STARTER
SV	SOLENOID VALVE
SW	SWITCH
SYS	SYSTEM
TB	TERMIAL BOX
TC	TIME CLOSK
TACH	TACHOMETER
TEMP	TEMPERATURE
TERM	TERMINAL
TH	THERMOSTAT
TM	REPEAT CYCLE TIMER
TD	TIME DELAY RELAY
TS	TEMPERATUER SWITCH
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
US	UNIT SUBSTATION
UST	UNIT SUBSTATION TRANSFORMER
V	VOLTAGE, VOLTS
VAR	VAR METER
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE (OTHER THAN VFD)
VP	VAPORPROOF
VS	VARIABLE SPEED, VOLTMETER SWITCH
W	WATTS, WIRE
WHD	WATTHOUR DEMAND METER
WHM	WATTHOUR METER
WP	WEATHERPROOF
XD	TRANSDUCER
XFMR	TRANSFORMER
XMTR	TRANSMITTER

SYMBOLS



BUS

ACROSS-THE-LINE, NON-REVERSING
NEMA SIZE 2 MAGNETIC STARTER

NEMA SIZE 4 MAGNETIC STARTER:
PW - PART WINDING, REV - REVERSING
RV - REDUCED VOLTAGE
AUTO-AUTO TRANSFORMER
2SP-2W - TWO SPEED, TWO WINDING

CONTACTOR, SIZE AS NOTED

MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED:50A.-TRIP RATING IN AMPERE
NA-NON-AUTOMATIC
MCP - MOTOR CIRCUIT PROTECTOR
AF-FRAME SIZE (225 AMPS NOTED)
AT-TRIP RATING (125 AMPS NOTED)

MEDIUM OR HIGH VOLTAGE DRAWOUT BREAKER

DRAWOUT BREAKER, SIZE AS NOTED
EO - DENOTES ELECTRICALLY OPERATED

MEDIUM OR HIGH VOLTAGE STARTER

SURGE ARRESTOR

MOTOR 10 HP NOTED

TRANSFORMER WITH GROUNDED SECONDARY, KVA SIZE & VOLTAGE RATIO AS NOTED.

POTENTIAL TRANSFORMER, RATIO AND NUMBER OF PT'S AS NOTED

CURRENT TRANSFORMER, RATIO AND NUMBER OF CT'S AS NOTED

ELECTRICAL INTERLOCK

ELECTRICAL ENCLOSURE OUTLINE

ELAPSED TIME METER

DISCONNECT SWITCH, SIZE AS NOTED

FUSED DISCONNECT SWITCH

KILOWATTHOUR METER WITH DEMAND REGISTER

EXPOSED CONDUIT

CONDUIT RUN UNDERGROUND OR IN CONCRETE

CONTROL RELAY OR COIL

EXAMPLE: * TD2 TIME DELAY RELAY NO. 2
CR1 CONTROL RELAY
1M STARTER NO. 1 MAIN COIL

N.O. CONTACT

N.C. CONTACT

TORQUE SWITCH (SPECIFY WHEN OPEN)

NORMALLY OPEN LIMIT SWITCH

NORMALLY CLOSED LIMIT SWITCH

FLOAT TYPE LIQUID LEVEL SWITCH, CLOSING ON RISING LEVEL

FLOAT TYPE LIQUID LEVEL SWITCH, OPENING ON RISING LEVEL

VACUUM OR PRESSURE SWITCH, CLOSING ON RISING PRESSURE

VACUUM OR PRESSURE SWITCH, OPENING ON RISING PRESSURE

TEMPERATURE ACTUATED SWITCH; CLOSING ON RISING TEMPERATURE

TEMPERATURE ACTUATED SWITCH; OPENING ON RISING TEMPERATURE

FLOW SWITCH (AIR, WATER, ETC.); CLOSING ON FLOW INCREASE

FLOW SWITCH (AIR, WATER, ETC.); OPENING ON FLOW INCREASE

NORMALLY OPEN PUSHBUTTON, MOMENTARY CLOSE

NORMALLY CLOSED PUSHBUTTON, MOMENTARY OPEN

NO/NC MAINTAINED PUSHBUTTON

TWO-POSITION SELECTOR SWITCH:
H-HAND, M-MANUAL, R-REMOTE, L-LOCAL, A-AUTOMATIC, O-OFF

THREE-POSITION SELECTOR SWITCH. (SAME AS ABOVE)

THREE-POSITION SPRING RETURN-TO-CENTER MOMENTARY CONTACT SWITCH ("LATCH-UNLATCH," "ON-OFF," ETC.)

PUSHBUTTON STATION "LOS " LOCAL OFF SWITCH

GROUND CONNECTION

OVERLOAD RELAY CONTACTS (MAGNETIC)

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KEITH E. SMITH
EE
No. 14457
2-18-02

(06009)

PAPER SIZE
D

DRAWING NO.
GE-1

SHEET 15
OF 34
REVISION

KERR-McGEE CHEMICAL LLC
P.O. BOX 55 HENDERSON, NEV. 89009-7000

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0.000 ±
AFE No. ______ JOB No. ______

DESIGN	DATE
DRAWN BY K. SMITH	
PROJ. ENGR. K. SMITH	
ENGR. MNGR. S. HINMAN	

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

ATHENS LATERAL WELLFIELD AND PUMP STATION #3
ELECTRICAL
ABBREVIATIONS AND SYMBOLS
DATE:
SCALE:

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE

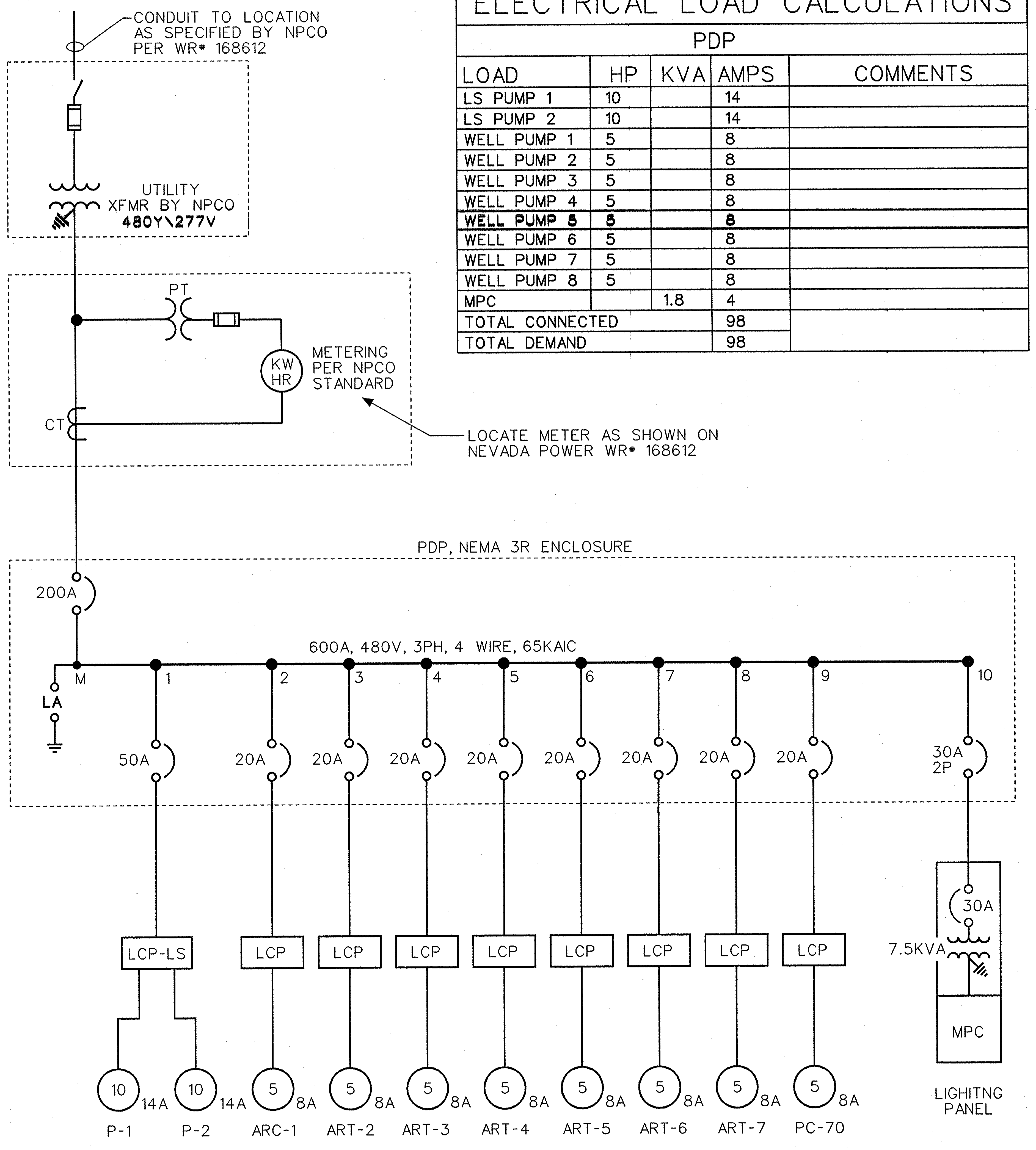
PBS&J
5010 GREEN VALLEY PKWY
SUITE 100
HENDERSON, NEVADA 89014
TELEPHONE: 702/263-7275
FAX: 702/263-7200
ENGINEERING PLANNING SURVEYING CONSTRUCTION SERVICES

DATE 18-FEB-2002 TIME 09:18 JOB No. 1327235.013582 FILE No. f:\pbs&j\km\alls*3\alls3ge1.dgn

CABLE NO.	CONDUIT		POWER	CONTROL	SIGNAL	FROM	TO
	NO.	SIZE					
U-1	1	2"	3*3/0 & 1*6GND			UTILITY XFMR	PDP
P-1		1"	3*8 & 1*10GND			PDP	LCP-LS
P-2			3*12 & 1*12GND				LCP-ART-1
P-3							LCP-ART-2
P-4							LCP-ART-3
P-5							LCP-ART-4
P-6							LCP-ART-5
P-7							LCP-ART-6
P-8							LCP-ART-7
P-9							LCP-PC-70
P-10			2*10 & 1*12GND				MPC
P-11			2*12 & 1*12GND			MPC	LIT-1
P-12							FIT-1
P-13							RADIO/XMTR
P-14							LIGHT
P-15							RECEPTACLE
P-1A		1¼"	6*12 & 1*12GND	8*14		LCP-LS	MOTOR TERMINAL BOX
P-2A		1"	3*12 & 1*12GND			LCP-ART-1	ART-1 VAULT J-BOX
P-3A						LCP-ART-2	ART-2 VAULT J-BOX
P-4A						LCP-ART-3	ART-3 VAULT J-BOX
P-5A						LCP-ART-4	ART-4 VAULT J-BOX
P-6A						LCP-ART-5	ART-5 VAULT J-BOX
P-7A						LCP-ART-6	ART-6 VAULT J-BOX
P-8A						LCP-ART-7	ART-7 VAULT J-BOX
P-9A						LCP-PC-70	PC-70 VAULT J-BOX
C-1	1	1"		2*14		LCP-WC	LCP-ART-1
C-2							LCP-ART-2
C-3							LCP-ART-3
C-4							LCP-ART-4
C-5							LCP-ART-5
C-6							LCP-ART-6
C-7							LCP-ART-7
C-8							LCP-PC-70
C-9				10*14			LVL SW J-BOX
C-10				4*14			PRESS SW J-BOX
C-11				4*14			RADIO
C-12				2*14		LCP-ART-1	
C-13						LCP-ART-2	
C-14						LCP-ART-3	
C-15						LCP-ART-4	
C-16						LCP-ART-5	
C-17						LCP-ART-6	
C-18						LCP-ART-7	
C-19						LCP-PC-70	
C-20				4*14		LCP-LS	LPC-WC
S-1	1	1"			2*16 TSP	LIT-1	RADIO
S-2	1	1"			2*16 TSP	FIT-1	RADIO

240/120V VOLTS 1 Φ 3 W
40A MAIN
PANELBOARD MPC
LOCATION
FEED BOTTOM
MTG SURFACE

LOAD DESCRIPTION	VOLT AMPERE		LTG	REC	MIS	CIR	BKR		BKR	CIR	MIS	REC	LTG	VOLT AMPERE		LOAD DESCRIPTION
	ΦA	ΦB												ΦA	ΦB	
FLOW XMTR (FIT-1)	300				1	1				2	2			600		RADIO & XMTR
LEVEL XMTR (LIT-1)		300			1	3				4			1		300	LIGHTING
						5				6		1		180		RECEPTACLES
						7				8						
						9				10						
						11				12						
						13				14						
						15				16						
						17				18						
						19				20						
						21				22						
						23				24						
						25				26						
						27				28						
						29				30						
						31				32						
						33				34						
						35				36						
						37				38						
						39				40						
						41				42						
	300	300				TOTAL			TOTAL					780	300	
	PHASE TOTAL		TOTAL LOAD							PROVIDE: 30A PRIMARY BREAKER AND 40A SECONDARY BREAKER WITH 7.5KVA 480-240/120V, 1PH, 3W XFMR.						
	1080	600	1.7 KVA (4 AMP)													



SINGLE LINE DIAGRAM

ELECTRICAL LOAD CALCULATIONS

PDP				
LOAD	HP	KVA	AMPS	COMMENTS
LS PUMP 1	10		14	
LS PUMP 2	10		14	
WELL PUMP 1	5		8	
WELL PUMP 2	5		8	
WELL PUMP 3	5		8	
WELL PUMP 4	5		8	
WELL PUMP 5	5		8	
WELL PUMP 6	5		8	
WELL PUMP 7	5		8	
WELL PUMP 8	5		8	
MPC		1.8	4	
TOTAL CONNECTED			98	
TOTAL DEMAND			98	

LIGHTING FIXTURE SCHEDULE

TYPE	WATTS	VOLTS	DESCRIPTION
HP1	250W HPS	120	POLE MOUNTED, HIGH PRESSURE SODIUM, HYDROFORMED ANODIZED ALUMINUM REFLECTOR, FORWARD THROW CLEAR TEMPERED GLASS, FADE RESISTANT, BRONZE, BAKED ON POLYESTER POWDER PAINT, UL LISTED FOR WET LOCATION HOLOPHANE LUMINAIRE CAT NO. SMST-250HP-12-BZ-CF SOMERSET POLE CAT NO. CSZSQ-12/J-1A OR EQUAL

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KEITH E. SMITH EE
No. 14457
2-15-02

(06009)

PAPER SIZE D
DRAWING NO. E-1
SHEET 16 OF ~~23~~ 34
REVISION

KERR-McGEE CHEMICAL LLC
P.O. BOX 55 HENDERSON, NEV. 89009-7000

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No. 0.00 ±
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JOB No.

ATHENS LATERAL WELLFIELD AND PUMP STATION #3
ELECTRICAL
DIAGRAMS AND SCHEDULES
SCALE: NONE
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		PRODUCTION SUPT.			PLANT MNGR.		
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SUITE 100
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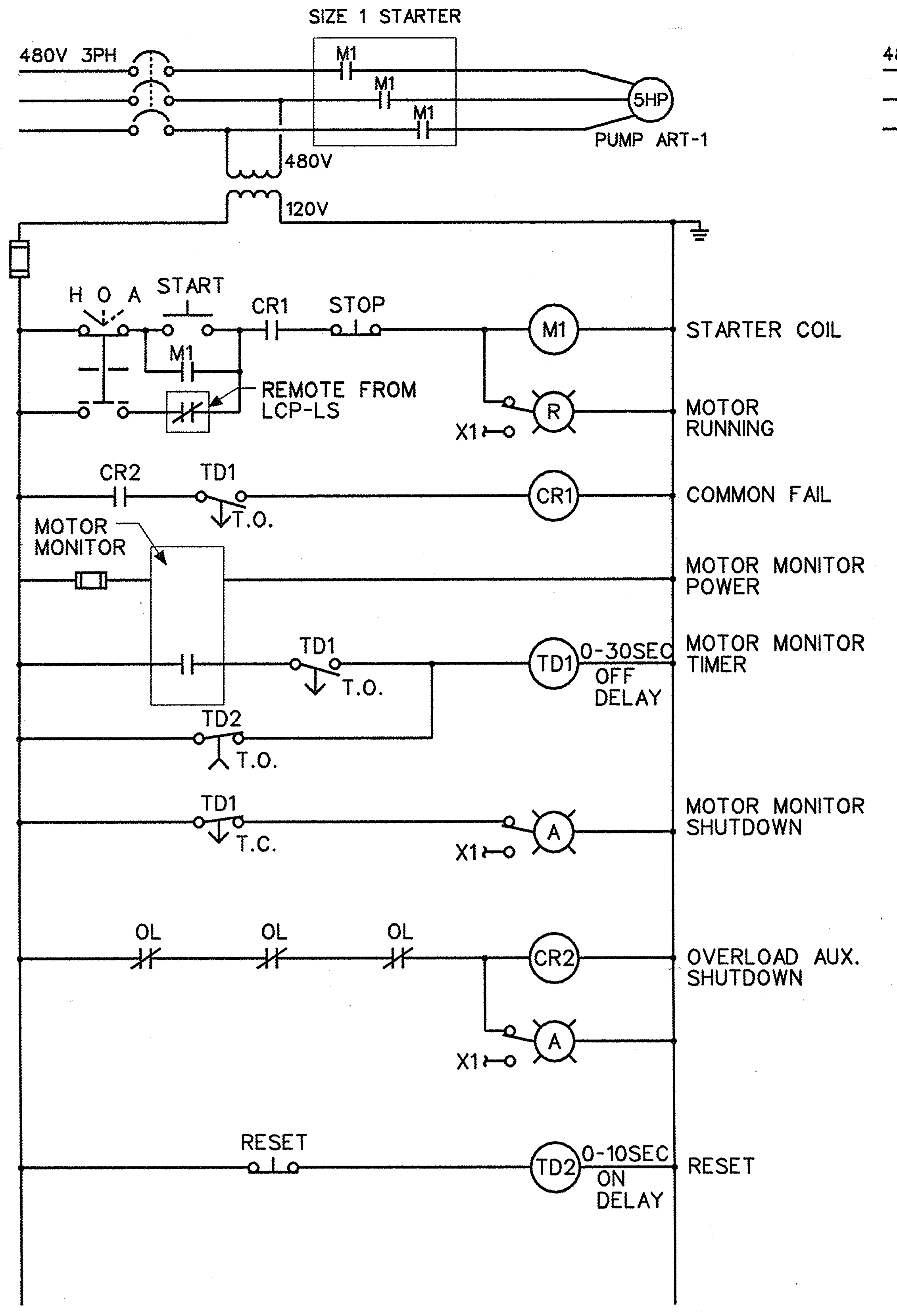
ENGINEERING PLANNING SURVEYING CONSTRUCTION SERVICES

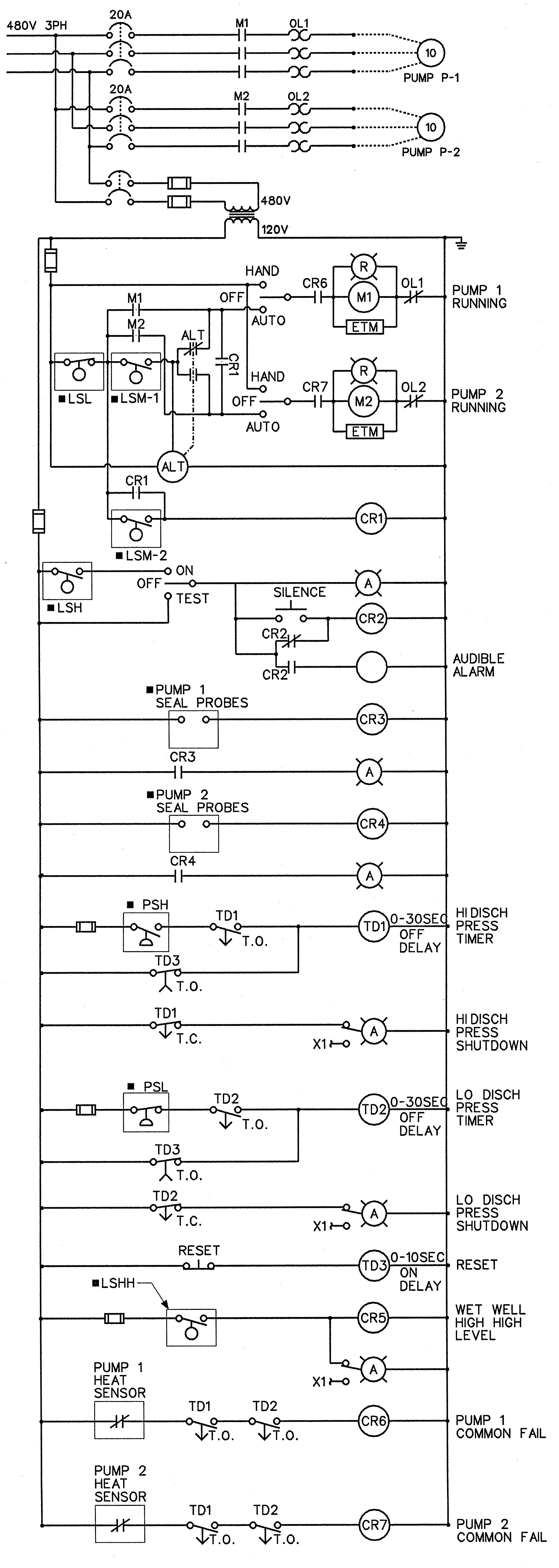
DATE 18-FEB-2002 TIME 09:18 JOB No. 1327235.013582 FILE No. f:\pbs&j\km\alls*3\alls3e01.dgn



WELL PUMP LCP
(LCP-ART-1)

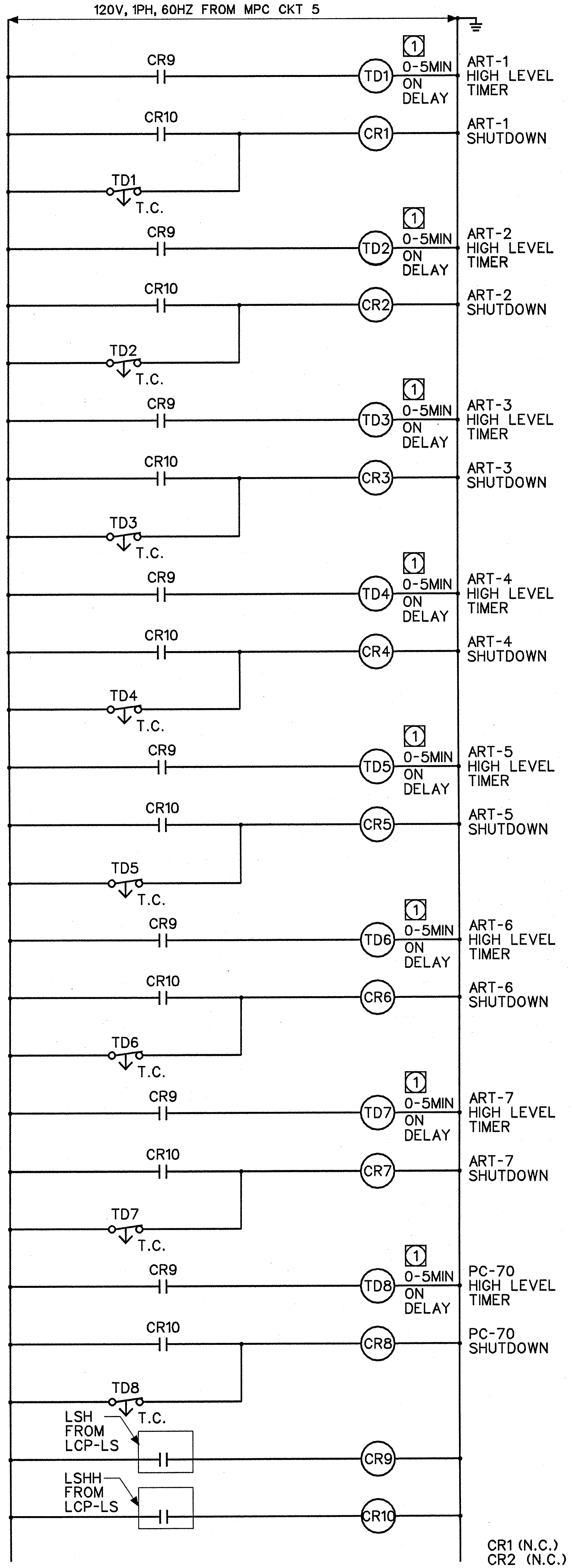
SIMILAR FOR ART-2, ART-3, ART-4, ART-5, ART-6, ART-7, PC-70

M1 (N.O.) TO RADIO



LIFT STATION LCP
(LCP-LS)

M1 (N.O.) TO RADIO
M2 (N.O.) TO RADIO
CR2 (N.O.) TO LCP-WC
CR5 (N.O.) TO LCP-WC



WELL CONTROL LCP
(LCP-WC)

CR1 (N.C.) TO LCP-ART-1
CR2 (N.C.) TO LCP-ART-2
CR3 (N.C.) TO LCP-ART-3
CR4 (N.C.) TO LCP-ART-4
CR5 (N.C.) TO LPC-ART-5
CR6 (N.C.) TO LCP-ART-6
CR7 (N.C.) TO LCP-ART-7
CR8 (N.C.) TO LCP-PC-70

NOTES:

1 TIMER SHALL BE ADJUSTABLE FROM THE FRONT OF THE PANEL

MWH
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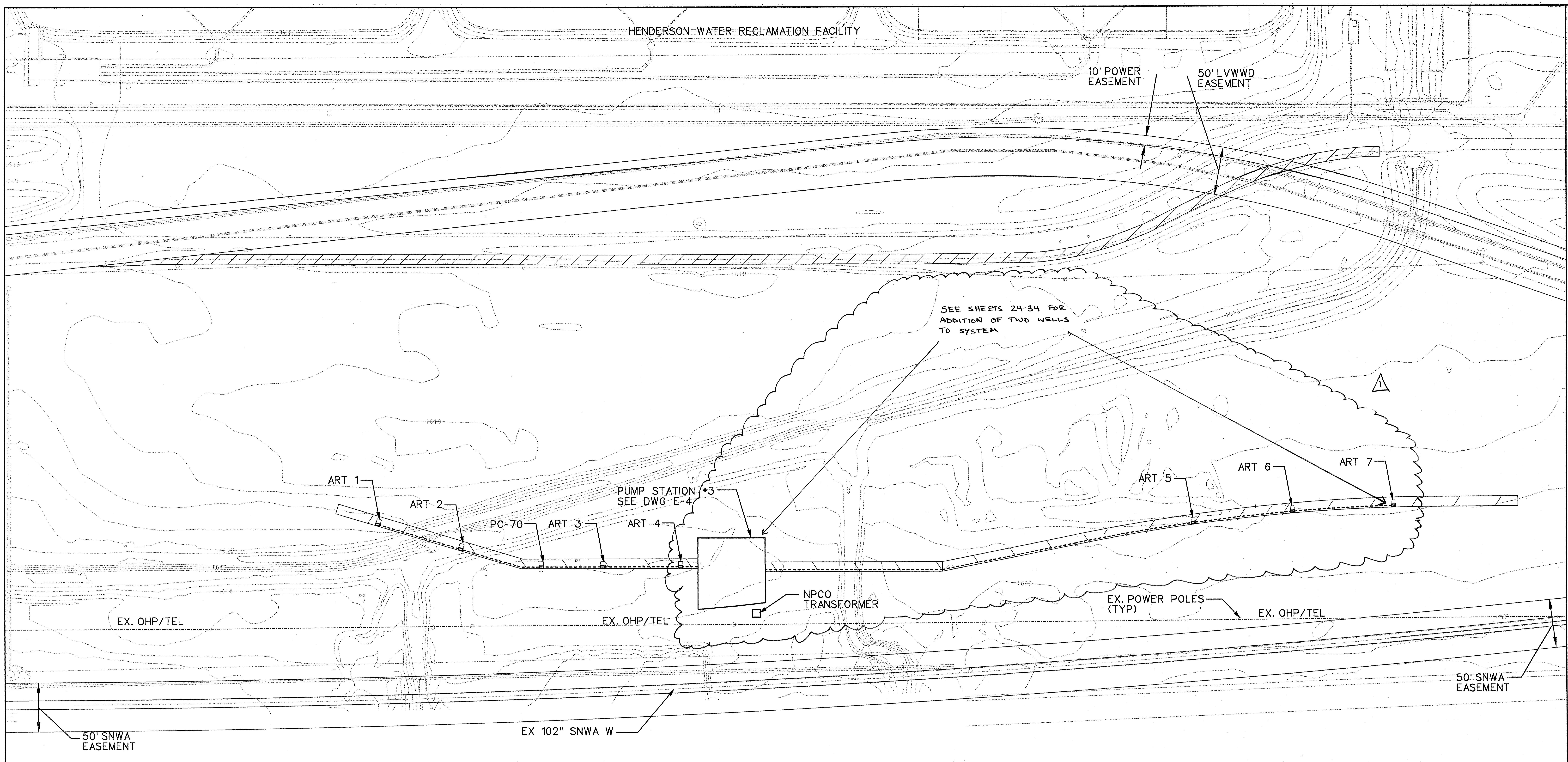
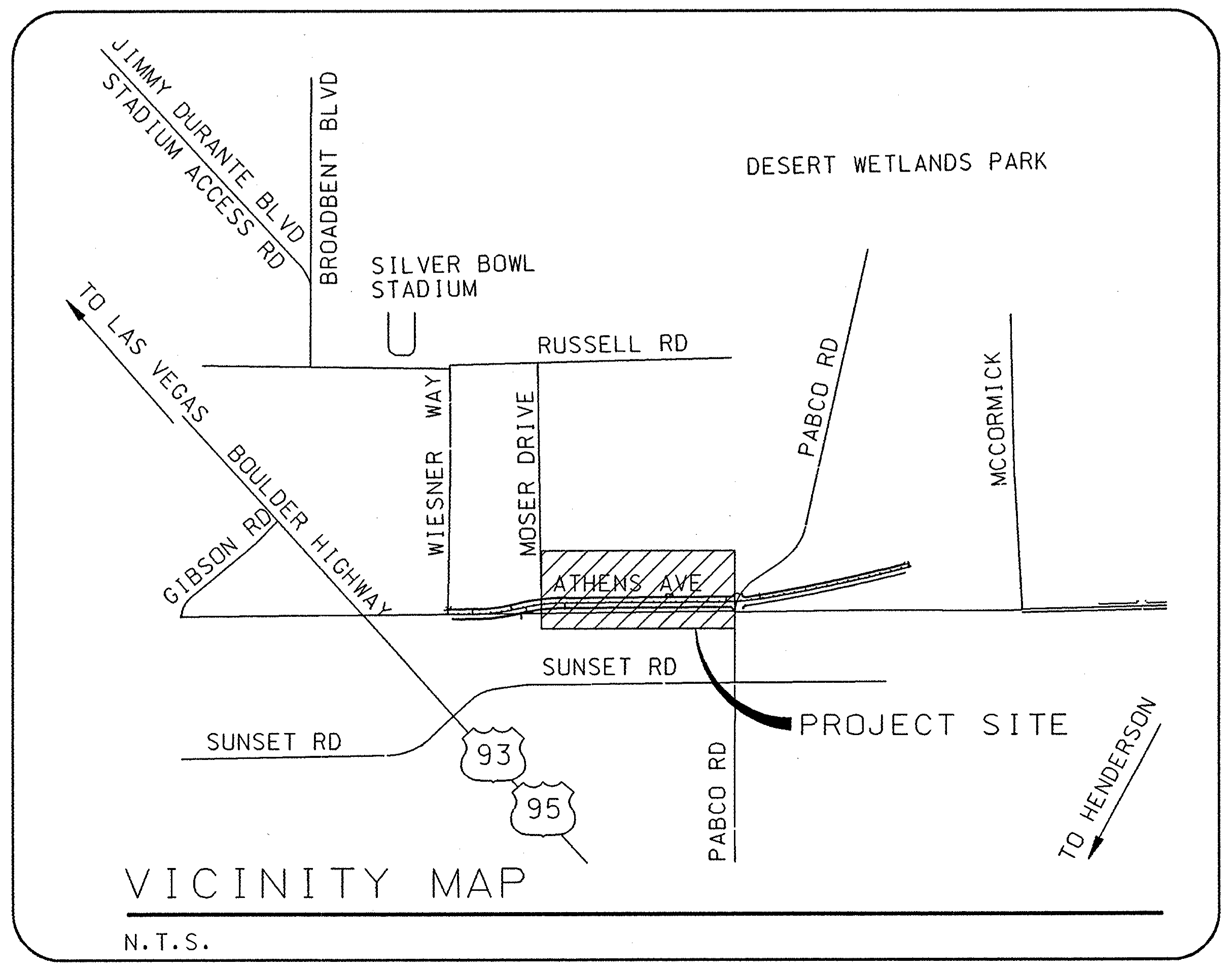
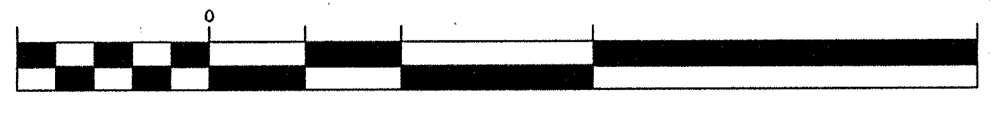




VICINITY MAP

N.T.S.

GRAPHIC SCALE



(IN FEET)
1 inch = 50 ft.

REVISION
1 ONLY

JONATHAN D. TULL
Exp. 06/30/2016
CIVIL
No. 14581
6-24-14

Avoid overhead power line contact
Call before you **Overhead**
1-702-593-6111
NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

Avoid cutting underground utility lines. It's costly.
Call before you **Dig.**
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

MWH
MONTGOMERY WATSON HARZA

MONTGOMERY WATSON HARZA
3014 WEST CHARLESTON BLVD
LAS VEGAS, NV 89102
(702) 878-8010

2001705025

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KEITH E. SMITH
EE
No. 14457
2-18-02

(06009)

KERR-McGEE CHEMICAL LLC

P.O. BOX 55 HENDERSON, NEV. 89009-7000

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
0.00 ±
0.000 ±

AFE No. ______ JOB No.

ATHENS LATERAL WELLFIELD AND PUMP STATION #3

ELECTRICAL SITE PLAN 1

SCALE: 1" = 50'

DATE:

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE
1	ADDED REFERENCE NOTE FOR THE ADDITION OF TWO WELLS TO SYSTEM	JDT	3/24/14

PBS&J
901 N. GREEN VALLEY PKWY
SUITE 100
HENDERSON, NEVADA 89014
TELEPHONE: 702/263-7275
FAX: 702/263-7200
ENGINEERING PLANNING SURVEYING CONSTRUCTION SERVICES

DESIGN	DATE	APPROVED FOR CONSTRUCTION	BY	DATE		BY	DATE
DRAWN BY		SAFETY			PROCESS ENGR.		
PROJ. ENGR.		ENVIRONMENTAL			PROJECT ENGR.		
ENGR. MNGR.		OPERATIONS MNGR.			ENGR. MNGR.		
		PRODUCTION SUPT.			PLANT MNGR.		
		QLTY. CONTROL					

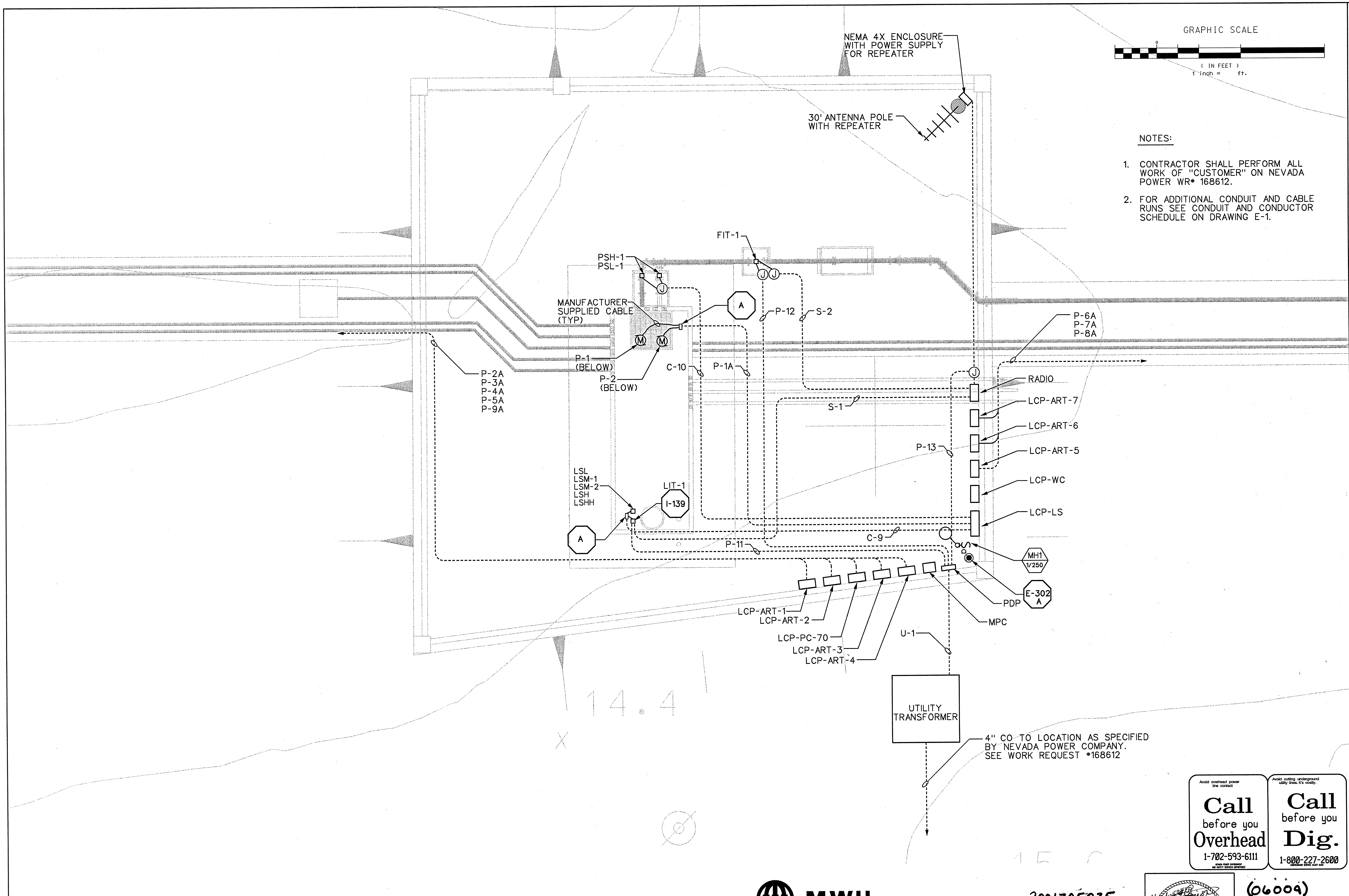
PAPER SIZE
D

DRAWING NO.
E-3

SHEET 18
OF ~~23~~ 34

REVISION

DATE 18-FEB-2002 TIME 09:12 JOB No. 1327235.013582 FILE No. f:\pbs&j\km\alls#3\alls3e03.dgn



NOTES:

1. CONTRACTOR SHALL PERFORM ALL WORK OF "CUSTOMER" ON NEVADA POWER WR* 168612.
2. FOR ADDITIONAL CONDUIT AND CABLE RUNS SEE CONDUIT AND CONDUCTOR SCHEDULE ON DRAWING E-1.

MWH
MONTGOMERY WATSON HARZA

MONTGOMERY WATSON HARZA
3014 WEST CHARLESTON BLVD
LAS VEGAS, NV 89102
(702) 878-8010

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KEITH E. SMITH
EE
No. 14457
2-18-02

(06009)

PAPER SIZE
D

DRAWING NO.
E-4

SHEET 19
OF 34
REVISION

KERR-McGEE CHEMICAL LLC
P.O. BOX 55 HENDERSON, NEV. 89009-7000

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
0.00 ±
0.000 ±
AFE No.
JOB No.

DESIGN	DATE	APPROVED FOR CONSTRUCTION	BY	DATE		BY	DATE
DRAWN BY		SAFETY			PROCESS ENGR.		
PROJ. ENGR.		ENVIRONMENTAL			PROJECT ENGR.		
ENGR. MNGR.		OPERATIONS MNGR.			ENGR. MNGR.		
		PRODUCTION SUPT.			PLANT MNGR.		
		QLTY. CONTROL					

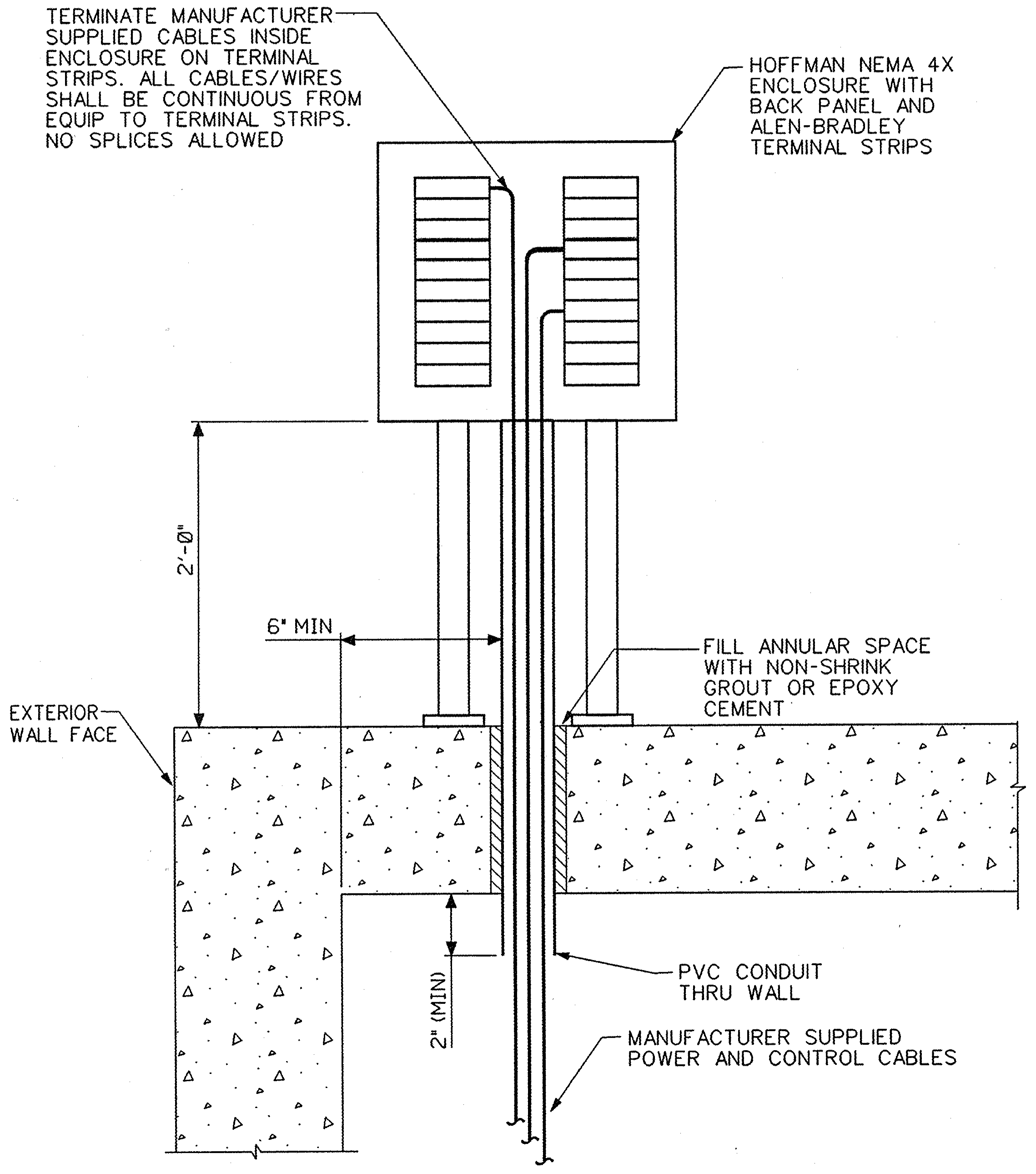
ATHENS LATERAL WELLFIELD AND PUMP STATION #3
ELECTRICAL
PUMP STATION PLAN
SCALE:
DATE:

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE

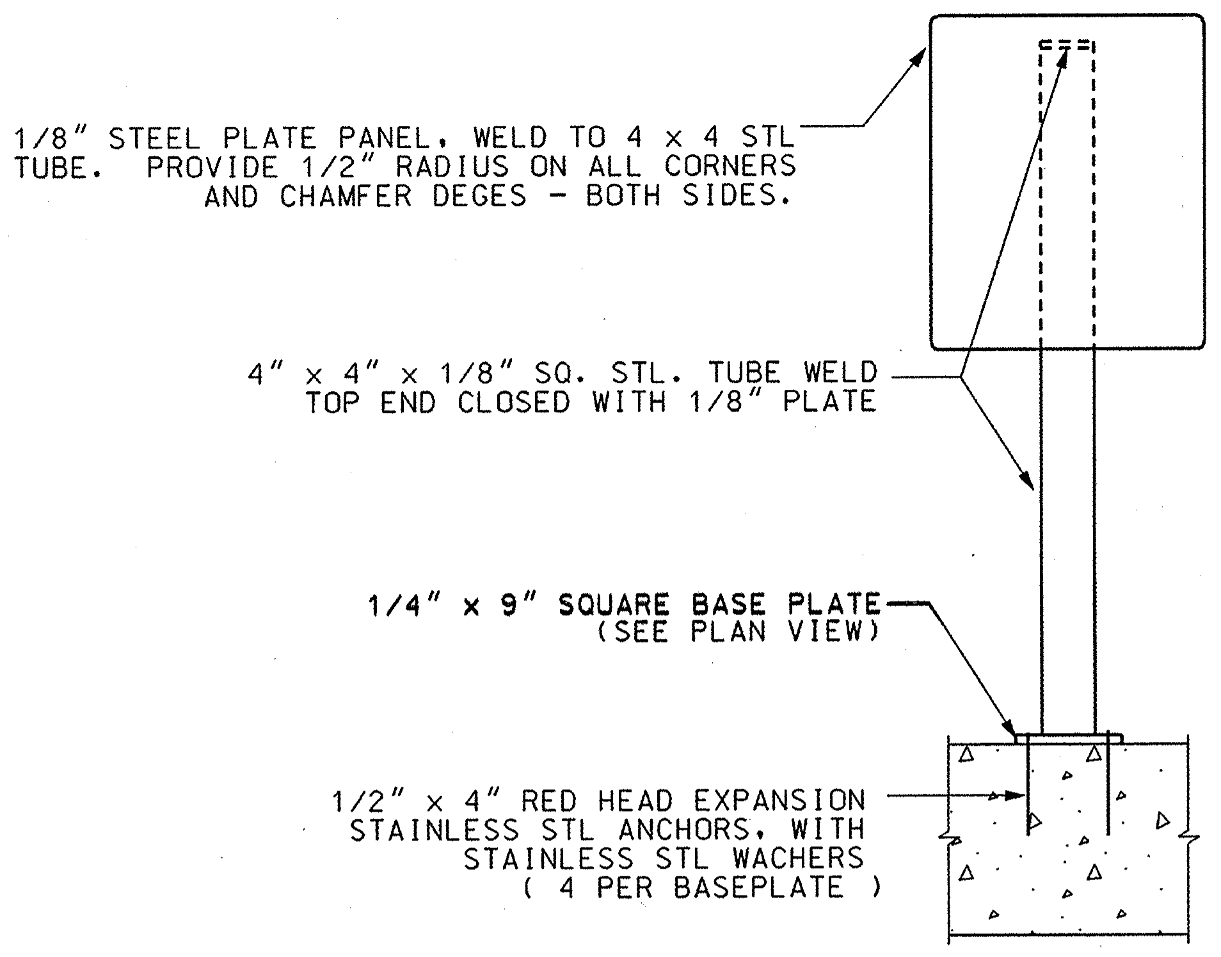
PBS&J
901 N. GREEN VALLEY PKWY
SUITE 100
HENDERSON, NEVADA 89014
TELEPHONE: 702/263-7275
FAX: 702/263-7200
ENGINEERING PLANNING SURVEYING CONSTRUCTION SERVICES

DATE 18-FEB-2002 TIME 09:11 JOB No. 1327235.013582 FILE No. f:\pbs&j\km\alls*3\alls3e04.dgn



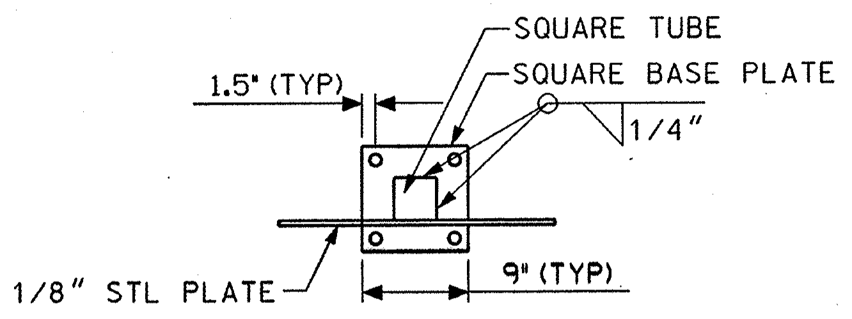
WETWELL PENETRATION AND TERMINAL BOX (A)

NOT TO SCALE



NOTES:

1. ACTUAL PANEL DIMENSION SHALL BE 1" MINIMUM GREATER ON ALL SIDES THAN ENCLOSURE(S) MOUNTED ON PANEL.
2. ALL METAL SURFACES SHALL BE DEBURRED, PRIMED AND PAINTED IN ACCORDANCE WITH THE SPECIFICATIONS

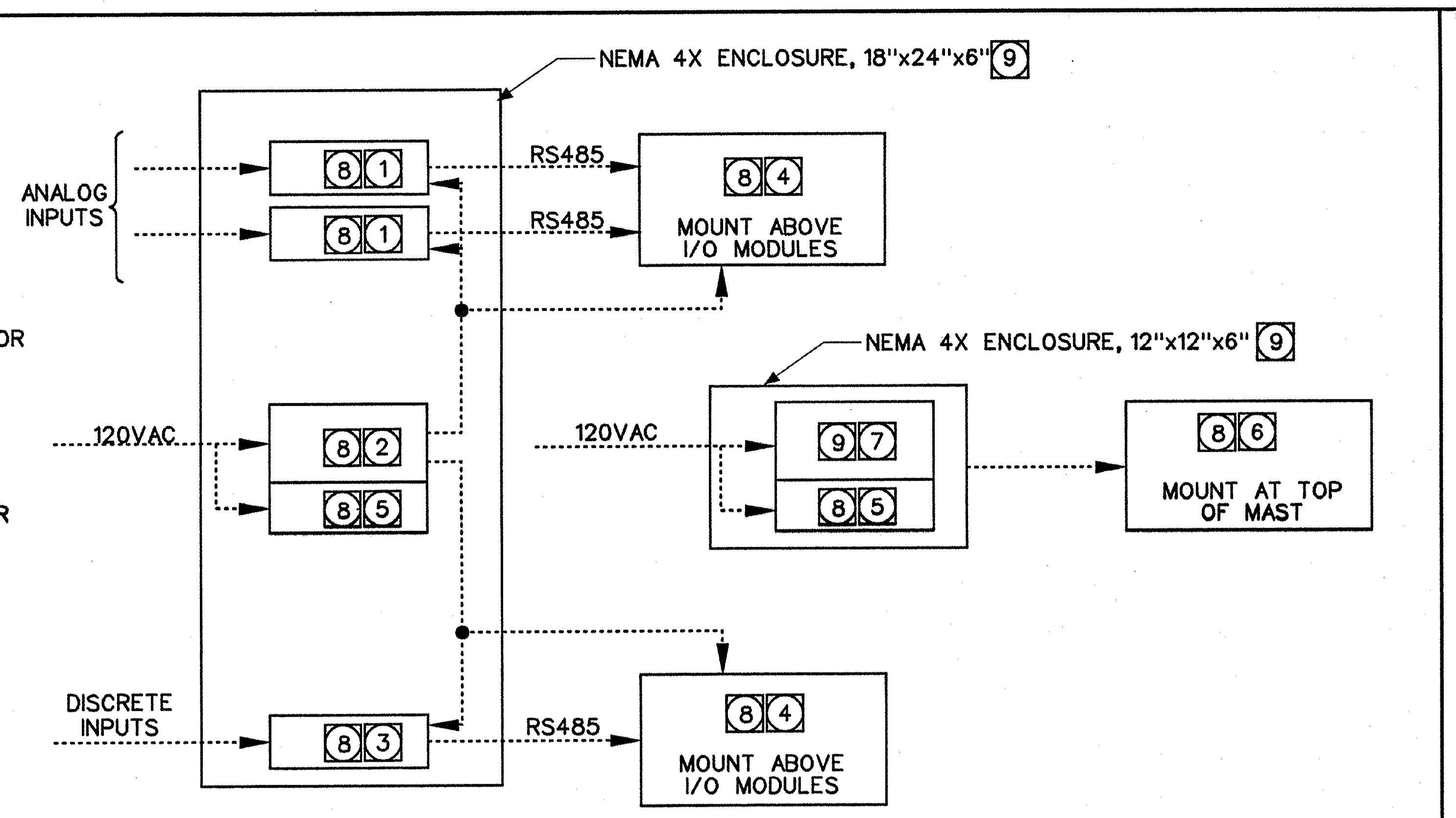


BASE PLATE DETAIL

TERMINAL BOX MOUNTING STAND

NOTES:

1. W1252 MODULE
2. 12VDC POWER SUPPLY MODEL 340A
3. W1712 MODULE
4. MODEL 771T TRANSMITTER
5. TS0380 SURGE SUPPRESSOR
6. MODEL 325 REPEATER
7. 14VAC POWER SUPPLY
8. PROVIDED BY OWNER
9. PROVIDED BY CONTRACTOR

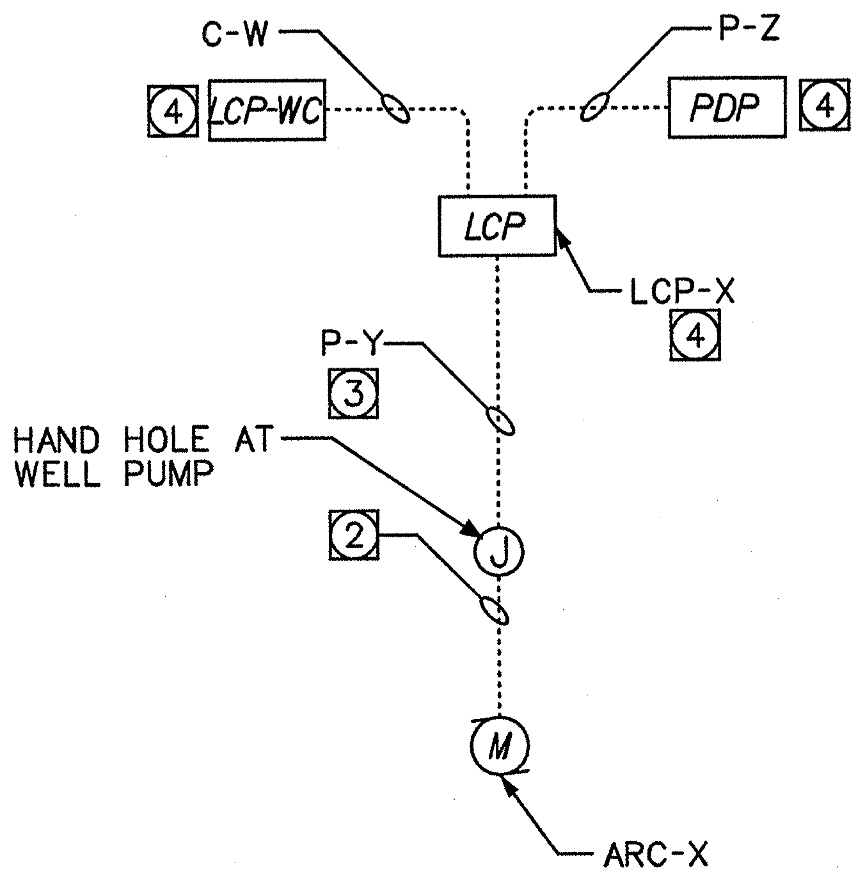


TELEMETRY SYSTEM BLOCK DIAGRAM (B)

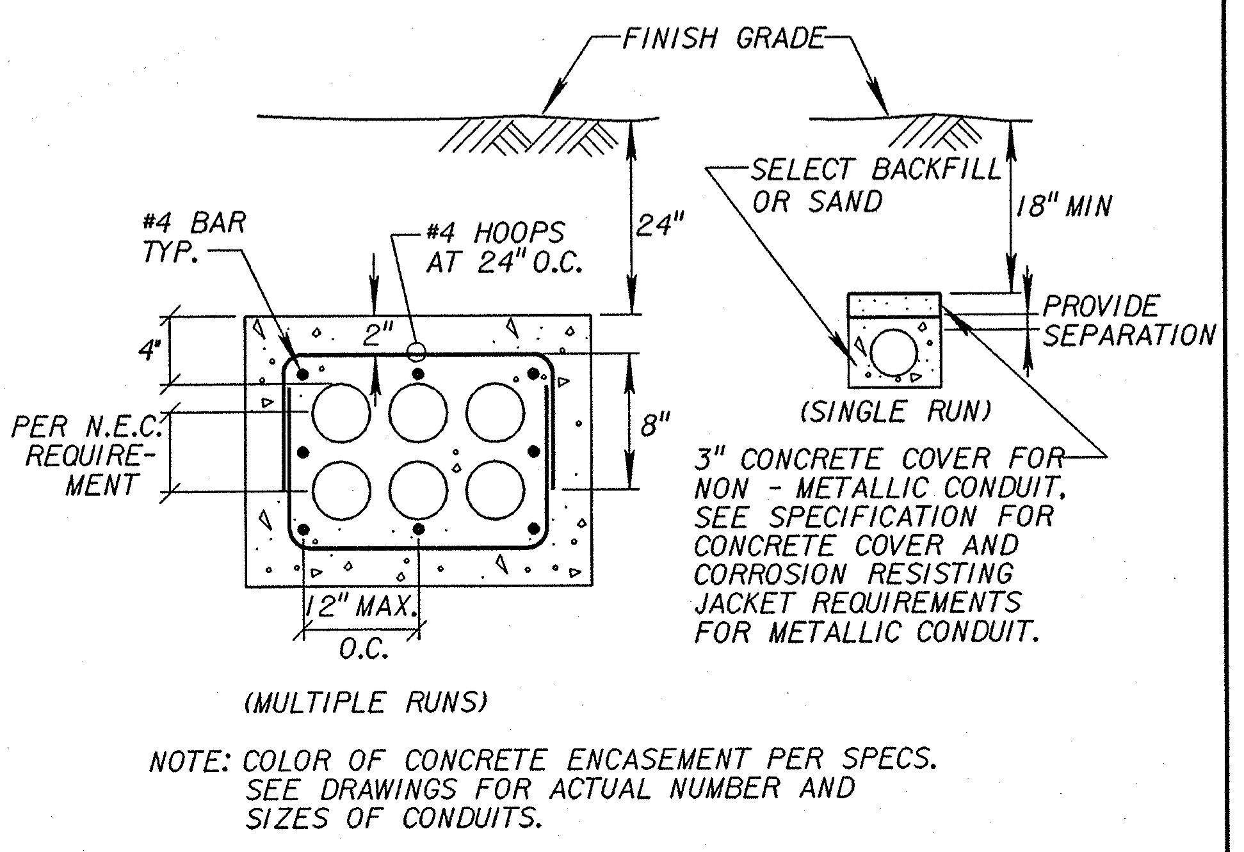
WELL	"W"	"X"	"Y"	"Z"
ART-1	1	ART-1	2A	2
ART-2	2	ART-2	3A	3
ART-3	3	ART-3	4A	4
ART-4	4	ART-4	5A	5
ART-5	5	ART-5	6A	6
ART-6	6	ART-6	7A	7
ART-7	7	ART-7	8A	8
PC-70	8	PC-70	9A	9

NOTES:

1. NOT USED
2. 3/4"C W/ 3#12 & 1#12GND
3. CONDUIT IN DUCTBANK
4. PANEL LOCATED IN PUMP STATION YARD



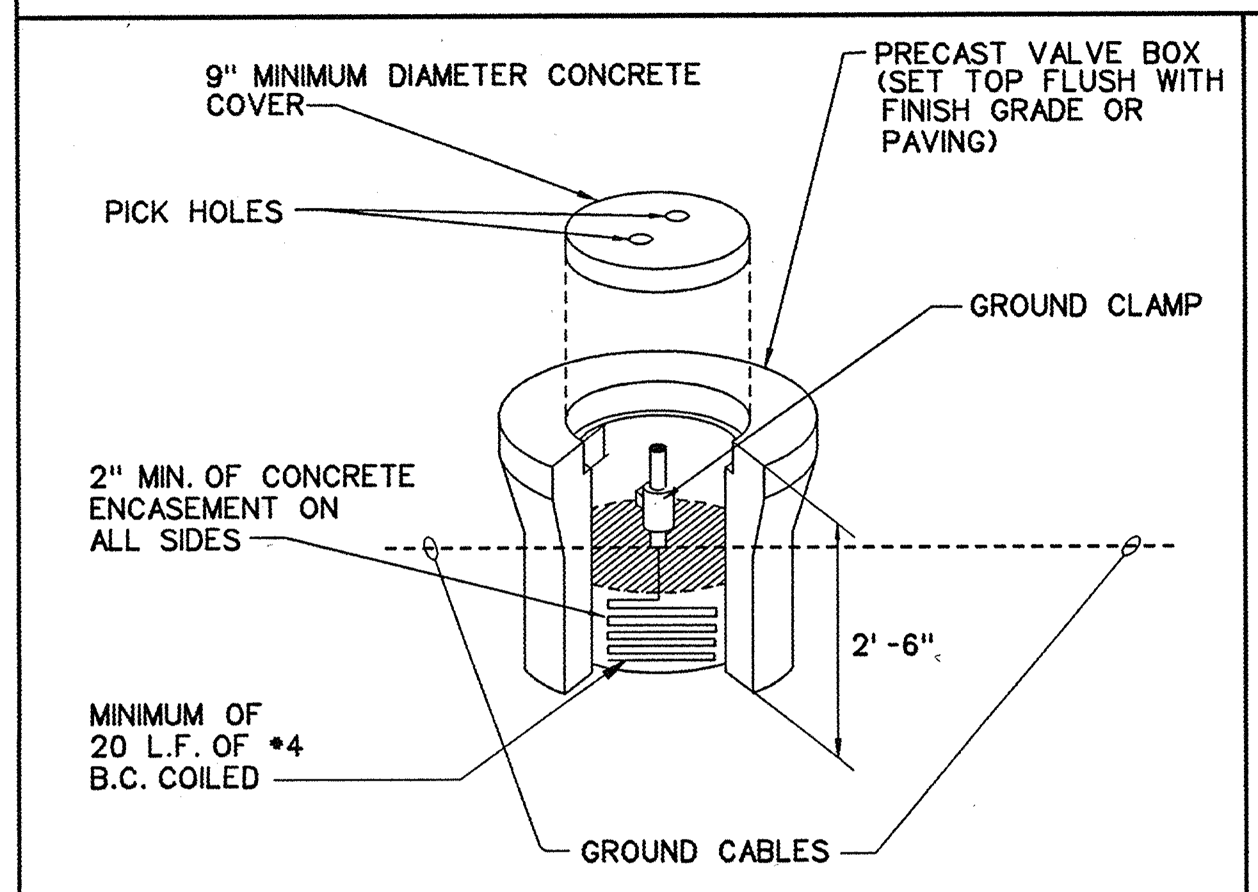
WELL PUMP RISER DIAGRAM (C)



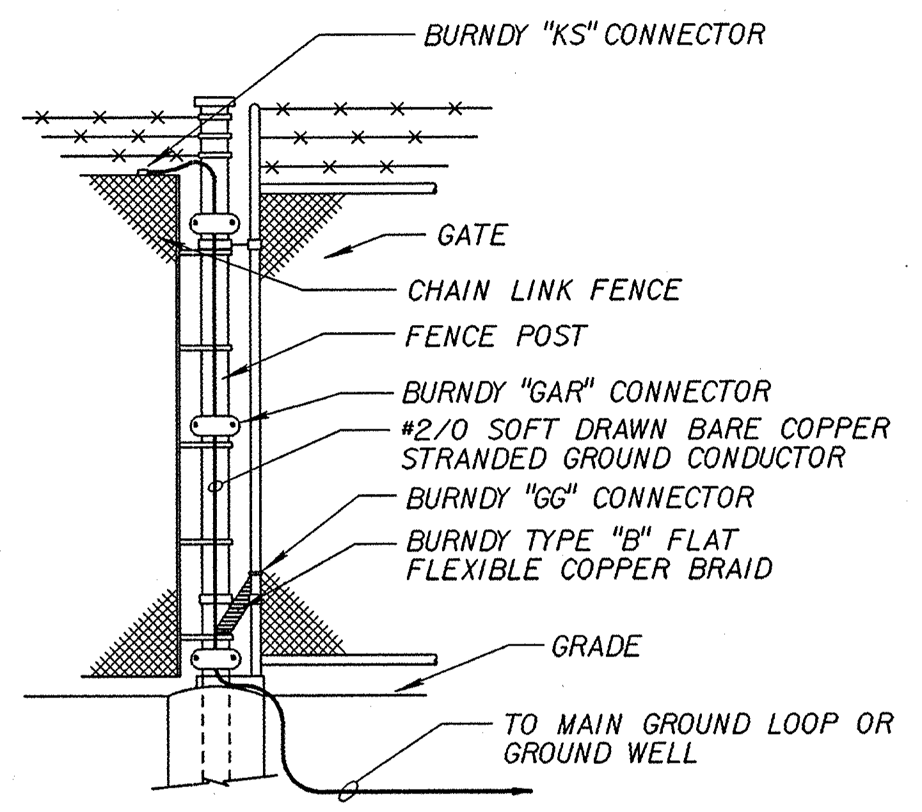
NOTE: COLOR OF CONCRETE ENCASEMENT PER SPECS. SEE DRAWINGS FOR ACTUAL NUMBER AND SIZES OF CONDUITS.

TYPICAL DUCT BANK (POWER) (E-103)

REV. 051588

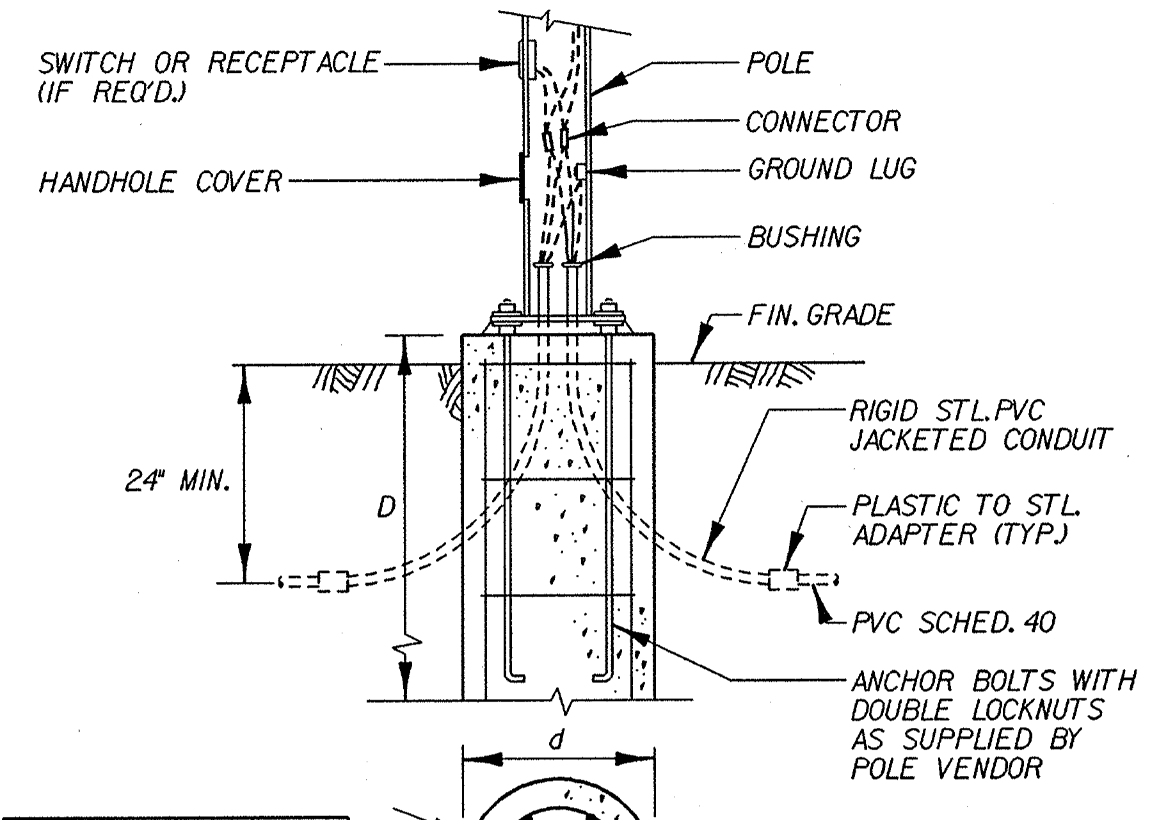


GROUND ELECTRODE INSTALLATION (E-302 A)

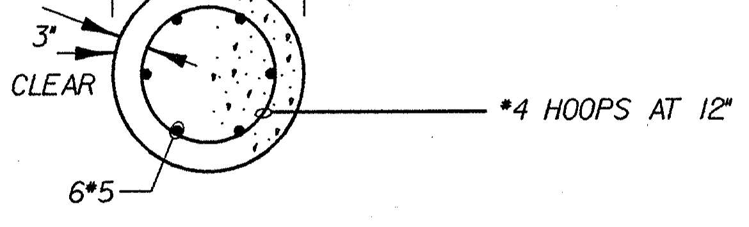


GATE AND FENCE GROUNDING (E-306)

REV. 051588



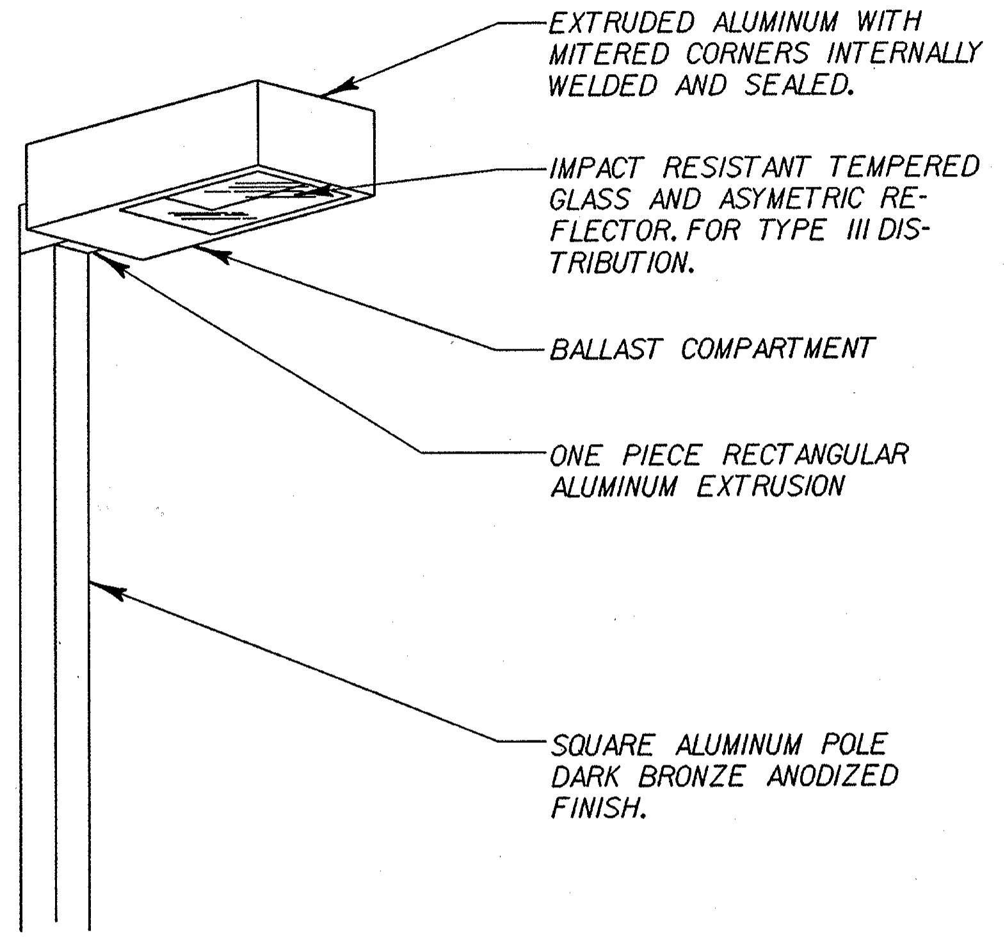
POLE HGT.	d	D
30'	24"	6'-0"
20'	20"	5'-6"
12'	20"	4'-6"



LIGHTING POLE FOUNDATION (E-600)

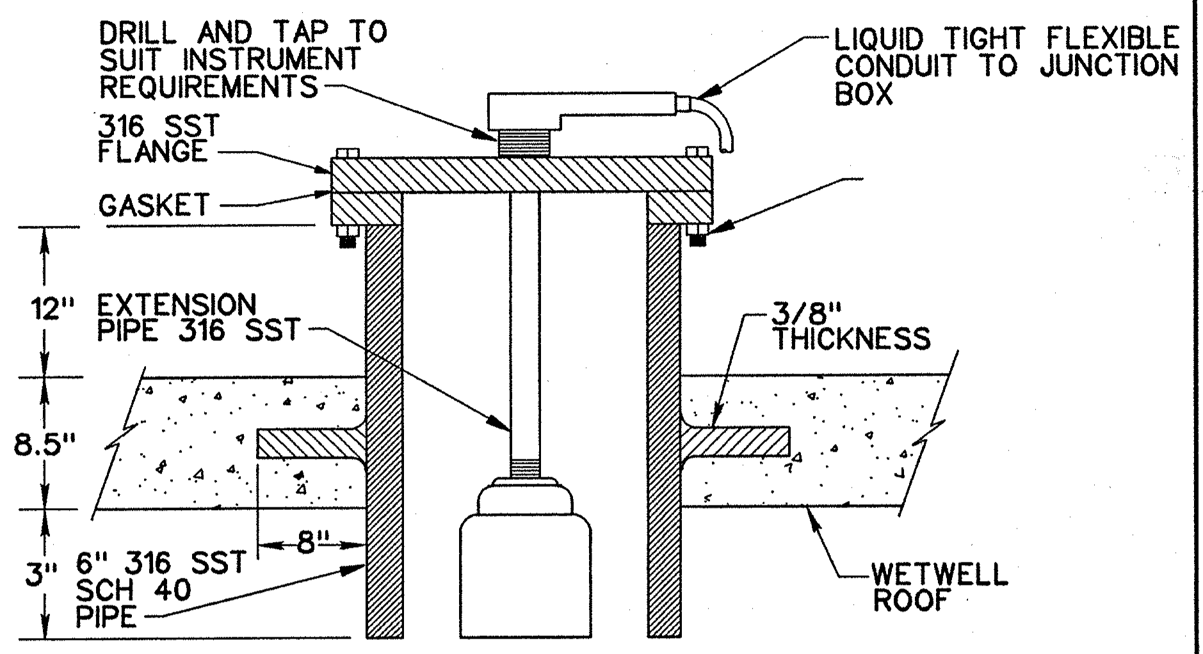
REV 051588

NOTE: EXPOSED FOUNDATION CAPS SHALL BE FORMED TO MATCH THE OUTLINE OF POLE BASEPLATE.



AREA LUMINAIRE (E-606)

REV 051588



ULTRASONIC LEVEL TRANSDUCER DETAIL (I-139)

Avoid overhead power line contact
Call before you **Overhead**
1-702-593-6111

Avoid cutting underground utility lines. It's costly.
Call before you **Dig.**
1-800-227-2600

MWH
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KEITH E. SMITH EE No. 14457
2-18-02

(06009)

PAPER SIZE D

DRAWING NO. E-5

SHEET ~~30~~ 30 OF ~~33~~ 34

REVISION

KERR-McGEE CHEMICAL LLC
P.O. BOX 55 HENDERSON, NEV. 89009-7000
TOLERANCE UNLESS OTHERWISE SPECIFIED FRACTIONS ± 0.00 ± 0.000 ±
AFE No. ______ JOB No. ______

ATHENS LATERAL WELLFIELD AND PUMP STATION #3
ELECTRICAL DETAILS
SCALE:
DATE:

REVISIONS (DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE

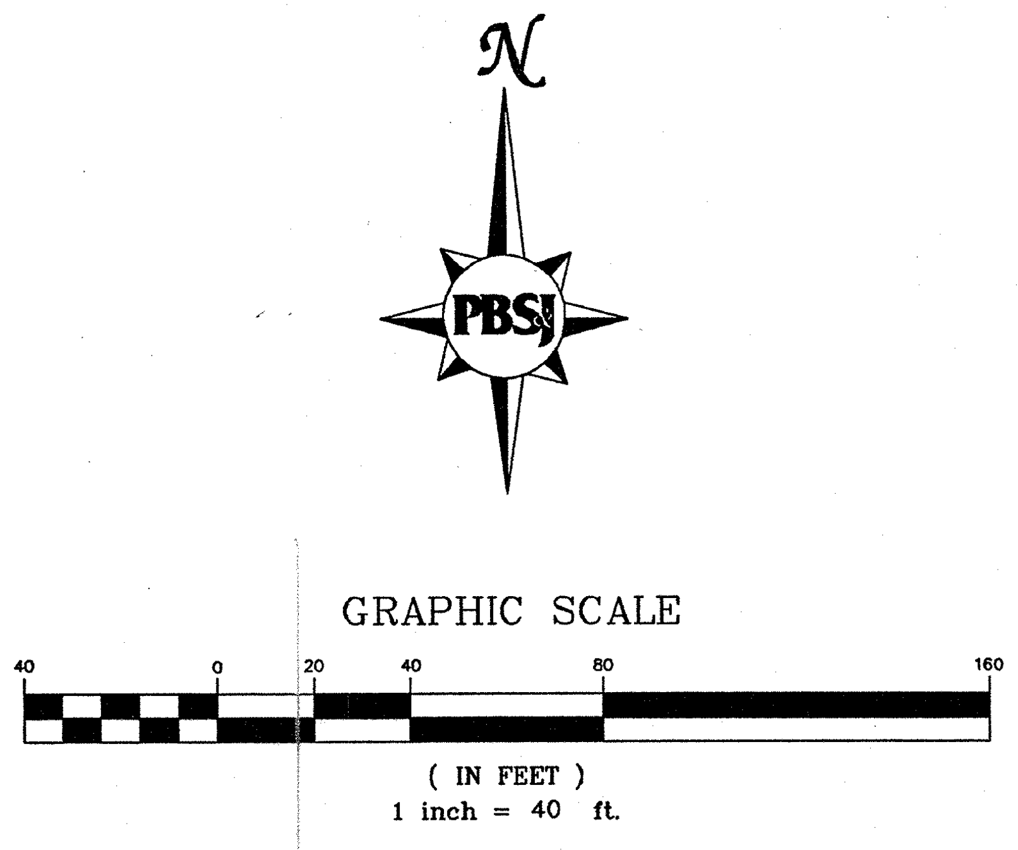
DESIGN	DATE
DRAWN BY K. SMITH	
PROJ. ENGR. K. SMITH	
ENGR. MNGR. S. HINMAN	

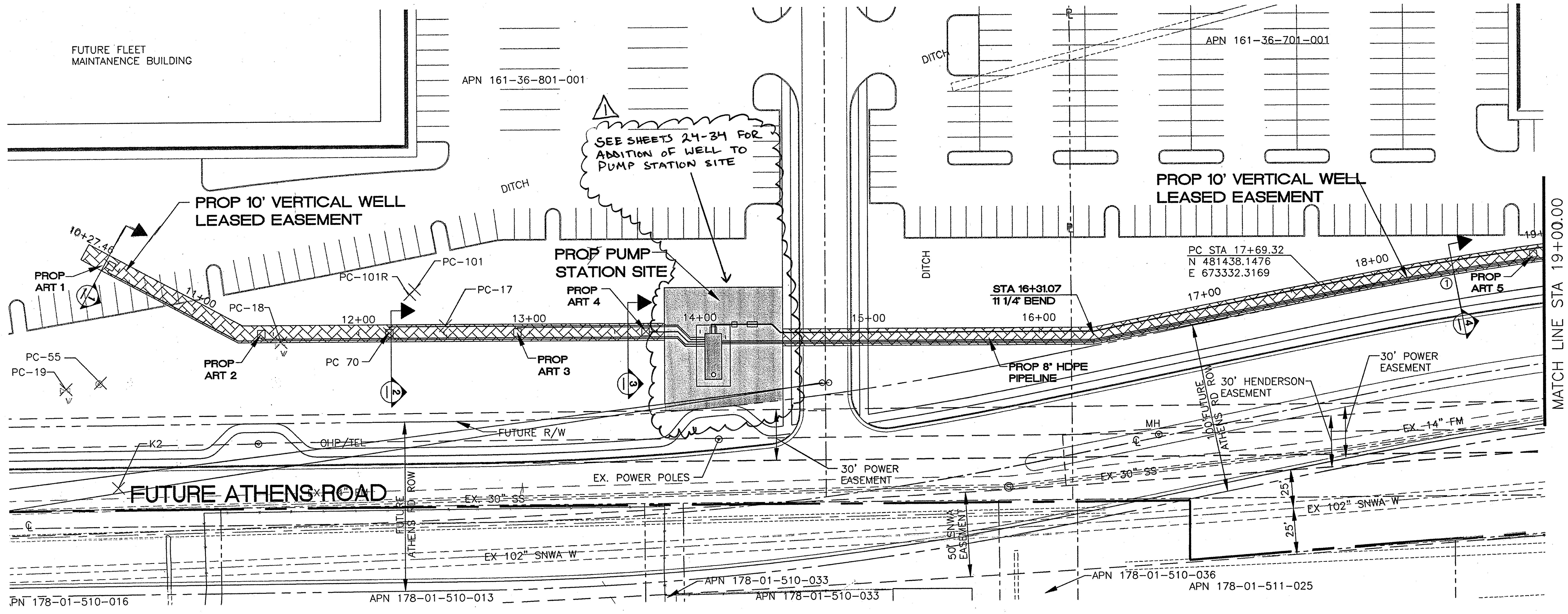
APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

PBS&J
901 N. GREEN VALLEY PKWY SUITE 200 HENDERSON, NEVADA 89014 TELEPHONE: 702/263-7275 FAX: 702/263-7200
ENGINEERING PLANNING SURVEYING CONSTRUCTION SERVICES

DATE 18-FEB-2002 TIME 09:10 JOB No. 1327235.013582 FILE No. f:\pbs&j\km\alls#3\alls3e05.dgn





GENERAL NOTES

1. ATHENS ROADWAY ℄ GRADES FROM BLACK & VEATCH DRAWINGS – DATED 1-05-01.

SNWA NOTES

CONTRACTOR SHALL FIELD LOCATE AND PROTECT ALL SNWA/SNWS APPURTENANCES INCLUDING, BUT NOT LIMITED TO AV/AR, ACCESS MANWAYS & CATHODIC PROTECTION SYSTEMS PRIOR TO CONSTRUCTION. ALL ABOVE GROUND STRUCTURES AND AT GRADE STRUCTURES MUST BE ADJUSTED TO NEW GRADE AT CONTRACTOR'S EXPENSE. CONTRACTOR TO NOTIFY SOUTHERN NEVADA AUTHORITY, DEVELOPMENT PLAN REVIEW, AT (702) 862-3444 AT LEAST 48-HOURS PRIOR TO CONSTRUCTION ACTIVITY.

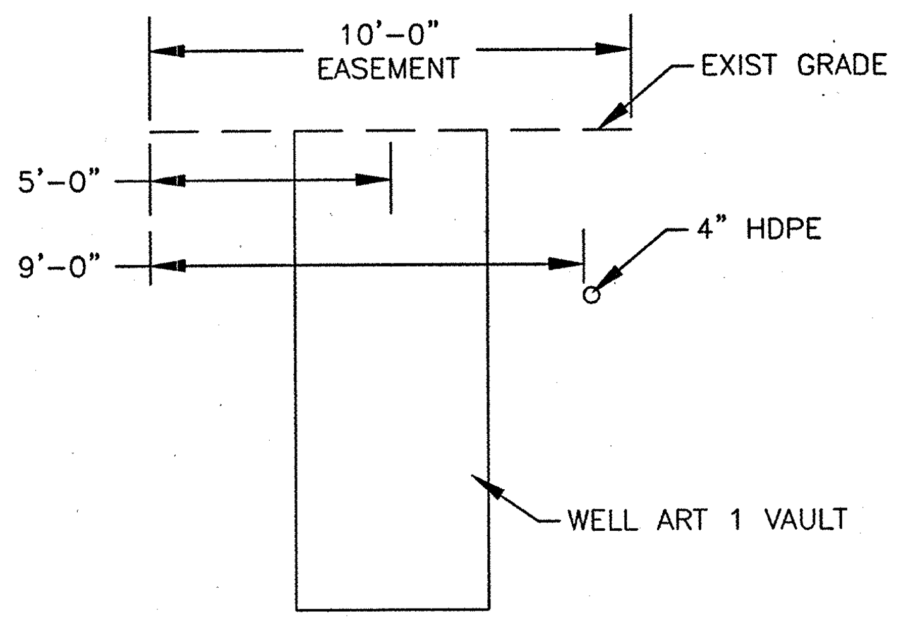
NO BUILDINGS, STRUCTURES, FENCES OR TREES SHALL BE PLACED UPON, OVER OR UNDER SAID PARCEL OF LAND FOR THE DURATION OF THIS EASEMENT EXCEPT THAT SAID PARCEL MAY BE IMPROVED AND USED FOR STREET, ROAD OR DRIVEWAY PURPOSE AND FOR OTHER UTILITIES, INSOFAR AS SUCH USE DOES NOT INTERFERE WITH ITS USE BY SNWA FOR THE PURPOSES FOR WHICH IT IS GRANTED.

SNWA APPROVAL IS VALID FOR ONE (1) YEAR FROM THE SIGNATURE DATE. IF CONSTRUCTION WITHIN THE EASEMENT OR RESTRICTED ZONE IS NOT COMPLETE, PLANS MUST BE RESUBMITTED TO SNWA FOR APPROVAL.

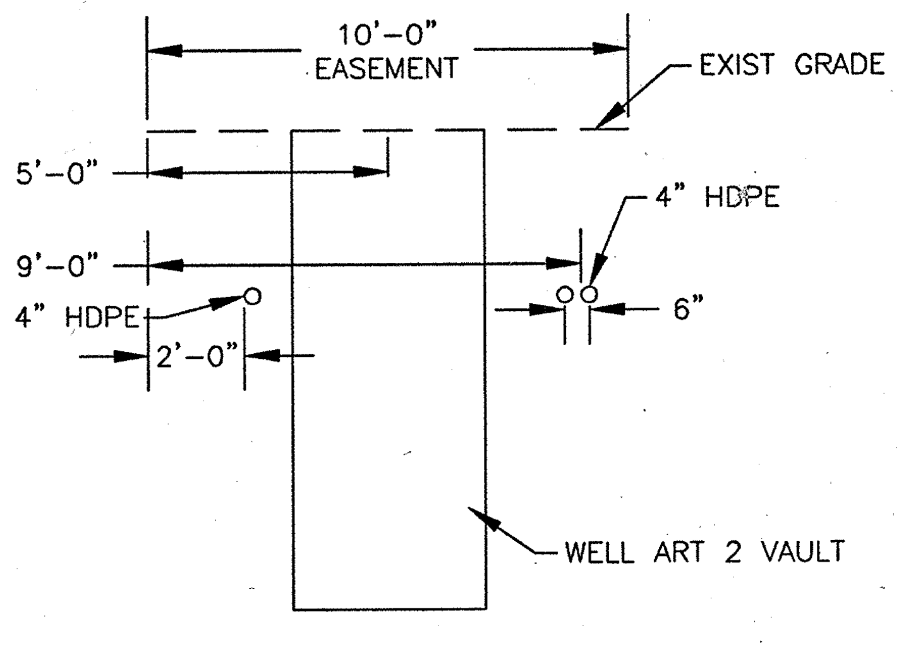
Deanne Mills 5/29/02
SOUTHERN NEVADA WATER AUTHORITY DATE

6-11-02
CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT
DATE

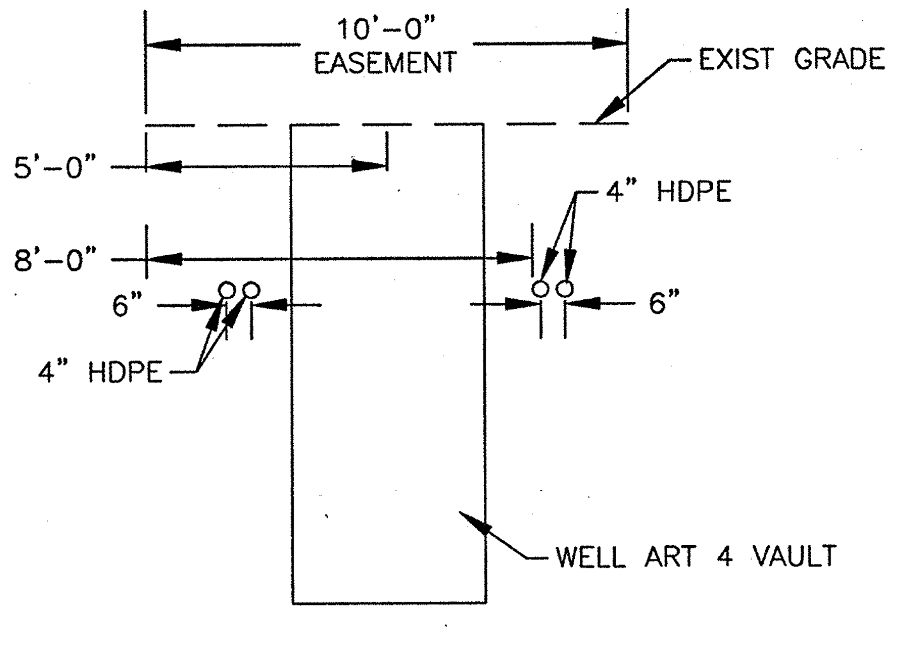
CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY Jun 11, 2003



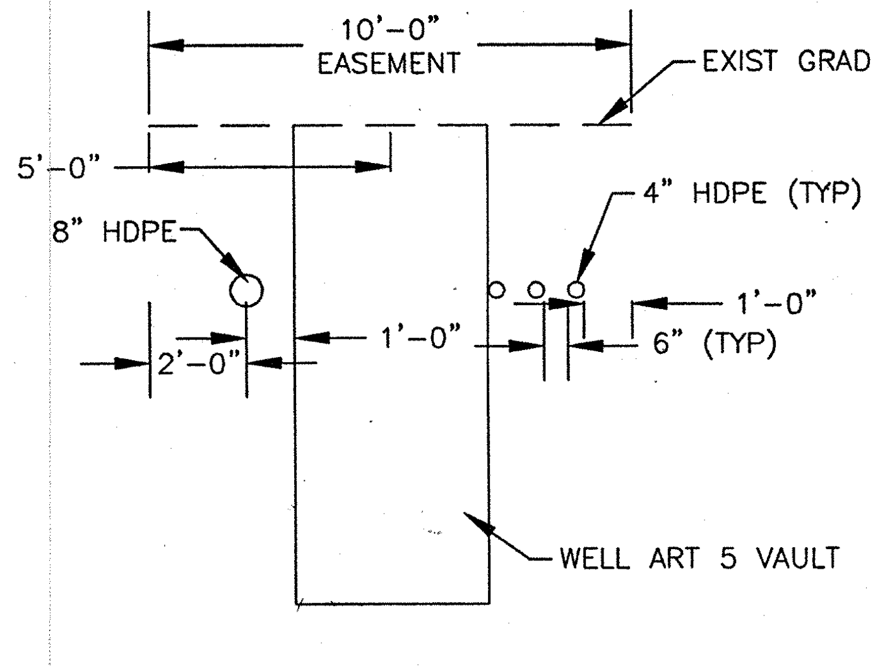
SECTION ①
SCALE: 1/4" = 1'-0"



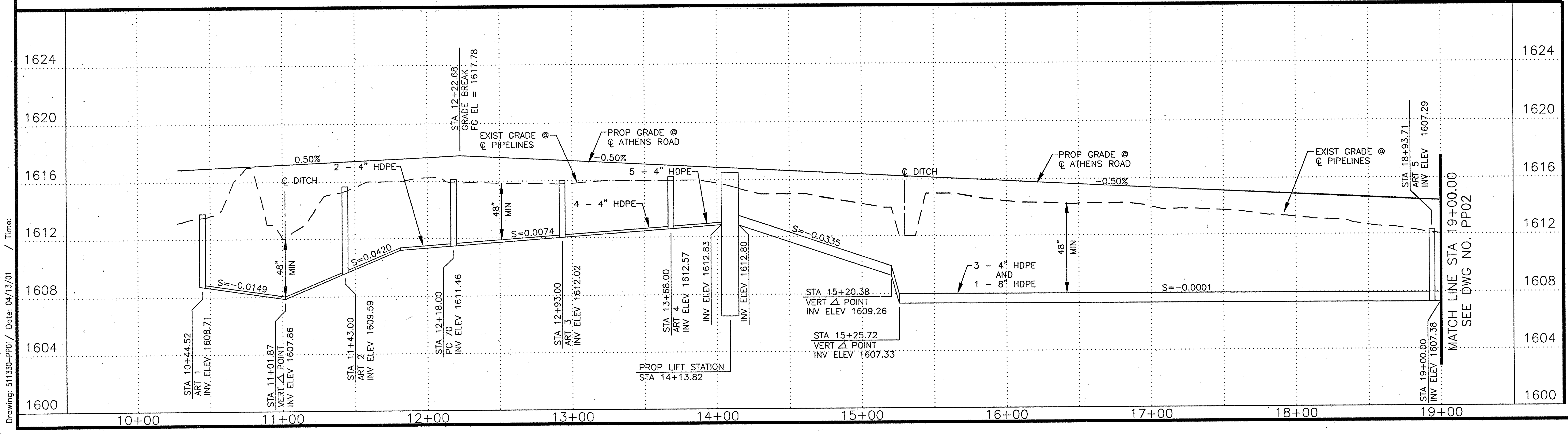
SECTION ②
SCALE: 1/4" = 1'-0"



SECTION ③
SCALE: 1/4" = 1'-0"



SECTION ④
SCALE: 1/4" = 1'-0"



Drawing: 511330-PP01/ Date: 04/13/01 / Time:

CURVE TABLE

① PC STA 17+69.21
Δ = 3°53'04"
R = 1929.11
T = 65.42
L = 130.79

JONATHAN D. TULL
Exp. 06/30/2016
CIVIL
No. 14581

REVISION 1 ONLY
6-24-14

Avoid cutting underground utility lines. It's costly.
Call before you Dig
1-800-227-2600

Avoid overhead power line contact. It's costly.
Call before you OVERHEAD
1-702-593-6111

2001705025
(06009)

RICHARD J. CAPP
CIVIL
No. 12877
2-7-02

KERR-McGEE CHEMICAL LLC

P.O. BOX 55 HENDERSON, NEV. 89009-7000

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
0.00 ±
0.000 ±
AFE No.
JOB No. 511330.00

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE
1	ADDED REFERENCE NOTE FOR THE ADDITION OF WELL TO SYSTEM	JDT	3/24/14

PBSJ
901 N. Green Valley Pkwy.
Suite 100
Henderson, Nevada 89014
Telephone: 702/263-7275
Fax: 702/263-7200
ENGINEERING · PLANNING · SURVEYING · CONSTRUCTION SERVICES

ATHENS LATERAL
WELLFIELD AND PUMP STATION #3
PLAN AND PROFILE STA 10+00.00 TO 19+00.00

DATE: 01/04/02
SCALE: 1" = 40'

DESIGN	DATE
DRAWN BY C. LANA	XX/XX/XX
PROJ. ENGR. R. CAPP	
ENGR. MNGR.	

APPROVED FOR CONSTRUCTION

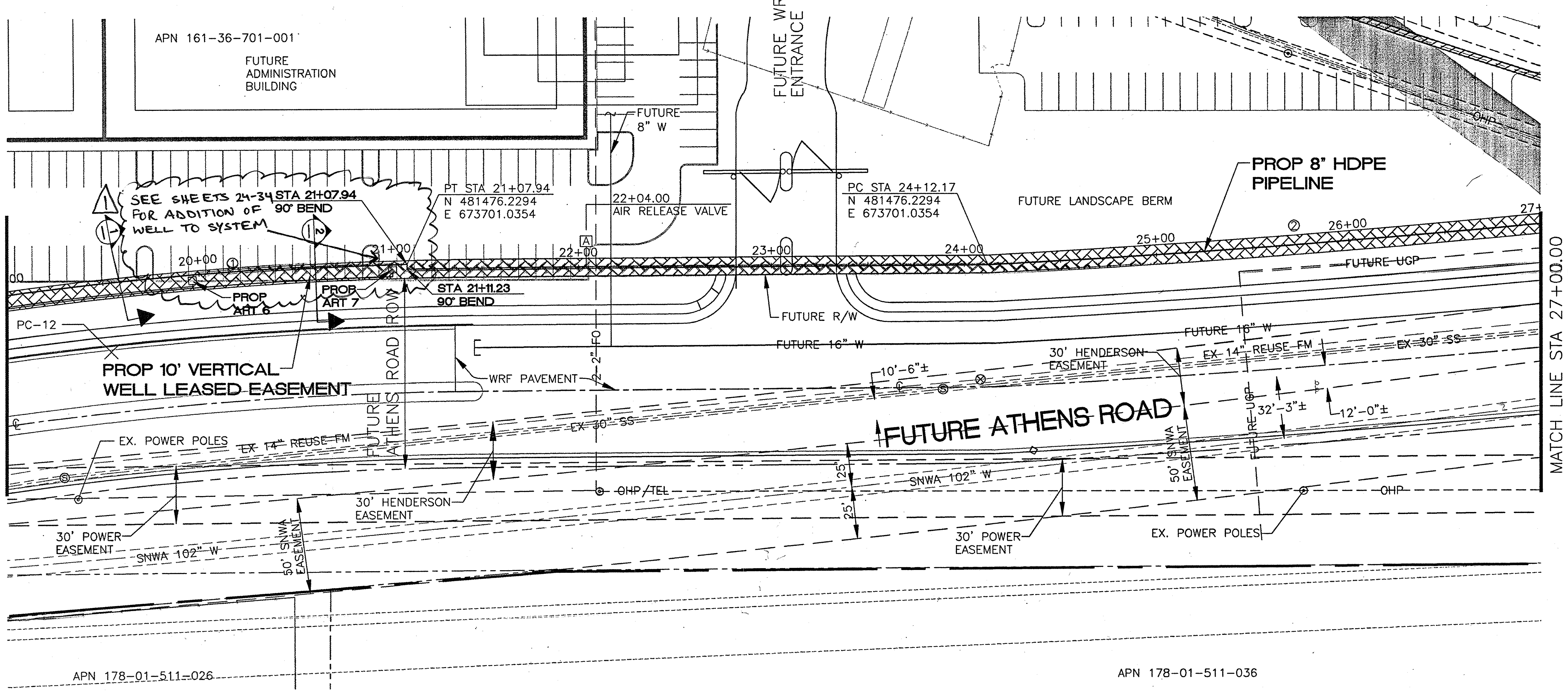
	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

PAPER SIZE
D

DRAWING NO.
PP01

SHEET 21
OF 34

REVISION



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

GENERAL NOTES

1. ATHENS ROADWAY ℄ GRADES FROM BLACK & VEATCH DRAWINGS – DATED 1-05-01.

GENERAL NOTES

CONTRACTOR SHALL FIELD LOCATE AND PROTECT ALL SNWA/SNWS APPURTENANCES INCLUDING, BUT NOT LIMITED TO AV/AR, ACCESS MANWAYS & CATHODIC PROTECTION SYSTEMS PRIOR TO CONSTRUCTION. ALL ABOVE GROUND STRUCTURES AND AT GRADE STRUCTURES MUST BE ADJUSTED TO NEW GRADE AT CONTRACTOR'S EXPENSE. CONTRACTOR TO NOTIFY SOUTHERN NEVADA AUTHORITY, DEVELOPMENT PLAN REVIEW, AT (702) 862-3444 AT LEAST 48-HOURS PRIOR TO CONSTRUCTION ACTIVITY.

NO BUILDINGS, STRUCTURES, FENCES OR TREES SHALL BE PLACED UPON, OVER OR UNDER SAID PARCEL OF LAND FOR THE DURATION OF THIS EASEMENT EXCEPT THAT SAID PARCEL MAY BE IMPROVED AND USED FOR STREET, ROAD OR DRIVEWAY PURPOSE AND FOR OTHER UTILITIES, INSOFAR AS SUCH USE DOES NOT INTERFERE WITH ITS USE BY SNWA FOR THE PURPOSES FOR WHICH IT IS GRANTED.

SNWA APPROVAL IS VALID FOR ONE (1) YEAR FROM THE SIGNATURE DATE. IF CONSTRUCTION WITHIN THE EASEMENT OR RESTRICTED ZONE IS NOT COMPLETE, PLANS MUST BE RESUBMITTED TO SNWA FOR APPROVAL.

Leanne Mills 5/29/02
SOUTHERN NEVADA WATER AUTHORITY DATE

CURVE TABLE

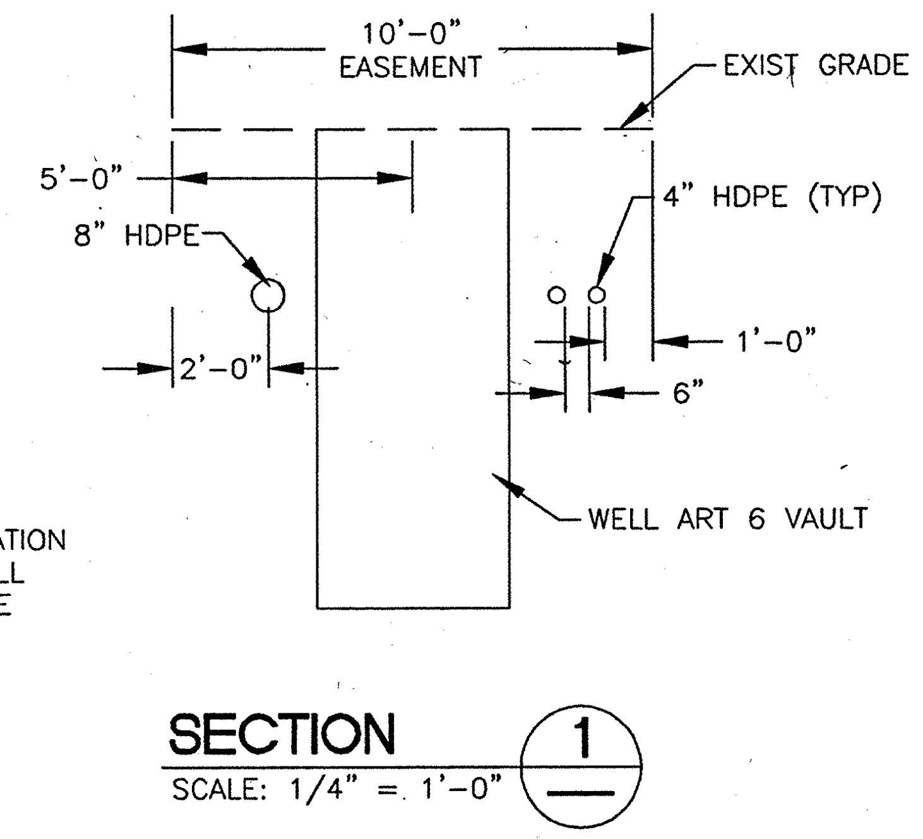
① PT STA 21+07.94
Δ = 6°10'33"
R = 1929.11
T = 104.07
L = 207.94

CURVE TABLE

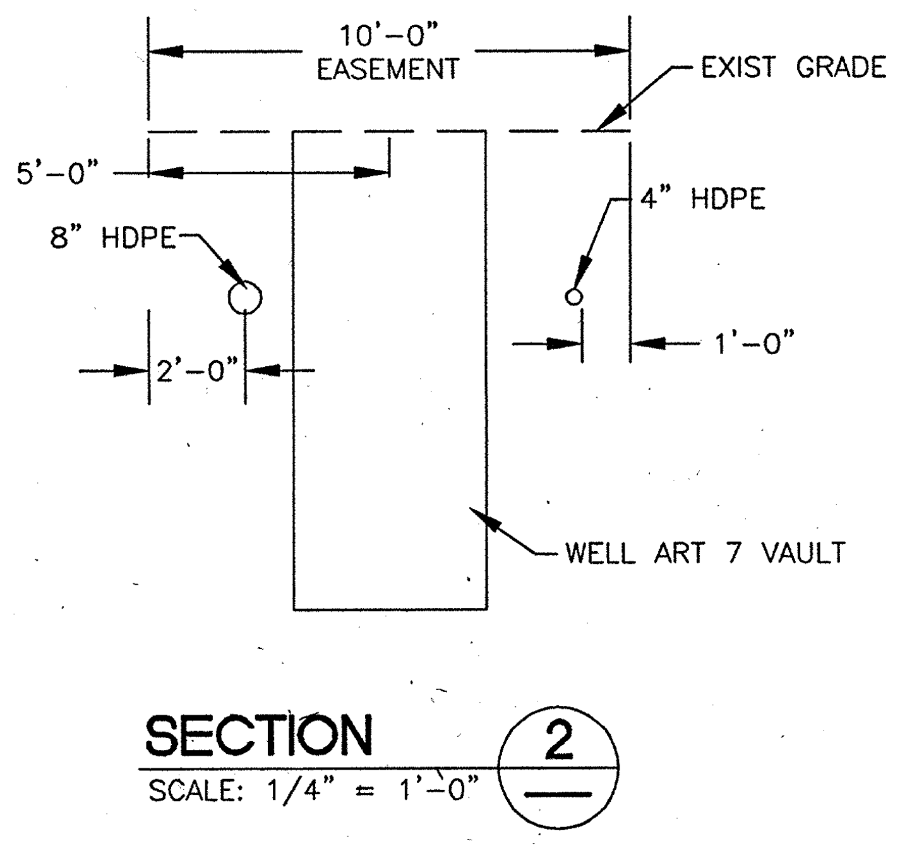
② PC STA 24+12.17
Δ = 2°24'27"
R = 6850.29
T = 143.93
L = 287.83

COORDINATE TABLE

DESCRIPTION	NORTHING	EASTING
STA 21+07.94 90° BEND	481478.8194	673667.2680
STA 21+11.23 90° BEND	481524.9621	674508.1590



SECTION ①
SCALE: 1/4" = 1'-0"



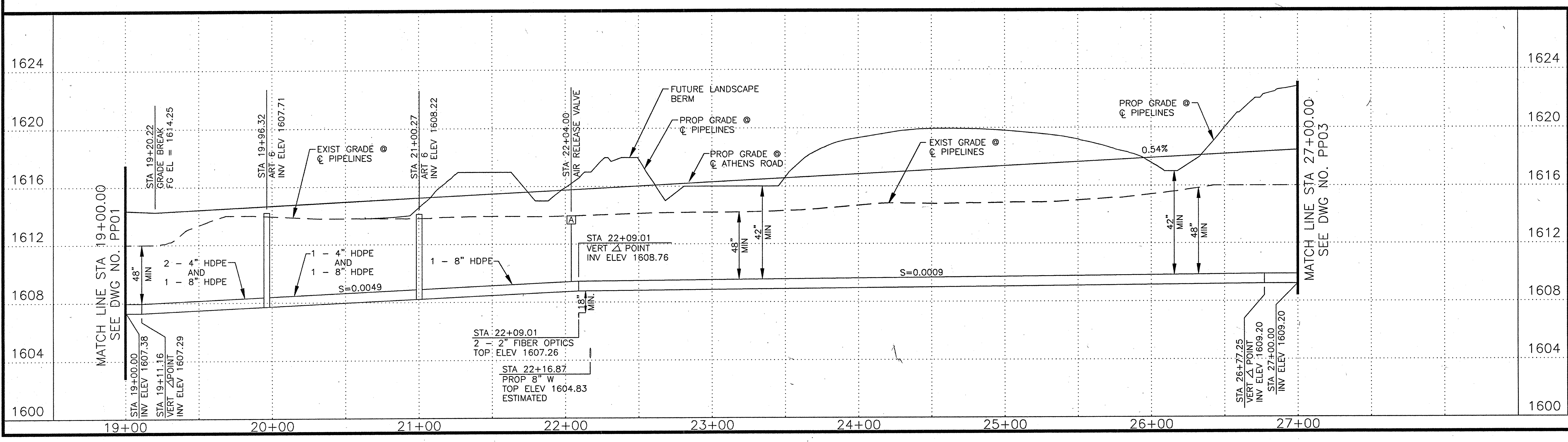
SECTION ②
SCALE: 1/4" = 1'-0"

1. THE PAVING FOR THE FUTURE WATER RECLAMATION FACILITY IS SHOWN. THE ATHENS ROADWAY FULL BUILD OUT WILL NOT OCCUR WITH THE FUTURE WATER RECLAMATION FACILITY.

2. ELEVATION FOR PROPOSED 16" W & 8" W ARE ESTIMATED AND ARE NOT AVAILABLE AT THIS TIME.

6-11-02
CITY OF HENDERSON
KEN KOSHIRO, P.E.
LAND DEVELOPMENT
DATE

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY June 4, 20 03.



JONATHAN D. TULL
Exp. 06/30/2016
CIVIL
No. 14581

REVISION 1 ONLY
6-24-14

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Avoid overhead power line contact. It's costly.
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2001705025
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RICHARD J. CAPP
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No. 12877

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P.O. BOX 55 HENDERSON, NEV. 89009-7000

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
AFE No. 0.00 ±
0.000 ±
JOB No. 511330.00

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REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

REV	DESCRIPTION	BY	DATE
1	ADDED REFERENCE NOTE FOR THE ADDITION OF WELL TO SYSTEM	JDT	3/24/14

ATHENS LATERAL
WELLFIELD AND PUMP STATION #3 ⚠1
PLAN AND PROFILE STA 19+00.00 TO 27+00.00

DATE: 01/04/02
SCALE: 1" = 40'

DESIGN		DATE
DRAWN BY	C. LANA	XX/XX/XX
PROJ. ENGR.	R. CAPP	
ENGR. MNGR.		

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

PAPER SIZE D
DRAWING NO. PP02
SHEET 22 OF 34
REVISION

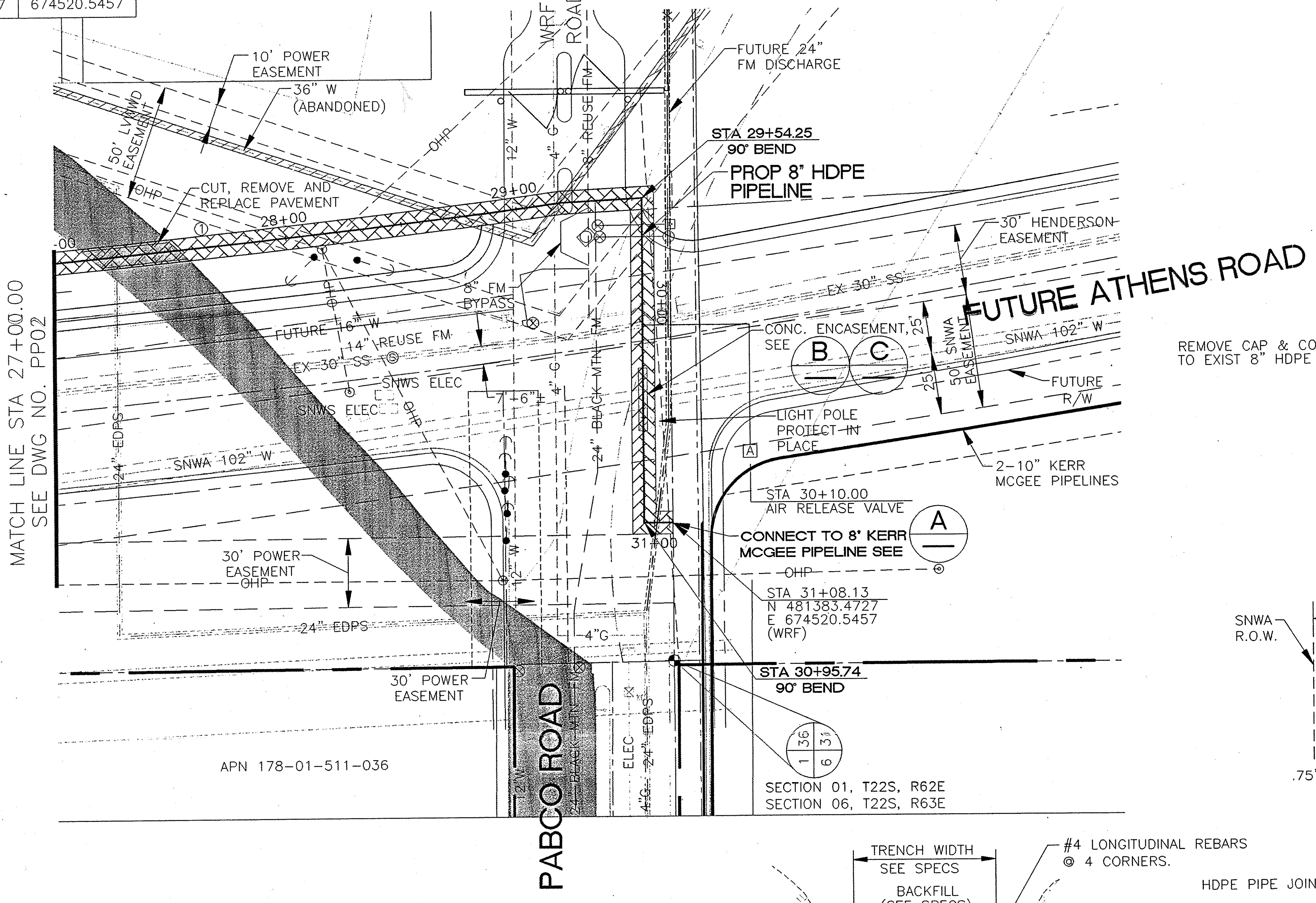
Drawing: 51130-PP02/ Date: 04/13/01 / Time:

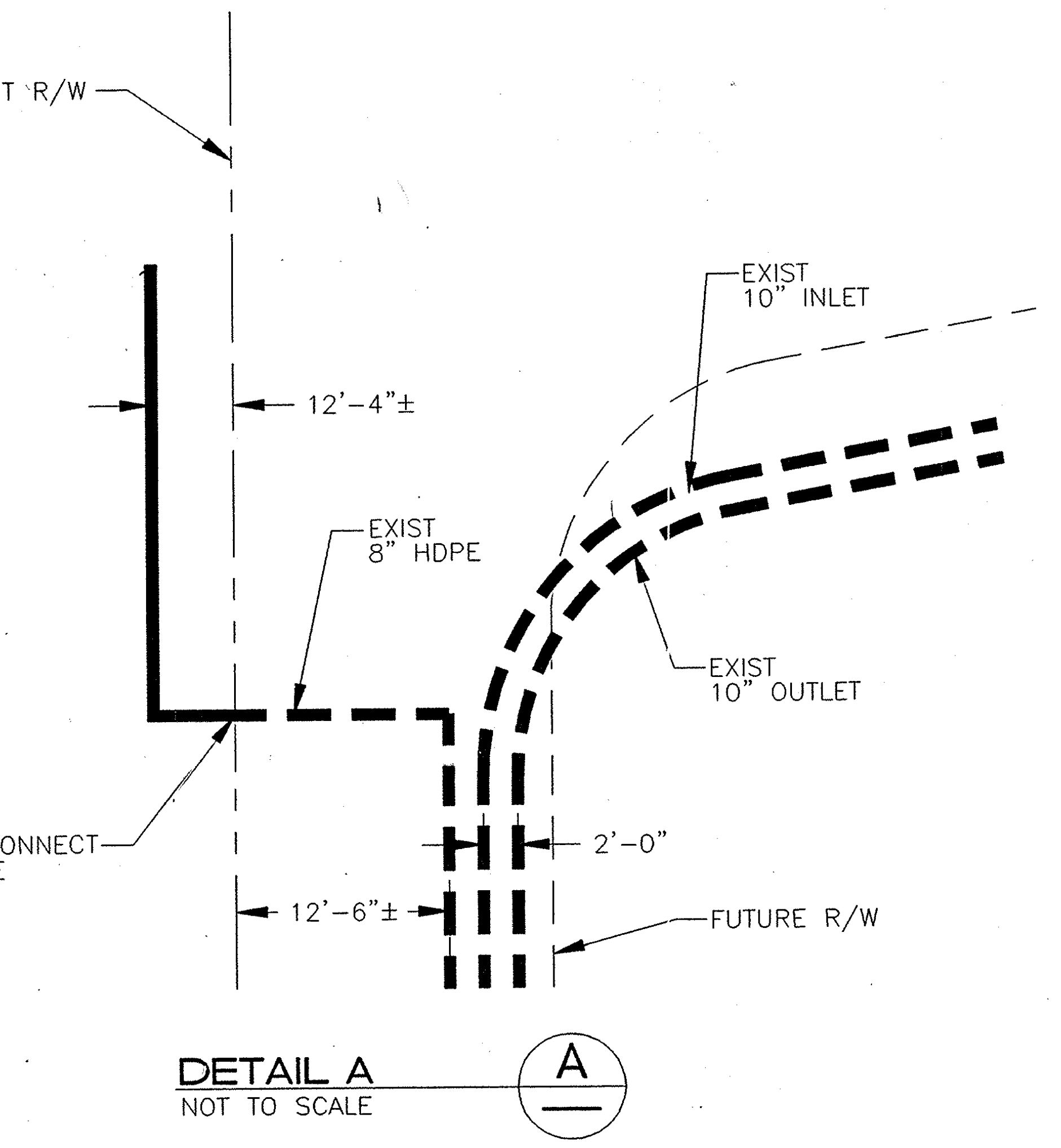
COORDINATE TABLE

DESCRIPTION	NORTHING	EASTING
STA 29+54.25 90° BEND PIPELINE	481524.9621	674508.1590
STA 30+95.74 90° BEND PIPELINE	481383.4730	674508.1590
END PIPELINE	481383.4727	674520.5457

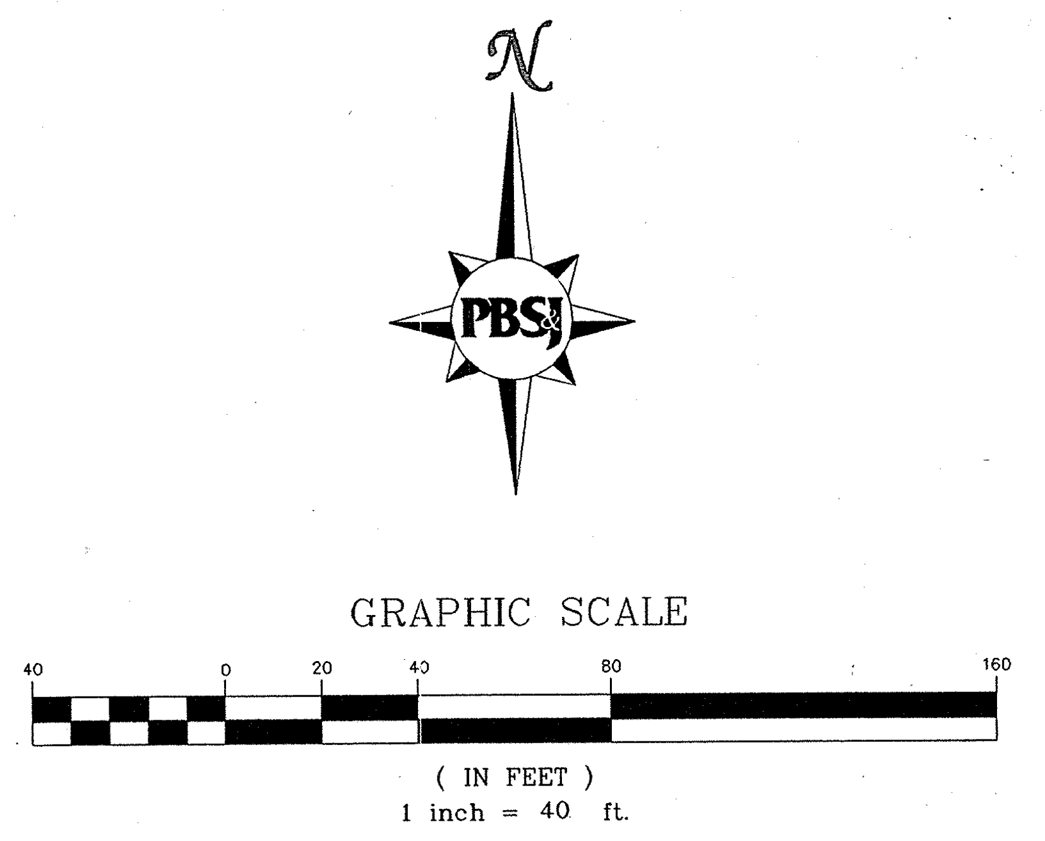
CURVE TABLE

① PT STA 28+89.99
Δ = 1°35'21"
R = 6850.29
T = 95.00
L = 189.99





DETAIL A A
NOT TO SCALE



GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

GENERAL NOTES

1. ATHENS ROADWAY ℄ GRADES FROM BLACK & VEATCH DRAWINGS – DATED 1-05-01.

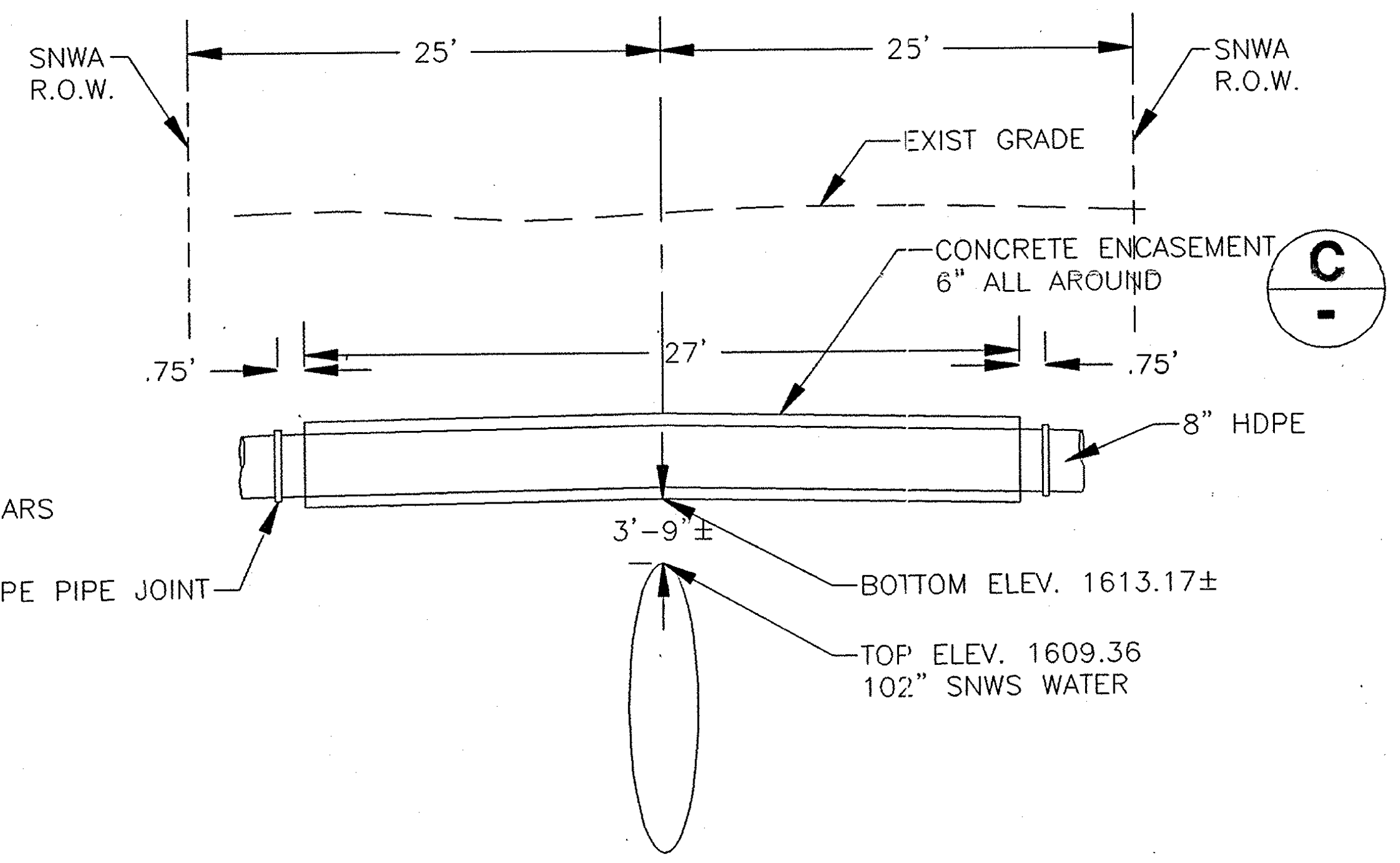
GENERAL NOTES

CONTRACTOR SHALL FIELD LOCATE AND PROTECT ALL SNWA/SNWS APPURTENANCES INCLUDING, BUT NOT LIMITED TO AV/AR, ACCESS MANWAYS & CATHODIC PROTECTION SYSTEMS PRIOR TO CONSTRUCTION. ALL ABOVE GROUND STRUCTURES AND AT GRADE STRUCTURES MUST BE ADJUSTED TO NEW GRADE AT CONTRACTOR'S EXPENSE. CONTRACTOR TO NOTIFY SOUTHERN NEVADA AUTHORITY, DEVELOPMENT PLAN REVIEW, AT (702) 862-3444 AT LEAST 48-HOURS PRIOR TO CONSTRUCTION ACTIVITY.

NO BUILDINGS, STRUCTURES, FENCES OR TREES SHALL BE PLACED UPON, OVER OR UNDER SAID PARCEL OF LAND FOR THE DURATION OF THIS EASEMENT EXCEPT THAT SAID PARCEL MAY BE IMPROVED AND USED FOR STREET, ROAD OR DRIVEWAY PURPOSE AND FOR OTHER UTILITIES, INSOFAR AS SUCH USE DOES NOT INTERFERE WITH ITS USE BY SNWA FOR THE PURPOSES FOR WHICH IT IS GRANTED.

SNWA APPROVAL IS VALID FOR ONE (1) YEAR FROM THE SIGNATURE DATE. IF CONSTRUCTION WITHIN THE EASEMENT OR RESTRICTED ZONE IS NOT COMPLETE, PLANS MUST BE RESUBMITTED TO SNWA FOR APPROVAL.

5/29/02
SOUTHERN NEVADA WATER AUTHORITY DATE

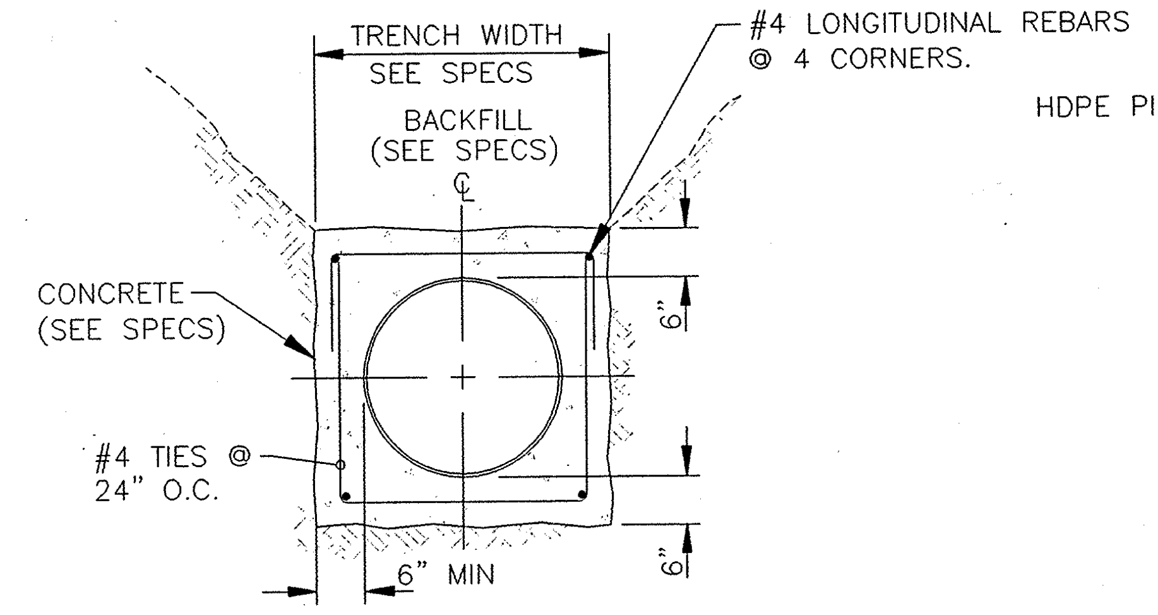


DETAIL B B
NOT TO SCALE

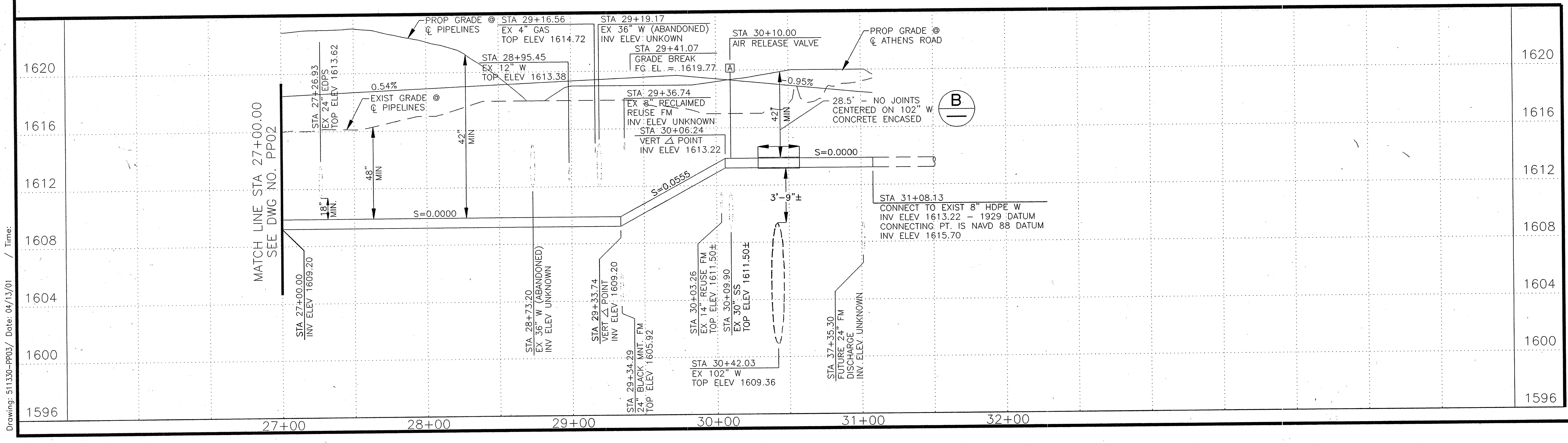
NOTES:
102" SNWA WATER ELEVATION BASED UPON RECORD DRAWINGS CONTRACTOR TO VERIFY ELEVATION. THESE PLANS ARE NAVD 29 DATUM

Ken Koshiro 6-11-02
CITY OF HENDERSON DATE
KEN KOSHIRO, P.E.
LAND DEVELOPMENT

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY June 4, 2003.



TYPICAL CONCRETE ENCASEMENT C -
NOT TO SCALE



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Avoid overhead power line contact. It's costly.
Call before you OVERHEAD
1-702-593-6111

2001705025
(06009)

RICHARD J. CAPP
CIVIL
No. 12877

PAPER SIZE	DRAWING NO.	SHEET
D	PP03	23 OF 34
		REVISION

KERR-McGEE CHEMICAL LLC

DESIGN		DATE
DRAWN BY	C. LANA	XX/XX/XX
PROJ. ENGR.	R. CAPP	
ENGR. MNGR.		

APPROVED FOR CONSTRUCTION

	BY	DATE		BY	DATE
SAFETY			PROCESS ENGR.		
ENVIRONMENTAL			PROJECT ENGR.		
OPERATIONS MNGR.			ENGR. MNGR.		
PRODUCTION SUPT.			PLANT MNGR.		
QLTY. CONTROL					

P.O. BOX 55 HENDERSON, NEV. 89009-7000

ATHENS LATERAL
WELLFIELD AND PUMP STATION #3
PLAN AND PROFILE STA 27+00.00 TO 31+08.13

DATE: 12/31/01
SCALE: 1" = 40'

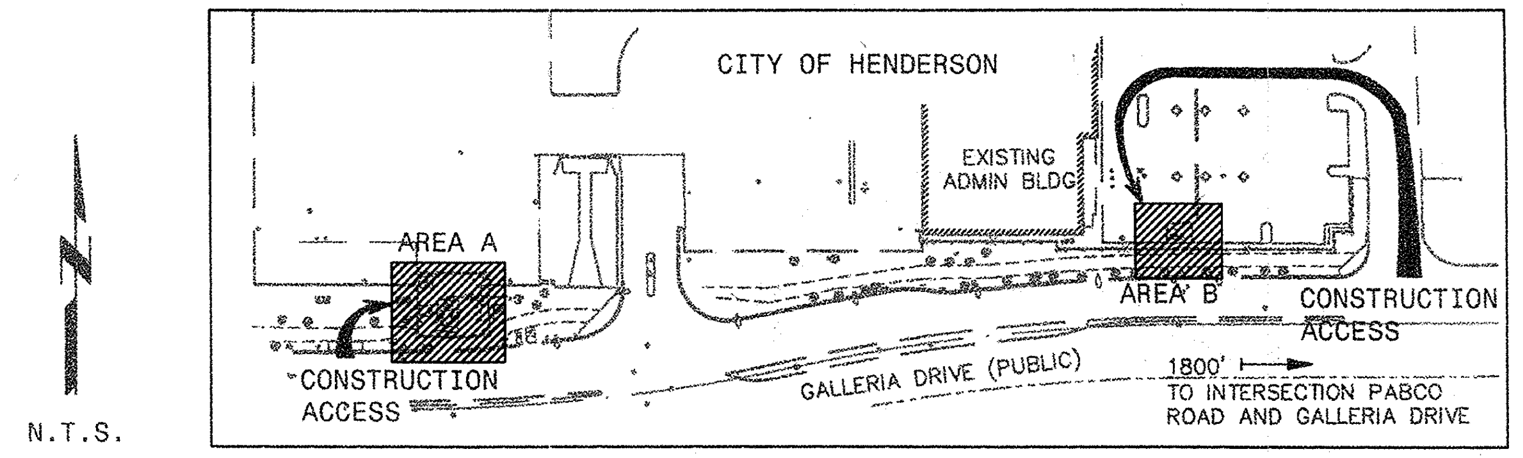
TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±
0.00 ±
0.000 ±
AFE No.
JOB No. 51133O.00

REVISIONS
(DESTROY ALL PRINTS OF AN EARLIER DATE THAN LATEST REVISION)

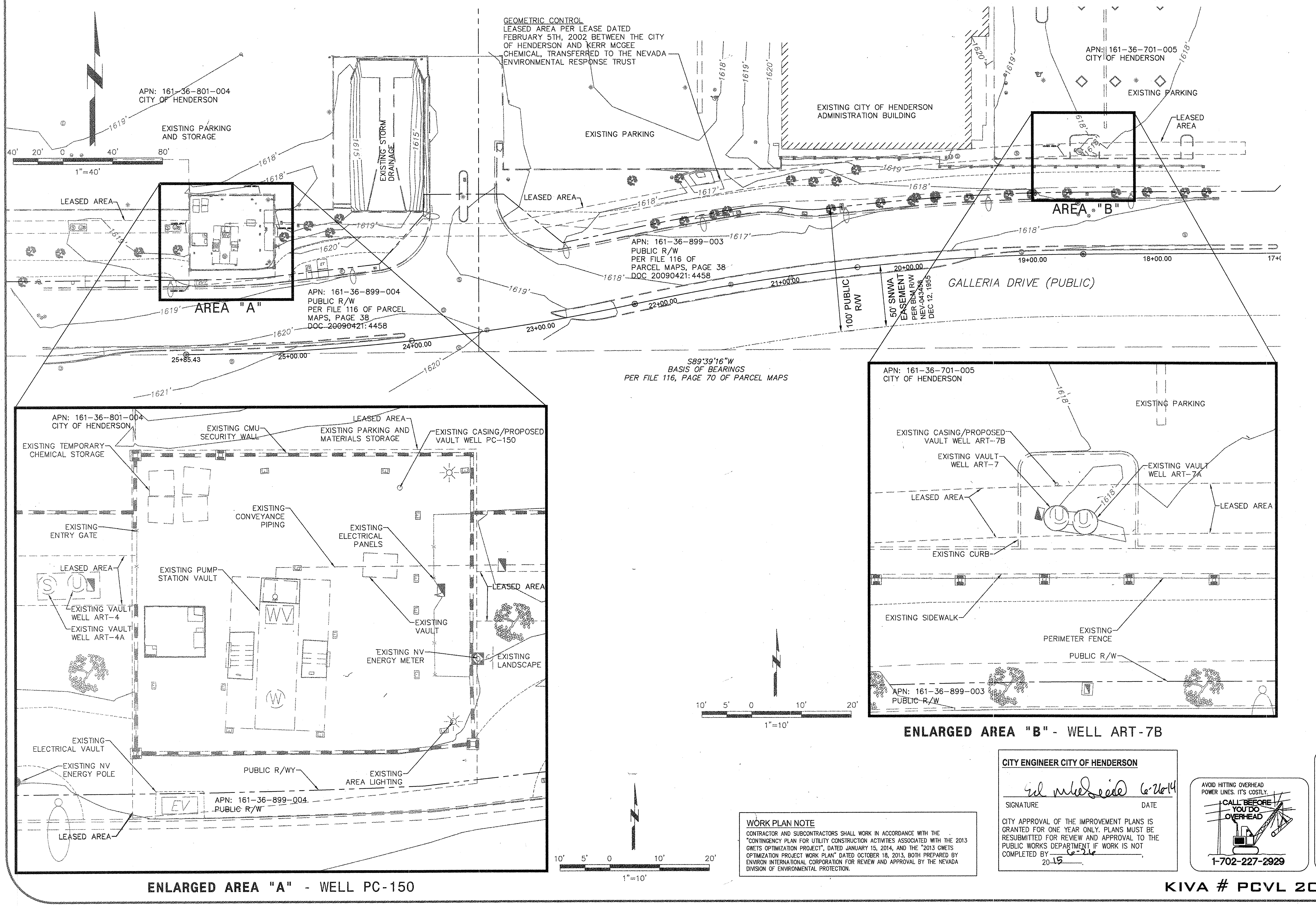
REV	DESCRIPTION	BY	DATE

PBS&J
901 N. Green Valley Pkwy. Suite 100 Henderson, Nevada 89014 Telephone: 702/263-7275 Fax: 702/263-7200
ENGINEERING • PLANNING • SURVEYING • CONSTRUCTION SERVICES

Drawing: 51130-PP03/ Date: 04/13/01 / Time:



KEY MAP



ENLARGED AREA "A" - WELL PC-150

ENLARGED AREA "B" - WELL ART-7B

SUBUSRFACE STRUCTURES NOTE

ALL SUBSURFACE STRUCTURES SHOWN ON THESE PLANS ARE DESIGNED FOR STANDARD HIGHWAY LOADINGS. THE STANDARD SATISFACTORY EARTHEN COVERAGE REQUIREMENTS AS ESTABLISHED BY THE STRUCTURE MANUFACTURER MAY NOT ALWAYS BE ADEQUATE DURING CONSTRUCTION. WHEN CONSTRUCTION EQUIPMENT HEAVIER THAN TRAFFIC LOADS FOR WHICH STRUCTURE HAS BEEN DESIGNED IS TO BE DRIVEN OVER OR CLOSE TO THE BURIED STRUCTURE, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE ADDITIONAL COVERAGE REQUIRED TO AVOID DAMAGE TO THE STRUCTRE. THE ADEQUACY OF THE COVERAGE REQUIREMENTS FOR STRUCTURES SHALL BE ANALYZED AND CHECKED BY THE CONTRACTOR TO ADDRESS LOADING CONDITIONS IMPOSED BY CONSTRUCTION ACTIVITY. ANY SUBSURFACE STRUCTURE DAMAGE BY CONSTRUCTION ACTIVITY SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTORS SOLE EXPENSE.

GENERAL NOTE:

1. THIS SHEET REFLECTS EXISTING SITE CONDITIONS.
2. ALL UTILITIES AND LATERAL LOCATIONS HAVE BEEN REFERENCED FROM THE ORIGINAL CONSTRUCTION DOCUMENTS WHERE PROVIDED. CONTRACTOR SHALL VERIFY THE LOCATION PRIOR TO EXCAVATION.

CONSTRUCTION NOTE

NO LESS THAN TWO (2) WEEKS PRIOR TO BEGINNING SITE CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL CALL (702) 267-2700 BETWEEN THE HOURS OF 6AM AND 4PM, AND NOTIFY THE CITY OF HENDERSON WASTEWATER OPERATIONS MANAGER OR UNIT SUPERVISOR REGARDING THE PENDING SITE CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION SCHEDULE TO THE CITY OF HENDERSON REPRESENTATIVE, INCLUDING AN ESTIMATE OF OVERALL CONSTRUCTION DURATION AT THE SITE. AN ON-SITE MEETING SHALL BE SCHEDULED PRIOR TO INITIATING CONSTRUCTION TO DISCUSS AND REVIEW THE NATURE AND EXTEND OF CONSTRUCTION IMPACT ON EXISTING SITE OPERATIONS, TO INCLUDE: SITE SECURITY PROCEDURES AND PROTOCOL; VEHICLE PATH OF TRAVEL; CONSTRUCTION WORK ZONE DELINEATION AND EXCLUSIONS; AND, CONSTRUCTION MATERIALS STAGING NEEDS.

NOTICE TO CONTRACTOR

-QUANTITIES SHOWN ARE ESTIMATES ONLY AND ARE INTENDED TO ILLUSTRATE SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT QUANTITIES INVOLVED.

-EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: (800) 227-2600

LEGAL DESCRIPTION

A PORTION OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 36, TOWNSHIP 21 SOUTH, RANGE 62 EAST M.D.M., CLARK COUNTY, NEVADA ASSESSOR'S PARCEL NUMBERS 161-36-701-005 AND 161-36-801-004. SAID PARCELS CONTAIN A TOTAL OF 288.29 ACRES OF LAND MORE OR LESS AS DETERMINED BY COMPUTER METHODS.

BENCHMARK

BENCHMARK NUMBER: 91
2" BRASS CAP IN THE TOP OF CURB AT THE SOUTHEAST CORNER OF ATHENS AVENUE AND MOSER DRIVE.
ELEVATION = 1621.56 FEET, 494.254 METERS PER THE CITY OF HENDERSON VERTICAL CONTROL (NAVD 88)

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CITY ENGINEER CITY OF HENDERSON

6-26-14

SIGNATURE DATE

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CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.
Call before you do UnderGround
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
OR
1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

KIVA # PCVL 2001705025 REVISED

JONATHAN D. TULL
Exp. 06/30/2016
No. 14581
6-24-14

NO.	BY	CK	APP

DATE REVISIONS AND RECORD OF ISSUE

AGENCY DESIGNATION:

S&B CHRIST CONSULTING, LLC
OPS RESEARCH & CIVIL ENV ENGINEERING
5580 S. FORT APACHE RD. #130
LAS VEGAS, NV 89148
OFFICE: (702) 202-6004
SBCHRISTCONSULTING.COM

MODIFICATIONS TO ATHENS ROAD WELL FIELD AND LIFT STATION #3

OVERVIEW

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

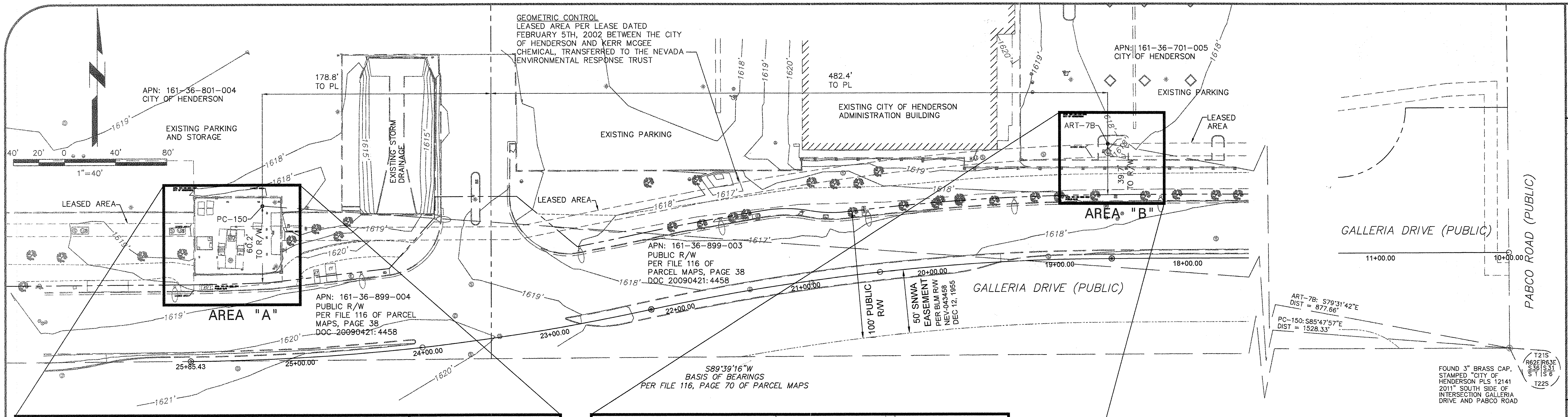
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

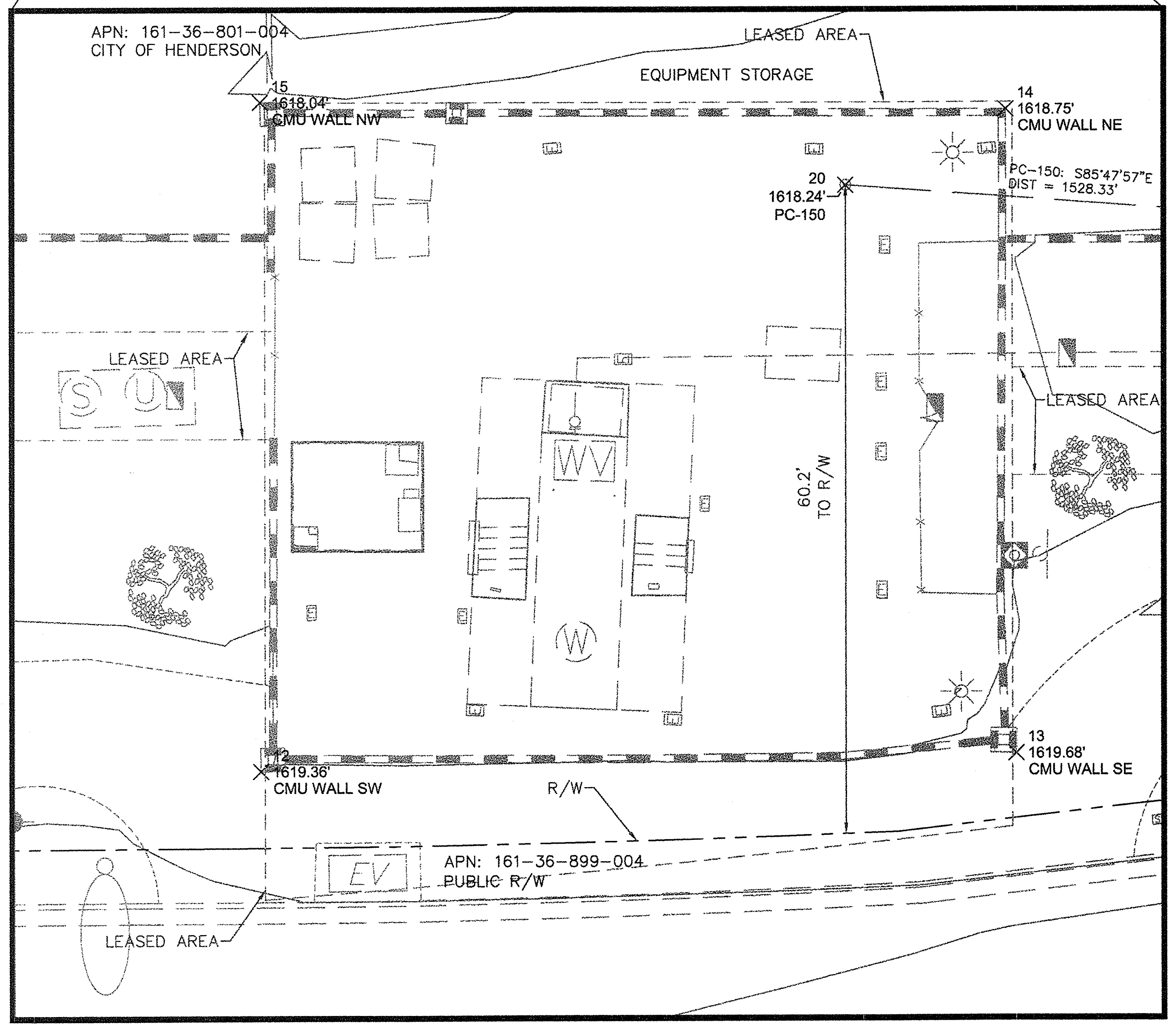
PROJECT NO.
518-14-001

SHEET
24 OF 34

C-1R

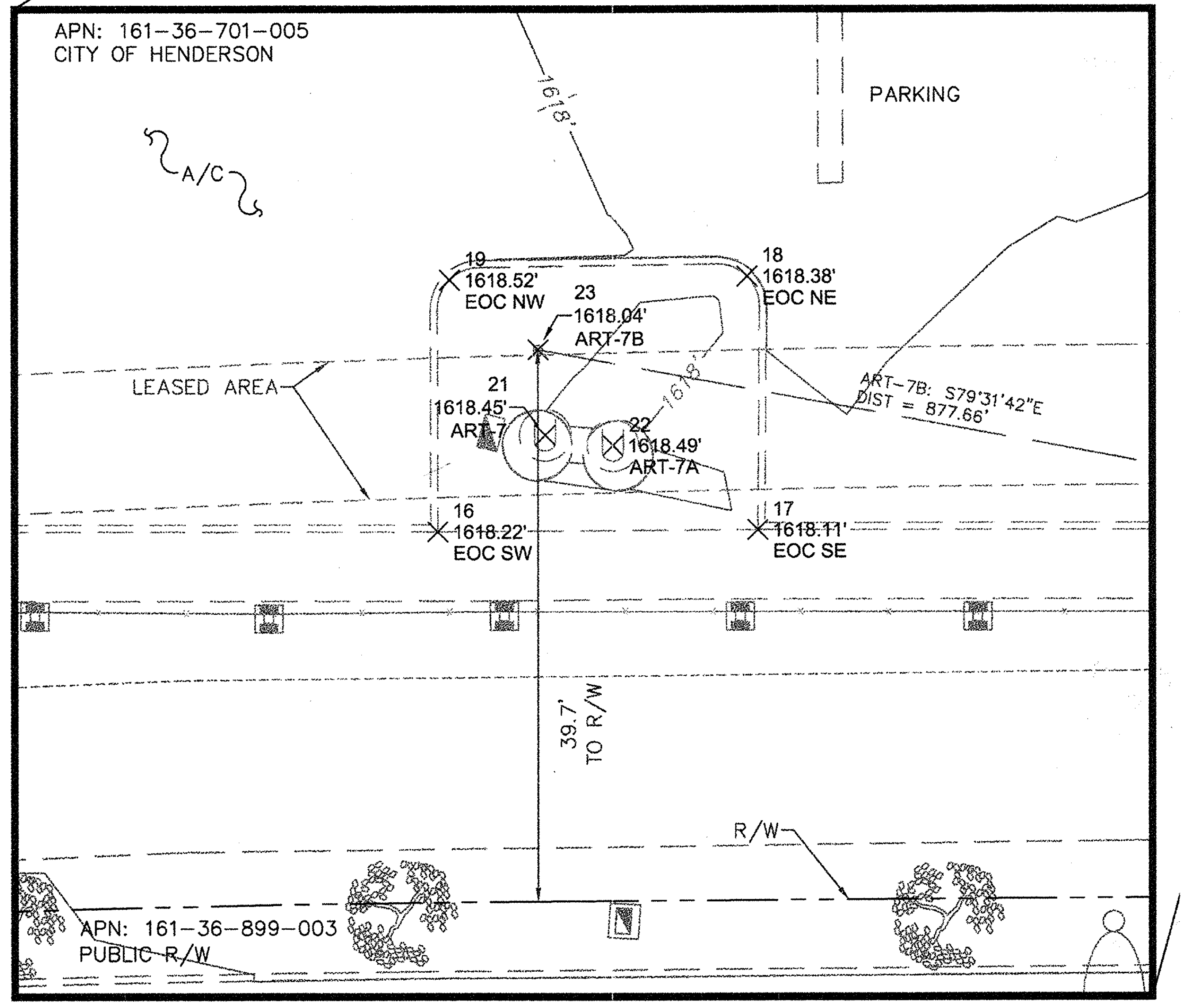
6009





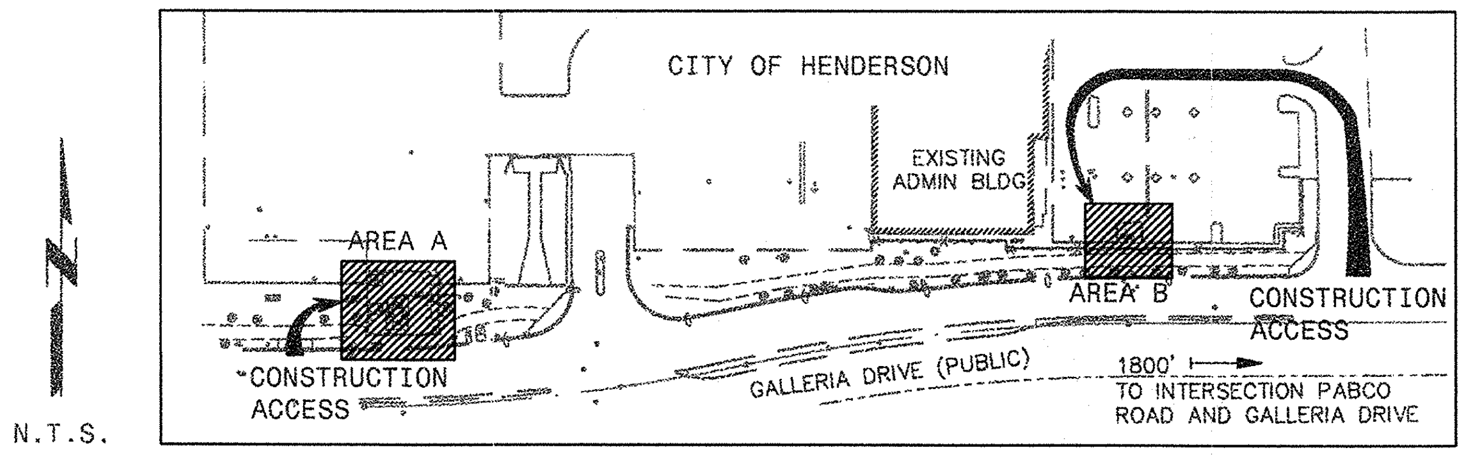
ENLARGED AREA "A" - WELL PC-150

10' 5' 0 10' 20'
1"=10'



ENLARGED AREA "B" - WELL ART-7B

10' 5' 0 10' 20'
1"=10'



KEY MAP

BENCHMARK

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POINT TABLE

POINT	NAME	ELEVATION	NORTHING	EASTING
12	CMU WALL SW	1619.36'	1197416.1293	936099.7902
13	CMU WALL SE	1619.68'	1197417.7256	936169.6530
14	CMU WALL NE	1618.75'	1197477.4792	936168.6919
15	CMU WALL NW	1618.04'	1197478.1784	936099.7450
16	EOC SW	1618.22'	1197504.9848	936807.8730
17	EOC SE	1618.11'	1197505.1322	936830.8337
18	EOC NE	1618.38'	1197523.2693	936830.0642
19	EOC NW	1618.52'	1197522.9990	936808.7135
20	PC-150	1618.24'	1197470.4572	936153.8849
21	ART-7	1618.45'	1197511.8956	936815.5809
22	ART-7A	1618.49'	1197511.1692	936820.4424
23	ART-7B	1618.04'	1197518.0169	936815.0658

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
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1-702-227-2929

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1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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Call
811
OR
1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

KIVA # PCVL 2001705025 REVISED

JONATHAN D. TULL
CIVIL
Exp. 06/30/2016
No. 14581
6-24-14

NO.	BY	CK	APP	REVISIONS AND RECORD OF ISSUE	DATE	AGENCY DESIGNATION:

S&B CHRIST CONSULTING, LLC
OPS RESEARCH & CIVIL ENV ENGINEERING
5580 S. FORT APACHE RD. #130
LAS VEGAS, NV 89148
OFFICE: (702) 202-6004
SBCHRISTCONSULTING.COM

MODIFICATIONS TO ATHENS ROAD
WELL FIELD AND LIFT STATION #3

GEOMETRIC CONTROL

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

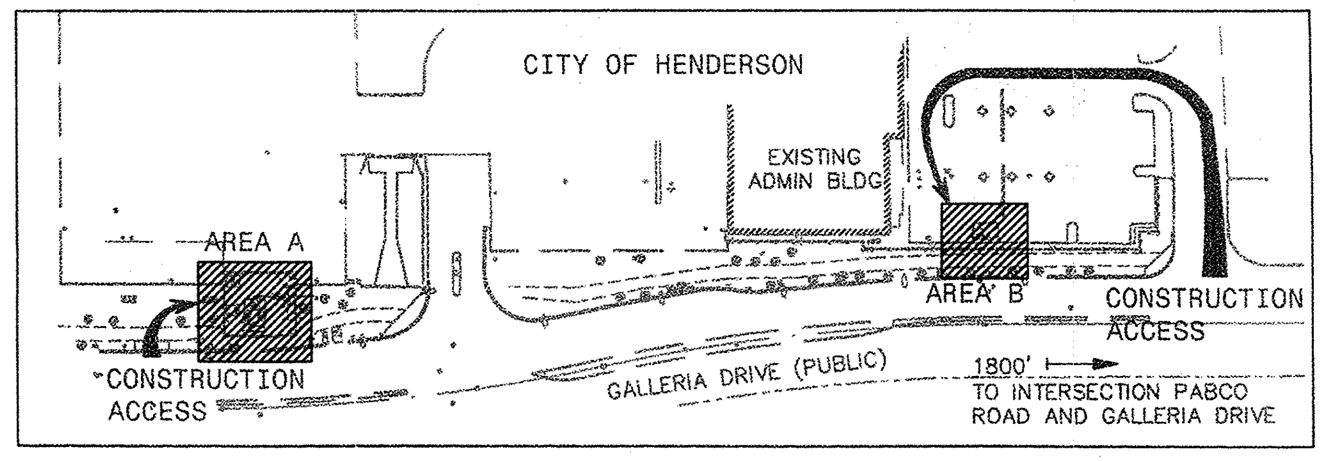
PROJECT NO.
518-14-001

SHEET
25 OF 34

C-2R

6009

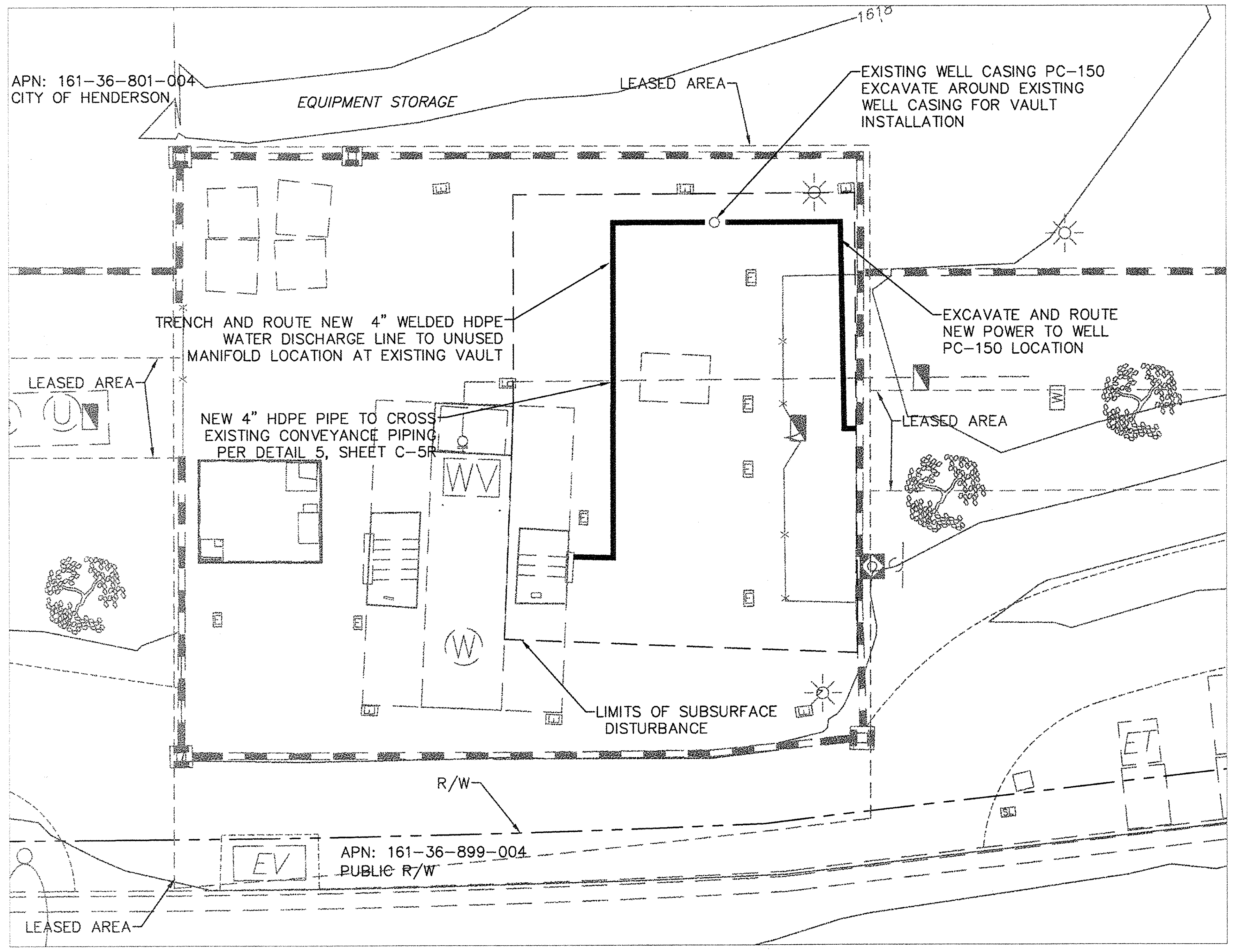
N.T.S.



KEY MAP

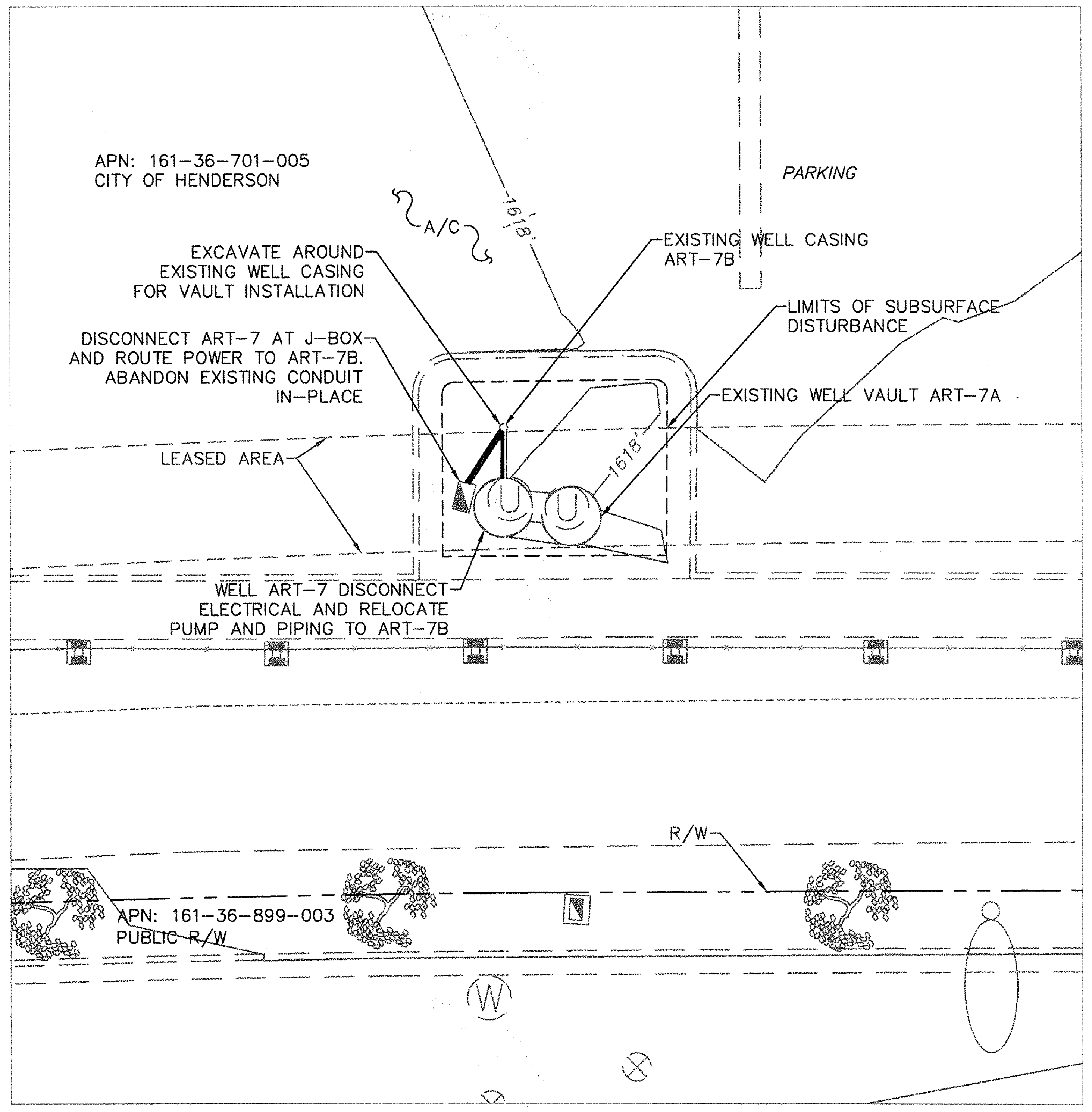
JONATHAN D. TULL
Exp. 06/30/2016
CIVIL
No. 14581

6-24-14



AREA "A" - WELL PC-150

10' 5' 0 10' 20'
1"=10'



AREA "B" - WELL ART-7B

10' 5' 0 10' 20'
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BENCHMARK

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CITY ENGINEER CITY OF HENDERSON

Ed McBride 6-26-14
SIGNATURE DATE

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KIVA # PCVL 2001705025 REVISED

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE

AGENCY DESIGNATION:

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OPS RESEARCH & CIVIL/ENV ENGINEERING
5580 S. FORT APACHE RD. #130
LAS VEGAS, NV 89148
OFFICE: (702) 202-6004
SBCHRISTCONSULTING.COM

MODIFICATIONS TO ATHENS ROAD
WELL FIELD AND LIFT STATION #3

DEMOLITION SHEET

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

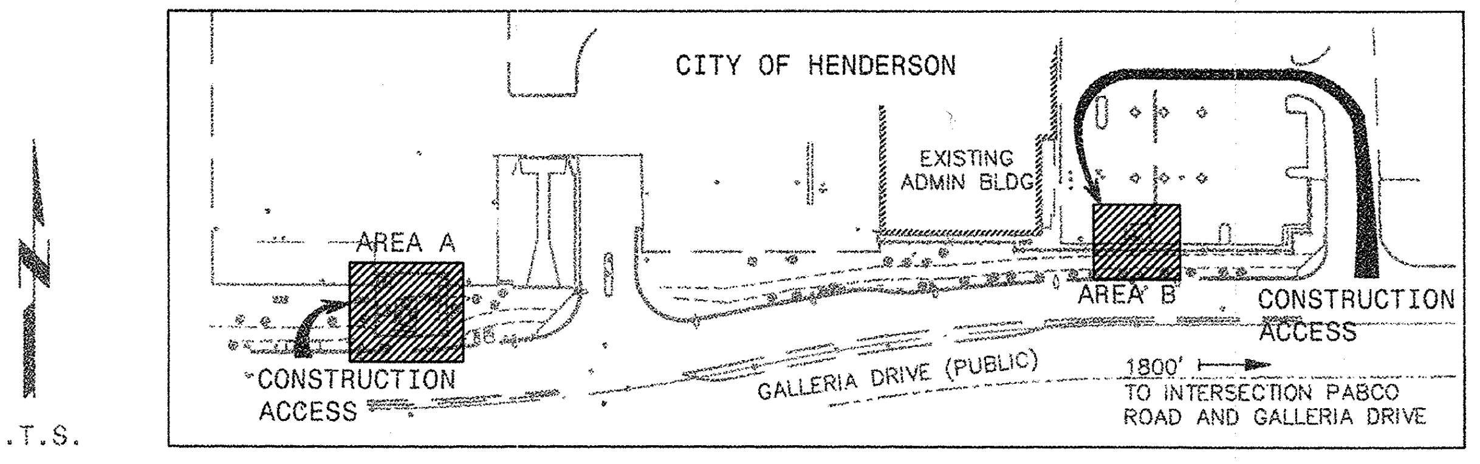
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
518-14-001

SHEET
26 OF 34

C-3R

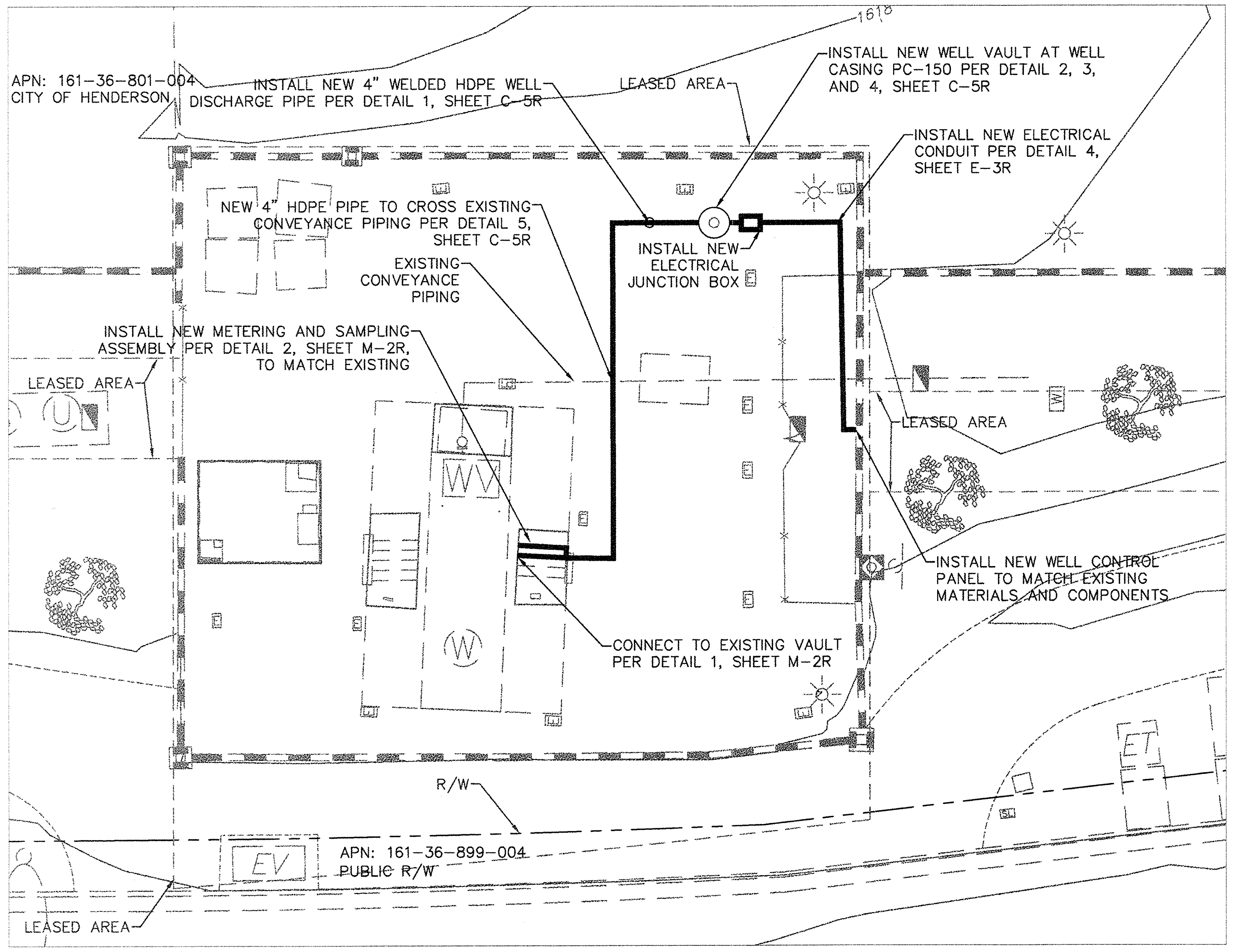
6009



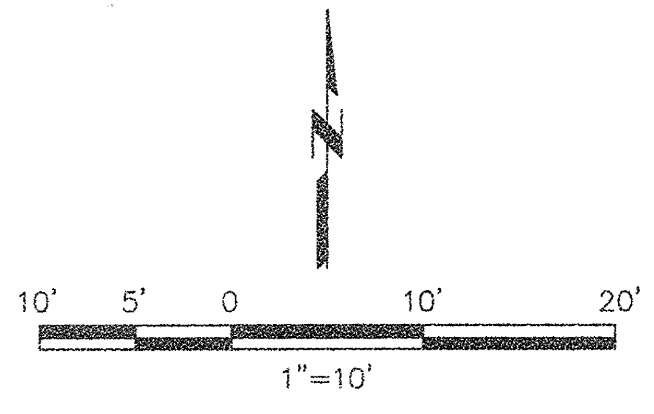
KEY MAP

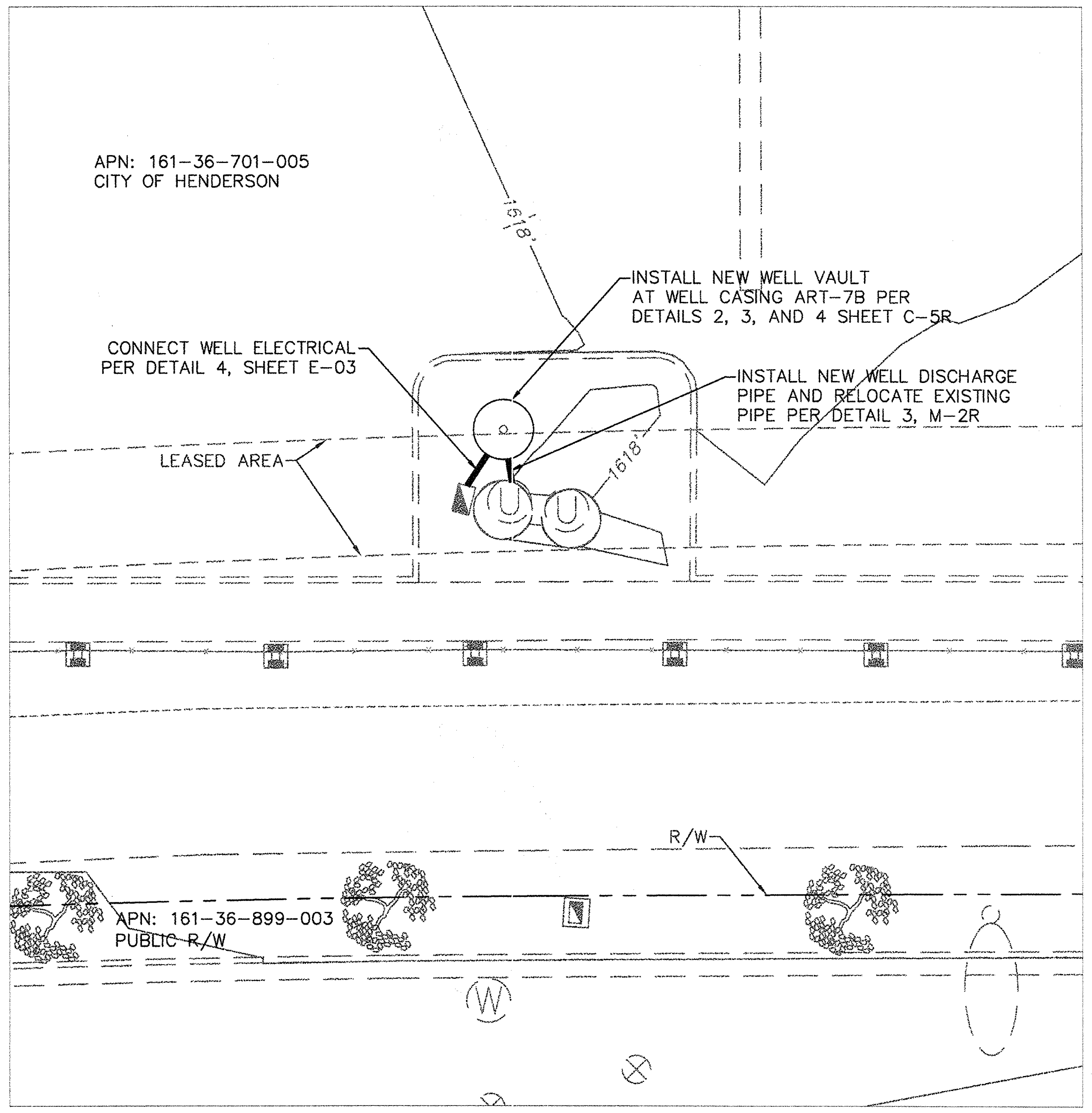
JONATHAN D. TULL
Exp. 06/30/2016
CIVIL
No. 14581

6-24-14



AREA "A" - WELL PC-150





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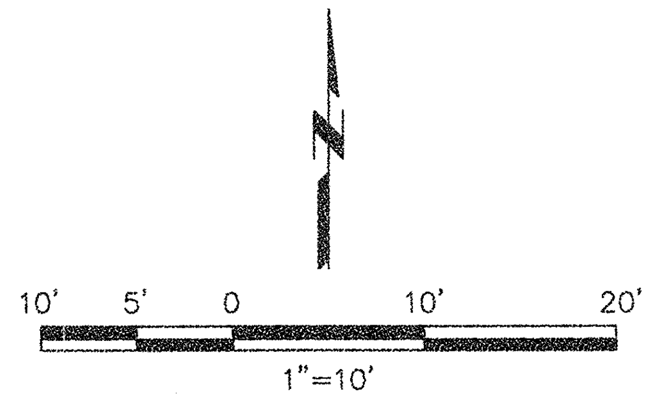

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CITY ENGINEER CITY OF HENDERSON

Ed McDonald 6-26-14
SIGNATURE DATE

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5580 S. FORT APACHE RD. #130
LAS VEGAS, NV 89148
OFFICE: (702) 202-6004
SBCHRISTCONSULTING.COM

MODIFICATIONS TO ATHENS ROAD
WELL FIELD AND LIFT STATION #3

CIVIL SHEET

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

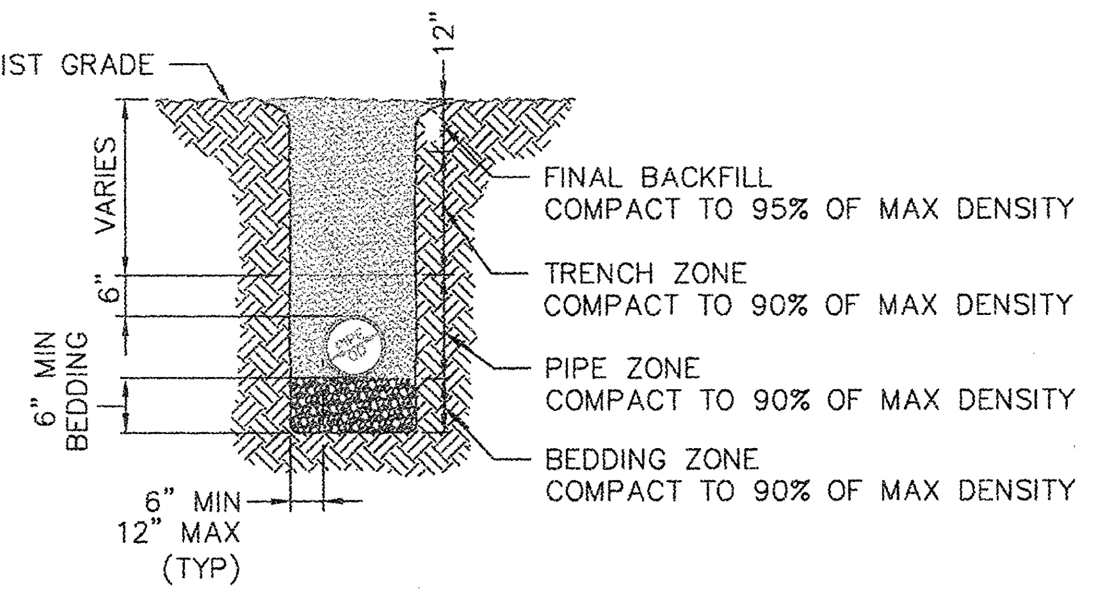
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
518-14-001

SHEET
27 OF 34

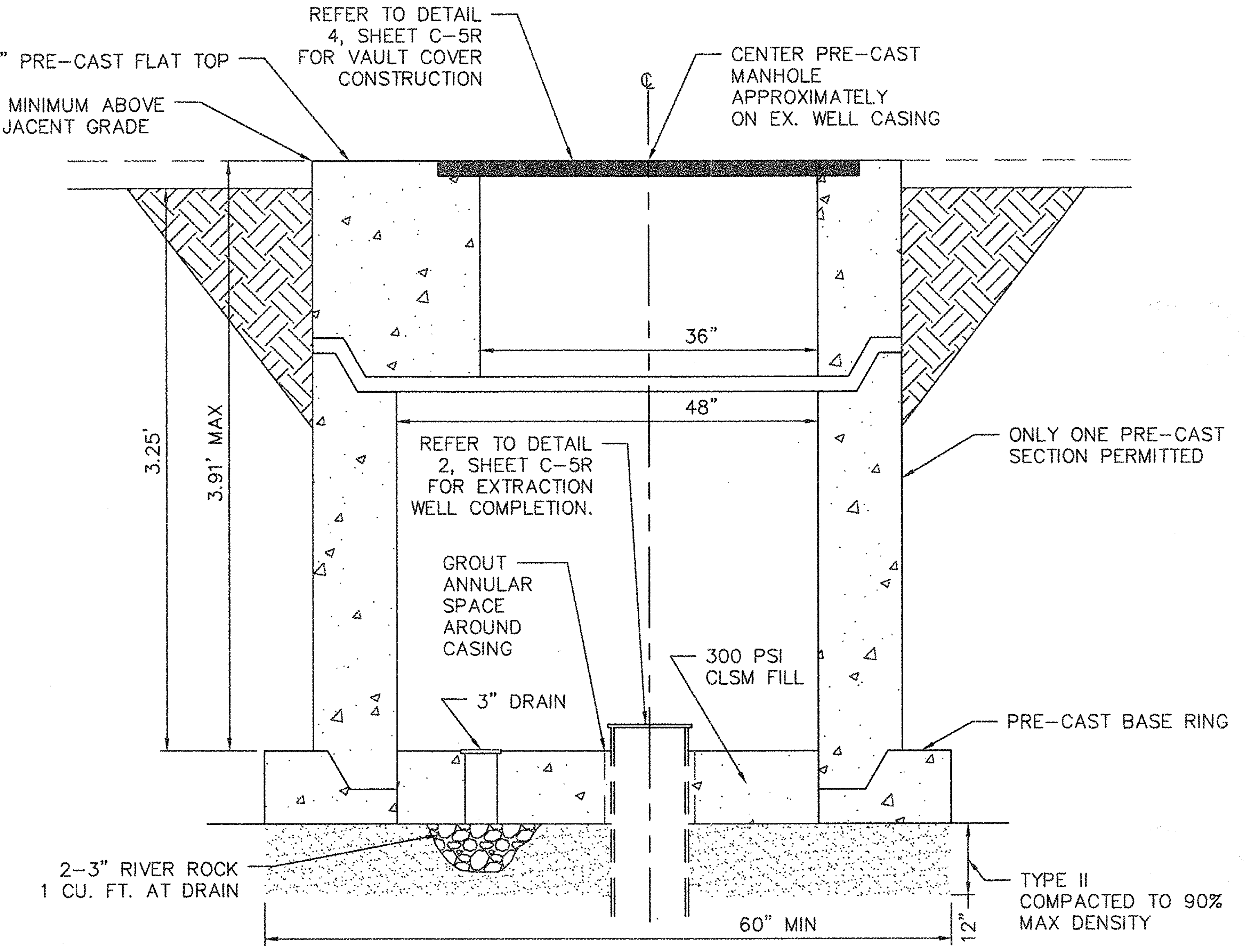
C-4R

6009

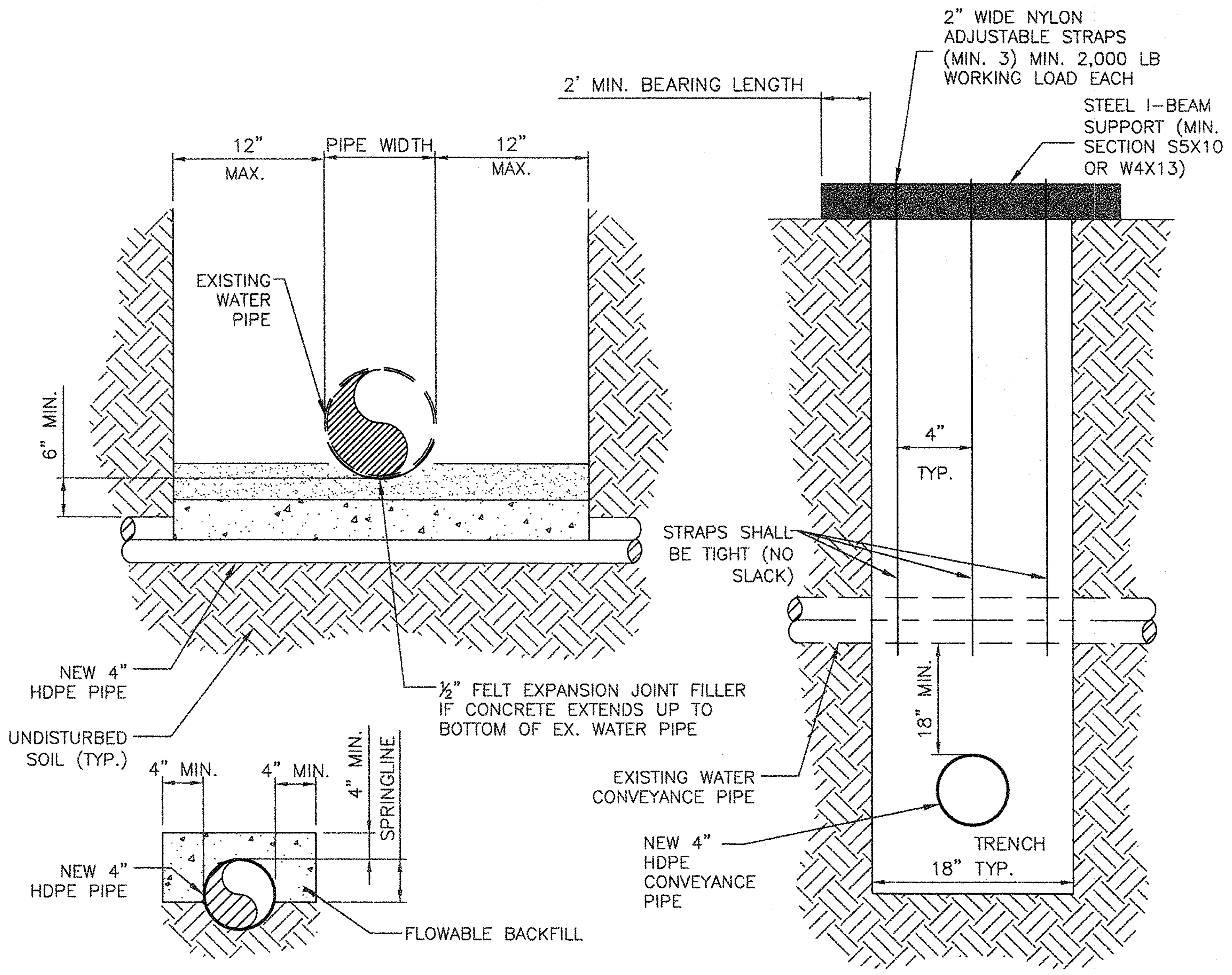


NOTES:
1. MECHANICAL COMPACTION REQUIRED, MAX DENSITY PER ASTM D1557
2. BEDDING, PIPE ZONE, TRENCH ZONE, AND FINAL BACKFILL TO BE SELECTED BACKFILL PER CLARK COUNTY UNIFORM STANDARD SPECIFICATION 207.02.01
3. TRENCH EXCAVATION SHALL COMPLY WITH ALL CURRENT OSHA REGULATIONS
4. PIPE COVER VARIES, SEE PIPE DETAILS

TYPICAL TRENCH
N.T.S.
1
C-5R



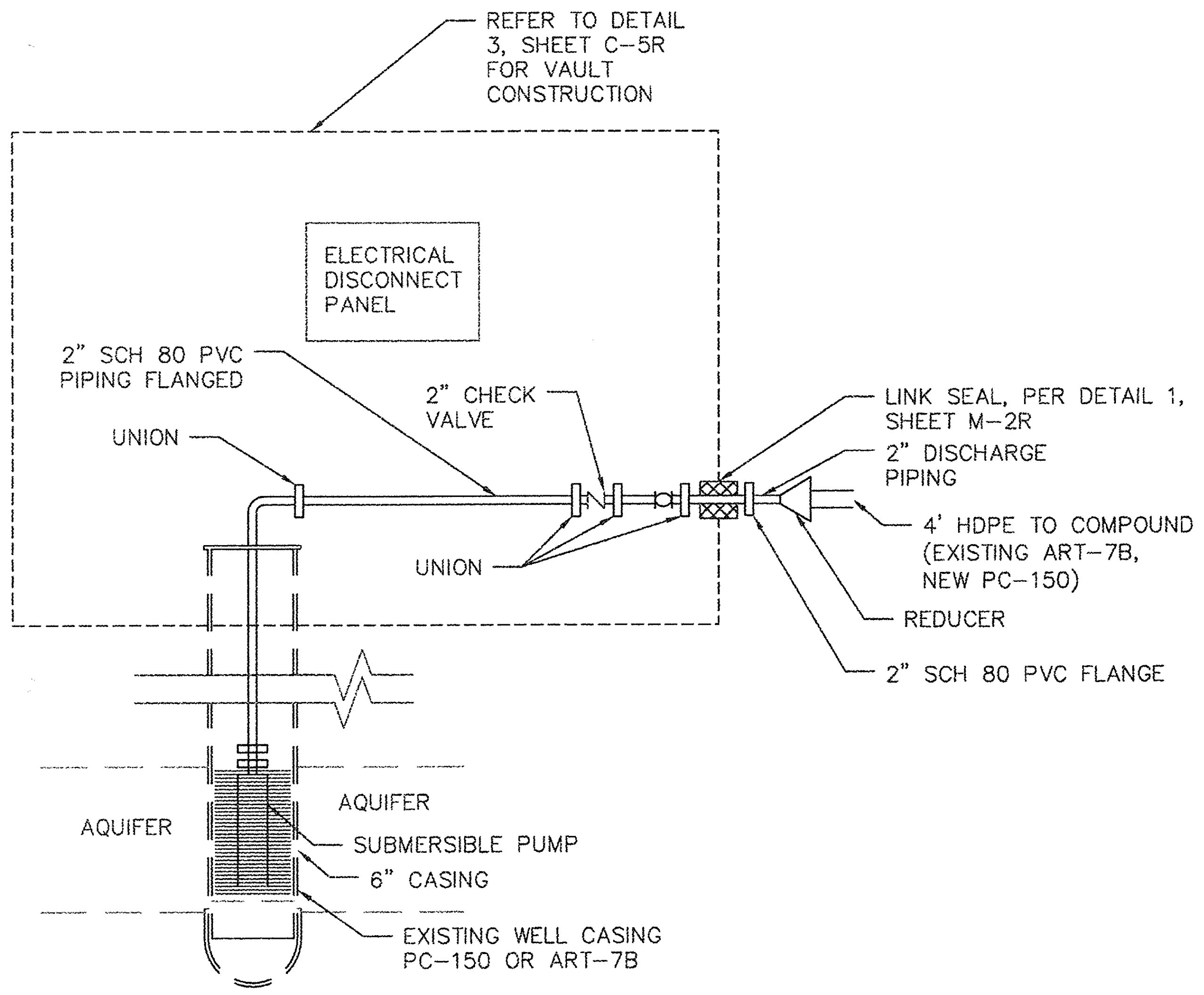
WELL VAULT
N.T.S.
3
C-5R



STRUCTURAL SUPPORT NOTES:
1. THIS DETAIL SHALL APPLY TO ALL INSTANCES WHERE SEPARATION BETWEEN EXISTING AND NEW UTILITIES IS 18" OR LESS.
2. REPLACE FLOWABLE BACKFILL WITH 3,000 PSI CONCRETE WHEN CLEARANCE IS ONE FOOT OR LESS.
3. INSTALL #15 FELT OR NEOPRENE WATERSTOP AROUND NEW WATER PIPE PRIOR TO THE POUR OF CONCRETE ENCASEMENT TO PREVENT BONDING.

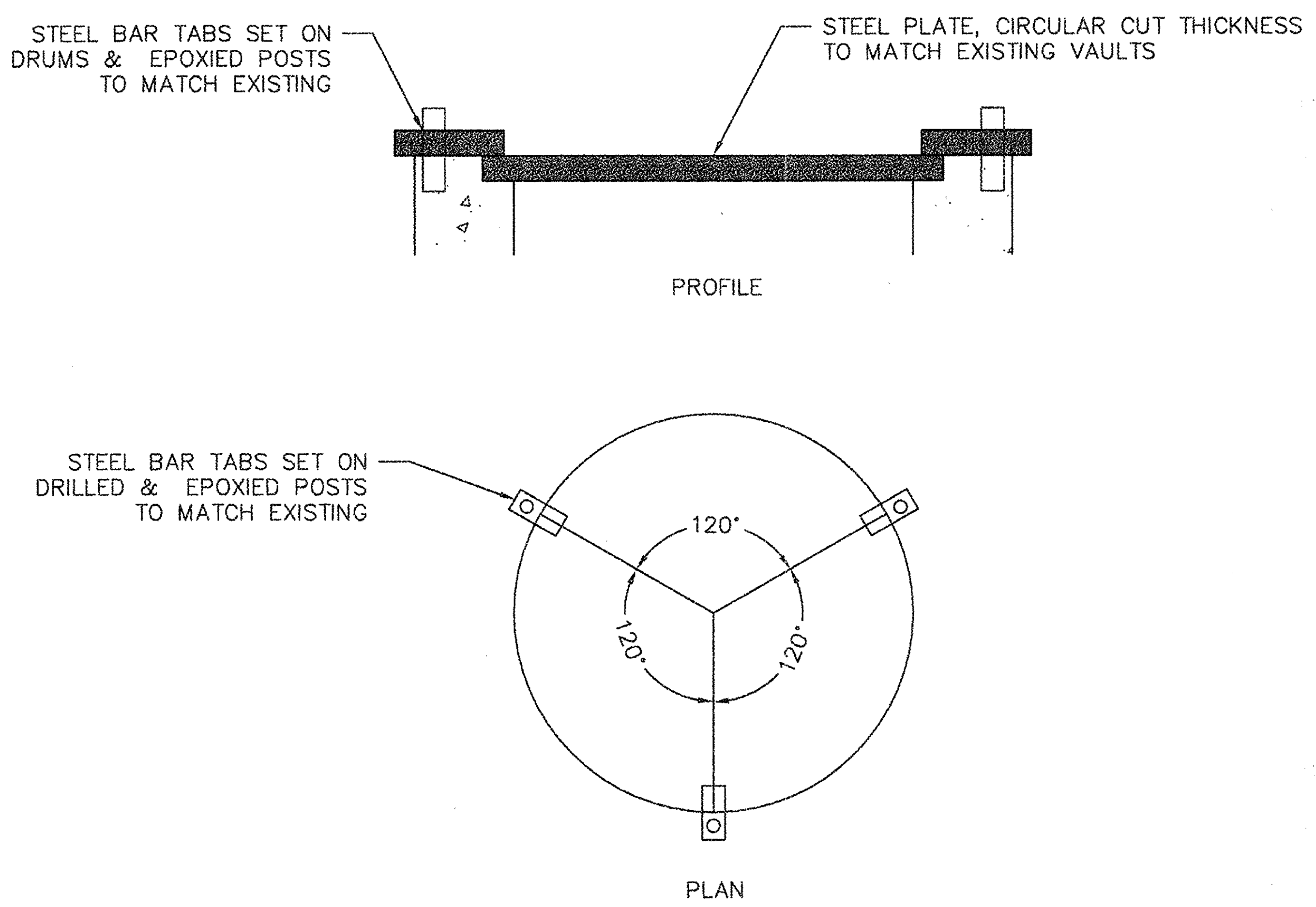
PIPE STRAP NOTES:
1. SUPPORTS SHALL BE INSTALLED AS SOON AS PIPE IS EXPOSED AND REMAIN UNTIL TRENCH BEDDING AND BACKFILL IS REPLACED TO SUPPORT PIPE IN TRENCH

STRUCTURAL SUPPORT AT CROSSING
N.T.S.
5
C-5R



PUMP NOTES:
1. FOR WELL ART-7B, REMOVE AND RELOCATE EXISTING GRUNDFOS 85S50-3 SUBMERSIBLE PUMP, SENSORS AND PIPING FROM WELL ART-7 TO ART-7B. CLEAN PUMP AND APPURTENANCES PRIOR TO REINSTALLATION.
2. FOR ART-7B REFER TO DETAIL 3, M-2R FOR PIPING CONFIGURATION.
3. FOR PC-150, INSTALL NEW GRUNDFOS 40S15-5, 480V A/C PUMP, APPURTENANCES AND PIPING.

EXTRACTION WELL DETAIL
N.T.S.
2
C-5R



VAULT COVER
N.T.S.
4
C-5R

WORK PLAN NOTE

CONTRACTOR AND SUBCONTRACTORS SHALL WORK IN ACCORDANCE WITH THE "CONTINGENCY PLAN FOR UTILITY CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE 2013 GWETS OPTIMIZATION PROJECT", DATED JANUARY 15, 2014, AND THE "2013 GWETS OPTIMIZATION PROJECT WORK PLAN" DATED OCTOBER 18, 2013, BOTH PREPARED BY ENVIRON INTERNATIONAL CORPORATION FOR REVIEW AND APPROVAL BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION.

CITY ENGINEER CITY OF HENDERSON

Ed McGuire 6-26-14
SIGNATURE DATE

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE PUBLIC WORKS DEPARTMENT IF WORK IS NOT COMPLETED BY 6-26, 20 15.

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.
Call before you do UnderGround
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
OR
1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

KIVA # PCVL 2001705025 REVISED

ENGINEER STATE OF NEVADA JONATHAN D. TULL Exp. 06/30/2016 CIVIL No. 14581 PROFESSIONAL
6-24-14

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

AGENCY DESIGNATION:

S&B CHRIST CONSULTING, LLC
OPS RESEARCH & CIVIL ENV ENGINEERING
5580 S. FORT APACHE RD. #130
LAS VEGAS, NV 89148
OFFICE: (702) 202-6004
SBCHRISTCONSULTING.COM

MODIFICATIONS TO ATHENS ROAD WELL FIELD AND LIFT STATION #3

CIVIL DETAILS

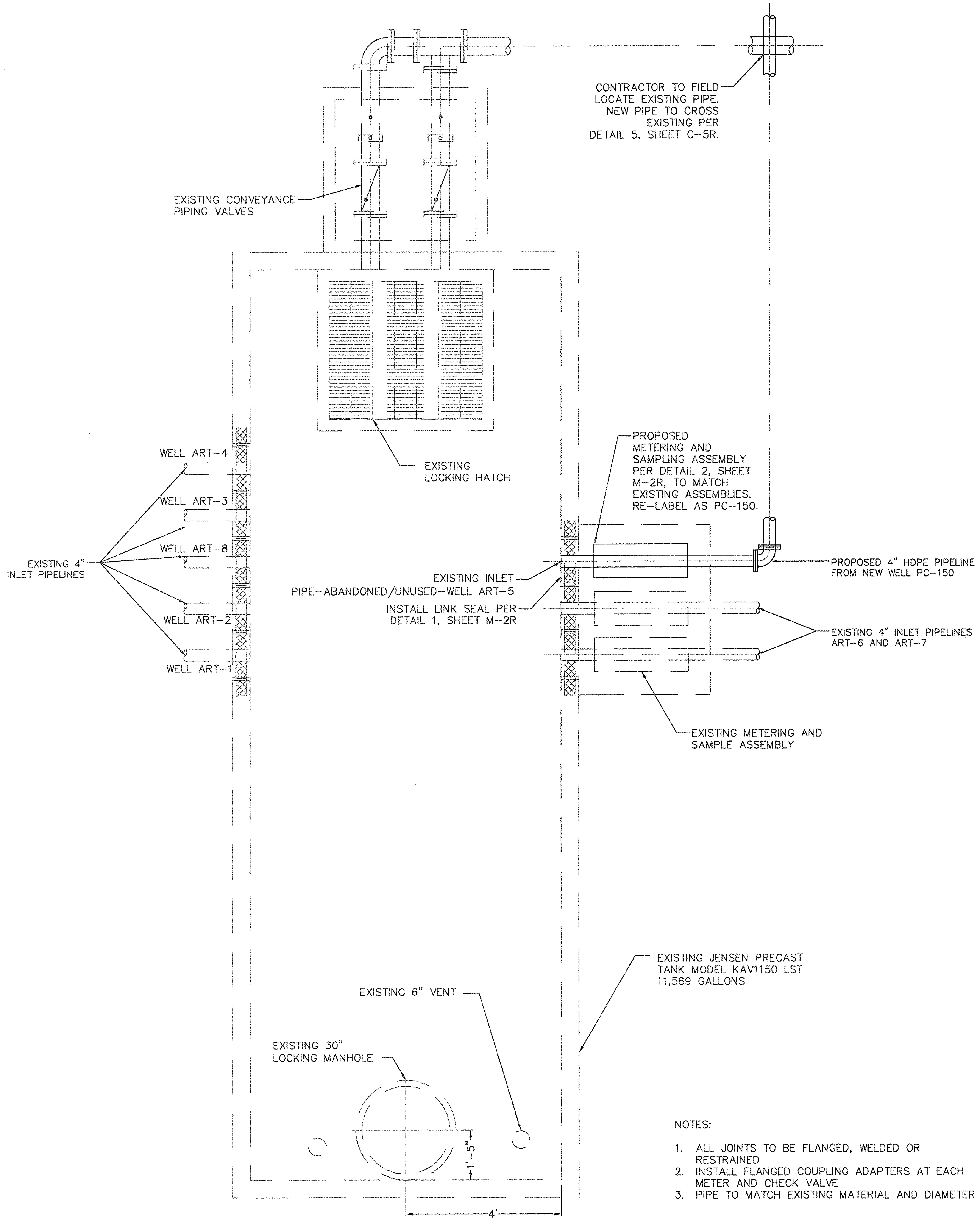
DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
518-14-001

SHEET
28 OF 34
C-5R

6009

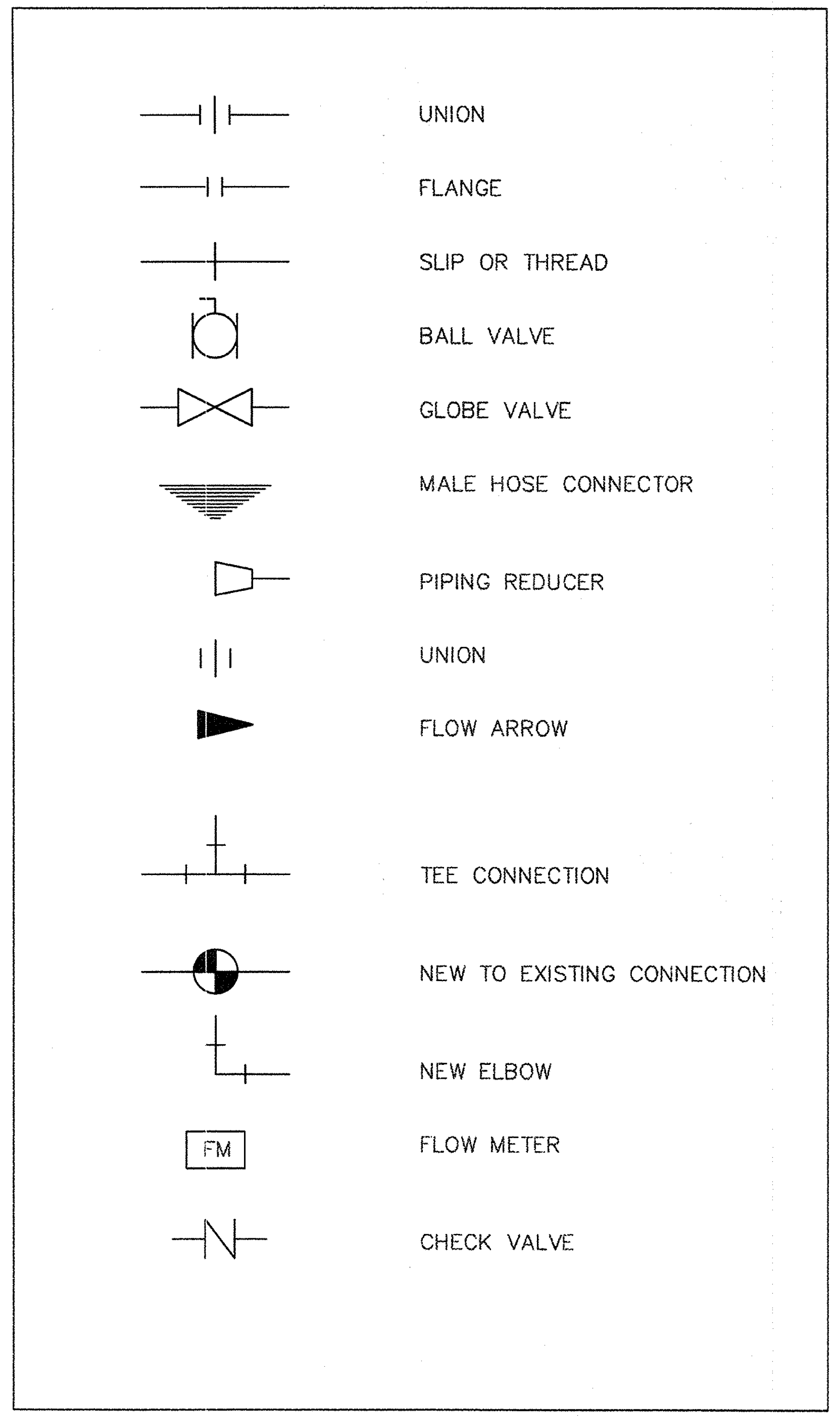


NOTES:

1. ALL JOINTS TO BE FLANGED, WELDED OR RESTRAINED
2. INSTALL FLANGED COUPLING ADAPTERS AT EACH METER AND CHECK VALVE
3. PIPE TO MATCH EXISTING MATERIAL AND DIAMETER

SCALE 1/2"=1'

MECHANICAL/PLUMBING SYMBOL LEGEND



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STATE OF NEVADA PROFESSIONAL ENGINEER
JONATHAN D. TULL
Exp. 06/30/2016
CIVIL
No. 14581
6-24-14

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OFFICE: (702) 202-6004
SBCHRISTCONSULTING.COM

MODIFICATIONS TO ATHENS ROAD
WELL FIELD AND LIFT STATION #3

MECHANICAL PLAN

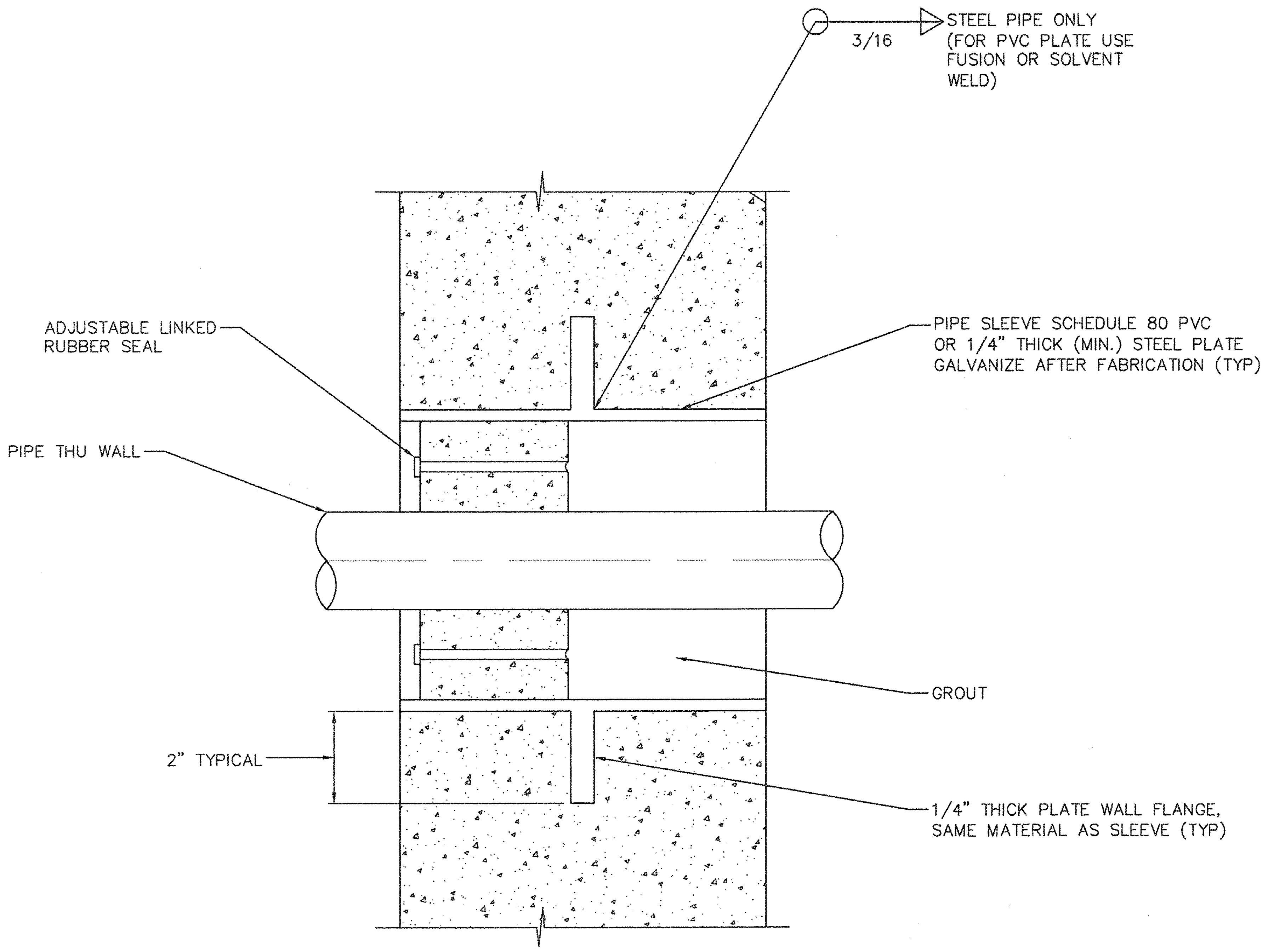
DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

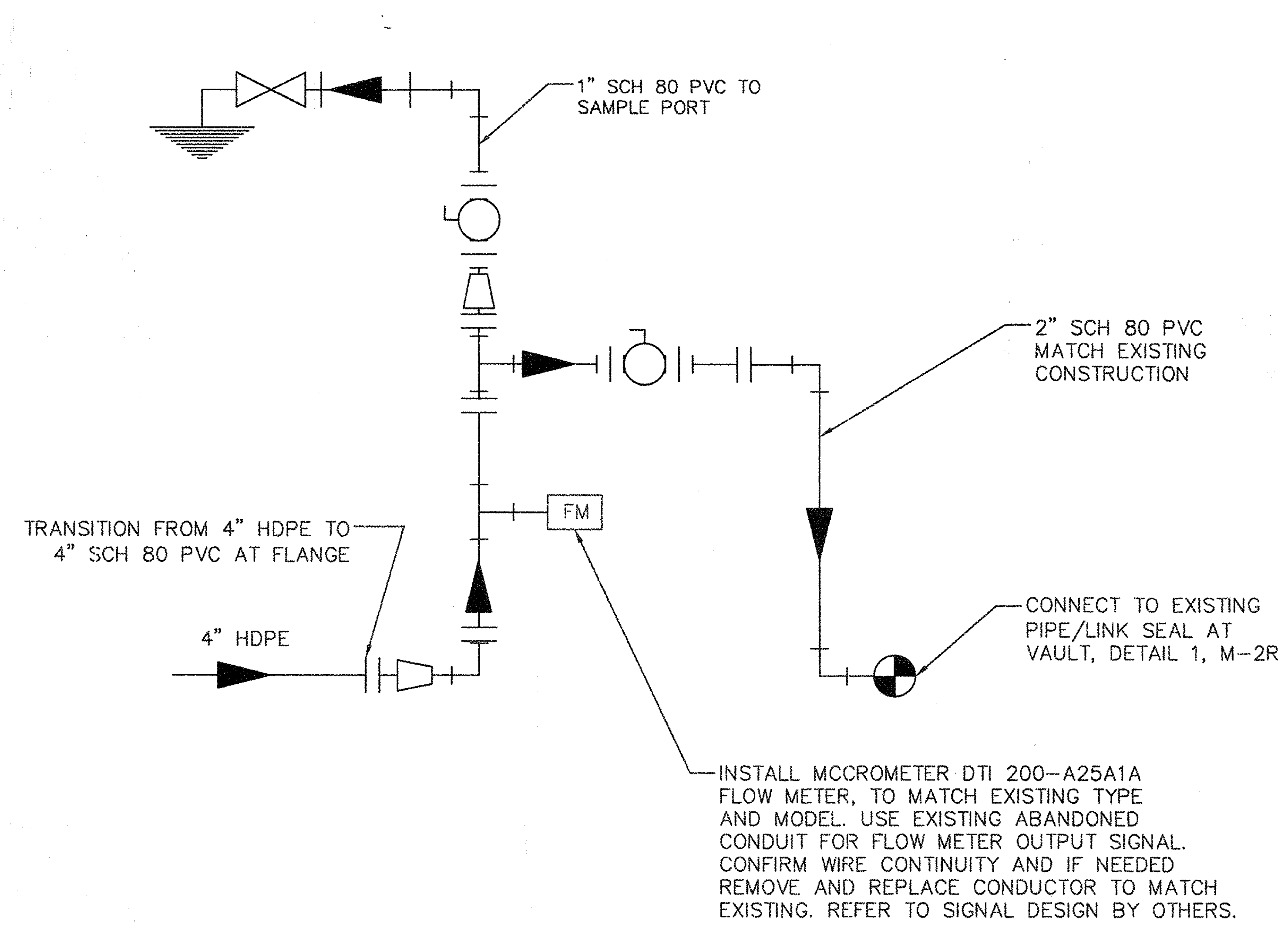
PROJECT NO.
518-14-001

SHEET
29 OF 34

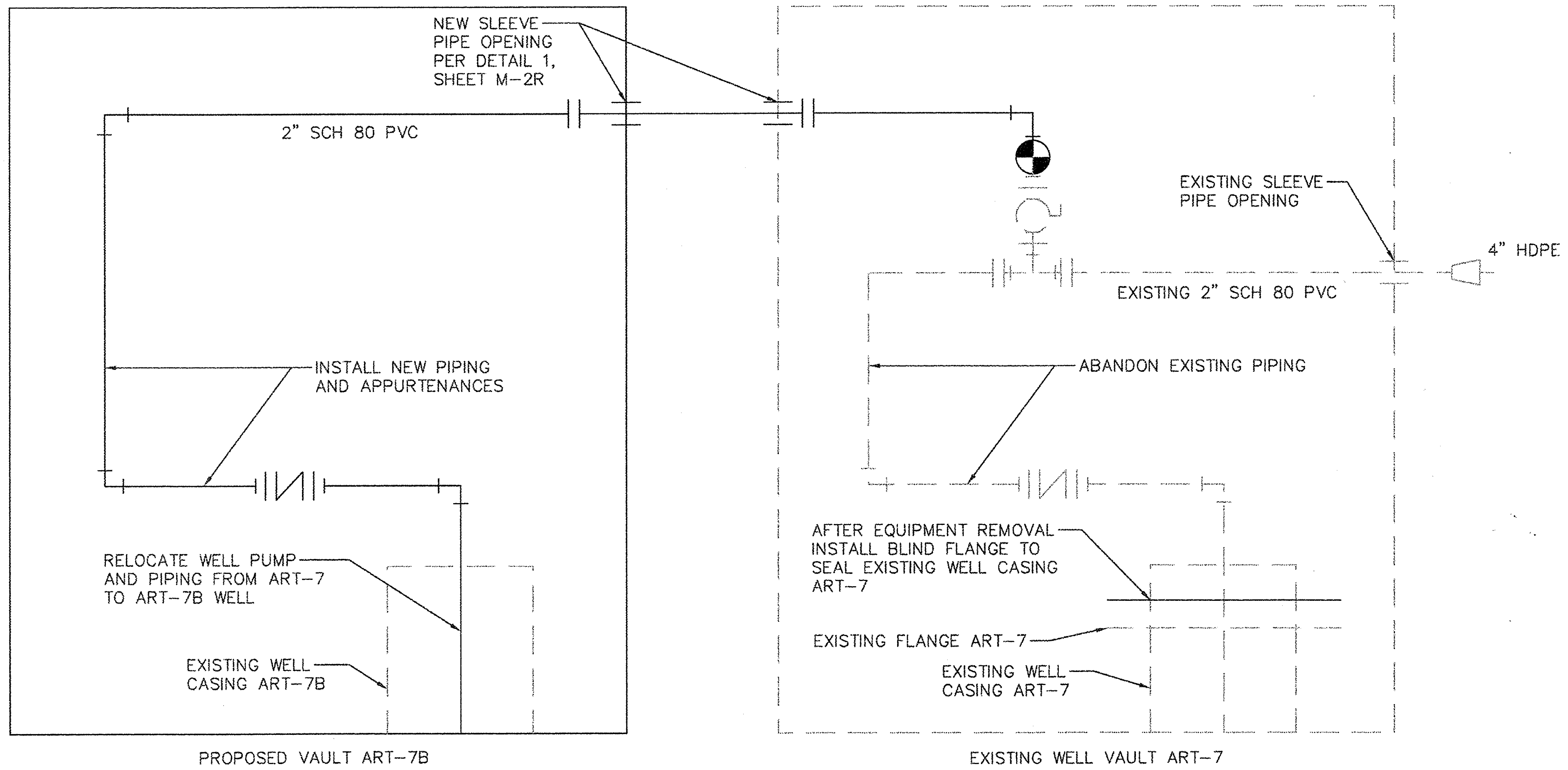
M-1R



SLEEVE PIPE OPENING
N.T.S.
1
M-2R



METERING AND SAMPLING ASSEMBLY
N.T.S.
2
M-2R



CONNECTION WELL ART-7B TO ART-7
N.T.S.
3
M-2R

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ENGINEER - STATE OF NEVADA
PROFESSIONAL
JONATHAN D. TULL
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CIVIL
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SHEET
30 OF 34
M-2R

6009

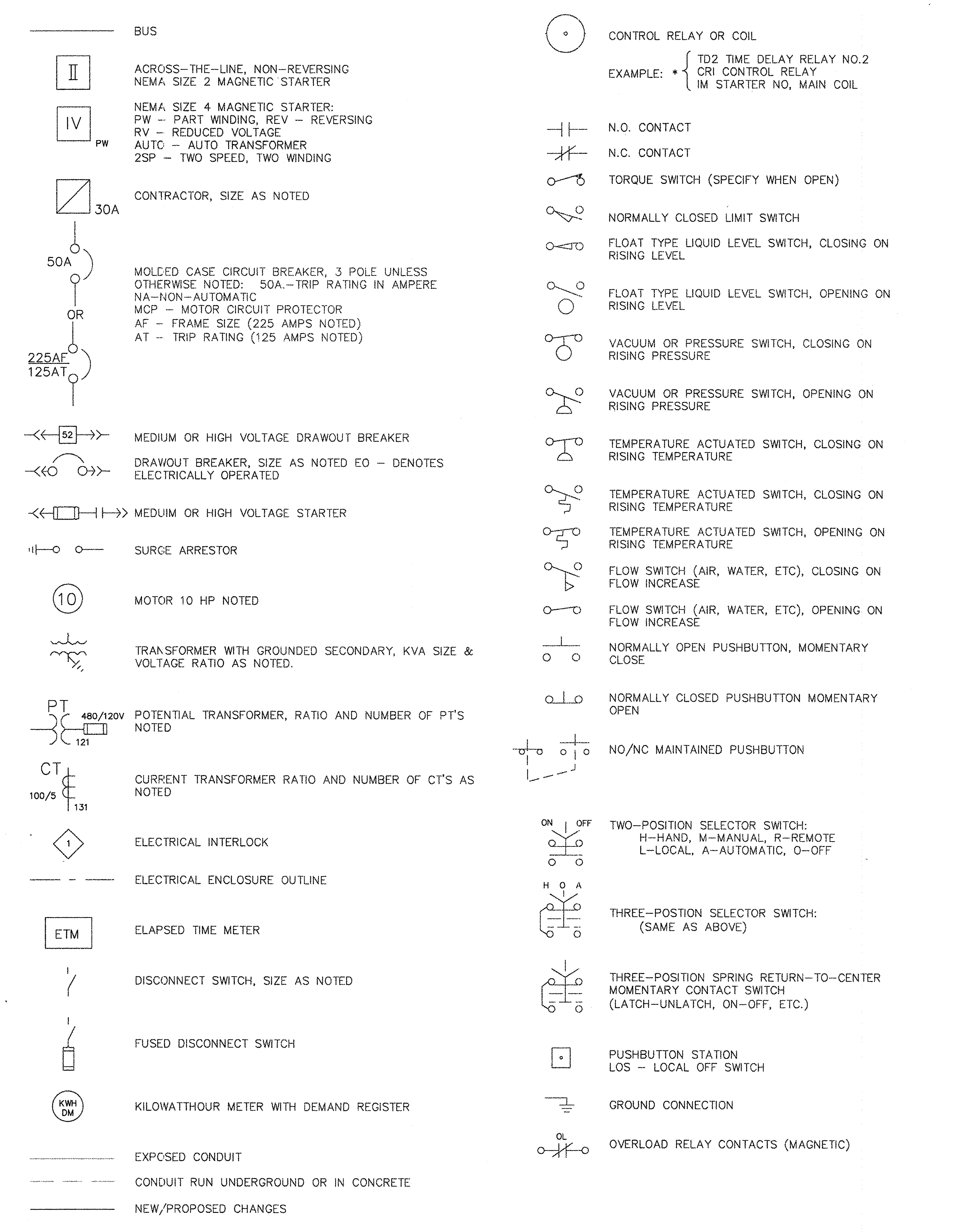
ABBREVIATIONS

A	AMPERE, AMMETER
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONING
AF	AMPERE FRAME SIZE OF CKT. BRKRS.
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
AN	AMMETER
ANN	ANNUNCIATOR
AMP	AMPERES, AMPERAGE
APPR	APPROVED
AS	AMMETER SWITCH, ADJUSTABLE SPEED
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BKR	BREAKER
BBL	BUBBLER
BLDG	BUILDING
C	CONDUIT, CLOSED
CAB	CABINET
CB	CIRCUIT BREAKER
CC	CENTER TO CENTER
CKT	CIRCUIT
CO	CONDUIT ONLY
COND	CONDUIT
COMPT	COMPARTMENT
COMPR	COMPRESSOR
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER (IN INDIVIDUAL STARTER CUBICLE)
CR	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DH	DATA HIGHWAY
DISC	DISCONNECT
DISTR	DISTRIBUTION
DOT	DIRECTION OF TRAVEL
DPDT	DOUBLE POLE DOUBLE THROW
DWG	DRAWING
E	EMPTY, EMERGENCY
ELEV	ELEVATION
EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EP	EXPLOSION PROOF
EQPT	EQUIPMENT
ER	CONDUCTANCE LEVEL RELAY
ETM	ELAPSED TIME METER
EXH	EXHAUST
EXIST	EXISTING
F<	FREQUENCY
FDR	FEEDER
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FM	FREQUENCY METER
FUT	FUTURE
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
FWD	FORWARD CONTRACTOR COIL
GALV	GALVANIZED
GEN	GENERATOR
GRD	GROUND
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HIGH	HIGH SPEED CONTACTOR
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HVAC	HEATER,VENTILATION, AIR CONDITIONING
HZ	HERTZ
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IND	INDICATION (SYSTEM)
I/O	INPUT/OUTPUT
INST	INSTANTANEOUS (TD CONTACT)
INSTR	INSTRUMENT
ISC	SHORT CIRCUIT CURRENT (AMPS)
INVT	INVERT
JB	JUNCTION BOX
J BOX	JUNCTION BOX
KVA	KILO (1000) VOLT AMPS
KW	KILOWATTS
KWH	KILWATT HOUR
LC	LIGHTING CONTRACTOR
LCB	LOCAL CONTROL BOARD
LCP	LOCAL CONTROL PANEL
LOC	LOCAL
LOS	PUSHBUTTON W/ "LOCL-OUT-STOP"
LS	LEVEL SWITCH
LT	LIGHT
LTS	LIGHTS
LTG	LIGHTING
LOW	LOW SPEED CONTACTOR
M	MOTOR CONTACTOR COIL
MA	MILLIAMPS
MAN	MANUAL
MAG	MAGNETIC
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
GALV	GALVANIZED
MCB	MAIN CONTROL BOARD
MCM	THOUSAND CIRCULAR MILS
MD	MOTORIZED DAMPER
MH	MANHOLE
MIN	MINUTES, MINIMUM
MLO	MAIN LUGS ONLY
MOV	MOTOR OPERATED VALVE
MS	MOTOR STARTER
MT	MOUNT
MTD	MOUNTED
MTR	MOTOR
MUX	MULTIPLEXING PANEL
N	NEUTRAL
NA	NON-AUTOMATIC
MC	NORMALLY CLOSED
NO	NUMBER, NORMALLY OPEN
NOS	NUMBERS
NP	NAMEPLATE
NIC	NOT IN CONTRACT
NITS	NOT IN THIS SECTION
NTS	NOT TO SCALE
O	OPEN
OC	ON CENTER
OL	OVERLOAD RELAY
P	POLE
PB	PULL BOX
PCM	PROCESS CONTROL MODULE
PCP	PROCESS CONTROL PANEL
PF	POWER FACTOR
PH,O	PHASE
PNL	PANEL
PNLBD	PANEL BOARD
POS	POSITION
POT	POTENTIOMETER
PRI	PRIMARY
PS	POWER SOURCE
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PW	PART WINDING
PWR	POWER
REC	RECEPTACLE
RECPTS	RECEPTACLES
REQ'D	REQUIRED
REV	REVERSE CONTACTOR COIL
RGS	RIGID GALVANIZED STEEL
RUN	RUN CONTRACTOR COIL
RTU	REMOTE TERMINAL UNIT
RVAT	REDUCED VOLTAGE AUTO-TRANSFORMER
RVNR	REDUCED VOLTAGE NON-REVERSING
SCH	SCHEDULE
SEC	SECONDS, SECONDARY
SECT	SECTION
SEL SW	SELECTOR SWITCH
SEQ	SEQUENCE
SHLD	SHIELDED
SHT	SHEET
SIG	SIGNAL
S1, S2	START CONTACTOR COILS
SP	SPARE
SPDT	SINGLE POLE DOUBLE THROW
SPECS	SPECIFICATIONS
SP HTR	SPACE HEATER
SPST	SINGLE POLE SINGLE THROW
ST, SH	SHUNT TRIP
STA	STATION
STD	STANDARD
STL	STEEL
STR	STARTER
SV	SOLENOID VALVE
SW	SWITCH
SYS	SYSTEM
TB	TERMINAL BOX
TC	TIME CLOCK
TACH	TACHOMETER
TEMP	TEMPERATURE
TERM	TERMINAL
TH	THERMOSTAT
TM	REPEAT CYCLE TIMER
TD	TIME DELAY RELAY
TS	TEMPERATURE SWITCH
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
US	UNIT SUBSTATION
UST	UNIT SUBSTATION TRANSFORMER
V	VOLTAGE, VOLTS
VAR	VAR METER
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE (OTHER THAN VFD)
VP	
VS	VARIABLE SPEED, VOLTMETER SWITCH
W	WATTS, WIRE
WHD	WATT HOUR DEMAND METER
WHM	WATT HOUR METER
WP	WEATHERPROOF
XD	TRANSDUCER
XFMR	TRANSFORMER
XMTR	TRANSMITTER

NOTE:

EXISTING DESIGN INFORMATION REFLECTED IN THIS PLAN SET FROM EXISTING DESIGN FILE 06009, KIVA 2001 705025, ON FILE AT THE CITY OF HENDERSON RECORDS.

LEGEND



- BUS
- ACROSS-THE-LINE, NON-REVERSING NEMA SIZE 2 MAGNETIC STARTER
- NEMA SIZE 4 MAGNETIC STARTER:
  - PW – PART WINDING, REV – REVERSING
  - RV – REDUCED VOLTAGE
  - AUTO – AUTO TRANSFORMER
  - 2SP – TWO SPEED, TWO WINDING
- CONTRACTOR, SIZE AS NOTED
- MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED: 50A.–TRIP RATING IN AMPERE
  - NA–NON–AUTOMATIC
  - MCP – MOTOR CIRCUIT PROTECTOR
  - AF – FRAME SIZE (225 AMPS NOTED)
  - AT – TRIP RATING (125 AMPS NOTED)
- MEDIUM OR HIGH VOLTAGE DRAWOUT BREAKER
- DRAWOUT BREAKER, SIZE AS NOTED EO – DENOTES ELECTRICALLY OPERATED
- MEDUIM OR HIGH VOLTAGE STARTER
- SURGE ARRESTOR
- MOTOR 10 HP NOTED
- TRANSFORMER WITH GROUNDED SECONDARY, KVA SIZE & VOLTAGE RATIO AS NOTED.
- POTENTIAL TRANSFORMER, RATIO AND NUMBER OF PT'S NOTED
- CURRENT TRANSFORMER RATIO AND NUMBER OF CT'S AS NOTED
- ELECTRICAL INTERLOCK
- ELECTRICAL ENCLOSURE OUTLINE
- ELAPSED TIME METER
- DISCONNECT SWITCH, SIZE AS NOTED
- FUSED DISCONNECT SWITCH
- KILOWATTHOUR METER WITH DEMAND REGISTER
- EXPOSED CONDUIT
- CONDUIT RUN UNDERGROUND OR IN CONCRETE
- NEW/PROPOSED CHANGES
- CONTROL RELAY OR COIL
  - EXAMPLE: * { TD2 TIME DELAY RELAY NO.2
  - CRI CONTROL RELAY
  - IM STARTER NO, MAIN COIL
- N.O. CONTACT
- N.C. CONTACT
- TORQUE SWITCH (SPECIFY WHEN OPEN)
- NORMALLY CLOSED LIMIT SWITCH
- FLOAT TYPE LIQUID LEVEL SWITCH, CLOSING ON RISING LEVEL
- FLOAT TYPE LIQUID LEVEL SWITCH, OPENING ON RISING LEVEL
- VACUUM OR PRESSURE SWITCH, CLOSING ON RISING PRESSURE
- VACUUM OR PRESSURE SWITCH, OPENING ON RISING PRESSURE
- TEMPERATURE ACTUATED SWITCH, CLOSING ON RISING TEMPERATURE
- TEMPERATURE ACTUATED SWITCH, CLOSING ON RISING TEMPERATURE
- TEMPERATURE ACTUATED SWITCH, OPENING ON RISING TEMPERATURE
- FLOW SWITCH (AIR, WATER, ETC), CLOSING ON FLOW INCREASE
- FLOW SWITCH (AIR, WATER, ETC), OPENING ON FLOW INCREASE
- NORMALLY OPEN PUSHBUTTON, MOMENTARY CLOSE
- NORMALLY CLOSED PUSHBUTTON MOMENTARY OPEN
- NO/NC MAINTAINED PUSHBUTTON
- TWO-POSITION SELECTOR SWITCH:
  - H-HAND, M-MANUAL, R-REMOTE
  - L-LOCAL, A-AUTOMATIC, O-OFF
- THREE-POSTION SELECTOR SWITCH:
  - (SAME AS ABOVE)
- THREE-POSITION SPRING RETURN-TO-CENTER MOMENTARY CONTACT SWITCH (LATCH-UNLATCH, ON-OFF, ETC.)
- PUSHBUTTON STATION
  - LOS – LOCAL OFF SWITCH
- GROUND CONNECTION
- OVERLOAD RELAY CONTACTS (MAGNETIC)

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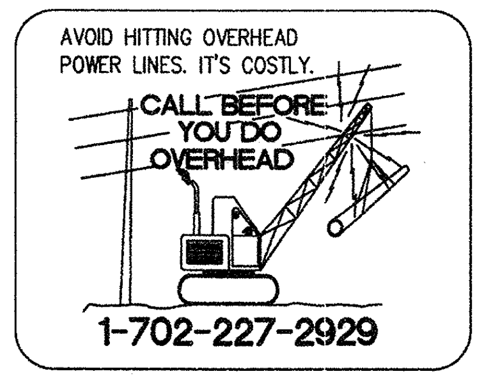
PROFESSIONAL ENGINEER : STATE OF NEVADA
DAVID D. HAAKE
EXPIRES 06/30/15
ELECTRICAL
No. 15696
6-24-14

HENDERSON ENGINEERS INC
5555 REDWOOD STREET, SUITE 201
LAS VEGAS, NV 89118
TEL 702 697 2187 FAX 702 697 2188
www.hei-eng.com
1450000290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PROFESSIONAL ENGINEER – STATE OF NEVADA
JONATHAN D. T
06/30/2016
CIVIL
No. 14581
JDT 6-24-14

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
AGENCY DESIGNATION:					

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LAS VEGAS, NV 89148
OFFICE: (702) 202-6004
SBCHRISTCONSULTING.COM

MODIFICATIONS TO ATHENS ROAD WELL FIELD AND LIFT STATION #3

ELECTRICAL SYMBOLS AND ABBREVIATIONS

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DETAILED:
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DATE:

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
518-14-001

SHEET
31 OF 34

E-1R

6009

CABLE NO.	CONDUIT		POWER	CONTROL	SIGNAL	FROM	TO
	NO	SIZE					
EXISTING U-1	1	2"	3*3/0 & 1*6GND			UTILITY XFMR	PDP
EXISTING P-1	1	1"	3*8 & 1*10GND			PDP	LCP-LS
EXISTING P-2	1	1"	3*12 & 1*12GND			PDP	LCP-ART-1
EXISTING P-3	1	1"	3*12 & 1*12GND			PDP	LCP-ART-2
EXISTING P-4	1	1"	3*12 & 1*12GND			PDP	LCP-ART-3
EXISTING P-5	1	1"	3*12 & 1*12GND			PDP	LCP-ART-4
EXISTING P-6	1	1"	3*12 & 1*12GND			PDP	LCP-ART-5
EXISTING P-7	1	1"	3*12 & 1*12GND			PDP	LCP-ART-6
EXISTING P-8	1	1"	3*12 & 1*12GND			PDP	LCP-ART-7
EXISTING P-9	1	1"	3*12 & 1*12GND			PDP	LCP-PC-70
EXISTING P-10	1	1"	2*10 & 1*12GND			PDP	MPC
EXISTING P-11	1	1"	2*12 & 1*12GND			MPC	LIT-1
EXISTING P-12	1	1"	2*12 & 1*12GND			MPC	FIT-1
EXISTING P-13	1	1"	2*12 & 1*12GND			MPC	RADIO/XMTR
EXISTING P-14	1	1"	2*12 & 1*12GND			MPC	LIGHT
EXISTING P-15	1	1"	2*12 & 1*12GND			MPC	RECEPTACLE
EXISTING P-1A	1	1/4"	6*12 & 1*12GND	8*14		LCP-LS	MOTOR TERMINAL BOX
EXISTING P-2A	1	1"	3*12 & 1*12GND			LCP-ART-1	ART-1 VAULT J-BOX
EXISTING P-3A	1	1"	3*12 & 1*12GND			LCP-ART-2	ART-2 VAULT J-BOX
EXISTING P-4A	1	1"	3*12 & 1*12GND			LCP-ART-3	ART-3 VAULT J-BOX
EXISTING P-5A	1	1"	3*12 & 1*12GND			LCP-ART-4	ART-4 VAULT J-BOX
EXISTING P-6A	1	1"	3*12 & 1*12GND			LCP-ART-5	ART-5 VAULT J-BOX
EXISTING P-7A	1	1"	3*12 & 1*12GND			LCP-ART-6	ART-6 VAULT J-BOX
EXISTING P-8A	1	1"	3*12 & 1*12GND			LCP-ART-7	ART-7 VAULT J-BOX
NEW P-8B	**1**	**1"**	**3*12 & 1*12GND**			**ART-7 VAULT J-BOX**	**ART-7B VAULT J-BOX**
EXISTING P-9A	1	1"	3*12 & 1*12GND			LCP-ART-70	PC-70 VAULT J-BOX
NEW P-9B	**1**	**1"**	**3*12 & 1*12GND**			**LCP-PC-150**	**PC-150 VAULT J-BOX**
NEW P-16	**1**	**1"**	**3*12 & 1*12GND**			**PDP**	**LCP-PC-150**
EXISTING C-1	1	1"		2*14		LCP-WC	LCP-ART-1
EXISTING C-2	1	1"		2*14		LCP-WC	LCP-ART-2
EXISTING C-3	1	1"		2*14		LCP-WC	LCP-ART-3
EXISTING C-4	1	1"		2*14		LCP-WC	LCP-ART-4
EXISTING C-5	1	1"		2*14		LCP-WC	LCP-ART-5
EXISTING C-6	1	1"		2*14		LCP-WC	LCP-ART-6
EXISTING C-7	1	1"		2*14		LCP-WC	LCP-ART-7
EXISTING C-8	1	1"		2*14		LCP-WC	LCP-ART-70
NEW C-8A	**1**	**1"**		**2*14**		**LCP-WC**	**LCP-PC-150**
EXISTING C-9	1	1"		10*14		LCP-WC	LVL SW J-BOX
EXISTING C-10	1	1"		4*14		LCP-WC	PRESS SW J-BOX
EXISTING C-11	1	1"		4*14		LCP-WC	RADIO
EXISTING C-12	1	1"		2*14		LCP-ART-1	RADIO
EXISTING C-13	1	1"		2*14		LCP-ART-2	RADIO
EXISTING C-14	1	1"		2*14		LCP-ART-3	RADIO
EXISTING C-15	1	1"		2*14		LCP-ART-4	RADIO
EXISTING C-16	1	1"		2*14		LCP-ART-5	RADIO
EXISTING C-17	1	1"		2*14		LCP-ART-6	RADIO
EXISTING C-18	1	1"		2*14		LCP-ART-7	RADIO
EXISTING C-19	1	1"		2*14		LCP-ART-70	RADIO
NEW C-19A	**1**	**1"**		**2*14**		**LCP-PC-150**	**RADIO**
EXISTING C-20	1	1"		4*14		LCP-LS	LPC-WC
EXISTING S-1	1	1"			2*16 TSP	LIT-1	RADIO
EXISTING S-2	1	1"			2*16 TSP	FIT-1	RADIO

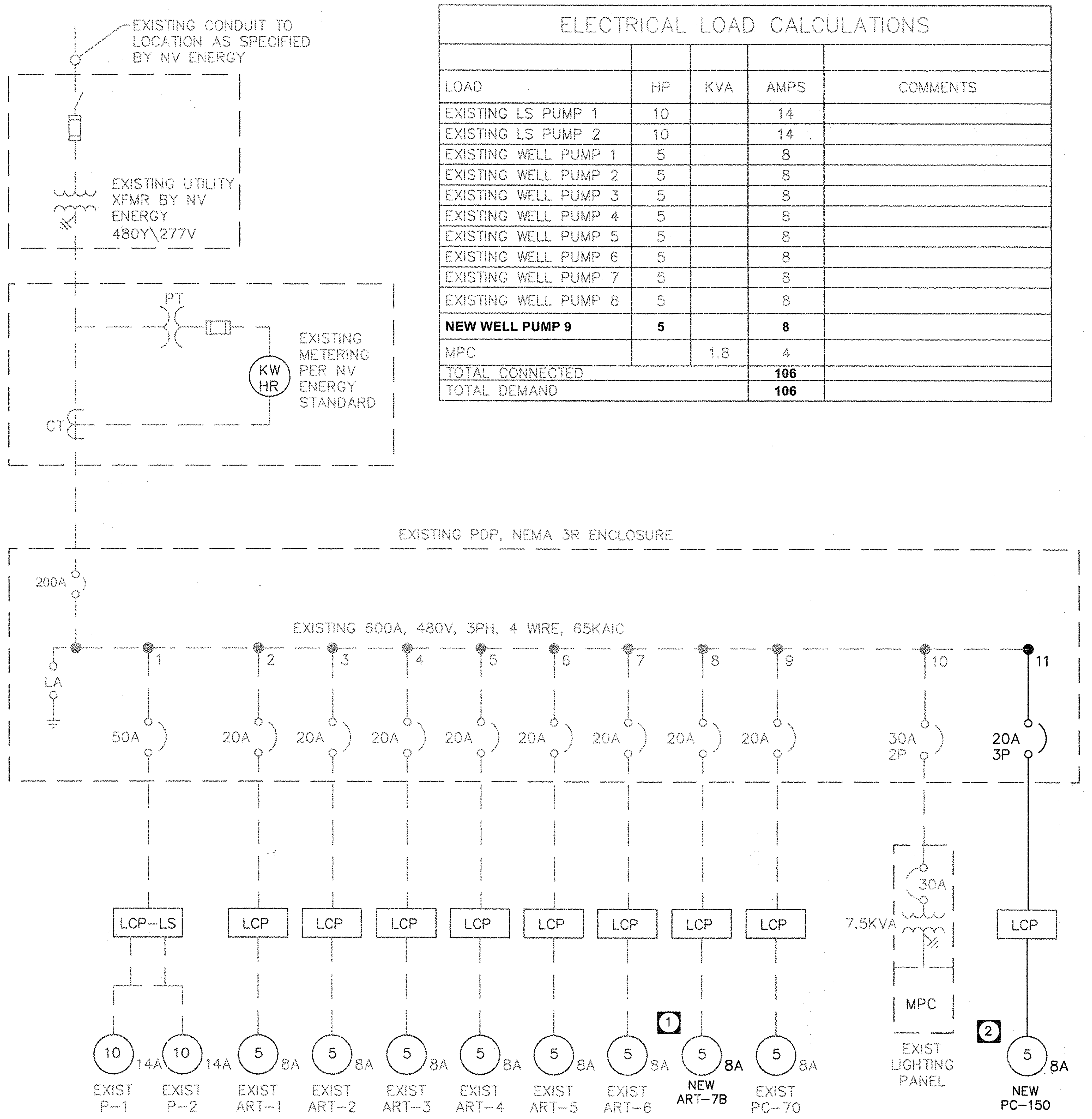
* EXISTING CABLE INFORMATION SHOWN LIGHT IN COLOR.

WORK PLAN NOTE

CONTRACTOR AND SUBCONTRACTORS SHALL WORK IN ACCORDANCE WITH THE "CONTINGENCY PLAN FOR UTILITY CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE 2013 GWETS OPTIMIZATION PROJECT", DATED JANUARY 15, 2014, AND THE "2013 GWETS OPTIMIZATION PROJECT WORK PLAN" DATED OCTOBER 18, 2013, BOTH PREPARED BY ENVIRON INTERNATIONAL CORPORATION FOR REVIEW AND APPROVAL BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION.

ELECTRICAL LOAD CALCULATIONS

LOAD	HP	KVA	AMPS	COMMENTS
EXISTING LS PUMP 1	10		14	
EXISTING LS PUMP 2	10		14	
EXISTING WELL PUMP 1	5		8	
EXISTING WELL PUMP 2	5		8	
EXISTING WELL PUMP 3	5		8	
EXISTING WELL PUMP 4	5		8	
EXISTING WELL PUMP 5	5		8	
EXISTING WELL PUMP 6	5		8	
EXISTING WELL PUMP 7	5		8	
EXISTING WELL PUMP 8	5		8	
NEW WELL PUMP 9	**5**		**8**	
MPC		1.8	4	
TOTAL CONNECTED			**106**	
TOTAL DEMAND			**106**	



KEYED NOTES:

① PROVIDE NEW CONDUIT WIRE FROM EXISTING ART-7 J-BOX TO NEW ART-7B J-BOX. SEE CABLE SCHEDULE ON THIS SHEET FOR CONDUIT AND WIRE SIZE. REFER TO SHEETS E-4R AND C-2R AREA "B" FOR LOCATION OF NEW WELL ART 7-B.

② REFER TO CABLE SCHEDULE ON THIS SHEET FOR CONDUIT AND WIRE SIZE.

NOTES:

EXISTING EQUIPMENT SHOWN LIGHT IN COLOR.

SINGLE LINE DIAGRAM
N.T.S.

1
E-2R

DAVID D. HAAKE
No. 7569
6-24-14

HENDERSON ENGINEERS INC
5555 REDWOOD STREET, SUITE 201
LAS VEGAS, NV 89118
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www.hei-eng.com
1450000290

KIVA # PCVL 2001705025 REVISED

JDT 6-24-14

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

AGENCY DESIGNATION:

S&B CHRIST CONSULTING, LLC
OPERS RESEARCH & CIVIL ENGINEERING
5580 S. FORT APACHE RD. #130
LAS VEGAS, NV 89148
OFFICE (702) 202-6004

MODIFICATIONS TO ATHENS ROAD WELL FIELD AND LIFT STATION #3

ELECTRICAL DIAGRAMS AND SCHEMATICS SHEET 1

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

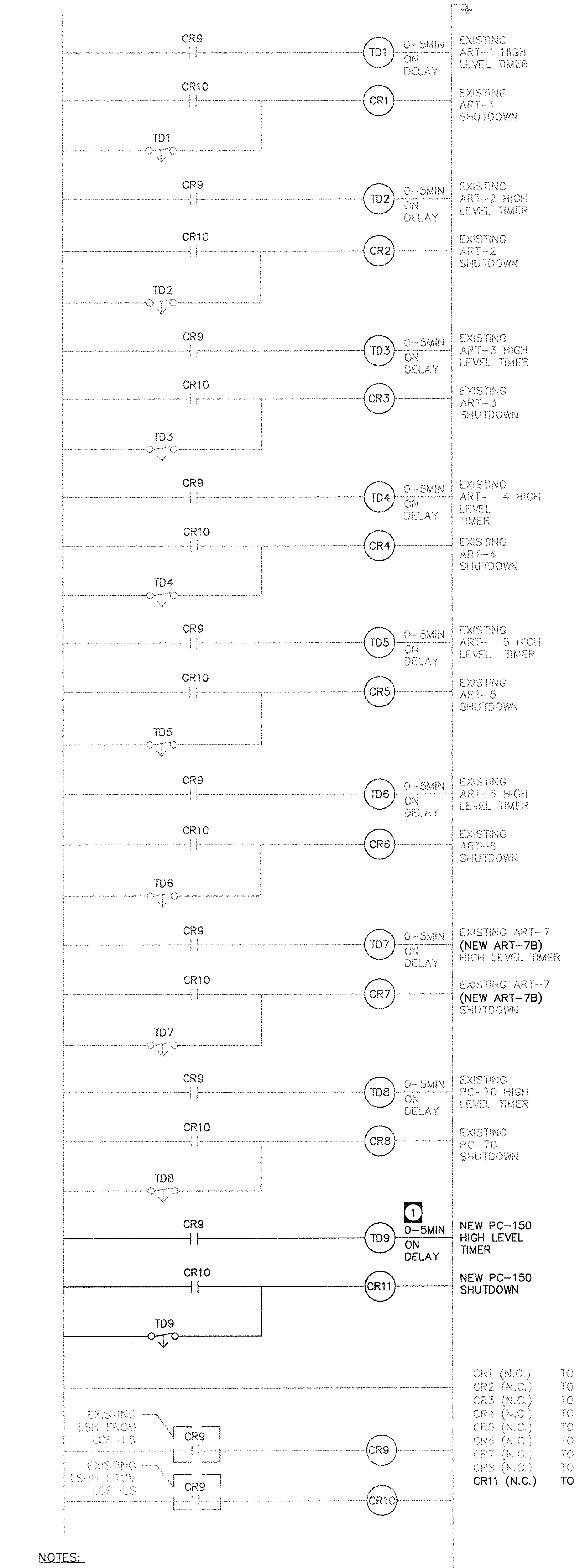
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
518-14-001

SHEET
32 OF 34

E-2R

6009



NOTES:

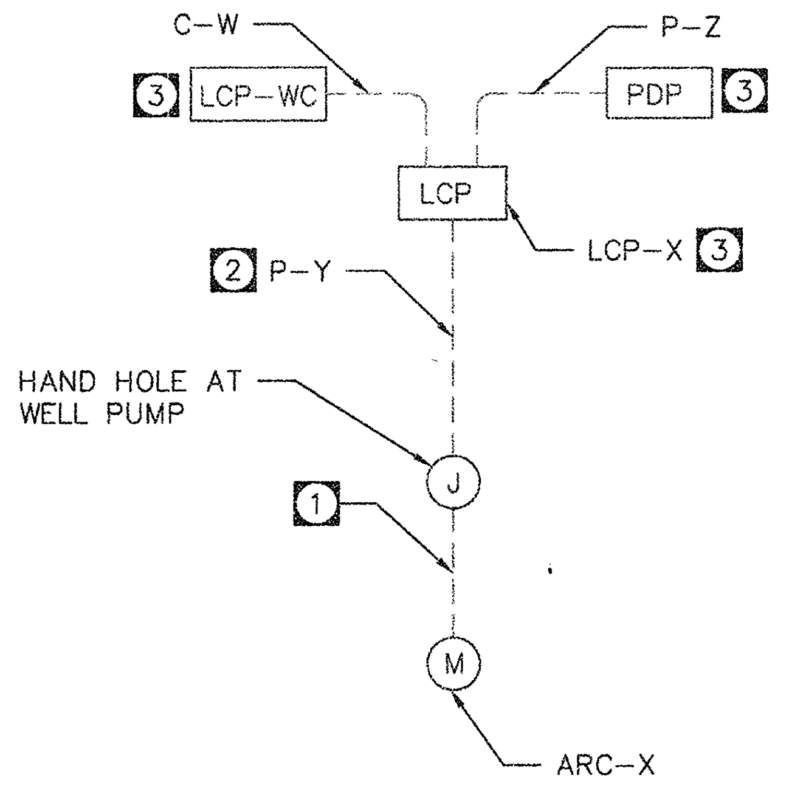
1. TIMER SHALL BE ADJUSTABLE FROM THE FRONT OF THE PANEL
- * EXISTING CABLE INFORMATION SHOWN LIGHT IN COLOR.

EXISTING WELL CONTROL LCP (LCP-WC)

N.T.S.

1 / E-3R

WELL	"W"	"X"	"Y"	"Z"
EXIST. ART–1	1	ART–1	2A	2
EXIST. ART–2	2	ART–2	3A	3
EXIST. ART–3	3	ART–3	4A	4
EXIST. ART–4	4	ART–4	5A	5
EXIST. ART–5	5	ART–5	6A	6
EXIST. ART–6	6	ART–6	7A	7
NEW ART–7B	7	ART–7B	8A	8
EXIST. PC–70	8	PC–70	9A	9
NEW PC–150	8A	PC–150	9B	16



NOTES:

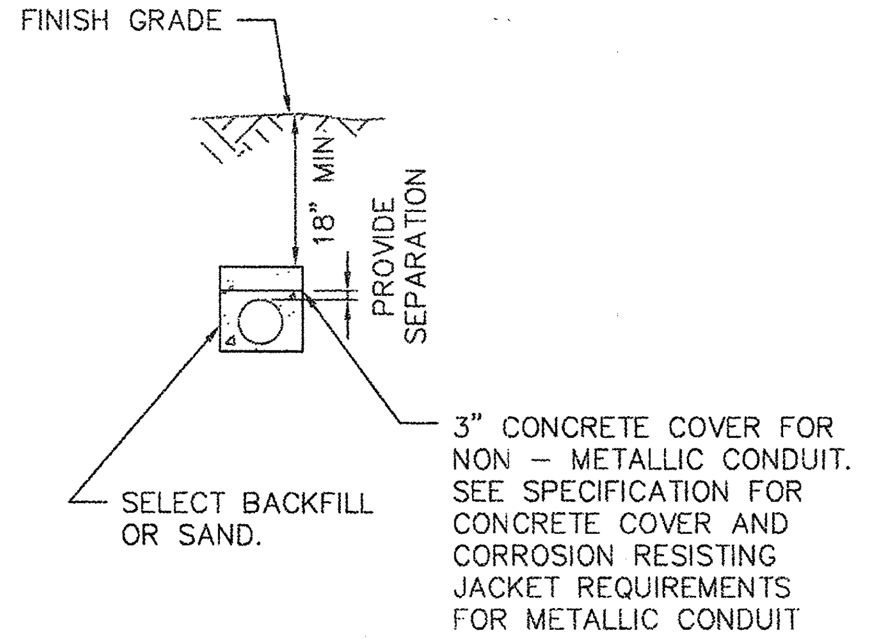
1. 3/4" W/ 3*12 & 1*12GND
2. CONDUIT IN DUCTBANK
3. PANEL LOCATED IN PUMP STATION YARD

* SEE CABLE SCHEDULE ON SHEET E–1R.

WELL PUMP RISER DIAGRAM

N.T.S.

3 / E-3R



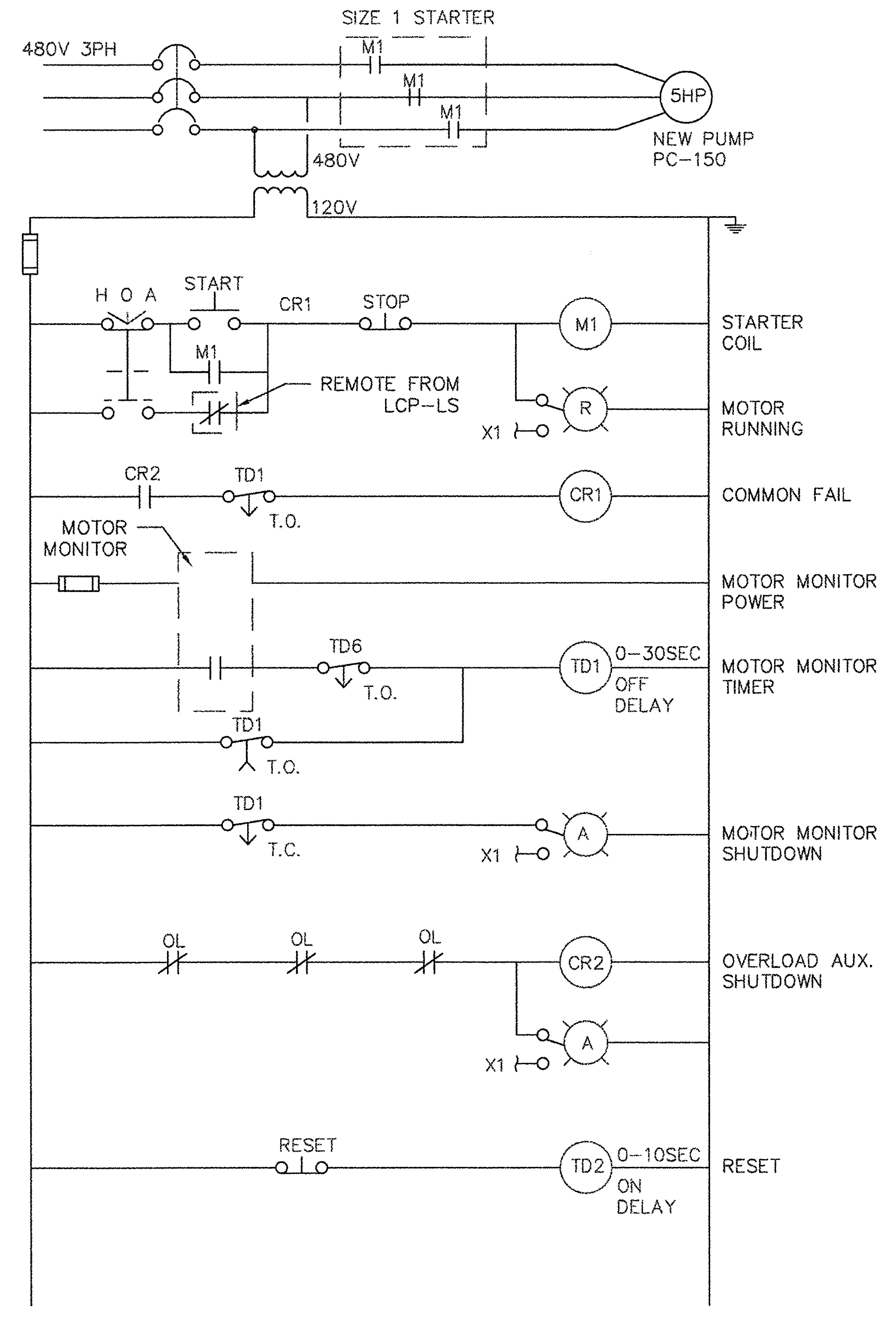
NOTES:

COLOR OF CONCRETE ENCASEMENT PER SPECS. SEE DRAWINGS FOR ACTUAL NUMBER AND SIZES OF CONDUITS.

TYPICAL DUCT BANK (POWER)

REV. 051588

4 / E-3R



M1(N.O.) TO RADIO

WELL PUMP LCP (LCP-PC-150)

N.T.S.

2 / E-3R

WORK PLAN NOTE

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DAVID D. HAAKE
No. 15696
6-2-14

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1450000290

KIVA # PCVL 2001705025 REVISED

JONATHAN ... No. 14581 CIVIL
JDT 6-24-14

NO.	BY	CK	APP

DATE REVISIONS AND RECORD OF ISSUE

AGENCY DESIGNATION:

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LAS VEGAS, NV 89148
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SBCHRISTCONSULTING.COM

MODIFICATIONS TO ATHENS ROAD
WELL FIELD AND LIFT STATION #3

ELECTRICAL DIAGRAMS
AND SCHEMATICS SHEET 2

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

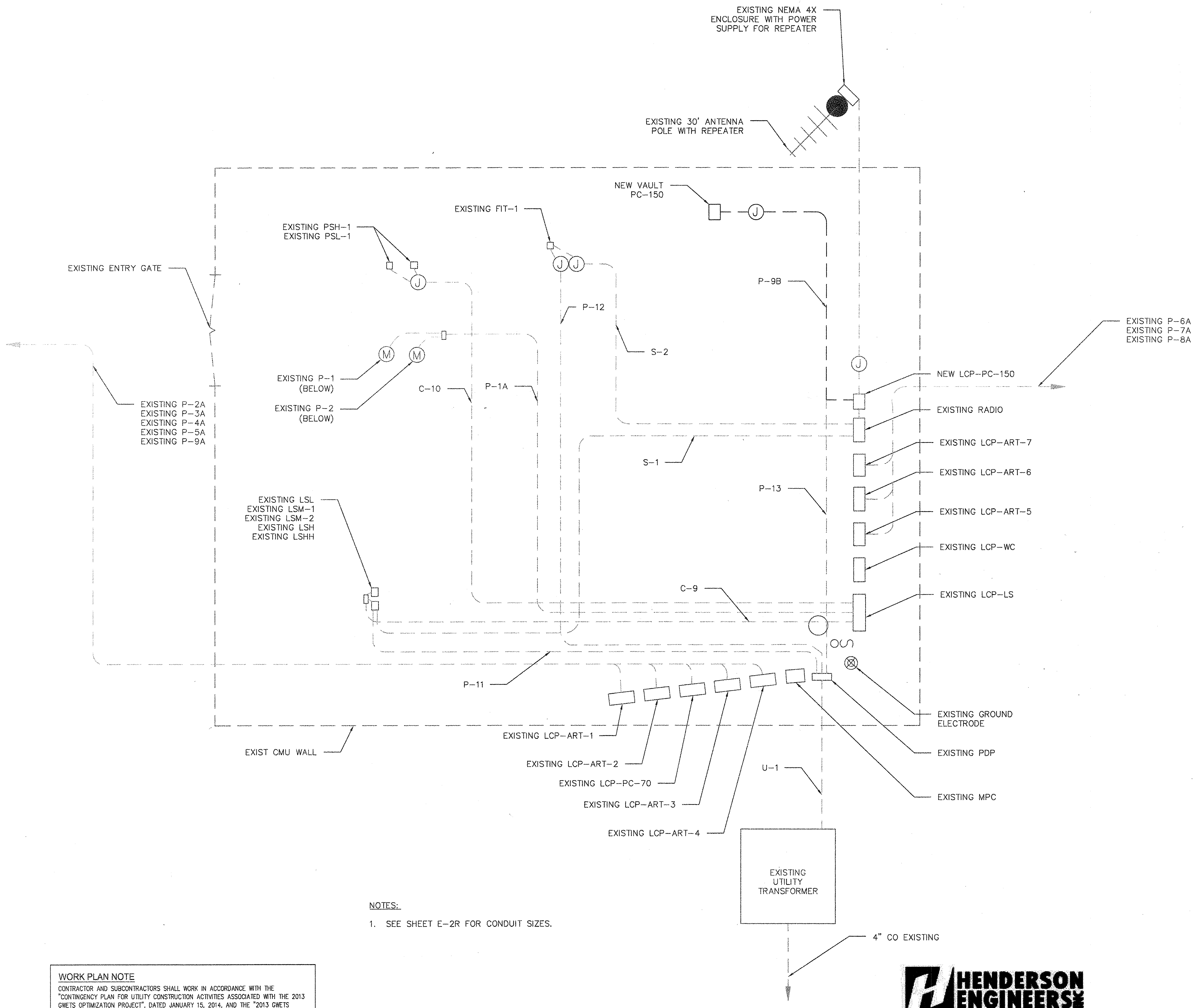
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
518-14-001

SHEET
33 OF 34

E-3R

6009



NOTES:

1. SEE SHEET E-2R FOR CONDUIT SIZES.

WORK PLAN NOTE

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AREA "A" - WELL PC-150

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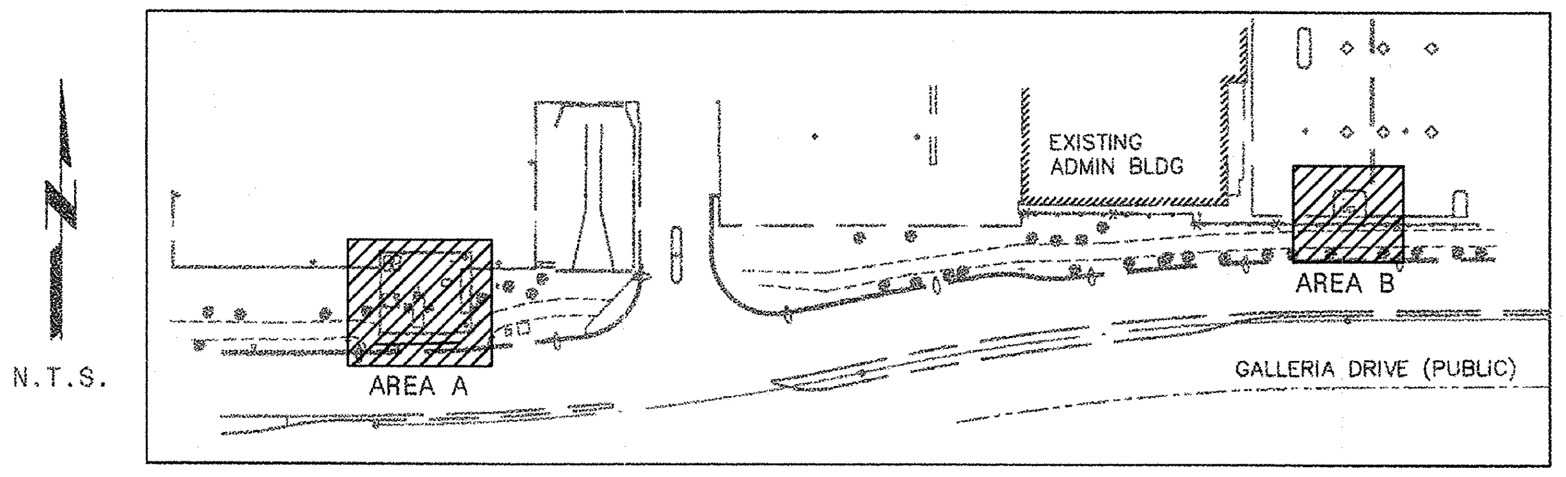
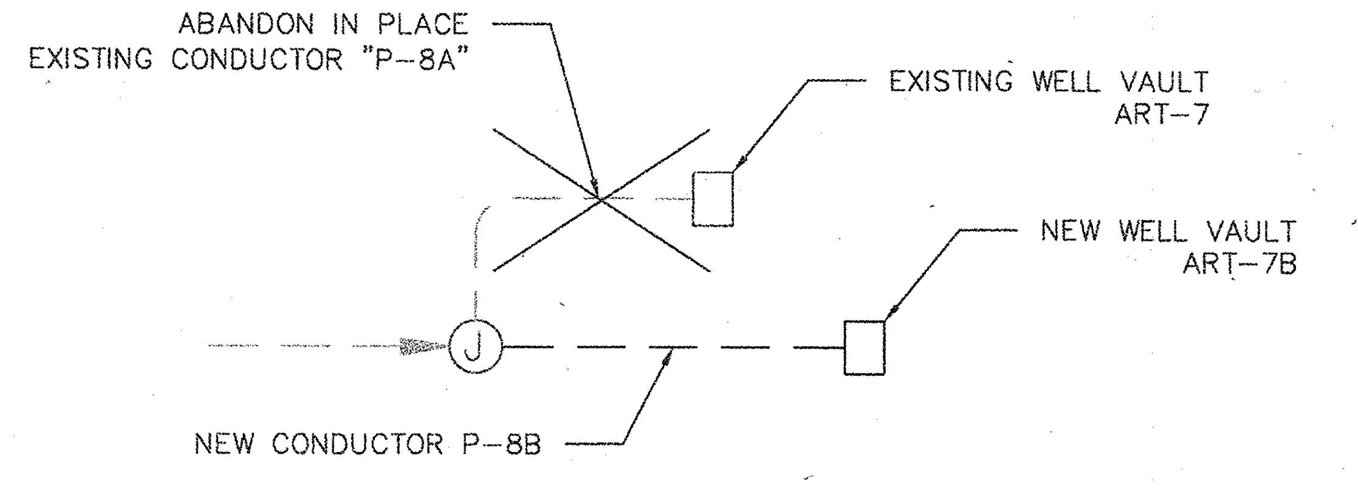
www.hei-eng.com
1450000290



KEY MAP



NOTES:

1. RELOCATE EXISTING 5 HP PUMP FROM WELL P-7 TO WELL ART-7B.
2. ELECTRICIAN TO REVIEW THE CONDITION OF EXISTING WIRING AND CONNECTIONS AT ART-7 JUNCTION BOX AND REMEDY ANY IDENTIFIED CODE OR OTHER NONCONFORMING CONDITIONS.

AREA "B" - WELL ART-7B

DAVID D. HAAKE
EXPIRES 06/30/15
No. 15696
6-24-14

AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY.
CALL BEFORE
YOU DO
OVERHEAD
1-702-227-2929

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL
SYSTEMS AND STREET LIGHT SYSTEM
CONDUITS. IT'S COSTLY.
Call
before you
do UnderGround
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig
Avoid cutting underground
utility lines. It's costly.
Call
811
OR
1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

KIVA # PCVL 2001705025 REVISED

No. 14581
JDT 6-24-14

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SBCHRISTCONSULTING.COM

MODIFICATIONS TO ATHENS ROAD
WELL FIELD AND LIFT STATION #3

ELECTRICAL SITE PLAN

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
518-14-001

SHEET
34 OF 34

E-4R

6009