



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

STATE OF NEVADA
Department of Conservation & Natural Resources

Steve Sisolak, Governor
Bradley Crowell, Director
Greg Lovato, Administrator

June 29, 2022

Jay A. Steinberg
Nevada Environmental Response Trust
35 East Wacker Drive, Suite 690
Chicago, IL 60601

Re: **Tronox LLC (TRX) Facility
Nevada Environmental Response Trust (Trust) Property
NDEP Facility ID #H-000539**
Nevada Division of Environmental Protection (NDEP) Response to: *Baseline Health Risk
Assessment Work Plan for Ou-3*

Dated: February 28, 2022

Dear Mr. Steinberg,

The NDEP has received and reviewed the Trust's above-identified Deliverable and had the conference call about the comments sent on the May 6, 2022. The revised comments in this Attachment A reflect the discussions and solutions for the last comments and override the comments dated on the May 6, 2022. A revised Deliverable should be submitted by **08/29/2022** based on the comments found in Attachment A. The Trust should additionally provide an annotated response-to-comments letter as part of the revised Deliverable.

Please contact the undersigned with any questions at wdong@ndep.nv.gov or 702-668-3929.

Sincerely,

Dong Weiguan

Weiquan Dong, P.E.
Bureau of Industrial Site Cleanup
NDEP-Las Vegas City Office

WD:cp

EC:
Jeffrey Kinder, Deputy Administrator NDEP
Frederick Perdomo, Deputy Administrator NDEP
James Dotchin, NDEP BISC Las Vegas
Carlton Parker, NDEP BISC Las Vegas
Alan Pineda, NDEP BISC Las Vegas
Allan Delorme, Ramboll Environ

Andrew Barnes, Geosyntec
Andrew Steinberg, Nevada Environmental Response Trust
Anna Springsteen, Neptune & Company Inc.
Betty Kuo Brinton, Metropolitan Water District of Southern California
Brian Waggle, Hargis + Associates
Brian Loffman, Nevada Environmental Response Trust
Brian Rakvica, Syngenta
Carol Nagai, Metropolitan Water District of Southern California
Chris Ritchie, Ramboll Environ
Christine Klimek, City of Henderson
Chuck Elmendorf, Stauffer Management Company, LLC
Dan Pastor, P.E. TetraTech
Dane Grimshaw, Olin
Daniel Chan, SNWA
Darren Croteau, Terraphase Engineering, Inc.
Dave Share, Olin
Dave Johnson, LVVWD
Derek Amidon, TetraTech
Ebrahim Juma, Clean Water Team
Ed Modiano, de maximis, inc.
Eric Fordham, GeoPentech
Gary Carter, Endeavour
Jay A. Steinberg, Nevada Environmental Response Trust
Jeff Gibson, Endeavour
Jill Teraoka, Metropolitan Water District of Southern California
Joanne Otani, The Fehling Group
Joe Kelly, Montrose Chemical Corporation of CA
Joe Leedy, Clean Water Team
John Edgcomb, Edgcomb Law Group
John-Paul Rossi, Stauffer Management Company LLC
John Pekala, Ramboll Environ
John Solvie, Clark County Water Quality
Kathrine Callaway, Cap-AZ
Kelly McIntosh, GEI Consultants
Kirk Stowers, Broadbent & Associates
Kirsten Lockhart, Neptune & Company Inc.
Kim Kuwabara, Ramboll Environ
Kurt Fehling, The Fehling Group
Laura Dye, CRC
Lee Farris, BRC
Marcia Scully, Metropolitan Water District of Southern California
Maria Lopez, Metropolitan Water District of Southern California
Mark Duffy, U.S. Environmental Protection Agency, Region 9
Mark Paris, Landwell
Mauricio Santos, Metropolitan Water District of Southern California
Melanie Hanks, Olin

Michael J. Bogle, Womble Carlyle Sandridge & Rice, LLP
Michael Long, Hargis +
Mickey Chaudhuri, Metropolitan Water District of Southern California
Nicholas Pogoncheff, PES Environmental, Inc.
Nicole Moutoux, U.S. Environmental Protection Agency, Region 9
Orestes Morfin, CA
Paul Black, Neptune & Company
Peter Jacobson, Syngenta
Ranajit Sahu, BRC
Rebecca Sugerman, U.S. Environmental Protection Agency, Region 9
Richard Pfarrer, TIMET
Rick Kellogg, BRC
R9LandSubmit@EPA.gov
Roy Thun, GHD
Steve Clough, Nevada Environmental Response Trust
Steven Anderson, LVVWD
Steve Armann, U.S. Environmental Protection Agency, Region 9
Tanya O'Neill, Foley & Lardner L
Todd Tietjen, SNWA
William Frier, U.S. Environmental Protection Agency, Region 9

Attachment A

General Comment #1 Data Adequacy and Associated Risk

The Department's primary concern is that the data may not be adequate to assess risk and may not represent worst case or Reasonable Maximum Exposure (RME) conditions. For example, there are only 16 soil gas borings for the area west of Pabco Road and these appear to be predominantly located outside the chloroform plume. Assuming this area on Figure 4-1 with the chloroform plume west of Pabco Road is within the area impacted by the NERT core plumes, it is suggested to add at least two more soil gas sampling locations within the interior of each of the two plume areas shown. Figure 4-1 from the Deliverable with example points in red circles is provided as an attachment.

It is also noted that the risk assessment is limited to two chemicals on the eastern OU-3 of Pabco Road - perchlorate and chlorate, which is understood that other chemicals are administratively out of scope.

The Deliverable would benefit from a more robust discussion about the uncertainties associated with using concentration measurements from depth to perform a risk assessment that presumably involves contact with water at the top of the aquifer (e.g., the utility trench scenario mentioned often in the text). For example, Table 4-2 suggests that the water level depth at well NERT5.98S2 is 9 ft bgs, while the well screen spans depths from 60 to 70 ft bgs. If the water truly is 9 ft bgs, there is 51 ft of water between the water table and the well screen. The work plan should clarify whether the risk assessment will use concentration measurements from depth to represent the hypothetical exposure concentrations at the water table. Doing so would assume that concentrations in the aquifer are uniform with respect to depth; the text should provide support for this assumption, if applicable.

Essential Corrections

Specific Comment #1 Section 6.3

This section states that trivalent chromium toxicity values will be used as a surrogate for total chromium. However, footnote 17 in Section 6.1.2 and Table 6-1 state that all chromium at the facility has been found to be hexavalent chromium so total chromium will be considered hexavalent chromium. Therefore, the use of trivalent chromium toxicity values as a surrogate is inappropriate. Please use an appropriate value or justify this choice.

Specific Comment #2 Section 6.6

In the first paragraph it states: "Data quality assessment is an analysis that will be performed after the risk assessment is complete to determine whether enough data have been collected to support the risk-based decisions that are recommended by the risk assessment." Does this mean the data quality assessment will not be reported in the risk assessment? Data quality assessment should be reported in the risk assessment. The data quality assessment should be completed as part of the risk assessment, not after. Please clarify.

Specific Comment #3 Section 4.2.1

The work plan should cite the guiding regulation that states that direct contact with groundwater is possible for certain workers to a depth of 10 feet below ground surface, and that groundwater exposure below this depth does not need consideration.

Specific Comment #4 Section 4.1, Section 5.1.1, and Figure 4-1

These sections state that there are 16 soil gas sampling locations and a total of 13 soil gas probe locations and refers to Figure 4-1. Please explain the difference between the 16 sampling locations and the 13 soil gas probe locations. Based upon the database, there are soil gas data available for 16 locations; however, Figure 4-1 appears to only depict 11 due to some locations having multiple depths. Please clarify the apparent discrepancies by making it easier to identify each sample and depth location on the map. Find a way to show the depth information where appropriate, whether by labeling or making each depth square a different size in addition to the different colors, paying attention to rendering order. In addition, please provide information regarding the quantity of samples and choice of sampling locations, as they do not appear to be sufficient to assess risk and they do not appear to represent worst case conditions.

Specific Comment #5 Section 6.2.1 and Figure 6-1

While direct contact with sediment and surface water within Wetlands Park are prohibited, given the Park usage and the numbers of visitors, it is likely that some users disregard Park rules and encounter bank soils, sediment, and surface water. Therefore, it is appropriate to include a trespasser scenario to evaluate this type of exposure. Please revise the workplan accordingly.

Specific Comment #6 Section 7

Throughout the Deliverable (for example, section 6.1.2), it is explained that volatile preliminary COPCs in shallow groundwater will be evaluated for vapor intrusion from screen depths of 60 feet or less, and non-volatile preliminary COPCs will be evaluated for direct contact at locations with a screen depth of 10 feet or less. As such, it is surprising to see VOCs evaluated for the 10 feet or less shallow groundwater. It would help the reader to interpret this if throughout the report, it was stated that VOCs would also be evaluated for direct contact at 10 feet or less for shallow groundwater. Additionally, it is not clear why VOCs at 10 feet or less were excluded from the evaluation of vapor intrusion at 60 feet or less (footnote 1 of table D-4). It is not clear why the VOCs are separated for vapor intrusion or if the VOCs in the second bullet are preliminary COPCs due to vapor intrusion or direct contact. Please clarify the text here.

Specific Comment #7 Table 4-2

In Table 4-2, many of the well screens are positioned at considerable depth (up to 70 ft below ground surface) and the water level measurements from these screens are taken to be indicative of the depth of the water table. The associated text should acknowledge that this is true only under the assumption of zero vertical hydraulic gradient and provide support for that assumption.

Specific Comment #8 Section 5.1.3, Figure 4-3

The logic behind the location selection for soil samples needs to be discussed beyond the availability of environmental investigations. It is understood that the soil samples represent the potential exposure via seeps, and hence are clustered around a previous seep field. However, it is not clear that this pathway is linked to the sampling plans when stated in Section 5.1.3 or when previewing Figures 4-3. Please add some text to help explain why a highly clustered soil sample pattern around SWF is appropriate.

Specific Comment #9 Appendices

Samples in the soil gas, groundwater, and soil data sets are classified as non-detects based on the reporting detection limit. It should be clarified if the reporting detection limit is the same as the sample quantitation limit, which NDEP recommends for risk assessment. There are several non-detects in the data sets; it should be clear how non-detects will be treated in the risk assessment.

Minor Corrections

Specific Comment #10 Section 5-3.

The first two bullets on page 5-4 should be combined.

Specific Comment #11 Appendices A - C

The BMI Regional Database does not have results for:

- a) Nitrate for samples WMW6.55S-20160217 and WMW6.15S-20160217
- b) Nitrate as NO₃ for sample PC-97-20160208
- c) Twenty-three samples from 2021: LVWPS-MW102A-20210427, MW-3-20210428, MW-4-20210428, MW-K5-20210428, NERT3.80S1-20210504, NERT3.98S1-20210505, PC-103-20210429, PC-155A-20210719, PC-155B-20210719, PC-156A-20210723, PC-156B-20210723, PC-157A-20210716, PC-157B-20210716, PC-191-20210428, PC-191-20210428-FD5, PC-2-20210428, PC-4-20210528, PC-53-20210428, PC-74-20210505, PC-77-20210504, PC-96-20210714, PC-97-20210714, PC-98R-20210428

Table B-1. Samples PC-156A-20150506, PC-156B-20150506, PC-157A-20150506, and PC-157B-20150506 have duplicate results in Table B-1 for Nitrate Nitrite as N where one result has a qualifier, and one result does not have a qualifier. The BMI Regional DB has the result with the qualifier. Please review and address as necessary.

Specific Comment # 12 Table B-1

Location IDs. Some location IDs differ between Table B-1 and the BMI Regional Database:

- a. Samples: WMW5.58S-20150115 and WMW5.58S-20160505, Table B-1 has location WMW5.58SI, but the BMI database has location WMW5.58S.
- b. Samples: MW-1-20180411, MW-1-20180411-FD, Table B-1 has location MW-1, but the BMI database has location MW-1[CHIM].
- c. Samples: MW-3-20190705 and MW-4-20190705, Table B-1 has location MW-3 and MW-4, but the BMI database has location MW-03 and MW-04.

Please review and address as necessary.

Specific Comment #13 Table B-1, Censoring Limits

For multiple records with non-detected results, there is a discrepancy between the limit used to report the non-detected result. Table B-1 usually presents the result at the Quantitation Limit (which was translated to the PQL in the BMI database) and the BMI database presents the result at the SQL (which was translated from the original Reporting Detection Limit). There are some cases where the Table B-1 result is equivalent to the Reporting Detection Limit instead of the Quantitation Limit.

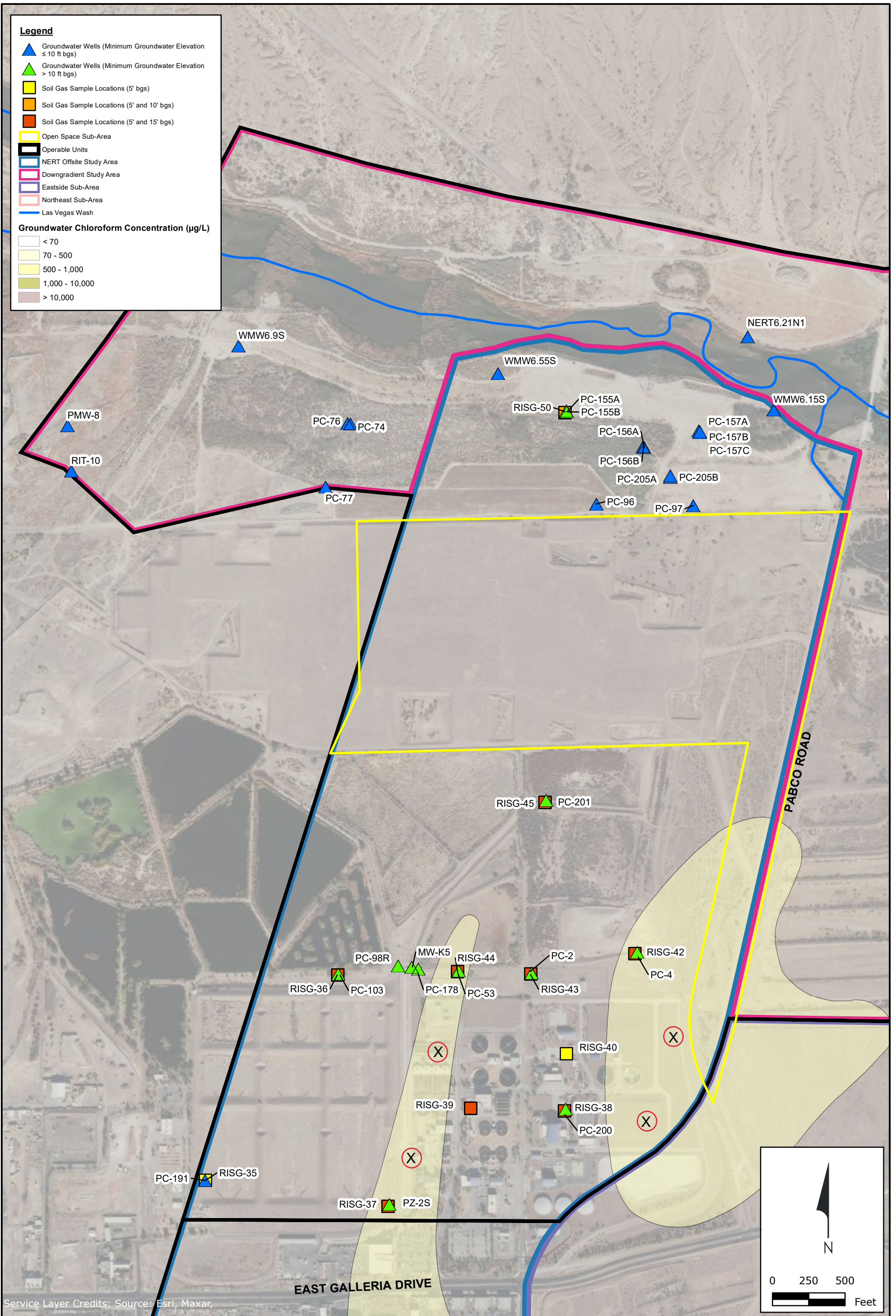
For example:

Source	Sample ID	Analyte	Result	MDL	SQL	PQL	Detect flag	Qualifier
BMI Database	WMW5.7N-20180717	Chlorate	50	10	50	100	U	U
Table B-1	WMW5.7N-20180717	Chlorate	25	5	100	25	N	U
BMI Database	PC-76-20160429	Chlorate	10	50	10	100	U	U
Table B-1	PC-76-20160429	Chlorate	50	10	100	50	N	null

Per the EDD Guidance, “for non-radionuclide non-detected results, the result reported should equal the SQL.” In addition, the EDD Guidance references the December 3, 2008, NDEP Guidance “Detection Limits and Data Reporting” for the definition of MDL, SQL, and PQL. This guidance document also states

“In effect, the DVSRs and databases, agree concerning the use of the term MDL; RDL appears to be the same as SQL; and RL appears to be the same as PQL. QL is also the same as PQL. It is requested that the discrepancy in the nomenclature be resolved. Most sampling and analysis plans, risk assessment reports and other relevant documents describe the censoring limit to be used for statistical data analysis as the SQL. Consequently, NDEP suggests that the MDL, SQL, PQL nomenclature be adopted in the databases as well as in the DVSRs and all other Deliverables”.

Table B-1. Table B-1 is not consistent between the columns “detect_flag” and “interpreted_qualifier”, although most discrepancies are for records that are not currently found in the BMI Regional Database. These two fields should be verified for consistency.



Soil Gas and Groundwater Sample Locations for Use in the BHR for OU-3 - West of Pabco Road (Chloroform Plume as Depicted in 2020)
 Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
4-1