Prepared for
Nevada Environmental Response Trust

Project Number
1690006941-001

Prepared by
Ramboll
Emeryville, California

Date
March 22, 2018

SITE MANAGEMENT PLAN, REVISION 4

NEVADA ENVIRONMENTAL RESPONSE TRUST SITE HENDERSON, NEVADA

Site Management Plan, Revision 4

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

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: 3/23/18

RAMBOLL

Site Management Plan, Revision 4

Nevada Environmental Response Trust Site
(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.

3/23/2018

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Date

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RAMBOLL

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Project No 1690006941-001

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ACRONYMS AND ABBREVIATIONS

2,3,7,8-TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
ACM	asbestos-containing material
AULs	activity and use limitations
BACM	Best Available Control Measures
B(a)P	benzo(a)pyrene
BCL	Basic Comparison Level
BEC	Basic Environmental Company
bgs	below ground surface
BISC	Bureau of Industrial Site Cleanup
BMI	Black Mountain Industrial
BMP	Best Management Practice
CEM	Certified Environmental Manager
COPC	chemicals of potential concern
DAQ	Clark County Department of Air Quality
ECA	Excavation Control Area
ENVIRON	ENVIRON International Corporation
EPA	U.S. Environmental Protection Agency
ERMP	Environmental Risk Management Plan
ETI	Envirogen Technologies, Inc.
ft	foot
GWETS	groundwater extraction and treatment system
HASP	health and safety plan
HCB	hexachlorobenzene
LQG	large quantity generator
MCL	maximum contaminant level
mg/kg	milligram per kilogram
msl	mean sea level
NDEP	Nevada Division of Environmental Protection
NERT	Nevada Environmental Response Trust
Northgate	Northgate Environmental Management, Inc.
OCP	organochlorine pesticide

OSHA	Occupational Safety and Health Administration
OSSM	Olin Chlor Alkali/Stauffer/Syngenta/Montrose
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PPE	personal protective equipment
ppt	parts per trillion
RAW	Removal Action Work Plan
RI/FS	Remedial Investigation and Feasibility Study
RZ	remediation zone
Site	Nevada Environmental Response Trust Site
SMP	Site Management Plan
SVOC	semi-volatile organic compound
Ramboll	Ramboll US Corporation
TDS	total dissolved solids
Tetra Tech, Inc.	Tetra Tech
TEQ	toxicity equivalent
TIMET	Titanium Metals Corporation
Tronox	Tronox LLC
Trust	Nevada Environmental Response Trust
UST	underground storage tank
VOC	volatile organic compound
WAPA	Western Area Power Administration

EXECUTIVE SUMMARY

The Site Management Plan (SMP) provides a decision framework for the management of residual chemicals in soil and groundwater for approximately 257 acres located within Sections 12 and 13 of Township 22 S, Range 62 E within the Black Mountain Industrial (BMI) Complex in unincorporated Clark County and surrounded by the City of Henderson, Nevada (the Site). The Site is defined by the area included in the 2014 Environmental Covenant (see Appendix B)[1]. The Site has a long, complex ownership and operational history, beginning with industrial operations in 1942. It was most recently owned and operated by Tronox LLC (Tronox) until February 14, 2011, on which date the Nevada Environmental Response Trust (NERT or the Trust) took title to the Site in conjunction with the settlement of Tronox's bankruptcy proceeding. The SMP describes procedures to address the known remaining environmental conditions at the Site, as well as contingency actions to be taken if previously unknown environmental conditions are encountered.

The SMP addresses the following:

- Procedures for long-term compliance with the SMP;
- Risk management measures and procedures to be implemented during soil-disturbing activities[2] to mitigate risks to human health and the environment from exposure to chemicals of potential concern (COPCs); and
- Soil and groundwater management during soil-disturbing activities.

The SMP applies to the following areas of the Site:

- Areas of the Site that have been designated as Excavation Control Areas (ECAs), where known impacted soil has been left in-place. ECAs are identified and discussed in Appendix A of the SMP;
- Areas of the Site where unexpected environmental contamination is encountered during soil-disturbing activities; and
- Areas of the Site where concentrations of contaminants in groundwater exceed current regulatory standards.

Activities undertaken at the Site that qualify as either a "Utility Project" or an "Emergency Project" (as defined herein) are subject only to a specific set of requirements under the SMP, as described in more detail in Sections 4.6 (Utility Projects) and 4.7 (Emergency Projects) and Section 5 (Risk Management for Groundwater).

All owners, operators, tenants, lessees, project managers, and other entities with responsibility for Site activities (each is considered a "Site Occupant") must comply with the SMP. If a Site Occupant permits access to the Site to a third party, they are responsible for the third party's compliance with the SMP.

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[1] Parcel E, which is included in the 2014 Environmental Covenant, is not subject to this SMP because all activities that will disturb, or have the potential to disturb, any soils or groundwater conducted on Parcel E are consistent with a NDEP-approved Work Plan and there are no existing NERT groundwater remediation system components on Parcel E.

[2] Soil-disturbing activities are any activity where soil is disturbed, including, but not limited to, construction, demolition, excavation, grading, trenching and investigation activities.

Site Occupants shall have the independent obligation to:

1. Review available information concerning Site environmental conditions;
2. Determine the applicability of this SMP with respect to the expected and actual Site conditions and the intended land use;
3. Establish management procedures to ensure that the risk management measures outlined in this SMP are properly implemented and maintained; and
4. Comply with applicable policies, environmental covenants, laws, and regulations.

Existing Environmental Conditions

Numerous potential contaminant source areas have been investigated and remediated at the Site. Subsequent to completion of interim soil remediation activities in 2012 (ENVIRON, 2012b), some areas of impacted soil remain on the Site, and these ECAs are subject to the provisions of this SMP. A regional groundwater plume containing perchlorate, hexavalent chromium, and other contaminants underlies most of the Site. The portions of the groundwater plume that are subject to the provisions of this SMP are those areas of the Site where the plume exceeds regulatory levels. Additionally, any areas of the Site where unexpected contamination (as discovered by visual or odorous cues) is encountered are also subject to the provisions of this SMP.

General Risk Management

This SMP describes measures that will be implemented to mitigate risks to human health and the environment related to exposure to any residual COPCs during periods of typical operations and non-construction activity. These measures include:

- Providing required notification to current and future Site Occupants of the known environmental conditions at the Site and the requirements of the SMP;
- Conducting additional risk analysis and modification of the SMP, as appropriate, if there is any significant change in land use proposed for the Site, or if any significant change in toxicity values for COPCs occurs;
- Reviewing and revising the SMP annually to address any changes to each ECA, including additional characterization data and/or new limits, based on work conducted during the previous year;
- On-going groundwater monitoring;
- Ensuring that groundwater from the Site is not used for drinking water or any other purpose unless the Nevada Division of Environmental Protection (NDEP) approves its use;
- Following appropriate health and safety procedures (including use of appropriate personal protective equipment [PPE]) for soil-disturbing activities;
- Conducting appropriate ongoing operation and maintenance to verify the continued adequacy of risk management measures, such as evaluating ongoing environmental monitoring data (e.g., groundwater monitoring data) to determine if there are any significant changes in Site environmental conditions that require potential modifications of this SMP;
- Monitoring changes in COPC toxicity parameters to assess if additional or lesser mitigation may be needed based on an updated understanding of toxicity of the COPCs at the Site; and

- Inspecting the Site as necessary, but at least annually, to verify that risk management controls are being implemented and that they are effective in limiting potential exposure to COPCs at the Site.

Soil Screening Levels

Soil screening levels (including Basic Comparison Levels (BCLs) as well as asbestos, arsenic, and dioxins/furans limits) have been developed for the Site (Table 1). The most recent version of the BCLs, which can be found on the NDEP website (https://ndep.nv.gov/resources/risk-assessment-and-toxicology-basic-comparison-levels), should be used. The BCLs were last updated in July 2017 (NDEP, 2017b). Table 1 has been updated to reflect the most current BCLs. These screening levels will be used to evaluate whether or not:

- Excavated soil can be reused as fill at the Site; and
- Additional soil removal should be considered at locations where soil contamination is observed during soil-disturbing activities.

As explained in the Removal Action Work Plan for Phase B Soil Remediation of Remedial Zones RZ-B through RZ-E (RAW), Tronox LLC, Henderson, Nevada, revised May 28, 2010 (Northgate, 2010b), for purposes of designating potential remediation areas, "contaminated" soil is generally defined as concentrations exceeding NDEP worker BCLs, or modified risk-based goals as agreed upon by NDEP. For metals where background concentrations exceed NDEP BCLs (e.g., arsenic), "contaminated" soil is defined as concentrations greater than background. A target remediation goal of 7.2 milligrams per kilogram (mg/kg) for arsenic was approved by NDEP on August 20, 2010 (NDEP, 2010c) in response to Tronox's August 13, 2010 errata to the RAW (Northgate, 2010b). There are no NDEP BCLs for asbestos; therefore, "contaminated" soil is defined as one or more long amphibole protocol structures and greater than five long chrysotile protocol structures counted per sample, which were the criteria used in the NDEP-approved RAW (Northgate, 2010b) and in the Interim Soil Removal Action Completion Report (ENVIRON, 2012b). Based on a bioaccessibility study performed in 2010 (Northgate, 2010a), NDEP has approved a Site-specific soil screening level for dioxins/furans (as 2,3,7,8-tetrachlorodibenzo-p-dioxin toxicity equivalents [2,3,7,8-TCDD TEQ]) of 2,700 parts per trillion (ppt) (NDEP, 2010a,b).

Risk Management During Soil-Disturbing Activities

This SMP summarizes risk management measures and procedures to be implemented during soil-disturbing activities to mitigate potential risks to human health and the environment from potential exposure to COPCs, and to manage soil and groundwater during soil-disturbing activities. These measures and procedures include:

- Development and implementation of a project-specific health and safety plan (HASP) that describes health and safety training requirements for on-site workers, PPE to be used, and other precautions to be undertaken to minimize direct contact with soil and groundwater;
- Implementation of mitigation measures, such as dust and odor control, decontamination of construction and transportation equipment, and storm water pollution prevention controls, if required;
- Sampling and analysis of groundwater generated during dewatering activities (i.e. for large construction or excavation) to determine appropriate storage and disposal practices;

- Management of abandoned underground storage tanks (USTs), sumps, pipes, and buried drums or containers that may be encountered during Site soil-disturbing activities;
- Protection of the existing groundwater extraction and treatment system (GWETS) during Site soil-disturbing activities and implementation of NDEP-approved modifications to the existing system; and
- Management of soil potentially impacted by COPCs that is handled during soil-disturbing activities. Soil management protocols include identifying COPC-impacted soil that may be excavated during Site soil-disturbing activities and contingencies if previously unknown soil contamination is encountered. Appropriate sampling, qualification, handling and disposal of contaminated soil that are excavated is described.
- For any project at the Site that will include soil-disturbing activities that trigger this SMP, the Site Occupant should include the applicable risk management measures and procedures outlined in this SMP in the Work Plan for the project. Each project Work Plan must be reviewed by the Trust and approved by NDEP.

Groundwater Risk Management Considerations

Due to the groundwater contamination in the aquifer underlying the Site, measures must be taken to prevent deep soil-disturbing activities from creating additional potential pathways for migration of COPCs in groundwater. For example, if deep soil-disturbing activities (e.g., construction of a new building) require deep pile foundations, mitigation measures must be included to reduce the potential for vertical cross-contamination or for creating conduits for downward contaminant migration. The Site Occupant will prepare a groundwater mitigation measures plan for approval by NDEP, after the Trust's review, describing the measures that will be taken and demonstrating their effectiveness in preventing potential migration pathways of COPCs caused by soil-disturbing activities that affect groundwater.

The Trust currently operates a GWETS at the Site. The GWETS is required to operate continuously. Soil-disturbing activities must not interfere with operation of the GWETS. Procedures have been developed to coordinate soil-disturbing activities to minimize disturbance to the GWETS and, if necessary, to allow the system to be modified in a way that does not adversely affect its operation.

1. INTRODUCTION

On behalf of the Nevada Environmental Response Trust (NERT or the Trust), Ramboll US Corporation (Ramboll) has prepared this Site Management Plan (SMP) for the Nevada Environmental Response Trust Site (the Site) located in unincorporated Clark County, surrounded by the City of Henderson, Nevada. The Site is an approximately 257-acre area as defined by the 2014 Environmental Covenant[3], and is part of the larger Black Mountain Industrial (BMI) Complex. Tronox LLC (Tronox) formerly owned and operated the Site. In conjunction with the settlement of Tronox's bankruptcy, the Trust took title to the Site. The exclusive purpose and functions of the Trust include, but are not limited to: (i) own the Site for purposes of implementing the Settlement Agreement; (ii) carry out administrative and property management functions related to the Site; and (iii) manage and/or fund implementation of Environmental Actions for the Henderson Legacy Conditions that are approved by Nevada Division of Environmental Protection (NDEP)[4]. Tronox has a long-term lease for approximately 114 acres of the Site and continues its manufacturing operations at the Site. The general location of the Site is shown on Figure 1, and the locations of key Site features are shown on Figure 2.

On behalf of Tronox, Northgate Environmental Management Inc. (Northgate) prepared a draft Environmental Risk Management Plan (ERMP) for the Site, dated December 20, 2010 (Northgate, 2010c). The draft ERMP assumed that each area of the Site, which contained environmental media with chemical concentrations above regulatory criteria and standards, would be covered by an individual and discrete Environmental Covenant/Institutional Control. Subsequent to the February 14, 2011 effective date, the Trust, in consultation with NDEP, decided to pursue a general Environmental Covenant for the (entire 257-acre) Site. Therefore, the draft ERMP was revised by ENVIRON International Corporation (ENVIRON) (on behalf of the Trust) to reflect this change in approach. Where appropriate and applicable, portions of this document (now called the SMP) have been taken directly from the draft ERMP completed by Northgate. The Environmental Covenant for the Site was recorded on May 30, 2014 and is included as Appendix B.

This SMP was prepared following extensive environmental investigations and human health risk analyses that were performed at the Site for over 25 years with oversight from NDEP. The extensive investigations and remedial activities that have been conducted at the Site are summarized in the Remedial Investigation and Feasibility Study (RI/FS) Work Plan, Revision 2 (ENVIRON, 2014).

Three drafts of the SMP were submitted to NDEP between March 2011 and April 2012. Each revision incorporated NDEP's comments. On May 23 and May 30, 2012 errata were submitted to address NDEP's May 14, 2012 comments. The April 2012 SMP and two May 2012 errata letters (ENVIRON, 2012a; hereafter referred to as the SMP, Revision 0) were approved by NDEP on June 1, 2012. Following an annual review of the SMP, Revision 0, ENVIRON prepared an updated SMP,

[3] Parcels C, D, F, G, and H, collectively referred to as the "Sale Parcels", are not included in the Environmental Covenant and are therefore not included as part of the Site for the purposes of this SMP. Parcel E, which is included in the 2014 Environmental Covenant, is not subject to this SMP because all activities that will disturb, or have the potential to disturb, any soils or groundwater conducted on Parcel E are consistent with a NDEP-approved Work Plan and there are no existing groundwater remediation system components on Parcel E.

[4] Unless otherwise specified, "NDEP" in this document refers to NDEP's Bureau of Industrial Site Cleanup (BISC). See Table 6 for contact information.

Revision 1 dated October 2013 (ENVIRON, 2013). The SMP, Revision 1 was approved by NDEP on November 7, 2013. Following a bi-annual review of the SMP, Revision 1, Ramboll Environ prepared an updated SMP, Revision 2 dated July 17, 2015 (Ramboll Environ, 2015). The SMP, Revision 2 was approved by NDEP on August 8, 2015. Provisions in the Environmental Covenant enacted on April 17, 2014 stipulate that the SMP be updated annually. The SMP, Revision 3 dated February 13, 2017 (Ramboll Environ, 2017) was approved by NDEP on February 29, 2017 (NDEP, 2017a). This SMP, Revision 4 was prepared to meet the Environmental Covenant's annual update requirement.

1.1 Scope of the Site Management Plan

This SMP applies to the following conditions at the Site:

- Areas of the Site where impacted soil has been left in-place. These areas have been designated as Excavation Control Areas (ECAs) and are discussed in detail in the Summary of Excavation Control Areas, which is Appendix A of this SMP;
- Areas of the Site where concentrations of contaminants in groundwater exceed current regulatory standards; and
- Areas of the Site where unexpected environmental contamination is encountered during soil-disturbing activities.

Activities undertaken at the Site that qualify as either a "Utility Project" or an "Emergency Project" (as defined herein) are subject only to a specific set of requirements under the SMP, as described in more detail in Sections 4.6 (Utility Projects) or 4.7 (Emergency Projects) and Section 5 (Risk Management for Groundwater). A Site Occupant performing a Utility Project or an Emergency Project on ECA soils or on previously unknown contaminated soils, must comply with SMP Sections 4.6 or 4.7 and Section 5.

This SMP provides a decision framework to manage residual chemicals in soil and groundwater at the Site in a manner that:

- Protects human health and the environment;
- Is consistent with current and planned future land uses;
- Satisfies NDEP and other involved regulatory agencies with oversight authority; and
- Satisfies the property owner's concerns.

1.2 Organization of the SMP

This SMP contains the following sections:

- Section 2 – A description of the Site background, including current and future planned land use and hazards associated with existing structures;
- Section 3 – A description of general risk management measures to mitigate potential long-term risks to human health and the environment, which includes procedures for long-term compliance with this SMP;
- Section 4 – A description of risk management measures for soil for soil-disturbing activities at the Site;

- Section 5 – A description of risk management measures for groundwater for soil-disturbing activities at the Site;
- Section 6 – A list of references cited in this report; and
- Requirements – A certification of compliance with the SMP and a checklist of notification and reporting requirements for Site Occupants.

1.3 Responsibilities

All Site Occupants will be provided with a copy of this SMP and have the responsibility to ensure that the risk management measures and procedures described herein are fully implemented in any applicable activity conducted by the Site Occupant or on the Site Occupant's behalf, as well as by third parties provided access to the Site by the Site Occupant. The Trust will provide a copy of the most current SMP to a Site Occupant upon the start of the Site Occupant's occupancy at the Site, and each time the SMP is revised or updated. The Site Occupant is responsible for providing a copy of the SMP to its contractors or any other third party allowed to enter the Site by the Site Occupant. Each Site Occupant shall certify that it will, and any third party allowed to enter the Site will, comply with the provisions herein, consistent with the model certification provided as Requirement 1 immediately following the text of this report.

The Trust, as property owner, shall have the primary obligation to:

- Ensure that the risk management measures and procedures described in this SMP reflect conditions actually encountered and the intended land use;
- Comply with applicable policies, laws, and regulations including any Environmental Covenants that are recorded for the Site;
- Establish procedures for inspection, maintenance, and monitoring of the risk management measures that are implemented, and establish protocols for future soil-disturbing activities to ensure long-term compliance with the SMP; and
- Assure that the SMP is reviewed and revised annually by qualified environmental professionals to address significant changes in environmental conditions, land uses, and/or applicable laws and regulations.

1.4 Compliance with the SMP

The Trust, as property owner, shall be responsible for providing the requirements of this SMP to Site Occupants.

A checklist of notification and reporting requirements to NDEP and the Trust for Site Occupants is provided as Requirement 2 immediately following the text of this report. The checklist serves only as a reference; compliance with the requirements listed therein is not a substitute for compliance with this entire SMP. The Trust, as property owner, shall maintain documentation of the notifications and written documentation provided by the Site Occupants.

The Trust will inspect the Site as necessary to verify that risk management controls are being implemented and that they are effective in limiting potential exposure to chemicals of potential concern (COPCs) at the Site. The Trust will record incidents of non-compliance with the SMP. The Trust is responsible for tracking and overseeing the correction of non-compliant incidents.

1.5 Regulatory Oversight and Status

NDEP provides regulatory oversight for this project. Tronox (formerly Kerr-McGee Chemical LLC) and NDEP signed several agreements, dated between 1986 and 2005, that governed much of the activities performed at the Site. The Trust and NDEP have entered into the following agreements, which govern activities currently being performed at the Site:

- 2011: Interim Consent Agreement;
- 2011: Action Memorandum; and
- 2014: Environmental Covenant

The first two documents address those portions of the previous agreements between Tronox and NDEP that NDEP has determined were not completed by Tronox. The third document (the Environmental Covenant) provides notice to the public of activity and use limitations (AULs) with respect to the Site.

1.6 Representations and Limitations

The risk management protocols specified in this SMP are based on an understanding of current Site environmental conditions and current policies, laws, and regulations. No representation is made as to the applicability of this SMP to future Site conditions, which may vary from current conditions, as conditions may change or new information may become available. This plan is not intended to conflict with or supplant any laws or regulations regarding on-going operations at the Site.

In the event of changed Site conditions or new information, further Site investigation and evaluation may be necessary to assess human health risks and to establish the specific procedures for remediation or containment of hazardous materials on the Site.

2. SITE BACKGROUND

This section provides an overview of the Site, including a Site description, current and planned future land use, and hazards associated with existing structures.

2.1 Site Description and Land Use

The following sections describe the physical characteristics and current and planned land use of the Site.

2.1.1 Physical Characteristics

The Site is an approximate 257-acre property (Figure 2) that is generally rectangular in shape with the long side in the north-south direction, excluding Parcels C, D, E, F, G, and H. Elevations across the Site range from 1,715 to 1,873 feet (ft) above mean sea level (msl). The land surface slopes toward the north at a gradient of approximately 0.023 ft per foot (ft/ft). The developed portions of the Site have been modified by grading to accommodate buildings, surface impoundments, access roads, a former landfill, and other Site features.

2.1.2 Current Land Use

The Site is generally rectangular, but certain interior portions of the rectangle have been carved out and are owned and used by other companies, such as Lhoist (formerly Chemstar, a lime producer), Titanium Metals Corporation (TIMET), and the Western Area Power Administration (WAPA).

Tronox currently operates on a portion of the Site under a lease with the Trust. Tronox's leased area includes numerous buildings, sheds, labs, ponds, tanks, and pipelines related to the production of manganese dioxide, boron trichloride, elemental boron, and batteries. The major buildings on Tronox's leased area include four Unit Buildings, which are aligned in a row extending in a west-east direction across the Site. The current operating areas are shown on Figure 2.

In addition, an area within the northwestern portion of the Site consists of groundwater treatment facilities, which are operated on behalf of the Trust by an outside contractor, Envirogen Technologies, Inc. (ETI).[5]

The Site is crossed by asphalt and concrete roads, dirt roads, active utility lines, and railroad spurs. An extensive network of active and inactive underground utility lines, including an active underground high-pressure chlorine line, is present under the roads and open areas at the Site. Figure 3 shows a map of the known utilities present on the Site. The map of utilities on the Site should not be considered all inclusive, as many unknown utilities exist on the Site.

2.1.3 Planned Future Land Use

Tronox currently leases portions of the Site for its manufacturing activities and intends to continue such operations indefinitely. Operations of the groundwater extraction and treatment system (GWETS), currently operated by ETI, are anticipated to continue indefinitely. The Site area is zoned for industrial/commercial use. Given the highly industrialized nature of the 5,000-acre BMI complex (which includes the Site), and the long-term lease with Tronox, and continued operation of the GWETS, future use of the Site is expected to remain industrial/commercial.

[5] ETI is referred to as the groundwater extraction and treatment system (GWETS) operator.

2.2 Hazards Associated with Existing Structures

Information regarding existing subsurface structures that may require removal and hazardous materials associated with existing structures and operations are described below.

2.2.1 Existing Structures That May Require Future Removal

While some of the original buildings, ponds and pipelines within the Site have been removed, a number of these structures still remain in-place, supporting ongoing operations, and may need to be removed during future investigations and development of the Site.

2.2.2 Hazardous Materials Associated with Existing Structures and Current Operations

Many of the existing buildings within the Site are either known or suspected to contain hazardous materials, such as asbestos-containing materials (ACM), lead-based paints, and equipment/materials containing polychlorinated biphenyl (PCBs) and mercury. In addition, hazardous materials have been or may be stored, and hazardous waste may be generated at existing buildings within the Site. Hazardous materials associated with existing structures or operations within the Site area are outlined below:

- Many of the existing buildings within the Site are known or suspected to contain ACM due to their age and construction (Converse Consultants, 2010).
- Given the age of buildings within the Site and the common use of lead-based paints before 1978, lead-based paints were most likely used on the majority of buildings/structures within the Site.
- Transformers or capacitors containing PCBs may be present within the Site. In addition, buildings with fluorescent lighting may contain PCBs and mercury in the light ballasts, and caulking used in the buildings may contain PCBs.
- Tronox currently operates processes to produce manganese dioxide, boron trichloride, and elemental boron. These operations involve the use of hazardous materials and generate wastes that are managed in accordance with federal, state, and local laws and regulations.

Future demolition, repair, and/or redevelopment activities at the Site need to incorporate measures to assess the presence of these hazardous materials and specify how they will be addressed within the planned action.

NERT has registered the Site with NDEP as a Nevada large quantity generator (LQG). The NDEP has assigned EPA ID Number NVR000091819 to the Site. Any and all wastes generated by the Trust, Site Occupants or their contractors, as a result of investigation and remediation activities at the Site that are determined to be hazardous will be handled in accordance with the LQG requirements outlined in the Trust's Hazardous Waste Management Plan (which must be updated to reflect any new hazardous waste generating activities) (see Appendix C) and manifested to a disposal facility using the Trust's EPA ID number. Tronox is also a LQG of hazardous waste and maintains its own hazardous waste EPA ID number (NVD008290330) and plan for managing hazardous wastes generated as a result of its own operations.

3. GENERAL RISK MANAGEMENT

This section of the SMP addresses actions that shall be implemented to mitigate risks to human health and the environment related to potential exposure to COPCs during periods of general (non-soil disturbing) Site activity. Any activity that will disturb the soil, building foundations, or pavement shall be completed in a manner that is consistent with the applicable procedures detailed in Sections 4 and 5 of this SMP. Components of the SMP addressing general risk management are as follows:

- Providing required notification to current and future Site Occupants of the known environmental conditions at the Site and the requirements of the SMP;
- Ensuring that future land uses are consistent with the planned land use assumed in this SMP in terms of exposure risk assumptions;
- Prohibiting the use of untreated contaminated groundwater at the Site;
- Establishing a notification procedure and protocols for soil-disturbing activity to ensure long-term compliance with this SMP;
- Reviewing and revising annually this SMP to address:
  - Any new COPCs encountered at the Site;
  - Any newly-developed toxicological data relating to COPCs;
  - Any significant changes in exposure assumptions because of an intended land use that is different from the planned land use upon which this SMP is based;
  - Any changes to each ECA, including additional characterization data and/or new limits, based on work conducted since the last SMP revision;
  - Any change in ownership of all or portions of the Site (e.g., sale of parcels);
  - Any new processes or hazardous materials handled by the Site Occupants; and
  - Any new tenants on the Site.
- Evaluating groundwater monitoring data collected to determine if there is any need to modify this SMP; and
- Inspecting the Site as necessary, but at least annually, to verify that risk management controls are being implemented and that they are effective in limiting potential exposure to COPCs at the Site.

3.1 Notifications and Approvals

The Trust, as property owner, shall be responsible for providing this SMP to Site Occupants. All current and future Site Occupants shall be provided a copy of this SMP and shall certify that they will comply with the provisions herein (see Requirement 1 immediately following the text of this report).

Site Occupants are required to notify NDEP and the Trust prior to any of the following general activities:

- Any activity where Site workers could potentially come in contact with contaminated soil or groundwater.
- Use or addition of new processes or hazardous materials by Site Occupants.
- Additional required notifications to NDEP and Trust for soil-disturbing activities and other on-site activities are detailed in Sections 4 and 5 of this SMP. A checklist of notification and reporting requirements to NDEP and the Trust for Site Occupants is provided in Requirement 2 immediately following the text of this report. The checklist serves only as a reference; compliance with the requirements listed therein is not a substitute for compliance with this entire SMP.

3.2 Prohibiting Use of Site Groundwater

Perchlorate, hexavalent chromium, volatile organic compounds (VOCs), and other chemicals are known to be present in groundwater at concentrations that exceed U.S. maximum contaminant levels (MCLs) or Nevada Basic Comparison Levels (BCLs) for drinking water and Nevada surface water standards applicable to the Las Vegas Wash. Therefore, groundwater beneath the Site may not be used for drinking water or for any other purpose until a risk assessment is performed that demonstrates the proposed use of groundwater does not represent a significant risk and such proposed use of groundwater at the Site is approved by NDEP.

3.3 Health and Safety for Site Activities

Contractors working on the Site must review and comply with its own project-specific health and safety plan (HASP), as described in Section 3.3.1.

3.3.1 Health and Safety Plans

Site Occupants must require each contractor with workers that may contact contaminated groundwater, disturb contaminated soil, or have exposure to COPC vapors at the Site to prepare its own project-specific HASP. The requirement for preparation of a project-specific HASP also applies to activities involving work in utility vaults or other sub-grade areas (e.g., utility maintenance or modifications in subfloor areas of buildings) where potential exposure to accumulated VOC vapors may occur. Alternatively, a contractor may incorporate a Site Occupant's Site-specific HASP as their own by receiving Site-specific training from the Site Occupant's safety professional and documenting its acceptance and intent to comply with the Site-specific HASP by signature.

Every Site Occupant has the responsibility to manage its operations in a safe manner and in compliance with all State and Federal occupational safety and health requirements. Each project-specific HASP must be consistent with State and Federal Occupational Safety and Health Administration (OSHA) standards for hazardous waste operations (29 Code of Federal Regulations 1910.120), and any other applicable health and safety standards. Each contractor will provide copies of its HASP to the Site Occupant who has contracted for the contractor's service and to the property owner (upon request) or incorporate the Site Occupant's Site-specific HASP as their own by receiving Site-specific training from the Site Occupant's safety professional and documenting its acceptance and intent to comply with the Site-specific HASP by signature. Among other things, the HASP will include a description of health and safety training requirements for on-site personnel, a description of the level of personal protective equipment (PPE) to be used, air monitoring requirements, confined space entry procedures, if applicable (e.g., work in utility vaults), and any other applicable precautions to be undertaken to minimize direct contact with contaminated soil and groundwater or exposure to COPC vapors. Site workers must have the appropriate level of

health and safety training and must use the appropriate level of PPE, as determined in the relevant HASP. The Site Occupant must ensure that appropriate utility clearance is conducted prior to the start of soil-disturbing activity. The Site Occupant who has contracted for such services is responsible for ensuring the above requirements are met.

3.4 Hazardous Waste Management Plan

All hazardous waste generated at the Site by the Trust, Site Occupants, or their contractors must be handled in accordance with the NERT Hazardous Waste Management Plan, included in Appendix C. The Trust has registered with NDEP as a Nevada LQG and NDEP has assigned EPA ID Number NVR000091819 to the Site. Any and all wastes generated, as a result of investigation and remediation activities at the Site by the Trust, Site Occupants, or their contractors that are determined to be hazardous must be managed under the Trust's ID number and in accordance with the Trust's Hazardous Waste Management Plan (which must be updated to reflect any new hazardous waste generating activities).

3.5 Importing Fill

If imported soil or fill is brought on-site (i.e., for backfilling purposes), the material must be approved by the Trust prior to use in order to ensure the imported material is acceptable. Documentation provided for the material should include sufficient information regarding the source of backfill material to show that the backfill material is not contaminated or from a contaminated source. This information should include:

- The source name and location for the proposed backfill material;
- Current and prior land use at the source location; and
- If there is potential for contamination in the backfill material based on the source location and land use, provide results of testing for possible contaminants using an appropriate suite of analyses depending on the location and land use.

3.6 Long-Term Compliance; Annual Review and Revision of SMP

The Trust, as property owner, shall maintain documentation of notification of the requirements of this SMP to Site Occupants. Site Occupants will inform their employees, contractors, or any other third party entering the Site about the SMP, as needed, to ensure compliance.

This SMP, and any addenda, will be reviewed and revised annually by the Trust. The review will address new COPCs encountered at the Site and not addressed in the existing SMP; any newly available toxicological data relating to COPCs; any significant changes in land use from the planned land use on which this SMP is based; any updates to the ECAs, including modifications to the description and/or limits; addition of new ECAs if previously unknown contamination is found and then left in-place; any change in ownership of all or portions of the Site; any new processes or hazardous materials handled by the Site Occupants; and any new tenants on the Site. The Trust will update the SMP, as needed, based on the annual review of the SMP and Site conditions. Once approved, the Trust will distribute copies of the updated SMP to Site Occupants, as necessary.

3.6.1 Evaluation of Groundwater Monitoring Data

The Trust, as property owner, will compile and review groundwater monitoring data to determine if there has been any significant change in the nature, extent, or concentration of COPCs in groundwater that would require potential modification of this SMP. The groundwater monitoring

data will be evaluated in accordance with a schedule proposed by the Trust and approved by NDEP. Currently, NDEP requires that groundwater data are reviewed on a semi-annual basis.

3.6.2 Annual Report

The Trust, as property owner, shall prepare an annual report summarizing and evaluating the results of the inspection/maintenance/monitoring activities and documenting the continued adequacy of the implemented risk management measures. This report shall include documentation that appropriate notifications have been made, as summarized in Requirement 2, and that appropriate protocols for soil-disturbing activities have been implemented. In addition, the annual report shall summarize any changes to each ECA, including additional characterization data and/or new limits, based on work conducted during the previous year. This annual report shall be submitted to NDEP for review.

4. RISK MANAGEMENT FOR SOIL

This section addresses precautions that will be taken to mitigate potential risks to human health and the environment from COPCs in soil during future Site activities. Precautions to be taken during the soil-disturbing activity will include the following:

- Implementation of procedures to characterize and manage Site soil during soil-disturbing activities, as established in this Section;
- Implementation of best management practices (BMPs), including control of dust generation at the Site, decontamination of equipment, and storm water runoff controls; and
- Implementation of proper health and safety precautions, as discussed in Section 3.3.

For any project at the Site, including outside of ECAs and previously unknown contaminated soils, that includes a soil-disturbing activity, the Site Occupant shall notify the Trust of the project a minimum of 24 hours prior to commencement of the soil-disturbing activity. The Trust may require oversight of the soil-disturbing activity by a Trust-appointed representative.

For any project at the Site that will include soil-disturbing activities that trigger this SMP (i.e., within ECA soils or previously unknown contaminated soils), the Site Occupant should include the applicable risk management measures and procedures outlined in this SMP in the Work Plan for the project. Each project Work Plan must be reviewed by the Trust and approved by NDEP.

4.1 Soil Management Protocols

Future soil-disturbing activities, including, but not limited to, demolition work, grading, foundation excavation, trenching, and other construction-related activities may require soil to be excavated or relocated within the Site.

Soils subject to this SMP that may be encountered during these future activities are divided into two categories:

1) ECA Soils:

   a. Areas of Known Soil Contamination Left In-Place: Soil located in areas of known soil contamination that have not been removed. If a majority of an ECA is to be excavated, consideration will be given to the feasibility of complete removal of soils in that entire ECA;

   b. Building Perimeter Soils: The top 3 inches of soil located within 10 ft of Site building footprints that is potentially impacted by lead or asbestos (i.e., adjacent to buildings known to have exterior lead paint or asbestos-containing siding); and

   c. Uncharacterized Potentially Contaminated Soils: Soil located in areas that are likely to be contaminated (e.g., underneath the Unit Buildings), but have not been previously characterized due to the presence of structures or other obstructions.

2) Previously Unknown Contaminated Soils: Soil encountered during soil-disturbing activities that is visibly stained, discolored, shiny, or oily, or that has a noticeable solvent- or hydrocarbon-like odor that has not previously been discovered or characterized. These soils are not within an ECA.

Areas of known soil contamination that are being left in-place (i.e., ECAs) are identified in Appendix A. Figures 1 through 6 of Appendix A show the locations of each of the ECAs on the Site. Prior to the

disturbance of soil within any ECA, NDEP and the Trust must be notified. A work plan (preferably the overall Work Plan for the project) detailing any proposed sampling activities, investigations or remediation (collectively referred to as "ECA Remedial Actions") must be submitted for approval by NDEP, after the Trust's review, prior to disturbance of any soil within an ECA. If ECA Remedial Actions are conducted, the Site Occupant must prepare a written report summarizing the investigation and remedial actions completed (see Section 4.5).

4.2 Soil Management Actions for ECA Soils

There are a number of areas within the Site where it is likely that soil containing COPCs may be encountered during soil-disturbing activities. This section describes the soil-handling procedures that will be implemented for ECA soils.

4.2.1 Excavated Soil Management for ECA Soils

ECA soils that are excavated may be stockpiled or placed in plastic-lined roll-off containers for chemical analysis if required for disposal or reuse on-site, as described in Section 4.2.2. As it is NDEP's preferred method, the Site Occupant will place soil in covered, plastic-lined roll-off containers, whenever feasible, to contain the material prior to off-site disposal or on-site reuse. If not feasible, the Site Occupant can place soil in stockpiles on a double-layer plastic liner and cover the stockpile with plastic sheeting, tarp, or adequate surfactant at all times except when material is being handled. The top covering will be adequately secured so that all surface areas are covered. Berms will be constructed around the stockpile area to control precipitation run-on and run-off.

4.2.2 Sampling and Analysis of Excavated ECA Soils

The sampling and analysis requirements for off-site disposal and on-site reuse of excavated ECA soils are described in the sections below.

4.2.2.1 Off-Site Disposal

If sampling is required for off-site disposal of excavated soil (e.g., where existing characterization data are insufficient for landfill disposal), one composite sample will be collected from random locations from within every 250 cubic yards of excavated soil for the first 1,000 cubic yards and per every 1,000 cubic yards for each additional 1,000 cubic yards. Composite soil samples shall consist of at least four subsamples representative of the excavated soil. The Site Occupant may request, and NDEP may approve, a lesser amount of samples as specified in the approved work plan. All samples will be submitted to a state-certified laboratory and analyzed for those analytes required for proper disposal off-site in accordance with all applicable laws and regulations.

4.2.2.2 On-Site Reuse

If excavated soil is being considered for reuse on-site, one composite sample will be collected from random locations from within every 250 cubic yards of excavated soil for the first 1,000 cubic yards and per every 1,000 cubic yards for each additional 1,000 cubic yards. Composite soil samples shall consist of at least four subsamples representative of the excavated soil. The Site Occupant may request, and NDEP may approve, a lesser amount of samples as specified in the approved work plan. All samples will be submitted to a state-certified laboratory and analyzed for an appropriate suite of chemicals based upon the following criteria:

- Soil from an individual ECA area of known soil contamination left in-place, will be analyzed for the analytes listed in the Summary of ECAs Table A-1 in Appendix A; and
- Soil from areas within 10 ft of the perimeter of Site buildings potentially impacted by lead or asbestos will be analyzed for lead using U.S. Environmental Protection Agency (EPA) Method 6010

and asbestos by the EPA Method 600/R-93-116 for the determination of asbestos in bulk building materials as listed in Table 4; or

- Soil from uncharacterized potentially contaminated ECA areas will be analyzed for the same broad suite of chemicals as was done previously for uncharacterized ECAs (see Section 4.3). The analytical requirements for these ECA areas are also included in the Summary of ECAs Table A-1 in Appendix A.

A summary of excavated soil sampling requirements for ECA soils is provided in Table 2. In the alternative, the Site Occupant may request and NDEP may approve an alternative analytical suite.

4.2.3 Disposition of Sampled Excavated ECA Soils

Analytical results will be compared to the soil screening levels provided in Table 1.[6] If chemical concentrations in the excavated soil samples do not exceed the soil screening levels, the soil can be reused at the Site for backfill, either within the project area from where it was excavated, or in other areas of the Site, subject to approval from the Trust.

If chemical concentrations in the excavated soil samples exceed the soil screening levels, the soil will be managed in accordance with all applicable laws and regulations and disposed of at an approved off-site facility with the waste profile and manifests being reviewed by the on-site NERT representative (Steve Clough) prior to removing the soil from the Site. Any hazardous waste generated as a result of Trust remediation projects will be characterized and the waste profile and manifests being approved and signed by the on-site NERT representative. Any waste generated by Tronox requiring disposal will be handled by Tronox with the waste profile and manifests being approved and signed by Tronox personnel. NDEP and the Trust will be notified when the results of chemical testing indicate excavated soil contains COPCs at concentrations that exceed the soil screening levels for the Site.

4.2.4 Confirmation Sampling for ECA Excavations

When excavation of ECAs is undertaken, confirmation soil samples shall be collected from the limits of excavation as follows:

- Sidewall samples will be collected from discrete locations from freshly exposed soil at a depth equal to approximately one half of the excavation depth at a minimum frequency of every 50 linear feet of sidewall excavation face. If the excavation depth is less than 2 ft, then no sidewall samples are required.
- Bottom confirmation samples will be collected from excavation bottoms at discrete locations on approximately 50-ft centers for areas greater than approximately 2,500 square ft. For excavations that are less than 2,500 square ft, one bottom confirmation sample will be collected.
- If visible or otherwise noticeable contamination remains at the limits of the planned excavation, then field judgment will be used to collect the confirmation samples within the visible/noticeable contamination. This procedure will document the level and location of contamination that is requested to remain in-place.

[6] The soil screening levels in Table 1 are the current July 2017 BCLs (NDEP, 2017b), the NDEP-approved Site-specific comparison level for dioxins/furans, NDEP-approved background levels, and the criteria used as the basis for asbestos remediation of the Site. If, in the future, any of these comparison levels change, the soil screening levels in Table 1 will be updated to reflect the most current comparison levels. At all times, the most recent version of the BCLs, which can be found on the NDEP website (http://ndep.nv.gov/resources/risk-assessment-and-toxicology-basic-comparison-levels) should be used.

Laboratory analysis of the confirmation soil samples shall include the same analyses that were used for the excavated soil (see Section 4.2.2 and the Summary of ECAs Table A-1 in Appendix A), or any alternative analytical suite approved by NDEP. A summary of confirmation sampling requirements is provided in Table 2. The results of all confirmation sampling will be reported to NDEP and the Trust. If the results of the confirmation soil sampling indicate that all COPC concentrations are below soil screening levels, no additional excavation is required. If the results of the confirmation soil samples indicate COPC concentrations above the soil screening levels, further over-excavation and additional confirmation sampling is required unless otherwise approved by NDEP after review and concurrence from the Trust. Further, the Trust and NDEP must be notified within 24 hours of receiving post-excavation confirmation sample results that indicate COPCs are present in remaining soils at concentrations that exceed soil screening levels.

4.3 Contingency Actions for Encountering Previously Unknown Contaminated Soil

In addition to the ECA soil areas at the Site, previously unknown contaminated soil may be observed during soil-disturbing activities. If during soil-disturbing activities at the Site, soil is encountered that is visibly stained, discolored, shiny, or oily, or that has a noticeable solvent- or hydrocarbon-like odor that appears to indicate greater than *de minimis* contamination (i.e., greater than one cubic yard) or if buried debris is encountered that appears to be part of a significant disposal practice, work must stop and contingency actions must be taken as summarized below. In addition, NDEP and the Trust shall be notified within 24 hours.[7] If required, the NDEP 24-hour Spill Notification Line (1-888-331-6337 or 1-775-687-9485) must be called to report the previously unknown soil contamination or buried debris at the Site.

In addition, soils within any excavation that extend to greater than 10 ft below grade (unless previously characterized) shall be covered by the soil characterization contingency actions described in this section. This includes soil borings that extend below 10 feet.

During environmental investigation activities (e.g., investigations as part of the Remedial Investigation [RI]), previously unknown contamination is likely to be encountered. The results of sampling performed during environmental investigation activities, including sampling of any previously unknown contamination, will be reported in the subsequent report. Due to the nature of environmental investigations, this section (Section 4.3) will not be followed during environmental investigation activities. If previously unknown contaminated soil is encountered, any additional samples needed to characterize impacted soil will be analyzed as described in the work plan for the environmental investigation.

A sample of the visibly contaminated or odorous soil must be collected for laboratory analysis and analyzed for the full suite of analytes, at a minimum, for Site COPCs by the following analytical methods, which are also summarized in Table 4:

- Asbestos by EPA Method 600/R-93-116;
- Cyanide by EPA Method 9014;
- Dioxins/Furans by EPA Method 8290 or 8280 (for high concentration samples);
- Hexavalent chromium by EPA Method 7199;

[7] The Trust must also be notified of discovery of *de minimis* amounts (less than one cubic yard) of previously unknown contaminated soil and additional actions must be taken if required by the Trust.

- Inorganic anions (bromide, chloride, fluoride, nitrate as nitrate, sulfate, nitrite as N, nitrate as N, and orthophosphate as phosphate) by EPA Method 300.0 or 300.1;
- Mercury by EPA Method 7471;
- Metals by EPA Methods 6010 or 6020;
- Organochlorine Pesticides (OCPs) by EPA Method 8081A;
- Polycyclic Aromatic Hydrocarbons (PAHs) by EPA Method 8270D or 8270 SIM;
- PCBs by EPA Method 8082;
- Perchlorate by EPA Method 314.0;
- pH by EPA Method 9045D;
- Sulfide by EPA Method 9034;
- Semi-Volatile Organic Compound (SVOCs) (incl. Hexachlorobenzene [HCB] and Benzo(a)pyrene [B(a)P]) by EPA Method 8270; and
- VOCs by EPA Method 8260B.

The Site Occupant may request and NDEP may approve an alternative analytical suite.

The results of the initial soil analyses must be submitted to NDEP and the Trust. If there is evidence that other chemicals may be present that could present a potential health risk through direct contact by Site workers, additional analyses shall be performed as requested by NDEP and the Trust. If it is determined that no additional analyses beyond the initial analyses are required, as approved by NDEP and the Trust, soil excavation may proceed to the extent needed to continue the soil-disturbing project. The excavated soil will be managed as described below in Sections 4.3.2 and 4.3.3.

If the results of the evaluation sample indicate COPCs are present in soil at concentrations above the soil screening levels, NDEP and the Trust must be notified within 24 hours, and the Site Occupant must receive approval from NDEP and the Trust prior to continuing the soil-disturbing project or backfilling activities. Additional actions may also be necessary (e.g., submittal of a work plan for approval by NDEP, after the Trust's review, for management of the soil, additional excavation, use of additional PPE to prevent or limit worker exposure), as described in Section 4.3.1.

4.3.1 Soil Management of Previously Unknown Contaminated Soil

The Site Occupant conducting the work will manage soils remaining in-place in areas of previously unknown contaminated soil, as discussed in this Section. Prior to commencement of work, the Site Occupant must prepare and submit a work plan detailing proposed sampling activities, investigations or remediation (collectively referred to as "Remedial Actions") for approval by NDEP, after the Trust's review. Remedial Actions will not commence prior to the approval of the work plan by NDEP.

Depending on the apparent extent of contamination, the level of contamination, the project schedule, and physical constraints, management of the contaminated soil could be handled in different ways. Examples of potential proposed remedial action approaches, which would be detailed in the work plan, for these areas are outlined below:

- Excavate and Collect Confirmation Samples. Unsaturated zone soils that potentially contain chemicals above soil screening levels are excavated and either stockpiled or placed in covered, plastic-lined roll-off containers. The excavated soil is managed as described in Sections 4.3.2 and

4.3.3. Confirmation soil samples are then collected from the excavation sidewalls and floor to verify that impacted soils have been removed. Confirmation samples shall be collected at the frequency described in Section 4.3.5. Excavation is considered complete if confirmation soil sample results are below soil screening levels. After soil excavation is considered complete and approved by NDEP, the excavation may be backfilled with clean soil, and project work may continue.

- *In Situ* Characterization. The extent of impacted soils is characterized *in situ* by collecting soil samples from soil borings prior to excavation (i.e., the extent is characterized in advance using samples collected from soil borings). Based on the nature and extent of contamination, the Site Occupant may proceed with the excavation and disposal of impacted soils, as well as collection of post-excavation confirmation sampling (as described above), or evaluate and implement other remedial measures, as appropriate.
- If known soil contamination is left in-place, the area would be designated as an ECA and managed as such. Reasons for leaving known soil contamination in-place could include: 1) if complete excavation is not practicable at that time (e.g., there are physical constraints such as a building); or 2) if operation of the GWETS adequately addresses any potential impact due to the identified impacted soil. NDEP would consider specific cases for ceasing excavation with confirmation samples exhibiting concentrations greater than soil screening levels. If approved by NDEP, the Site Occupant would have to provide data and documentation in a written report for the approved excavation limits.
- Subsequent to completing activities outlined in the approved work plan, the Site Occupant must prepare a written report summarizing the Remedial Actions completed (see Section 4.5). The report must be submitted to and approved by NDEP, after the Trust's review.

4.3.2 Excavated Soil Management for Previously Unknown Contaminated Soil

Previously unknown contaminated soils that are excavated may be stockpiled or placed in plastic-lined roll-off containers for chemical analysis if required for disposal or reuse on-site, as described in Section 4.3.3. As it is NDEP's preferred method, the Site Occupant will place soil in covered, plastic-lined roll-off containers, whenever feasible, to contain the material prior to off-site disposal or on-site reuse. If not feasible, the Site Occupant can place soil in stockpiles on a double-layer plastic liner and cover the stockpile with plastic sheeting, tarp, or adequate surfactant at all times except when material is being handled. The top covering will be adequately secured so that all surface areas are covered. Berms will be constructed around the stockpile area to control precipitation run-on and run-off.

4.3.3 Sampling and Analysis of Excavated Previously Unknown Contaminated Soil

If sampling is required for disposal of excavated soil (e.g., where existing characterization data are insufficient for landfill disposal or if excavated soil is being considered for reuse on-site), one composite sample will be collected from random locations from within every 250 cubic yards of excavated soil for the first 1,000 cubic yards and per every 1,000 cubic yards for each additional 1,000 cubic yards. Composite soil samples shall consist of at least four subsamples representative of the excavated soil. The Site Occupant may request, and NDEP may approve, a lesser amount of samples as specified in the approved work plan. All samples shall be submitted to a state-certified laboratory and analyzed for one of the following: (1) analytes required for proper disposal of the soil off-site (only if the Site Occupant intends to dispose of the soil off-site); (2) any chemicals that were identified, in the sampling performed following discovery of the previously unknown contaminated soil (see Section 4.3.3), as exceeding the screening levels provided in Table 1 (if the Site Occupant intends to reuse the soil as backfill); or (3) any other analytical suite approved by NDEP.

A summary of excavated soil sampling requirements for previously unknown contaminated soil is provided is Table 3.

4.3.4 Disposition of Sampled Excavated Previously Unknown Contaminated Soil

Analytical results will be compared to the soil screening levels provided in Table 1.[8] If chemical concentrations in the excavated soil samples do not exceed the soil screening levels, the soil can be reused at the Site for backfill, either within the project area from where it was excavated, or in other areas of the Site, subject to approval from the Trust.

If chemical concentrations in the excavated soil samples exceed the soil screening levels, the soil will be managed in accordance with all applicable laws and regulations and disposed of at an approved off-site facility with the waste profile and manifests being reviewed by the on-site NERT representative (Steve Clough) prior to removing the soil from the Site. Any hazardous waste generated as a result of Trust remediation projects will be characterized and the waste profile and manifests being approved and signed by the on-site NERT representative. Any waste generated by Tronox requiring disposal will be handled by Tronox with the waste profile and manifests being approved and signed by Tronox personnel. NDEP and the Trust will be notified when the results of chemical testing indicate excavated soil contains COPCs at concentrations that exceed the soil screening levels for the Site.

4.3.5 Confirmation Sampling for Excavations in Areas of Previously Unknown Contaminated Soil

For excavations in previously unknown contamination areas, confirmation samples will be collected from in-place soils at the limits of the excavation as follows:

- Sidewall samples will be collected from discrete locations from freshly exposed soil at a depth equal to approximately one half of the excavation depth at a minimum frequency of every 50 linear ft of sidewall excavation face. If the excavation depth is less than 2 ft, then no sidewall samples are required;
- Bottom confirmation samples will be collected from excavation bottoms at discrete locations on approximately 50-ft centers for areas greater than approximately 2,500 square ft. For excavations that are less than 2,500 square ft, one bottom confirmation sample will be collected; and
- If visible or otherwise noticeable contamination remains at the limits of the planned excavation, then field judgment will be used to collect the confirmation samples within the visible/noticeable contamination. This procedure will document the level and location of contamination that is requested to remain in-place.

Laboratory analysis of the confirmation soil samples shall include the same analyses that were used for the excavated soil (see Section 4.3.3), or any alternative analytical suite approved by NDEP. A summary of confirmation sampling requirements is provided in Table 3. The results of all confirmation sampling will be reported to NDEP and the Trust. If the results of the confirmation soil sampling indicate that all COPC concentrations are below soil screening levels, no additional excavation is required. If the results of the confirmation soil sampling indicate COPC concentrations above the soil

[8] The soil screening levels in Table 1 are the current July 2017 BCLs (NDEP, 2017b), the NDEP-approved Site-specific comparison level for dioxins/furans, NDEP-approved background levels, and the criteria used as the basis for asbestos remediation of the Site. If, in the future, any of these comparison levels change, the soil screening levels in Table 1 will be updated to reflect the most current comparison levels. At all times, the most recent version of the BCLs, which can be found on the NDEP website (https://ndep.nv.gov/resources/risk-assessment-and-toxicology-basic-comparison-levels) should be used.

screening levels, further over-excavation and additional confirmation sampling is required, unless otherwise approved by NDEP after review and concurrence from the Trust.

4.4 Mitigation Measures for Soil-Disturbing Activities

This section outlines measures that must be implemented to mitigate potential impacts to human health and the environment during soil-disturbing activities at the Site that trigger this SMP. Measures must be implemented to mitigate the potential impacts of the following activities:

- Dust generation associated with soil-disturbing activities, soil loading activities, construction or transportation equipment traveling over on-site soil, and wind traversing COPC-impacted soil stockpiles;
- Tracking COPC-impacted soil off the Site with construction or transportation equipment; and
- Transporting COPC-impacted sediments from the Site in surface water run-off.

The mitigation measures for these potential activities will include, but are not limited to, the following:

- Implementing dust control measures (Section 4.4.1);
- Decontaminating construction and transportation equipment (Section 4.4.2); and
- Implementing storm water runoff controls and obtaining coverage and complying with NDEP's Construction Storm Water General Permit (NVR100000), if applicable (Section 4.4.3).

These mitigation measures are discussed in more detail below. Prior to beginning any soil-disturbing activity that triggers this SMP, the Site Occupant conducting the work shall prepare and submit to the appropriate authorities, including NDEP, a work plan (preferably included in the project Work Plan) describing mitigation measures that will be implemented during Site soil-disturbing activities. The work plan, including applicable mitigation measures, must be reviewed by the Trust and approved by NDEP (and any other relevant agency) prior to implementation of soil-disturbing activities. The Site Occupant shall also provide copies of all permits required for the project work in the ECAs to the Trust prior to starting any work.

4.4.1 Dust Control Measures

Dust control measures will be implemented during soil-disturbing activities at the project area to minimize dust generation in compliance with applicable Clark County Department of Air Quality (DAQ) regulations and the NERT Site-Wide Dust Control Work Plan (Appendix D). Upon approval by the Trust, requirements within the NERT Site-Wide Dust Control Work Plan may be modified depending upon the specific proposed work activities and construction practices.

4.4.2 Decontaminating Vehicles and Construction Equipment

Construction equipment and transportation vehicles that contact soil that potentially contains COPCs or has been confirmed to contain COPCs within the project area will be decontaminated before they leave the project area, to minimize the potential for their tracking COPC-containing soil onto roadways.

A decontamination plan for the decontamination of vehicles and construction equipment must be included in the mitigation measures portion of the work plan referenced above in Section 4.4. Decontamination methods will include scraping, brushing, and/or vacuuming to remove dirt on vehicle exteriors and wheels. If these dry decontamination methods are not adequate, methods such as steam cleaning, high-pressure washing, and use of cleaning solutions will be used, as necessary, to

remove soil. Wash water resulting from decontamination activities must be collected and managed in accordance with all applicable laws and regulations.

4.4.3 Storm Water Pollution Controls

All soil-disturbing activities shall conform to NDEP storm water management requirements, including obtaining coverage and complying with NDEP's Construction Storm Water General Permit (NVR100000), if applicable. Any Site Occupant performing work at the Site that is subject to NDEP storm water management requirements must notify the Trust of the proposed activities and implement specific storm water runoff controls and BMPs appropriate to the project plans and specifications.

4.5 Documentation of Remedial Actions Taken

After completion of a Remedial Action for either ECA soils or previously unknown contaminated soils under an approved work plan, the Site Occupant must prepare a report that describes the field activities, findings, remedial actions taken, and analytical results. The report shall be submitted to the Trust for review within 45 business days after completion of the remedial action and subsequently to NDEP for approval.

The report shall include, at a minimum, the following information:

- An excavation summary;
- A figure depicting the location where the remedial action was taken;
- GPS coordinates for the limits of excavation within ECAs or due to discovered contaminated soils;
- A summary of laboratory analytical results of excavated soil and soil post-excavation confirmation sampling, as well as a compilation of laboratory analytical data reports and laboratory quality control reports;
- An estimate of the volume—and approximate location—of excavated soil that exceeded soil screening levels, if applicable;
- A summary of excavated soil transported to an off-site disposal facility, including the dates the soil was transported and the estimated quantity of soil transported;
- A summary of excavated soil used for on-site reuse; and
- Proof of proper disposal of contaminated soil.

4.6 Utility Projects

Any activity performed at the Site that qualifies as a "Utility Project" is subject to only the requirements contained in this Section 4.6 and in Section 5. A "Utility Project" is defined as activities that disturb soil related to the installation, maintenance, repair, or replacement of equipment and structures used for the provision or storage of utilities, including but not limited to water, gas, electricity, and telecommunications. Prior to performing activities related to a Utility Project, the Site Occupant must notify the Trust who will then notify NDEP of the activities and receive a determination from NDEP that the activities qualify as a Utility Project under the SMP.

Whenever a Utility Project is performed at the Site, the Site Occupant must take the following precautions:

- Implement procedures to characterize and manage Site soil during soil-disturbing activities, as established in this Section;
- Implement proper health and safety precautions.

Prior to performing any Utility Project, a work plan describing the proposed activities must be submitted to NDEP, after the Trust's review, for approval. The work plan shall also include applicable mitigation measures (e.g., dust control measures, procedures for decontamination of vehicles and construction equipment, and storm water runoff controls) that will be implemented during the Utility Project. Copies of all permits required for the Utility Project shall be provided to the Trust prior to implementation of the Utility Project.

4.6.1 Utility Projects Within an ECA

For Utility Projects within an ECA, the procedures described in the following sections for excavated soil management, sampling and analysis of excavated soil, and disposition of sampled excavated soil shall be followed.

4.6.1.1 Excavated Soil Management

Soil that is excavated from within an ECA must be stockpiled or placed in plastic-lined roll-off containers for chemical analysis if required for disposal or reuse on-site, as described in Section 4.6.1.2. As it is NDEP's preferred method, the Site Occupant will place soil in covered, plastic-lined roll-off containers, whenever feasible, to contain the material prior to off-site disposal or on-site reuse. If not feasible, the Site Occupant can place soil in stockpiles on a double-layer plastic liner and cover the stockpile with plastic sheeting, tarp, or adequate surfactant at all times except when material is being handled. The top covering shall be adequately secured so that all surface areas are covered. Berms will be constructed around the stockpile area to control precipitation run-on and run-off.

4.6.1.2 Sampling and Analysis of Excavated Soil

Soil excavated from within an ECA shall be collected and analyzed prior to disposal (e.g., landfill disposal or reuse on-site) as follows: one composite sample shall be collected from within every 250 cubic yards of excavated soil for the first 1,000 cubic yards and per every 1,000 cubic yards for each additional 1,000 cubic yards. The Site Occupant may request, and NDEP may approve, a lesser amount of samples as specified in the approved work plan. Composite soil samples shall consist of at least four subsamples representative of the excavated soil. All samples shall be submitted to a state-certified laboratory and analyzed for one of the following: (1) analytes required for proper disposal of the soil off-site (only if the Site Occupant intends to dispose of the soil off-site); (2) the Site COPCs identified for the specific ECA being affected (if the Site Occupant intends to reuse the soil as backfill); or (3) any other analytical suite approved by NDEP.

4.6.1.3 Disposition of Sampled Excavated Soil

If the Site Occupant intends to reuse excavated soil for backfill, analytical results shall be compared to the soil screening levels provided in Table 1.[9] If chemical concentrations in the excavated soil samples do not exceed the soil screening levels, the soil may be reused for backfill from within the

[9] The soil screening levels in Table 1 are the current July 2017 BCLs (NDEP, 2017b), the NDEP-approved Site-specific comparison level for dioxins/furans, NDEP-approved background levels, and the criteria used as the basis for asbestos remediation of the Site. If, in the future, any of these comparison levels change, the soil screening levels in Table 1 will be updated to reflect the most current comparison levels. At all times, the most recent version of the BCLs, which can be found on the NDEP website (http://ndep.nv.gov/resources/risk-assessment-and-toxicology-basic-comparison-levels) should be used.

project area from which it was excavated or properly disposed of off-site in accordance with all applicable laws and regulations. If chemical concentrations in the excavated soil samples exceed the soil screening levels, the Trust and NDEP must be notified, and the soil must be managed and disposed of off-site in accordance with all applicable laws and regulations. The soil must be disposed of at an approved off-site facility with the waste profile and manifests being reviewed by the on-site NERT representative (Steve Clough) prior to removing the soil from the Site. Any hazardous waste generated as a result of Trust remediation projects will be characterized and the waste profile and manifests being approved and signed by the on-site NERT representative. Any waste generated by Tronox requiring disposal will be handled by Tronox with the waste profile and manifests being approved and signed by Tronox personnel. The excavation must be replaced with clean fill. Any soil approved by NDEP for a reduced analytical suite must be disposed of as directed by NDEP.

4.6.2 Utility Projects in a Non-ECA

For Utility Projects in a non-ECA area, if soil is encountered that is visibly stained, discolored, shiny, or oily, or that has a noticeable solvent- or hydrocarbon-like odor that appears to indicate greater than *de minimis* contamination (i.e., greater than one cubic yard), or if buried debris is encountered that appears to be part of a significant disposal practice, the Trust and NDEP shall be notified within 24 hours.[10] In addition, the NDEP 24-hour Spill Notification Line must be called (1-888-331-6337 or 1-775-687-9485), if required. If contamination is discovered, the Site Occupant performing the Utility Project shall assess and address as necessary any threats to worker health and safety related to the previously unknown contaminated soil. Furthermore, if impacted soil is excavated above *de minimis* volume (i.e., greater than one cubic yard), then the following sections must be followed.

4.6.2.1 Excavated Soil Management

Previously unknown contaminated soil that is excavated during a Utility Project may be stockpiled or placed in plastic-lined roll-off containers for chemical analysis, as described in Section 4.6.2.2. As it is NDEP's preferred method, the Site Occupant shall place soil in covered, plastic-lined roll-off containers, whenever feasible, to contain the material prior to off-site disposal or on-site reuse. If not feasible, the Site Occupant can place soil in stockpiles on a double-layer plastic liner and cover the stockpile with plastic sheeting, tarp or adequate surfactant at all times except when material is being handled. The top covering will be adequately secured so that all surface areas are covered. Berms will be constructed around the stockpile area to control precipitation run-on and run-off.

4.6.2.2 Sampling and Analysis of Excavated Soil

Soil excavated with previously unknown contamination shall be collected and analyzed prior to disposal (e.g., landfill disposal or reuse on-site) as follows: one composite sample shall be collected from within every 250 cubic yards of excavated soil for the first 1,000 cubic yards and per every 1,000 cubic yards for each additional 1,000 cubic yards. The Site Occupant may request, and NDEP may approve, a lesser amount of samples as specified in the approved work plan. Composite soil samples shall consist of at least four subsamples representative of the excavated soil. All samples shall be submitted to a state-certified laboratory and analyzed for one of the following: (1) analytes required for proper disposal of the soil off-site (only if the Site Occupant intends to dispose of the soil off-site); (2) the Site COPCs identified in Table 4 (if the Site Occupant intends to reuse the soil as backfill); or (3) any other analytical suite approved by NDEP.

[10] The Trust must also be notified of discovery of *de minimis* amounts (less than one cubic yard) of previously unknown contaminated soil and additional actions must be taken if required by the Trust.

4.6.2.3 Disposition of Sampled Excavated Soil

If the Site Occupant intends to reuse excavated soil for backfill, analytical results shall be compared to the soil screening levels provided in Table 1.[11] If chemical concentrations in the excavated soil samples do not exceed the soil screening levels, the soil may be reused at the Site for backfill or properly disposed off-site in accordance with all applicable laws and regulations. If chemical concentrations in excavated soil samples exceed the soil screening levels, NDEP and the Trust shall be notified and the soil shall be managed and disposed of off-site in accordance with all applicable laws and regulations. The soil must be disposed of at an approved off-site facility with the waste profile and manifests being reviewed by the on-site NERT representative (Steve Clough) prior to removing the soil from the Site. Any hazardous waste generated as a result of Trust remediation projects will be characterized and the waste profile and manifests being approved and signed by the on-site NERT representative. Any waste generated by Tronox requiring disposal will be handled by Tronox with the waste profile and manifests being approved and signed by Tronox personnel. The excavation must be replaced with clean fill. Any soil approved by NDEP for a reduced analytical suite must be disposed of as directed by NDEP.

4.6.3 Documentation of Actions Taken

After completion of a Utility Project in an ECA, or in a non-ECA where previously unknown contaminated soils were discovered, the Site Occupant shall prepare a report that describes the field activities, findings and analytical results. The report shall be submitted to the Trust for review within 45 business days after completion of the Utility Project and subsequently to NDEP for approval.

The report shall include, at a minimum, the following information:

- An excavation summary;
- A figure depicting the location where any soil was removed;
- GPS coordinates for the limits of excavation within ECAs or in a non-ECA where previously unknown contaminated soils were discovered;
- A summary of laboratory analytical results of excavated soil sampling, as well as a compilation of laboratory analytical data reports and laboratory quality control reports;
- An estimate of the volume—and approximate location—of excavated soil that exceeded soil screening levels, if applicable;
- A summary of excavated soil transported to an off-site disposal facility, including the dates the soil was transported and the estimated quantity of soil transported; and
- Proof of proper disposal of contaminated soil.

If a Utility Project was conducted in a non-ECA and no previously unknown contaminated soils were discovered, no report is required.

4.7 Emergency Projects

Any soil-disturbing activity performed at the Site that qualifies as an “Emergency Project” is subject to only the SMP requirements contained in this Section 4.7 and in Section 5. An “Emergency Project” is

[11] The soil screening levels in Table 1 are the current July 2017 BCLs (NDEP, 2017b), the NDEP-approved Site-specific comparison level for dioxins/furans, NDEP-approved background levels, and the criteria used as the basis for asbestos remediation of the Site. If, in the future, any of these comparison levels change, the soil screening levels in Table 1 will be updated to reflect the most current comparison levels. At all times, the most recent version of the BCLs, which can be found on the NDEP website (http://ndep.nv.gov/resources/risk-assessment-and-toxicology-basic-comparison-levels) should be used.

defined as the assessment of, response to, and remediation of contaminants or materials suddenly or abruptly spilled or otherwise released onto the Site as a result of conditions or circumstances beyond the reasonable control of the entity that owns or is otherwise responsible for the contaminants or materials, including, but not limited to, as a result of flood, lightning, natural disaster, acts of God, war, terrorism, or civil disturbances.

If a spill or release occurs or is discovered at the Site, the Site Occupant should employ its emergency or spill response plan (typically included in the HASP) including taking immediate action to stop and contain the spill or release, if it is safe to do so. The Trust must be notified within 24 hours of *any* spill or release at the Site, including *de minimis* spills (defined below). In addition, if required by NDEP regulations or a Site permit, the spill must be reported to applicable authorities and the NDEP 24-hour Spill Notification Line (1-888-331-6337 or 1-775-687-9485) must be called. If a spill is *de minimis* (i.e., non-reportable spill of material below the reportable quantity [RQ] and less than one cubic yard of soil was affected), no further actions are required under the SMP and the spill is not considered an Emergency Project; however, the Site Occupant should ensure that proper spill clean-up measures are conducted, including proper characterization and disposal of the affected media.

For non-*de minimis* spills, once the spill or release is under control and additional investigation and clean-up is needed, the entity seeking to perform the clean-up work must notify NDEP of the soil-disturbing activities necessary for clean-up and receive a determination from NDEP that the activities qualify as an Emergency Project under the SMP. If required by NDEP, before beginning the clean-up work, a work plan describing the proposed activities, including a description of the procedures for soil sampling, analysis, management, and disposal, must be submitted to NDEP, after the Trust's review, for approval.

Whenever an Emergency Project is performed at the Site, the entity performing the work must take the following precautions:

- Implement procedures to characterize and manage Site soil during soil-disturbing activities, as established in this Section;
- Implement BMPs, including control of dust generation at the Site, decontamination of equipment, and storm water runoff controls; and
- Implement proper health and safety precautions.

4.7.1 Soil Management of Previously Unknown Contaminated Soil

For all Emergency Projects, if soil unrelated to the event giving rise to the project is encountered that is visibly stained, discolored, shiny, or oily, or that has a noticeable solvent- or hydrocarbon-like odor that appears to indicate greater than *de minimis* contamination (i.e., greater than one cubic yard), or if buried debris is observed that appears to be part of a significant disposal practice, NDEP and the Trust shall be notified within 24 hours.[12] In addition, the NDEP 24-hour Spill Notification Line must be called (1-888-331-6337 or 1-775-687-9485), if required. If contamination is discovered, the entity performing the Emergency Project shall assess and address as necessary any threats to worker health and safety.

To the extent discolored soil is encountered as a result of the Emergency Project, GPS coordinates of the extent of the discolored soil must be measured and recorded.

[12] The Trust must also be notified of discovery of *de minimis* amounts (less than one cubic yard) of previously unknown contaminated soil and additional actions must be taken if required by the Trust.

4.7.2 Backfill Requirements

Prior to placing backfill on the Site, an entity performing an Emergency Project must provide to NDEP and the Trust sufficient information regarding the source of backfill material and showing that the backfill material is not contaminated or from a contaminated source. This information should include:

- The source name and location for the proposed backfill material;
- Current and prior land use at the source location; and
- If there is potential for contamination in the backfill material based on the source location and land use, provide results of testing for possible contaminants using an appropriate suite of analyses depending on the location and land use.

4.7.3 Documentation of Actions Taken

Following completion of Emergency Project activities, the Site Occupant or third party performing the Emergency Project must provide to NDEP, after the Trust's review, a copy of the required report detailing the release, investigation, remediation, and site restoration activities, including at a minimum a photographic log, summary of actions completed, laboratory analytical results, the GPS coordinates of the extent of any historical discolored soil encountered during the Emergency Project, and any other information required by NDEP. If a spill report is required due to permit requirements, the Emergency Project reporting requirements may be combined with the spill report.

If an Emergency Project was conducted in a non-ECA and no previously unknown contaminated soils were discovered, no report is required under the SMP; however, please note that a spill report may be required (e.g., due to permit requirements) and a copy of the spill report should be forwarded to the Trust.

5. RISK MANAGEMENT FOR GROUNDWATER

This section addresses risk management for groundwater, including limiting the potential for creating migration pathways during soil-disturbing activities, dewatering considerations, and protection/removal/relocation of monitoring wells and remediation system components.

5.1 Reducing the Potential for Creating Conduits to Groundwater During Deep Soil-Disturbing Activities

Most construction at the Site utilizes a slab on grade because subsurface material includes sands and gravels. However, it is possible that designs for new construction will include deep foundations. If deep foundations are required for new construction at the Site, they will be cast in place, reducing the potential to create vertical conduits for migration of soil vapor from groundwater into overlying buildings. In areas where significant concentrations of VOCs are present, the use of additional measures such as sub-slab depressurization or vapor barriers, as applicable, will be considered.

It is unlikely that piles or deep excavations will be used during future construction activities, because of the nature of the subsurface material. However, if piles, deep excavations, or other deep soil-disturbing activities are planned that would penetrate the first aquifer zone underlying the Site (i.e., approximately 30 ft bgs), mitigation measures will be employed to minimize:

- The potential to drive shallow, chemically-impacted soil into deeper soils;
- The potential to create conduits for the migration of shallow, chemically-impacted groundwater to deeper groundwater; and
- The potential to create conduits for the migration of soil vapor from groundwater into overlying buildings.

Mitigation measures may include pre-drilling through chemically-impacted soil or groundwater and using conductor casing to prevent downward or upward migration of COPCs. Alternatively, if a geotechnical evaluation indicates that the aquitard sediments will seal around the installed piles to prevent formation of conduits, piles may be installed using a cone-shaped tip on the end of the pile to prevent soil from migrating to deeper zones. Other mitigation measures that can effectively reduce the potential for driving impacted soil deeper, or creating conduits for groundwater migration, may also be used, if their effectiveness can be demonstrated to the satisfaction of NDEP.

NDEP and the Trust must be notified prior to the implementation of any construction activities that will affect groundwater (e.g., excavation to groundwater table, dewatering, or installation of deep groundwater monitoring wells). If these types of activities are anticipated or planned in areas of known groundwater contamination, a groundwater mitigation measures plan must be included in the work plan to be submitted to NDEP, after the Trust's review. The groundwater mitigation measures plan will at a minimum describe the mitigation measures that will be implemented and demonstrate their effectiveness in preventing downward or upward migration of COPCs. NDEP must approve the groundwater mitigation measures included in the work plan prior to implementation of these activities.

5.2 Dewatering

NDEP and the Trust must be notified prior to commencement of any on-site dewatering activities.

If dewatering is to be performed, then the groundwater must be sampled in planned work areas and analyzed for the analytical parameters listed in Table 5 to determine appropriate management practices. In addition, dewatering activities must be properly permitted.

5.3 Protection and Removal/Relocation of Existing Groundwater Monitoring Wells and GWETS Components

The GWETS operator operates a groundwater treatment system, components of which are located both on-site and off-site. The layout of major features of the on-site existing groundwater treatment system is shown on Figure 2. Components of the GWETS include an on-site bentonite-slurry barrier wall, three different areas of groundwater extraction wells, single and double-contained pipelines, air relief structures, electrical power and instrumentation conduits, fiber-optic instrument systems, electrical field control panels, leak detection systems, radio frequency communication links, settlement pin monuments, two groundwater treatment systems, infrastructure associated with treatment and closure of the AP-5 pond, and an 11-acre holding pond. In addition, a network of groundwater monitoring wells are located on and off the Site. Existing groundwater monitoring and extraction wells located on the Site are identified on Figure 4.

The GWETS operates continuously, except when it is necessary to shut it off for required maintenance, upgrade, or repair by the GWETS operator. Any Site Occupant planning a project that could impact the GWETS or monitoring wells at the Site (e.g., where the use of equipment may accidentally impact a GWETS component or monitoring well), including work within 50 ft of an on-site GWETS component or monitoring well (as shown on Figures 5a and 5b), must notify and receive approval from NDEP and the Trust prior to commencement of work. When possible, the Trust will notify the GWETS operator in advance of planned work to allow review and comment from the GWETS operator.

The planned work must take appropriate measures to protect the integrity of these features. These measures should allow for the continued operation of the GWETS while minimizing shutdown of system components. Issues that should be considered include:

- Procedures for planning and implementing GWETS modifications or monitoring well relocation that may be necessary due to Site development activities; and
- Measures to be taken to protect GWETS components and monitoring wells during project work.

5.4 Removal or Relocation of GWETS Components and Monitoring Wells

If the location of existing GWETS components or monitoring wells conflicts with any planned activity, it may be possible to remove or relocate the affected GWETS component or monitoring well; however, this will only be considered when no other alternatives are feasible or acceptable.

Any proposed modification to a GWETS component or monitoring well, including relocation or removal, must be approved by NDEP, the Trust, and the GWETS operator. Potential conflicts between future development projects and the location of existing GWETS components or monitoring wells should be identified and resolved during the design stage.

5.5 Shutdown of GWETS

This Section 5.5 does not apply to the GWETS operator or other Site Occupant designated by the Trust when performing maintenance, upgrade, or repair of a GWETS component.

If activities by a Site Occupant require a planned shutdown, including temporary shutdowns, of any component of the GWETS, procedures to address the planned shutdown must be identified in a work plan that will be submitted to NDEP, the Trust, and the GWETS operator for approval. The previously approved procedures in the work plan addressing such shutdown shall be followed. The work plan shall require that the Site Occupant provide NDEP, the Trust, and the GWETS operator with written notice at least 10 business days before the proposed shutdown, and approval must be granted prior to the planned shutdown.

If the Site Occupant's soil-disturbing activities result in an unplanned shutdown (e.g., due to damage to a GWETS component or to control the release of groundwater) of any component of the GWETS, the Site Occupant must immediately verbally notify and receive approval from NDEP, the Trust, and the GWETS operator prior to system shutdown, if possible. The GWETS operator is responsible for shutting down the system or damaged component and must be notified immediately of any damage incurred. In addition, within 24 hours of the shutdown, the Site Occupant must provide a written explanation to NDEP, and copy the Trust and the GWETS operator, of the reason for and the duration of the shutdown.

5.6 Remediation System Access

Activities by Site Occupants must be performed in a manner such that all GWETS components and groundwater monitoring wells can be accessed for sampling, operation, and maintenance. If access to a monitoring well or GWETS component would be restricted during a Site Occupant's activities, the Site Occupant must provide written notification including the reason for and expected duration of the restricted access and receive approval from NDEP, the Trust, and the GWETS operator before creating the restriction.

5.7 Protection of Existing Groundwater Monitoring Wells and GWETS Components and Accidental Releases of Groundwater

Maintenance, upgrade, and repair of GWETS components by the GWETS operator or other Site Occupant designated by the Trust are not subject to this section (Section 5.7) of the SMP. In addition, monitoring well repair by a Site Occupant is also not subject to this section (Section 5.7) of the SMP with the exception of artesian monitoring wells where the risk of releasing groundwater is present.

Before a Site Occupant starts work within 50 ft of a GWETS component or monitoring well (see Figures 5a and 5b), the Site Occupant shall prepare a contingency plan (preferably to be included in the project Work Plan) to outline actions to be taken to protect GWETS components and monitoring wells from damage and to outline actions to be taken if damage is caused to any GWETS component in a manner that causes the release of groundwater. The Site Occupant must submit the work plan, including the required contingency plan, to NDEP, after the Trust's review, for approval before starting any activities within 50 ft of a GWETS component or monitoring well.

Protection measures should include a private utility locate and subsequent placement of steel plates or equivalent protective measures over the existing pipelines and power and control conduits during the Site Occupant's activities. The contingency plan shall identify emergency equipment the Site Occupant may need to retain on-site during activities to control or contain potential releases of groundwater. If Site activities result in the release of groundwater, the Site Occupant shall immediately notify NDEP, the Trust, and the GWETS operator of the release and the status of GWETS operations.[13] The Site Occupant must take immediate action to control the source of the spill, and

[13] The Trust or a representative of the Trust, will report the release per the Site's NPDES permit, if required.

contain groundwater that has been released, in accordance with its approved contingency plan. Efforts shall be made to avoid release of groundwater into storm sewers.

6. REFERENCES

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REQUIREMENTS

Certification of Compliance with Site Management Plan, Revision 4

The undersigned ("Site Occupant") acknowledges receipt of a copy of the Site Management Plan, Revision 4 dated March 22, 2018 (the "SMP") prepared by Ramboll US Corporation ("Ramboll") pertaining to the Nevada Environmental Response Trust ("NERT" or the "Trust") Site located in Clark County, Nevada (the "Site"), which Site is more thoroughly described in the SMP. Site Occupant affirms that it is an owner, operator, tenant, lessee, project manager or other entity with responsibility for activities at the Site. Site Occupant specifically acknowledges having read and understood the provisions of the SMP. Site Occupant further acknowledges that it has the responsibility to ensure that the risk management measures and procedures described in the SMP are fully implemented in any applicable activity or operation. Site Occupant certifies that it will comply with all provisions of the SMP applicable to its occupancy of or work upon the Site. Site Occupant further certifies that it has provided or will provide a copy of the SMP to its contractors and any third parties that Site Occupant may invite to the Site or allow to access the Site and shall ensure said contractors' or invitees' compliance with the SMP.

An executed copy of this Certification of Compliance must be submitted to the Trust representative at the Site before any activity at the Site begins.

Company: _____

By: _____

Printed Name: _____

Title: _____

Date: _____

Checklist of Notification and Reporting Requirements to NDEP and the Trust for Site Occupants[1]

Site Occupants are required to notify and receive approval from both the Trust and NDEP (unless otherwise noted) of the following activities:

General Site

___ Notify the Trust prior to the use or addition of new processes or hazardous materials (see Section 3.1 of the main Site Management Plan [SMP] document).

___ Notify the Trust and NDEP prior to conducting any activity where Site workers could potentially come in contact with contaminated soil or groundwater (see Section 3.1 of the main SMP document).

____ Receive Trust approval prior to bringing imported fill on-site (see Section 3.5 of the SMP document). Documentation provided for the material should include sufficient information regarding the source of backfill material to show that the backfill material is not contaminated or from a contaminated source.

Soil

___ Notify the Trust and NDEP and receive approval of project category by NDEP prior to performing a Utility Project or an Emergency Project, and comply with all applicable requirements in Section 4.6 (Utility Projects) or Section 4.7 (Emergency Projects) and Section 5 (Risk Management for Groundwater). These are the only requirements of the SMP with which a Site Occupant performing an approved Utility Project or Emergency project must comply.

___ For *any* project at the Site that includes a soil-disturbing activity, notify the Trust a minimum of 24 hours prior to commencement of the soil-disturbing activity. The Trust may require oversight of the soil-disturbing activity by a Trust-appointed representative (see Section 4 of the main SMP document).

___ Notify the Trust and NDEP prior to disturbing soil within an ECA (as defined in Section 4.1 of the main SMP document). A work plan must be submitted for approval by NDEP, after the Trust's review (see Section 4.1 of the main SMP document).

___ Stop work and notify the Trust and NDEP within 24 hours of discovering previously unknown soil contamination or buried debris. In addition, the NDEP 24-hour Spill Notification Line must be called, if required, whenever unknown soil contamination or buried debris is discovered at the Site (see Section 4.3 of the main SMP document).

___ Notify the Trust and NDEP when the results of chemical testing from excavated soil samples indicate the soil contains COPCs at concentrations that exceed the soil screening levels for the Site (including BCLs as well as Site-specific levels (Table 1 of the main SMP document). The most recent version of the BCLs, which can be found on the NDEP website (https://ndep.nv.gov/resources/risk-assessment-and-toxicology-basic-comparison-levels) should be used (see Sections 4.2.3 and 4.3.4 of the main SMP document).

___ Notify the Trust and NDEP within 24 hours of receiving post-excavation confirmation sample results that indicate COPCs are present in remaining soils at concentrations that exceed soil screening levels (Table 1 of the main SMP document) for the Site (see Sections 4.2.4 and 4.3.5 of the main SMP document).

Groundwater

___ Notify the Trust and NDEP prior to the implementation of any construction activity that may affect groundwater (e.g., excavation to the groundwater table, dewatering, or installation of deep groundwater monitoring wells) (see Section 5.1 of the main SMP document).

Groundwater Treatment System

___ Notify the Trust and NDEP prior to commencement of work that could impact the GWETS or monitoring wells on-site (including any activity within 50 ft of a GWETS component or monitoring well, where the use of equipment may accidentally damage a GWETS component or monitoring well; see Figures 5a and 5b). (see Section 5.3 of the main SMP document).

___ At least 10 business days before any proposed temporary shutdown of the GWETS, provide written notice to the Trust, NDEP, and the GWETS operator and approval must be granted prior to the shutdown (see Section 5.5 of the main SMP document).

___ If the Site Occupant's soil-disturbing activities result in an unplanned shutdown of any component of the GWETS, immediately verbally notify and receive approval from the Trust, NDEP, and the GWETS operator prior to system shutdown, if possible. In addition, within 24 hours of the shutdown provide a written explanation to NDEP, and copy the Trust and the GWETS operator, of the reason for and the duration of the shutdown (see Section 5.5 of the main SMP document).

___ Notify NDEP, the Trust and the GWETs operator prior to any proposed modification to the GWETS, including removal or relocation of GWETS components and monitoring wells. Any proposed modification to the GWETS must be approved by NDEP, the Trust and the GWETs operator. Potential conflicts between future construction projects and the location of existing GWETS components or monitoring wells should be identified and resolved during the design stage. Relocation or removal of any GWETS component or monitoring well may only occur with the prior approval of NDEP, the Trust and the GWETs operator (see Section 5.4 of the main SMP document).

___ Notify and receive approval from NDEP, the Trust and the GWETs operator prior to any restricted access to a monitoring well or GWETS component. If access to a monitoring well or GWETS component is planned to be restricted during a Site Occupant's activities, provide written notification to NDEP, the Trust and the GWETs operator of the reason for and the duration of the proposed restricted access and receive approval from NDEP, the Trust and the GWETs operator before creating the restriction (see Section 5.6 of the main SMP document).

___ If Site activities result in the release of groundwater, immediately notify NDEP and the Trust of the release and the status of GWETS operations (see Section 5.7 of the main SMP document).

Site Occupants are required to provide the following written documentation to NDEP, after the Trust's review (unless otherwise noted):

General

___ Provide the Trust with executed certifications that they will comply with the provisions contained in the SMP, consistent with the model certification provided as Requirement 1 to the main SMP document (see Section 3.1 of the main SMP document).

Soil and Groundwater

___ ***Project-Specific Health and Safety Plan (HASP)***: Require each contractor with workers that may contact contaminated groundwater, disturb contaminated soil, or have exposure to COPC vapors at the Site to prepare its own project-specific HASP (see Section 3.3 of the main SMP document). Each contractor will provide copies of its HASP to the Site Occupant who has contracted for the contractor's work and to the Trust (upon request). Alternatively, a contractor may incorporate a Site Occupant's Site-specific HASP as their own by receiving Site-specific training from the Site Occupant's safety professional and documenting its acceptance and intent to comply with the Site-specific HASP by signature.

Soil

___ Remedial Action Work Plan: Prior to commencement of a soil-disturbing activity in an ECA or in an area where previously unknown contaminated soil has been discovered, prepare and submit a work plan detailing any proposed sampling activities, investigations or remediation (collectively referred to as "remedial actions") for approval by NDEP, after the Trust's review (see Sections 4.1 and 4.3.1 of the main SMP document).

___ Mitigation Measures Plan: The Site Occupant conducting soil-disturbing activities shall prepare and submit to the appropriate authorities, including NDEP, after the Trust's review, a plan describing applicable mitigation measures (e.g., dust control measures, decontaminating vehicles and construction equipment, and storm water runoff controls) that will be implemented during Site soil-disturbing activities (see Section 4.4 of the main SMP document). This plan should be included as part of the project Work Plan during the planning stages of the project.

___ Copies of Permits Required for Construction within ECAs: Provide copies of all permits required for the project work in the ECAs to the Trust prior to starting any work (see Section 4.4 of the main SMP document).

___ Sample Results for Previously Unknown Contaminated Soil: When previously unknown soil contamination is observed, a sample of the visibly contaminated or odorous soil must be collected and analyzed for a list of COPCs listed in Section 4.3 and Table 4 of the main SMP document. The results of the initial soil analyses must be submitted to NDEP and the Trust. If it is determined that no additional analyses beyond the initial

analyses are required, as approved by NDEP, soil excavation may proceed to the extent needed to continue the soil-disturbing project activities (see Section 4.3 of the main SMP document).

___ Report for Leaving Known Soil Contamination In-Place: If excavation of an area with confirmation samples exhibiting concentrations greater than soil screening levels is ceased, as approved by NDEP, provide data and documentation to NDEP, after the Trust's review, in a written report for the approved excavation limits (see Section 4.3.1 of the main SMP document).

___ Remedial Action Completion Report. After completion of a remedial action, prepare a written report that must be submitted to and approved by NDEP, after the Trust's review. The written report must describe the field activities, findings, actions taken, and analytical results, including all post-excavation confirmation sample results. The report shall be submitted to the Trust for review within 45 business days after completion of the remedial action and subsequently to NDEP for approval (see Section 4.5 of the main SMP document).

Groundwater

___ Groundwater Mitigation Measures Plan: If activities are anticipated or planned that may affect groundwater (e.g., excavation to the groundwater table, dewatering, or installation of deep groundwater monitoring wells), a groundwater mitigation measures plan must be submitted to NDEP for approval, after the Trust's review (see Section 5.1 of the main SMP document). This plan should be included as part of the project Work Plan during the planning stages of the project.

Groundwater Treatment System

___ Contingency Plan for Damage to Groundwater Treatment System Component: Before a Site Occupant starts work within 50 ft of a GWETS component or monitoring well, prepare a contingency plan to outline actions to be taken to protect GWETS components and monitoring wells from damage and to outline actions to be taken if any GWETS component is damaged in a manner that causes the release of groundwater. Submit the contingency plan to NDEP for approval, after the Trust's review, before starting activities within 50 ft of GWETS component or monitoring well (see Section 5.7 of the main SMP document). This plan should be included as part of the project Work Plan during the planning stages of the project.

___ Written Explanation of Unplanned Shutdown of Groundwater Treatment System(s): Within 24 hours of an unplanned shutdown of any component of the GWETS (e.g., due to damage to the system or to control the release of groundwater) as a result of soil-disturbing activities, provide a written explanation to NDEP, and copy the Trust and the GWETS operator, of the reason for and the duration of the shutdown (see Section 5.5 of the main SMP document).

[1] "Site Occupant" is defined as any owner, operator, tenant, lessee, project manager, or entity exercising control over space at the Site. Each Site Occupant has the responsibility to ensure that the risk management measures and procedures described in the SMP are fully implemented in any applicable activity or operation. The Site Occupant is responsible for ensuring its employees and contractors comply with the SMP, as well as any third party allowed by the Site Occupant to have access to the Site.

TABLES

Table 1 Soil Screening Levels					
Parameter of Interest	Chemical	Unit	**NDEP 2017 Worker BCL or Site-Specific Screening Level**[a]	Soil Screening Level Basis	BCL Basis
Organic Acids	Benzenesulfonic acid	mg/kg	100,000	BCL	max
	4-Chlorobenzenesulfonic acid	mg/kg	117	BCL	sat
	Diethyl phosphorodithioic acid	mg/kg	100,000	BCL	max
	Dimethyl phosphorodithioic acid	mg/kg	100,000	BCL	max
	Phthalic acid	mg/kg	100,000	BCL	max
Organophosphate Pesticides	Azinphos-Methyl	mg/kg	2,750	BCL	N
	Bolstar	mg/kg	--	--	--
	Chlorpyrifos	mg/kg	916	BCL	N
	Coumaphos	mg/kg	--	--	--
	Demeton-O	mg/kg	--	--	--
	Demeton-S	mg/kg	--	--	--
	Diazinon	mg/kg	732	BCL	sat
	Dichlorvos	mg/kg	8.85	BCL	C
	Dimethoate	mg/kg	183	--	N
	Disulfoton	mg/kg	51.9	BCL	N
	EPN	mg/kg	13.0	BCL	N
	Ethoprop	mg/kg	--	--	--
	Ethyl Parathion	mg/kg	5,500	BCL	N
	Famphur	mg/kg	--	--	--
	Fensulfothion	mg/kg	--	--	--
	Fenthion	mg/kg	--	--	--
	Malathion	mg/kg	18,300	BCL	N
	Merphos	mg/kg	1.03	BCL	sat
	Methyl Parathion	mg/kg	229	BCL	N
	Mevinphos	mg/kg	--	--	--
	Naled	mg/kg	1.29	BCL	sat
	Phorate	mg/kg	183	BCL	N
	Ronnel	mg/kg	26.8	BCL	sat
	Stirophos (Tetrachlorovinphos)	mg/kg	107	BCL	C
	Sulfotep	mg/kg	458	BCL	N
	Thionazin	mg/kg	--	--	--
	Tokuthion	mg/kg	--	--	--
	Trichloronate	mg/kg	--	--	--
Organochlorine Pesticides	Aldrin	mg/kg	0.21	BCL	C
	Alpha-BHC	mg/kg	0.49	BCL	C
	Beta-BHC	mg/kg	1.73	BCL	C
	Delta-BHC	mg/kg	334	BCL	N
	Gamma-BHC (Lindane)	mg/kg	2.83	BCL	C
	Alpha-chlordane	mg/kg	--	--	--
	Gamma-chlordane	mg/kg	--	--	--
	Tech-Chlordane	mg/kg	7.33	BCL	C
	4,4'-DDD	mg/kg	15.1	BCL	C
	4,4'-DDE	mg/kg	9.5	BCL	C
	4,4'-DDT	mg/kg	7.55	BCL	C
	Dieldrin	mg/kg	0.16	BCL	C
	Endosulfan	mg/kg	5,500	BCL	N
	Endosulfan I	mg/kg	--	--	--

Table 1 Soil Screening Levels					
Parameter of Interest	Chemical	Unit	**NDEP 2017 Worker BCL or Site-Specific Screening Level**[a]	Soil Screening Level Basis	BCL Basis
Organochlorine Pesticides (Continued)	Endosulfan II	mg/kg	--	--	--
	Endosulfan Sulfate	mg/kg	--	--	--
	Endrin	mg/kg	30.2	BCL	sat
	Endrin Aldehyde	mg/kg	--	--	--
	Endrin Ketone	mg/kg	--	--	--
	Heptachlor	mg/kg	0.81	BCL	C
	Heptachlor Epoxide	mg/kg	0.40	BCL	C
	Methoxychlor	mg/kg	4,580	BCL	N
	Toxaphene	mg/kg	2.33	BCL	C
PAHs	Acenaphthene	mg/kg	118	BCL	sat
	Acenaphthylene	mg/kg	--	--	--
	Anthracene	mg/kg	4.26	BCL	sat
	Benz(a)anthracene	mg/kg	3.23	BCL	C
	Benzo(a)pyrene	mg/kg	0.32	BCL	C
	Benzo(b)fluoranthene	mg/kg	3.23	BCL	C
	Benzo(g,h,i)perylene	mg/kg	25,300	BCL	N
	Benzo(k)fluoranthene	mg/kg	32.3	BCL	C
	Chrysene	mg/kg	323	BCL	C
	Dibenz(a,h)anthracene	mg/kg	0.32	BCL	C
	Fluoranthene	mg/kg	33,700	BCL	N
	Fluorene	mg/kg	93.1	BCL	sat
	Indeno(1,2,3-cd)pyrene	mg/kg	3.23	BCL	C
	Naphthalene	mg/kg	290	BCL	sat
	Phenanthrene	mg/kg	24.5	BCL	sat
	Pyrene	mg/kg	44.0	BCL	sat
SVOCs	Butyl benzyl phthalate	mg/kg	1,350	BCL	C
	Di-N-Butyl phthalate	mg/kg	91,600	BCL	N
	Diethyl phthalate	mg/kg	100,000	BCL	max
	Dimethyl phthalate	mg/kg	100,000	BCL	max
	bis(2-Ethylhexyl)phthalate	mg/kg	183	BCL	C
	Hexachlorobenzene	mg/kg	0.23	BCL	sat
	2-Methylnaphthalene	mg/kg	368	BCL	sat
	Nitrobenzene	mg/kg	2,600	BCL	N
	Octachlorostyrene	mg/kg	--	--	--
	Di-N-Octyl phthalate	mg/kg	9,160	BCL	N
	Pyridine	mg/kg	1,300	BCL	N
VOCs	Acetone	mg/kg	100,000	BCL	max
	Benzene	mg/kg	66.1	BCL	C
	Bromobenzene	mg/kg	679	BCL	sat
	Bromochloromethane	mg/kg	4,030	BCL	sat
	Bromodichloromethane	mg/kg	58.6	BCL	C
	Bromoform	mg/kg	460	BCL	C
	Bromomethane	mg/kg	1,820	BCL	N
	2-Butanone	mg/kg	28,400	BCL	sat
	N-Butylbenzene	mg/kg	108	BCL	sat
	sec-Butylbenzene	mg/kg	145	BCL	sat
	tert-Butylbenzene	mg/kg	183	BCL	sat

Table 1 Soil Screening Levels					
Parameter of Interest	Chemical	Unit	**NDEP 2017 Worker BCL or Site-Specific Screening Level**[a]	Soil Screening Level Basis	BCL Basis
VOCs (Continued)	Carbon tetrachloride	mg/kg	51.9	BCL	C
	Chlorobenzene	mg/kg	18,300	BCL	N
	Chloroethane	mg/kg	2,110	BCL	sat
	Chloroform	mg/kg	117	BCL	C
	Chloromethane	mg/kg	1,310	BCL	sat
	2-Chlorotoluene	mg/kg	907	BCL	sat
	4-Chlorotoluene	mg/kg	18,300	BCL	N
	cis-1,2-Dichloroethene	mg/kg	2,360	BCL	sat
	cis-1,3-Dichloropropene	mg/kg	--	--	--
	1,2-Dibromo-3-chloropropane	mg/kg	4.53	BCL	C
	Dibromochloromethane	mg/kg	43.3	BCL	C
	Dibromomethane	mg/kg	100,000	BCL	max
	1,2-Dichlorobenzene	mg/kg	376	BCL	sat
	1,3-Dichlorobenzene	mg/kg	373	BCL	sat
	1,4-Dichlorobenzene	mg/kg	475	BCL	C
	Dichlorodifluoromethane	mg/kg	835	BCL	sat
	1,1-Dichloroethane	mg/kg	637	BCL	C
	1,2-Dichloroethane	mg/kg	39.9	BCL	C
	1,1-Dichloroethene	mg/kg	1,190	BCL	sat
	trans-1,2-Dichloroethylene	mg/kg	18,300	BCL	N
	1,2-Dichloropropane	mg/kg	101	BCL	C
	1,3-Dichloropropane	mg/kg	18,300	BCL	N
	2,2-Dichloropropane	mg/kg	--	--	--
	1,1-Dichloropropene	mg/kg	--	--	--
	trans-1,3-Dichloropropene	mg/kg	--	--	--
	1,4-Dioxane	mg/kg	36.3	BCL	C
	Ethyl t-butyl ether	mg/kg	--	--	--
	Ethylbenzene	mg/kg	233	BCL	C
	Ethylene dibromide	mg/kg	1.82	BCL	C
	Hexachlorobutadiene	mg/kg	16.8	BCL	sat
	2-Hexanone	mg/kg	3,280	BCL	sat
	Isopropyl ether	mg/kg	2,260	BCL	sat
	Isopropylbenzene	mg/kg	91,600	BCL	N
	4-Isopropyltoluene	mg/kg	647	BCL	sat
	Methyl tert butyl ether	mg/kg	2,020	BCL	C
	4-Methyl-2-pentanone	mg/kg	3,360	BCL	sat
	Methylene chloride	mg/kg	1,820	BCL	C
	N-Propylbenzene	mg/kg	264	BCL	sat
	Styrene	mg/kg	867	BCL	sat
	t-Butyl alcohol	mg/kg	21,300	BCL	sat
	1,1,1,2-Tetrachloroethane	mg/kg	140	BCL	C
	1,1,2,2-Tetrachloroethane	mg/kg	18.2	BCL	C
	Tetrachloroethene	mg/kg	166	BCL	sat
	Toluene	mg/kg	817	BCL	sat
	1,2,3-Trichloropropane	mg/kg	0.12	BCL	C
	1,2,3-Trichlorobenzene	mg/kg	151	BCL	sat
	1,2,4-Trichlorobenzene	mg/kg	125	BCL	C

Table 1 Soil Screening Levels					
Parameter of Interest	Chemical	Unit	**NDEP 2017 Worker BCL or Site-Specific Screening Level**[a]	Soil Screening Level Basis	BCL Basis
VOCs (Continued)	1,1,1-Trichloroethane	mg/kg	638	BCL	sat
	1,1,2-Trichloroethane	mg/kg	63.7	BCL	C
	Trichloroethene	mg/kg	79.0	BCL	C
	Trichlorofluoromethane	mg/kg	1,210	BCL	sat
	1,2,3-Trichloropropane	mg/kg	0.12	BCL	C
	1,2,4-Trimethylbenzene	mg/kg	218	BCL	sat
	1,3,5-Trimethylbenzene	mg/kg	182	BCL	sat
	Vinyl Chloride	mg/kg	5.05	BCL	C
	m-Xylene	mg/kg	387	BCL	sat
	o-Xylene	mg/kg	434	BCL	sat
	p-Xylene	mg/kg	390	BCL	sat
	Xylenes, total	mg/kg	259	BCL	sat
TPH	Oil Range Organics (TPH-oil)	mg/kg	--	--	--
	TPH-diesel	mg/kg	--	--	--
	TPH-gasoline	mg/kg	--	--	--
PCBs	Aroclor-1016	mg/kg	32.8	BCL	C
	Aroclor-1221	mg/kg	1.15	BCL	C
	Aroclor-1232	mg/kg	1.15	BCL	C
	Aroclor-1242	mg/kg	1.15	BCL	C
	Aroclor-1248	mg/kg	1.15	BCL	C
	Aroclor-1254	mg/kg	1.15	BCL	C
	Aroclor-1260	mg/kg	1.15	BCL	C
	Total PCBs	mg/kg	1.15	BCL	C
	TCDD TEQ[b]	pg/g	2,700[c]	Site-Specific	--
General Chemistry	Cyanide	mg/kg	779	BCL	N
	Perchlorate	mg/kg	908	BCL	N
Dioxins/Furans	TCDD TEQ[d]	pg/g	2,700[c]	Site-Specific	--
Metals	Aluminum	mg/kg	100,000	BCL	max
	Antimony	mg/kg	519	BCL	N
	Arsenic	mg/kg	7.2[e]	Background	--
	Barium	mg/kg	100,000	BCL	max
	Beryllium	mg/kg	2,540	BCL	N
	Boron	mg/kg	100,000	BCL	max
	Cadmium	mg/kg	1,260	BCL	N
	Chromium (III)	mg/kg	100,000	BCL	max
	Chromium (VI)	mg/kg	7.01	BCL	C
	Cobalt	mg/kg	385	BCL	N
	Copper	mg/kg	36,700	BCL	N
	Iron	mg/kg	100,000	BCL	max
	Lead	mg/kg	--	--	--
	Magnesium	mg/kg	100,000	BCL	max
	Manganese	mg/kg	100,000	BCL	max
	Mercury	mg/kg	3.13	BCL	sat
	Molybdenum	mg/kg	6,490	BCL	N
	Nickel	mg/kg	24,700	BCL	N
	Platinum	mg/kg	649	BCL	N
	Potassium	mg/kg	--	--	--

Table 1 Soil Screening Levels					
Parameter of Interest	Chemical	Unit	**NDEP 2017 Worker BCL or Site-Specific Screening Level**[a]	Soil Screening Level Basis	BCL Basis
Metals (Continued)	Selenium	mg/kg	6,490	BCL	N
	Silver	mg/kg	6,490	BCL	N
	Sodium	mg/kg	--	--	--
	Strontium	mg/kg	100,000	BCL	max
	Thallium	mg/kg	13.0	BCL	N
	Tin	mg/kg	100,000	BCL	max
	Titanium	mg/kg	100,000	BCL	max
	Tungsten	mg/kg	1,040	BCL	N
	Uranium	mg/kg	3,830	BCL	N
	Vanadium	mg/kg	6,420	BCL	N
	Zinc	mg/kg	100,000	BCL	max
Inorganic Anions	Bromide	mg/kg	100,000	BCL	max
	Chloride	mg/kg	--	--	--
	Fluoride	mg/kg	51,900	BCL	N
	Nitrate	mg/kg	100,000	BCL	max
	Nitrite	mg/kg	100,000	BCL	max
	Orthophosphate	mg/kg	--	--	--
	Sulfate	mg/kg	--	--	--
	Sulfide	mg/kg	--	--	--
Radionuclides	Radium-226	pCi/g	0.023	BCL	C
	Radium-228	pCi/g	0.041	BCL	C
	Thorium-228	pCi/g	0.025	BCL	C
	Thorium-230	pCi/g	8.4	BCL	C
	Thorium-232	pCi/g	7.4	BCL	C
	Uranium-234	pCi/g	11	BCL	C
	Uranium-235	pCi/g	0.35	BCL	C
	Uranium-238	pCi/g	1.4	BCL	C
Asbestos	Long amphibole protocol structures	protocol structures	1 or more	Site-Specific	--
	Long chrysotile protocol structures	protocol structures	More than 5	Site-Specific	--

[a] - From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 14, July 2017. Values for the worker are the outdoor industrial/commercial worker soil BCLs. Any user of Table 1 should use the most current version of the BCLs. Please check the NDEP website (at http://ndep.nv.gov/resources/risk-assessment-and-toxicology-basic-comparison-levels) for the most current version of the BCLs.

[b] - TCDD equivalents based on WHO 2005 TEFs for the 12 co-planer PCBs (van den Berg et al, 2006); the detection limit should be used for non-detect values.

[c] - Site-specific value: from NDEP, Letter to Tronox LLC re: Response to: Results of Bioaccessibility Study for Dioxin/Furans in Soil, Tronox LLC, Henderson, Nevada (Revised), May 25, 2010. (NDEP, 2010a).

[d] - TCDD equivalents based on WHO 2005 TEFs for the 17 dioxin and furan congeners.

[e] - Based on regional background concentrations as approved by NDEP on August 20, 2010 (NDEP, 2010c).

BCL = Basic comparison level
C = Cancer
N = Noncancer
NA = Not applicable
sat = soil saturation
max = risk-based value is greater than 100,000 mg/kg
-- = undefined or no value
mg/kg = milligrams per kilogram
pCi/g = picoCuries per gram
PAHs = Polycyclic aromatic hydrocarbons
PCBs = Polychlorinated biphenyls
TEF = Toxicity equivalent favor
TCDD = 2,3,7,8-tetrachlorodibenzo-p-dioxin
TPH = Total petroluem hydrocarbons
SVOCs = Semi-volatile organic compounds
VOCs = Volatile organic compounds
WHO = World Health Organization

Table 2
Summary of Confirmation Sampling and Excavated Soil Sampling Requirements for ECA Soils

ECA Categories of Contaminated Soil	Definition of ECA Category	Laboratory Analysis for Confirmation and Excavated Soil Sampling[a]	Confirmation Sampling	Excavated Soil Sampling
1) Areas of Known Soil Contamination Left In-Place	Soil located in areas of known soil contamination that are being left in-place.	List of laboratory analyses required for individual ECAs included in Summary of ECAs Table in Appendix A.	• Sidewall samples will be collected from discrete locations from freshly exposed soil at a depth equal to approximately one half of the excavation depth at a minimum frequency of every 50 linear ft of sidewall excavation face. If the excavation depth is less than 2 ft, then no sidewall samples are required. • Bottom confirmation samples will be collected from excavation bottoms at discrete locations on approximately 50-ft centers for areas greater than approximately 2,500 square ft. For excavations that are less than 2,500 square ft, one bottom confirmation sample will be collected. • If visible or otherwise noticeable contamination remains at the limits of the planned excavation, then field judgment will be used to collect the confirmation samples within the visible/noticeable contamination. This procedure will document the level and location of contamination that is requested to remain in-place.	One composite sample will be collected from random locations from within every 250 cubic yards of excavated soil for the first 1,000 cubic yards and per every 1,000 cubic yards for each additional 1,000 cubic yards. Composite soil samples shall consist of at least four subsamples representative of the excavated soil. The Site Occupant may request, and the NDEP may approve, a lesser amount of samples as specified in the approved work plan.
2) Building Perimeter Soils	The top 3 inches of soil located within 10 ft of Site building footprints that is potentially impacted by lead or asbestos (i.e., adjacent to buildings known to have exterior lead paint or asbestos-containing siding).	Lead by EPA Method 6010 or 6020; & Asbestos by the EPA Method 600/R-93-116 for the determination of asbestos in bulk building materials		
3) Uncharacterized Potentially Contaminated Soils	Soil located in areas that are likely to be contaminated (e.g., underneath the Unit Buildings), but have not been previously characterized due to the presence of structures or other obstructions.	All confirmation and excavated soil samples will be submitted to a state-certified laboratory and analyzed for the full suite of analytes for Site COPCs by the following analytical methods: Metals by EPA Methods 6010 or 6020; Mercury by EPA Method 7471; Hexavalent chromium by EPA Method 7199; Cyanide by EPA Method 9014; Perchlorate by EPA Method 314.0; VOCs by EPA Method 8260B or 8260B SIM; SVOCs (incl. HCB and B(a)P) by EPA Method 8270C; PAHs by EPA Method 8270D 8270 SIM; Dioxins/Furans by EPA Method 8290 or 8280 (for high-concentration samples); PCBs by EPA Method 8082; OCPs by EPA Method 8081A; pH by EPA Method 9045D; Inorganic anions by EPA Method 300.0 or 300.1; Sulfide by EPA Method 9034; and Asbestos by EPA Method 600/R-93-116.		

[a] - For all three categories of ECA Soils, the Site Occupant may request and NDEP may approve an alternative analytical suite.

Table 3
Summary of Confirmation Sampling and Excavated Soil Sampling Requirements for Previously Unknown Contaminated Soils

Definition of Category	Laboratory Analysis for Confirmation and Excavated Soil Sampling[a]	Confirmation Sampling	Excavated Soil Sampling
Soil encountered during construction/ demolition/ development/ investigation or other soil-disturbing activities that is visibly stained, discolored, shiny, or oily, or that has a noticeable solvent- or hydrocarbon-like odor that has not previously been discovered or characterized.	All confirmation samples will be submitted to a state-certified laboratory and analyzed for the full suite of analytes for Site COPCs by the following analytical methods: Metals by EPA Methods 6010 or 6020; Mercury by EPA Method 7471; Hexavalent chromium by EPA Method 7199; Cyanide by EPA Method 9014; Perchlorate by EPA Method 314.0; VOCs by EPA Method 8260B or 8260B SIM; SVOCs (incl. HCB and B(a)P) by EPA Method 8270D; PAHs by EPA Method 8270D or 8270 SIM; Dioxins/Furans by EPA Method 8290 8290 or 8280 (for high-concentration samples); PCBs by EPA Method 8082; OCPs by EPA Method 8081A; pH by EPA Method 9045D; Inorganic anions by EPA Method 300.0 or 300.1; Sulfide by EPA Method 9034; and Asbestos by EPA Method 600/R-93-116. All excavated soil samples will be submitted to a state-certified laboratory and analyzed for one of the following: (1) analytes required for proper disposal of the soil off-site (only if the Site Occupant intends to dispose of the soil off-site); (2) any chemicals that were identified, in the sampling performed following discovery of the previously unknown contaminated soil (see Section 4.3), as exceeding the screening levels provided in Table 1 (if the Site Occupant intends to reuse the soil as backfill); or (3) any other analytical suite approved by NDEP.	• Sidewall samples will be collected from discrete locations from freshly exposed soil at a depth equal to approximately one half of the excavation depth at a minimum frequency of every 50 linear ft of sidewall excavation face. If the excavation depth is less than 2 ft, then no sidewall samples are required. • Bottom confirmation samples will be collected from excavation bottoms at discrete locations on approximately 50-ft centers for areas greater than approximately 2,500 square ft. For excavations that are less than 2,500 square ft, one bottom confirmation sample will be collected. • If visible or otherwise noticeable contamination remains at the limits of the planned excavation, then field judgment will be used to collect the confirmation samples within the visible/noticeable contamination. This procedure will document the level and location of contamination that is requested to remain in-place.	One composite sample will be collected from random locations from within every 250 cubic yards of excavated soil for the first 1,000 cubic yards and per every 1,000 cubic yards for each additional 1,000 cubic yards. Composite soil samples shall consist of at least four subsamples representative of the excavated soil. The Site Occupant may request, and the NDEP may approve, a lesser amount of samples as specified in the approved work plan.

[a] - In the alternative, the Site Occupant may request and NDEP may approve an alternative analytical suite.

Table 4 Analytical Parameters for Soil Sampling for Full Suite of COPCs
Analytical Parameters
Asbestos by EPA Method 600/R-93-116
Cyanide by EPA Method 9014
Dioxins/Furans by EPA Method 8290 or 8280 (for high concentration samples)
Hexavalent chromium by EPA Method 7199
Inorganic anions (bromide, chloride, fluoride, nitrate as nitrate, sulfate, nitrite as N, nitrate as N, and orthophosphate as phosphate) by EPA Method 300.0 or 300.1
Mercury by EPA Method 7471
Metals by EPA Methods 6010 or 6020
OCPs by EPA Method 8081A
PAHs by EPA Method 8270D or 8270 SIM
PCBs by EPA Method 8082
Perchlorate by EPA Method 314.0
pH by EPA Method 9045D
Sulfide by EPA Method 9034
SVOCs (incl. HCB and B(a)P) by EPA Method 8270
VOCs by EPA Method 8260B
Note: The lab may substitute a more precise or up-to-date method than specified in this table.

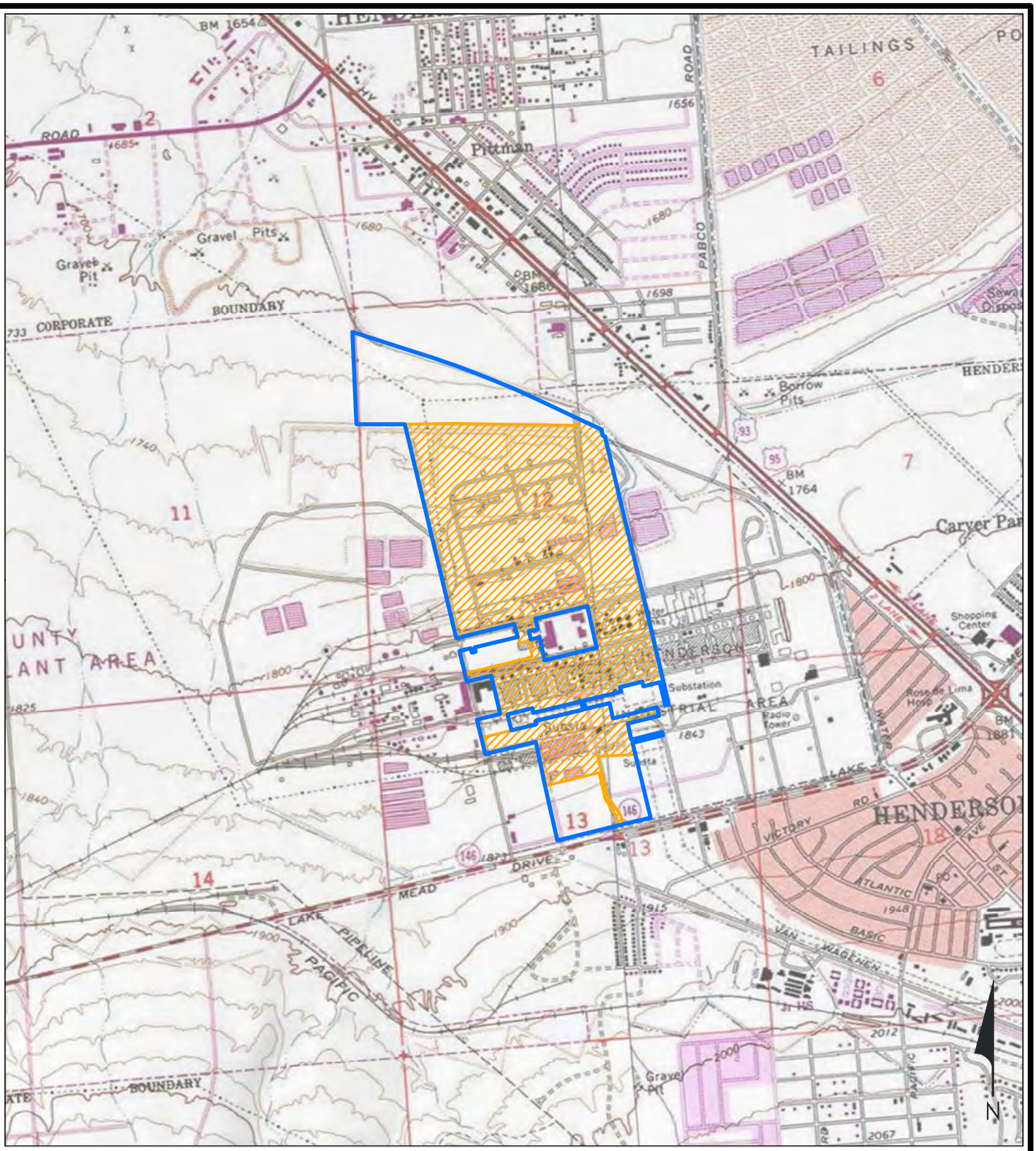
Table 5 Analytical Parameters for Groundwater Sampling for Dewatering Activities
Analytical Parameters
Ammonia by EPA Method 350.1 or SM 4500
Fluoride by EPA Method SM 4500F-C
Hexavalent Chromium by EPA Method 218.6
Inorganic Anions by EPA Method 300.0 or 300.1
Metals by EPA Method 200.7 or 200.8
Perchlorate by EPA Method 314.0
pH by EPA Method SM4500 H+
Phenolic Compounds by EPA Method 420.1 or 420.2
Specific Conductance (EC) by EPA Method SM 2510B
Total Dissolved Solids (TDS) by EPA Method SM 2540C
Total Organic Carbon (TOC) by EPA Method SM 5310C
Total Organic Halogen (TOX) by EPA Method 9020B or SM 5320B
Note: The lab may substitute a more precise or up-to-date method than specified in this table.

Table 6

Contact Information

Entity Name	Address and Phone Number	Contact Name
Nevada Division of Environmental Protection (NDEP) Bureau of Industrial Site Cleanup (BISC) https://ndep.nv.gov/environmental-cleanup	2030 E Flamingo Rd, Suite 230 Las Vegas, NV 89119 (702) 486-2850 Ext 235	Primary Contacts: James (JD) Dotchin, Chief, Environmental Programs Weiquan Dong, Professional Engineering Specialist
Nevada Environmental Response Trust (NERT or the Trust)	35 East Wacker Drive, Suite 1550 Chicago, IL 60601 (312) 505-2688 (office)	Jay A. Steinberg, not individually but solely as President of the Environmental Trust Trustee
	510 4th Street Henderson, NV 89015 (702) 686-9611 (office)	Steve Clough, Remediation Director
	2200 Powell Street, Suite 700 Emeryville, CA 94608 (510) 655-7400 (office)	Allan J. DeLorme, Ramboll, Principal John M. Pekala, Ramboll, Principal
	1489 West Warm Springs Rd, Ste. 110 Henderson, NV 89014 (702) 966-8340 (office)	Kyle Hansen, Tetra Tech, Inc. (Tetra Tech), Field Operations Manager/Geologist
Tronox, LLC (Lessee; Site Occupant)	P.O. Box 55 Henderson, NV 89009-7000 (702) 651-2233 (office)	Fredrick R. Stater, Plant Manager – Henderson
Envirogen Technologies, Inc. (ETI) (Groundwater Extraction and Treatment System [GWETS] operator)	510 4th Street Henderson, NV 89015 (702) 371-9307 (mobile)	Wendy Prescott, Project Manager

FIGURES



Legend

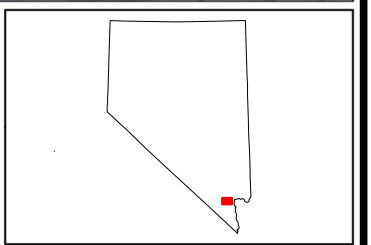
- NERT Owned Property
- SMP Site Boundary

0 0.5 1
SCALE IN MILES

0 2,000 4,000 6,000
SCALE IN FEET

NOTES:
CONTOUR INTERVAL 20 FEET

SOURCE: Copyright:© 2013 National Geographic Society, i-cubed



QUADRANGLE KEY MAP

RAMBOLL

Site Location Map

Nevada Environmental Response Trust Site
Henderson, Nevada

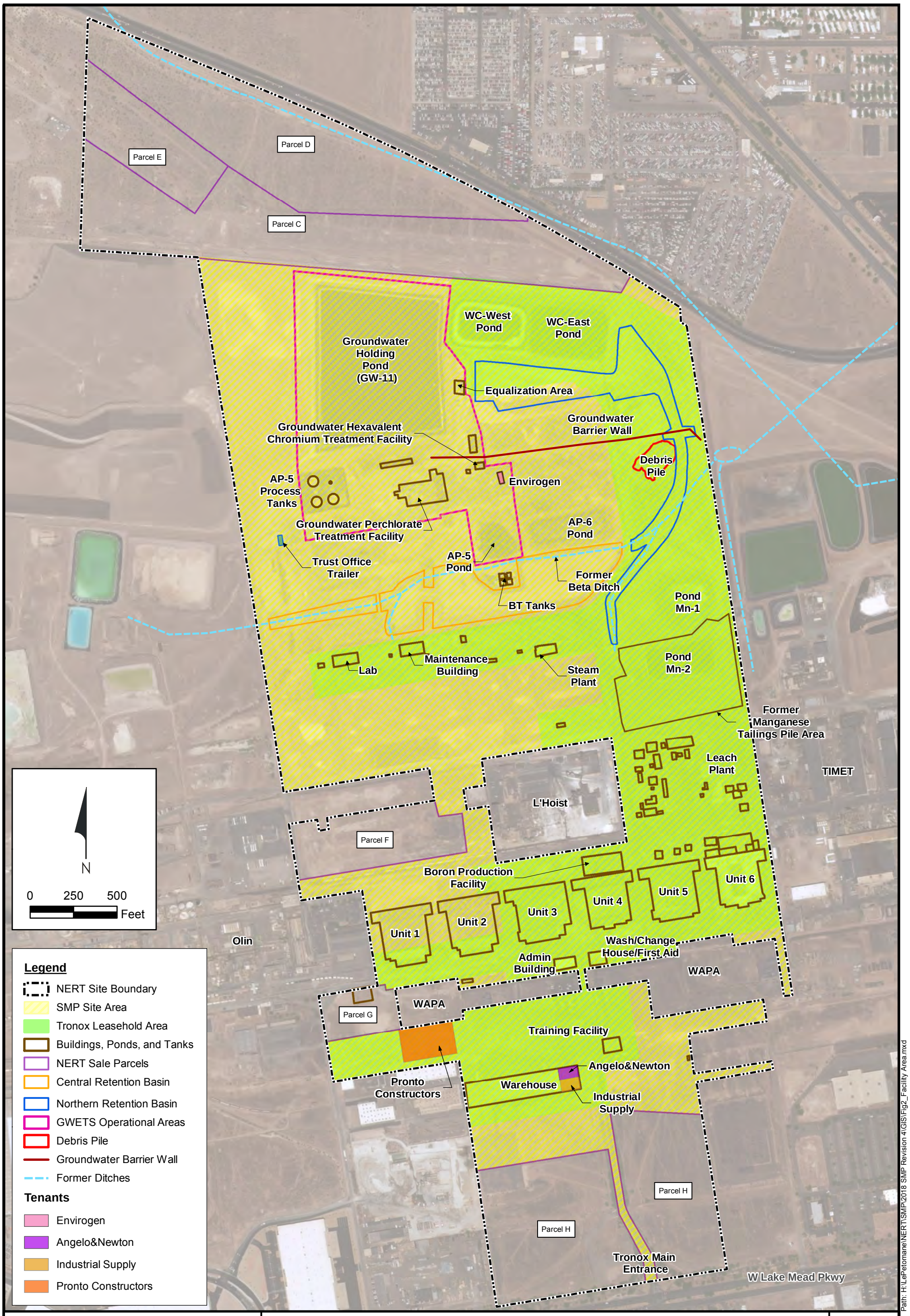
FIGURE
1

DRAFTED BY: RS

DATE: 1/22/2018

PROJECT: 1690006606

H:\LePetomane\NERT\SMP\2018 SMP Revision 4\GIS\Fig1_SiteLocation Map.mxd



RAMBOLL

Site Features
Nevada Environmental Response Trust Site, Henderson, Nevada

Figure
2

Drafter: RS | Date: 3/15/2018 | Contract Number: 1690006606 | Approved by: | Revised:

Path: H:\LePetomane\NERT\SMP\2018 SMP Revision 4\GIS\Fig2_Facility Area.mxd

Legend

- Fire Hydrant
- Catch Basin
- Cleanout
- Domestic Valve
- Electrical Access Box
- Electrical Sub-Station
- Junction Box
- Manholes
- Recirculated Water Valve
- Recirculated & Stabilized Water Valve
- Streetlights
- Transmission Towers
- Utility Poles
- 20" Transite Pipe
- Absorber Tower Drain
- Acid Drain (Inactive)
- Asbestos Steam Pipe
- Chlorine Transmission (Under Grade)
- Diesel Piping (Above Grade)
- Diesel Piping (Below Grade)
- Domestic Water
- Electrical Conduit
- Electrical Line Duct
- Gas Line
- Overhead Power
- Pipe Trench
- Recirculated Drain (Inactive)
- Recirculated Water Line (Inactive)
- Sanitary Sewer
- Stabilized Water
- Storm Drain
- Tailing Line
- Tank Car Unloading Line
- Utilities Above Grade
- Remediation Zones

Map Source: Aerotech Mapping, Inc. July-August 2016.
Data Source: Utilities digitized from 2010 Northgate figures and updated based on ENVIRON's observations during site remediation.

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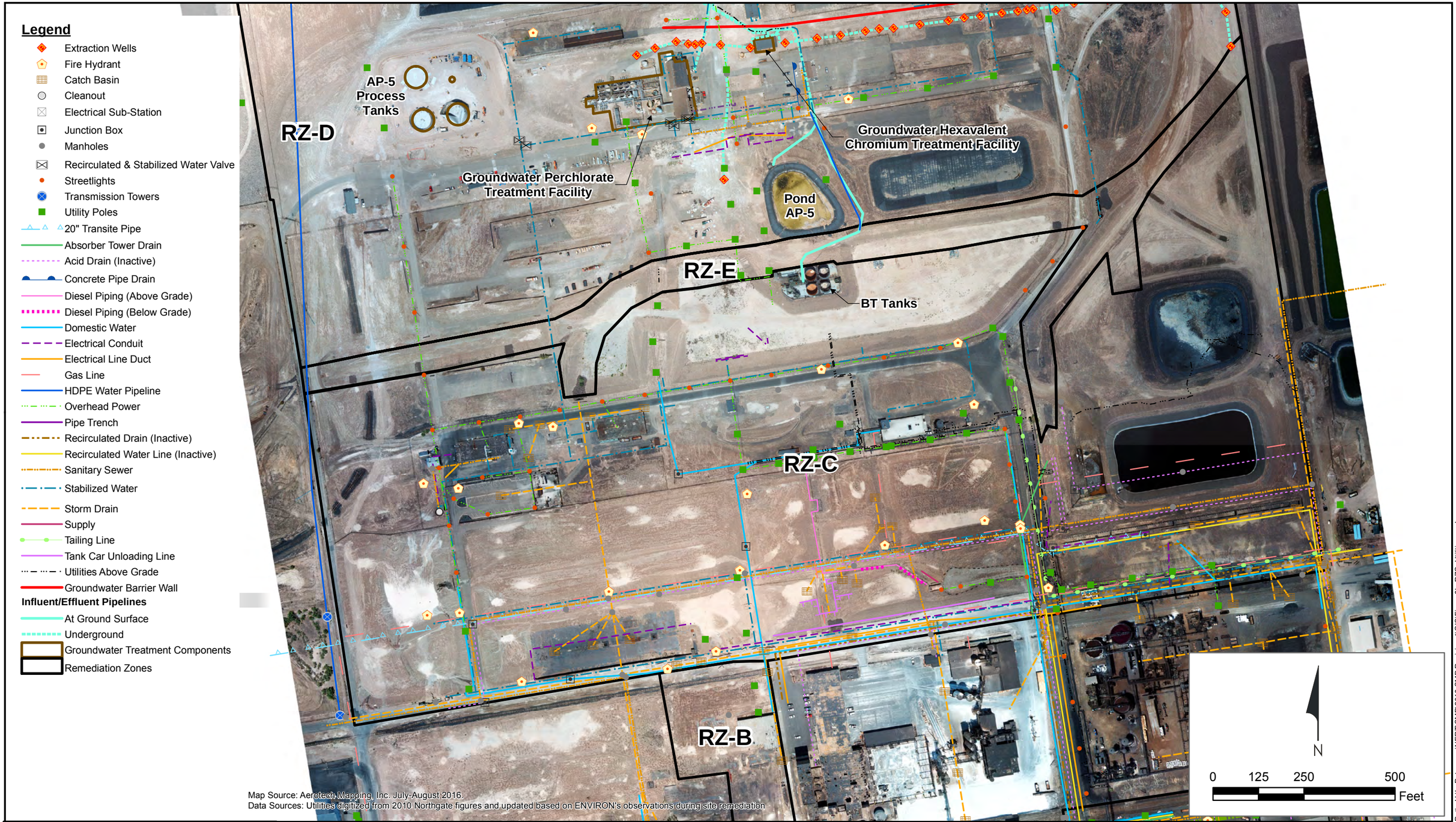
RAMBOLL

Remediation Zone B Utilities

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **3a**

Drafter: RS	Date: 1/22/2018	Contract Number: 1690006606	Approved by: DR	Revised:



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RAMBOLL

Remediation Zone C Utilities

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **3b**

Drafter: RS	Date: 1/22/2018	Contract Number: 1690006606	Approved by: DR	Revised:

Legend

- Extraction Wells
- Fire Hydrant
- Catch Basin
- Cleanout
- Electrical Sub-Station
- Manholes
- Recirculated & Stabilized Water Valve
- Streetlights
- Transmission Towers
- Utility Poles
- Concrete Pipe Drain
- Domestic Water
- Electrical Conduit
- Electrical Line Duct
- HDPE Water Pipeline
- Overhead Power
- Sanitary Sewer
- Stabilized Water
- Stabilized Water Above Grade
- Utilities Above Grade

Influent/Effluent Pipelines

- At Ground Surface
- Underground
- Groundwater Treatment Components
- Remediation Zones

Groundwater Holding Pond (GW-11)

Equalization Area

Groundwater Hexavalent Chromium Treatment Facility

AP-5 Process Tanks

Groundwater Perchlorate Treatment Facility

Pond AP-5

BT Tanks

N

0 125 250 500 Feet

Map Source: Aerotech Mapping, Inc. July-August 2016.
Data Sources: Utilities digitized from 2010 Northgate figures and updated based on ENVIRON's observations during site remediation

Path: H:\LePetomane\NERT\SMP\2018 SMP Revision 4\GIS\Figure3c_SMP_RZD_Utilities.mxd

RAMBOLL

Remediation Zone D Utilities

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **3c**

Drafter: RS | Date: 1/22/2018 | Contract Number: 1690006606 | Approved by: DR | Revised:

Legend

- Extraction Wells
- Fire Hydrant
- Catch Basin
- Cleanout
- Domestic Valve
- Electrical Sub-Station
- Junction Box
- Manholes
- Recirculated & Stabilized Water Valve
- Streetlights
- Transmission Towers
- Utility Poles
- Absorber Tower Drain
- Acid Drain (Inactive)
- Asbestos Steam Pipe
- Diesel Piping (Above Grade)
- Diesel Piping (Below Grade)
- Domestic Water
- Electrical Conduit
- Electrical Line Duct
- Gas Line
- HDPE Water Pipeline
- Overhead Power
- Recirculated Drain (Inactive)
- Recirculated Water Line (Inactive)
- Sanitary Sewer
- Stabilized Water
- Storm Drain
- Supply
- Tailing Line
- Tank Car Unloading Line
- Utilities Above Grade
- Groundwater Barrier Wall

Influent/Effluent Pipelines

- At Ground Surface
- Underground
- Groundwater Treatment Components
- Remediation Zones

RZ-D
AP-5 Process Tanks
Groundwater Hexavalent Chromium Treatment Facility
Groundwater Perchlorate Treatment Facility
Pond AP-5
RZ-E
BT Tanks
RZ-C

N
0 125 250 500 Feet

Map Source: Aerotech Mapping, Inc. July-August 2016.
Data Sources: Utilities digitized from 2010 Northgate figures and updated based on ENVIRON's observations during site remediation.

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RAMBOLL

Remediation Zone E Utilities

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **3d**

Drafter: RS | Date: 1/22/2018 | Contract Number: 1690006606 | Approved by: DR | Revised:

N

0 350 700

Feet

INSET A

0 300 600

Feet

Former Recharge Trenches

Barrier Wall

Interceptor Well Field

Legend

Extraction Well

Injection Well

Monitoring Well

NERT Owned Property

SMP Site Area

Well Locations on the Site

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure 4

Drafter: RS Date: 3/23/2018 Contract Number: 1690006606 Approved by: Revised:

Path: \\woevlfps1\eng\LePetomane\NERT\SMP\2018 SMP Revision 4\GIS\Figure 4 SMP_Well Location-sitearea.mxd

Parcel E

Parcel D

Parcel C

Groundwater Holding Pond (GW-11)

Equalization Area

Groundwater Hexavalent Chromium Treatment Facility

AP-5 Process Tanks

See Figure 5b

AP-5 Pond

Groundwater Perchlorate Treatment Facility

BT Tanks

Parcel F

Parcel G

Parcel H

Parcel H

Legend

- Extraction Well
- Injection Well
- Monitoring Well
- Groundwater Treatment Facility Components
- Facility Area Features (Buildings and Tanks)
- NERT Owned Property
- NERT Sale Parcels
- Central Retention Basin
- Northern Retention Basin
- GWETS Operational Areas
- Debris Pile

Influent/Effluent Pipelines

- At Ground Surface
- Underground
- Former Recharge Trenches
- Groundwater Barrier Wall
- 50-foot Offset
- SMP Site Area

N

0 250 500

Feet

Map Source: Aerotech Mapping, Inc. July-August 2016.
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Path: \\wcevfps1\ENGLE\etomane\NERT\SMP\2018 SMP Revision 4\GIS\Figure5a_Groundwater Treatment Components.mxd

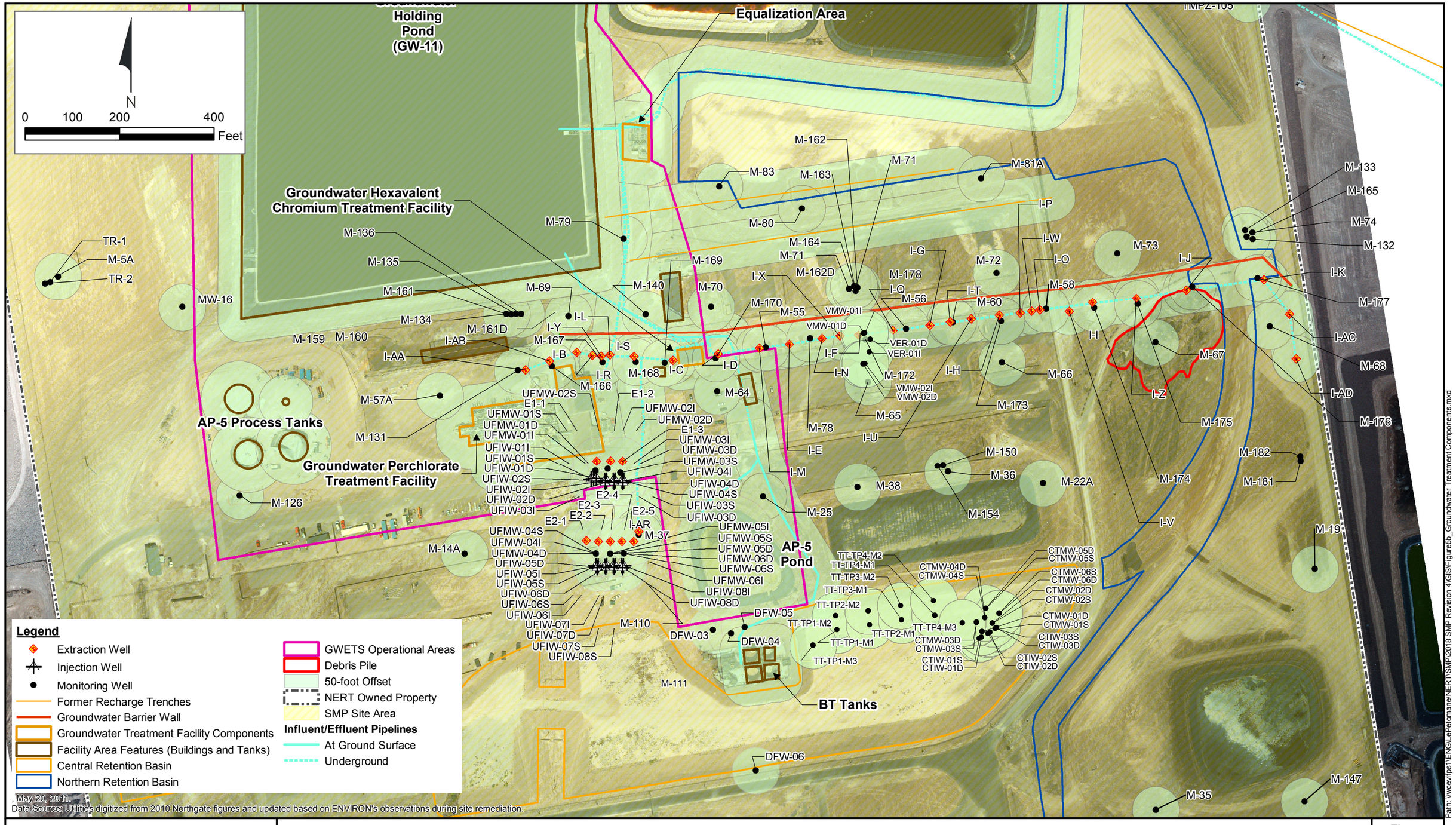
RAMBOLL

On-Site Groundwater Monitoring, Extraction, Injection, and Treatment Systems

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **5a**

Drafter: RS & JSM | Date: 1/22/2018 | Contract Number: 1690006606 | Approved by: | Revised:



RAMBOLL

On-Site Groundwater Monitoring, Extraction, Injection, and Treatment Systems – Inset from Figure 5a

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **5b**

Drafter: RS & JSM | Date: 1/22/2018 | Contract Number: 1690006606 | Approved by: | Revised:

Path: \\wcevfps\TEN\GLePetomane\NERT\SMP\2018 SMP Revision 4\GIS\Figure5b_Groundwater Treatment Components.mxd

APPENDIX A
SUMMARY OF EXCAVATION CONTROL AREAS (ECAs)

DOCUMENT REVISION TRACKING

SMP Revision	Date	Summary of ECA Revision
0	December 2011	Original report included in SMP
2	July 2015	Removal of ECA #E3 from the ECA list in March 2014. A discussion of the removal can be found in Section 2.13. Expansion of ECA #C17 as discussed in Section 2.7.17. Expansion of ECA #D3 as discussed in Section 2.8.3.
3	December 2016	Creation of ECA #C19 as discussed in Section 2.7.19.
4	March 2018	Expansion of ECA #B2 as discussed in Section 2.6.2. Expansion of ECA #B5 as discussed in Section 2.6.5. Expansion of ECA #C16 as discussed in Section 2.7.7. Expansion of ECA #D1 as discussed in Section 2.8.1.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

1. INTRODUCTION

This report provides a summary of areas where known impacted soil has been left in-place and areas where uncharacterized potentially contaminated soils might be located at an approximately 257-acre site in unincorporated Clark County, surrounded by the City of Henderson, Nevada (the Site). These areas have been designated as Excavation Control Areas (ECAs).

The Site was previously owned and operated by Tronox LLC (Tronox). Prior to Tronox, the Site was owned and operated by Kerr McGee Chemical LLC. The Site is currently owned by the Nevada Environmental Response Trust (the Trust), which was created in conjunction with the settlement of Tronox's bankruptcy proceeding on February 14, 2011.

2. EXCAVATION CONTROL AREAS (ECAS) WITH KNOWN CONTAMINATION LEFT IN PLACE

2.1 Soil Screening Levels

Chemicals of potential concern (COPCs) in Site soils include perchlorate, asbestos, metals (including arsenic), hexavalent chromium, dioxin/furans, volatile and semi-volatile organic compounds (VOCs and SVOCs), polycylic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs), and others. Site-specific soil screening levels (including Nevada Division of Environmental Protection [NDEP] worker Basic Comparison Levels [BCLs][1] for most COPCs, as well as screening levels based on other criteria for arsenic, asbestos, and dioxins/furans, as described below) have been developed for the Site (see Table 1 of SMP).

As explained in the *Removal Action Work Plan for Phase B Soil Remediation of Remedial Zones RZ-B through RZ-E (RAW), Tronox LLC, Henderson, Nevada,* revised May 28, 2010 (Northgate, 2010b), for purposes of designating potential remediation areas, "contaminated" soil is generally defined as concentrations exceeding NDEP worker BCLs, or modified risk-based goals as approved by NDEP. For metals where background concentrations exceed NDEP BCLs (e.g., arsenic), "contaminated" soil is defined as concentrations greater than background. A target remediation goal of 7.2 milligrams per kilogram (mg/kg) for arsenic was approved by NDEP on August 20, 2010 (NDEP, 2010d) in response to Tronox's August 13, 2010 errata to the RAW (Northgate, 2010b). There are no NDEP BCLs for asbestos; therefore, "contaminated" soil is defined as one, or more, long amphibole protocol structures and greater than five long chrysotile protocol structures counted per sample, which were the criteria used in the NDEP-approved RAW (Northgate, 2010b) and in the *Interim Soil Removal Action Completion Report* (ENVIRON 2012a). Based on the bioavailability study, NDEP has approved a Site-specific soil screening level for dioxins/furans (as 2,3,7,8-tetrachlorodibenzo-p-dioxin toxicity equivalents [2,3,7,8-TCDD TEQ]) of 2,700 parts per trillion (ppt) (NDEP, 2010b,c).

2.2 Discolored Soil

During soil remediation activities performed in 2010-2011, areas with discolored soil were encountered and investigated. Based on discolored soil characteristics and analytical testing results, most encountered discolored soils were excavated and disposed off-site. Some discolored soils with known or suspected concentrations of COPCs above soil screening levels remain in place at the Site due to their location beneath or in close proximity to operational structures, features, or utilities; therefore, ECAs have been established in these areas. In areas with discolored soil with reported concentrations of COPCs below soil screening levels, ECAs have not been established.

[1] The soil screening levels in Table 1 are the current July 2017 BCLs, the NDEP-approved Site-specific comparison level for dioxins/furans, NDEP-approved background levels, and the criteria used as the basis for asbestos remediation of the Site. If, in the future, any of these comparison levels change, the soil screening levels in Table 1 will be updated to reflect the most current comparison levels. At all times, the most recent version of the BCLs, which can be found on the NDEP website (https://ndep.nv.gov/resources/risk-assessment-and-toxicology-basic-comparison-levels) should be used.

2.3 Reasons for Establishing ECAs

The ECAs summarized in this report have been established in areas of the Site where existing infrastructure or facility operations preclude the removal (excavation) of contaminated soil.

The reasons for establishing ECAs at the Site are generally as follows:

- Contaminated and/or discolored soil areas are located beneath existing operational structures, and it is technically infeasible or cost prohibitive to access these areas for excavation.
- Contaminated and/or discolored soil areas are located in close proximity to utilities or other Site features (e.g., the active pond berms), and excavating soil in these areas poses a potential safety hazard and/or could result in damage to the utilities/features.
- Soil with unknown conditions and/or limited analytical test results is located beneath existing operational structures or facilities, and it is technically infeasible or cost prohibitive to access these areas for investigation and/or excavation.

In addition, the excavation program conducted at the Site generally has not addressed vadose zone soils at depths greater than ten feet below ground surface (ft bgs). Therefore, vadose zone soils across the Site at depths greater than 10 ft below original grade are identified as an ECA.

2.4 Decision Rules for Establishing the Extent of ECAs

The following set of general decision rules was developed to determine the lateral and vertical extent of the ECAs during and post-excavation. The decision rules were used as a guideline and were modified as necessary based on field conditions.

1. Excavations will be limited such that all active utility lines will be protected (unless known to be out of service, all utility lines are assumed to be active);
2. Excavations will not be within 5 ft of water lines;
3. Excavations will not be within 2 ft of all other active utility lines;
4. Excavation will not be within 12 ft of the center line of active railroad lines. Excavations beyond this point shall be sloped 3:1 (horizontal to vertical) to the bottom of the excavation;
5. Excavations that are 3 ft deep or less will have vertical sides except where they are supporting utilities, in such case the ground will be sloped 1:1;
6. Excavations that are deeper than 3 ft will have a 1:1 slope, unless otherwise noted; and
7. Excavations next to concrete foundations or footings will be sloped 2:1, starting below the top of the foundations.

The above decision rules are based on the following:

- Temporary construction sloping of 1:1 is based on field observations of native material stability;

- The setback from water lines was established through discussions with Basic Management Incorporated (BMI) staff;
- The setback from the railroad tracks was developed from standard setback requirements for shoring established by Union Pacific Railroad.
- Setbacks from all other utility lines is based on engineering judgment; and
- Slopes in the area of footings are based on common geotechnical engineering principals.

2.5 Overview of ECAs

The ECAs for the Site are identified in Table A-1 and Figures 1 through 6. It would be technically infeasible or cost-prohibitive to remediate most of these areas because they are generally located beneath existing operational facilities/roadways or within critical utility corridors where excavation would be unsafe and/or would likely damage utilities.

Table A-1 provides a summary of: 1) the rationale for proposing each ECA; 2) the engineering controls currently in place; 3) sampling locations relevant to each ECA; 4) Letter of Understanding (LOU) areas relevant to each ECA; 5) expected depths of contamination; 6) a brief summary of discolored soil characterization results; 7) chemicals of potential concern (COPCs)[2]; and 8) minimum required analyses. Text describing each of the ECAs is provided below. Figures 1 through 5c show the locations of each of the ECAs on the Site, as well as soil sample locations where pertinent data has been collected for characterization of impacted soils within ECAs. Figures 6a/6b show which LOU areas are relevant to each ECA. Attachment A contains correspondence and a diagram regarding NV Energy utility requirements. Packets of documentation relating to LOU Areas I through IV are provided in Attachments B through E, respectively. Tables summarizing analytical results for all soil samples collected from the Site are included in Attachment F. An executable table of results for soil samples remaining on the Site is included in Attachment G.

2.6 Description of ECAs in RZ-B

2.6.1 ECA #B1: Unit Buildings 1 through 6, Including Soil within 50 ft of Unit Buildings 1 through 6

ECA #B1 includes soil beneath the entire building footprint of Unit Buildings 1 through 6, as well as soil within 50 ft of Unit Buildings 1 through 6 (Figure 2). The unit buildings themselves and adjacent pavement, where present, provide an engineering control, capping the soil and preventing or greatly limiting the potential for contact with contaminated soil in the majority of the ECA. In addition, access to portions of this ECA near Unit Buildings 1 and 2 is restricted with fencing and locked gates.

Unit Building 1

Unit Building 1 historically supported the high-pressure chlorine line used by the Titanium Metals Corporation (TIMET) facility. Because of the building obstruction, characterization of soils beneath the building footprint has not been performed, and soils beneath the building

[2] The COPC list in Table A-1 was compiled using the packets of documentation relating to LOU Areas I through IV (provided in Attachments B through E) and existing soil data within each ECA.

footprint, including portions of excavation polygons RZ-B-01, -04A, -04B, -04C, and -14, which extend under the footprint of Unit Building 1, cannot be excavated.

Unit Building 2

Unit Building 2 currently supports the high-pressure chlorine line used by the TIMET facility. Because of the building obstruction, characterization of soils beneath the building footprint has not been performed, and soils beneath the building footprint, including portions of excavation polygons RZ-B-06, -06A, and -07B, which extend under the footprint of Unit Building 2, cannot be excavated. A portion of ECA #B4 (Former Hazardous Waste Storage Area) overlaps with ECA #B1 near the northeastern corner of Unit Building 2.

Unit Building 3

Unit Building 3 is currently used for chlorine line support, Tronox Facility engineering offices, and includes an electrical substation. Because of the building obstruction, characterization of soils beneath the building footprint has not been performed, and soils beneath the building footprint, including a portion of excavation polygon RZ-B-12, which extends under the footprint of Unit Building 3, cannot be excavated. A portion of ECA #B5 (Sodium Chlorate Filter Cake Process Area) overlaps with ECA #B1 in the northeastern corner of Unit Building 3.

Unit Building 4

Unit Building 4 is currently used for chlorine line support, storage of materials associated with the Tronox Facility Boron Plant, the Tronox Advanced Battery Manufacturing Process, and includes an electrical substation. Because of the building obstruction, characterization of soils beneath the building footprint has not been performed and soils beneath the building footprint cannot be excavated. A portion of ECA #B6 (Soils Beneath Approximately 6 Ft Deep in Polygons RZ-B-20 and -21) overlaps with ECA #B1 near the eastern portion of Unit Building 4.

Unit Building 5

Unit Building 5 is currently used for chlorine line support and Tronox Facility operations. Because of the building obstruction, characterization of soils beneath the building footprint has not been performed and soils beneath the building footprint cannot be excavated.

Unit Building 6

Unit Building 5 is currently used for chlorine line support and Tronox Facility operations. Because of the building obstruction, characterization of soils beneath the building footprint has not been performed and soils beneath the building footprint cannot be excavated.

Soils Within Approximately 50 Ft of Unit Buildings

Soils within approximately 50 ft of all six Unit Buildings are included within ECA B1 since characterization of these soils is limited and since remedial excavation could not be performed immediately adjacent to Unit Building structures due to concerns about building structural support.

2.6.2 ECA #B2: Portion of Polygons RZ-B-04C/05/09A/11/12/13 Extending into Avenue G

There are various active and inactive utility lines that run beneath Avenue G, north of the Unit Buildings, including sanitary sewer, storm drain, domestic water, and various other lines. Many of these utilities are active. The portions of polygons RZ-B-04C, -05, -09A, -11, -12, and

-13 in the vicinity of these utilities beneath Avenue G are included in ECA #B2, as shown on Figure 2. Because of the fragility of some of the older utility lines in this area, soil has not been excavated within a minimum of 5 ft of the lines as described in Section 2.4 of this report. The asphalt pavement (Avenue G) provides an engineering control for ECA #B2, preventing or greatly limiting the potential for contact with contaminated soil.

The eastern-most segment of ECA #B2 was expanded slightly in 2018 to include a soil sample location (RSAQ5) collected in 2009 which had concentrations exceeding the soil screening levels and was inadvertently left outside the original ECA boundary designated in 2011.

2.6.3 ECA #B3: Fire Hydrant

A fire hydrant is located along 7th Street, just south of Avenue G. Since the hydrant is active, the hydrant itself, and soils in the immediate vicinity have not been removed, including portions of polygon RZ-B-11. This portion of RZ-B-11 is included in ECA #B3, as shown on Figure 2. The asphalt pavement (7th Street) provides a partial engineering control for ECA #B3, limiting the potential for contact with contaminated soil.

2.6.4 ECA #B4: Former Hazardous Waste Storage Area

The former hazardous waste storage area is beneath two tanks and a membrane-lined containment area currently used by Tronox. Soils beneath the former hazardous waste storage area include portions of RZ-B-07A, -08, -09, and -10 all of which have been excavated to the extent possible without risking damage to the membrane. This area has been designated as ECA #B4, as shown in Figure 2. The former hazardous waste storage area is overlain by high density polyethylene sheeting for containment of tank contents. This sheeting provides an engineering control, preventing or greatly limiting the potential for contact with contaminated soil.

2.6.5 ECA #B5: Sodium Chlorate Filter Cake Process Area

The sodium chlorate filter cake process area is part of the Manganese Dioxide process operations. The concrete slab for the process area is approximately 52' x 46' x 12" thick. The slab is underlain by 2" of sand and a 20 mil membrane. The entire slab, including a portion of excavation polygon RZ-B-13 within the slab area, is designated as ECA #B5, as shown on Figure 2. RZ-B-13 has been excavated to the edge of the slab, with minimal setback and a near vertical slope. One confirmation sample (SSAQ6-02) was collected from the bottom of the excavation area where a discolored soil layer extended beneath the slab. The sample was analyzed for dioxins/furans, SVOCs, arsenic, manganese, and magnesium. The results indicated that concentrations of arsenic and benzo(a)pyrene (B(a)P) were above soil screening levels. The concrete slab and underlying membrane provide an engineering control, preventing or greatly limiting the potential for contact with contaminated soil.

The western boundary of ECA #B5 was expanded slightly in 2018 to include a soil sample location (SSAQ6-02) collected in 2011 which had concentrations exceeding the soil screening levels and was inadvertently left outside the original ECA boundary designated in 2011.

2.6.6 ECA #B6: Soils Beneath Approximately 6 Ft Deep in Polygons RZ-B-20 and RZ-B-21

Access for excavation of soils beneath 6 ft (and to the surface east of an active Tronox water line) within excavation polygons RZ-B-20 and -21 was limited by the presence of several active subgrade utilities, including water, storm drain, and electrical lines. These utilities are located

at depths of less than 6 ft. Remedial excavation was performed to 6 ft deep, with temporary supports for some of the utility lines; however, deeper excavation could not be performed without compromising the utility lines. The portions of RZ-B-20 and -21 in the vicinity of these utilities are included in ECA #B6, as shown on Figure 2. The asphalt pavement for 9th Street and a minimum of 6 ft of clean backfill material provides an engineering control for ECA #B6, preventing or greatly limiting the potential for contact with contaminated soil.

2.6.7 ECA #B7: Soils within Polygon RZ-B-22

Access for excavation of soils within excavation polygon RZ-B-22 is limited by the presence of subgrade utilities, building foundation, and other surface features. Excavation polygon RZ-B-22 is included in ECA #B7, as shown on Figure 2. Asphalt pavement for Avenue H covers most of the area and provides an engineering control for ECA #B7, preventing or greatly limiting the potential for contact with contaminated soil.

2.7 Description of ECAs in RZ-C

2.7.1 ECA #C1: Portions of RZ-C-01/01A Beneath 4th Street

Access to excavation of soils within portions of excavation polygons RZ-C-01 and -01A is limited by the presence of an existing roadway (4th Street), which is in use and cannot be removed. Therefore, the portions of RZ-C-01 and -01A beneath 4th Street are included in ECA #C1, as shown on Figure 3. Asphalt pavement for 4th Street provides a partial engineering control for ECA #C1, preventing or greatly limiting the potential for contact with contaminated soil.

2.7.2 ECA #C2: Portions of RZ-C-03/04/05A Beneath 5th Street

Access to excavation of soils within portions of excavation polygons RZ-C-03, -04, and -05A is limited by the presence of an existing roadway (5th Street), which is in use and cannot be removed. Therefore, the portions of RZ-C-03, -04, and -05A beneath 5th Street are included in ECA #C2, as shown on Figure 3. Asphalt pavement for 5th Street provides a partial engineering control for ECA #C2, preventing or greatly limiting the potential for contact with contaminated soil.

2.7.3 ECA #C3: Portion of RZ-C-06 Beneath Fire Hydrant and Utilities Along Avenue F

There are four active utility lines and a fire hydrant that run beneath Avenue F in the vicinity of RZ-C-06, including domestic and stabilized water lines, a sanitary sewer line, and a storm drain line. Excavation in RZ-C-06 extended to a depth of 9 ft bgs with a slope of 1:1 along the southern side of the polygon excavation. The portion of RZ-C-06 in the vicinity of these utilities beneath Avenue F is included in ECA #C3, as shown on Figure 3. The asphalt pavement for Avenue F provides a partial engineering control for ECA #C3. Clean imported backfill material was placed to create a 3:1 slope and orange snow fencing was used as a visual demarcation between the clean backfill material and impacted soil below. The clean backfill material provides a further engineering control, preventing or greatly limiting the potential for contact with contaminated soils.

2.7.4 ECA #C4: Concrete Foundation

Access to excavation of soils within portions of excavation polygons RZ-C-06 and -09B is limited by the presence of a concrete foundation. Therefore, the portions of RZ-C-06 and -09B beneath the foundation are included in ECA #C4. The soils beneath the concrete foundation

have not been characterized, so in addition to the portions of RZ-C06 and -09B beneath the foundation, the remainder of the concrete foundation area is also included in ECA #C4, as shown on Figure 3. The concrete foundation provides an engineering control for ECA #C4, preventing or greatly limiting the potential for contact with contaminated soil.

2.7.5 ECA #C5: Water, Fiber Optic, and Electric Utility Lines Through and Near RZ-C-11/13

Access to excavation of soils within and adjacent to portions of excavation polygons RZ-C-11 and -13 is limited by the presence of active subsurface utilities, including water and fiber-optic utility lines. A portion of polygon RZ-C-11 was excavated to approximately 6 ft deep around the utilities and the area was backfilled with clean imported soil; however, portions of RZ-C-11 and -13, as well as discolored soils deeper than the original excavation depth of polygon RZ-C-13, were not excavated. One excavation extent (EE-C13-1) sample was collected within the black layer remaining in the southeastern sidewall of RZ-C-13 on June 20, 2011. This sample was analyzed for hexachlorobenzene (HCB), SVOCs/PAHs, arsenic, and manganese. Results indicated that the concentrations of these constituents were below the soil screening levels, with the exception of HCB. Therefore, the portions of RZ-C-11 and -13 in the vicinity of these utilities, including where discolored soils are known or suspected to be present, are included in ECA #C5, as shown on Figure 3. Clean imported backfill material in the northern portion of the ECA provides a partial engineering control.

2.7.6 ECA #C6: Discolored Soil at Former Pump House Yard

During excavation activities, discolored soil from the ground surface to a depth of at least 10 ft was discovered in the area of the former pump house yard. An excavation extent sample was collected from the soil that remained within the eastern sidewall of RZ-C-15 under the former pump house yard (EE-C15-1). The sample was analyzed for HCB, SVOCs/PAHs, arsenic, and manganese. The results for this sample indicated concentrations of these constituents were below soil screening levels. However, an additional excavation extent sample was collected from the sidewall of RZ-C-24, also within the former pump house yard. The sample was analyzed for HCB, SVOCs/PAHs, arsenic, and manganese. The results for this sample indicated that arsenic was present at a concentration above the soil screening level. Because of the extent and depth of the discolored soil and the limited access in this area due to facility perimeter fencing and former pump house yard utilities, this area is designated as ECA #C6, as shown on Figure 3. Perimeter fencing surrounding this area provides a partial engineering control for ECA #C6, preventing or greatly limiting the potential for contact with contaminated soil.

2.7.7 ECA #C7: Avenue F Utilities, Railroad Line, and Roadway

The road into the Lhoist (formerly Chemstar) plant (Avenue F) is active and used by trucks entering and exiting the plant, and excavation in the road would limit use of the road by Lhoist. Lhoist hauls 24 hours a day, five days a week. In addition, there are several utility lines that run beneath Avenue F, including domestic and stabilized water lines, a sanitary sewer line, electrical conduits, a storm drain line, and others. Many of these utilities are active and will not be removed. The water line is extremely fragile with a high potential to break due to construction activities. Additionally, two railroad lines run through a portion of RZ-C-13A. The southern-most railroad line is active.

The extent of ECA #C7 is shown on Figure 3. Access to excavation of soils within portions of excavation polygons RZ-C-09B, -12, -13, -13A, -14, -15, -24, -26, and -27 is limited by the

presence of Avenue F and nearby utilities and rail lines. Accessible discolored soils were removed from the excavation area north of Avenue F; however, discolored soil remains in place in the southern excavation sidewall and likely extends beneath Avenue F. Two excavation extent samples (EE-C24-1 and EE-C24-2) were collected from the sidewall along Avenue F and the sidewall of the former pump house yard on June 23 and 30, respectively. These samples were analyzed for HCB, SVOCs/PAHs, arsenic, and manganese. Arsenic was detected at a concentration above the soil screening level.

Four excavation extent samples (EE-C27-1, EE-C27-2 and duplicate EE-C27-4, and EE-C27-3) were collected from the sidewalls and bottom of the excavation area underneath the diesel fuel line, gas line, and Avenue F on June 16, 2011. These samples were analyzed for arsenic, lead, manganese, and perchlorate. Arsenic and lead were detected at concentrations above soil screening levels in EE-C27-1. Arsenic was detected at a concentration above the soil screening level in EE-C27-2 and duplicate EE-C27-4.

Two discolored soil samples (DS-C24-1 and duplicate DS-C24-2) were collected from a gray/white layer found near the top of the southern sidewall of RZ-C-24 adjacent to ACM pipes and under Avenue F on May 4, 2011. These samples were analyzed for HCB, SVOCs/PAHs, arsenic and manganese. Results from these samples indicated that the concentrations of these constituents were below soil screening levels, with the exception of B(a)P.

Clean imported backfill material was placed in this area and orange snow fencing was used as a visual demarcation between the clean backfill material and impacted soils below. The clean backfill material; Avenue F, which is paved with asphaltic concrete; the pavement adjacent to the road; and the railroad tracks provide engineering controls for the majority of the ECA #C7, preventing or greatly limiting the potential for contact with contaminated soil.

2.7.8 ECA #C8: 9th Street Utilities and Roadway

There are a variety of utility lines that run beneath and above 9th Street in the vicinity of RZ-C-22A and -22B including a gas line, a sanitary sewer line, a water line, a tailing line, and an overhead power line, all of which are active. Excavation in these areas would encounter these utility lines. Therefore, soils beneath the 9th Street roadway and in the vicinity of these utilities, including portions of RZ-C-22A and -22B and areas outside these polygons where discolored soil was observed, are included in ECA #C8, as shown on Figure 3. 9th Street and the pavement adjacent to the road provide an engineering control for ECA #C8, preventing or greatly limiting the potential for contact with contaminated soil.

2.7.9 ECA #C9: Diesel Tank and Pipelines

An aboveground diesel tank and associated pipelines provide the emergency fuel source for the Tronox Facility steam plant. The diesel tank is serviced by two pipelines (an inlet and an outlet). A portion of one of these lines is below ground. Portions of excavation polygons RZ-C-19, -22, -23 and -27 extend in the vicinity of the pipelines or underneath the diesel tank containment structure. Therefore, portions of these excavation polygons cannot be excavated and are included in ECA #C9, as shown on Figure 3. In addition, discolored soil was observed beneath the tank and pipelines. Initially, Northgate collected a discolored soil sample (SSAO5-09) of gray/black shaly, peat-like material on February 11, 2011. The sample was analyzed for dioxins, SVOCs, arsenic, manganese, magnesium, and asbestos. Results from SSAO5-09 indicated concentrations of HCB, arsenic, and magnesium were above soil screening

levels for these constituents. During the excavation of the area, ENVIRON collected a characterization sample from a black layer under the diesel tank and analyzed the sample for dioxins, SVOCs/PAHs, arsenic, lead, cobalt, manganese, magnesium, and perchlorate. Results indicated that concentrations of arsenic, lead, and manganese were above soil screening levels. Additional samples DS-C19-1, EE-C23-1, and EE-C20-1 were also collected from this area and indicated concentrations of arsenic, lead, and perchlorate were above soil screening levels, and sample DS-C23-1 also collected from this area indicated concentrations of arsenic, lead, and manganese were above soil screening levels. In addition, on April 20, 2011, ENVIRON collected a discolored soil sample (DS-C10-1) from the gray/black shaly layers within the east sidewall of RZ-C-10. The sample was analyzed for dioxins/furans, HCB, arsenic, lead, cobalt, manganese, magnesium, and perchlorate. Results indicated that concentrations of HCB, magnesium, and perchlorate were above soil screening levels for these constituents. Discolored soil within the accessible areas on both sides of the diesel fuel pipelines was removed. About a twelve-foot wide and 75-foot long section of discolored soil was inaccessible under the diesel fuel pipelines and remained in place. ECA #C9 includes the full length of the diesel pipelines from the tank to the steam plant, in addition to the portions within polygons. The diesel tank containment structure provides a partial engineering control, preventing or greatly limiting the potential for contact with contaminated soil in that area.

2.7.10 ECA #C10: Areas with Discolored Soil

Following excavation of polygon RZ-C-17, discolored soil was identified in two areas within RZ-C-17, deeper than the original excavation depth for this area. A trench was dug to investigate the extent of the discolored soil and one characterization sample (DS-C17-1) was collected from the trench on May 6, 2011. The sample was analyzed for dioxins/furans, HCB, arsenic, magnesium, and perchlorate. Results from DS-C17-1 indicated concentrations of dioxins/furans and HCB were above soil screening levels. Because of the extent and depth of the discolored soil, and because the area was within areas where remedial excavation had been completed, it was decided, in consultation with NDEP, to leave these soils in place. In addition, following excavation of polygon RZ-C-18, one confirmation soil sample (SSA06-06) was collected from the floor of the excavated area on February 9, 2011. This sample was analyzed for dioxins/furans, SVOCs, arsenic, manganese, and magnesium. Results from this sample indicated concentrations of HCB and arsenic were above soil screening levels. Therefore, additional soil excavation was performed in this area to remove the discolored soil. During the soil removal, ENVIRON observed a black discolored soil layer on the ground surface adjacent to polygon RZ-C-18. The layer was excavated to a depth of approximately six ft bgs and included the removal of a subsurface concrete drop culvert and pipe. Due to the significant depth of the material, some of the discolored soil was left in place. One excavation extent sample (EE-C18-1) was collected within the discolored soil at the base of the excavation on May 17, 2011. This sample was analyzed for dioxins/furans, HCB, SVOCs/PAHs, arsenic, manganese, and magnesium. Results from EE-C18-1 indicated concentrations of dioxins/furans, HCB, and B(a)P were above soil screening levels. This area is designated as ECA #C10, as shown on Figure 3. Six inches to one foot of clean imported backfill material was placed in the northern portion and approximately three ft of clean imported backfill material was placed in the southern portion of ECA #C10. The clean backfill material provides an engineering control for ECA #C10, limiting the potential for contact with contaminated soil.

2.7.11 ECA #C11: Natural Gas Pipeline

Excavation of soils is limited by the presence of an active subsurface natural gas pipeline which runs to the Tronox Facility steam plant. Discolored soil was observed beneath and around portions of the pipeline. Three excavation extent samples (EE-C20-1, EE-C21-1 and duplicate EE-C21-2) were collected from the sidewalls of areas underneath the gas line on June 16, 2011. EE-C20-1 was analyzed for arsenic, lead, manganese and perchlorate, and EE-C21-1 and its duplicate were analyzed for SVOCs/PAHs, arsenic, manganese, and perchlorate. Results from EE-C20-1 indicated concentrations of arsenic, lead, and perchlorate were above soil screening levels. Results from EE-C21-1 and its duplicate indicated concentrations of B(a)P, arsenic, and perchlorate were above soil screening levels. The area where the pipeline runs, including portions of polygons RZ-C-16, -17, -19, -20, 22A, -22B and -23 in the vicinity of the natural gas pipeline are designated as ECA #C11, as shown on Figure 3.

2.7.12 ECA #C12: Steam Plant and Associated Features

The steam plant and associated utilities and infrastructure in the vicinity of the steam plant within the excavation areas include a portion of the plant building, above-ground piping, pipe racks, pipe rack pole footings, a 15 kV transmission line, and a transformer pad. Portions of excavation polygons RZ-C-16, -16A, and -42 extend under the footprint of the steam plant and associated facilities. Some of the pipe rack footings are failing and the pipe racks are leaning. Excavation in these areas would exacerbate the condition requiring temporary support of the racks and construction of new foundations. Therefore, the steam plant and associated features are designated as ECA #C12, as shown in Figure 3. The transformer concrete pad and the steam plant slab provide partial engineering controls, preventing or greatly reducing the potential for contact with contaminated soil.

2.7.13 ECA #C13: Steam Line

Excavation of soils is limited by the presence of an active aboveground steam line that is used for facility process support, including a black discolored soil seam along the southwestern edge of polygon RZ-E-14A. On May 18, 2011, excavation extent sample EE-14A-1 was collected and analyzed for dioxins/furans, HCB, arsenic, magnesium, and VOCs. Analytical results indicated that concentrations of constituents tested were below soil screening levels, with the exception of the dioxin TEQ value, which was reported above the soil screening level. Therefore, soil in the vicinity of the steam line, including a portion of excavation polygon RZ-C-44 is designated as ECA #C13, as shown on Figure 3.

2.7.14 ECA #C14: Process Road

Access to excavation of soils within portions of excavation polygons RZ-C-28B, -28C, -34, -36, -37, -38, -39, -39A, -39C, -40, -40A, -40B, -41, and -42 is limited by the presence of an existing active roadway (Process Road). Therefore, the portions of these polygons beneath the Process Road are included in ECA #C14, as shown on Figure 3. The Process Road is partially paved with asphalt and has also been covered with an approximately 3 inch layer of crushed limestone. The asphalt pavement and crushed limestone of the Process Road provide an engineering control for ECA #C14, preventing or greatly limiting the potential for contact with contaminated soil.

2.7.15 ECA #C15: Steam Plant Roadway

Excavation of soils within the southern portion of excavation polygon RZ-C-42 is limited by the presence of the existing steam plant roadway, which is in use. Therefore, the portion of RZ-C-42 beneath the steam plant roadway is included in ECA #C15, as shown on Figure 3. The steam plant roadway, which is paved with asphalt, provides an engineering control for ECA #C15, preventing or greatly limiting the potential for contact with contaminated soil.

2.7.16 ECA #C16: BT Tank Area

The BT tanks and containment structure were used by the GWETS operator as part of the treatment system for remediating groundwater. Because of the BT Tank Area obstruction, soils beneath and adjacent to the BT Tank Area, including portions of excavation polygons RZ-C-28D, -28F, -29, -30 and RZ-E-08, -08A, and -08B, which extend under the footprint of the BT Tank Area, cannot be excavated. On May 4, 2011, excavation extent samples EE-E08A-1 and duplicate EE-E08A-2, and EE-D09-1 were collected from discolored soil areas within the north sidewall of RZ-E-09, the south sidewall of RZ-E-08A, near a concrete culvert at the east end of RZ-E-09, and along the east side of the BT Tanks. The analytical results for excavation extent samples EE-E08A-1 and EE-E08A-2 indicated that concentrations of dioxins/furans, HCB, arsenic, OCPs, and perchlorate were above soil screening levels. The results for excavation extent sample EE-E09-1 indicated that concentrations of OCPs were above soil screening levels. In addition, confirmation sample CS-C30-1 was collected following removal of discolored soils on the east side of the BT Tanks and was analyzed for dioxins/furans and perchlorate, both of which were found in concentrations above soil screening levels. Therefore, the BT Tank Area is designated as ECA #C16, as shown in Figure 3. This ECA also includes an approximately 5-foot border around the BT tank containment structure, which was not excavated due to stability concerns. The containment structure surrounding the BT tanks provides an engineering control, preventing or greatly limiting the potential for contact with contaminated soil.

The eastern and western boundaries of ECA #C16 were expanded slightly in 2018 to include two soil sample locations (SSAM5-05 and SSAM6-06) collected in 2010, which had concentrations exceeding the soil screening levels and were inadvertently left outside the original ECA boundary designated in 2011.

2.7.17 ECA #C17: MN-1 Pond

ECA #C17 includes soil beneath the entire operating Tronox Facility MN-1 Pond area, including the pond, pond berms, and adjacent areas. The extent of ECA #C17 is shown on Figure 3. Because of the MN-1 Pond obstruction, the area remains generally uncharacterized and most soils within the ECA cannot be excavated. The MN-1 pond and its liner provide an engineering control, preventing or greatly limiting the potential for contact with contaminated soil.

In 2013, discolored soil was discovered in a non-ECA area to the south of ECA #C17 during construction of Tronox's Waste Water Pond MN-2. The activities of the MN-2 pond construction and previously unknown contaminated soil discovery were detailed in the Geotechnical & Environmental Services, Inc. (GES) report, *Closure Report for Project #12-06, MN-2 Waste Water Pond Construction*, dated October 2013. The discolored soil was sampled in four locations and analyzed as one composite sample. Analytical results for this composite sample are in Table A-2. Arsenic was the only analyte found to exceed the NDEP Site Screening Level as highlighted in Table A-2. The soil was left in-place and covered with approximately 6 inches

of clean native fill. Based on this discovery, the southern boundary of ECA #C17 has been extended as shown in Figure 3.

2.7.18 ECA #C18: Leach Plant Equipment and Facilities

ECA #C18 includes soil beneath the entire operating Tronox Facility Leach Plant area, including the plant equipment and facilities. The extent of ECA #C18 is shown on Figure 3. Because of the Leach Plant obstruction, the area remains generally uncharacterized and soils beneath the Leach Plant footprint, including excavation polygon RZ-C-45, which extend under the footprint of the Leach Plant, cannot be excavated. The asphalt pavement within the Leach Plant provides an engineering control, preventing or greatly limiting the potential for contact with contaminated soil.

2.7.19 ECA #C19: Storm Water Conveyance Modification Discolored Soil

ECA #C19 includes discolored soil left in-place at and in the vicinity of the Storm Water Conveyance Modification and Property Line Grading Project conducted between February and June 2016. The extent of ECA #C19 is shown on Figure 3e. Discolored soil was discovered during excavation activities required to construct an underground storm water conveyance pipeline. Discolored soil remains in-place at the northern base of the excavation area at a depth of approximately 10 feet and at the southern base of the excavation area at a depth of approximately 18 ft bgs. Confirmation samples collected from the base and sidewalls of the excavation reported concentrations of Aroclor-1260, arsenic, lead, and manganese above respective BCLs or Site-specific screening levels. In addition, discolored soil was also observed to the south of the former Outfall 002 headwall, including beneath the existing pipeline, at a depth of approximately 7 ft bgs and north of the project area at a depth of approximately 8 ft bgs. A summary of the analytical data for the discolored soil remaining in-place for ECA #C19 is provided in Table A-4. Further details concerning the discolored soil left in-place are included in the Ramboll Environ letter report, *Project Completion Report; Storm Water Conveyance Modification and Property Line Grading Project* dated February 9, 2017.

2.8 Description of ECAs in RZ-D

2.8.1 ECA #D1: NV Energy Transmission Line Towers

NV Energy prohibits excavating within 10 ft of the footings for the towers. Polygons RZ-D-01B, RZ-D-02, RZ-D-03, and RZ-D-12 and areas of discolored soil extend into these areas and therefore, portions of these areas cannot be excavated. An excavation extent sample (EE-D02-1) was collected from the discolored soil remaining in place under the utility pole and was analyzed for dioxins/furans, HCB, arsenic, and perchlorate. The results indicated that concentrations were above soil screening levels for dioxins/furans, HCB, and arsenic. This area is designated as ECA #D1, as shown on Figure 4. NV Energy will be notified of the presence of contaminated soil under and adjacent to their tower footings. The correspondence with NV Energy detailing the allowable excavation criteria is presented in Attachment A.

The southern boundary of the north-central segment of ECA #D1 was expanded slightly in 2018 to include a soil sample location (EE-D02-1) collected in 2011 which had concentrations exceeding the soil screening levels and was inadvertently left outside the original ECA boundary designated in 2011.

2.8.2 ECA #D2: Asphalt Pavement Area

Following excavation of polygon RZ-D-14, discolored soil was identified in the southern sidewall of the excavation, as well as to the west and southwest of the polygon excavation. Accessible discolored soil was removed; however, due to the obstruction of an asphalt paved area south of polygon RZ-D-14, discolored soil remains in place beneath the asphalt paved area. Discolored soil sample DS-D14-1 was collected within the southern sidewall of RZ-D-14 and was analyzed for dioxins/furans, HCB, and OCPs. Results indicated that concentrations of dioxins/furans, HCB, and OCPs were above soil screening levels. This area is designated as ECA #D2, as shown on Figure 4. The asphalt pavement provides an engineering control, preventing or greatly limiting the potential for contact with contaminated soil.

2.8.3 ECA #D3: GW-11 and WC Ponds and Berms

The GW-11 and WC ponds are actively used by the GWETS operator and Tronox. The berms around the ponds contain impacted soil, but this soil cannot be excavated because of the potential to compromise the integrity of the pond berms. Discolored soil samples DS-DB-1 and duplicate DS-DB-2 were collected from black discolored soil along the slope of and adjacent to the GW-11 Pond berm, and were analyzed for dioxins/furans, HCB, SVOCs/PAHs, arsenic, lead, cobalt, manganese, magnesium, and perchlorate. Results indicated concentrations of dioxins/furans, HCB, and magnesium were above soil screening levels. Following removal of soil to the south, three excavation extent samples (EE-D10-1, EE-DB-1, and EE-DB-2) were collect from the black discolored soil on the berm and analyzed for dioxins/furans, HCB, and magnesium. Concentrations of magnesium were above soil screening levels in the three samples. In addition, soils beneath the ponds remain uncharacterized. Therefore, this area has been designated as ECA #D3, as shown in Figure 4. The ponds are double-lined and impacted soil may have been removed from within the pond footprints during construction.

Northgate' s *Revised Engineering Evaluation of Slope Stability, WC and GW-11 Pond Embankments,* dated October 18, 2010, was approved by NDEP in their letter dated November 24, 2010. The revised slope stability evaluation proposed to extend excavation slopes below the ground surface at an inclination of 3:1 to design depths. The embankments and the area from the toe of the embankment to the toe of the adjacent excavation has been capped at the surface with concrete-treated aggregate and this engineering control prevents dust generation, acts as a surface marker, and greatly reduces the potential for contact with the contaminated soil.

In 2015, discoloration was observed in the road cut along the emergency egress route north of the GW-11 and WC Ponds. Therefore, the northern boundary of ECA #D3 has been extended to the Site boundary to include the berm to the north, as shown on Figure 4.

2.8.4 ECA #D4: Groundwater Treatment System Equalization Tanks and Associated Piping

Equalization tanks for the groundwater treatment system and associated influent and effluent pipelines, electrical and control lines for the equalization tanks, and water supply lines for the equalization tanks, Quonset hut, and chromium treatment plant are actively used by the GWETS operator and cannot be removed. Excavation polygons RZ-D-16, -16A, -17C, and -18 extend beneath the equalization tanks and associated utilities, and therefore portions of these excavation polygons cannot be excavated. Excavations have been partially performed in polygons RZ-D-16 and -16A; however, some contaminated soil remains below the pipelines. The depths to the utility lines range from 3 inches to 3 ft in these areas. The utilities include,

among others, two buried 8-inch effluent lines and two on-grade effluent lines. Approximately 1 foot of clean crushed limestone backfill material has been placed over the utilities in this area. These areas are designated as ECA # D4, and are shown on Figure 4.

The equalization tanks are on concrete pads and the pads provide an engineering control for this portion of ECA #D4. Additionally, portions of this ECA have been covered at the ground surface with concrete-treated aggregate or clean crushed limestone, which provide an engineering control for much of this ECA. These engineering controls prevent or mitigate the potential for contact with contaminated soil.

2.8.5 ECA #D5: Treatment Plant Chemical Storage Area

ECA #D5 includes soil beneath the entire Treatment Plant Chemical Storage Area. The extent of ECA #D5 is shown on Figure 4. Because of the Treatment Plant Chemical Storage Area obstruction, soils beneath the footprint of this area, including a portion of excavation polygon RZ-D-26, which extend under the footprint of the Treatment Plant Chemical Storage Area, cannot be excavated. The asphalt pavement within the Treatment Plant Chemical Storage Area provides an engineering control, preventing or greatly limiting the potential for contact with contaminated soil.

2.8.6 ECA #D6: Facility Roadway

Excavation of soils within a portion of excavation polygon RZ-D-26 is limited by the presence of an existing active facility roadway. Therefore, the portion of RZ-D-26 beneath the facility roadway is included in ECA #D6, as shown on Figure 4. Asphalt pavement for the facility roadway provides an engineering control for ECA #D6, preventing or greatly limiting the potential for contact with contaminated soil.

2.8.7 ECA #D7: Asphalt Pavement, Office Trailers, Cr Treatment Plant, Quonset Hut, and Utilities

Excavation of soils within excavation polygons RZ-D-17 and -28A is limited by the presence of asphalt pavement, office trailers, the chromium treatment plan, a Quonset hut, and various utilities. All of these facilities are in use and cannot be removed. Therefore, polygon RZ-D-28A and a portion of polygon RZ-D-17 are included in ECA #D7, as shown on Figure 4. Asphalt pavement and building foundations covers most of this area, providing an engineering control for ECA #D7, preventing or greatly limiting the potential for contact with contaminated soil.

2.8.8 ECA #D8: AP-5 Pond and Associated Utilities

The AP-5 Pond and associated subgrade and overhead utilities were used by the GWETS operator. Utilities in this area include groundwater treatment process water pipelines and electrical conduits and lines. Because of the pond and associated utilities obstruction, soils beneath the pond footprint and in the vicinity of the associated utilities, including within excavation polygons RZ-D-28 and -29, cannot be excavated. In addition, soils beneath the pond are uncharacterized. Therefore, this area has been designated as ECA #D8, as shown in Figure 4.

Excavation has been completed to 1.5 ft bgs in RZ-D-28 and to 0.5 ft bgs in RZ-D-29, below which several utilities were encountered. The original excavation depths of RZ-D-28 of 10 ft bgs and 1.5 ft bgs could not be reached due to the presence of the utilities. Clean crushed limestone backfill material was placed to the approximate original ground surface within each

of these polygons to cover impacted soils. The white colored crushed limestone provides a visual demarcation between the clean backfill material and impacted soils below. The clean crushed limestone material provides an engineering control in this portion of ECA #D8. The AP-5 Pond itself also provides an engineering control.

2.8.9 ECA #D9: Dioxin TEQ above Site-Specific BCL Approximately 9-10 Ft Deep

During excavation activities, discolored soils at a depth of approximately 9 to 10 ft bgs were encountered within portions of excavation polygons RZ-D-24, -25, and -25A. Discolored soils were removed, along with some additional deeper non-discolored soils. Following removal, confirmation soil samples were collected. Although the majority of chemical results for confirmation soil samples were below BCLs, the dioxin TEQ value in one confirmation sample (CS-D25A-2) was above the dioxin TEQ BCL. In addition, excavation extent samples EE-D25A-2 and duplicate EE-D25A-3 (located at the property boundary) were collected on August 3, 2011 and analyzed for dioxins/furans and arsenic. Results indicated that dioxins/furans and arsenic were above soil screening levels. The general area including these sample locations has been designated as ECA #D9, as shown on Figure 4. Approximately 10 ft of clean imported backfill material was placed in this area and orange snow fencing was used as a visual demarcation between the clean backfill material and impacted soils below. The clean backfill material provides an engineering control for ECA #D9, preventing or greatly limiting the potential for contact with contaminated soil.

2.8.10 ECA #D10: Groundwater Extraction Well and Related Piping

During excavation activities, discolored soils at an approximate depth of 1 to 3 ft bgs were discovered in the southwestern sidewall, near the southern end of excavation polygon RZ-D-25A. On May 18, 2011, excavation extent sample EE-D25A-1 was collected from the sidewall of the RZ-D-25A polygon excavation and analyzed for dioxins/furans and arsenic. Results indicated that the concentration of arsenic was above the soil screening level. Due to the presence of an existing active groundwater extraction well and related piping, the discolored soils cannot be excavated. Therefore, this area is designated as ECA #D10, as shown on Figure 4. Approximately 1 foot of native soils which are not discolored overlie the discolored soils. The native soils provide an engineering control for ECA #D10, limiting the potential for contact with contaminated soil.

2.9 Description of ECAs in RZ-E

2.9.1 ECA #E1: Portions of RZ-E-01 and RZ-E-03 Beneath 4th Street

Excavation of soils within the westernmost portions of excavation polygons RZ-E-01 and -03 is limited by the presence of an existing roadway (4th Street), which is in use and cannot be removed. Therefore, the western portions of RZ-E-01 and -03 beneath and adjacent to 4th Street are included in ECA #E1, as shown on Figure 5. Asphalt pavement for 4th Street provides a partial engineering control for ECA #E1, preventing or greatly limiting the potential for contact with contaminated soil.

2.9.2 ECA #E2: Tronox Process Water Lines

Excavation of soils is limited by the presence of Tronox's subsurface process water lines, which are generally less than 3 ft deep. The process water lines are in use and cannot be removed. Discolored soil was observed in the western sidewalls of RZ-E-13, -14, -14B, and at the bottom of the remediation polygon RZ-E-13. In addition, soil with white precipitate was observed in

the bottom of RZ-E-14B. Excavation within polygons was performed to within five ft of the Tronox process water pipelines in the area; further excavation toward the west in these polygons was limited by the presence of the pipelines. On June 2, 2011, excavation extent samples EE-E14B-1 and duplicate EE-E14B-2, EE-E14-1 were collected and analyzed for dioxins/furans, HCB, arsenic, and perchlorate. Results indicated concentrations of dioxins/furans, HCB, and arsenic were above soil screening levels. Therefore, soil in the vicinity of the process water lines, including portions of RZ-D-31A and RZ-E-12, -13, -14, -14B, -14C, -15, and -16, is designated as ECA #E2, as shown on Figure 5.

2.10 Definition of ECA Boundaries

The ECAs described herein were established based on survey data collected by Las Vegas Paving Corp., the remediation contractor who performed soil excavation activities at the Site during 2010 and 2011. Survey data collected prior to backfilling has been used to establish the key locations of the remaining contaminated soil so that these areas can be accurately identified in the future. ECA boundaries have been established to be inclusive of known remaining contaminated soils. Where possible, ECA boundaries have been established by defining rectangular areas defined by a minimum number of boundary coordinates (corners of the ECAs). Boundary coordinates of the ECAs are defined by horizontal and vertical coordinates (x,y), which are included on Table A-1 for each ECA.

2.11 Demarcation Fencing

In areas where an excavation has left contaminated soil in place, orange plastic fencing (or other demarcation) has been placed on the surface of the impacted soil and secured using pins or spikes prior to covering with clean soil. The fencing serves as a visible indicator during future excavation activities that contaminated soil is being encountered. A memorandum discussing the demarcation fencing was submitted by Tronox on December 15, 2010 and was approved by NDEP on December 16, 2010.

An area adjacent to the WC East and West Ponds was backfilled prior to placing the demarcation fencing. The fill placed in this area is white crushed limestone. The color difference between the white fill and the tan/brown on-site soil provides demarcation in lieu of fencing.

Demarcations are noted in the Comments column of Table A-1.

2.12 Additional Investigation for Unit Buildings, Leach Plant, and Ponds

This report presents the limits of ECAs with known contamination left in-place based on currently available data for the Unit Buildings, Tronox Leach Plant, and Tronox process ponds. Very limited data exists for these areas. When these operational structures and features are no longer active, further environmental investigation could be required to further delineate the extent of areas where chemicals exceed Site-specific soil screening levels. This further investigation may change the extent of ECAs pertaining to these structures and features.

2.13 Remediated ECA #E3: Facilities at East End of Beta Ditch

Excavation of soils within polygon RZ-E-16B on the east end of the Beta Ditch was limited by the presence of an existing sandbag diversion structure, drainage culverts, the facility perimeter fence line, and an elevated walkway structure. In addition, a layer of beige fibrous soil and debris was observed in an adjacent excavation sidewall and samples BD-1 through BD-

5 were collected for bulk asbestos analysis. Samples BD-3 through BD-5 indicated asbestos concentrations above soil screening levels. Therefore, polygon RZ-E-16B was designated as ECA #E3. A portion of the polygon was covered with clean imported soil.

In October 2013, concurrent with TIMET's excavation on their property line, the east end of the Beta Ditch (ECA #E3) was successfully remediated by excavation. The activities were detailed in the ENVIRON report, *Excavation of Beta Ditch at NERT-TIMET Property Line*, dated March 31, 2014. Confirmation sample results from the excavation are in Table A-3.

2.14 Annual Review and Update

This ECA Summary report will be reviewed at least annually, and updated at least every other year by the Trust in accordance with the SMP for the Site. Modifications to this report will be conducted to address any changes to each ECA, including additional characterization data and/or new limits, based on work conducted during the previous year. In addition, new ECAs will be added to this report if previously unknown contamination is found and left in-place. Any existing ECAs will be removed from this report if the ECA is excavated in its entirety and all appropriate confirmation and documentation procedures have been performed in accordance with the SMP. The updated ECA Summary report will be submitted to NDEP for review and approval.

TABLES

Table A-1. Summary of Excavation Control Areas (ECAs)
Nevada Environmental Response Trust Site
Henderson, Nevada

Remediation Zone	ECA #	ECA Area Description	ECA Boundary Coordinates	Rationale for Proposing ECA	Engineering Controls In Place	Sampling Locations Relevant to ECA	LOU Areas Relevant to ECA (See Attachments B through E)	Expected Depth(s) of Contamination	Characterization of Known Discolored Soil Left In-Place (Bold indicates results above soil screening levels)	Chemicals of Potential Concern (COPCs)	Minimum Required Analyses for Soils (See SMP Table 4 for Analytical Methods)	Comments
RZ-B	B1	Soils underlying Unit Buildings 1 through 6 including soil within 50 feet of Unit Buildings 1 through 6	NW Corner (826862.890; 26717277.788) NE Corner (829183.785; 26717653.684) SE Corner (829247.810; 26717229.230) SW Corner (826932.563; 26716848.751)	Unit Building 1: Remediation zone extends beneath the former Chlorination Building footprint. Unit Building 2: Remediation zone extends beneath the former Chlorination Building footprint. Unit Building 3: Remediation zone extends beneath a small portion of the former Chlorination Building footprint. Unit Building 4: Remediation zone extends beneath the electrical substation and basement portions of the building. Unit Building 5: Soils uncharacterized Unit Building 6: Soils uncharacterized Approx. 50 ft around all Unit Buildings: Soils generally uncharacterized	Concrete foundations for Unit Buildings 1 through 6	SSAQ3-02, SA03, RSAQ3, SA169, SSAR3-01, SA192, RSAR3, SA110, SA190, SA193, SSAQ3-01, SSAQ4-06, SA120, SSAQ4-07, SSAQ4-03, SA84W, SA84, SA156, SSAQ4-08, SSAR4-04, SA191, SA29, SA111, RSAR4, SSAQ5-01, SA32, RSAR7, SSAR6-04, SSAR7-05, SA33, EE-B21-1	Attachment C, LOUs II: 11, 12, 36, 43 Attachment D, LOUs III: 33, 37, 40, 44, 61 Attachment E, LOUs IV: 4, 25, 26, 27, 28, 41, 42, 65	Unknown	Discolored soil status not known Discolored soil status not known Discolored soil status not known Discolored soil status not known Discolored soil status not known Discolored soil status not known Discolored soil status not known	Asbestos, Metals (incl. arsenic, chromium, platimum, magnesium, manganese, boron), Hexavalent Chromium, Manganese Dioxide, VOCs, SVOCs/PAHs (incl. B(a)P & HCB), Dioxins/Furans, PCBs, OCPs, Perchlorate, Chlorate, Ammonia, Sodium Hexametaphosphate, Sodium Chloride, Acids, Caustics, Surfactants, Wet Chemistry	Asbestos, Arsenic, Chromium, Platimum, Magnesium, Manganese, Boron, Hexavalent Chromium, Manganese Dioxide, VOCs, B(a)P, HCB, Dioxins/Furans, PCBs, OCPs, Perchlorate, pH	Remediation polygon soil remains in place. Soils under Unit Buildings are as yet uncharacterized.
RZ-B	B2	Portions of Polygon RZ-B-04C/05/09/09A/11/12/13 Extending into Avenue G	<u>B2 East:</u> NW Corner (827622.135; 26717511.755) NE Corner (827887.559; 26717555.568) SE Corner (827889.536; 26717531.047) SW Corner (827629.192; 26717489.818) <u>B2 East Central:</u> NW Corner (827469.227; 26717506.675) NE Corner (827616.027; 26717521.781) SE Corner (827596.631; 26717484.871) SW Corner (827468.967; 26717462.725) <u>B2 West Central:</u> NE Corner (827422.984; 26717484.069) NW Corner (827361.622; 26717474.392) SE Corner (827426.283; 26717460.976) SW Corner (827364.921; 26717452.619) <u>B2 West:</u> NW Corner (827190.644; 26717457.781) NE Corner (827295.705; 26717473.640) SE Corner (827301.101; 26717445.001) SW Corner (827193.412; 26717427.198)	Existing roadway and utilities	Asphalt roadway	SA213, SSAQ4-09, SSAQ4-10, RSAQ5, SA204, SSAQ5-01, SA203, SA04	None	Within RZ-B-04C: <0.33' Within RZ-B-05: <5' Within RZ-B-09: <10' Within RZ-B-09A: <4' Within RZ-B-11: <12' Within RZ-B-12: <6' Within RZ-B-13: <0.33'	Discolored soil status not known	Asbestos, Arsenic, Dioxins/Furans, SVOCs/PAHs (incl. HCB & B(a)P)	Asbestos, Arsenic, Dioxins/Furans, HCB, B(a)P	Remediation polygon soil remains in place.
RZ-B	B3	Fire Hydrant	NW Corner (827642.763; 26717480.804) NE Corner (827662.992; 26717482.694) SE Corner (827664.740; 26717471.729) SW Corner (827656.989; 26717470.358)	Fire hydrant and water line	Asphalt pavement partially covers the area	RSAQ5, SA156, SSAQ5-05	Attachment E, LOUs IV: 4, 28	<3'	Discolored soil status not known	Metals (incl. arsenic), Hexavalent Chromium, Perchlorate, VOCs, SVOCs/PAHs (incl. B(a)P), OCPs (incl. DDT), Acids (muriatic/hydrochloric and sulfuric), Surfactants, Wet Chemistry	Arsenic, Hexavalent Chromium, Perchlorate, VOCs, B(a)P, DDT, pH	Remediation polygon soil remains in place.
RZ-B	B4	Former Hazardous Waste Storage Area	NW Corner (827478.747; 26717466.618) NE Corner (827607.794; 26717488.297) SE Corner (827630.208; 26717339.256) SW Corner (827501.950; 26717318.220)	Current Tronox Bulk Storage Area	High density polyethylene sheeting caps most of the area	SA203, SA04, SA148, SA84, SSAQ4-08, SSAR4-04, SA156	Attachment E, LOUs IV: 4, 28	10'	Discolored soil status not known	Asbestos, Metals (incl. arsenic), Hexavalent Chromium, Perchlorate, VOCs, SVOCs/PAHs (incl. B(a)P & HCB), Dioxins/Furans, OCPs (incl. DDT), Acids (muriatic/hydrochloric and sulfuric), Surfactants, Wet Chemistry	Asbestos, Arsenic, Hexavalent Chromium, Perchlorate, VOCs, B(a)P, HCB, Dioxins/Furans, DDT, pH	Remediation polygon soil remains in place.
RZ-B	B5	Sodium Chlorate Filter Cake Process Area Discolored soil is present	NW Corner (827931.237; 26717477.722) NE Corner (827994.454; 26717485.654) SE Corner (828003.092; 26717435.368) SW Corner (827938.467; 26717427.573)	A thick concrete slab used in a process operation in the sodium chlorate filter cake process area cannot be removed at this time.	Approximately 12 inch thick concrete slab underlain by 2 inches of sand and 20 mil membrane	SA05, SA136, SSAQ6-02	Attachment C, LOUs II: 11	<0.33'	SSAQ6-02 analyzed for dioxins, SVOCs, Arsenic, Manganese, Magnesium.	Asbestos, Metals (incl. arsenic), Hexavalent Chromium, SVOCs/PAHs (incl. B(a)P), Wet Chemistry	Asbestos, Arsenic, Hexavalent Chromium, B(a)P, pH	Remediation polygon soil remains in place, discolored soil is present.
RZ-B	B6	Soils beneath approximately 6 feet deep in polygons RZ-B-20 and RZ-B-21	<u>Going Clockwise</u> NW Corner (828359.077; 26717338.191) NE Corner (828463.555; 26717348.452) SE Corner (828480.431; 26717199.596) SW Corner (828387.761; 26717189.869) Intermediate Point (828384.825; 26717214.058) Intermediate Point (828370.891; 26717211.701)	Access for excavation of soils beneath 6 feet (and to surface east of Tronox water line) is limited by the presence of several subgrade utilities.	Asphalt pavement for 9th Street and a minimum of 6 feet of clean backfill material	SA32, SSAR6-04, RSAR7, EE-B21-1	Attachment C, LOUs II: 43	Unknown	Discolored soil status not known	Metals (incl. arsenic, manganese, boron), Hexavalent Chromium, SVOCs/ PAHs (incl. HCB & B(a)P), Perchlorate, Chlorate, Ammonia, Wet Chemistry	Arsenic, Manganese, Boron, Hexavalent Chromium, HCB, B(a)P, Perchlorate, pH	Remediation polygon soil remains in place.

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Remediation Zone	ECA #	ECA Area Description	ECA Boundary Coordinates	Rationale for Proposing ECA	Engineering Controls In Place	Sampling Locations Relevant to ECA	LOU Areas Relevant to ECA (See Attachments B through E)	Expected Depth(s) of Contamination	Characterization of Known Discolored Soil Left In-Place (Bold indicates results above soil screening levels)	Chemicals of Potential Concern (COPCs)	Minimum Required Analyses for Soils (See SMP Table 4 for Analytical Methods)	Comments
RZ-B	B7	Soils within polygon RZ-B-22	Going Clockwise NW Corner (828484.613; 26717219.587) Intermediate Point (828521.138; 26717225.519) Intermediate Point (828528.270; 26717182.443) Intermediate Point (828564.531; 26717188.065) Intermediate Point (828567.137; 26717170.406) NE Corner (828615.047; 26717178.512) SE Corner (828635.630; 26717043.726) SW Corner (828497.664; 26717103.533)	Access for excavation of soils within this area is limited by the presence of subgrade utilities, building foundation, asphalt roadway, and other surface features.	Asphalt pavement for Avenue H covers most of the area	SSAR7-05, SA33	Attachment D, LOUs III: 61	<2'	Discolored soil status not known	Metals (incl. arsenic, manganese, boron), Hexavalent chromium, Perchlorate, Chlorate, Ammonia, Wet Chemistry	Arsenic, Manganese, Boron, Hexavalent Chromium, Perchlorate, pH	Remediation polygon soil remains in place.
RZ-C	C1	Portion of RZ-C-01A beneath 4th Street	SW Corner (826329.027; 26718372.806) NW Corner (826322.564; 26718433.917) NE Corner (826357.898; 26718438.428) SE Corner (826362.701; 26718377.208)	Existing roadway	Asphalt pavement for 4th Street	SSAN2-03, SA56	Attachment B, LOUs I: 35	<4'	Discolored soil status not known	Metals (incl. arsenic, manganese), Hexavalent Chromium, SVOCs/PAHs, VOCs, OCPs, Perchlorate, Chlorate, Ammonia, Radionuclides, Wet Chemistry	Arsenic, Manganese, Hexavalent Chromium, SVOCs/PAHs, VOCs, OCPs, Perchlorate, pH	Remediation polygon soil remains in place.
RZ-C	C2	Portion of RZ-C-03/04/05A beneath 5th Street	SW Corner (826696.826; 26718022.888) NW Corner (826665.943; 26718261.256) NE Corner (826747.334; 26718275.799) E Corner (826766.587; 26718165.735) Inside Corner (826716.017; 26718157.534) SE Corner (826735.167; 26718027.515)	Existing roadway	Asphalt pavement for 5th Street	SA48, SSAO3-02, SSAO3-01	Attachment B, LOUs I: 35, 64	<5'	Discolored soil status not known	Metals (incl. arsenic), Hexavalent Chromium, SVOCs/PAHs (incl. HCB), VOCs, OCPs, Perchlorate, Chlorate, Ammonia, Radionuclides, Wet Chemistry	Arsenic, Hexavalent Chromium, HCB, VOCs, OCPs, Perchlorate, pH	Remediation polygon soil remains in place.
RZ-C	C3	Portion of RZ-C-06 beneath fire hydrant, water line, and Avenue F	SW Corner (826833.930; 26718020.812) NW Corner (826829.015; 26718055.815) NE Corner (826896.595; 26718067.560) SE Corner (826901.830; 26718033.768)	Existing roadway, hydrant, and utilities	Asphalt pavement for Avenue F covers part of the area and clean backfill material	SSAO3-03	None	<9'	Discolored soil status not known	Metals (incl. magnesium), Dioxins/Furans, HCB	Magnesium, Dioxins/Furans, HCB	Remediation polygon soil remains in place. Orange snow fencing was used to demarcate ECA boundaries prior to backfilling.
RZ-C	C4	Concrete foundation	NW Corner (826875.233; 26718179.671) NE Corner (827273.281; 26718243.329) SE Corner (827301.825; 26718120.235) SW Corner (826896.452; 26718061.866)	Concrete foundation	Concrete foundation	SSAO3-03, SSAO4-03	Attachment B, LOUs I: 64	<9'	Discolored soil status not known	Metals, Hexavalent Chromium, SVOCs, VOCs, OCPs, Perchlorate, Wet Chemistry	Metals, Hexavalent Chromium, SVOCs, VOCs, OCPs, Perchlorate, pH	Remediation polygon soil remains in place. Additional uncharacterized soil remains in place beneath remainder of foundation. Polygon and non-polygon soils are included in the ECA.
RZ-C	C5	Water, fiber optic, and electric utility lines through and near RZ-C-11/13 Discolored soil is present	NW Corner (827469.580; 26718306.970) NE Corner (827492.378; 26718310.645) Inside E (827507.518; 26718209.457) E Corner (827546.307; 26718216.120) SE Corner (827552.577; 26718178.526) SW Corner (827449.507; 26718161.005) W Corner (827444.791; 26718198.889) Inside W Corner (827484.784; 26718205.830)	Existing below and above ground utilities	Clean backfill material covers the northern portion	SA50, SSAO5-05, SSAO5-03, EE-C13-1	Attachment C, LOUs II: 45	<10'	EE-C13-1 analyzed for HCB, SVOCs/PAHs, Arsenic, Manganese.	Asbestos, Metals, SVOCs (incl. HCB), VOCs	Asbestos, Metals, HCB, VOCs	Remediation polygon soil remains in place, discolored soil is present.
RZ-C	C6	Discolored soil at former pump house yard Discolored soil is present	NW Corner (827658.421; 26718335.303) NE Corner (827753.703; 26718349.262) SE Corner (827777.141; 26718203.193) SW Corner (827680.717; 26718188.018)	Discolored soil from ground surface down to at least 10 feet; limited access due to facility security fencing and former pump house equipment and utilities.	Facility perimeter fencing	EE-C15-1, EE-C24-2	Attachment C, LOUs II: 45	Unknown	EE-C15-1 analyzed for HCB, SVOCs/PAHs, Arsenic, Manganese. EE-C15-2 analyzed for HCB, SVOCs/PAHs, Arsenic, Manganese.	Asbestos, Metals (incl. arsenic), SVOCs (incl. HCB), VOCs	Asbestos, Arsenic, HCB, VOCs	Discolored soil layer extends under facility security fencing and former pump house equipment and utilities.

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RZ-C	C7	Avenue F Utilities, Railroad line, and Roadway Discolored soil is present	NW Corner (827259.596; 26718129.560) North Edge (827972.111; 26718248.926) North Edge (827970.624; 26718259.709) NE Corner (828331.450; 26718323.872) SE Corner (828344.614; 26718244.392) Inside Corner (827546.209; 26718110.813) S Corner (827553.118; 26718061.680) SW Corner (827275.033; 26718015.647)	Existing fragile utilities (water and gas), railroad line, and Avenue F roadway	Asphalt pavement for Avenue F covers most of the area and clean backfill material	SSAO4-03, SSAO4-04, SSAO5-03, SSAP5-03, SA187, SA188, SA41, SA40, SSAO6-05, SA130, RSAP6, EE-C24-1, EE-C27-1, EE-C27-2, EE-C27-3, EE-C27-4, DS-C24-1, DS-C24-2	Attachment B, LOUs I: 64 Attachment C, LOUs II: 45 Attachment D, LOUs III: 34 (west)	Unknown	EE-C24-1 and EE-C24-2 analyzed for HCB, SVOCs/PAHs, Arsenic, Manganese. EE-C27-1 analyzed for Arsenic, Lead, Manganese, Perchlorate. EE-C27-2 analyzed for Arsenic, Lead, Manganese, Perchlorate. EE-C27-3 analyzed for Arsenic, Lead, Manganese, Perchlorate. EE-C27-4 analyzed for Arsenic, Lead, Manganese, Perchlorate. DS-C24-1 and DS-C24-2 analyzed for HCB, SVOCs/PAHs, arsenic, manganese.	Asbestos, Metals (incl. arsenic, manganese, lead, chromium), Heavy Metal Sulfides, Hexavalent Chromium, Dioxins/Furans, SVOCs/PAHs (incl. HCB & B(a)P), VOCs, OCPs, Perchlorate, Wet Chemistry	Asbestos, Arsenic, Manganese, Lead, Chromium, Sulfide, Sulfate, Hexavalent Chromium, Dioxins/Furans, HCB, B(a)P, VOCs, OCPs, Perchlorate, pH	Remediation polygon soil remains in place and uncharacterized discolored soil extending under Avenue F. Orange snow fencing was placed as a demarcation between clean backfill material and impacted soils below.
RZ-C	C8	9th Street Utilities and Roadway Discolored soil is present	NW Corner (828211.375; 26718503.458) NE Corner (828319.022; 26718523.165) SE Corner (828354.059; 26718328.030) SW Corner (828214.257; 26718303.875) W Corner (828207.564; 26718341.245) Inside Corner (828235.173; 26718346.171)	Existing utilities and roadway	Asphalt pavement for 9th Street covers most of the area	SA51, SSAO6-03, SSAO7-09, SSAO7-08	Attachment C, LOUs II: 14 Attachment D, LOUs III: 24, 34 (west)	<8'	Discolored soil is present but uncharacterized	Asbestos, Metals (incl. arsenic, chromium, boron, manganese), Heavy Metal Sulfides, Hexavalent Chromium, Perchlorate, Chlorate, Ammonia, Sodium hexametaphosphates, Sulfuric Acid, Wet Chemistry,	Asbestos, Arsenic, Chromium, Boron, Manganese, Sulfide, Sulfate, Hexavalent Chromium, Perchlorate, pH	Remediation polygon soil remains in place and uncharacterized discolored soil extending under Avenue F.
RZ-C	C9	Diesel Tank and Pipelines Discolored soil is present	NE Corner (827624.863; 26718665.892) NW Corner (827648.964; 26718669.389) Intermediate Point (827667.309; 26718549.556) Intermediate Point (827680.695; 26718551.787) Intermediate Point (827686.272; 26718514.604) Intermediate Point (827675.654; 26718512.765) Intermediate Point (827701.305; 26718349.394) E Corner (827910.196; 26718379.775) Intermediate Point (828026.840; 26718325.402) SE Corner (828034.139; 26718290.482) SW Corner (827965.535; 26718278.026) Intermediate Point (827959.586; 26718315.023) Intermediate Point (827893.672; 26718367.748) W Corner (827674.173; 26718338.738)	Existing diesel tank and pipelines to Steam Plant	Concrete tank containment structure covers most of the area beneath the tank	SSAO6-05, SA130, SA39, SSAO6-02, SSAO6-03, SA43, DS-C19-1, DS-C23-1, EE-C23-1, EE-C20-1	Attachment C, LOUs II: 7, 8, 9, 13, 45 Attachment D, LOUs III: 34	<7'	DS-C19-1 analyzed for Dioxins/Furans, HCB, SVOCs/PAHs, Arsenic, Lead, Cobalt, Manganese, Magnesium, Perchlorate. DS-C23-1 analyzed for Dioxins/Furans, SVOCs/PAHs, Arsenic, Lead, , Cobalt, Manganese, Magnesium, Perchlorate. EE-C23-1 analyzed for Arsenic, Lead, Manganese, Perchlorate. EE-C20-1 analyzed for Arsenic, Lead, Manganese, Perchlorate. DS-C10-1 analyzed for Dioxins/Furans, HCB, Arsenic, Lead, Cobalt, Manganese, Magnesium, Perchlorate.	Asbestos, Metals (incl. arsenic, boron, manganese, lead, chromium), Heavy Metal Sulfides, Manganese Sulfate, Manganese Dioxide, Hexavalent Chromium, Perchlorate, Chlorate, VOCs, SVOCs/PAHs (incl. B(a)P), Chloride, Ammonia, Sulfuric acid, Sodium Hexametaphosphates, Wet Chemistry	Asbestos, Arsenic, Boron, Manganese, Lead, Chromium, Sulfide, Sulfate, Hexavalent Chromium, Perchlorate, VOCs, B(a)P, Chloride, pH	Remediation polygon soil remains in place and discolored soil (about 4' thick) extends under the Diesel tank and pipelines.
RZ-C	C10	Areas with Discolored Soil	NW Corner (827708.254; 26718549.044) NE Corner (827838.504; 26718569.050) SE Corner (827854.408; 26718471.807) SW Corner (827836.374; 26718468.832) Inside Corner (827831.912; 26718499.509) W Corner (827717.096; 26718484.154)	Several areas with discolored soil	Six inches to one foot of clean backfill was placed in the northern portion and approximately three feet of clean backfill was placed in the southern portion	SA114, SA102, SSAO6-01, SSAO6-06, SSAO5-09, EE-C18-1, DS-C10-1, DS-C17-01	Attachment C, LOUs II: 7, 9	Unknown	EE-C18-1 analyzed for Dioxins/Furans, HCB, SVOCs/PAHs, Arsenic, Manganese, Magnesium. DS-C17-1 analyzed for Dioxins/Furans, HCB, Arsenic, Magnesium, Perchlorate.	Asbestos, Metals (incl. arsenic, magnesium), Hexavalent Chromium, Dioxins/Furans, HCB, Perchlorate, Chlorate, Chloride, Ammonia, Wet Chemistry	Asbestos, Arsenic, Magnesium, Hexavalent Chromium, Dioxins/Furans, HCB, Perchlorate, Chloride, pH	Discolored soil remains in place.
RZ-C	C11	Natural Gas Pipeline Discolored soil is present	E Corner (828219.836; 26718447.034) SE Corner (828223.141; 26718425.219) SW Corner (827867.950; 26718362.776) NW Corner (827819.703; 26718678.488) NE Corner (827848.890; 26718683.466) Inside Corner (827895.840; 26718390.576)	Existing natural gas pipeline to Steam Plant	None currently	SSAN6-06, SSAO6-01, SSAO6-02, SSAO6-03, SA51, SA43, EE-C20-1, EE-C21-1, EE-C21-2	Attachment C, LOUs II: 13, 14 Attachment D, LOUs III: 34	>5'	EE-C20-1 analyzed for Arsenic, Lead, Manganese, Perchlorate. EE-C21-1 and duplicate EE-C21-2 analyzed for SVOCs/PAHs, Arsenic, Manganese, Perchlorate.	Asbestos, Metals (incl. arsenic, boron, chromium, lead, manganese), Heavy Metal Sulfates, Manganese Sulfate, Manganese Dioxide, Hexavalent Chromium, Dioxins/Furans, Perchlorate, Chlorate, SVOCs/PAHs (incl. B(a)P), Sulfuric Acid, Ammonia, Sodium Hexametaphosphates, Wet Chemistry	Asbestos, Arsenic, Boron, Chromium, Lead, Manganese, Sulfate, Sulfide, Hexavalent Chromium, Dioxins/Furans, Perchlorate, B(a)P, pH	Remediation polygon soil remains in place and discolored soil (about 4' thick) extends under the natura l gas pipelines.
RZ-C	C12	Steam Plant and Associated Features	NW Corner (827705.254; 26718752.860) NE Corner (828091.530; 26718815.721) SE Corner (828108.717; 26718714.581) SW Corner (827720.272; 26718650.047)	Existing Steam Plant, pipe-racks, piping south of Plant, power pole & vault, and transformer pad	Existing Steam Plant building foundation and associated features cover most of the area	SSAN6-06, SSAN6-08	None	<2'	Discolored soil status not known	Dioxins/Furans	Dioxins/Furans	Remediation polygon soil remains in place.

Table A-1. Summary of Excavation Control Areas (ECAs)
Nevada Environmental Response Trust Site
Henderson, Nevada

Remediation Zone	ECA #	ECA Area Description	ECA Boundary Coordinates	Rationale for Proposing ECA	Engineering Controls In Place	Sampling Locations Relevant to ECA	LOU Areas Relevant to ECA (See Attachments B through E)	Expected Depth(s) of Contamination	Characterization of Known Discolored Soil Left In-Place (Bold indicates results above soil screening levels)	Chemicals of Potential Concern (COPCs)	Minimum Required Analyses for Soils (See SMP Table 4 for Analytical Methods)	Comments
RZ-C	C13	Steam Line Discolored soil is present	Going Clockwise NW Corner (828255.541; 26718761.080) NE Corner (828280.131; 26718765.670) Intermediate Point (828303.738; 26718638.785) Intermediate Point (828322.523; 26718641.041) Intermediate Point (828326.215; 26718617.325) Intermediate Point (828304.553; 26718613.586) SE Corner (828307.900; 26718592.764) SW Corner (828287.198; 26718589.169)	Active Steam Line for facility process support	None currently	SA137, EE-14A-1	Attachment D, LOUs III: 24	<10'	EE-14A-1 analyzed for Dioxins/Furans, HCB, Arsenic, Magnesium, VOCs	Metals (incl. arsenic, cobalt, manganese), trace Heavy Metal Sulfides, HCB, Wet Chemistry	Arsenic, Cobalt, Manganese, Sufide, Sulfate, HCB, pH	Remediation polygon soil remains in place, discolored soil is present.
RZ-C	C14	Process Road	Going Clockwise NW Corner (827265.616; 26718875.892) Intermediate Point (827679.456; 26718941.163) Intermediate Point (827683.232; 26718911.882) Intermediate Point (828064.216; 26718971.523) Intermediate Point (828164.271; 26719032.921) Intermediate Point (828227.448; 26719107.865) NE Corner (828309.091; 26719211.824) SE Corner (828329.527; 26719194.662) Intermediate Point (828224.920; 26719043.285) Intermediate Point (828239.240; 26718932.476) Intermediate Point (828114.219; 26718972.406) Intermediate Point (828090.793; 26718953.318) Intermediate Point (828096.234; 26718882.947) Intermediate Point (828047.965; 26718920.837) Intermediate Point (827812.093; 26718877.064) Intermediate Point (827820.727; 26718823.723) Intermediate Point (827762.221; 26718813.824) Intermediate Point (827752.018; 26718880.149) SW Corner (827274.357; 26718804.939)	Existing process roadway	Process road is partially paved with asphalt and covered with approximately 3 inches of clean crushed limestone backfill material	SSAN5-02, SA60, SSAN6-02, SSAN6-01, SA49, SSAM7-03, SA58, SSAN5-05, SA196, SA105, SA150, RSAN6, SA63, SSAN5-03, SA94, SA15	Attachment C, LOUs II: 53, 57	<4'	Discolored soil status not known	Asbestos, Metals (incl. arsenic, chromium, iron), Hexavalent Chromium, Dioxins/Furans, HCB, Perchlorate, Ammonium Perchlorate, Chlorate, Ammonia, Caustics (Sodium hydroxide), Sodium chloride, Sodium hypochlorite, Wet Chemistry	Asbestos, Arsenic, Chromium, Iron, Hexavalent Chromium, Dioxins/Furans, HCB, Perchlorate, pH	Remediation polygon soil remains in place.
RZ-C	C15	Steam Plant Roadway	NW Corner (828012.014; 26718821.250) NE Corner (828076.378; 26718839.675) SE Corner (828088.906; 26718796.193) SW Corner (828024.297; 26718778.259)	Existing Steam Plant roadway	Steam Plant asphalt roadway covers most of the area	RSAN6	None	<1'	Discolored soil status not known	Arsenic	Arsenic	Remediation polygon soil remains in place.
RZ-C	C16	BT Tanks Discolored soil is present	NW Corner (827516.302; 26719183.981) NE Corner (827744.777; 26719214.138) SE Corner (827764.785; 26719113.985) Intermediate Point (827557.681; 26719089.532) SW Corner (827526.210; 26719105.922)	BT Tanks and containment structure in use by Veolia	Tanks and concrete containment structure cover most of the area	RSAM5, SSAM5-05, SA104, SSAM6-06, SSAM6-02, SSAM6-05, SSAM5-04, EE-E08A-1, EE-E08A-2, EE-E09-1, CS-C30-1	Attachment C, LOUs II: 5, 57	Unknown	EE-E08A-1 and EE-E08A-2 analyzed for Dioxins/Furans, HCB, Arsenic, Lead, OCPs, Perchlorate. EE-E09-1 analyzed for Dioxins/Furans, HCB, Arsenic, Lead, OCPs, Perchlorate. CS-C30-1 analyzed for Dioxins/Furans and Perchlorate.	Asbestos, Metals (incl. chromium, iron), Hexavalent Chromium, Cyanide, Dioxins/Furans, OCPs, Perchlorate, Ammonium Perchlorate, Ammonia, Sodium Chloride, Sodium Hypochlorite, Sulfates, Carbonates, Phosphates, Chloride, Sulfide, Wet Chemistry	Asbestos, Chromium, Iron, Hexavalent Chromium, Cyanide, Dioxins/Furans, OCPs, Perchlorate, Chloride, pH	Remediation polygon soil remains in place, discolored soil is present.
RZ-C	C17	MN-1 Pond	NW Corner (828530.933; 26719146.567) NE Corner (828867.348; 26719208.835) SE Corner (828926.841; 26718866.75) SW Corner (828583.760; 26718798.21)	Existing MN-1 Pond currently in use. Berm north of MN-2 Pond.	MN-1 pond and pond liner cover most of the area. MN-2 Pond berm covered with fill.	SKTMn-2-1, SKTMn-2-2, SKTMn-2-3, SKTMn-2-4 (SKTMn-2-Comp)	Attachment C, LOUs II: 20 Attachment D, LOUs III: 21	Unknown	Discolored soil status not known for area under MN-1. MN-2 berm analyzed for Metals, Arsenic, VOCs, SVOCs, PAHs, Dioxins/Furans, PCBs, Inorganic Anions, Sulfide, Asbestos, and OCPs.	Metals (incl. arsenic, manganese, magnesium, boron), Hexavalent Chromium, Perchlorate, Chlorate, Borates, Boron Trichloride, Sodium, Calcium, Phosphates, Sulfates, Carbonates, Potassium, Potassium Phosphate, Potassium Oxide, Sodium Hexametaphosphate, Wet Chemistry	Manganese, Magnesium, Boron, Hexavalent Chromium, Perchlorate, Phosphates, Sulfates, pH	Uncharacterized soil under existing MN-1 Pond. Discolored soil south of MN-1 was discovered during the construction of Tronox's Waste Water Pond MN-2. Soil remains in place and covered by fill to construct the MN-2 berm.
RZ-C	C18	Leach Plant Equipment and Facilities	SW Corner (828420.523; 26717708.494) NW Corner (828337.943; 26718284.217) NE Corner (829068.998; 26718411.494) SE Corner (829154.957; 26717819.112)	Existing Leach Plant Equipment and Facilities	Asphalt pavement covers portions of the area	SSAO8-02	Attachment D, LOUs III: 24, 34 (east), 47, 48, 49, 50, 51	Unknown	Discolored soil status not known	Asbestos, Metals (incl. manganese), trace Heavy Metal Sulfides, Manganese Sulfate, Manganese Dioxide, Sulfuric Acid, Acid Solutions, Wet Chemistry	Asbestos, Manganese, Sulfide, Sulfate, pH	Remediation polygon soil remains in place.
RZ-C	C19	Storm Water Conveyance Modification Project Discolored soil is present	NW Corner (828900.842; 26719202.056) NE Corner (828925.537; 26719206.245) SE Corner (828939.638; 26719120.882) SW Corner (828915.296; 26719117.050)	Discolored soil left in place north of the headwall at base and northern sidewall of excavation. Discolored soil left in place south of the headwall, including beneath existing storm water pipeline.	Clean backfill covers the discolored soil.	Base01, Base02, North, South, West01, West02, TR-Sidewall, TR-Base	Attachment D, LOUs III: 59	>8' >7'	Confirmation samples analyzed for PAHs, SVOCs, TPH, PCBs, Perchlorate, Dioxins/Furans, and Metals. Characterization samples of excavated discolored soil collected prior to confirmation samples were also analyzed for Organochlorine Herbicides, Organochlorine Pesticides, VOCs, Cyanide, Platinum, Inorganic Anions, Asbestos, pH, and Ignitability.	Ammonia, Asbestos, Chlorate, Chlorides, Metals (inc. boron, chromium, magnesium, manganese, platinum, tungsten), Hexavalent Chromium, Organochlorine Pesticides, PCBs, Perchlorate, SVOCs, TPH-DRO/ORO, VOCs, Wet Chemistry	Asbestos, Metals (inc. Platinum), Hexavalent Chromium, Organochlorine Pesticides, PCBs, Perchlorate, SVOCs, VOCs	Discolored soil is present or suspected to be present within ECA boundary.

Table A-1. Summary of Excavation Control Areas (ECAs)
Nevada Environmental Response Trust Site
Henderson, Nevada

Remediation Zone	ECA #	ECA Area Description	ECA Boundary Coordinates	Rationale for Proposing ECA	Engineering Controls In Place	Sampling Locations Relevant to ECA	LOU Areas Relevant to ECA (See Attachments B through E)	Expected Depth(s) of Contamination	Characterization of Known Discolored Soil Left In-Place (Bold indicates results above soil screening levels)	Chemicals of Potential Concern (COPCs)	Minimum Required Analyses for Soils (See SMP Table 4 for Analytical Methods)	Comments
RZ-D	D1	NV Energy Transmission Line Towers Discolored soil is present	Northern D1 NE Corner (826220.879; 26720878.355) SE Corner (826220.879; 26720837.832) SW Corner (826166.565; 26720837.832) NW Corner (826166.777; 26720878.991) North Central D1 NE Corner (826225.830; 26720445.908) SE Corner (826232.913; 26720403.015) SW Corner (826194.687; 26720399.569) NW Corner (826190.742; 26720439.532) South Central D1 NE Corner (826244.702; 26720022.402) SE Corner (826251.203; 26719978.146) SW Corner (826215.763; 26719972.036) NW Corner (826209.670; 26720016.563) Southern D1 NE Corner (826265.047; 26719595.557) SE Corner (826275.367; 26719546.810) SW Corner (826225.669; 26719535.947) NW Corner (826217.251; 26719585.508)	Existing NV Energy Transmission Line Towers. Excavation can not be performed within 10 ft of towers. Must slope excavation away from towers.	None currently	RSAI3, SSAI3-06, SSAJ2-02, SSAI3-02-SW-E, RSAL2, SSAJ2-07, EE-D02-1	Attachment B, LOUs I: 1, 2	<16'	EE-D02-1 analyzed for Dioxins/Furans, HCB, Arsenic, Perchlorate.	Asbestos, Metals (incl. Arsenic), Hexavalent Chromium, Dioxins/Furans, VOCs, SVOCs/PAHs (incl. HCB), OCPs (incl. DDT), Perchlorate, Chlorate, Ammonia, Acids (muriatic/hydrochloric), Surfactants, Sodium Hydroxide, Wet Chemistry	Asbestos, Arsenic, Hexavalent Chromium, Dioxins/Furans, VOCs, HCB, DDT, Perchlorate, pH	Remediation polygon soil remains in place, discolored soil is present.
RZ-D	D2	Asphalt Pavement Area Discolored soil is present	NE Corner (826504.378; 26719487.850) SE Corner (826523.593; 26719369.813) SW Corner (826411.732; 26719351.627) NW Corner (826395.262; 26719473.782)	Discolored soil beneath asphalt pavement	Asphalt pavement partially covers the area	SSAL3-05, DS-D14-1	Attachment B, LOUs I: 2	<3'	DS-D14-1 analyzed for Dioxins/Furans, HCB, OCPs.	Metals, Hexavalent Chromium, Dioxins/Furans, VOCs, SVOCs (incl. HCB), OCPs (incl. 4,4'-DDE), Hydrochloric acid, Sodium Hydroxide, Wet Chemistry	Metals, Hexavalent Chromium, Dioxins/Furans, VOCs, HCB, 4,4'-DDE, pH	Discolored gray layer (6" to 3' thick) remains about 6" below ground surface.
RZ-D	D3	GW-11 and WC Ponds and Berms Discolored soil is present	NW Corner (826463.220 ; 26720950.66) NE Corner (828372.105 ; 26720797.52) (828374.5768 ; 26720765.32) Upper SE Corner (828338.0903 ; 26720280.66) (827526.5946 ; 26720370.77) (827383.7812 ; 26720208.12) Lower SE Corner (827406.5469 ; 26719940.18) SW Corner (826474.5376 ; 26719790.15)	Existing GW-11 and WC ponds and berms; soils uncharacterized; discolored soil in berm on west side of GW-11	Cement treated aggregate covers the portions of the berms where discolored soil was observed and within and adjacent to previously defined remediation polygons; ponds and pond liners cover most of the area	BERM-K3-01, RSAK3, SSAK3-01, SSAK3-04, SSAK3-08, SSAJ3-04, BERM-I4-01, RSAI7, RSAJ8, BERM-J8-01, SSAK8-01, SSAK8-04, RSAK7, SSAK7-02, BERM-J7-01, BERM-J7-02, RSAJ7, SA127, BERM-J6-01, RSAJ6, SSAJ6-01, SSAJ6-02, RSAJ5, BERM-K5-01, RSAK5, SSAK5-04, BERM-K4-01, RSAK4, SSAK4-01, SSAK4-02, SSAK4-03, RSA14, RSA15, SA23, SA134, SA88, SA202, DS-DB-1, DS-DB-2, EE-DB-1, EE-DB-2, EE-D10-1	Attachment B, LOUs I: 1, 22, 23, 32	Unknown	DS-DB-1 and DS-DB-2 analyzed for Dioxins/Furans, HCB, SVOCs/PAHs, Arsenic, Lead, Cobalt, Manganese, Magnesium, Perchlorate. EE-DB-1, EE-DB-2, and EE-D10-1 analyzed for Dioxins/Furans, HCB, Magnesium	Asbestos, Metals (incl. arsenic, boron, chromium, iron, magnesium, manganese), Manganese Dioxide, Iron Oxide, Hexavalent Chromium, Dioxins/Furans, VOCs, SVOCs (incl. HCB), OCPs (incl. DDT and Beta-BHC), Perchlorate, Chlorate, Ammonia, Acids (muriatic/hydrochloric), Surfactants, Sodium Hexametaphosphate, Sodium Hydroxide, Hypochlorite, Wet Chemistry	Asbestos, Arsenic, Boron, Chromium, Magnesium, Manganese, Iron, Iron Oxide, Hexavalent Chromium, Dioxins/Furans, VOCs, HCB, DDT, Beta-BHC, Perchlorate, pH	GW-11 and WC ponds and berms; discolored soil in berm on west side of GW-11.
RZ-D	D4	Groundwater Treatment System Equalization Tanks & Associated Piping	Northern D4 NE Corner (827440.425; 26720302.615) SE Corner (827442.031; 26720215.212) SW Corner (827381.495; 26720215.575) NW Corner (827380.140; 26720301.599) Southern D4 NE Corner (827456.181; 26720083.735) SE Corner (827391.283; 26719877.025) SW Corner (827320.703; 26719877.025) NW Corner (827386.745; 26720109.654)	Existing treatment system equalization tanks and associated piping	Concrete containment structure covers soils beneath the tanks; approximately 1 foot of clean crushed limestone backfill material covers the area with utilities.	RSAK5, SSAK5-04, SSAK5-05, SSAK6-02	Attachment B, LOUs I: 1, 32	<9'	Discolored soil status not known	Asbestos, Metals (incl. chromium, iron), Iron Oxide, Hexavalent Chromium, Dioxins/Furans, VOCs, SVOCs (incl. HCB), OCPs (incl. DDT), Perchlorate, Chlorate, Ammonia, Surfactants, Acids (muriatic/hydrochloric), Sodium Hydroxide, Wet Chemistry	Asbestos, Chromium, Iron, Iron Oxide, Hexavalent Chromium, Dioxins/Furans, VOCs, HCB, DDT, Perchlorate, pH	Remediation polygon soil remains in place. Orange snow fencing was used to demarcate ECA boundaries prior to backfilling.
RZ-D	D5	Treatment Plant Chemical Storage Area	NE Corner (827187.632; 26719531.503) SE Corner (827193.389; 26719486.797) SW Corner (826998.312; 26719453.946) NW Corner (826992.893; 26719498.312)	Asphalt paved chemical storage area	Asphalt pavement covers the area	SA189, SA19, SA173, SA179	None	Unknown	Discolored soil status not known	Asbestos, Perchlorate	Asbestos, Perchlorate	Remediation polygon soil remains in place.
RZ-D	D6	Facility Roadway	NE Corner (827377.528; 26719603.239) SE Corner (827381.482; 26719523.163) SW Corner (827206.084; 26719509.769) NW Corner (827202.359; 26719587.326)	Existing roadway	Asphalt pavement covers the area	SA189, SA19, SA173, SA179	Attachment B, LOUs I: 58 Attachment C, LOUs II: 30, 56	Unknown	Discolored soil status not known	Asbestos, Metals, Hexavalent Chromium, Perchlorate, Ammonium Perchlorate, Chlorate, Ammonia, Wet Chemistry	Asbestos, Metals, Hexavalent Chromium, Perchlorate, pH	Remediation polygon soil remains in place.
RZ-D	D7	Asphalt Pavement, Office Trailers, Cr Treatment Plant, Quonset Hut, and Utilities	SW Corner (827500.140; 26719576.911) NW Corner (827449.416; 26719975.180) NE Corner (827532.569; 26719987.895) Inner corner (827558.985; 26719796.882) E Corner (827703.092; 26719817.287) SE Corner (827730.440; 26719608.070)	Existing paved area, office trailers, and treatment plant facilities	Asphalt pavement and facility structures cover most of the area	SSAK5-04, SSAL6-01	Attachment B, LOUs I: 32 Attachment C, LOUs II: 31, 55	<0.33'	Discolored soil status not known	Asbestos, Metals (incl. chromium, iron), Iron Oxide, Hexavalent Chromium, Dioxins/Furans, VOCs, SVOCs, Perchlorate, Ammonium Perchlorate, Crystalline Perchlorate, Crystalline Chlorate, Chlorate, Hydrogen Chloride, Wet Chemistry	Asbestos, Chromium, Iron, Iron Oxide, Hexavalent Chromium, Dioxins/Furans, VOCs, SVOCs, Perchlorate, Chloride, pH	Remediation polygon soil remains in place.

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Nevada Environmental Response Trust Site
Henderson, Nevada

Remediation Zone	ECA #	ECA Area Description	ECA Boundary Coordinates	Rationale for Proposing ECA	Engineering Controls In Place	Sampling Locations Relevant to ECA	LOU Areas Relevant to ECA (See Attachments B through E)	Expected Depth(s) of Contamination	Characterization of Known Discolored Soil Left In-Place (Bold indicates results above soil screening levels)	Chemicals of Potential Concern (COPCs)	Minimum Required Analyses for Soils (See SMP Table 4 for Analytical Methods)	Comments
RZ-D	D8	AP-5 Pond and Associated Utilities Discolored soil is present	SE Corner (827771.063; 26719275.097) SW Corner (827336.478; 26719203.149) NW Corner (827291.450; 26719572.921) NE Corner (827720.111; 26719632.200)	Existing pond and existing subgrade and overhead utilities related to AP-5 pond; soils beneath pond uncharacterized	Pond and pond liner, and clean crushed limestone backfill material cover most of the area	SSAL5-05, SA72, SSAM5-01, SA179	Attachment B, LOUs I: 58 Attachment C, LOUs II: 19, 30, 31, 55, 56, 57	Unknown	Discolored soil is present but was not sampled	Asbestos, Metals, Hexavalent Chromium, Dioxins/Furans, SVOCs, Perchlorate, Ammonium Perchlorate, Crystalline Perchlorate, Crystalline Chlorate, Chlorate, Ammonia, Hydrogen Chloride, Sodium Chloride, Sodium Hypochlorite, Wet Chemistry	Asbestos, Metals, Hexavalent Chromium, Dioxins/Furans, SVOCs, Perchlorate, Chloride, pH	Remediation polygon soil remains in place; AP-5 Pond and berm soils. Crushed limestone used to demarcate ECA boundaries prior to backfilling.
RZ-D	D9	Dioxin TEQ above Site-Specific BCL approximately 9-10 feet deep Discolored soil is present at property boundary	NW Corner (828709.587; 26720108.132) NE Corner (828730.167; 26720119.572) SE Corner (828781.298; 26720032.585) SW Corner (828761.143; 26720022.189)	Dioxin TEQ above Site-Specific BCL approximately 9-10 feet deep	Approximately 9-10 feet of clean backfill material covers the area	CS-D25A-2, EE-D25A-2, EE-D25A-3	None	9'-10'	EE-D25A-2 and EE-D25A-3 (located at property boundary) analyzed for Dioxins/Furans and Arsenic.	Arsenic, Dioxins/Furans	Arsenic, Dioxins/Furans	Soil with Dioxin TEQ > BCL remains at depth of 9-10 ft, discolored soil is present. Orange snow fencing was used to demarcate ECA boundaries prior to backfilling.
RZ-D	D10	Groundwater Extraction Well and Related Piping Discolored soil is present	SW Corner (828793.960; 26719855.820) NW Corner (828762.991; 26719899.313) NE Corner (828782.182; 26719912.918) SE Corner (828813.277; 26719870.146)	Existing groundwater extraction well and related piping, with discolored soil observed in southwest sidewall of polygon RZ-D-25A	Approximately 1 foot of native soils overlie the discolored soils	SSAL8-03, EE-D25A-1	None	<3'	EE-D25A-1 analyzed for Dioxins/Furans and Arsenic.	Arsenic	Arsenic	Discolored soil layer with debris near groundwater extraction well.
RZ-E	E1	Portions of RZ-E-01 and RZ-E-03 beneath 4th Street and Facility Roadway	NE corner (826277.519; 26718907.439) SE corner (826285.239; 26718864.891) SW corner (826257.274; 26718860.087) NW corner (826251.012; 26718901.434)	Existing roadways	Asphalt pavement for 4th Street and clean crushed limestone for facility roadway	SSAM2-01, BDT-1-N-15, BDT-1-N-10	Attachment C, LOUs II: 5	<8'	Discolored soil status not known	Metals, Hexavalent Chromium, Cyanide, Dioxins/Furans, HCB, OCPs (incl. 4,4-DDE, 4,4-DDT, aldrin, alpha-BHC, dieldrin), Perchlorate, Chlorate, Ammonia, Sulfates, Carbonates, Phosphates, Chloride, Sulfide, Wet Chemistry	Metals, Hexavalent Chromium, Cyanide, Dioxins/Furans, HCB, 4,4-DDE, 4,4-DDT, Aldrin, alpha-BHC, Dieldrin, Perchlorate, Sulfate, Phosphate, Chloride, Sulfide, pH	Remediation polygon soil remains in place.
RZ-E	E2	Tronox Process Water Lines Discolored soil is present	<u>Going Clockwise</u> NW Point (828401.614; 26719519.207) NE Point (828427.851; 26719523.773) E Point (828465.906; 26719292.072) S Point (828232.379; 26718985.521) SW Point (828225.192; 26719038.434) Inside corner (828428.217; 26719333.712)	Existing process water lines	None currently	SA107, SSAN7-04, SSAM7-07, SSAM7-06, SA155, SA86, EE-E14B-1, EE-E14B-2, EE-E14-1, EE-E14C-1	Attachment C, LOUs II: 5	<9'	EE-E14B-1, EE-E14B-2, EE-E14-1 analyzed for Dioxins/Furans, HCB, Arsenic, Perchlorate. EE-E14C-1 analyzed for Dioxins/Furans, HCB, SVOCs, Arsenic, OCPs, Perchlorate.	Asbestos, Metals (incl. arsenic), Hexavalent Chromium, Cyanide, Dioxins/Furans, HCB, B(a)P, OCPs (4,4-DDE, 4,4-DDT, aldrin, alpha-BHC), PCBs, Perchlorate, Chlorate, Ammonia, Sulfates, Carbonates, Phosphates, Chloride, Sulfide, Wet Chemistry	Asbestos, Arsenic, Hexavalent Chromium, Cyanide, Dioxins/Furans, HCB, B(a)P, 4,4-DDE, 4,4-DDT, Aldrin, alpha-BHC, PCBs, Perchlorate, Sulfate, Phosphate, Chloride, Sulfide, pH	Remediation polygon soil remains in place; Discolored soil along the western sidewall of the excavation performed within RZ-E-14B.

a - COPCs compiled from LOU packets and existing soil data within the ECA.

Table A-2. ECA #C17 Expansion Area Sample
Nevada Environmental Response Trust Site
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Parameter of Interest	Item #	Chemical	Unit	NDEP Site Screening Level	Basis	Sample Results	Unit	Comments 1	Comments 2
Metals by EPA Methods 6010 and 6020	1	Aluminum	mg/kg	100,000	max	14,000	mg/Kg		
	2	Antimony	mg/kg	454	N	ND	mg/Kg		
	3	Arsenic	mg/kg	7.2[h]	-	19	mg/Kg		
	4	Barium	mg/kg	100,000	max	610	mg/Kg		
	5	Beryllium	mg/kg	2,230	C	ND	mg/Kg		
	6	Boron	mg/kg	100,000	max	ND	mg/Kg		
	7	Cadmium	mg/kg	560	N	ND	mg/Kg		
	8	Chromium (Total)	mg/kg	100,000	max	20	mg/Kg		
	9	Chromium (VI) (by EPA Method 7196A or 7199/3060A	mg/kg	1,230	C	1.6	mg/Kg		
	10	Cobalt	mg/kg	337	C	100	mg/Kg		
	11	Copper	mg/kg	42,200	N	160	mg/Kg		
	12	Iron	mg/kg	100,000	max	21,000	mg/Kg		
	13	Lead	mg/kg	800	-	25	mg/Kg		
	14	Magnesium	mg/kg	100,000	max	5,100	mg/Kg		
	15	Manganese	mg/kg	24,927	N	22,000	mg/Kg		
	16	Mercury (by EPA Method 7470/7471	mg/kg	341	N	ND	mg/Kg		
	17	Molybdenum	mg/kg	5,680	N	2.7	mg/Kg		
	18	Nickel	mg/kg	21,800	N	45	mg/Kg		
	19	Platinum	mg/kg	--	--	ND	mg/Kg		
	20	Potassium	mg/kg	--	--	2,400	mg/Kg		
	21	Selenium	mg/kg	5,680	N	1.5	mg/Kg		
	22	Silver	mg/kg	5,680	N	ND	mg/Kg		
	23	Sodium	mg/kg	--	--	790	mg/Kg		
	24	Strontium	mg/kg	100,000	max	210	mg/Kg		
	25	Thallium	mg/kg	79.5	N	ND	mg/Kg		
	26	Tin	mg/kg	100,000	max	ND	mg/Kg		
	27	Titanium	mg/kg	100,000	max	510	mg/Kg		
	28	Tungsten	mg/kg	8,510	N	15	mg/Kg		
	29	Uranium	mg/kg	3,400	N	1.2	mg/Kg		
	30	Vanadium	mg/kg	5,680	N	45	mg/Kg		
	31	Zinc	mg/kg	100,000	max	140	mg/Kg		
General Chemistry	1	Cyanide (by EPA Method 9012)	mg/kg	13,700	N	0.7	mg/Kg		
	2	Perchlorate (by EPA Method 314.0 or 6950)	mg/kg	795	N	63,000	µg/Kg		
	3	pH (by EPA Method 9045)	---	---	---	7.2	pH Units		

Table A-2. ECA #C17 Expansion Area Sample
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Parameter of Interest	Item #	Chemical	Unit	NDEP Site Screening Level	Basis	Sample Results	Unit	Comments 1	Comments 2
VOCs by EPA Method 8260	1	1,1,1,2-Tetrachloroethane	mg/kg	19.9	C	ND	µg/Kg		
	2	1,1,1-Trichloroethane	mg/kg	1,390	C	ND	µg/Kg		
	3	1,1,2,2-Tetrachloethane	mg/kg	2.54	C	ND	µg/Kg		
	4	1,1,2-Trichloroethane	mg/kg	5.51	C	ND	µg/Kg		
	5	1,1-Dichloroethane	mg/kg	21.4	C	ND	µg/Kg		
	6	1,1-Dichloroethene	mg/kg	1,270	N	ND	µg/Kg		
	7	1,1-Dichloropropene	mg/kg	--	--	ND	µg/Kg		
	8	1,2,3-Trichlorobenzene	mg/kg	--	--	ND	µg/Kg		
	9	1,2,3-Trichloropropane	mg/kg	1.59	C	ND	µg/Kg		
	10	1,2,4-Trichlorobenzene	mg/kg	707	N	ND	µg/Kg		
	11	1,2,4-Trimethylbenzene	mg/kg	604	N	ND	µg/Kg		
	12	1,2-Dibromo-3-chloropropane	mg/kg	0.0529	C	ND	µg/Kg		
	13	1,2-Dichlorobenzene	mg/kg	373	sat	ND	µg/Kg		
	14	1,2-Dichloroethane	mg/kg	2.24	C	ND	µg/Kg		
	15	1,2-Dichloropropane	mg/kg	4.29	C	ND	µg/Kg		
	16	1,3,5-Trimethylbenzene	mg/kg	246	N	ND	µg/Kg		
	17	1,3-Dichlorobenzene	mg/kg	373	sat	ND	µg/Kg		
	18	1,3-Dichloropropane	mg/kg	64.6	sat	ND	µg/Kg		
	19	1,4-Dichlorobenzene	mg/kg	13.5	C	ND	µg/Kg		
	20	2,2-Dichloropropane	mg/kg	--	--	ND	µg/Kg		
	21	2-Butanone	mg/kg	34,100	sat			Not included in lab report.	
	22	2-Chlorotoluene	mg/kg	511	sat	ND	µg/Kg		
	23	2-Hexatone	mg/kg	1,930	N			Not included in lab report.	
	24	2-Methoxy-2-methyl-butane	mg/kg	--	--			Not included in lab report.	
	25	4-Chlorotoluene	mg/kg	--	--	ND	µg/Kg		
	26	4-Isopropyltoluene	mg/kg	--	--	ND	µg/Kg		
	27	4-Methyl-2-pantanone	mg/kg	17,200	sat			Not included in lab report.	
	28	Acetone	mg/kg	100,000	max			Not included in lab report.	
	29	Benzene	mg/kg	4.21	C	ND	µg/Kg		
	30	Bromobenzene	mg/kg	276	N	ND	µg/Kg		
	31	Bromochloromethane	mg/kg	-	-			Not included in lab report.	
	32	Bromodichloromethane	mg/kg	51.3	C	ND	µg/Kg		
	33	Bromoform	mg/kg	242	C	ND	µg/Kg		
	34	Bromomethane	mg/kg	39.1	N	ND	µg/Kg		
	35	Carbon tetrachloride	mg/kg	1.55	C	ND	µg/Kg		
	36	Chlorobenzene	mg/kg	695	N	ND	µg/Kg		
	37	Chloroethane	mg/kg	1,100	C	ND	µg/Kg		
	38	Chloroform	mg/kg	1.55	C	ND	µg/Kg		
	39	Chloromethane	mg/kg	8.05	C	ND	µg/Kg		
	40	cis-1,2-Dichloroethene	mg/kg	737	sat	ND	µg/Kg		
	41	cis-1,3-Dichloropropene	mg/kg	--	--	ND	µg/Kg		
	42	Dibromochloromethane	mg/kg	6.03	C	ND	µg/Kg		
	43	Dibromomethane	mg/kg	191	<	ND	µg/Kg		

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Parameter of Interest	Item #	Chemical	Unit	NDEP Site Screening Level	Basis	Sample Results	Unit	Comments 1	Comments 2
VOCs by EPA Method 8260 (Cont'd)	44	Dichlorodifluoromethane	mg/kg	340	N	ND	µg/Kg		
	45	Ethyl t-butyl ether	mg/kg	--	--			Not included in lab report.	
	46	Ethylbenzene	mg/kg	19.6	C	ND	µg/Kg		
	47	Ethylene dibromide	mg/kg	0.177	C			Not included in lab report.	
	48	Hexachlorobutadiene	mg/kg	24.6	C	ND	µg/Kg		
	49	Isopropyl ether	mg/kg	--	--			Not included in lab report.	
	50	Isopropylbenzene	mg/kg	647	N	ND	µg/Kg		
	51	m p-Xylene	mg/kg	214	sat	ND	µg/Kg		
	52	Methyl tert butyl ether	mg/kg	208	C			Not included in lab report.	
	53	Methylene chloride	mg/kg	58.5	C	ND	µg/Kg		
	54	Naphthalene	mg/kg	15.6	C	ND	µg/Kg		
	55	N-Butylbenzene	mg/kg	237	sat	ND	µg/Kg		
	56	N-Propylbenzene	mg/kg	237	sat	ND	µg/Kg		
	57	o-Xylene	mg/kg	282	sat	ND	µg/Kg		
	58	sec-Butylbenzene	mg/kg	223	sat	ND	µg/Kg		
	59	Styrene	mg/kg	1,730	sat	ND	µg/Kg		
	60	t-Butyl alcohol	mg/kg	--	--			Not included in lab report.	
	61	tert-Butylbenzene	mg/kg	393	sat	ND	µg/Kg		
	62	Tetrachloroethene	mg/kg	3.28	C	ND	µg/Kg		
	63	Toluene	mg/kg	521	sat	ND	µg/Kg		
	64	trans-1,2-Dichloroethylene	mg/kg	547	N	ND	µg/Kg		
	65	trans-1,3-Dichloropropene	mg/kg	--	--			Not included in lab report.	
	66	Trichloroethene	mg/kg	5.49	C	ND	µg/Kg		
	67	Trichlorofluoromethane	mg/kg	1,980	N	ND	µg/Kg		
	68	Vinyl Chloride	mg/kg	1.86	C	ND	µg/Kg		
	69	Xylenes, total	mg/kg	214	sat			Not included in lab report.	
SVOCs incl. Hexachlorobenzene and Benzo(a)Pyrene) by EPA Method 8270	1	1,4-Dioxane	mg/kg	174	C			Not included in lab report.	
	2	2-Methylnaphthalene	mg/kg	--	--	ND	µg/Kg		
	3	bis(2-Ethylhexyl)phthalate	mg/kg	137	C	ND	µg/Kg		
	4	Butyl benzyl phthalate	mg/kg	240	sat	ND	µg/Kg		
	5	Dibenz(a,h)anthracene	mg/kg	0.234	C			Not included in lab report.	
	6	Diethyl phthalate	mg/kg	100,000	max			Not included in lab report.	
	7	Dimethyl phthalate	mg/kg	100,000	max			Not included in lab report.	
	8	Di-N-Butyl phthalate	mg/kg	68,400	N	ND	µg/Kg		
	9	Di-N-Octyl phthalate	mg/kg	--	--	ND	µg/Kg		
	10	Hexachlorobenzene[c]	mg/kg	1.2	C	ND	µg/Kg		
	11	Naphthalene	mg/kg	15.6	C	ND	µg/Kg		
	12	Nitrobenzene	mg/kg	13.6	C	ND	µg/Kg		
	13	Octachlorostyrene	mg/kg	--	--			Not included in lab report.	
	14	Pyridine	mg/kg	667	N			Not included in lab report.	

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Parameter of Interest	Item #	Chemical	Unit	NDEP Site Screening Level	Basis	Sample Results	Unit	Comments 1	Comments 2
PAHs by EPA Method 8310 or 8270	1	Acenaphthene	mg/kg	2,560	N	ND	µg/Kg		**PAHs are not listed on the Soil Screening Level Table**
	2	Acenaphthylene	mg/kg	147	sat	ND	µg/Kg		
	3	Anthracene	mg/kg	9,060	N	ND	µg/Kg		
	4	Benz(a)anthracene	mg/kg	2.34	C	ND	µg/Kg		
	5	Benzo(a)pyrene	mg/kg	0.234	C	ND	µg/Kg		
	6	Benzo(b)fluoranthene	mg/kg	2.34	C	ND	µg/Kg	ND by GC/MS; 6.3 µg/Kg by GC/MS-SIM	
	7	Benzo(g,h,i)perylene	mg/kg	34,100	N	ND	µg/Kg		
	8	Benzo(k)fluoranthene	mg/kg	23.4	C	ND	µg/Kg		
	9	Chrysene	mg/kg	234	C	ND	µg/Kg		
	10	Fluoranthene	mg/kg	24,400	N	ND	µg/Kg	ND by GC/MS; 7.0 µg/Kg by GC/MS-SIM	
	11	Fluorene	mg/kg	3,440	N	ND	µg/Kg		
	12	Indeno(1,2,3-cd)pyrene	mg/kg	2.34	C	ND	µg/Kg		
	13	Phenanthrene	mg/kg	24.5	sat	ND	µg/Kg		
	14	Pyrene	mg/kg	19,300	N	ND	µg/Kg	ND by GC/MS; 5.7 µg/Kg by GC/MS-SIM	
Dioxins/Furans by EPA Method 8290	1	TCDD TEQg	pg/g	2,700[f]	C	27	pg/g		
PCBs by EPA Method 8082	1	Aroclor-1016	mg/kg	23.6	C	ND	µg/Kg		
	2	Aroclor-1221	mg/kg	0.826	C	ND	µg/Kg		
	3	Aroclor-1232	mg/kg	0.826	C	ND	µg/Kg		
	4	Aroclor-1242	mg/kg	0.826	C	ND	µg/Kg		
	5	Aroclor-1248	mg/kg	0.826	C	ND	µg/Kg		
	6	Aroclor-1254	mg/kg	0.826	C	ND	µg/Kg		
	7	Aroclor-1260	mg/kg	0.826	C	ND	µg/Kg		
	8	Total PCBs	mg/kg	0.826	C	ND	µg/Kg		
	9	TCDD TEQ[e]	pg/g	2,700[f]	C	ND	µg/Kg		
Inorganic Anions by EPA Method 9056	1	Bromide				ND	mg/Kg		**Inorganic Anions are not listed on the Soil Screening Level Table**
	2	Chloride				1500	mg/Kg		
	3	Fluroide				ND	mg/Kg		
	4	Nitrate as nitrate				ND	mg/Kg		
	5	Sulfate				15000	mg/Kg		
	6	Nitrite as N				81	mg/Kg		
	7	Nitrate as nitrate				ND	mg/Kg		
	8	Orthophosphate as phosphate				ND	mg/Kg		
Sulfide by EPA Method 9034	1	Sulfide				ND	mg/Kg		**Not on Soil Screening Level Table**
Asbestos by Modified EPA Method 540/R-97/028	1	Long amphibole fibers	fibers	1 or more[i] More than 5[i]	-	ND			
	2	Long chrysotile fibers	fibers	1 or more[i] More than 5[i]	-	ND			

Table A-2. ECA #C17 Expansion Area Sample
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Parameter of Interest	Item #	Chemical	Unit	NDEP Site Screening Level	Basis	Sample Results	Unit	Comments 1	Comments 2
OCPs by EPA Method 8081A	1	4,4'-DDD	mg/kg	11.1	C	ND	µg/Kg		
	2	4,4'-DDE	mg/kg	7.81	C	2.6	µg/Kg		
	3	4,4'-DDT	mg/kg	7.81	C	ND	µg/Kg		
	4	Aldrin	mg/kg	0.113	C	ND	µg/Kg		
	5	Alpha-BHC	mg/kg	0.399	C	ND	µg/Kg		
	6	Alpha-chlordane	mg/kg	--	--	ND	µg/Kg		
	7	Beta-BHC	mg/kg	1.4	C	2	µg/Kg		
	8	Delta-BHC	mg/kg	--	--	ND	µg/Kg		
	9	Dieldrin	mg/kg	0.12	C	ND	µg/Kg		
	10	Endosulfan I	mg/kg	--	--	ND	µg/Kg		
	11	Endosulfan II	mg/kg	--	--	ND	µg/Kg		
	12	Endosulfan Sulfate	mg/kg	--	--	ND	µg/Kg		
	13	Endrin	mg/kg	205	N	ND	µg/Kg		
	14	Endrin Aldehyde	mg/kg	--	--	ND	µg/Kg		
	15	Endrin Ketone	mg/kg	--	--	ND	µg/Kg		
	16	Gamma-BHC (Lindane)	mg/kg	1.93	C	ND	µg/Kg		
	17	Gamma-chlordane	mg/kg	--	--	ND	µg/Kg		
	18	Heptachlor	mg/kg	0.426	C	ND	µg/Kg		
	19	Heptachlor Epoxide	mg/kg	0.21	C	ND	µg/Kg		
	20	Methoxychlor	mg/kg	3420	N	ND	µg/Kg		
	21	Tech-Chlordane	mg/kg	7.19	C	ND	µg/Kg	Lab reported Chlordane	
	22	Toxaphene	mg/kg	1.74	C	ND	µg/Kg		

Notes

Analysis was performed on a composite sample made from 4 conformation samples gathered on January 9, 2013.

With the exception of the OCP analysis which was performed on a composite sample made from the 4 conformation samples gathered on Feb. 1, 2013.

The lab was unable to complete the analysis on the original sample before the expiration date for EPA Method 8081A.

: Result exceeds the NDEP site screening level.

There were 20 VOC / SVOCs listed on the Soil Screening Level Table (SMP) that were not reported in the lab report.

There were 43 VOC/SVOCs included in the lab report that weren't listed in the Soil Screening Level Table (SMP).

Footnotes:

c - Hexachlorobenzene analyzed using both EPA Methods 8081 and 8270. Data reported based on EPA 8270 as it was deemed to be the superior method.

e - TCDD equivalents based on WHO 2005 TEFs for the 12 co-planer PCBs; the detection limit was used for non-detect values.

f - Site-specific value (from NDEP, Letter to Tronox LLC re: Response to: Results of Bioaccessibility Study for Dioxin/Furins in Soil, Tronox LLC, Henderson, Nevada (Revised), May 25, 2010. (NDEP, 2010b)).

g -TCDD equivalents based on WHO 2005 TEFs for the 17 dioxin and furan cogeners.

h - Based on regional background concentrations.

i - Site-specific value.

C = Cancer

N = Noncancer

sat = soil saturation

max = risk-based value is greater than 100,000 mg/kg

-- = undefined

Table A-3. Confirmation Soil Sample Results for Former ECA #E3
Nevada Environmental Response Trust Site
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Analyte Group	Analyte	Bottom	North Sidewall	West Sidewall	South Sidewall	Site-Specific Criteria[1]
		mg/kg	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*
Metals	Arsenic	4.3	5.4	5.4	7.3	7.2
	Manganese	470	550	740	1,100	24,900
	Chromium VI	ND<0.8	0.25 J	ND<0.79	0.52 J	1,360
Perchlorate	Perchlorate	0.92	46	42	6.2	795
PCBs	Total PCBs	ND<0.05	ND<0.049	ND<0.049	ND<0.99	0.826
Organochlorine Pesticides	4,4-DDT	0.015	0.023	0.003 J	0.94	7.81
	4,4-DDD	ND<0.005	ND<0.0049	ND<0.0049	0.013	11.1
	4,4-DDE	0.044	0.021	0.0049	1.3	7.81
	alpha-BHC	ND<0.005	ND<0.0049	ND<0.0049	0.0028 J	270
	beta-BHC	0.0021 J,p	0.017	0.0082	0.037	53.9
	Endrin ketone	ND<0.005	ND<0.0049	ND<0.0049	0.011	na
	Endosulfan II	ND<0.005	ND<0.0049	ND<0.0049	0.2	4,100
	Other Pesticides	ND	ND	ND	ND	N/A
Inorganic Ions	Nitrate	2.6	16	16	9.6	100,000
	Nitrite	ND<1.5	ND< 1.5	ND<1.5	ND<1.5	100,000
	Orthophosphate	ND<1.6 *	ND< 1.6 *	ND<1.6 *	ND<1.6 *	na
	Sulfide	ND<40	ND<40	ND<40	ND<40	na
	Cyanide	ND<0.5	ND<0.5	ND<0.5	ND<0.49	29.3
Wet Chemistry	pH	8.77	8.49	8.49	8.63	na
Asbestos	Bulk Asbestos	No Fibers Detected	No Fibers Detected	No Fibers Detected	No Fibers Detected	na

Notes

Analysis was performed on conformation samples gathered on October 7, 2013.

: Result exceeds site specific cleanup criteria (BCL or arsenic background value).

mg/kg: milligrams per kilogram

na: not available

N/A: not applicable

ND<##: not detected at or above the laboratory reporting limit shown

1: based on August 2013 NDEP Basic Comparison Levels (BCLs) except for arsenic, the criteria for which is based on typical natural background concentration.

J: Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

p: The % RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

*: LCS or LCSD exceeds control limits.

RAMBOLL

Table A-4. ECA #C19 Soil Results for Discolored Soil Left In Place
Nevada Environmental Response Trust Site
Henderson, Nevada

Analyte Group	Analyte	Confirmation Sample TR-Sidewall TR-SIDEWALL-20160406 4/6/2016	Confirmation Sample TR-Base TR-BASE-20160406 4/6/2016	Confirmation Sample North SO-SW-NORTH-20160406 4/6/2016	Confirmation Sample South SO-SW-SOUTH-20160406 4/6/2016	Confirmation Sample West01 SO-SW-WEST01-20160406 4/6/2016	Confirmation Sample West02 SO-SW-WEST02-20160406 4/6/2016	Confirmation Sample Base01 SO-SW-BASE01-20160406 4/6/2016	Confirmation Sample Base02 SO-SW-BASE02-20160406 4/6/2016	NDEP 2015 Worker BCL or Site-Specific Screening Level[a]	Unit
PAHs	Acenaphthene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	2,360	mg/kg
	Acenaphthene (by 8270C-SIM)	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Acenaphthylene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	147	mg/kg
	Acenaphthylene (by 8270C-SIM)	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Anthracene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	9,080	mg/kg
	Anthracene (by 8270C-SIM)	ND <0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Benz(a)anthracene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	3.23	mg/kg
	Benz(a)anthracene (by 8270C-SIM)	0.019	ND < 0.005	0.026	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Benzo(a)pyrene (by 8270C)	ND < 0.2	ND < 0.330	ND < 2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	0.323	mg/kg
	Benzo(a)pyrene (by 8270C-SIM)	0.015	ND < 0.005	ND < 0.050	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Benzo(b)fluoranthene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	3.23	mg/kg
	Benzo(b)fluoranthene (by 8270C-SIM)	0.040	ND < 0.005	0.070	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Benzo(g,h,i)perylene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	38,900	mg/kg
	Benzo(g,h,i)perylene (by 8270C-SIM)	0.0065	ND < 0.005	ND < 0.050	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Benzo(k)fluoranthene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	32.3	mg/kg
	Benzo(k)fluoranthene (by 8270C-SIM)	0.012	ND < 0.005	ND < 0.050	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Chrysene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	323	mg/kg
	Chrysene (by 8270C-SIM)	0.026	ND < 0.005	0.027	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Dibenz(a,h)anthracene (by 8270C)	ND < 0.200	ND < 0.330	ND < 2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	0.323	mg/kg
	Dibenz(a,h)anthracene (by 8270C-SIM)	ND < 0.005	ND < 0.005	ND < 0.050	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Fluoranthene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	33,700	mg/kg
	Fluoranthene (by 8270C-SIM)	0.099	ND < 0.005	0.053	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Fluorene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	3,460	mg/kg
	Fluorene (by 8270C-SIM)	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Indeno(1,2,3-cd)pyrene (by 8270C)	ND < 0.330	ND < 0.330	ND < 3.33	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	3.23	mg/kg
	Indeno(1,2,3-cd)pyrene (by 8270C-SIM)	0.0065	ND < 0.005	ND < 0.050	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Naphthalene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	15.6	mg/kg
	Naphthalene (by 8270C-SIM)	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Phenanthrene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	24.5	mg/kg
	Phenanthrene (by 8270C-SIM)	0.087	ND < 0.005	0.019	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Pyrene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	20,800	mg/kg
	Pyrene (by 8270C-SIM)	0.094	ND < 0.005	0.046	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
SVOCs	Butyl benzyl phthalate	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	240	mg/kg
	o-Cresol	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	--	mg/kg
	m-Cresol	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	--	mg/kg
	p-Cresol	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	--	mg/kg
	Di-N-Butyl phthalate	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	91,600	mg/kg
	Diethyl phthalate	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	100,000	mg/kg
	2,4-Dinitrotoluene	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	--	mg/kg
	Dimethyl phthalate	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	100,000	mg/kg
	bis(2-Ethylhexyl)phthalate	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	183	mg/kg
	Hexachlorobenzene (by 8270D)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	1.2	1.6	mg/kg
	Hexachloroethane	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	--	mg/kg
	2-Methylnaphthalene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	--	mg/kg
	2-Methylnaphthalene (by 8270C-SIM)	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005		
	Nitrobenzene	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	13.6	mg/kg
	Di-N-Octyl phthalate	ND < 0.330	ND < 0.330	ND < 3.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	11,000	mg/kg
	Pentachlorophenol	ND < 1.6	ND < 1.6	ND < 1.6	ND < 1.7	ND < 1.7	ND < 1.6	ND < 1.7	ND < 1.6	--	mg/kg
	Pyridine	ND < 1.6	ND < 1.6	ND < 1.6	ND < 1.7	ND < 1.7	ND < 1.6	ND < 1.7	ND < 1.6	886	mg/kg
	2,4,5-Trichlorophenol	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	--	mg/kg
	2,4,6-Trichlorophenol	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	--	mg/kg

Table A-4. ECA #C19 Soil Results for Discolored Soil Left In Place
Nevada Environmental Response Trust Site
Henderson, Nevada

Analyte Group	Analyte	Confirmation Sample TR-Sidewall TR-SIDEWALL-20160406 4/6/2016	Confirmation Sample TR-Base TR-BASE-20160406 4/6/2016	Confirmation Sample North SO-SW-NORTH-20160406 4/6/2016	Confirmation Sample South SO-SW-SOUTH-20160406 4/6/2016	Confirmation Sample West01 SO-SW-WEST01-20160406 4/6/2016	Confirmation Sample West02 SO-SW-WEST02-20160406 4/6/2016	Confirmation Sample Base01 SO-SW-BASE01-20160406 4/6/2016	Confirmation Sample Base02 SO-SW-BASE02-20160406 4/6/2016	NDEP 2015 Worker BCL or Site-Specific Screening Level[a]	Unit
VOCs	1,2-Dichlorobenzene (by 8260B)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	373	mg/kg
	1,3-Dichlorobenzene (by 8260B)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	373	mg/kg
	1,4-Dichlorobenzene (by 8260B)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	13.7	mg/kg
	1,2,4-Trichlorobenzene (by 8270C)	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	ND < 0.330	125	mg/kg
TPH[b]	Oil Range Organics (TPH-oil)	16	ND < 10	190	ND < 10	ND < 10	ND < 9.9	ND < 10	ND < 9.9	--	mg/kg
	TPH-diesel	12	ND < 10	150	ND < 10	ND < 10	ND < 9.9	ND < 10	ND < 9.9	--	mg/kg
	TPH-gasoline	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	--	mg/kg
PCBs	Aroclor-1016	ND < 0.016	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	32.8	mg/kg
	Aroclor-1221	ND < 0.033	ND < 0.033	ND < 0.033	ND < 0.033	ND < 0.033	ND < 0.033	ND < 0.033	ND < 0.330	1.15	mg/kg
	Aroclor-1232	ND < 0.016	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	1.15	mg/kg
	Aroclor-1242	ND < 0.016	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	1.15	mg/kg
	Aroclor-1248	ND < 0.016	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	1.15	mg/kg
	Aroclor-1254	ND < 0.016	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	1.15	mg/kg
	Aroclor-1260	ND < 0.016	ND < 0.016	1.4	ND < 0.017	ND < 0.016	ND < 0.016	ND < 0.017	ND < 0.016	1.15	mg/kg
General Chemistry	Perchlorate	31	19	5	0.1	0.11	0.69	0.12	0.77	908	mg/kg
Dioxins/Furans	2,3,7,8-TCDD	11	ND < 1.0	13	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	17	--	pg/g
	2,3,7,8-TCDF	340	ND < 1.0	440	2.4	ND < 1.0	ND < 1.0	ND < 1.0	740	--	pg/g
	1,2,3,7,8-PeCDD	40	ND < 5.0	46	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	59	--	pg/g
	1,2,3,7,8-PeCDF	500	ND < 5.0	640	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	960	--	pg/g
	2,3,4,7,8-PeCDF	300	ND < 5.0	400	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	580	--	pg/g
	1,2,3,4,7,8-HxCDD	24	ND < 5.0	41	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	42	--	pg/g
	1,2,3,6,7,8-HxCDD	52	ND < 5.0	92	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	94	--	pg/g
	1,2,3,7,8,9-HxCDD	47	ND < 5.0	81	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	91	--	pg/g
	1,2,3,4,7,8-HxCDF	780	ND < 5.0	1,400	8.3	ND < 5.0	ND < 5.0	ND < 5.0	2,100	--	pg/g
	1,2,3,6,7,8-HxCDF	570	ND < 5.0	990	6.0	ND < 5.0	ND < 5.0	ND < 5.0	1,500	--	pg/g
	2,3,4,6,7,8-HxCDF	310	ND < 5.0	490	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	760	--	pg/g
	1,2,3,7,8,9-HxCDF	230	ND < 5.0	340	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	610	--	pg/g
	1,2,3,4,6,7,8-HpCDD	150	ND < 5.0	350	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	350	--	pg/g
	1,2,3,4,6,7,8-HpCDF	1,700	ND < 5.0	4,100	25.0	ND < 5.0	ND < 5.0	ND < 5.0	5,700	--	pg/g
	1,2,3,4,7,8,9-HpCDF	670	ND < 5.0	1,400	9.1	ND < 5.0	ND < 5.0	ND < 5.0	2,300	--	pg/g
	OCDD	210	ND < 10.0	980	ND < 10.0	ND < 10.0	ND < 10.0	ND < 10.0	420	--	pg/g
	OCDF	5,200	ND < 10.0	22,000	66.0	11	ND < 10.0	41	17,000	--	pg/g
	TCDD TEQ[c]	418.1	< 85.0	651.0	7.9 J	5.1 J	< 85.0	5.1 J	961.2	2,700[d]	pg/g
Metals	Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	100,000	mg/kg
	Antimony	NA	NA	NA	NA	NA	NA	NA	NA	519	mg/kg
	Arsenic	31	3.6	430	4.7	4.8	3.6	5.1	12	7.2[e]	mg/kg
	Barium	1,100	130	4,400	160	160	170	130	380	100,000	mg/kg
	Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	2,540	mg/kg
	Boron	NA	NA	NA	NA	NA	NA	NA	NA	100,000	mg/kg
	Cadmium	1.3	ND < 1.0	3.8	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	1,270	mg/kg
	Chromium (III)	29	8.8	150	13	13	9.6	14	27	100,000	mg/kg
	Chromium (VI)	2.0	ND < 0.20	52	ND < 0.20	ND < 0.20	ND < 0.20	0.21	2.6	1,230	mg/kg
	Lead	320	6.5	1,400	7.6	5.8	7.4	6.0	82	800	mg/kg
	Lead (organic)	NA	NA	NA	NA	NA	NA	NA	NA	--	mg/kg
	Magnesium	12,000	6,200	1,500	9,100	9,400	5,700	7,500	6,700	100,000	mg/kg
	Manganese	13,000	410	180,000	7,000	1,400	520	9,800	20,000	28,100	mg/kg
	Mercury	0.18	ND < 0.10	1.4	ND < 0.10	ND < 0.10	ND < 0.10	ND < 0.10	0.14	208	mg/kg
	Selenium	3.7	ND < 1.0	45	1.1	ND < 1.0	ND < 1.0	2.4	8.8	6,490	mg/kg
	Silver	ND < 1.0	ND < 1.0	20	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	1.2	6,490	mg/kg
	Titanium	380	430	480	430	480	460	410	440	100,000	mg/kg

Table A-4. ECA #C19 Soil Results for Discolored Soil Left In Place
Nevada Environmental Response Trust Site
Henderson, Nevada

Notes:

[a] - From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 13, February 2015. Values for the worker are the lower of the indoor and outdoor worker soil BCLs. Any user of Table 1 should use the most current version of the BCLs. Please check the NDEP website (at http://ndep.nv.gov/bmi/technical.htm) for the most current version of the BCLs.

[b] - 100 mg/kg total TPH value used for screening.

[c] - TCDD equivalents based on WHO 2005 TEFs for the 17 dioxin and furan congeners.

[d] - Site-specific value: from NDEP, Letter to Tronox LLC re: Response to: Results of Bioaccessibility Study for Dioxin/Furans in Soil, Tronox LLC, Henderson, Nevada (Revised), May 25, 2010. (NDEP, 2010a).

[e] - Based on regional background concentrations as approved by NDEP on August 20, 2010 (NDEP, 2010d).

Red shading indicates concentrations exceeds NDEP 2015 Worker BCL or Site-Specific Screening Level.

Bold = analyte was detected above the detection limit

BCL = Basic comparison level

J = Approximate value

ND = Not detected

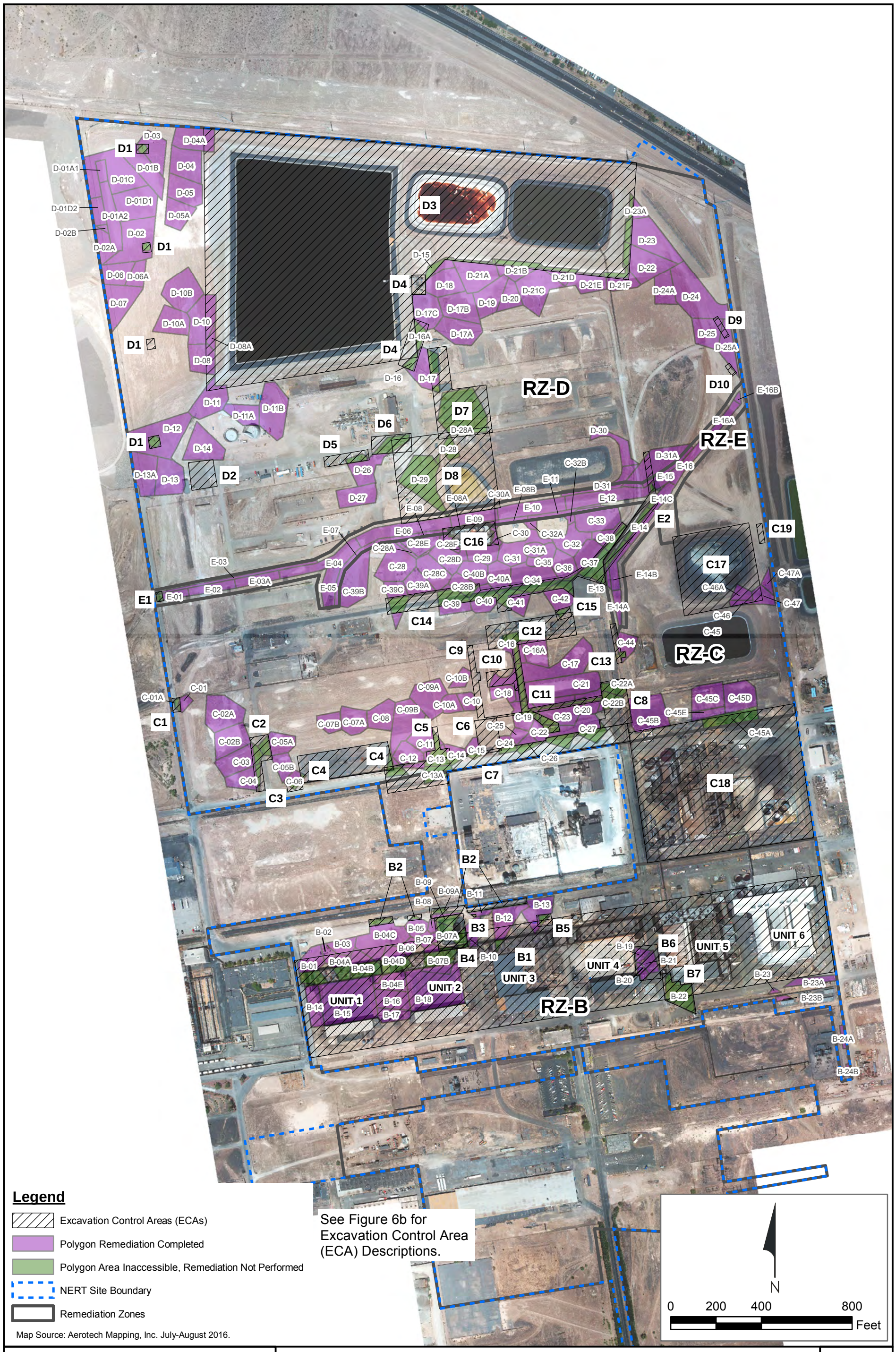
NA = Not analyzed

-- = undefined or no value

mg/kg = milligrams per kilogram

pg/g = picogram per gram

FIGURES



Legend

- Excavation Control Areas (ECAs)
- Polygon Remediation Completed
- Polygon Area Inaccessible, Remediation Not Performed
- NERT Site Boundary
- Remediation Zones

Map Source: Aerotech Mapping, Inc. July-August 2016.

RAMBOLL

Excavation Control Areas - All Remediation Zones

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure 1

Drafter: EA/RS Date: 3/13/2018 Contract Number: 1690006941 Approved by: Revised:

Path: \\wcevlfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig 1_ExcavationControlAreas_RZ_2018.mxd

D1
D1
D1
D1
D2
D3
D4
D4
D5
D6
D7
D8
D9
D10
E3
RZ-D
RZ-E
E2
C19
C16
C17
E1
C14
C15
C12
C13
RZ-C
C10
C11
C9
C8
C1
C2
C5
C6
C4
C7
C18
C3
B2
B2
B3
B5
B6
B4
B1
UNIT 6
UNIT 5
UNIT 4
B7
UNIT 3
UNIT 2
UNIT 1
RZ-B

Legend

NERT Site Boundary

Remediation Zones

Status

Excavation Control Area (ECA)

Eliminated ECA

Map Source: Aerotech Mapping, Inc. July-August 2016.

N

0 200 400 800

Feet

RAMBOLL

Excavation Control Areas - All Remediation Zones

Nevada Environmental Response Trust Site

Henderson, Nevada

Figure **1a**

Drafter: RS Date: 3/13/2018 Contract Number: 1690006941 Approved by: Revised:

Path: \\wcevlfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig1a_ProposedExcavationControlAreas_RZ_2018.mxd

ECA #	ECA Description
B1	Unit Buildings 1-6 Including Soil Within 50 feet of Unit Buildings 1-6
B2	Portions of Polygons RZ-B-04C/05/09A/11/12/13 Extending into Avenue G
B3	Fire Hydrant
B4	Former Hazardous Waste Storage Area
B5	Sodium Chlorate Filter Cake Process Area
B6	Soils Beneath Approximately 6 Feet Deep in Polygons RZ-B-20 and RZ-B-21
B7	Soils Within Polygon RZ-B-22

Legend

- Sample Locations
- Excavation Control Area (ECA)
- Polygon Remediation Completed
- Polygon Area Inaccessible, Remediation Not Performed
- NERT Site Boundary
- Remediation Zones

. May 20, 2011.

N

0 100 200 400 Feet

Path: \\wcevffps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig2_ExcavationControlAreas_RZB_a.mxd

RAMBOLL

Excavation Control Areas in RZ-B

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **2**

Drafter: EMcC | Date: 2/1/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
B1	Unit Buildings 1-6 Including Soil Within 50 feet of Unit Buildings 1-6
B2	Portions of Polygons RZ-B-04C/05/09A/11/12/13 Extending into Avenue G
B3	Fire Hydrant
B4	Former Hazardous Waste Storage Area
B5	Sodium Chlorate Filter Cake Process Area
B6	Soils Beneath Approximately 6 Feet Deep in Polygons RZ-B-20 and RZ-B-21
B7	Soils Within Polygon RZ-B-22

Legend

- Sample Locations
- Excavation Control Area (ECA)
- NERT Site Boundary
- Remediation Zones

. May 20, 2011.

N

0 100 200 400 Feet

Path: \\wcewfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_RZB_a.mxd

RAMBOLL

Excavation Control Areas in RZ-B (without Remediation Polygons)

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **2a**

Drafter: RS | Date: 2/1/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
B1	Unit Buildings 1-6 Including Soil Within 50 feet of Unit Buildings 1-6
B2	Portions of Polygons RZ-B-04C/05/09A/11/12/13 Extending into Avenue G
B3	Fire Hydrant
B4	Former Hazardous Waste Storage Area
B5	Sodium Chlorate Filter Cake Process Area

B2 B2 B2 B2 B3 B4 B5 B1

SSAQ4-09 SA213 SSAQ4-10 SA04 RSAQ5 SA136 SA05 SSAQ6-02 SSAQ5-05 SA203 SA204 SA148 SA156 SSAQ5-01 SA84W SA84 SSAQ3-01 SA120 SSAQ4-03 SSAQ4-08 SA03 SA169 SSAQ4-07 RSAQ3 SA193 SSAQ4-06 SSAR4-04 SSAQ3-02 SSAR3-01 SA29 SA191 SA192 SA110 SA190 SA111 RSAR3 RSAR4

UNIT 1 UNIT 2 UNIT 3 UNIT 4 RZ-B

Legend

- Sample Locations
- Excavation Control Area (ECA)
- NERT Site Boundary
- Remediation Zones

Map Source: Aerotech Mapping, Inc. July-August 2016.

N

0 50 100 200 Feet

Path: \\wcewfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig2b_ExcavationControlAreas_B2_B3_B4_B5.mxd

RAMBOLL

Excavation Control Areas B2, B3, B4, and B5

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **2b**

Drafter: RS | Date: 3/12/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
B1	Unit Buildings 1-6 Including Soil Within 50 feet of Unit
B6	Soils Beneath Approximately 6 Feet Deep in Polygons RZ-B-20 and RZ-B-21
B7	Soils Within Polygon RZ-B-22

B2
B5
B1
B6
B7
RZ-B
UNIT 3
UNIT 4
UNIT 5
UNIT 6
SA136
SA05
SSAQ6-02
SSAQ5-01
SA32
RSAR7
EE-B21-1
SSAR6-04
SSAR7-05
SA33

Legend

- Sample Locations
- Excavation Control Area (ECA)
- NERT Site Boundary
- Remediation Zones

N

0 50 100 200 Feet

Map Source: Aerotech Mapping, Inc. July-August 2016.

Path: \\wcewfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig2c_ExcavationControlAreas_B6_B7.mxd

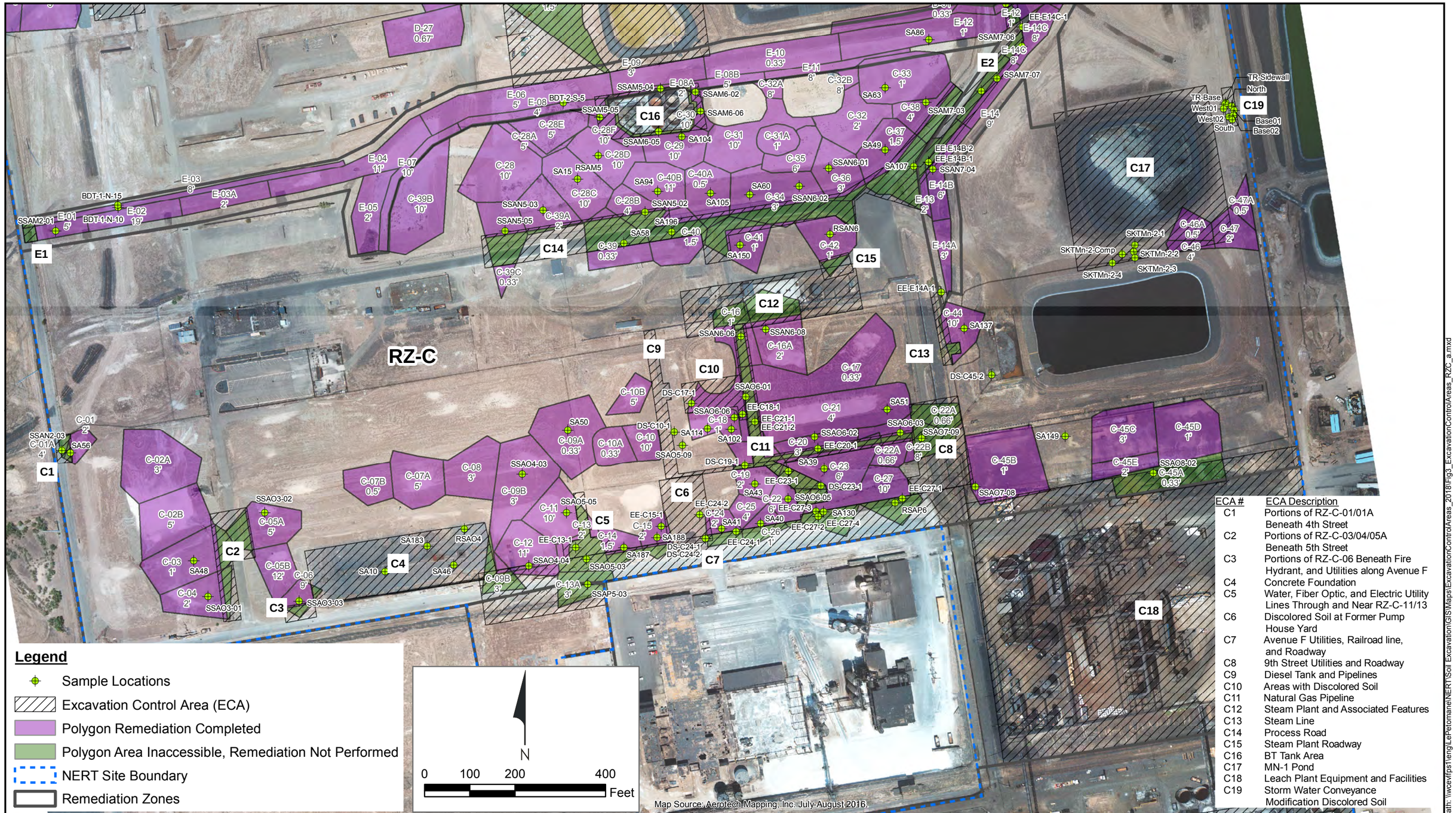
RAMBOLL

Excavation Control Areas B6 and B7

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **2c**

Drafter: RS | Date: 3/12/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:



ECA #	ECA Description
C1	Portions of RZ-C-01/01A Beneath 4th Street
C2	Portions of RZ-C-03/04/05A Beneath 5th Street
C3	Portions of RZ-C-06 Beneath Fire Hydrant, and Utilities along Avenue F
C4	Concrete Foundation
C5	Water, Fiber Optic, and Electric Utility Lines Through and Near RZ-C-11/13
C6	Discolored Soil at Former Pump House Yard
C7	Avenue F Utilities, Railroad line, and Roadway
C8	9th Street Utilities and Roadway
C9	Diesel Tank and Pipelines
C10	Areas with Discolored Soil
C11	Natural Gas Pipeline
C12	Steam Plant and Associated Features
C13	Steam Line
C14	Process Road
C15	Steam Plant Roadway
C16	BT Tank Area
C17	MN-1 Pond
C18	Leach Plant Equipment and Facilities
C19	Storm Water Conveyance Modification Discolored Soil

Path: \\wcevfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2016\Fig3_ExcavationControlAreas_RZC_a.mxd

RAMBOLL

Excavation Control Areas in RZ-C

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure 3

Drafter: RS | Date: 2/1/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
C1	Portions of RZ-C-01/01A Beneath 4th Street
C2	Portions of RZ-C-03/04/05A Beneath 5th Street
C3	Portions of RZ-C-06 Beneath Fire Hydrant, and Utilities along Avenue F
C4	Concrete Foundation
C5	Water, Fiber Optic, and Electric Utility Lines Through and Near RZ-C-11/13
C6	Discolored Soil at Former Pump House Yard
C7	Avenue F Utilities, Railroad line, and Roadway
C8	9th Street Utilities and Roadway
C9	Diesel Tank and Pipelines
C10	Areas with Discolored Soil
C11	Natural Gas Pipeline
C12	Steam Plant and Associated Features
C13	Steam Line
C14	Process Road
C15	Steam Plant Roadway
C16	BT Tank Area
C17	MN-1 Pond
C18	Leach Plant Equipment and Facilities
C19	Storm Water Conveyance Modification Discolored Soil

Path: \\wcexfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig3a_ExcavationControlAreas_RZC.mxd

RAMBOLL

Excavation Control Areas in RZ-C (without Remediation Polygons)

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **3a**

Drafter: RS | Date: 2/1/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
C1	Portions of RZ-C-01/01A Beneath 4th Street
C2	Portions of RZ-C-03/04/05A Beneath 5th Street
C3	Portions of RZ-C-06 Beneath Fire Hydrant, and Utilities along Avenue F
C4	Concrete Foundation

SSAN2-03
SA56
C1
SA50
SSAO4-03
SSAO3-02
SSAO5-05
C5
RSAO4
SA183
SA48
C2
C4
SA10
SA46
SSAO4-04
SSAP5-0
C7
SSAO3-01
SSAO3-03
C3

Legend

- Sample Locations
- Excavation Control Area (ECA)
- NERT Site Boundary
- Remediation Zones

Map Source: Aerotech Mapping, Inc. July-August 2016.

N

0 40 80 160 Feet

Path: \\wcewfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig3b_ExcavationControlAreas_C1_C2_C3_C4.mxd

RAMBOLL

Excavation Control Areas C1, C2, C3, and C4

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **3b**

Drafter: RS | Date: 3/13/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
C5	Water, Fiber Optic, and Electric Utility Lines Through and Near RZ-C-11/13
C6	Discolored Soil at Former Pump House Yard
C7	Avenue F Utilities, Railroad line, and Roadway
C8	9th Street Utilities and Roadway
C9	Diesel Tank and Pipelines
C10	Areas with Discolored Soil
C11	Natural Gas Pipeline
C12	Steam Plant and Associated Features
C13	Steam Line

RZ-C

C4 C5 C6 C7 C8 C9 C10 C11 C12 C13

EE-E14A-1 SA137 DS-C45-2 SA149 SA51 SSAO7-08

SSAN6-08 SSAN6-06 SSAO6-01 DS-C17-1 EE-C18-1 SSAO6-06 EE-C21-1 EE-C21-2 DS-C10-1 SA114 SA102 SA50 SSAO6-02 SSAO6-03 SSAO7-09 EE-C20-1 SSAO5-09 DS-C19-1 SA39 EE-C23-1 DS-C23-1 SA43 SSAO4-03 SSAO6-05 RSAP6 EE-C27-1 EE-C27-3 SA130 EE-C27-2 EE-C27-4 SA40 SSAO5-05 EE-C24-2 EE-C15-1 SA41 SA188 EE-C24-1 DS-C24-1 DS-C24-2 RSAO4 SA183 EE-C13-1 SA187 SA46 SSAO4-04 SSAO5-03 SSAP5-03

Legend

- Sample Locations
- Excavation Control Area (ECA)
- NERT Site Boundary
- Remediation Zones

Map Source: Aerotech Mapping, Inc. July-August 2016.

N

0 50 100 200 Feet

Path: \\wcevfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig3c_ExcavationControlAreas_C5_C6_C7_C8_C9_C10_C11_C13.mxd

RAMBOLL

Excavation Control Areas C5, C6, C7, C8, C9, C10, C11, C12 and C13

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **3c**

Drafter: RS | Date: 3/13/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
C12	Steam Plant and Associated Features
C13	Steam Line
C14	Process Road
C15	Steam Plant Roadway
C16	BT Tank Area

D8 C16 C14 C15 C12 C13 C10 C17 E2 RZ-C

SA155 EE-E14C-1 SA86 SSAM7-06 SSAM7-07 SA63 EE-E14-1 SSAM7-03 SSAM5-04 SSAM6-02 BDT-2-S-5 SSAM6-06 SSAM5-05 SSAM6-05 SA104 RSAM5 SA49 EE-E14B-1 EE-E14B-2 SSAN7-04 SA107 SSAN6-01 SA15 SSAN6-02 SA94 SA105 SA60 SSAN5-03 SSAN5-02 SSAN5-05 SA196 SA58 SA150 RSAN6 SKTMn-2-1 SKTMn-2-2 SKTMn-2-Comp SKTMn-2-3 SKTMn-2-4 EE-E14A-1 SA137 SSAN6-08 SSAN6-06 SSAO6-01

Legend

- Sample Locations
- Excavation Control Area (ECA)
- Remediation Zones

N

0 50 100 200 Feet

Map Source: Aerotech Mapping, Inc. July-August 2016.

Path: \\wcevfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig3d_ExcavationControlAreas_C12_C14_C15_C16.mxd

RAMBOLL

Excavation Control Areas C12, C13, C14, C15, and C16

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **3d**

Drafter: RS | Date: 3/13/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
C17	MN-1 Pond
C19	Storm Water Conveyance Modification Discolored Soil

Legend

- Sample Locations
- Excavation Control Area (ECA)
- NERT Site Boundary
- Remediation Zones

N

0 50 100 200 Feet

Path: \\wcevfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig3e_ExcavationControlAreas_C17_C19.mxd

RAMBOLL

Excavation Control Areas C17 and C19

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **3e**

Drafter: RS	Date: 3/13/2018	Contract Number:1690006941	Approved by: DR	Revised:

ECA #	ECA Description
C18	Leach Plant Equipment and Facilities

Path: \\wcevf\ps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig3f_ExcavationControlAreas_C18.mxd

RAMBOLL

Excavation Control Area C18

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **3f**

Drafter: RS | Date: 3/13/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
D1	NV Energy Transmission Line Towers
D2	Asphalt Pavement Area
D3	GW-11 and WC Ponds and Berms
D4	Groundwater Treatment System Equalization Tanks & Associated Piping
D5	Treatment Plant Chemical Storage Area
D6	Facility Roadway
D7	Asphalt Pavement, Office Trailers, Cr Treatment Plant, Quonset Hut, and Utilities
D8	AP-5 Pond and Associated Utilities
D9	Dioxin TEQ above site-specific screening criteria
D10	Groundwater Extraction Well and Related Piping

N

0 125 250 500 Feet

Legend

- Sample Locations
- Excavation Control Areas (ECAs)
- Polygon Remediation Completed
- Polygon Area Inaccessible, Remediation Not Performed
- NERT Site Boundary
- Remediation Zones

RZ-D

RZ-E

Map Source: Aerotech Mapping, Inc. July-August 2016.

Path: \\wcevfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig4_ExcavationControlAreas_RZD_a.mxd

RAMBOLL

Excavation Control Areas in RZ-D

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure 4

Drafter: RS | Date: 3/13/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
D1	NV Energy Transmission Line Towers
D2	Asphalt Pavement Area
D3	GW-11 and WC Ponds and Berms
D4	Groundwater Treatment System Equalization Tanks & Associated Piping
D5	Treatment Plant Chemical Storage Area
D6	Facility Roadway
D7	Asphalt Pavement, Office Trailers, Cr Treatment Plant, Quonset Hut, and Utilities
D8	AP-5 Pond and Associated Utilities
D9	Dioxin TEQ above Site-Specific BCL Approximately 9-10 feet deep
D10	Groundwater Extraction Well and Related Piping

Legend

- Sample Locations
- Excavation Control Area (ECA)
- NERT Site Boundary
- Remediation Zones

RZ-D

RZ-E

N

0 100 200 400 Feet

Map Source: Aerotech Mapping, Inc. July-August 2016.

Path: \\wcewfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig4a_ExcavationControlAreas_RZD.mxd

RAMBOLL

Excavation Control Areas in RZ-D (without Remediation Polygons)

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **4a**

Drafter: RS | Date: 3/13/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

ECA #	ECA Description
D1	NV Energy Transmission Line Towers
D2	Asphalt Pavement Area

RSAI4
SSAI3-06
RSAI3
D1
SSAI3-02-SW-E
BERM-I4-01
EE-DB-1
DS-DB-1
DS-DB-2
D3
EE-DB-2
SSAJ2-02
D1
EE-D02-1
EE-D10-1
SSAJ3-04
SSAJ2-07
SA202
BERM-K3-01
SSAK3-01
RSAK3
D1
SA88
RISB-52
SSAK4-01
SSAK4-02
SSAK3-04
SA134
SSAK3-05
RISB-51
SSAK3-08
RISB-50
RSAL2
D1
DS-D14-1
SSAL3-05
D2

Legend

- Sample Locations
- Excavation Control Area (ECA)
- NERT Site Boundary
- Remediation Zones

Map Source: Aerotech Mapping, Inc. July-August 2016.

N

0 60 120 240 Feet

RAMBOLL

Excavation Control Areas D1 and D2

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **4b**

Drafter: RS Date: 3/13/2018 Contract Number: 1690006941 Approved by: Revised:

Path: \\wcevlfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig4b_ExcavationControlAreas_D1_D2_D13.mxd

ECA #	ECA Description
D3	GW-11 and WC Ponds and Berms
D4	Groundwater Treatment System Equalization Tanks & Associated Piping

RSAI4
SSAI3-06
SSAI3-02-SW-E
BERM-I4-01
RSAI5
SA23
RSAI7
BERM-J7-01
RSAJ8
BERM-J8-01
EE-DB-1
DS-DB-1
DS-DB-2
EE-DB-2
EE-D10-1
EE-D02-1
-02
RSAJ6
BERM-J6-01
D3
SA127
BERM-J7-02
SSAK8-04
RSAJ5
RSAJ7
RSAK7
SSAK7-02
SSAJ6-01
SSAJ3-04
D4
SSAK6-02
2-07
SA202
BERM-K5-01
BERM-K3-01
SSAK5-05
SSAK8-01
SSAK3-01
RSAK3
RSAK5
D1
D4
SA88
BERM-K4-01
SSAK5-04
RSAK4
RISB-52
SSAK4-01
SSAK4-03
RZ-D
SSAK4-02
SSAK3-04
SA134
RISB-51
SSAK3-05
SSAK3-08
RISB-50
D7
SSAL6-01

Map Source: Aerotech Mapping, Inc. July-August 2016.

Legend

- Sample Locations
- Excavation Control Area (ECA)
- NERT Site Boundary
- Remediation Zones

N

0 75 150 300 Feet

Path: \\wcrvfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2016\Fig4c_ExcavationControlAreas_D3_D4.mxd

RAMBOLL

Excavation Control Areas D3 and D4

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **4c**

Drafter: RS	Date: 3/13/2018	Contract Number: 1690006941	Approved by: DR	Revised:

ECA #	ECA Description
D5	Treatment Plant Chemical Storage Area
D6	Facility Roadway
D7	Asphalt Pavement, Office Trailers, Cr Treatment Plant, Quonset Hut, and Utilities
D8	AP-5 Pond and Associated Utilities

BERM-K4-01
RSAK4
SSAK4-01
SSAK4-03
SSAK4-02
SSAK5-04
D7
RZ-D
SSAL6-01
RISB-20
D6
SA19
SA179
SA173
SSAL5-05
SA72
SSAM5-01
SA189
D5
D8
SSAM5-04
SSAM6-02
BDT-2-S-5
SSAM5-05
SSAM6-06
C16

Legend

- Sample Locations
- Excavation Control Area (ECA)
- Remediation Zones

Map Source: Aerotech Mapping, Inc. July-August 2016.

N

0 50 100 200 Feet

Path: \\wcevfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig4d_ExcavationControlAreas_D5_D6_D7_D8.mxd

RAMBOLL

Excavation Control Areas D5, D6, D7, and D8

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **4d**

Drafter: RS	Date: 3/13/2018	Contract Number: 1690006941	Approved by: DR	Revised:

ECA #	ECA Description
D9	Dioxin TEQ above site-specific screening criteria
D10	Groundwater Extraction Well and Related Piping

D9

CS-D25A-2

SSAL8-03

RISB-14

RISB-12

EE-D25A-1

D10

SSAL8-02

BD-3
BD-4
BD-5

Former E3

Legend

- Sample Locations
- Excavation Control Area (ECA)
- Removed ECA
- NERT Site Boundary
- Remediation Zones

Map Source: Aerotech Mapping, Inc. July-August 2016.

N

0 25 50 100 Feet

Path: \\wcewfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig4e_ExcavationControlAreas_D9_D10_D11_D12.mxd

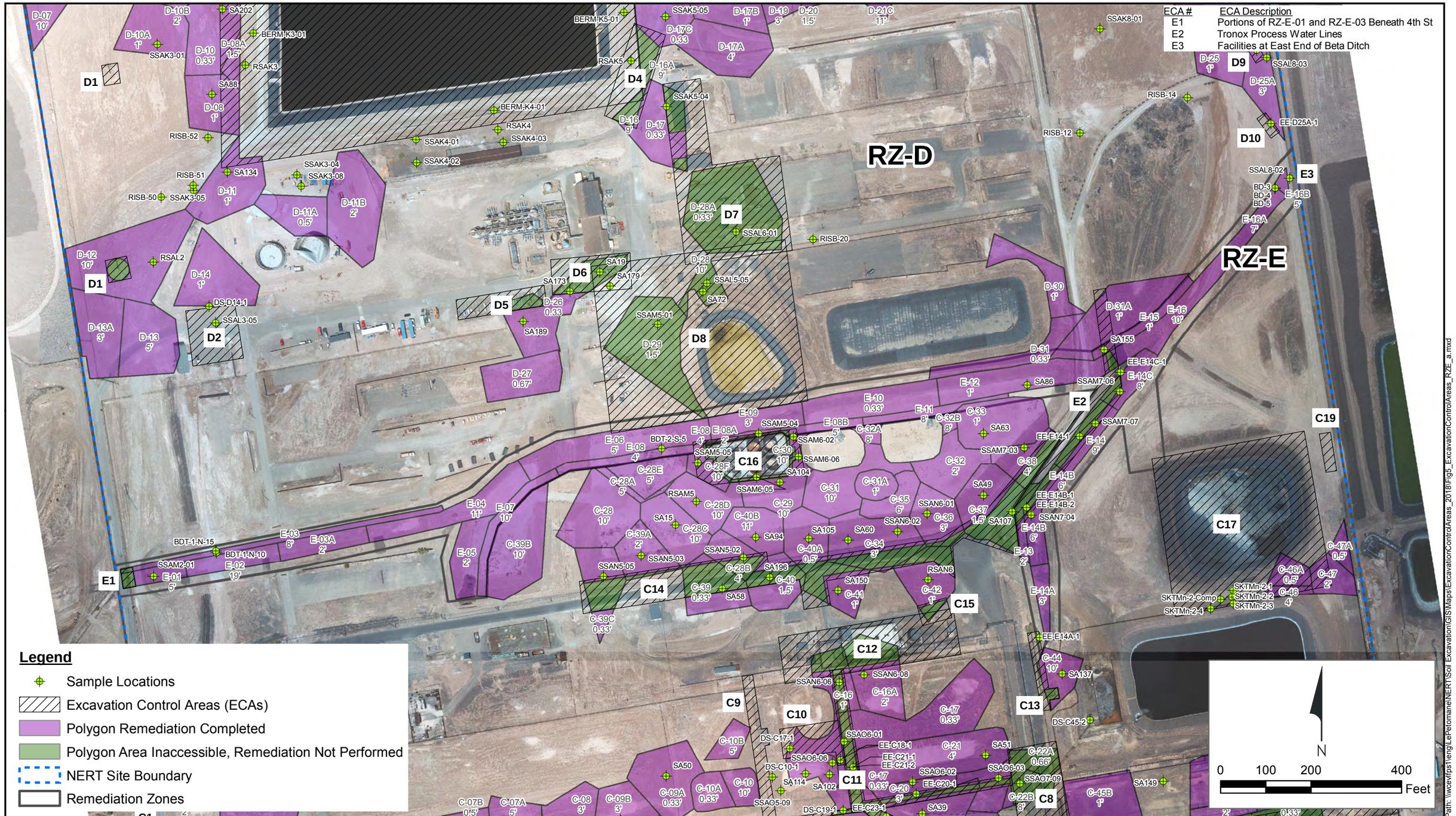
RAMBOLL

Excavation Control Areas D9 and D10

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **4e**

Drafter: RS	Date: 3/13/2018	Contract Number: 1690006941	Approved by: DR	Revised:



RAMBOLL

Excavation Control Areas in RZ-E

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure 5

Drafter: EMcC | Date: 3/13/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:

Path: \\wcevfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig5a_ExcavationControlAreas_RZE.mxd

RAMBOLL

Excavation Control Areas in RZ-E (without Remediation Polygons)

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **5a**

Drafter: RS	Date: 3/13/2018	Contract Number: 1690006941	Approved by: DR	Revised:

ECA #	ECA Description
E1	Portions of RZ-E-01 and RZ-E-03 Beneath 4th St

Path: \\wcewfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig5b_ExcavationControlAreas_E1.mxd

RAMBOLL

Excavation Control Area E1

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **5b**

Drafter: RS	Date: 3/13/2018	Contract Number: 1690006941	Approved by: DR	Revised:

ECA #	ECA Description
E2	Tronox Process Water Lines

RZ-E

D8

C16

C19

C17

C14

E2

SA155

EE-E14C-1

SA86

SSAM7-06

SSAM7-07

EE-E14-1

SA63

SSAM7-03

SSAM6-02

SSAM6-06

SA104

SA49

EE-E14B-1

EE-E14B-2

SA107

SSAN7-04

SSAN6-01

SSAN6-02

May 20, 2011.

SA196

Legend

- Sample Locations
- Excavation Control Area (ECA)
- NERT Site Boundary
- Remediation Zones

N

0 40 80 160

Feet

Path: \\wcrvfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2016\Fig5c_ExcavationControlAreas_E2.mxd

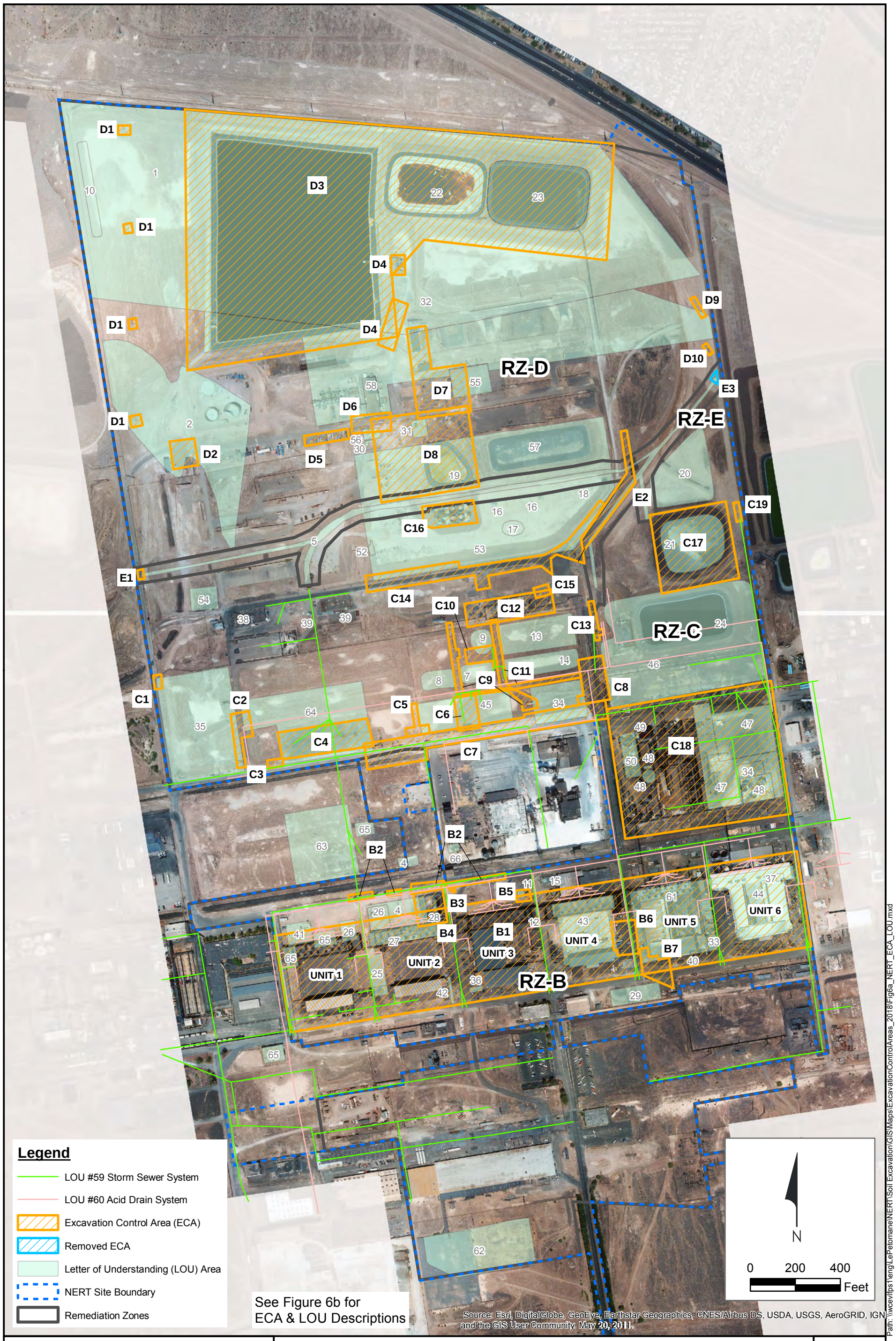
RAMBOLL

Excavation Control Area E2

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **5c**

Drafter: RS | Date: 3/13/2018 | Contract Number: 1690006941 | Approved by: DR | Revised:



RAMBOLL

ECA & LOU Locations

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **6a**

Drafter: RS | Date: 3/15/2018 | Contract Number: 1690006606 | Approved by: | Revised:

ECA #	ECA Description
RZ-B	
B1	Unit Buildings 1-6 Including Soil Within 50 feet of Unit Buildings 1-6
B2	Portions of Polygons RZ-B-04C/05/09A/11/12/13 Extending into Avenue G
B3	Fire Hydrant
B4	Former Hazardous Waste Storage Area
B5	Sodium Chlorate Filter Cake Process Area
B6	Soils Beneath Approximately 6 Feet Deep in Polygons RZ-B-20 and RZ-B-21
B7	Soils Within Polygon RZ-B-22
RZ-C	
C1	Portions of RZ-C-01/01A Beneath 4th Street
C2	Portions of RZ-C-03/04/05A Beneath 5th Street
C3	Portions of RZ-C-06 Beneath Fire Hydrant, and Utilities along Avenue F
C4	Concrete Foundation
C5	Water, Fiber Optic, and Electric Utility Line Through and Near RZ-C-11/13
C6	Discolored Soil at Former Pump House Yard
C7	Avenue F Utilities, Railroad Line, and Roadway
C8	9th Street Utilities and Roadway
C9	Diesel Tank and Pipelines
C10	Areas with Discolored Soil
C11	Natural Gas Pipeline
C12	Steam Plant and Associated Features
C13	Steam Line
C14	Process Road
C15	Stream Plant Roadway
C16	BT Tank Area
C17	MN-1 Pond
C18	Leach Plant Equipment and Facilities
C19	Stormwater Conveyance Modification Discolored Soil
RZ-D	
D1	NV Energy Transmission Line Towers
D2	Asphalt Pavement Area
D3	GW-11 and WC Ponds and Berms
D4	Groundwater Treatment System Equalization Tanks & Associated Piping
D5	Treatment Plant Chemical Storage Area
D6	Facility Roadway
D7	Asphalt Pavement, Office Trailers, Cr Treatment Plant, Quonset Hut, and Utilities
D8	AP-5 Pond and Associated Utilities
D9	Dioxin TEQ above Site-Specific BCL Approximately 9-10 feet deep
D10	Groundwater Extraction Well and Related Piping
RZ-E	
E1	Portions of RZ-E-01 and RZ-E-03 Beneath 4th Street
E2	Tronox Process Water Lines
E3	Facilities at East End of Beta Ditch
Former E3	Facilities at East End of Beta Ditch

LOU #	LOU Description
1	Trade Effluent Settling Ponds
2	Open Area Due South of Trade Effluent Settling Ponds
3	Air Pollution Emissions Associated with Industrial Processes
4	Former Hardesty Chemical Company Site
5	On-Site Portion of Beta Ditch Including the Small Diversion Ditch
6	Unnamed Drainage Ditch Segment
7	Old P-2 Surface Impoundment
8	Old P-3 Surface Impoundment
9	New P-2 Pond and Associated Piping
10	On-Site Hazardous Landfill
11	Sodium Chlorate Filter Cake Area North of Unit 3
12	Hazardous Waste Storage Area Between Units 3 and 4
13	Closed Surface Impoundment S-1
14	Closed Surface Impoundment P-1
15	Platinum Drying Unit North of Unit 4
16	Ponds AP-1, AP-2 and AP-3 and Associated Transfer Lines
17	Ponds AP-1, AP-2 and AP-3 and Associated Transfer Lines
18	Pond AP-4
19	Pond AP-5
20	Pond C-1 and Associated Piping
21	Pond MN-1 and Associated Piping
22	Ponds WC-West and Associated Piping
23	Ponds WC-East and Associated Piping
24	Leach Beds, Associated Conveyance Facilities and Former Manganese Tailings Area
25	Process Hardware Storage Area Between Units 1 and 2
26	Trash Storage Area North of Units 1 and 2
27	PCB Storage Area - Unit 2
28	Hazardous Waste Storage Area North of Unit 2
29	Solid Waste Dumpsters
30	Ammonium Perchlorate Area- Pad 35
31	Drum Crushing and Recycling Area
32	Groundwater Remediation Unit
33	Sodium Perchlorate Platinum By-Product Filter
34	Manganese Tailings Area
35	Truck Unloading Area
36	Former Satellite Accumulation Point - Unit 3, Maintenance Shop
37	Former Satellite Accumulation Point - Unit 6, Maintenance Shop
38	Former Satellite Accumulation Point - AP Laboratory
39	Former Satellite Accumulation Point - AP Maintenance Shop
40	PCB Transformer Spill
41	Unit 1 Tenants - Stains
42	Unit 2 Salt Redler
43	Unit 4 and 5 Basements
44	Unit 6 Basements
45	Diesel Storage Tank Area - Stains
46	Former Old Main Cooling Tower and Recirculation Lines
47	Leach Plant Area Manganese Ore Piles
48	Leach Plant Area Anolyte Tanks
49	Leach Plant Area Sulfuric Acid Storage Tank
50	Leach Plant Area Leach Tanks
51	Leach Plant Area Transfer Lines To/From Unit 6
52	AP Plant Area Screening Building, Dryer Building, and Associated Sump
53	AP Plant Area Tank Farm
54	AP Plant Area Change House/Laboratory and Septic Tank
55	AP Plant Area Storage Pads - Fire
56	AP Plant Area Old Building D-1 Washdown
57	AP Plant Area New Building D-1 Washdown
58	AP Plant SI and Transfer Lines To/From AP SI
59	Storm Sewer System
60	Acid Drain System
61	Old Sodium Chlorate Plant Decommissioning
62	State Industries Inc. Site, Including Impoundments and Catch Basin
63	J.B. Kellet, Inc. Trucking Site
64	Koch Materials Company
65	Assorted KMCC Tenants
66	Flintkote Company
67	Delbert Madsen and Estate of Delbery Madsen

RAMBOLL

ECA & LOU Descriptions

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **6b**

Drafter: EA | Date: 3/15/2018 | Contract Number: 1690006941 | Approved by: | Revised:

Path: \\wcevfps1\eng\LePetomane\NERT\Soil Excavation\GIS\Maps\ExcavationControlAreas_2018\Fig6b_

ATTACHMENT A

NV ENERGY TRENCH DETAIL EMAIL AND DRAWING

Jim Hampton

From: Harvey, Lisa [LHarvey@nvenergy.com]
Sent: Thursday, July 08, 2010 9:31 AM
To: 'jim.hampton@ngem.com'
Subject: Information
Attachments: DOC070810.pdf

Here is the trenching detail and application.

You will notice the application at the bottom asked for an owner signature, I do not need the owner. Just whoever will be the contact for this. If you have any questions please let me know

Thanks!

Lisa Harvey
NV Energy- Land Services
Right-of-Way Administrator
Transmission conflicts
Office-702-402-5327
Cell- 702-277-3249

-----Original Message-----
From: PER005 [mailto:PER005]
Sent: Thursday, July 08, 2010 10:23 AM
To: Harvey, Lisa
Subject: Scanned from PER005 07/08/2010 09:22

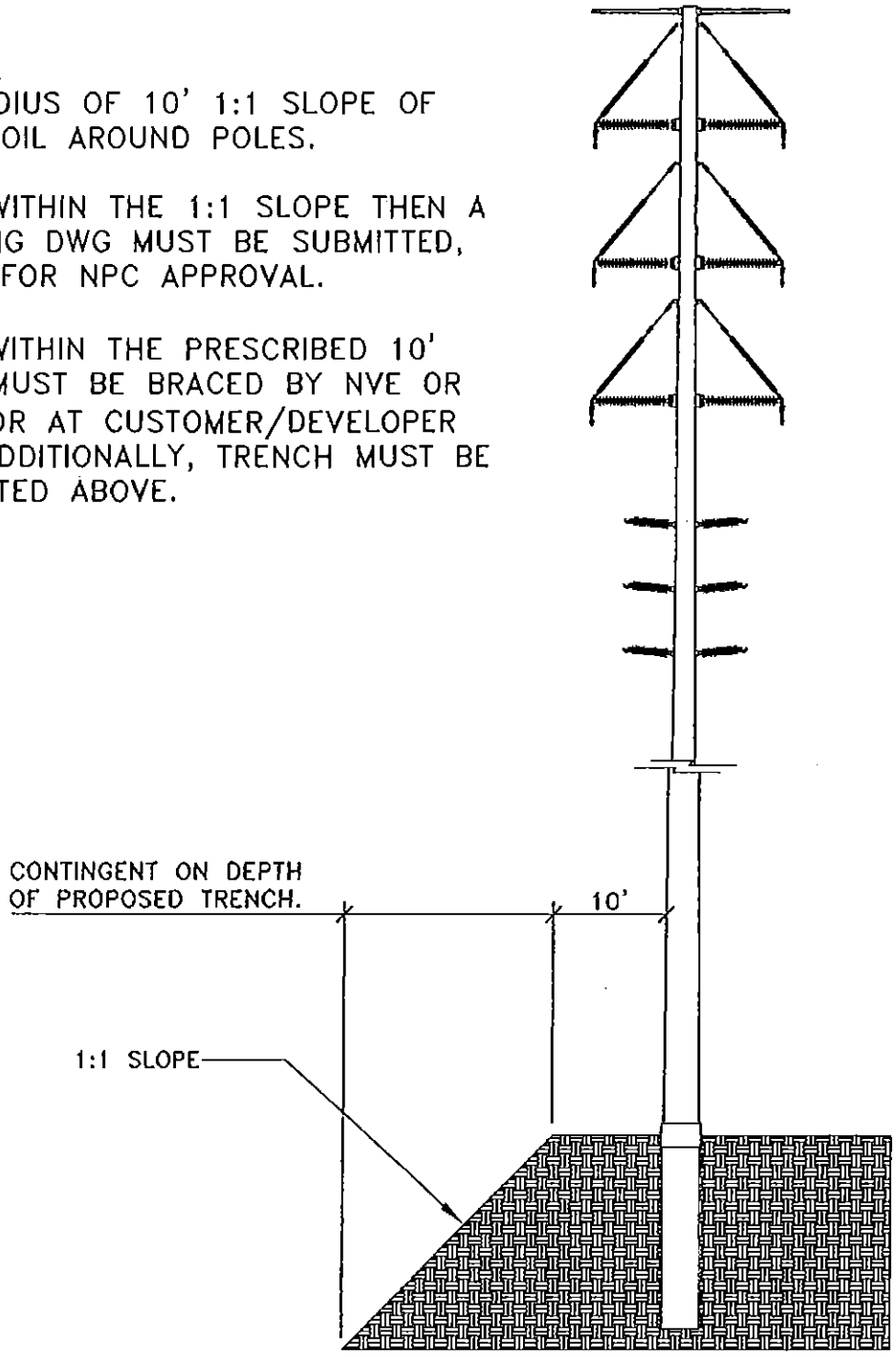
Scanned from PER005.
Date: 07/08/2010 09:22
Pages:3
Resolution:200x200 DPI

REQUIREMENTS:

MAINTAIN A RADIUS OF 10' 1:1 SLOPE OF UNDISTURBED SOIL AROUND POLES.

IF TRENCH IS WITHIN THE 1:1 SLOPE THEN A TRENCH SHORING DWG MUST BE SUBMITTED, P.E. STAMPED, FOR NPC APPROVAL.

IF TRENCH IS WITHIN THE PRESCRIBED 10' RADIUS, POLE MUST BE BRACED BY NVE OR NVE CONTRACTOR AT CUSTOMER/DEVELOPER SOLE COST. ADDITIONALLY, TRENCH MUST BE SHORED AS NOTED ABOVE.



DRAWING INFO.		
DRAWN	6/12/01	JLH
DESIGNED	6/12/01	JLH
CHECKED	6/12/01	SA
APPROVED	6/12/01	SA
	DATE	BY
REV. 1	11/12/08	DP

NVEnergy

TRANSMISSION ENGINEERING STANDARDS

TRENCH DETAIL

POLE STABILITY

SHEET: 1 OF 1

DWG. NO.: STD-D2

U:\NPC\TD\VOL1\TRANSCOM\CONFLICT\CONFLICT STANDARDS\CONTROLLED MASTER FILES\02 TRENCH DETAIL POLE STABILITY.DWG

ATTACHMENT B

LETTER OF UNDERSTANDING (LOU) PACKETS – AREA I (PROVIDED ELECTRONICALLY OR ON CD SEPARATELY)

ATTACHMENT C

LETTER OF UNDERSTANDING (LOU) PACKETS – AREA II
(PROVIDED ELECTRONICALLY OR ON CD SEPARATELY)

ATTACHMENT D

LETTER OF UNDERSTANDING (LOU) PACKETS – AREA III
(PROVIDED ELECTRONICALLY OR ON CD SEPARATELY)

ATTACHMENT E

LETTER OF UNDERSTANDING (LOU) PACKETS – AREA IV (PROVIDED ELECTRONICALLY OR ON CD SEPARATELY)

ATTACHMENT F

ANALYTICAL RESULTS SUMMARY TABLES
(PROVIDED ELECTRONICALLY OR ON CD SEPARATELY)

ATTACHMENT G

EXECUTABLE TABLE OF REMAINING SOIL RESULTS (PROVIDED ELECTRONICALLY OR ON CD SEPARATELY)

APPENDIX B

ENVIRONMENTAL COVENANT
RECORDED MAY 30, 2014

(15)

Inst #: 20140530-0001877
Fees: $31.00
N/C Fee: $0.00
05/30/2014 11:36:25 AM
Receipt #: 2040864
Requestor:
FOLEY & LARDNER LLP
Recorded By: SCA Pgs: 15
DEBBIE CONWAY
CLARK COUNTY RECORDER

APN #'S
178-12-101-003; 178-12-201-005; 178-12-601-014;
178-12-201-003; 178-12-201-007; 178-12-801-008;
178-12-601-015; 178-12-301-002; 178-12-301-005;
178-12-701-004; 178-12-401-013; 178-12-401-004;
178-12-801-005; 178-12-401-005; 178-12-401-006;
178-12-801-006; 178-12-401-010; 178-12-401-015;
178-13-101-008; 178-13-101-009; 178-13-501-008;
178-13-501-010; 178-13-601-005; 178-13-601-002

Recording requested by:
Nevada Environmental Response Trust

Return to:
Tanya C. O'Neill
Foley & Lardner LLP
777 E. Wisconsin Ave.
Milwaukee, WI 53202

ENVIRONMENTAL COVENANT

THIS ENVIRONMENTAL COVENANT is entered into by and among the NEVADA ENVIRONMENTAL RESPONSE TRUST, ("Owner"), and THE STATE OF NEVADA, DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL PROTECTION ("NDEP").

RECITALS:

(A) The Owner is the record owner of certain real property located in an unincorporated section of Clark County and more particularly described and depicted in Exhibit A, attached hereto (the "Property").

(B) Nevada Revised Statues (NRS) Chapter 445D, titled *Environmental Covenants (Uniform Act)* (hereafter "the Act"), sets forth the procedure for executing and recording an environmental covenant to provide notice to the public of activity and use limitations with respect to real property that is the subject of an environmental response project.

(C) The Property is subject to an "environmental response project" as that term is defined in NRS 445D.070 and is the subject of enforcement and remedial action pursuant to Title 40 of the Nevada Revised Statutes.

(D) On January 12, 2009, Tronox, Incorporated and its subsidiaries, including Tronox, LLC, (the "Settlors") filed voluntary petitions for relief in the Bankruptcy Court under

chapter 11 of title 11 of the United States Code, 11 U.S.C. § 101 *et seq.*, as amended (the "Bankruptcy Code") in the United States Bankruptcy Court for the Southern District of New York ("Bankruptcy Court"), which cases have been jointly administered under Case No. 09-10156 (the "Bankruptcy Cases");

(E) The Settlors, the United States, the NDEP, and certain other parties have entered into that certain Consent Decree and Environmental Settlement Agreement effective February 14, 2011 (the "Settlement Agreement") to address future environmental actions regarding historic contamination on or emanating from the Site, including soil and groundwater contamination.

(F) Pursuant to Article VII of the Settlement Agreement, the NDEP is the "Lead Agency" overseeing the environmental response project related to the Property. The United States Environmental Protection Agency ("USEPA") is the "Non-Lead Agency".

(G) Effective February 14, 2011, the Nevada Environmental Response Trust was created to provide for the transfer of the Property to Owner in accordance with Article VIII of the Settlement Agreement, for the purposes of, among other things, implementing the Settlement Agreement, carrying out administrative and property management functions related to the Property, and managing and/or funding implementation of the environmental response project as approved by the NDEP, in consultation with the USEPA.

(H) Owner desires to provide notice of the existing conditions of the Property and to bind all parties having any right, title or interest in the Property, or any portion of it, their heirs, successors and assigns, and any persons using the Property.

(I) Approved by the NDEP is a Site Management Plan for the Property which identifies the potential contaminant source areas that have been investigated and remediated. Attached to the Site Management Plan is a report entitled "Summary of Excavation Control Areas (ECAs): Areas of Known Soil Contamination Left In-Place," prepared by ENVIRON International Corporation. The report identifies soil impacted with various contaminants, including perchlorate, asbestos, arsenic, dioxin/furans, and volatile and semi-volatile organic compounds, which remains on the Property. In addition, a regional groundwater plume containing perchlorate, hexavalent chromium, and other contaminants underlies most of the Site. The portions of the groundwater plume that are subject to the provision of the Site Management Plan are those areas where the plume exceeds regulatory levels. Additionally, any areas of the Site where unexpected contamination is encountered are also subject to the provisions of the Site Management Plan.

(J) Owner desires to require compliance with the Site Management Plan, as revised, for the Property, which outlines procedures that must be followed if any soil will be disturbed in an ECA, if any previously unknown environmental conditions are encountered during soil disturbing activities, if any groundwater is generated during construction dewatering activities, and if Site activities have the potential to interfere with the existing groundwater remediation system.

(K) Pursuant to the directive of the NDEP, the Site Management Plan is to be revised annually, and the most recent version may be found in the Administrative Record, listed herein.

NOW THEREFORE,

1. Purpose of the Instrument. This instrument is an Environmental Covenant executed pursuant to the Act.

2. Binding Covenant. Owner hereby grants this Environmental Covenant to the NDEP and declares that the Property, as described in the legal description below, shall herein after be bound by, held, sold, and conveyed subject to the requirements set forth in paragraphs 1 through 14 herein, which shall run with the Property in perpetuity and be binding on Owner and all parties having any right, title, or interest in the Property, or any part thereof, their heirs, successors, and assigns, and any persons using the land, as described herein. As used in this Covenant, the term "Owner" means the record owner of the Property and, if any, any other person or entity otherwise legally authorized to make decisions regarding the transfer of the Property or placement of encumbrances on the Property, other than by exercise of eminent domain.

3. Legal Description of the Property. The Property is described and depicted on Exhibit A, attached hereto.

4. Description of Contamination and Remedy. Soil impacted with various contaminants, including perchlorate, asbestos, arsenic, dioxin/furans, and volatile and semi-volatile organic compounds, remains in place throughout the Property, as more particularly described in the most recent version of the report entitled "Summary of Excavation Control Areas (ECAs): Areas of Known Soil Contamination Left In-Place," and attached to the Site Management Plan for the Property. This impacted soil has been left in place with the consent of the NDEP because it is impracticable to remediate as of the date of this Environmental Covenant. Based upon the quality and location of the impacted soil left in place, there is no present threat to human health. The regional groundwater plume containing perchlorate, hexavalent chromium, and other contaminants underlies most of the Site, and is subject to an existing groundwater treatment system and related well fields. The portions of the groundwater plume that are subject to the provision of the Site Management Plan are those areas where the plume exceeds regulatory levels, the remediation system components and monitoring wells, as currently configured and as may be amended by system optimization, the final groundwater Record of Decision and subsequent Five Year Reviews. Additionally, the Site may contain unexpected areas of contamination.

5. Activity and Use Limitations. Any and all activities that will disturb or have the potential to disturb any soils, groundwater, or the existing groundwater treatment system components and monitoring wells at the Property ("Activities") must be conducted in compliance with the current version of the Site Management Plan in place at the time such Activities are to begin, as well as the then-existing site-specific rules and regulations adopted by the NDEP, as well as all other applicable federal, state and local requirements. No restricted Activities may commence prior to written notice to NDEP, and prior written approval by NDEP.

A copy of the most recent Site Management Plan may be obtained by contacting the current Owner or the NDEP at the address provided in paragraph 9 herein.

6. Holder. The NDEP is the Holder of this Environmental Covenant as defined by NRS 445D.080.

7. Agency. The NDEP is the Agency as defined by NRS 445D.040.

8. Name and Location of Administrative Record of Environmental Response Project. State of Nevada, NDEP, 901 S. Stewart St., Carson City, NV, 89701.

9. Notice Requirements. Any documentation or communication required under this Environmental Covenant, including documentation and communication required by the applicable provisions of Site Management Plan shall be sent consistent with the SMP, and also to the following:

State of Nevada
Division of Environmental Protection
Bureau of Corrective Actions
901 S. Stewart St., Suite 4001
Carson City, NY 89701

ATTN: Bureau Chief
Reference: Project # H-000539

10. Notices to Lessees. Owner agrees to incorporate, either in full or by reference, the restrictions in this Environmental Covenant in any leases, licenses, or other instruments granting a right to use the Property.

11. Inspections. The NDEP shall have the right of entry to the Property at reasonable times with prior notice for the purpose of determining compliance with the terms of this Environmental Covenant. Nothing in this Environmental Covenant shall impair any other authority that the NDEP may otherwise have to enter and inspect the Property.

12. No Liability. The NDEP does not acquire any liability under Nevada law by virtue of accepting this Environmental Covenant.

13. Enforcement. The NDEP or the U.S. Environmental Protection Agency may enforce the terms of this Environmental Covenant pursuant to the Act. Included in the statutory rights and remedies afforded to the NDEP is the ability to file suit in district court to enjoin actual or threatened violations of this Environmental Covenant.

14. Modification or Termination of the Covenant. This Environmental Covenant runs with the land and is perpetual, unless modified or terminated pursuant to this paragraph. Owner or its successors and assigns may request that the NDEP approve a modification or termination of this Environmental Covenant with respect to all or a portion of the Property. The request shall

contain information showing that the proposed modification or termination shall, if implemented, maintain an equal or greater level of protection of human health and the environment. The NDEP shall review any submitted information and may request additional information. No modification or termination of this Environmental Covenant shall be effective unless the NDEP has approved such modification or termination in writing.

The parties have caused this Environmental Covenant to be executed this 17 day of April, 2014.

[Signature pages follow]

NEVADA ENVIRONMENTAL RESPONSE TRUST
By: Le Petomane XXVII, Inc., not individually but solely in its representative capacity as the Trustee of the Nevada Environmental Response Trust

not individually but solely as Pres.

By: Jay A. Steinberg, not individually but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

STATE OF TENNESSEE)
) ss:
COUNTY OF WILLIAMSON)

I, Travis Dumke, a Notary, in and for said County in said State, hereby certify that Jay A. Steinberg, not individually but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee, who is known to me, is signed to the foregoing Environmental Covenant and acknowledged before me on this day that, being informed of the contents of this Environmental Covenant, has executed the same voluntarily, this the 11 day of April, 2014.

TRAVIS DUMKE
STATE OF TENNESSEE NOTARY PUBLIC
DAVIDSON COUNTY

Notary Public
Print Name: Travis Dumke
My Commission Expires: My Commission Expires September 9, 2014

THE STATE OF NEVADA, DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL PROTECTION

By: _____

Name: Colleen Cripps, Ph. D.

Title: Administrator

STATE OF NEVADA)
) ss:
COUNTY OF Carson City)

This instrument was acknowledged before me, a Notary Public, by Colleen Cripps, Ph. D., Administrator of the STATE OF NEVADA, DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL PROTECTION, this 17th day of April, 2014.

Karen Howard

Print Name: Karen Howard
Notary Public for said County and State
Commission Expires: March 24, 2017

KAREN HOWARD
NOTARY PUBLIC
STATE OF NEVADA
No. 05-95780-3 My Appt. Exp. March 24, 2017

EXHIBIT A

PROPERTY LEGAL DESCRIPTION AND MAP

ATKINS

Atkins North America, Inc.
2270 Corporate Circle, Suite 200
Henderson, Nevada 89074-7755

Telephone: 702.263.7275
Fax: 702.263.7200

LEGAL DESCRIPTION
GATE 2-PARCEL 1

LOCATED IN SECTIONS 12 AND 13, TOWNSHIP 22 SOUTH, RANGE 62 EAST, M.D.M., CLARK COUNTY, NEVADA, MORE PARTICULARLY DESCRIBED AS FOLLOWS.
COMMENCING AT THE NORTHWEST CORNER OF SECTION 18; THENCE SOUTH 35°04'54" WEST, 2545.63 FEET TO THE NORTHERLY RIGHT-OF-WAY LINE OF LAKE MEAD PARKWAY; THENCE SOUTH 80°47'16" WEST, ALONG THE NORTH RIGHT-OF-WAY LINE OF LAKE MEAD PARKWAY, 405.63 FEET TO THE PONT OF BEGINNING; THENCE CONTINUING ALONG SAID NORTHERLY RIGHT-OF-WAY LINE, SOUTH 80°47'16" WEST, 66.00 FEET; THENCE NORTH 09°12'44" WEST, DEPARTING SAID NORTHERLY RIGHT-OF-WAY LINE, 47.56 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHWESTERLY HAVING A RADIUS OF 425.00 FEET; THENCE ALONG SAID CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 21°34'15", AN ARC LENGTH OF 160.00 FEET; THENCE NORTH 30°46'59" WEST, 168.88 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE NORTHEASTERLY HAVING A RADIUS OF 160.00 FEET; THENCE ALONG SAID CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 21°31'26", AN ARC LENGTH OF 60.11 FEET; THENCE NORTH 09°15'32" WEST, 350.55 FEET; THENCE SOUTH 80°47'23" WEST, 763.22 FEET; THENCE NORTH 09°12'37" WEST, 653.37 FEET; THENCE SOUTH 80°47'23" WEST, DEPARTING SAID NORTH RIGHT-OF-WAY LINE, 740.00 FEET TO THE EAST BOUNDARY OF PIONEER PARCEL MAP ON FILE IN THE OFFICE OF THE CLARK COUNTY RECORDER IN FILE 112, PAGE 75, OFFICIAL RECORDS, CLARK COUNTY, NEVADA; THENCE NORTH 09°12'37" WEST, ALONG SAID EAST BOUNDARY, 240.34 FEET; THENCE NORTH 80°47'23" EAST, 814.11 FEET; THENCE NORTH 09°12'37" WEST, 49.00 FEET; THENCE NORTH 80°47'23" EAST, 691.79 FEET; THENCE NORTH 09°12'37" WEST, 120.00 FEET; THENCE SOUTH 80°47'23" WEST, 315.79 FEET; THENCE NORTH 09°12'37" WEST, 29.00 FEET; THENCE SOUTH 80°47'23" WEST, 35.00 FEET; THENCE SOUTH 09°12'37"EAST, 29.00 FEET; THENCE SOUTH 80°47'23" WEST, 341.00 FEET; THENCE NORTH 09°12'37" WEST, 65.00 FEET; THENCE SOUTH 80°47'23" WEST, 426.37 FEET; THENCE NORTH 09°12'37" WEST, 33.50 FEET; THENCE SOUTH 80°47'23" WEST, 32.74 FEET; THENCE NORTH 09°12'37" WEST, 555.00 FEET; THENCE SOUTH 80°47'23" WEST, 355.00 FEET; THENCE NORTH 09°12'37" WEST, 119.51 FEET; THENCE NORTH 80°47'23" EAST, 987.32 FEET; THENCE NORTH 09°12'37" WEST, 200.04 FEET; THENCE SOUTH 80°47'36" WEST, 134.00 FEET; THENCE NORTH 09°14'18" WEST, 45.49 FEET; THENCE SOUTH 80°53'13" WEST, 4.98 FEET; THENCE NORTH 09°12'37" WEST, 79.72 FEET; THENCE NORTH 09°12'37" WEST, 189.00 FEET TO A POINT HEREINAFTER DESIGNATED POINT "A"; THENCE SOUTH 80°47'23" WEST, 848.32 FEET; THENCE NORTH 09°12'37" WEST, 1447.98 FEET; THENCE NORTH 09°12'56" WEST, DEPARTING SAID EASTERLY BOUNDARY, 1678.04 FEET; THENCE SOUTH 84°34'09" EAST, 2439.78 FEET; THENCE NORTH 31°28'24" EAST, 112.78 FEET TO THE SOUTHWESTERLY RIGHT-OF-WAY LINE OF WARM SPRINGS ROAD, SAME BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE SOUTHWESTERLY HAVING A RADIUS OF 14950.00 FEET, A RADIAL LINE TO SAID BEGINNING BEARS NORTH 31°28'24" EAST; THENCE ALONG SAID RIGHT-OF-WAY LINE AND SAID CURVE TO THE RIGHT THROUGH A

ATKINS

Atkins North America, Inc.
2270 Corporate Circle, Suite 200
Henderson, Nevada 89074-7755

Telephone: 702.263.7275
Fax: 702.263.7200

CENTRAL ANGLE OF 0°42'41", AN ARC LENGTH OF 185.59 FEET; THENCE SOUTH 57°48'55" EAST, 136.03 FEET; THENCE SOUTH 09°12'47" EAST, DEPARTING SAID SOUTHWESTERLY RIGHT-OF-WAY LINE, 99.57 FEET; THENCE SOUTH 63°37'04" EAST, 24.79 FEET; THENCE SOUTH 09°12'37" EAST, 3254.21 FEET; THENCE SOUTH 09°12'44" EAST, 636.96 FEET; THENCE SOUTH 80°47'16" WEST 40.95 FEET; THENCE NORTH 09°12'44" WEST, 334.85 FEET; THENCE SOUTH 80°47'23" WEST, 240.00 FEET; THENCE NORTH 09°12'37" WEST, 65.00 FEET; THENCE SOUTH 80°47'23" WEST, 34.00 FEET; THENCE NORTH 09°12'37" WEST, 6.00 FEET; THENCE SOUTH 80°47'23" WEST, 12.00 FEET; THENCE SOUTH 09°12'37" EAST, 6.00 FEET; THENCE SOUTH 80°47'23" WEST, 64.00 FEET; THENCE SOUTH 09°12'37" EAST, 1.50 FEET; THENCE SOUTH 80°47'23" WEST, 212.16 FEET; THENCE SOUTH 09°12'37" EAST, 63.50 FEET; THENCE SOUTH 80°47'23" WEST, 547.61 FEET; THENCE SOUTH 09°12'37" EAST, 120.00 FEET; THENCE NORTH 80°47'23" EAST, 350.00 FEET; THENCE SOUTH 09°12'37" EAST, 215.30 FEET; THENCE NORTH 80°47'16" EAST, 637.76 FEET; THENCE SOUTH 09°12'44" EAST, 126.82 FEET; THENCE SOUTH 80°47'16" WEST, 455.00 FEET; THENCE SOUTH 09°12'44" EAST, 232.50 FEET; THENCE NORTH 80°47'16" EAST, 455.00 FEET; THENCE SOUTH 09°12'44" EAST, 39.90 FEET; THENCE SOUTH 80°47'16" WEST, 455.00 FEET; THENCE SOUTH 09°12'44" EAST, 196.36 FEET; THENCE NORTH 89°11'25" WEST, 539.39 FEET; THENCE SOUTH 09°15'32" WEST, 555.28 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE NORTHEASTERLY HAVING A RADIUS OF 140.00 FEET; THENCE ALONG SAID CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 21°31'26", AN ARC LENGTH OF 52.59 FEET; THENCE SOUTH 30°46'59" EAST, 230.67 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHWESTERLY HAVING A RADIUS OF 435.00 FEET; THENCE ALONG SAID CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 21°34'15", AN ARC LENGTH OF 163.77 FEET; THENCE SOUTH 09°12'44" EAST, 14.71 FEET TO SAID NORTHERLY RIGHT-OF-WAY LINE TO THE POINT OF BEGINNING.

CONTAINING 267.30 ACRES, MORE OR LESS, AS DETERMINED BY COMPUTER METHODS.

EXCEPTING THEREFROM THE FOLLOWING PARCEL

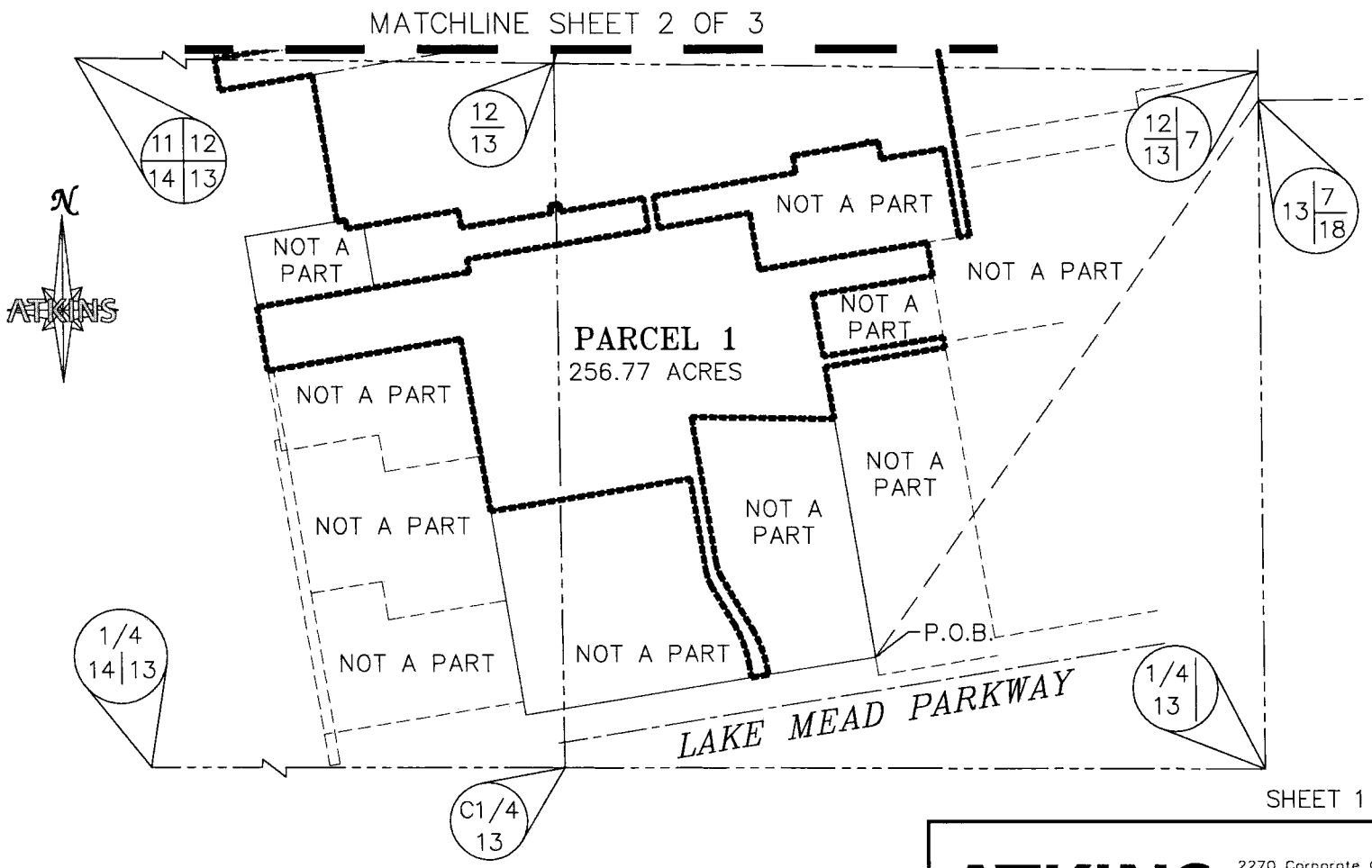
CHEMSTAR, INC

COMMENCING AT THE AFOREMENTIONED POINT "A"; THENCE NORTH 83°33'38" EAST, 302.45 FEET TO THE POINT OF BEGINNING FOR PARCEL A; THENCE NORTH 80°47'23" EAST, 739.59 FEET; THENCE SOUTH 09°12'37" EAST, 599.80 FEET; THENCE SOUTH 80°47'23" WEST, 739.59 FEET; THENCE NORTH 09°12'37" WEST, 344.67 FEET; THENCE SOUTH 80°47'23" WEST, 126.50 FEET; THENCE NORTH 09°12'37" WEST, 120.96 FEET; THENCE NORTH 80°47'23" EAST, 126.50 FEET; THENCE NORTH 09°12'37" WEST, 134.17 FEET TO THE POINT OF BEGINNING;

CONTAINING 10.53 ACRES, MORE OR LESS, AS DETERMINED BY COMPUTER METHODS.

TOTAL PARCEL CONTAINING 256.7 ACRES, MORE OR LESS, AS DETERMINED BY COMPUTER METHODS.

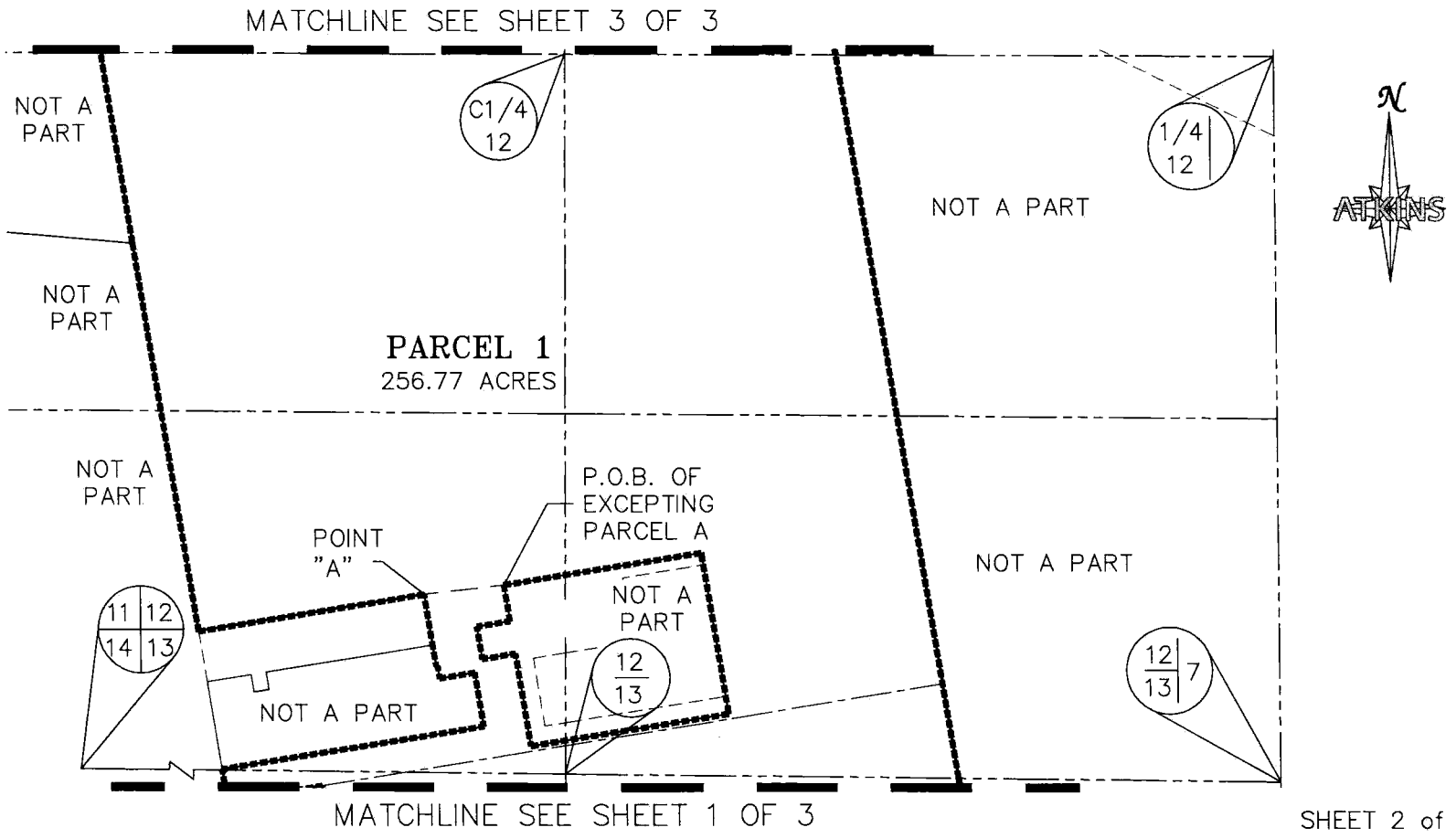
ENVIRONMENTAL COVENANT
GATE 2 – PARCEL 1



SHEET 1 of 3

ATKINS
2270 Corporate Circle.
Suite 200
Henderson, NV 89074
Telephone: 702/263-7275
Fax: 702/263-7200

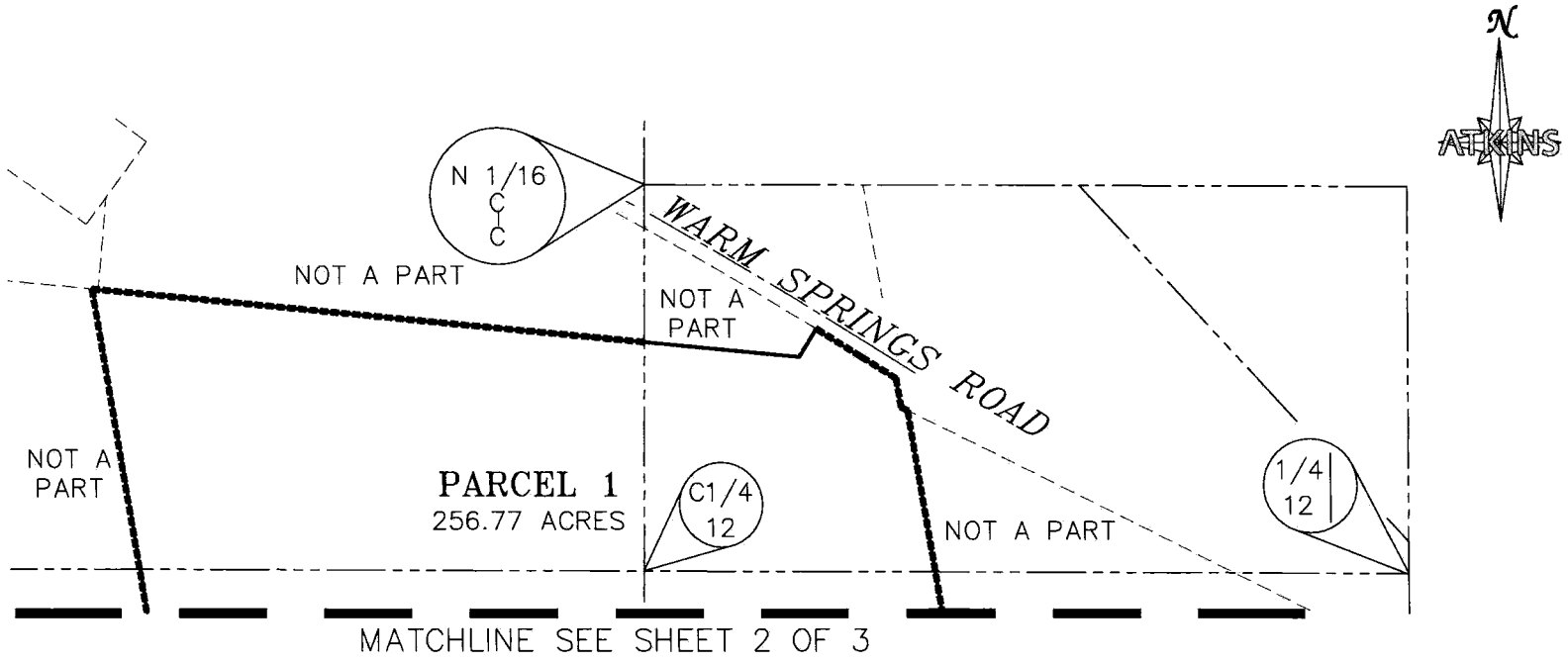
ENVIRONMENTAL COVENANT
GATE 2 — PARCEL 1



SHEET 2 of 3

ATKINS
2270 Corporate Circle.
Suite 200
Henderson, NV 89074
Telephone: 702/263-7275
Fax: 702/263-7200

ENVIRONMENTAL COVENANT
GATE 2 – PARCEL 1



SHEET 3 of 3

ATKINS
2270 Corporate Circle.
Suite 200
Henderson, NV 89074
Telephone: 702/263-7275
Fax: 702/263-7200

ATKINS

Atkins North America, Inc.
2270 Corporate Circle, Suite 200
Henderson, Nevada 89074-7755

Telephone: 702.263.7275
Fax: 702.263.7200

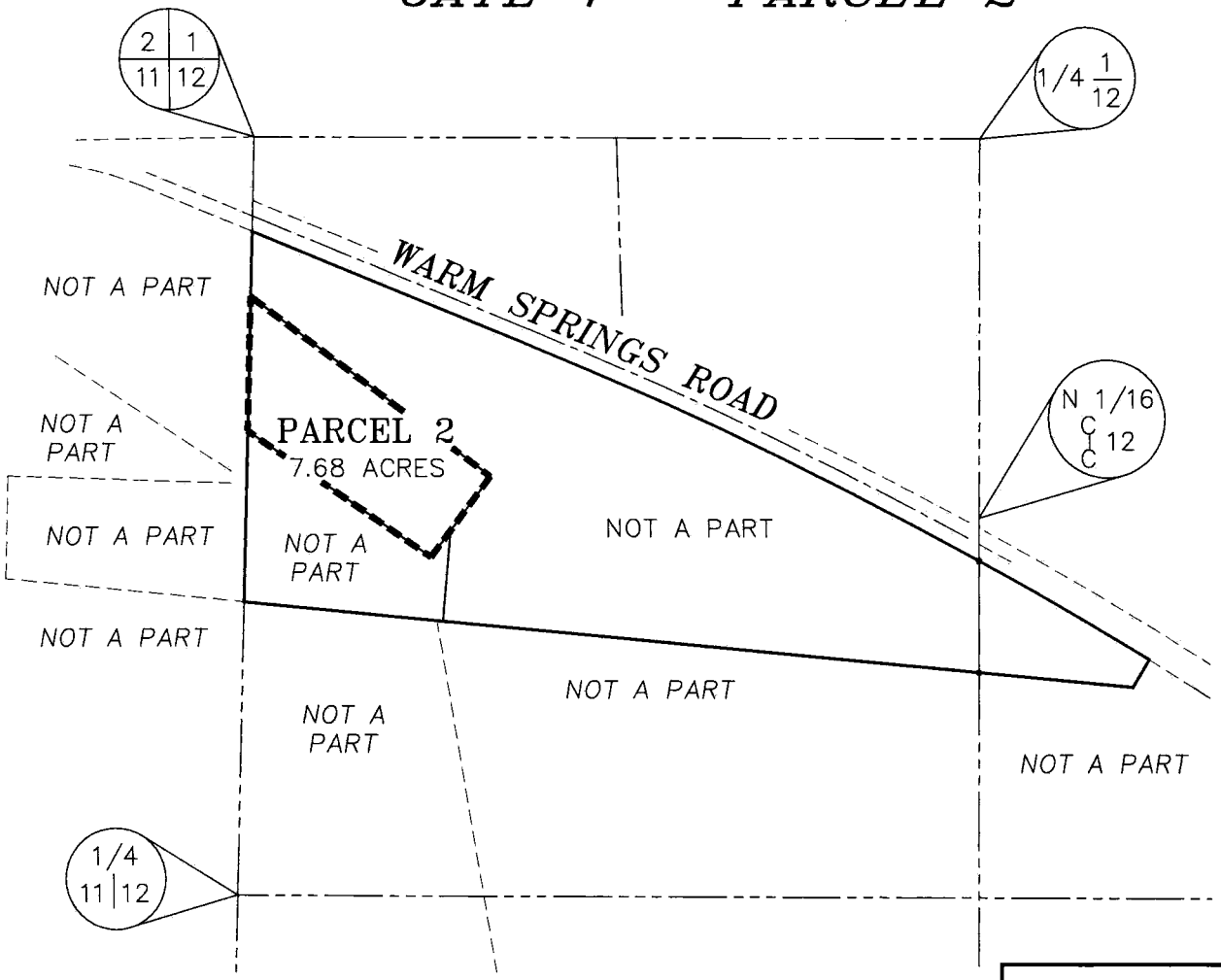
LEGAL DESCRIPTION
GATE 7 - PARCEL 2

LOCATED IN SECTION 12, TOWNSHIP 22 SOUTH, RANGE 62 EAST, M.D.M., CLARK COUNTY, NEVADA, MORE PARTICULARLY DESCRIBED AS FOLLOWS.

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 12; THENCE SOUTH 01°46'08" WEST, ALONG THE WEST LINE OF SAID SECTION 12, A DISTANCE OF 553.85 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 53°13'55" EAST, DEPARTING SAID WEST LINE, 1041.77 FEET; THENCE SOUTH 36°46'02" WEST, 349.97 FEET; THENCE NORTH 55°36'13" WEST, 774.94 FEET TO SAID WEST LINE; THENCE NORTH 01°46'08" EAST, ALONG SAID WEST LINE, 466.38 FEET TO THE POINT OF BEGINNING.

CONTAINING 7.68 ACRES (334,485 SQUARE FEET), MORE OR LESS, AS DETERMINED BY COMPUTER METHODS.

ENVIRONMENTAL COVENANT
GATE 7 – PARCEL 2



SHEET 1 of 1

ATKINS
2270 Corporate Circle.
Suite 200
Henderson, NV 89074
Telephone: 702/263-7275
Fax: 702/263-7200

APPENDIX C

NERT HAZARDOUS WASTE MANAGEMENT PLAN
LAST UPDATED DECEMBER 2017

Hazardous Waste Management Plan
Nevada Environmental Response Trust Site
Henderson, NV
NVR 000 091 819

PREPARED FOR

Nevada Environmental Response Trust
35 E. Wacker Drive, Suite 1550
Chicago, IL 60601

PREPARED BY

Tetra Tech, Inc.
150 S. Fourth Street, Unit A
Henderson, NV 89015

Last Updated December 2017

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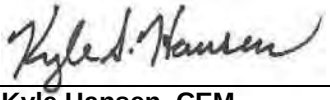
CERTIFICATION

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 prepared 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.

Description of Services Provided:

This Hazardous Waste Management Plan (HWMP) has been prepared to address the proper management of solid wastes characterized as hazardous waste generated at the Nevada Environmental Response Trust facility at 510 S. Fourth Street, Henderson, Nevada. This plan addresses management of hazardous waste to comply with State of Nevada laws and regulations, which incorporate by reference many of the federal requirements under the Resource Conservation and Recovery Act (RCRA).



December 11, 2017

Kyle Hansen, CEM
Field Operations Manager/Geologist
CEM 2167, exp. 9/18/18
Tetra Tech, Inc.

Date

PLAN REVISIONS

Tetra Tech, Inc., on behalf of the Nevada Environmental Response Trust (NERT), will review this plan periodically and amend as necessary, as follows:

The RCRA Contingency Plan (Section 2.0) will be revised whenever:

- Applicable regulations are revised;
- The plan fails in an emergency;
- The Site or work activities change in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or in a way that changes the response necessary in an emergency;
- The list of emergency coordinators changes; or
- The list of emergency equipment changes.

In addition, this Waste Management Plan will be updated if, in the future, NERT'S generator status changes or waste characteristics change from those addressed in this plan.

ABBREVIATIONS AND ACRONYMS

ANSI	American National Standards Institute
ASD	Accumulation start date
CAA	Container accumulation area
CFR	Code of Federal Regulations
DOT	U.S. Department of Transportation
EC	Emergency Coordinator
EPA	U.S. Environmental Protection Agency
ETI	Envirogen Technologies Incorporated
FOL	Field Operation Leader
H&S	Health and safety
HWMP	Hazardous Waste Management Plan
LDR	Land disposal restriction
LQG	Large quantity generator
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NERT	Nevada Environmental Response and Trust
RCRA	Resource Conservation and Recovery Act
RQ	Reportable quantity
SAA	Satellite accumulation area
SSO	Site Safety Officers

1.0 INTRODUCTION AND PURPOSE

This Hazardous Waste Management Plan (HWMP) has been prepared to address the proper management of solid wastes characterized as hazardous waste generated by investigation and remediation activities at the NERT facility at 510 S. Fourth Street, Henderson, Nevada (herein after referred to as the "Site"). During demolition of buildings as part of investigation and remediation activities, more than 1,000 kilograms (kg) of hazardous waste were generated at the Site within a single month. As a result, NERT registered the Site with the Nevada Division of Environmental Protection (NDEP) as a Nevada large quantity generator (LQG). The NDEP assigned U.S. Environmental Protection Agency (EPA) ID Number NVR 000 091 819 to the Site. NERT continues to have potential to generate hazardous waste episodically in quantities that would result in classification as a LQG.

This plan addresses management of hazardous waste, universal waste, and used oil to comply with state of Nevada laws and regulations for LQGs, which incorporate by reference federal requirements under the Resource Conservation and Recovery Act (RCRA). Nevada has additional management requirements related to container labeling, documentation of weekly inspections, and submission of manifests back to the state.

The entirety of the Site is owned by NERT. A portion of the property owned by NERT is leased to Tronox LLC (Tronox), which uses it for ongoing chemical manufacturing operations (referred to herein as the "Tronox Leasehold"). While most, if not all, of the hazardous waste generated within the footprint of the NERT property will be generated at the Tronox Leasehold, Tronox is itself an LQG of hazardous waste. Tronox maintains its own hazardous waste identification number and plan for managing hazardous waste generated as a result of its own operations. As a result, the Tronox Leasehold is not considered part of the Site. This HWMP does not apply in any way to Tronox's operations and applies solely to the investigation and remediation activities being performed at the Site by Tetra Tech, on behalf of NERT. All hazardous waste generated from such investigation and remediation activities will be manifested to a disposal facility using NERT's hazardous waste identification number for the Site.

Any and all solid wastes generated as a result of investigation and remediation activities at the Site and determined to be hazardous waste will be managed in accordance with this HWMP. Waste determination procedures and findings are discussed in more detail in Section 5.0.

This plan incorporates the following plans required of LQGs:

- RCRA Contingency Plan (Section 2.0), as required by *Nevada Administrative Code* (NAC) 444.8632, incorporating Title 40 *Code of Federal Regulations* (40 CFR) 262.34(a)(4) and 265 Subpart D by reference;
- Hazardous Waste Training Plan, including job descriptions (Section 3.0), as required by NAC 444.8632, incorporating 40 CFR 262.34(a)(4) and 265.16 by reference; and
- Waste Minimization Plan (Section 4.0), as required by NAC 444.8632, incorporating 40 CFR 262.27 by reference.

This document also addresses waste characterization (Section 5.0), waste management (Section 6.0), waste documentation and transportation (Section 7.0), and recordkeeping (Section 8.0).

2.0 RCRA CONTINGENCY PLAN

This RCRA contingency plan contains the elements required by NAC 444.8632, 40 CFR 262.34(a)(4), and 40 CFR Part 265 Subpart D, to allow Site personnel to effectively handle and report emergencies that could affect hazardous waste at the Site.

Copies of this RCRA contingency plan, including all revisions to this plan, will be or have been:

- Maintained at the Site, and
- Submitted to the St. Rose Dominican Hospital, City of Henderson Police Department, City of Henderson Fire Department, City of Henderson Office of Emergency Management, Las Vegas Metropolitan Police Department, and Clark County Fire Department.

Copies of letters to response agencies submitting the initial plan and revised sections of the plan are included as Appendix A.

Tetra Tech, on behalf of NERT, will review and amend this contingency plan, if necessary, whenever:

- Applicable regulations are revised;
- The plan fails in an emergency;
- The Site changes (in its design, construction, operation, maintenance, or other circumstances) in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or in a way that changes the response necessary in an emergency;
- The list of emergency coordinators (ECs) changes; or
- The list of emergency equipment changes.

2.1 EMERGENCY COORDINATORS

The EC will be on the premises or on-call to coordinate all emergency response measures. In the event that the primary EC is not available to respond to an emergency in a short period of time, the primary EC will designate authority to the designated alternate EC. Both the EC and the designated alternate EC are thoroughly familiar with all aspects of the Site's contingency plan, all operations and activities at the Site, the location and characteristics of waste handled, the location of all records at the Site, and the Site layout, and have the authority to commit the resources needed to carry out this plan.

The primary and alternate ECs will be familiar with:

- All aspects of this RCRA contingency plan;
- Operations and activities at the Site;
- Location and hazardous properties of the wastes handled at the Site;
- Location of hazardous waste records;
- Layout of the Site;
- Agreements made with state or local authorities; and
- Outside emergency response contractors who can assist in the event of an emergency.

Tetra Tech, on behalf of NERT, will train employees in proper waste handling and emergency procedures relevant to their job responsibilities (Section 3.0).

ECs at the NERT Site are:

PRIMARY EC
Steve Clough
Trust Environmental Contact
Office: (702) 960-4309
Home/Cell: (702) 686-9611
Home Address: 825 Plockton Ave.
Henderson, Nevada 89012

ALTERNATE EC
Kyle Hansen
Trust Environmental Contact
Office: (702) 966-8340
Home/Cell: (801) 949-6663
Home Address: 1700 Estrella Street
Las Vegas, Nevada 89117

2.2 OUTSIDE EMERGENCY RESPONDER ARRANGEMENTS

This section refers to arrangements with response agencies, including their contact information and resources. Section 2.3, which follows, describes agency or contractor responses to fires and explosions, medical emergencies, and spills. This contingency plan has been submitted to St. Rose Dominican Hospital, City of Henderson Police Department, City of Henderson Fire Department, City of Henderson Office of Emergency Management, Las Vegas Metropolitan Police Department, and Clark County Fire Department.

Procedures for Site personnel are contained in the remaining sections of this contingency plan. Table 1 provides a list of emergency contacts and their associated telephone numbers. This table is posted where it is readily available to Site personnel (for example, field office and other central and visible location) and in any less-than-90-day container accumulation area (CAA). A copy of the emergency contact list and routes to the nearest hospital and clinic will be kept in all Site vehicles.

2.2.1 Fires and Explosions

Different response procedures are in place depending upon if the incident occurs on the Tronox Leasehold portion of the Site or on other portions of the Site. In the event that a fire or explosion occurs off of the Tronox Leasehold, 9-1-1 will be notified first. If an incident occurs on the Tronox Leasehold, Tronox security will be notified first, who will then call 9-1-1. The Emergency Coordinator, as designated in this plan will be notified as soon as possible of any fire or explosion.

In the event of fire or explosion, it is anticipated that the fire department will function as the lead agency until the emergency situation is resolved. The Henderson Fire Department consists of nine stations and has been divided into two battalions, with approximately 60 personnel per shift. The City of Henderson Fire Department has the ability to respond to emergencies with two truck companies. Daily staffing of the engine companies consists of one captain, one engineer, one firefighter and one firefighter/paramedic. The Technical Rescue Team on each shift provides expertise on swift water, confined space, high angle, trench rescues, and vehicle and heavy machinery extrication.

A HazMat Team formed by the City of Henderson Fire Department provides response, detection, and decontamination capabilities for incidents involving hazardous materials. If hazardous waste is involved in the fire or explosion situation, the fire department will be notified of the hazards presented by the waste. However, this team is not a primary response contractor for non-emergencies.

Table 1 Emergency Contacts

Agency	Telephone
EMERGENCY (Police, Fire, and Ambulance)	**9-1-1**
Tronox Security/EMT (Emergency)	**(702) 651-2200 via cell**
St. Rose Dominican Hospital, Henderson, NV	(702) 564-2622
Poison Control Center	(800) 222-1222
City of Henderson Police Department (Non-emergency)	(702) 267-5000
Las Vegas Metropolitan Police Department (Non-emergency)	(702) 828-3111 or 311
Fire Departments (Non-emergency)	Henderson: (702) 267-2222 Clark County: (702) 455-7311
Public Utility Clearance – Nevada One Call	8-1-1 usanorth811.org
Henderson Public Utilities (emergency numbers)	Call 9-1-1 first NV Energy Electric – (702) 402-2900 Natural Gas – (877) 860-6020 Water – (702) 267-5900
Site Contacts	
Steve Clough (Emergency Coordinator)	Office: (702) 960-4309 Home/Cell: (702) 686-9611
Kyle Hansen (Alternate Emergency Coordinator)	Office: (702) 966-8340 Home/Cell: (801) 949-6663
Andrew Steinberg (NERT Coordinator)	(312) 498-2800
Tronox Contact – John Holstrom (Non-emergency) Alternates: Shift Supervisor (plant permits/assistance) Gilbert Buco, Project Engineering	(702) 465-6703 (702) 592-3759 (702) 651-2353
Contractors	
Envirogen Technologies Inc. (ETI) Wendy Prescott	Cell: (702) 371-9307
Spill Notification	
NDEP 24-hour Spill Hotline	(888) 331-6337
National Response Center (oil/chemical spills)	(800) 424-8802

2.2.2 Spill Response and Clean Up

Should there be a spill or release of hazardous waste, the EC will be notified and will evaluate whether the Site's trained personnel can safely and effectively clean up the spill. In addition to Tetra Tech contractors active at the Site, NERT has a master service agreement in place with Tetra Tech that would allow mobilization of emergency responders to address larger spills. Based on the volume of material released, NERT also will notify state and federal spill response hotlines, as necessary. The NERT Coordinator will be notified as soon as possible of any reportable quantity release.

2.2.3 Ambulance Services

The City of Henderson provides complete emergency medical services (EMS), from first response to hospital transport. The City of Henderson Fire Department currently has seven transport-capable paramedic rescue units serving the city 24 hours a day, each staffed with firefighters/paramedics. Nine fire engines, two truck companies, and one heavy rescue are equipped and staffed to provide first-response services from nine fire stations throughout the city. Each of the nine fire stations has an engine company staffed with firefighters/paramedics who provide advanced life support first response. The truck companies are also staffed with firefighters/paramedics, and the heavy rescue is staffed with EMT-trained personnel. All emergency response units are equipped with defibrillators. All front-line paramedic rescue units are equipped with 12-lead EKG monitors.

2.2.4 Tronox Response Team

In the event of an emergency on the Tronox Leasehold portion of the Site, Tronox security will be notified first, who will then call 9-1-1. Tronox security may also be notified for support during emergencies on the Site proper. In addition, the evacuation alarm (Section 2.7) is administered by Tronox security.

2.3 GENERAL EMERGENCY PROCEDURES

This section describes the general procedures for responding to an emergency and the follow-up procedures after an emergency. These procedures will apply to all emergencies, but additional actions specific to spills, fires, and explosions are included in Sections 2.4 through 2.6. Evacuation procedures are in Section 2.7.

If an emergency cannot be handled using resources available at the Site, personnel will evacuate to a safe place of refuge, and the appropriate emergency response agencies will be notified. It has been determined that the majority of potential emergency situations would be better supported by outside emergency responders. These agencies are located within a reasonable distance from the area of Site operations, which ensures adequate emergency response time.

In the event that Site personnel cannot control the incident through offensive and defensive measures, the EC will enact the following emergency notification procedures to secure additional assistance:

- If evacuated to a location on the Tronox Leasehold portion of the property, contact Tronox security first, who will then call 9-1-1.
- Otherwise, call 9-1-1 or other emergency contacts (Table 1) to report the emergency and provide the following information:
  - Location of emergency;
  - Type of emergency;
  - Number of injured personnel; and
  - Brief description of what occurred.

- Stay on the phone and follow the instructions given by the operator. The operator will then notify and dispatch the proper emergency response agencies.

When there is an imminent or actual emergency situation, the EC will immediately:

- Notify personnel of the nature of the emergency and initiate evacuation, as necessary, using cellular telephones; and
- Notify appropriate state or local agencies with designated response roles, if their help is needed.

When there is an emergency, the EC will immediately identify the character, exact source, amount, and areal extent of released materials, if any.

Concurrently, the EC will assess possible hazards to human health and the environment (considering direct, indirect, immediate, and long-term effects) that may result from the emergency.

If the EC determines that the emergency could threaten human health or the environment, the EC will report the findings to the necessary agencies (Table 1) as follows:

- If the EC's assessment indicates that evacuation of local areas (for example, neighboring businesses, etc.) may be advisable, the EC will immediately notify appropriate local authorities. The EC will be available to help appropriate officials decide whether local areas should be evacuated; and
- The EC will immediately notify NDEP (using the 24-hour toll free number: 888-331-6337) and the National Response Center (using the 24-hour toll free number: 800-424-8802).

The EC's assessment report will include:

- Name and telephone number of reporter;
- Name and address of the Site;
- Time and type of incident (for example, release, fire);
- Name and quantity of material(s) involved, to the extent known;
- The extent of injuries, if any; and
- The possible hazards to human health or the environment outside the Site.

2.3.1 Actions during the Emergency

During an emergency, the EC will take all reasonable measures necessary to prevent the emergency from causing a release of other hazardous waste or hazardous chemicals (if any) at the Site. If the Site stops operations in response to the emergency, the EC will monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate. The EC will also stop processes and operations, collect and contain released waste, and remove or isolate containers.

In the event of an emergency alarm at the Site, as indicated by a notification using cellular telephones or the activation of the Tronox alarm (Section 2.7), the primary response action is for personnel to safely halt operations and move to the designated evacuation area at the direction of the EC (location should be upwind and not involved in the emergency) and to remain there until the all-clear signal is given by the EC or outside agency emergency responder personnel (for example, the fire department).

When the alarm sounds, all motor vehicle movement in the affected area will cease and vehicles on roads will clear the right-of-way in and around the affected area and remain parked until emergency vehicles have passed or the EC has directed them to move. The EC will direct personnel to stay clear of the affected areas of the Site and if required, direct other Site personnel (outside the affected area) to the evacuation area.

The EC will provide insipient emergency prevention activities such as:

- Initial (for example, non-structural) fire-fighting support (using fire extinguishers) and prevention;
- Initial spill control and containment measures that can be performed by qualified personnel with appropriate training (for example, the ECs);
- Evacuation of personnel from emergency situations and notification of Site and emergency personnel if emergency occurs; and
- Initial medical support (or direction to qualified first aid/CPR qualified persons at the Site) for injury/illness requiring only first aid-level support

Any response beyond the above initial or incipient actions will be performed by outside responders (for example, fire department, ambulance services, or spill response contractor, as appropriate).

2.3.2 Actions Immediately After Emergency

Immediately after an emergency, the EC will provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the Site.

If the container is damaged, the cleanup materials will be put temporarily in container with a lid until a new container is brought to replace any damaged or leaking container. If any liquid waste is generated, the liquids will be placed into a U.S. Department of Transportation (DOT) approved container compatible with the type of waste, then sampled and analyzed to determine appropriate characterization and disposal requirements.

The EC will ensure that, in the affected area(s) of the Site:

- No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and
- Emergency equipment listed in the contingency plan (Table 2) is cleaned of adhering waste, re-stocked, and fit for its intended use before operations resume.

Table 2 Emergency Equipment

Equipment	Capabilities	Location
Unit 4 Cell Building Area		
Fire extinguishers	Tri-class (ABC)	• Each company vehicle • AP-5 Pond process tank area
Spill kit	Container labeled “spill kit,” containing a supply of sorbent materials, sorbent pads, and sorbent booms	• Conex box south of the AP-5 Pond process tank area
Dry cleanup equipment	Broom and shovel	• Broom at the AP-5 Pond process tank area • Shovel in the conex box south of the AP-5 Pond process tank area

Equipment	Capabilities	Location
First aid kit	Industrial kit with burn kit and blood borne pathogen kit for first aid and CPR needs based on American National Standards Institute (ANSI) standards.	• AP-5 Pond process tank area
Eye wash stations	Two plumbed eye wash stations	• AP-5 Pond process tank area
Safety shower	Two plumbed safety showers	• AP-5 Pond process tank area
Decontamination Equipment	water hose	• AP-5 Pond process tank area
Envirogen Technologies Incorporated (ETI) Laboratory		
Spill kit	Spill response equipment includes: 5 lbs. granular sorbent material for acids, 5 lbs. granular sorbent materials for caustics, broom	• Cupboard in laboratory
Fire extinguisher	Tri-class ABC extinguisher	• Inside laboratory
Shower	Standard shower	• In bathroom next to the laboratory

Within 15 days after an incident, the EC will submit a written report on the incident to NDEP. The report will include:

- Name, address, telephone number, and EPA ID number of the Site;
- Date, time, and type of incident (for example, fire, explosion);
- Name and quantity of material(s) involved;
- The extent of injuries, if any;
- An assessment of actual or potential hazards to human health or the environment, where this is applicable;
- Estimated quantity and disposition of recovered material that resulted from the incident;
- Cause of incident; and
- Description of corrective action taken to prevent reoccurrence of the incident.

The contingency plan also will be reviewed and revised, as necessary, after any incident.

2.4 SPILL AND RELEASE PROCEDURES

Both hazardous waste (for example, contaminated concrete debris) and hazardous materials (for example, diesel fuel, or asbestos-containing debris) may be spilled or released at the Site.

In the event of a spill:

- The observer of the spill will:
  - Notify the EC immediately and keep others out of the area.
  - Direct traffic away from the spill area.

  - If it can be safely stopped, the source of the release may be addressed (for example, closing a container).
  - If the situation has the potential to result in a fire, explosion, or exposure or if there is an uncontrolled release (an imminent or actual emergency situation), **call 9-1-1 or Tronox security (702-651-2200),** depending on the location of the release (Section 2.3).
  - Proceed to a safe location.
- Upon notification, the EC will:
  - Evaluate the spill and sound the alarm if not already done.
  - Identify the character, exact source, amount, and areal extent of any released materials.
  - Observe personnel for any signs of overexposure.
  - If necessary, notify others in the area and proceed to move away from the area to an upwind evacuation area following the evacuation plan (Section 2.7).
  - If the situation has the potential to result in a fire, explosion, or exposure or if there is an uncontrolled release, **call 9-1-1 or Tronox security (702-651-2200)**, if a notification has not already been made.
- If the release can be addressed by the Site response team (EC and trained hazardous waste personnel) in a safe manner with the available personal protective equipment and response equipment (Table 2), the services of the response contractor may not be required. Tetra Tech personnel will use the spill kit to contain/absorb and remove spilled materials.
- For larger spills or releases that cannot be addressed by the response personnel, the EC will:
  - Inform the site safety officers (SSOs) of all consultants and contractors hired by NERT.
  - Notify the appropriate local, state, and federal agencies, if necessary, based on the volume of material released.
- After the spill has been cleaned up, the EC will:
  - Sound the all-clear.
  - Direct waste disposal for any cleanup wastes.
  - Conduct required follow-up reporting and documentation.
  - Evaluate and implement corrective actions.
  - As necessary, revise the contingency plan.

Spills in excess of Reportable Quantities must be reported to NDEP. The reportable quantity for hazardous waste is based on the federal EPA guidelines established under Title III, List of Lists (40 CFR 302). Reportable quantities for wastes that have been or are likely to be generated at the NERT Site include:

- Ignitable waste (D001): More than 100 pounds;
- Reactive waste (D003): More than 100 pounds; and
- Characteristic chromium waste (D007): More than 10 pounds of waste.

The reportable quantity for petroleum products, such as gasoline, diesel, and hydraulic fluid is 25 gallons or 3 cubic yards of contaminated material, or the presence on or in groundwater.

A spill of any quantity that affects a water way, or water of the State, must be reported, regardless of the quantity, according to NDEP spill reporting hotline guidance at http://ndep.nv.gov/bca/spil_rpt.htm.

Spills must be reported to the NDEP as soon as possible, but no later than the end of the first working day of the release.

2.5 FIRE PROCEDURES

Site personnel are responsible for fire protection in all of their work areas at all times. Approved fire-fighting equipment and extinguishers in adequate quantities for their work activities must be provided. Fire extinguishers will be kept in close proximity to field activities and their location will be discussed during daily tailgate safety meetings. **Note that a fire extinguisher cannot put out a perchlorate fire, and evacuation will be mandatory for such an event.**

Fire extinguishers will be inspected annually by a contracted professional fire suppression equipment service company and inspected monthly by the EC or the EC's staff to ensure:

- Sufficient charge
- No physical damage
- Tamper indicators are in place
- Up-to-date inspection tag

In the event of a fire:

- The observer of the fire or explosion will:
  - Notify the EC immediately and keep others out of the area.
  - Direct traffic away from the incident.
  - **Call 9-1-1 or Tronox security (702-651-2200),** depending on the location of the release.
  - Proceed to a safe location.
- Upon notification, the EC will:
  - Evaluate the fire area and sound the alarm if not already done.
  - If necessary, notify others in the area and proceed to move away from the area to an upwind evacuation area following the evacuation plan (Section 2.7).
  - If a notification has not already been made, **call 9-1-1 or Tronox security (702-651-2200)**.
- If the fire can be addressed by the response team (EC and trained hazardous waste personnel) in a safe manner with available personal protective equipment and response equipment (Table 2), subcontractor personnel will use the fire extinguishers.
  - A fire that cannot be readily extinguished with one 10-pound fire extinguisher will be considered major and may require evacuation of project and/or Site personnel to safe areas.
  - In no case will workers attempt to fight any fire that cannot be reasonably extinguished within 30 seconds to 1 minute.
  - Workers attempting to extinguish the fire will stand 10 feet away from the fire, aim the nozzle at the base of the fire, and sweep from side to side.
  - Other staff should remain far enough away from the spray to avoid being splashed with the extinguishing agent.
- For fires that cannot be extinguished by Site response personnel (an imminent or actual emergency situation), the EC will:
  - Initiate evacuation procedures (Section 2.7).
  - After calling 9-1-1, describe to the fire dispatcher:
    - Location of the fire, number of injured persons and nature of injuries, if known;
    - Substance(s), chemical(s), or materials involved in the fire;
    - Size of the fire and available fuel (estimate);

        - Extent of fire;
        - Rate that the fire is expanding (estimate);
        - Time the fire started; and
        - Any other pertinent information (for example, are there injuries).
    - Assist firefighters and/or police by notifying them of the location of any flammable or explosive material stored on the premises.
- For all fires, the EC will:
    - Inform NERT subcontractor SSOs.
    - Notify the appropriate local, state, and federal agencies, if necessary based on the volume of material released
- After the fire has been extinguished, the EC will:
    - Sound the all-clear, as allowed by fire or police personnel.
    - Direct waste disposal for any cleanup wastes.
    - Conduct required follow-up reporting and documentation.
    - Evaluate and implement corrective actions.
    - As necessary, revise the contingency plan.

2.6 EXPLOSION PROCEDURES

An explosion is a risk at the Site because of the nature of the materials being manufactured at the Tronox lease property, materials contaminating soil, and construction and demolition debris.

An explosion is considered an imminent or actual emergency situation (Section 2.3). In the event of an explosion, **personnel will immediately initiate evacuation procedures** (Section 2.7). From a safe location, personnel will **call 9-1-1 or Tronox security (702-651-2200), and notify the EC immediately.**

In the event of an explosion:

- Upon notification, the EC will:
    - Sound the alarm if not already done.
    - Initiate evacuation procedures (Section 2.7).
    - If a notification has not already been made, **call 9-1-1 or Tronox security (702-651-2200)**.
    - Describe to the fire dispatcher or Tronox security:
        - Location of the explosion, number of injured persons and nature of injuries, if known;
        - Substance(s), chemical(s), or materials involved in the explosion;
        - If a fire results, the size of the fire and available fuel (estimate);
        - Extent of fire;
        - Rate that the fire is expanding (estimate);
        - Time the fire started and the time the fire was extinguished; and
        - Any other pertinent information (for example, are there injuries or damage to structures, equipment, or waste containers from the explosion).
    - Assist firefighters and/or police by notifying them of the location of any flammable or explosive material stored on the premises.
    - Inform the Tetra Tech SSO, a Tetra Tech office, and a Site representative immediately.

  - Notify the Trust and appropriate local, state, and federal agencies, if necessary, based on the volume of material released.
- After the fire or police personnel have cleared the scene, the EC will:
  - Sound the all-clear, as allowed by fire or police personnel.
  - Direct waste disposal for any cleanup wastes.
  - Conduct required follow-up reporting and documentation.
  - Evaluate and implement corrective actions.
  - As necessary, revise the contingency plan.

2.7 SITE EVACUATION PLAN

An evacuation will be initiated when recommended hazard controls are insufficient to protect the health, safety or welfare of workers. Specific examples of conditions that may initiate an evacuation include, but are not limited to, the following: severe weather conditions; fire or explosion; monitoring instrumentation readings which indicate levels of contamination are greater than instituted action levels; Tronox site emergency alarm; and evidence of personnel overexposure to potential contaminants.

An evacuation will be triggered by any of the following methods, alone or in combination:

- A verbal announcement to all surrounding personnel (“Begin evacuation!”);
- An announcement using cellular telephones to begin evacuation procedures (“Begin evacuation!”);
- The sounding of the Tronox alarm (Figure 1); and
- The sounding of an air horn, following the same pattern as the Tronox alarm.

Figure 1 Tronox Alarm System

Test 1-1	* *, * *, * *, * * * *, * * * *, * * * *, * *, Test and all clear (may be sounded at any time)
Stage 1 3-3	*** ***, *** ***, *** ***, *** ***, *** ***, *** ALERT! Locate a Tronox employee with a radio for information. No evacuation at this time.
Stage 2 Rapid	********** Conduct emergency shutdown of anything that could produce a spark or flame and evacuate to in-plant meeting points.
Stage 3 Steady	——————————— Do not delay. Evacuate to out-of-plant meeting points per instructions or wind direction

In the event of an emergency requiring evacuation, personnel will immediately stop activities and report to the designated place of refuge unless doing so would pose additional risks. When evacuation to the place of refuge is not possible, personnel will proceed to a designated alternate location and remain until further notification from their Field Operation Leader (FOL), the SSO, or the EC.

Evacuation procedures will be discussed during the daily tailgate safety meeting prior to the initiation of project tasks. Evacuation routes will be determined on a daily basis, based on prevailing

winds for that day, and will be discussed during the daily health and safety (H&S) tailgate meeting that begins each day's work. Evacuation routes from the Site and places of refuge are dependent on the location at which work is being performed and the circumstances under which an evacuation is required. Additionally, meteorological conditions (that is, wind speed and direction) may dictate evacuation routes. Evacuation should always take place in an upwind direction from the incident. Windsocks are located at several locations at the Site. An additional windsock will be placed near the work area for quick identification of wind direction.

During an evacuation, personnel will remain at the refuge location until directed otherwise by the Tetra Tech FOL or the incident commander of the emergency response team. When possible, the place of refuge will also serve as the telephone communications point for that area. The FOL, SSO, or EC will perform a head count at this location to account for and confirm the location of Site personnel. Emergency response personnel will be notified immediately of any unaccounted personnel. The SSO will document the names of personnel at the Site (on a daily basis) in the health and safety logbook or the daily tailgate safety meeting form. This information will be used to perform the head count in the event of an emergency.

During an evacuation, decontamination procedures will be performed only if doing so does not further jeopardize the welfare of Site workers. However, it is unlikely that an evacuation would occur which would require workers to evacuate the Site without first performing decontamination procedures.

The NERT Coordinator shall be contacted immediately in the event of a fatal or serious injury, an unpermitted environmental release, or any environmental, health or safety incident that is likely to generate significant publicity or an adverse situation for the Trust.

3.0 HAZARDOUS WASTE TRAINING

NAC 444.8632 and 40 CFR 262.34(a)(4) and 265.16 require that personnel involved in managing hazardous waste, preparing hazardous waste for transportation to the disposal facility, and implementing the RCRA contingency plan receive initial and annual training to perform their hazardous waste duties.

NERT understands that the owner or operator of a facility with hazardous waste operations must provide a program of classroom instruction and/or on-the-job training for Site personnel, which will be provided by Tetra Tech. This plan establishes how Site personnel will be instructed to safely perform their duties associated with hazardous waste management, and in a manner that ensures NERT's compliance with the hazardous waste regulations applicable to the positions in which personnel acting on behalf of NERT are employed, and the duties to which they are assigned.

For each position related to hazardous waste management tasks at the Site:

- Personnel will be named and have a written job title and job description.
- The training type and frequency of training will be documented.
- The Site will maintain training records until closure of the Site. Training records for former employees will be kept for at least 3 years from the date the employee last worked at the Site.

This hazardous waste training plan will be updated when personnel names, job titles, or functions and duties of assigned personnel change, or if regulations are updated.

3.1 TRAINING REQUIREMENTS

Training will familiarize hazardous waste personnel (Appendix B) with implementation of the RCRA contingency plan (Section 2.0), including Site-specific emergency equipment and systems, and emergency procedures such as: 1) communication and alarm systems; 2) responses to fires or explosions; and 3) shutdown of operations. This training will also include information about hazardous waste determination, management of hazardous waste onsite, weekly inspection procedures, and manifesting of waste. This training is required for all relevant personnel initially and then annually thereafter.

All project personnel must complete 40 hours of introductory hazardous waste operations (HAZWOPER) training prior to performing work at the Site. Project personnel who have had introductory training more than 12 months prior to work at the Site must have completed 8 hours of refresher training within the past 12 months before being cleared for work at the Site. In addition, 8-hour supervisory training in accordance with 29 CFR 1910.120(e)(4) will be required for subcontractor supervisory personnel. Additionally, all personnel with 40 hours of initial HAZWOPER training are also required to have a minimum of 3 days of field experience under the direct supervision of an experienced supervisor. Table 3 summarizes training frequencies.

Table 3 Training Frequency

Training	Hazardous Waste Team	All Other Site Supervisors	All Other Site Personnel
Hazardous Waste Management	Annual	n/a	n/a
Hazardous Waste Operations (HAZWOPER) 40-Hour Initial Training	One-time	One-time	One-time
HAZWOPER 8-hour Refresher	Annual	Annual	Annual
HAZWOPER 8-hour Supervisor	Annual	Annual	n/a
Basic First Aid	Biennial	Biennial	Biennial
Cardiopulmonary Resuscitation (CPR)	Biennial	Biennial	Biennial
Tronox Site Training	Semiannual	Semiannual	Semiannual
Perchlorate Hazard Communication	One-time	One-time	One-time

3.2 JOB DESCRIPTION

Following is the job description for members of the hazardous waste management team. All members of the team, which includes the EC and alternate ECs, will receive the same hazardous waste training. Personnel holding these positions are identified by name in Appendix B.

3.2.1 Duties and Responsibilities

Members of the hazardous waste management team have the responsibility for implementation of this HWMP, including the contingency plan and this training plan. Additional duties include:

- Reviewing and signing waste profiles, manifests, and land disposal restrictions forms;
- Tracking manifests returned from the designated disposal facility and preparing exception reports, as needed;
- Maintaining all records required for LQGs;
- Ensuring that waste is being managed correctly at the Site;
- Ensuring that waste accumulation areas are inspected thoroughly weekly and that any deficiencies are addressed in a timely fashion;
- Verifying proper containers and packaging requirements for hazardous waste;
- Marking and labeling of the hazardous waste containers while at the Site; and
- Maintaining the waste tracking log sheet and coordinating disposal of the containers with waste transportation and disposal vendors.

3.2.2 Training Requirements

The following material will be included in both initial and refresher hazardous waste management training. Initial training will be within 6 months of employment, and workers will be under the direct supervision of a trained employee until initial training is conducted. Refresher training will be conducted annually.

Training is designed to meet the federal and state requirements for hazardous waste and is designed for Site personnel who are responsible for ensuring compliance with state and federal hazardous waste regulations (the hazardous waste management team). Upon completion, personnel will know how to properly identify, store, ship, and dispose of hazardous waste.

An outline of a typical RCRA training course is included as Appendix C. Hazardous waste management topics include:

- Regulatory structure, key terms, and definitions;
- Waste identification: what is a hazardous waste and what is excluded from the definition of solid waste or of hazardous waste;
- How to properly accumulate and manage hazardous waste ;
- Preparing the EPA Hazardous Waste Manifest;
- Hazardous waste recordkeeping, reporting, and the training standard;
- General packaging and labeling requirements;

3.3 DOCUMENTATION

NERT and its subcontractors will ensure that all personnel included in this hazardous waste training plan document their training. An example of the training log is included as Appendix D. Documentation of HAZWOPER training and refreshers is maintained as part of the Site's H&S program.

4.0 WASTE MINIMIZATION

RCRA sets national policy that emphasizes the importance of reducing or preventing the generation of hazardous waste. It also contains provisions to promote implementation of waste minimization programs at hazardous waste management facilities. Under those provisions, hazardous waste generators must certify that they have a waste minimization program in place to reduce the volume or quantity and toxicity of their waste to the degree they determine to be economically practicable.

Because of the nature of waste generation at the Site, generation of hazardous waste will be for a finite period during investigation and remediation activities at the Site. Given the nature of the hazardous waste that is expected to be generated, health and safety requirements suggest that hazardous wastes be handled as little as possible and that hazardous wastes be removed from the Site as quickly as possible. However, to minimize the volume or toxicity of waste generated at this Site, the following is being implemented:

- NERT and its contractors have a training program in place to familiarize personnel with proper waste management and have designated individuals as Site points of contact to assist other Site personnel in the proper management of waste, should it be generated.
- Wastes that are recyclable (such as scrap metal) will be recycled rather than disposed of, to minimize the regulatory burden and the quantity of regulated hazardous waste generated.
- Small spills that occur will be promptly cleaned up and contained to prevent the spread of contaminants to other areas or other materials.
- Contaminated material (if generated) will not be placed with clean material.

5.0 WASTE CHARACTERIZATION

To properly manage waste at the Site and to ensure proper transport and disposal, all solid waste must be characterized to determine if it is hazardous waste.

Waste characterization will be based on one or a combination of the following criteria:

- Laboratory analysis of a representative sample of the waste for those contaminants reasonably expected to be present; and
- Generator knowledge about the process or waste (for example, safety data sheets).

Each hazardous waste must be characterized to identify applicable treatment standards and underlying hazardous constituents in accordance with 40 CFR Parts 261 and 262.

Before demolition of a building at the Site, waste characterization sampling will be conducted to classify waste materials. The following types of debris are anticipated to be generated by building demolition activities:

- Steel debris from the demolition of tanks;
- Processed concrete debris;
- Cut-up steel debris;
- Materials removed from trench drains;
- Demolished piping along with the contents of that piping;
- Material contained in electrolytic cells;
- Materials used to construct electrolytic cells;
- Surface and subsurface soil; and
- Sump, purge, and decontamination water.

Appendix E describes the waste streams generated at the Site to date, including the generating process and the waste characterization method used for each.

6.0 WASTE MANAGEMENT AT THE SITE

When hazardous waste is generated at the Site, it will be managed properly in accordance with all applicable Nevada hazardous waste regulatory requirements and in consideration of the environmental and safety hazards the waste presents. Included in management of the waste are the requirements for specific marking and labeling of containers, container selection and use, storage and accumulation requirements, routine inspections, and recordkeeping. Hazardous waste generated at the Site is managed only in containers. Some hazardous construction and demolition waste may be placed directly into truck trailers as it is removed from demolition areas, without being managed in a less-than-90-day container accumulation area (CAA).

6.1 GENERATOR WASTE TRACKING LOG

NERT will maintain an updated waste tracking log. A blank waste tracking log is included as Appendix F. The log, at a minimum, will document the following:

- Container Identification Number;
- Accumulation Start Date (ASD) for waste in each new container (date the waste is first placed into the roll off or container);
- Date by which waste must be shipped to the disposal facility (less than 90 days from ASD);
- Manifest number;
- Manifest date (date the waste is picked up);
- Final copy of manifest received date; and
- Final weight of waste per manifest (weight determined at treatment/disposal facility).

6.2 GENERATOR IDENTIFICATION NUMBER

NDEP has assigned EPA ID Number NVR 000 091 819 to the Site.

6.3 HAZARDOUS WASTE CONTAINER SELECTION AND USE

The container selection and management requirements for hazardous waste are summarized below.

Containers will be selected based on condition and classification. They will be:

- Inspected prior to use to ensure they are in good condition (inspect upon receipt). Containers that are not in good condition (leaky, rusted, severely dented, or lids or bungs damaged) will not be used.
- Evaluated prior to use to determine if the container is compatible with the waste (for example, are the containers acceptable for concrete debris, Class 9 hazardous waste solids, and “sift proof”?). Incompatible containers or containers delivered which contain other wastes will not be used.
- DOT approved (for example, United Nations specified roll-off boxes).
- No unwashed container will be accepted for use.

While at the Site, containers of hazardous waste will be managed to meet all LQG requirements. They will be:

- Closed at all times, except when waste is being added or removed. Waste containers holding solids will have snug-fitting lids or tarps.
- Opened, handled, or stored in a manner that does not cause the container to rupture or leak, or the content to be released to the environment.
- Positioned so that labels and markings are clearly visible.
- Stored so that the container can be inspected from all sides (for example, 30 inches from the building).
- Marked with an ASD when the first waste is put in the container.
- Labeled with the words “Hazardous Waste” and relevant waste codes (Appendix E).
- If ignitable or reactive, managed more than 50 feet from the property boundary.

6.4 LESS-THAN-90-DAY CAA

For quantities of hazardous waste exceeding 55 gallons, a less-than-90-day CAA will be set up that conforms to the hazardous waste requirements summarized below.

- The waste must be placed in approved containers (except bulk concrete waste, which will be directly loaded into trucks that immediately leave the Site).
- The area must be inspected not less than once per calendar week while in use to ensure containers are in good condition. A weekly hazardous waste accumulation area inspection log is included as Appendix G to this plan. Copies of these inspections and corrective action for deficiencies found during inspections will be maintained in the hazardous waste file records at the Site main office.
- A procedure is in place to document and ensure that wastes remain in such areas for less than 90 days. A hazardous waste tracking log is included as Appendix F. All containers will also be marked with an ASD.
- The area will only be used for storage of hazardous waste and not for storing non-hazardous waste materials, chemicals, or equipment. Good housekeeping practices will be followed.
- A copy of the emergency spill response procedures will be posted at the accumulation area, and appropriate spill response material will be located in an immediately accessible location (Section 2.0).
- A two-way communication or cellular telephone will be available to the operator when working in this area for emergency communication purposes. Any staff involved in management of hazardous waste must carry a cellular phone at all times.

6.5 SATELLITE ACCUMULATION AREA (SAA)

In areas where small amounts of hazardous waste are being generated, waste may be managed in SAA containers. Waste must be under the control of the generator and at the point of generation. The amount of hazardous waste in the SAA must not exceed 55 gallons.

When quantities exceed 55 gallons, the container must be moved to the less-than-90-day CAA. When it arrives at the CAA, it must be marked with the ASD (the day the container is moved to the CAA).

The SAA must conform to the hazardous waste requirements summarized below.

- Closed at all times, except when waste is being added or removed. Waste containers holding solids will have snug-fitting lids or tarps.
- Opened, handled, or stored in a manner that does not cause the container to rupture or leak, or the content to be released to the environment.
- Positioned so that labels and markings are clearly visible.
- Stored so that the container can be inspected from all sides (for example, 30 inches from the building).
- Labeled with the words “Hazardous Waste” and relevant waste codes (Appendix E).
- If ignitable or reactive, managed more than 50 feet from the property boundary.

6.6 UNIVERSAL WASTE MANAGEMENT REQUIREMENTS

Universal wastes include used fluorescent or high-intensity lamps, used mercury-containing devices (for example, switches), and used lead-acid or nickel-cadmium batteries. Universal waste must be sent for recycling within 1 year of the ASD.

Containers holding universal waste will be:

- Closed at all times, except when waste is being added or removed. For containers without lids (for example, lamp ship-back boxes), “closed” consists of taped or Velcro closure.
- Opened, handled, or stored in a manner that does not cause the container to rupture or leak, or the content to be released to the environment.
- Positioned so that labels and markings are clearly visible.
- Stored so that the container can be inspected from all sides (for example, 30 inches from the building).
- Marked with an ASD when the item is put in the container.
- Labeled with the words “Used Lamps,” “Used Mercury-Containing Devices,” or “Used Batteries,” as appropriate.

If a lamp is broken, personnel should leave the room, and the room should be ventilated for 5 to 10 minutes by opening a window or door to the outdoor environment. Materials needed to clean up the broken lamp include stiff paper or cardboard; sticky tape; damp paper towels or disposable wet wipes (for hard surfaces); and a glass jar with a metal lid or a sealable plastic bag.

Vacuuming is not recommended unless broken glass remains after all other cleanup steps have been taken because the vacuum could spread mercury-containing powder or mercury vapor. Fragments should be scooped up using stiff paper or cardboard. Duct tape can be used to pick up any remaining small glass fragments and powder. All materials, including the broken lamp and the used tape should be put in a glass jar, plastic bag, or other sealable container. The broken lamps should be managed following the same procedures outlined above.

Lead acid batteries should be stored in containers so that terminals do not contact each other. The terminals should be covered with clear, non-conducting tape.

6.7 USED OIL MANAGEMENT REQUIREMENTS

Used oil may be generated during maintenance of vehicles, compressors, process pumps, or hydraulic equipment. In order to be exempt from hazardous waste management requirements or other levels of regulation, it should be collected for recycling by a used oil transporter with an EPA ID number.

Alternatively, it may be transported to a recognized collection center (for example, an oil retailer or a community recycling center).

Containers holding used oil will be:

- Closed at all times, except when waste is being added or removed.
- Opened, handled, or stored in a manner that does not cause the container to rupture or leak, or the content to be released to the environment.
- In good condition (no dents or visible rust).
- Stored so that the container can be inspected from all sides (for example, 30 inches from the building).
- Labeled with the words “Used Oil.”

If used oil is spilled, it will be cleaned up immediately using oil absorbent material (Table 2). Used oily absorbent material will be containerized, and the container will be labeled “Used Oil Absorbent.” Used oily absorbent can be disposed of as nonhazardous refuse if the container does not hold any free liquids. If the container does hold free liquid, it should be sent for recycling as used oil.

7.0 WASTE SHIPMENTS

7.1 DISPOSAL FACILITY SELECTION

Disposal facilities selected for receiving hazardous waste will:

- Be in physical compliance with applicable state laws;
- Not be releasing any hazardous wastes, hazardous constituents, or hazardous substances;
- Meet minimum technology requirements;
- Have a corrective action program to address releases and environmentally significant releases at non-receiving units at the facility; and
- Demonstrate a properly designed system, and must presently operate (and historically have operated) in a manner that controls the types of materials accepted for disposal.

A list of hazardous waste disposal facilities approved by NERT is included as Appendix H.

7.2 HAZARDOUS WASTE DOCUMENTATION

A properly trained (Section 3.0) and designated Site representative will review and sign waste profile sheets, land disposal restriction (LDR) forms, and manifests. A disposal facility-approved and generator-signed waste profile sheet (along with supporting waste characterization documentation, such as sample results) will result in the disposal facility issuing a permit (authorization) for that waste to be shipped to the disposal facility. Every load of hazardous waste leaving the Site also will be accompanied by a properly filled out and signed manifest with an LDR form attached.

Waste documentation will include the following, as applicable:

- Waste profile sheets (forms supplied by disposal facility) with supporting waste information (such as laboratory analysis) attached;
- Manifests for hazardous waste shipments;
- LDR notification/certifications (forms supplied by disposal facility);
- Copy of the disposal facility-issued permit or acceptance letter to accept wastes as profiled; and
- Copies of the weekly inspection and waste tracking log.

7.3 TRANSPORTATION

All RCRA-regulated hazardous wastes are considered to be DOT hazardous materials and must be shipped in accordance with applicable DOT requirements. Hazardous material transported on U.S. land, water, or air must be properly classified, described, packaged, marked, and labeled for shipment as required by applicable DOT regulations. A DOT-trained person will review 49 CFR 172.101 to verify the packaging, shipping description, marking, labeling, and manifest prior to shipment.

7.4 REPORTABLE QUANTITY DETERMINATION

Hazardous waste is subject to federal and state spill or release reporting requirements according to the following:

The reportable quantity for hazardous waste is based on EPA guidelines established under Title III, List of Lists (40 CFR 302). Reportable quantities (RQ) for wastes that have been generated at the NERT Site include:

- Ignitable waste (D001): More than 100 pounds
- Reactive waste (D003): More than 100 pounds
- Characteristic chromium waste (D007): More than 10 pounds

A spill of any quantity that affects a water way within the state of Nevada must be reported, regardless of the quantity. The RQ applies to each shipment of hazardous waste and must be included with the proper shipping description on the manifest.

7.5 PACKAGING

Once a hazardous waste is characterized, it will be packaged, labeled, marked and/or placarded, as necessary, and in accordance with applicable regulations.

7.6 UNIFORM HAZARDOUS WASTE MANIFEST

For each bulk container of hazardous waste, the container will be transported to the disposal facility containing the following information on the manifest (EPA Form 8700-22):

- Shipping Description (including technical or group names (49 CFR 172.101).
- Total Quantity: The total quantity of waste must appear either before or after the above information along with the unit of measure (e.g., P for pounds).
- Reportable Quantity: If a RQ of a hazardous material or substance applies, then an “RQ” must appear either before or after the shipping description.

Other required information:

- EPA identification numbers for: 1) generator; 2) transporter(s); and 3) disposal facility.
- 24-hour emergency response telephone number supplied by the disposal facility. This number must be:
    - Monitored at all times the hazardous material is in transportation, including storage incidental to transportation;
    - Monitored by a person who is knowledgeable of the hazardous material being shipped and has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information;
    - Listed conspicuously on the manifest (e.g., “Emergency Contact _____”).
- Signatures of generator (Shipper’s Certification) and first transporter signature.
- Disposal facility name and address.
- Profile number assigned by the disposal facility.

The facility’s copy of the signed manifest will be detached and retained at the facility after both the facility and first transporter have signed. The remaining copies of the manifest (including original front page) will be given to the transporter along with the LDR certification (first disposal only), and the disposal facility permit. One copy of the manifest returned from the disposal facility will be sent to NDEP.

7.7 PLACARDING

Most hazardous waste generated by the NERT Site will be contained in bulk roll off containers. When the waste containers have 1,001 or more pounds of Class 9 hazardous waste inside, placards are required. Placards will be affixed on each side and each end (all four sides) of the vehicle.

NERT will confirm use of placards for hazardous waste transportation (49 CFR 172.506). Appropriate placards will be determined by DOT-trained personnel. For most wastes, placards will be supplied by the transporters in advance, based on the waste profile. The Site will have extra placards on hand, in the event the transporter arrives without placards.

8.0 RECORDKEEPING AND REPORTING FOR HAZARDOUS WASTE GENERATORS

The following sections contain the recordkeeping and reporting requirements for hazardous waste generators.

8.1 MANIFESTS AND BILLS OF LADING

The Site will maintain all hazardous waste manifests for the duration of the project. After the completion of the project, manifests will be maintained for at least 3 years after the last shipment of hazardous waste. For individual shipments, the copy of the manifest offered by the transporter will be maintained at the Site until the counter-signed manifest is received from the designated facility. After the counter-signed manifest is received, all earlier copies of that manifest can be discarded. The Site will also maintain for any bills of lading for used oil or other regulated wastes (for example, polychlorinated biphenyl wastes) and receipts for shipments of universal waste for the duration of the project.

8.2 EXCEPTION REPORTING

If the counter-signed manifest is not received from the designated facility within 35 days of the date the waste was collected by the transporter, the Site will document all attempts to locate the waste during this time, including efforts to contact the transporter and/or the owner or operator of the receiving facility. If the original manifest is not received by day 45, an exception report will be filed with NDEP. All calls or other efforts undertaken to locate shipments will be documented in a log and will be included along with the exception report and a copy of the manifest with a cover letter.

8.3 DISCREPANCY REPORTING

Discrepancies due to differences between the quantities (for example, a weight difference of > 10% or different number of containers) of hazardous waste designated on the manifest or shipping papers and the quantity of hazardous waste a facility actually receives will be rectified within 15 days after the disposal facility receives the waste.

8.4 BIENNIAL HAZARDOUS WASTE REPORTING

As a LQG of hazardous waste, the Site is required to complete and submit a Biennial Report to NDEP documenting the volumes of hazardous waste generated during odd-numbered years. The forms will be submitted by March 1 of each even-numbered year. Copies of all biennial reports will be maintained at the Site for the duration of the project. After the completion of the project, copies of Biennial Reports will be maintained for at least 3 years after the last shipment of hazardous waste.

8.5 TRAINING RECORDS

Hazardous waste training records on current personnel will be kept until closure of the Site. Training records on former employees will be kept for at least 3 years from the date the employee last worked at the Site.

8.6 RECORDKEEPING

Hard copies or electronic copies available to personnel onsite will be maintained as outlined below. The following hazardous waste records will be retained by the Site:

- Hazardous waste Biennial Reports
- RCRA Site Identification Form
- Waste characterization records (e.g., profiles, analytical documentation, generator knowledge)
- Hazardous waste manifests
- Spill reports
- Training records on emergency preparedness
- Weekly inspection logs for hazardous waste accumulation areas
- Waste tracking logs
- Exception reports
- Site inspection reports, logs, and schedule
- Written contingency plan (Section 2.0 of this HWMP)

Appendix A
Emergency Response Coordination Letters

OFFICE OF THE NEVADA ENVIRONMENTAL RESPONSE TRUST TRUSTEE

Le Petomane XXVII, Inc., Not Individually, But Solely as the Nevada Environmental Response Trust Trustee
35 East Wacker Drive - Suite 1550
Chicago, Illinois 60601
Tel: (312)498-2800

December 11, 2017

City of Henderson Office of Emergency Management and Fire Department
Henderson City Hall
P.O. Box 95050
Henderson, NV 89009

Subject: RCRA Contingency Plan Update
Nevada Environmental Response Trust (NERT)
510 S. Fourth Street
Henderson, Nevada

Dear Sir or Madam:

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You may comment on this plan and schedule a visit by contacting me by telephone at (702) 960-4309, or in writing at the address above.

Thank you for your prompt attention to this matter.

Office of the Nevada Environmental Response Trust

Stephen R. Clough

Stephen R. Clough, P.G., CEM
Emergency Coordinator
CEM Certification Number: 2399, exp. 3/24/19

Enclosures (1)

OFFICE OF THE NEVADA ENVIRONMENTAL RESPONSE TRUST TRUSTEE

Le Petomane XXVII, Inc., Not Individually, But Solely as the Nevada Environmental Response Trust Trustee
35 East Wacker Drive - Suite 1550
Chicago, Illinois 60601
Tel: (312)498-2800

December 11, 2017

St. Rose Dominican Hospital
3001 St Rose Pkwy
Henderson, NV 89052

Subject: RCRA Contingency Plan Update
Nevada Environmental Response Trust (NERT)
510 S. Fourth Street
Henderson, Nevada

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35 East Wacker Drive - Suite 1550
Chicago, Illinois 60601
Tel: (312)498-2800

December 11, 2017

City of Henderson Police Department
P.O. Box 95050
Henderson, NV 89009

Subject: RCRA Contingency Plan Update
Nevada Environmental Response Trust (NERT)
510 S. Fourth Street
Henderson, Nevada

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Le Petomane XXVII, Inc., Not Individually, But Solely as the Nevada Environmental Response Trust Trustee
35 East Wacker Drive - Suite 1550
Chicago, Illinois 60601
Tel: (312)498-2800

December 11, 2017

Las Vegas Metropolitan Police Department
400 S. Martin L. King Blvd.
Las Vegas, NV 89106

Subject: RCRA Contingency Plan Update
Nevada Environmental Response Trust (NERT)
510 S. Fourth Street
Henderson, Nevada

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Le Petomane XXVII, Inc., Not Individually, But Solely as the Nevada Environmental Response Trust Trustee
35 East Wacker Drive - Suite 1550
Chicago, Illinois 60601
Tel: (312)498-2800

December 11, 2017

Clark County Fire Department
575 E. Flamingo Rd.
Las Vegas, NV 89119

Subject: RCRA Contingency Plan Update
Nevada Environmental Response Trust (NERT)
510 S. Fourth Street
Henderson, Nevada

Dear Sir or Madam:

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Enclosures (1)

Appendix B
Hazardous Waste Personnel

Name	Job Title
Steve Clough	Primary Emergency Coordinator, Hazardous Waste Management Team
Kyle Hansen	Alternate Emergency Coordinator, Hazardous Waste Management Team

Appendix C
Training Outline

Nevada Environmental Response Trust
RCRA Training

1) Introduction to RCRA (40 CFR 260-268, NAC 444)
    a) Definition of a solid waste
    b) Exclusions
    c) Definition of a hazardous waste
        i) Listed wastes (F, P, U, K)
        ii) Characteristic wastes (D)
    d) Universal wastes
2) Waste Characterization Process
    a) Review exclusions
    b) Generator/Process knowledge
    c) Sampling and Analysis
        i) SW-846 and totals vs. TCLP
        ii) Representative sampling
        iii) Disposal facility requirements and profiles
3) Generator Requirements
    a) EPA ID Number
    b) Generator categories and quantities
        i) Large quantity generator (LQG) definition
        ii) Small quantity generator (SQG) definition
        iii) Conditionally exempt small quantity generator (CESQG) definition
    c) LQG accumulation areas and inspection requirements
        i) 90-day accumulation and accumulation start dates
        ii) Container management, marking, and labeling
        iii) Container condition
        iv) Weekly inspection criteria and documentation
        v) Emergency response equipment
    d) Satellite Accumulation Areas
        i) 55-gallon limit
        ii) Container management, marking, and labeling
        iii) Point of generation issues

4) Contingency Plan
    a) Role of the Emergency Coordinators
    b) Arrangements with emergency providers (e.g., fire department and haz mat team).
    c) Emergency equipment contents and location
    d) General emergency procedures
    e) Procedures for fire, spills, and explosions
    f) Evacuation plan
5) Transportation and Disposal
    a) RCRA waste requirements and correlation to DOT regulations
    b) Use of labels and use of placards
    c) Shipping description
    d) Manifesting requirements
        i) Manifest contents
        ii) Land Disposal Restrictions (LDR) forms
        iii) Exception reporting
6) Recordkeeping
    a) Manifests
    b) Inspection logs
    c) Waste analyses
    d) Discrepancy Report
    e) Biennial Reports

Appendix D
Training Log

ANNUAL AND INITIAL HAZARDOUS WASTE TRAINING

Year: 2017

Training Conducted By: Heather Wood Heather K. Wood Digitally signed by Heather Wood DN: cn=Heather Wood, o, ou=Tetra Tech EM Inc., email=heather.wood@gmail.com, c=US Date: 2017.01.06 15:30:00 -07'00'

Name	Signature Certifying Training	Date of Hazardous Waste Training
STEPHEN CLOUGH	Stephen Clough	1/6/2017

Year: 2017

Training Conducted By: Heather K. Wood Digitally signed by Heather Wood Date: 2017.10.31 14:25:38 -06'00'

Name	Signature Certifying Training	Date of Hazardous Waste Training
Kyle S. Hansen	Kyle S. Hansen	10/31/17

Appendix E
Hazardous Wastes Generated

Stream #	Profile #	Short Waste Desc	Waste Category	Waste Code	Waste Description	Waste Characterization Basis	Sample ID(s) and Report Number(s)	Destination Facility
D05-01	3825-16-15444	Construction debris	Nonhazardous	n/a	Nonhazardous construction and demolition debris and trash: plastic, metal, fiberglass, wood, painted wood (not lead-based paint per HAZMAT Survey), and bird droppings.	Pre-Demolition Hazardous Materials Inspection Unit 1 Chlorinator Building and Cell Basement (Tetra Tech 2016) report confirmed via XRF analyses that painted wood and non-wood materials in this waste stream do not contain lead-based paint (Section 4.2.1 of the report) as defined by EPA.	No sampling required. Product and process knowledge that materials are inert debris and HAZMAT Survey for lead-based paint are sufficient.	Republic Services - Apex Landfill, Las Vegas, NV
D05-02	3825-16-15444	Concrete debris	Nonhazardous	n/a	Concrete debris generated from demolition of West End Unit 1 Chlorinator Building, floors 2, 3, and 4	Three composite samples were collected on July 26, 2016 and analyzed for TCLP VOCs, TCLP SVOCs, TCLP RCRA 8 metals, total PCBs (including Aroclor 1268), perchlorate, and chlorate. All VOCs, SVOCs, and PCBs were non-detect. For RCRA metals there were hits in all three samples for barium and chromium; however, all results were below RCRA regulatory levels. Sample data also reported very low levels of chlorate and perchlorate.	Sample ID(s): 2nd Floor Concrete; 3rd Floor Concrete; and 4th Floor Concrete. Data report(s): J153750-1	Service Rock Products - Henderson, Nevada
D05-03	n/a	Scrap metal, including painted metal with LBP	Nonhazardous	n/a	Scrap metal (steel, etc.) from building – structural and equipment or component metal, including painted metal with lead-based paint	*Pre-Demolition Hazardous Materials Inspection Unit 1 Chlorinator Building and Cell Basement* (Tetra Tech 2016) report confirms in Section 6.2 (Lead Based Paint) that "Materials that are recycled, such as metal components are not subject to waste characterization provisions under EPA, but proper disclosure of lead containing materials should be provided to the recycling facility for hazard communication purposes." Before shipment, Tetra Tech will provide notice to the scrap metal recycler that certain materials contain lead-based paint.	No sampling required.	Desert Recycling - Las Vegas, NV
D05-04	869951	Mercury vapor lamps	Universal	n/a	Mercury vapor lamps	Safety Data Sheet for mercury vapor lamps. Intact lamps may be managed under the Universal Waste Rules rather than full RCRA hazardous waste rules.	No sampling required.	Veolia ES Technical Solutions, Phoenix, AZ
D05-05	TBD	Non-friable asbestos gaskets	Nonhazardous	n/a	Non-friable asbestos gaskets (intact gaskets sandwiched within flanges).	*Pre-Demolition Hazardous Materials Inspection Unit 1 Chlorinator Building and Cell Basement* (Tetra Tech 2016) report confirms asbestos-containing materials in Section 4.1.1.	No sampling required (asbestos).	Republic Services - Apex Landfill, Las Vegas, NV
ETI-01	n/a	Used oil	Nonhazardous	n/a	Used oil generated during maintenance of compressors and pumps	Used oil is managed according to the provisions of 40 CFR 279.	No sampling required.	
ETI-02	TBD	Waste residue from aerosol cans	**Hazardous**	D001	Residue generated during puncture of aerosol cans of paint and lubricants	Safety Data Sheet for paints and lubricants.	No sampling required.	
ETI-04	3825-13-12348	Wastewater treatment FBR sludge	Nonhazardous	n/a	Sludge from the filter press, generated during biological reduction wastewater treatment.	The sludge is sampled and analyzed every 3 years for a special waste authorization. During the most recent sampling in June 2016, it was analyzed for TCLP metals and TCLP VOCs and was determined to be nonhazardous.	Sample ID(s): FBR Bio Solids Data Report(s): J149697-1	Republic Services - Apex Landfill, Las Vegas, NV
ETI-05	3825-13-12349	Filter cake from Cr removal	Nonhazardous	n/a	Sludge from the filter press, generated during wastewater treatment for chromium removal.	The sludge is sampled and analyzed every 3 years for a special waste authorization. During the most recent sampling in April 2016, it was analyzed for TCLP metals and TCLP VOCs and was determined to be nonhazardous.	Sample ID(s): IRON OXIDE BIN 0097 Data Report(s): J145121-1	Republic Services - Apex Landfill, Las Vegas, NV
ETI-06	N/A	Lab pack wastes	**Hazardous**	various	Lab pack initiated during cleanout of maintenance building	Waste determination was based on labels and material safety data sheets	No sampling required.	Clean Harbors, Aragonite, UT

Stream #	Profile #	Short Waste Desc	Waste Category	Waste Code	Waste Description	Waste Characterization Basis	Sample ID(s) and Report Number(s)	Destination Facility
F01-01	3825-17-3278	Weathered utility poles	Nonhazardous	n/a	During the AP-5 pond remediation project, one wooden power pole adjacent to the pond that is no longer in use will be removed and disposed of off-site. The project is not able to reuse the poles on site. It is estimated that the pole will constitute approximately 2 cubic yards of waste. It will be resized for disposal, and any resulting wood chips will be collected and disposed of with the poles.	The areas from where the pole will be removed is not within the pond or pond liner and containment area and are not anticipated to be contaminated from activities performed at the AP-5 pond or pond contaminants. The pole will be removed from the ground and any adhering loose soil from the below-ground portion of the poles will be removed and left in place on the ground at the respective locations.	No sampling required. Product and process knowledge are sufficient.	Republic Services - Apex Landfill, Las Vegas, NV
F99-01	3825-17-5148	Lift station #1 soil pile	Nonhazardous	n/a	Soil generated November 2016 as a result of excavations for the replacement of piping secondary containment at Lift Station 1	One 8-point composite sample was collected on 9/14/16, for an estimated 80 CY. The sample was analyzed for the gas and diesel range organics, RCRA 8 metals, perchlorate, SVOCs and VOCs, and mercury. No regulatory or project thresholds were exceeded.	Sample ID(s): LS1Pile-20170303 Data Report(s): 440-178767-1	Republic Services - Apex Landfill, Las Vegas, NV
K01-01	3825-16-20275	Masonry/concrete blast walls	Nonhazardous	n/a	Masonry/Concrete generated during demolition of the blast walls (9/6/16)	One 4-point composite sample was collected on 3/3/17, for an estimated 50 CY. Samples were analyzed for total and TCLP RCRA 8 metals, total and TCLP VOCs, perchlorate, SVOCs, and TPH-GRO and DRO. No regulatory or project thresholds were exceeded.	Sample ID(s): BlastWall-SP-1- 20160914. Data Report(s): J158601-1 (all data except dioxin/furan data) and J158601-2 (just dioxin/furan data)	Republic Services - Apex Landfill, Las Vegas, NV
K01-02	3825-16-20275	Concrete pads/foundations	Nonhazardous	n/a	Concrete generated during removal of the concrete pads/foundations for upcoming IRM activities (9/7/16-9/12/16)	see K01-01	see K01-01	Republic Services - Apex Landfill, Las Vegas, NV
K01-03	3825-16-20275	Asphalt pads	Nonhazardous	n/a	Asphalt generated during removal of the asphalt pads for upcoming IRM activities (9/7/16 - 9/12/16)	see K01-01	see K01-01	Republic Services - Apex Landfill, Las Vegas, NV
K01-04	3825-16-20273	Road base material removed during trenching	Nonhazardous	n/a	Soil (road base material) removed from ECAs 6 and 8 during the trenching for the installation of water lines for extraction well system (9/13/16)	One 4-point composite soil sample was collected on 9/14/16, for an estimated 16 CY, as described in SMP Section 4.2.2.1. Trench was across ECAs D6 and D8 so samples were analyzed for the more conservative chemicals of concern for D8--asbestos, metals, hex chromium, perchlorate, pH, dioxins/furans, SVOCs, and chloride. Samples were also analyzed for flashpoint/ignitability and VOCs as may be required by disposal facility. No regulatory or project thresholds were exceeded.	Sample ID(s): Trench-SP-1-20160914. Data Report(s): J158601-1	Republic Services - Apex Landfill, Las Vegas, NV
K01-soil-01	3825-16-20487	Soil cuttings	Nonhazardous	n/a	Soil cuttings from drilling operations, soil flushing IRM soil borings, and well installations	Two composite samples were collected -- one from bin RT4576 on 7/14/2016 and composited from bins 508, RT4560, 501, and RT4570 on 8/10/16. The samples were submitted for analysis of VOCs,TPH carbon range C6-C40, Title 22 Metals, perchlorate, and hexavalent chromium. The second composite sample was also tested for chlorate and ignitability. No regulatory or project thresholds were exceeded.	Sample ID(s): IDW-RT4576, IDW-2-20160810 Data Report(s): 152875-1, 155352-1	Republic Services - Apex Landfill, Las Vegas, NV

Stream #	Profile #	Short Waste Desc	Waste Category	Waste Code	Waste Description	Waste Characterization Basis	Sample ID(s) and Report Number(s)	Destination Facility
K01-soil-08	3825-17-4134	AP-5 baseline soil cuttings	Nonhazardous	n/a	Soil cuttings from drilling operations, AP-5 area baseline source area characterization. All AP Area baseline source area characterization soil was generated from either ECAs D7, D8, and D5, or from non-ECAs in the AP-5 Area. The vast majority of excavated soil came from non-ECA areas.	see K01-soil-01	see K01-soil-01	Republic Services - Apex Landfill, Las Vegas, NV
K05-01	3825-16-21690	Concrete removed during construction of berm	Nonhazardous	n/a	Approximately 50 CY of concrete removed during construction of the berm north of the three 600,000-gallon Process Tanks; non- ECA area (2 piles)	Concrete located outside of an ECA, and generator has assumed that it is clean.	No sampling required. Product and process knowledge are sufficient.	Republic Services - Apex Landfill, Las Vegas, NV
K05-02	3825-16-21690	Asphalt removed during construction of berm	Nonhazardous	n/a	Approximately 100 CY of asphalt removed during construction of the berm north of the three 600,000-gallon Process Tanks; non-ECA area (2 piles)	see K05-01	see K05-01	Republic Services - Apex Landfill, Las Vegas, NV
K05-03	3825-16-21691	Diesel-impacted soil (10/28/16)	Nonhazardous	n/a	Diesel-impacted soil generated from a release of approximately 2 gallons of fuel from a cracked fuel filter on a water truck on 10/28/16 (est 0.5 CY).	Spill was not in an ECA, and diesel fuel does not contain hazardous constituents.	No sampling required. Product and process knowledge are sufficient.	Republic Services - Apex Landfill, Las Vegas, NV
K05-04	07-018-3439	Porous objects	**Hazardous**	D001	Porous objects (rope, miscellaneous plastic, trash, liner, and wood pieces) from AP-5 Pond	It is presumed, as a conservative measure, that the objects could contain residual ammonium perchlorate (AP) at less than 1% concentration, which may present the hazard of ignitibility. Due to the nature of the materials, they cannot be fully inspected by technicians and confirmed as free of contamination.	No sampling required. Product and process knowledge are sufficient.	US Ecology Landfill, Beatty, NV
K05-05	3825-17-3705	Treatment system equip and solids	Nonhazardous	n/a	Treatment system process equipment and solids mixing and transfer infrastructure debris, including HDPE piping ranging from 2 inches in diameter to 12 inches in diameter; plastic and neoprene hose; poly tubing; metal; PVC pallets; metal and non-metallic walkway grating; wooden telephone poles; electrical conduit; wire; various metal, HDPE, and PVC pipe fittings and valves; plastic liner; and pump parts.	Objects are been removed, sized, cleaned, and visually inspected/confirmed free of residual AP per the NERT *AP-5 Pond Abandoned Equipment Work Plan* and *AP-5 Pond Object Removal Procedures* .	No sampling required. Product and process knowledge are sufficient.	Republic Services - Apex Landfill, Las Vegas, NV
K05-06	3825-16-21691	Diesel-impacted soil (11/10/16)	Nonhazardous	n/a	Diesel-impacted soil generated from a release of approximately 2 gallons of fuel during refueling of a crane on 11/10/16 (est 1 CY).	Spill was not in an ECA, and diesel fuel does not contain hazardous constituents.	No sampling required. Product and process knowledge are sufficient.	Republic Services - Apex Landfill, Las Vegas, NV
K05-07	3825-17-3278	Weathered utility poles	Nonhazardous	n/a	During the AP-5 pond remediation project, three wooden power poles located adjacent to the pond that are no longer in use will be removed and disposed of off-site. The project is not able to reuse the poles on site. It is estimated that the three poles will comprise approximately 10 cubic yards of waste. They will be resized for disposal, and any resulting wood chips will be collected and disposed of with the poles.	The areas where the three poles will be removed from are not located within the pond or pond liner and containment area and are not anticipated to be contaminated from activities performed at the AP-5 pond or pond contaminants. The poles will be removed from the ground and any adhering loose soil from the below-ground portion of the poles will be removed and left in place on the ground at the respective locations.	No sampling required. Product and process knowledge are sufficient.	Republic Services - Apex Landfill, Las Vegas, NV

Stream #	Profile #	Short Waste Desc	Waste Category	Waste Code	Waste Description	Waste Characterization Basis	Sample ID(s) and Report Number(s)	Destination Facility
K05-08	07-012-9455	Oily decontamination water	Nonhazardous	n/a	During the decontamination and resizing of metal debris from the AP-5 pond on November 17, 2016, approximately 1 quart of used gear oil from a Goulds pump was released into a tank that held approximately 900 gallons of decontamination water. Because the water was contaminated with oil, it could not be treated in the onsite WWTP. The water was contained and profiled for offsite disposal.	Because of the relative volumes of oil and water and because of the nature of the oil (compressor oil), the water is not expected to have become hazardous waste from the release of oil. The water consists of potable City water with trace amounts of perchlorate derived from decontamination activities. The water is not expected to be ignitable.	No sampling required. Product and process knowledge are sufficient.	Waste Management - Butterfield Station Landfill, Mobile, AZ
K05-09	07-012-8285	Coolant-contaminated soil	Nonhazardous	n/a	On 1/12/17, approximately 3 gallons of impacted soil generated from approximate release of <1 gal of coolant onto ground surface just west end of AP-5 Pond located in ECA D8 due to malfunctioning thermostat on 1/12/17	A sample was collected on March 29, 2017, and analyzed for total and TCLP VOCs, total and TCLP SVOCs, total and TCLP RCRA 8 metals, dioxins and furans, perchlorate, chlorate, ignitibility, and pH. No regulatory or project thresholds were exceeded.	Sample ID(s): Soil -K05-01 Data Report(s): 180991-1	US Ecology Landfill, Beatty, NV
K05-10	07-012-8285	Coolant-contaminated sand and absorbents	Nonhazardous	n/a	On 1/13/17, approximately 30 lbs (0.011 CY) generated from approximate release of <0.25 gals of coolant into drip pan below light plant that was secured in place due to windy conditions with a sand bag; absorbents used to soak up excess coolant	A sample was collected on March 29, 2017, and analyzed for total and TCLP metals. No regulatory or project thresholds were exceeded.	Sample ID(s): Soil -K05-02 Data Report(s): 180991-1	US Ecology Landfill, Beatty, NV
K05-11	n/a	Used mixer oil	Used oil	n/a	Used oil generated during maintenance of pumps, compressors, and other equipment for AP-5 Pond dewatering treatment. The oil does not come into contact with the water from AP-5.	Used oil is managed according to the provisions of 40 CFR 279.	No sampling required.	World Oil, Compton, CA
K05-12	n/a	Used hydraulic oil	Used oil	n/a	Used oil generated during maintenance of hydraulic equipment for AP-5 Pond dewatering treatment. The oil does not come into contact with the water from AP-5.	Used oil is managed according to the provisions of 40 CFR 279.	No sampling required.	World Oil, Compton, CA
K05-13	3825-17-18097	Used filter bags	Nonhazardous	n/a	Used filter bags generated during AP-5 wash water transfer operations	Three grab samples of filter bag material and filtrate were collected in June and September 2017 and analyzed for RCRA metals, ignitability, perchlorate, and pH. The samples from September also were analyzed for sulfide and cyanide. No regulatory or project thresholds were exceeded.	Sample ID(s): AP-5 Tank T-201 Filter Bag; Filter Bag and Filtrate (9/14/17), Filter Bag and Filtrate (9/19/17) Data Report(s): 187074-1;	Republic Services - Apex Landfill, Las Vegas, NV
L09-01	3825-17-6226	Soil cuttings from Weir Dewatering geotech	Nonhazardous	n/a	Drill cuttings from the geotechnical investigation for L09 Weir Dewatering Water Treatment Plant.	A six-drum composite sample was collected on March 22, 2017, and analyzed for total VOCs, total SVOCs, total metals, perchlorate, and diesel- and gasoline-range organics. No regulatory or project thresholds were exceeded.	Sample ID(s): 6 Drum Sample Data Report(s): 180355-1	Republic Services - Apex Landfill, Las Vegas, NV
L09-02	3825-17-11805	Legacy soil/tamarisk pile	Nonhazardous	n/a	A mixed soil and brush pile that predates Tetra Tech remediation activity, likely generated during land clearing activities in late 2008 or early 2009.	A composite sample was collected on June 26, 2017, and analyzed for total VOCs, TCLP RCRA metals, SVOCs, perchlorate, ignitability, pH, and oil-, diesel- and gasoline-range organics. No regulatory or project thresholds were exceeded.	Sample ID(s): CWTP-150-20170626 Data Report(s): 187276-1	Republic Services - Apex Landfill, Las Vegas, NV
L09-03	TBD	Hydrocarbon-contaminated soil	Nonhazardous	n/a	Soil contaminated with diesel fuel from an overfilled diesel fuel tank.	Diesel fuel typically does not contain any hazardous constituents, and the soil is not in a known contaminated area.	No sampling required. Product and process knowledge are sufficient.	TBD

Stream #	Profile #	Short Waste Desc	Waste Category	Waste Code	Waste Description	Waste Characterization Basis	Sample ID(s) and Report Number(s)	Destination Facility
M02-01	858317	Fluorescent lamps	Universal	n/a	4-foot fluorescent lamps (intact), removed from fixtures prior to demolition of the Unit 4 Cell Building.	Safety Data Sheet for fluorescent lamps. Intact lamps may be managed under the Universal Waste Rules rather than full RCRA hazardous waste rules.	No sampling required.	Veolia ES Technical Solutions, Phoenix, AZ
M02-02	07-024-1571	Non-leaking PCB ballasts	PCB	n/a	Fluorescent lamp ballasts (intact), removed from fixtures prior to demolition of the Unit 4 Cell Building.	PCBs are not regulated as RCRA hazardous waste per 40 CFR 260-262 and equivalent state regulation. Ballasts that were suspected of containing PCBs and were either not labeled or not identified with labeling specifying “PCB-Free,” were assumed to be PCB-containing. None of the PCB ballasts are leaking.	No sampling required.	US Ecology Landfill, Beatty, NV
M02-03	3825-16-10744	Structural steel with LBP & Galbestos	Nonhazardous	n/a	Structural steel painted with LBP with asbestos-containing mastic attached and Galbestos siding	EPA has stated that debris consisting of solid architectural components coated with LBP are unlikely to be hazardous waste because of the small ratio of lead paint to total waste mass. The US Army conducted a study which concluded that whole-building demolition debris is not likely to exceed TCLP limits for lead if it is handled as a single, whole waste stream and disposed of all together. Whole-building demolition debris is therefore considered a non-hazardous waste with regard to lead. The Pre-demolition Hazardous Materials Inspection report dated December 3, 2015, indicated Galbestos siding contains LBP and is an asbestos-containing material. A sample was collected on February 29, 2016, and was analyzed for total lead, TCLP lead, and PCBs. No regulatory or project thresholds were exceeded.	Sample ID(s): Unit 4 Galbestos, Unit 4 Galbestos (2) Data Report(s): 139535-1, 139535-2, and 144278-1	Republic Services - Apex Landfill, Las Vegas, NV
M02-04	3825-16-8337	Construction debris	Nonhazardous	n/a	Concrete debris generated from demolition of first floor slabs	Ten composite samples were collected May 22, 2016, and analyzed for TCLP VOCs, TCLP SVOCs, TCLP RCRA 8 metals, Total PCBs (including Aroclor 1268), perchlorate, and chlorate. No regulatory or project thresholds were exceeded.	Sample ID(s): SP-1-1, SP-2-1, SP-2-2, SP-2-3, SP-2-4, SP-2-5, SP-3-1, SP-3-2, SP-3-3, and SP-3-4 Data Report(s): 440-148230-1	Republic Services - Apex Landfill, Las Vegas, NV
M02-05	3825-16-10741	NH northern pipes with Cr	Nonhazardous	n/a	PVC pipe and valves and non-metallic walkway grating formerly associated with the AST previously northwest of the Unit 4 Cell Building; plastic covered plywood used during demolition for shoring; rebar; and steel piping and piping from SW and SE pipe ends.	Samples were collected on December 29, 2015. All samples were analyzed for VOCs, SVOCs, PCBs, RCRA 8 Metals, hexavalent chromium, perchlorate, ammonia, pH, and cyanide. No regulatory or project thresholds were exceeded.	Sample ID(s): SW #1 and SW #2; SE #1 and SE #2 (piping) Data Report(s): 139377-1 and 146643-2	Republic Services - Apex Landfill, Las Vegas, NV

Stream #	Profile #	Short Waste Desc	Waste Category	Waste Code	Waste Description	Waste Characterization Basis	Sample ID(s) and Report Number(s)	Destination Facility
M02-06	07-018-1649	Haz northern pipes with Cr	**Hazardous**	D001, D007	The northernmost two pipes the Unit 4 Cell Building (see M02-05)	Samples were collected on December 29, 2015. The samples were analyzed for VOCs, SVOCs, PCBs, RCRA 8 Metals, hexavalent chromium, perchlorate, ammonia, pH, and cyanide. After failing 20x rule for chromium and lead, NW #1, NW #2, N #1 Mid, NE #1, and NE #2 samples were recollected on February 24, 2016, for additional testing to include TCLP VOCs, TCLP SVOCs, TCLP RCRA 8 Metals, and Total PCBs. These results indicate TCLP chromium at 51 mg/L for NW #1, 93 mg/L for NW #2, 46 mg/L for N #1 Mid, 140 mg/L for NE #1, and 160 mg/L for NE #2. All samples passed TCLP for lead. Previous sampling of the piping contents indicated perchlorate concentrations ranged from 0.28% to 2%. Tt Chemist professional opinion is that this concentration of perchlorates inside piping residue/sediment may be characteristically ignitable.	Sample ID(s): NW #1, NW #2, N #1 Mid, NE #1, and NE #2 Data Report(s): 132550-1 and 139377-1	US Ecology Landfill, Beatty, NV
M02-07	07-024-1278	Electrolytic cell debris w/Cr	**Hazardous**	D007	Concrete inner linings and steel outer shells from 10 electrolytic cell vessels formerly in basement of Unit 4 Cell Building	Sample data was collected for concrete lining of electrolytic cells (composite samples) on May 9, 2016. The samples were analyzed for TCLP RCRA 8 metals, TCLP VOCs, TCLP Semi - VOCs, PCBs, chlorates, and perchlorates. TCLP analysis found 8.4 mg/L chromium and 0.50 mg/L barium. As a result, NERT considers the electrolytic cell vessel lining debris characteristically hazardous for chromium. Electrolytic cell lining Sample ID “Unit 4 Elec. Cell Debris" contained 1.1% total perchlorate and 0.72% total chlorate. The waste is not considered characteristically ignitable or reactive. The outer steel linings of the electrolytic cells represent not more than 33% of the total mass of the waste stream. The extremely rusted and degraded appearance of the steel suggests that it also would exhibit elevated concentrations of chromium. Based upon the degraded appearance of the steel, and because the steel represents a low percentage of total waste stream mass, NERT also considers the steel linings D007 (chromium) characteristic waste.	Sample ID(s): Unit 4 Elec. Cell Debris Data Report(s): 146858-1	US Ecology Landfill, Beatty, NV

Stream #	Profile #	Short Waste Desc	Waste Category	Waste Code	Waste Description	Waste Characterization Basis	Sample ID(s) and Report Number(s)	Destination Facility
M02-08	07-018-2328-2	Perchlorate residue in electrolytic cell vessels	**Hazardous**	D001, D007	Perchlorate material in one of ten electrolytic cell vessels	A sample of the material was collected on May 9, 2016, and analyzed for chlorate and perchlorate. Sample exhibited 610 mg/kg (0.061%) chlorate and 120,000 mg/kg (12%) perchlorate. Based on the concentration of perchlorate and the physical properties (powder residue), NERT considers this waste likely to be characteristically ignitable. The material also was analyzed for TCLP metals. Chromium was observed at a concentration of 8.4 mg/L. Based on this analysis, NERT considers this waste characteristically hazardous for chromium. At the direction of the destination facility, the material is treated in its container to remove the characteristic of reactivity. It is stabilized by adding water to the container.	Sample ID(s): E. Cell Layer Data Report(s): 146858-1 and 146858-2	Clean Harbors, Aragonite, UT
M02-10	07-024-3623	Sediments from excavation of utility tunnel	**Hazardous**	D001	Following demolition of the Unit 4 Cell Building floor, three voids and a tunnel were discovered on the southwest side of the Unit 4 basement, and one void and tunnel were discovered on the southeast side of the Unit 4 basement. Tt Staff and equipment created access to the voids and tunnels using an excavator equipped with hydraulic hammer to facilitate installation of 8-inch diameter stand pipes to provide drilling access from the basement floor through the sub-basement floor to freely access the underlying soil. Subsequent to demolition and removal of the concrete floor immediately above the voids and tunnels, sediment was discovered.	On July 19, 2016, Tetra Tech collected one grab sample from the sediments removed from the utility tunnel void. The sample was analyzed for total perchlorate, chlorates, TCLP VOCs, TCLP SVOCs, and PCBs (including Aroclor 1268). Because of the concentration of chlorates in the sediment (1.5%), NERT considers this waste to be characteristically hazardous waste as an oxidizer and assigned the waste code D001.	Sample ID(s): Utility Tunnel Sediment. Data Report(s): J153245-1 and J153245-2	US Ecology Landfill, Beatty, NV
M02-11	3825-17-0971	Soil cuttings from Unit 4 investigation	Nonhazardous	n/a	Beginning on June 27, 2016, these cuttings were generated during the advancement of 72 boreholes and installation of one monitoring well related to the Units 4 and 5 Investigation second mobilization.	Five composite samples were collected from each of the five rolloff containers between 7/15/16 and 10/17/16. The samples were analyzed for total VOCs, SVOCs, OC pesticides, PCBs, total RCRA 8 metals, perchlorate, flashpoint ignitability, and pH. In addition, samples were analyzed using for TCLP VOCs and metals. All samples passed TCLP for VOCs and metals. Perchlorate concentrations were less than 1,200 mg/Kg, below the project threshold of 5% for ignitability and reactivity. Flashpoint testing determined that the material was "not ignitable."	Sample ID(s): CHHP20185, CHHP21196, CHHP21350, CHHP21367, CHHP20532 Data Report(s): J155003-1, J152934-2, J152934-3, J155869-1, J157644-1, J162211-1	Republic Services - Apex Landfill, Las Vegas, NV
M02-12	TBD	Concrete cores from Unit 4 investigation	Nonhazardous	n/a	Beginning on June 27, 2016, these cuttings were generated during the advancement of 72 boreholes and installation of one monitoring well related to the Units 4 and 5 Investigation second mobilization.	One composite sample was collected on August 16, 2016. The sample was analyzed for total and TCLP VOCs, total and TCLP RCRA 8 metals, perchlorate, flashpoint ignitability, and pH. A second sample was collected on September 6, 2016. It was also analyzed for SVOCs, OC pesticides, and PCBs.	Sample ID(s): U4U5-Concrete Cores-16-08-2016, CONCRETE CORES Data Report(s): J155817-1, J157648-1	Republic Services - Apex Landfill, Las Vegas, NV
M05-01	3825-17-9665	Soil from soil flushing treatability study	Nonhazardous	n/a	The soil was generated beginning on August 11, 2016, from (a) the drilling of 20 soil borings to evaluate treatment effectiveness and (b) the destruction of eight lysimeters.	Composite samples were collected from bin 2612 and bin 2620 on 01/04/17. The samples were submitted to TestAmerica for analysis of VOCs, TPH-DRO and -ORO, metals, perchlorate, and hexavalent chromium. No regulatory or project thresholds were exceeded.	Sample ID(s): 2612-IDW, 2620-IDW Data Report(s): J172250-1	Republic Services - Apex Landfill, Las Vegas, NV

Stream #	Profile #	Short Waste Desc	Waste Category	Waste Code	Waste Description	Waste Characterization Basis	Sample ID(s) and Report Number(s)	Destination Facility
M05-02	n/a - not required, C&D waste	Nonhazardous construction debris	Nonhazardous	n/a	PVC piping, lining, and geotextile associated with the soil flushing treatability study.	Materials were only ever in contact with clean fill soil, food-grade glycerol, and stabilized Lake Mead water.	No sampling required. Product and process knowledge are sufficient.	Republic Services - Apex Landfill, Las Vegas, NV
M11-01	3825-17-6226	Soil from bioremediation treatability study	Nonhazardous	n/a	Beginning February 20, 2017, these soil cuttings were generated from the preliminary field activities phase (installation of soil borings and monitoring wells) associated with Task M11 Seep Well Field Area Bioremediation Treatability Study.	Characterization of this waste as nonhazardous is based on analytical testing. Three composite samples were collected from each of the three rolloff containers on 3/15/17 and 3/16/17. The samples were analyzed for VOCs, total and TCLP RCRA 8 metals, perchlorate, flashpoint ignitability, and pH.	Sample ID(s): SWFTS-IDW-SO1, -SO2, and -SO3 Data Report(s): J179815-1	Republic Services - Apex Landfill, Las Vegas, NV
M12-01	3825-17-9665	Soil from in situ chromium treatment	Nonhazardous	n/a	Soil cuttings were generated between March 2017 and June 2017 during drilling of injections and monitoring wells associated with the M12 in situe chromium treatability study.	One five-point composite sample was collected on March 29, 2017. The sample was analyzed for total VOCs, total metals, ignitability, hex chromium, TPH-GRO and -DRO, chlorate, and perchlorate. No regulatory or project thresholds were exceeded.	Sample ID(s): IDW-CT-20170329-Composite Data Report(s): J180978-1	Republic Services - Apex Landfill, Las Vegas, NV
M13-01	3825-17-9665	Soil Cuttings from AP Area Treatability Study	Nonhazardous	n/a	Soil cuttings generated in June 2017 during the Plot 2 system installation activities phase of the AP Area treatability study.	Nine samples were collected on June 27, 2017, as part of the trenching activities. Samples were analyzed for SVOCs, perchlorate, RCRA metals, ignitabiltiy, and pH. No regulatory or project thresholds were exceeded.	Sample ID(s): Plot 2-Trench-N1-2.0-20170627, -N2-2.0-20170627, N3-2.0-20170627, -S1-2.0-20170627, -S2-2.0-20170627, -S3-2.0-20170627, -E1-2.0 Solid 06/27/17, -W1-2.0-2 Solid 06/27/17, B1-4.0-20170627 Data Report(s): J187360-1	Republic Services - Apex Landfill, Las Vegas, NV

Stream #	Short Waste Desc	Waste Category	Waste Code	Waste Description	Waste Characterization Basis	Sample ID(s) and Report Number(s)	Disposition
M11 IDW	Rinse water from frac tank cleanout	Nonhazardous	n/a	Investigation-derived waste (IDW) rinse water from frac tank cleanout associated with the Seep Well Field (SWF) Area bioremediation treatability study	The rinse water was sampled on September 23, 2017, and analyzed for metals, VOCs, and perchlorate. No regulatory or project threshold was exceeded.		reinjected into wells

Appendix F
Waste Tracking Log

Container No.	Accumulation Start Date[1]	Date waste MUST be shipped to the TSDF[2]	Manifest number	Date waste collected	Date final manifest copy received[3]	Final weight of waste per manifest (facility weight)

[1] Accumulation Start Date (ASD)– date **first** waste are placed into the waste disposal container. This will remain constant until the container is collected for disposal.

[2] ASD + 90 days

[3] If original manifest is not received back within 35 days of date waste collected, begin tracking its location and implement exception reporting requirements as specified in Waste Management Plan.

Appendix G
Weekly Inspection Log

Weekly Inspection Checklist

For the Month

for Hazardous Waste Container Accumulation Area _____, 20__

	Date	Time	Inspector's Printed Name AND Signature
Week 1	/ /		
Week 2	/ /		
Week 3	/ /		
Week 4	/ /		
Week 5	/ /		

Mark answers Yes or No below

Week 1	Week 2	Week 3	Week 4	Week 5	
					Are containers marked or labeled as "hazardous waste"?
					Are containers marked with the hazardous waste code?
					Are containers marked with the accumulation start date?
					Are any containers near to or exceeding the LQG 90-day timeframe?
					Are container labels visible and readable?
					Are containers kept closed except when being actively used for placement of waste?
					Are containers in good condition?
					Are any containers leaking?
Universal Waste/PCBs					
					Are containers of universal waste and PCB ballasts closed?
					Are containers marked with an accumulation start date?
					Are universal waste containers labeled as "used lamps" or "used batteries," as appropriate?
					Are any universal waste containers near to or exceeding the 1-year timeframe?
					Are PCB containers marked with the "Caution PCBs" label?
					Are PCB containers near to or exceeding the 180-day timeframe?
Safety Equipment					
					Are fire extinguishers charged?
					Are spill kits stocked?
					Is the first aid cabinet stocked?
					Is the eye wash station functioning properly?
					Is the air horn available?

CHECKLIST CONTINUES ON PAGE 2

Week 1	Week 2	Week 3	Week 4	Week 5	
					How many containers of hazardous waste?
					Date on the oldest container of hazardous waste?
					How many containers of universal waste?
					Date on the oldest container of hazardous waste?
					How many containers of PCB waste?
					Date on the oldest container of PCB waste?

Comments: Describe the actions taken to correct each deficiency noted above, and note date each action was taken.

Appendix H
Approved Disposal Facilities

Approved Disposal Facilities	
Facility	**Location**
Republic Services	Apex Regional Landfill 13550 N. Highway 93 Las Vegas, Nevada 89165
US Ecology	Highway 95 Beatty, Nevada 89003
Clean Harbors	11600 N. Aptus Road Aragonite, Utah 84029

APPENDIX D

NERT SITE-WIDE DUST CONTROL WORK PLAN
LAST UPDATED JULY 10, 2015

NERT SITE-WIDE DUST CONTROL WORK PLAN
HENDERSON, NEVADA

Prepared for:

Nevada Environmental Response Trust

35 East Wacker Drive, Suite 1550
Chicago, IL 60601

Prepared by:

Tetra Tech

1489 W. Warm Springs Road, Suite 110
Henderson, NV 89014

July 10, 2015

CERTIFICATION

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 prepared 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.

Description of Services Provided: NERT Site-Wide Dust Control Work Plan, Nevada Environmental Trust Site, Henderson, Nevada

July 10, 2015

Kyle Hansen, CEM
Field Operations Manager/Geologist
Tetra Tech, Inc.

Date

Nevada CEM Certificate Number: 2167
Nevada CEM Expiration Date: September 18, 2016

LIST OF ACRONYMS

AQR	Air Quality Regulations
BMI	Black Mountain Industrial
BMP	Best Management Practices
CAO	Corrective Action Order
CCDAQEM	Clark County Department of Air Quality Environmental Management
DCSC	Dust Control Site Coordinator
ETI	Envirogen Technologies, Inc.
GWETS	Groundwater Extraction and Treatment System
GWTP	Groundwater Treatment Plant
NERT	Nevada Environmental Response Trust
PEP	Particulate Emission Potential
PM10	Particulate Matter Less Than 10 Microns

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APPENDIX

1.0 INTRODUCTION

This Dust Control Work Plan has been prepared to formulate a strategy for controlling fugitive and airborne dust emissions for the Nevada Environmental Response Trust (NERT or Trust) property in Henderson, Nevada. The Trust took title to the former Tronox site in Clark County, Nevada ("Site") on February 14, 2011 as part of the resolution of Tronox's bankruptcy. The NERT Site is an approximately 346-acre area that is part of the larger Black Mountain Industrial (BMI) Complex. Tronox has a long-term lease for approximately 114 acres of the Site (Figure 1) and actively manages Site security, health and safety, dust control, and infrastructure improvements for its leased areas.

Access to portions of the remaining 232 acres have been historically managed by the Groundwater Treatment and Extraction System (GWETS) Operator (Envirogen/Violia) as they were the only entity with a continued presence on the non-leasehold portion of the NERT property. Currently the Trust has a full-time staff member (40 hours/week) based in an office adjacent to the GWETS Operator. There are several consulting firms and contractors working on the Site, each of which poses the potential to impact the Site's compliance with the fugitive dust requirements in the Clark County Air Quality Regulations (AQRs).

The primary objective of this Dust Control Work Plan is to facilitate NERT Site-wide compliance with the Clark County AQRs. This objective will be accomplished by identifying specific sources and activities with the highest potential to produce or generate fugitive or airborne dust emissions, and by developing and implementing procedures and management processes that facilitate control of these sources activities. This plan, designed to address ongoing and planned Site activities, will need to be modified in response to new site conditions or activities or to changes to the Clark County fugitive dust AQRs.

Compliance with this plan will be the responsibility of the NERT Dust Control Site Coordinator (DCSC) and the site occupants (consulting firms/operators). The DCSC shall be designated by the Trust to oversee implementation of this Work Plan.

The remainder of this Work Plan is organized as follows:

- Section 2.0 provides additional project background information including project objectives and a Site description;
- Section 3.0 describes the project area characteristics, such as soil and wind conditions, water sources, and areas of higher dust emission potential;
- Section 4.0 presents the applicable regulatory dust control requirements;
- Section 5.0 describes reasonably available control measures;
- Section 6.0 provides additional implementation steps and reporting requirements;
- Section 7.0 outlines the process by which adjacent property dust emissions are managed;
- Section 8.0 provides area-specific requirements for managing dust emission potential;
- Section 9.0 specifies dust control responsibilities for the areas to be managed by the onsite consultants; and

- Section 10.0 provides the references cited.

2.0 PROJECT BACKGROUND

2.1 Project Objectives

The objective of this NERT Site-wide Dust Control Work Plan is to define and implement procedures and management processes to facilitate Site-wide compliance with the Clark County AQRs for activities or projects that do not require a Dust Control Permit. This Work Plan applies to general site operations and projects or activities which are below Clark County Department of Air Quality Environmental Management (CCDAQEM) thresholds. Projects below the permit thresholds include:

- Soil-disturbing projects less than 0.25 acres;
- Demolition of any structure less than or equal to 1,000 sq. ft.; and
- Trenching operations less than 100 feet in length.

2.2 Dust Control Principles

It is the Trust's objective to implement a Site-wide Dust Control Work Plan using Best Management Practices (BMPs). This work plan is based upon the following BMPs:

- Site security, access, and maintenance will be coordinated by one controlling entity (NERT or its designee).
- Separate areas of operational responsibility will be delineated for each on-site consulting group and adjusted based on active scopes of work.
- Frequency and implementation methods for dust suppression and general site surface maintenance activities will be established based on regulatory requirements.
- Areas of restricted access will be defined and protocols will be established to minimize crust breaking activities such as vehicle transit within restricted areas.
- Routine inspections of the non-leased parcels for unauthorized encroachment and associated activities that result in crust breaking will be required.

2.3 Site Location and Description

The NERT Site comprises approximately 346 acres of the BMI complex in an unincorporated portion of Clark County that is surrounded by the City of Henderson, Nevada. The NERT Site has been the location of industrial operations since 1942 when it was developed by the U.S. government as a magnesium plant to support World War II operations. Following the war, the industrial activities, including production of perchlorate, boron, and manganese compounds, continued at the BMI complex. Former industrial and waste management practices conducted at the NERT Site, as well as those conducted on adjacent properties, resulted in on- and off-site impacts to soil, groundwater, and surface water.

Tronox LLC (Tronox) formerly owned and operated a portion of the BMI complex including the entire 346 acre area now owned by NERT. In conjunction with the settlement of Tronox's bankruptcy proceeding, NERT now owns the former Tronox site and leases back 114 acres of the site. The effective date of the property title transfer and assumption of responsibilities by NERT was February 14, 2011.

3.0 PROJECT AREA CHARACTERISTICS

The Trust presently has a fulltime staff member (40 hours/week) working from an office adjacent to the GWETS Operator. There are also several consulting firms and contractors working on the Site, each of which conducts activities that have the potential to negatively impact the Site's compliance with the fugitive dust requirements in the Clark County AQRs. These activities include ongoing plant maintenance activities, routine sampling events, and new facility construction projects. Fugitive dust control for new construction projects will be governed by task-specific permits filed in compliance with CCDAQEM regulations when the task exceed the thresholds specified in Section 2.1, whereas this Work Plan addresses the ongoing maintenance of potential dust generating areas and BMPs for general site operations and for projects below the threshold limits.

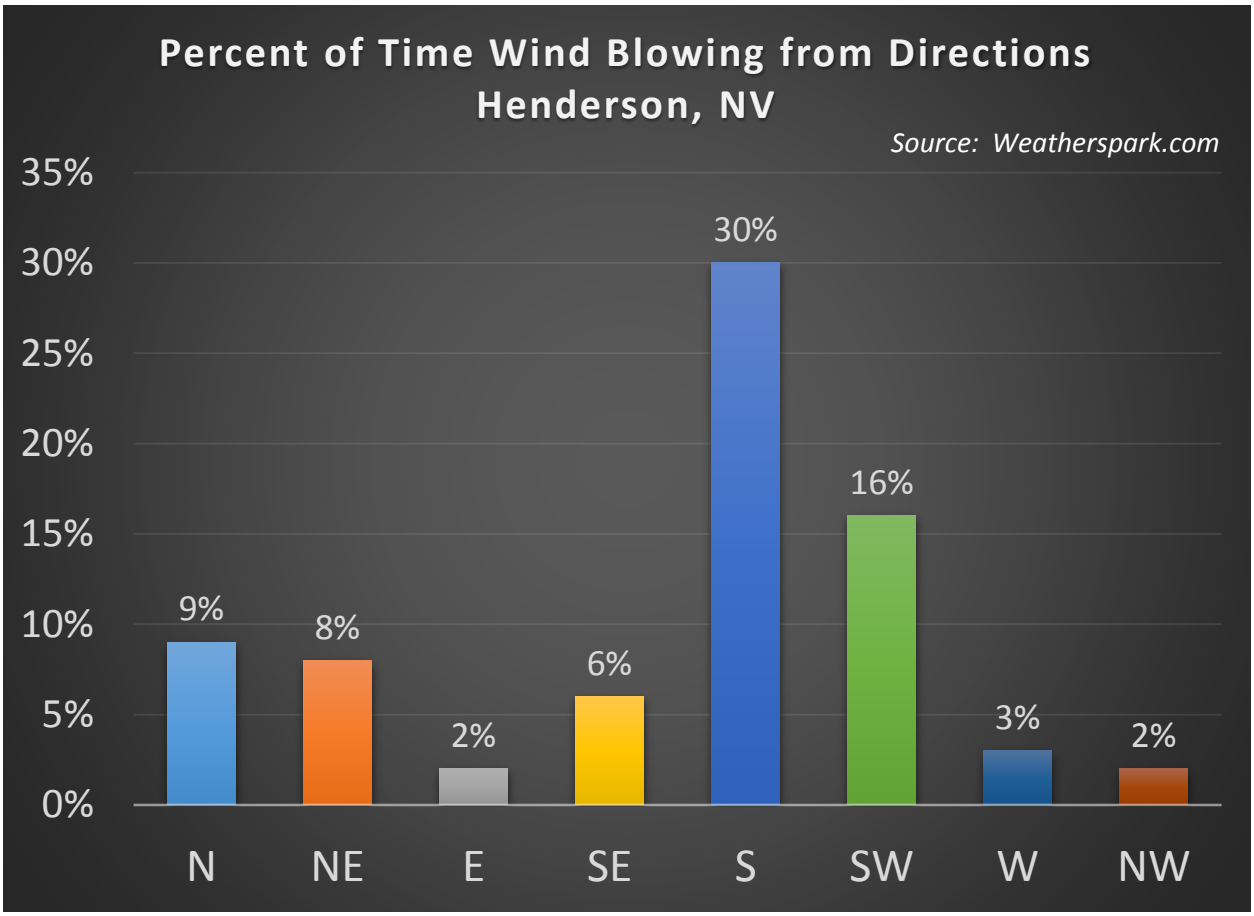
3.1 Soil Conditions

The Site is located on alluvial fill that is composed predominantly of silty sand with gravel. This soil type is generally categorized with moderately low particulate emission potential (PEP), but it is susceptible to erosion due to the lack of vegetation, binding clays, or cementation. During interim soil removal actions performed between August 2010 and November 2011, several areas were excavated and graded, and an earthen dam was placed near the eastern end of the Beta Ditch. Several retention basins were created during this work, and the Site was reclassified as a zero-discharge property. There are two main storm water retention basins, the Central Retention Basin and the Northern Retention Basin, and several minor basins (northwest corner of the Site and north of F Street), as shown on Figure 2. The Central Retention Basin collects surface runoff from the Tronox-leased area. The Northern Retention Basin collects surface runoff water from north of the former Beta Ditch (located near the center of the Site) and accepts overflow from the Central Retention Basin. As these basins receive storm water runoff, there has been an accumulation of fine sand and silt in the upper crust, creating a moderately high PEP soil condition (Figure 2).

3.2 Prevailing Wind Conditions

The bar chart on the next page, which is based on records for the period 2003 to 2012, shows prevailing winds at the Site to be from the south and southwest nearly fifty (50) percent of the time. Prevailing winds reach their peak in the month of April, during which the daily maximum wind speed is ~9 meters/second (m/s)[1]. The lowest average wind speed of ~3 m/s occurs in the month of December, during which the average daily maximum wind speed is ~6 m/s. A wind rose representing a composite of the wind speed and direction at McCarran International Airport for the period 2003 through 2011 is shown on Figures 1 – 3.

[1] This wind speed corresponds to a daily maximum wind speed of 21 mph for April 4 as reported by weatherspark.com.



3.3 Water Source

Water required for general site dust control and projects subject to this Work Plan will be obtained from existing fire hydrants at the Site. These hydrants, which are serviced by Basic Management, Inc., utilize stabilized Lake Mead water. Stabilized Lake Mead water provides a reliable and sufficient water supply to perform dust control activities.

3.4 Potential Dust Sources

The following represent potential fugitive dust sources at the Site:

- Soil and fill loading and unloading operations;
- Soil backfill placement, grading and compacting;
- Vehicles and equipment driving on paved roads during construction and normal operations;
- Vehicles and equipment driving on unpaved roads/pathways during normal operations;
- Soil and fill stockpile storage;
- Wind erosion of areas disturbed during construction activities;
- Wind erosion of areas disturbed during routine sampling activities; and
- Wind action on unprotected spoil piles or material storage areas.

4.0 APPLICABLE DUST CONTROL REQUIREMENTS

The Site is located in a Particulate Matter Less Than 10 Microns (PM-10) Nonattainment Area. The Clark County Code requires compliance with the fugitive dust AQRs as incorporated into Section 9.08.130 in the PM-10 Non-Attainment Areas, which include the following:

- Section 90 – Fugitive Dust From Open Areas and Vacant Lots;
- Section 91 – Fugitive Dust From Unpaved Roads, Alleys and Easements;
- Section 92 – Fugitive Dust From Parking Lots and Storage Areas;
- Section 93 – Fugitive Dust From Paved Roads and Street Sweeping; and
- Section 94 – Permitting and Dust Control for Construction Activities.

These regulations prohibit visible dust emissions beyond the property lines for periods aggregating more than 3 minutes in any 60-minute period. The regulation provisions apply to any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas. The regulations do not specify dust control measures that must be used to ensure that visible dust emission do not cross the property lines. A copy of these Sections from the Clark County Air Quality Regulations, as they appear in Attachment 5 of the Construction Activities Dust Control Handbook Amended July 1, 2014, is provided in Appendix A. The applicable regulations are summarized in Sections 4.1 – 4.5.

Failure to comply with Sections 90 – 94 of the Clark County AQRs will result in potential penalties being assessed for the following classes of violations:

- Violations of permit conditions;
- Failure to maintain soils in a damp, crusted, or stabilized condition, or to clean track-out from paved roads;
- Fugitive dust emissions; and
- Non-compliance with Corrective Action Order (CAO).

The maximum penalties can reach $10,000 per day, per offense.

4.1 Section 90 – Open Areas and Vacant Lots

This regulation applies to open areas and vacant lots that are 5,000 square feet or larger. It stipulates that if an open area or vacant lot is disturbed by any means, then the owner/operator shall implement one or more of the control measures described in Section 5.0 of this document within 30 calendar days following the initial discovery of the disturbance. With respect to the Site, Section 90 is primarily applicable to the basins created as a result of the soil removal activities. This section also stipulates that the owner/operator shall implement all control measures necessary to limit the disturbance of open areas and vacant lots. The regulations attached in Appendix A provide more specific standards, control measures, and test methods as may be applicable or helpful in various scenarios.

4.2 Section 91 – Unpaved Roads, Alleys and Easements

This regulation applies to any unpaved road in the PM-10 non-attainment area. It stipulates that the owner/operator of an unpaved road shall implement one of the approved control measures (e.g., pave, apply dust palliatives, or apply and maintain alternative control measures). The

regulations attached in Appendix A provide more specific standards, control measures, and test methods as may be applicable in various scenarios.

4.3 Section 92 – Parking Lots and Storage Areas

This regulation applies to unpaved parking lots and storage areas that are utilized intermittently for a period of 35 days or less during a calendar year. It stipulates that the owner/ operator shall implement one or more of the control measures described in this section during the period that the unpaved parking lot or storage area is utilized for vehicle parking or storage. If an area is used for storing and handling aggregate and other similar bulk materials, the owner/operator shall implement one of the control measures (e.g., pave, apply dust palliatives, or apply and maintain alternative control measures). The regulation differentiates between on-road and off-road vehicles requiring that all access, parking, and loading areas used by on-road vehicles shall be paved. If an area is used primarily for storage of non-rubber tired vehicles or equipment that is of such weight as to damage or destroy pavement (e.g., heavy equipment), the owner/operator shall implement one or more of the alternative control measures. Appendix A list the performance/stabilization standards and record keeping requirements.

4.4 Section 93 – Paved Roads and Street Sweeping

This regulation applies to paved roads. For purposes of this regulation, the unpaved shoulders and medians of paved roads shall be considered to have control measures effectively implemented when fugitive dust emissions do not exceed 20% opacity and silt loading does not equal or exceed 0.33 oz/ft^2. The silt loading threshold does not apply to unpaved shoulders on which gravel has been applied. Where gravel is utilized to prevent track out of mud and dirt from the unpaved shoulders and medians of the paved roads, surface gravel shall be uniformly applied and maintained to a depth of two (2) inches to comply with the 20% opacity standards. For purposes of this section, the term “gravel” means unconsolidated material greater than 0.25 inch but less than three (3) inches that contains no more than six (6) percent silt by dry weight.

Any owner/operator which utilizes street sweeping equipment on paved surfaces shall acquire only certified PM-10-efficent street sweeping equipment. The use of dry rotary brushes and blower devices for the removal of dirt, rock, or other debris from a paved road or parking lot is prohibited without the use of sufficient wetting to limit the visible emissions to not greater than 20% opacity. The use of dry rotary brushes or blower devices without the use of water is expressly prohibited. Appendix A lists the performance/stabilization standards, test methods, and record keeping requirements.

4.5 Section 94 – Permitting and Dust Control For Construction Activities

This regulation applies to construction activities. Prior to engaging in any construction activities, unless exempted based on exclusions identified in the bullets below, the property owner/operator shall obtain a Dust Control Permit from CCDAQEM. A Dust /Control Permit is not required for the following:

- Soil disturbing activities less than 0.25 acre in over area;
- Mechanized trenching less than one hundred (100) feet in length; and
- Mechanical demolition of any structure smaller than one thousand (1000) square feet.

All applications for projects requiring a Dust Control Permit shall include a dust mitigation plan with appropriate control measures from the Construction Activities Dust Control Handbook. An application for a Dust Control Permit for a project ten (10) acres or more in area, or for trenching

activities one (1) mile or greater in length, shall be required to submit a detail supplement to the dust mitigation plan.

An application for a project of fifty (50) acres or more in area shall contain an actual soils analysis of the entire project. Any construction project having 50 acres or more of actively disturbed soil at any given time shall be required to have in place an individual designated as the Dust Control Monitor. The Dust Control Monitor shall have full authority to ensure that dust control measures are implemented, including inspections, record keeping, deployment of resources, and shutdown or modification of construction of activities as needed.

The regulations attached in Appendix A provide more specific standards, control measures, and test methods as may be applicable in various scenarios.

5.0 CONTROL MEASURES

This section describes active and standby fugitive dust control measures that may be employed at the Site for those projects or activities that do not require a Dust Control Permit.

5.1 Reasonably Available Control Measures

The following measures may be employed to reduce the amount of fugitive dust generated from routine Site activities and projects subject to this Work Plan. The Trust will implement reasonably available control measures BMPs when and where appropriate as follows:

1. Rock aprons and/or rattle plates will be installed as needed at the intersections of dirt access roads and paved public roadways to clean the tires of equipment prior to leaving the Site.
2. All active construction areas, unpaved access roads, parking areas, and staging areas will be watered or stabilized with water (or non-toxic soil stabilizers) as needed to control fugitive dust.
3. All inactive land areas will be inspected a least monthly to determine if re-crusting of the soil is warranted through the application of stabilized Lake Mead water or other engineered palliative.
4. Fencing or signage will be posted to prevent access and additional disturbance.
5. Areas of high silt content (detention basins) will be pre-watered up to 48 hours in advance of vehicle transit associated with sampling activities.
6. Chemical soil stabilizers or water will be applied to form and maintain a crust on inactive construction areas (disturbed lands that are unused for 14 consecutive days).
7. Import and export dirt, sand or loose material will be pre-moistened prior to transport.
8. Paved streets will be swept or cleaned with mechanical sweepers if visible soil material is carried onto them by Site activities.
9. Exposed stockpiles will be covered and watered or stabilized with nontoxic soil binders as needed to control emissions.
10. Trucks transporting bulk materials will be completely covered unless 2 feet of freeboard space for the top of the container is maintained with no spillage and loss of material.
11. The cargo compartment of all haul trucks will be cleaned and/or washed at the delivery site after removal of the bulk material.
12. Movement of bulk material or transfer material must be stabilized prior to handling or at a point of transfer, with the application of sufficient water to chemical stabilizers, or by sheltering or enclosing the operation and transfer line.
13. Traffic speeds on unpaved roads or pathways will be limited to 10 miles per hour.
14. During wind events exceeding 25 miles/hour, when fugitive dust exceeds 20% opacity or visible plume restriction cannot be controlled, all soil disturbance activities will be terminated.

These measures are anticipated to be adequate to meet all applicable dust control requirements under normal conditions. In the event that high wind or other atypical conditions affect the Site, standby measures described below will be implemented as appropriate.

It will be the responsibility of the DCSC to verify that dust is being appropriately controlled by the on-site consultants/operators for their designated areas of responsibility, as described in Section 9.0.

5.2 Standby Control Measures

If visible dust emissions cross the property line, despite implementation of the specified reasonably available control measures, standby control measures will be implemented as quickly as practicable. Standby control measures can include increased watering, the use of chemical suppressants in accordance with CCDAQEM guidelines, or temporary suspension of site activities on unpaved surfaces. The determination to use standby control measures will be per the discretion of the DCSC and/or lead agencies overseeing the property.

6.0 ADDITIONAL IMPLEMENTATION STEPS

This plan will be valid for a period of 2 years from the date of approval by the Trust. NERT (or its designee) shall review the plan once every year to determine whether modifications are required. The plan will be resubmitted bi-annually, at least 60 days prior to the anniversary date.

6.1 Dust Control Personnel Training

To ensure that the dust control measures are adhered to, prior to any new ground disturbing activities, the DCSC will conduct Employee and Contractor Awareness Training that will include a review of this Work Plan and applicable fugitive dust control measures, as well as the importance of strict compliance. The DCSC will track participation in training events by having all participants complete a sign-in sheet. Hard hat decals will be provided to all individuals who complete the training. The DCSC will also conduct audits to make sure that appropriate dust control measures are being implemented as outlined in Section 6.2

In addition to the measures outlined above, daily site safety meetings will be used by NERT's consultants and contractors to reinforce the need for all workers to be cognizant of and responsive to conditions or activities that generate visible dust. Workers will be made aware that the area foreman and supervisors must be notified immediately if dust is observed or if conditions exist where dust could become a problem. Workers will be trained to implement the following corrective actions sequence if dust emissions are observed:

1. Reduce the pace of, or cease, the dust producing activity until the problem is corrected.
2. Notify the DCSC of dust conditions and implement dust suppression procedures.
3. Remove accumulated dirt and soil from problematic areas, and/or cover or isolate dust-generating areas.
4. Increase frequency, volume, and/or coverage of water sprays to prevent soil and dirt from drying.
5. Provide additional dust suppression systems and operating personnel during implementation of the selected dust control measures.
6. Modify operating procedures and methods to eliminate problematic conditions.

6.2 Dust Control Site Coordinator

NERT is the controlling entity at the site and will designate a DCSC who is tasked with implementing dust control as specified in this Work Plan. The DCSC will have authority and responsibility for overseeing implementation and/or consultant/contractor compliance with measures identified in Section 5. In the event the DCSC is not available to fulfill these duties, a fully trained backup able to serve in a similar capacity will be identified and contact information will be provided to the active contractors on site. The DCSC has the following responsibilities:

- Read and understand this Dust Control Work Plan and have it available at the job site.
- Implement the Work Plan and ensure that all employees, workers, and subcontractors know their dust control responsibilities.
- Implement standby control measures when specified reasonably available controls are ineffective.
- Monitor the worksite for compliance with the Dust Control Work Plan.
- Maintain a self-inspection checklist for monitoring the implementation and effectiveness of the control measures. A self-inspection checklist will be used for each source of fugitive dust emissions to help incorporate routine tasks of fugitive dust control into

daily schedules. The checklist is included in the Appendix. It is anticipated that portions of the Trust property will be observed periodically so that over the course of a month the entire site will have been inspected.

The Trust's contractors will post signage as required by dust permits near active construction areas that provides the name and telephone number of the dust control site inspector or his or her designee so that the public may call to report visible dust emissions beyond the property line. The DCSC will log all such calls and take appropriate action to minimize visible dust emissions, if necessary, and record the resolution or remedial action taken.

7.0 ADJACENT PROPERTY DUST CONTROL

In May of 2015 each of the neighboring owners/tenants was contacted to discuss the current dust control plans in place to help identify and minimize the gaps in area control adjacent to the NERT property. The major property holders include Timet and Tronox to the east, Tronox and Lhoist to the south, and Olin and BMI to the west. The northern portion of the NERT property is bordered by Warm Springs Road (Figure 1).

In each case, it was learned there was no formal written work plan prepared by any of the neighboring owners/tenants other than the provisions contained within their air permits as required for the material handling processes. Most entities reported that there were informal institutional controls in place to reduce fugitive emissions. The most frequently reported controls are as follows:

- Vehicular travel routes are covered by concrete or asphalt paving;
- Native soil is protected from crust breaking activities by signage restricting access; and
- Unused areas are covered by gravel mulch.

Currently, Tronox is in the beginning stages of implementing restricted travel paths and placing recycled asphalt in unpaved areas used by security guards during their nightly inspections of the property boundaries. Additionally, all routine sampling conducted on Tronox property by non-Tronox personnel that involves vehicle transit or other dust generating activities will require the submission of a work plan to be approved by Tronox that incorporates pre-wetting and re-crusting of the soil disturbed during sampling activities.

In the event that conditions exist such that dust originates from leasehold or neighboring properties and migrates onto non-leasehold property, the owner/operator of the area of dust origin will be notified by the DCSC. This allows a cooperative effort to identify visible emissions and ensures that control measures will be implemented in a timely fashion. The regulatory threshold is to limit the migration of visible dust emissions to no more than an average of 40% opacity from beyond the property lines onto NERT for periods aggregating more than 3 minutes in any 60-minute period. For ease of implementation, “40 percent opacity” will be interpreted as any visible dust plume in exceedance of the regulatory durations.

The following are points of contact for each neighboring owner/tenant that the DCSC will call in the event that dust plumes in excess of the regulated criteria are observed exiting their property:

Lee Farris	Basic Management Inc.	702.567.0400
Karen Luna	Olin	702.445.4772
Mike Skromyda	Tronox	702.651.2228
John Hefley	Timet	702.275.0540
Terry Thompson	Lhoist	205.704.0627

8.0 AREA SPECIFIC REQUIREMENTS FOR DUST CONTROL

The NERT property is located in an area of the Las Vegas Valley that has been mapped by the CCDAQEM and published in the Construction Activities Dust Control Handbook with moderately low PEP. This is due to the course-grained nature of the native soil. However, during interim soil removal actions performed between August 2010 and November 2011, several areas were excavated and graded, and an earthen dam was placed near the eastern end of the Beta Ditch on the NERT property line. As a result, several storm water retention basins were constructed in such a way as to reclassify the Site as a zero storm water discharge property. The Site now accumulates standing water with heavy storm events.

As the retention basins receive storm water, there is an accumulation of fine sand and silt in the upper crust that characteristically develops a moderately high PEP. This becomes evident when the crust is broken and gusting winds are present. Figure 2 shows these areas with moderately high PEP areas based on general site observations conducted in 2015.

The DCSC will conduct inspections of all areas of the NERT property monthly. Areas where there are monitoring wells being sampled will be inspected by the DCSC immediately after sampling, regardless of interval.

Because of the moderately high PEP of the retention basins and associated low lying areas, the DCSC will inspect these areas weekly. Results of these inspections will be documented in a Trust approved format. The DCSC will prepare a summary of the implemented control measures and survey results in the monthly progress site security report provided by Tetra Tech to the Trust.

9.0 MANAGEMENT OF SITE AREAS BY CONSULTANT

As there are multiple consultants working on the NERT property, areas of responsibility have been assigned to provide ongoing monitoring of soil conditions and the potential for dust generation on a routine basis. Each consultant/operator will have primary responsibility for dust control in the area of assigned responsibility as outlined in Section 8. Figure 3 shows the current assigned areas to be managed by the on-site consultants/operator. However, if a consultant/operator is performing a project in another consultant/operator's area of responsibility, dust control responsibility for that project will remain with the consultant/operator performing the work.

During active construction projects which require a dust permit, the contractor that holds the permit will have primary responsibility to meet the regulatory obligations outlined in the permit. However, the DCSC will retain the site wide inspection and reporting responsibility to the Trust as outlined in this Work Plan.

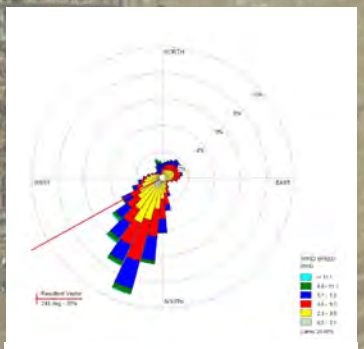
10.0 REFERENCES

Clark County Department of Air Quality Regulations, 2014. Construction Activities Dust Control Handbook. Originally Issued March 2003; Amended July 2014.

NDEP.nv.gov, accessed June 23, 2015. (http://ndep.nv.gov/docs_13/sip_appendix_d.pdf)

Weatherspark.com, accessed June 23, 2015. (www.weatherspark.com/averages/30494/Henderson-Nevada-United-States).

FIGURES



NDEP.nv.gov, accessed June 23, 2015.
(http://ndep.nv.gov/docs_13/sip_appendix_d.pdf)

Warm Springs Road

N Boulder Hwy

Lake Mead Parkway

BMI

Olin

Tronox Leasehold

Timet

Lhoist

USA

MCC Development

Brinell

215

95

N

0 0.25 Miles

Legend

NERT Site Boundary

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TETRA TECH

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1489 West Warm Springs Road, Suite 110
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PHONE: (702) 966-8340

NEVADA ENVIRONMENTAL RESPONSE TRUST

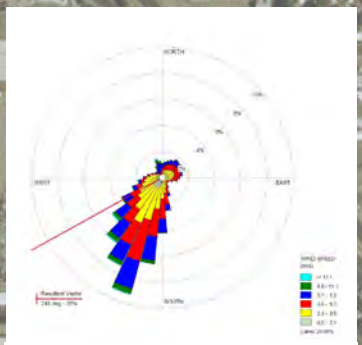
SITE WIDE DUST CONTROL PLAN

SITE LOCATION MAP AND ADJACENT OWNERSHIP

Project No.:	114-520225
Date:	JUN 25, 2015
Designed By:	JJA

Figure No.

1



NDEP.nv.gov, accessed June 23, 2015.
(http://ndep.nv.gov/docs_13/sip_appendix_d.pdf)

Warm Springs Road

Northern Retention Basin

Central Retention Basin

Legend

- Areas with Moderately High PEP
- NERT Site Boundary
- Tronox Operational Area

N

0 600

Feet

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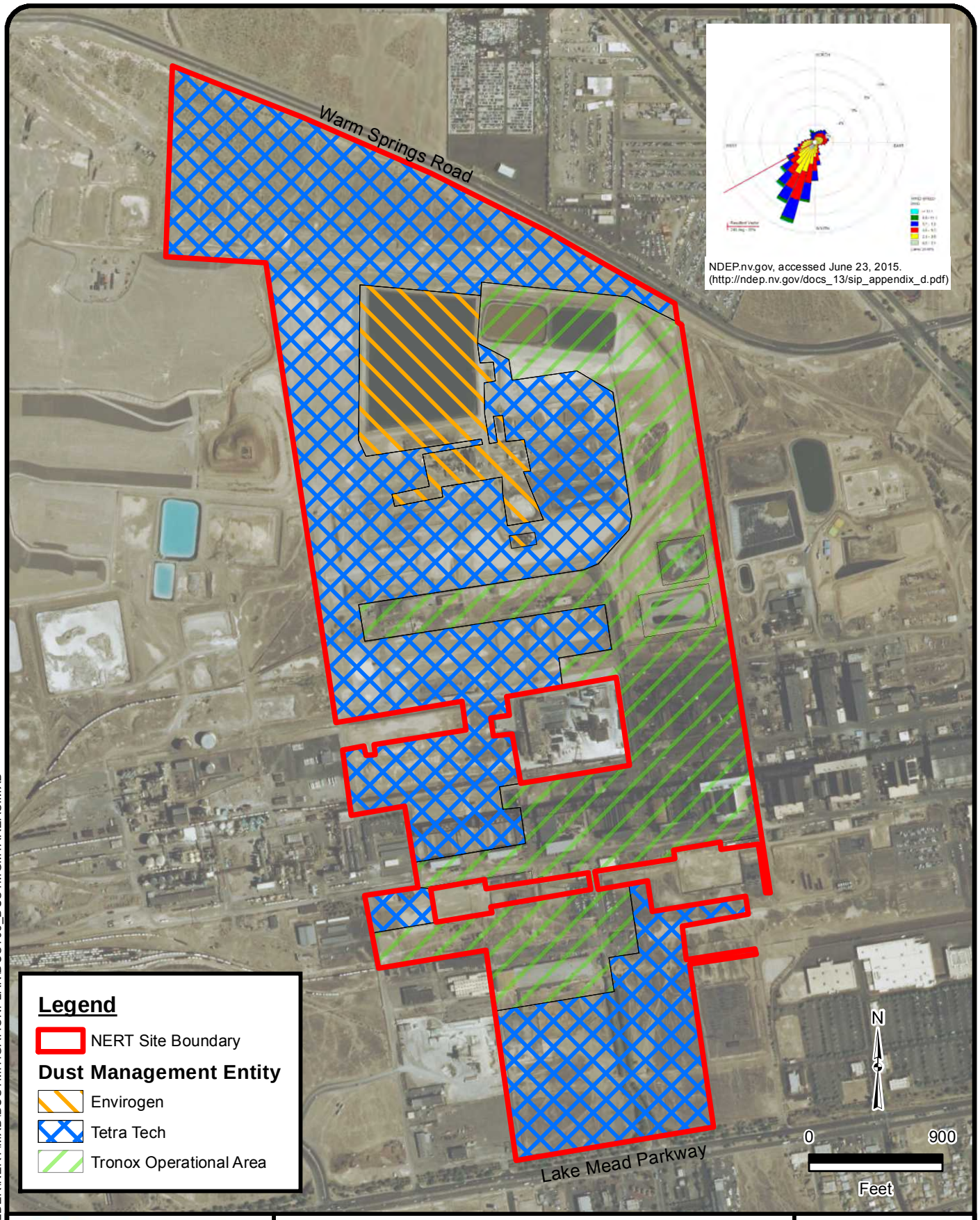
NEVADA ENVIRONMENTAL RESPONSE TRUST

SITE WIDE DUST CONTROL PLAN

AREAS WITH MODERATELY HIGH PARTICULATE EMISSION POTENTIAL (PEP)

Project No.:	114-520225
Date:	JUL 10, 2015
Designed By:	JJA

Figure No.
2



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NEVADA ENVIRONMENTAL RESPONSE TRUST

SITE WIDE DUST CONTROL PLAN

DUST MANAGEMENT AREAS

Project No.:	114-520225
Date:	JUN 25, 2015
Designed By:	JJA

Figure No.

3

APPENDIX A

ATTACHMENT 5

AIR QUALITY REGULATIONS PERTAINING TO DUST CONTROL

1.	Section 90	Fugitive Dust from Open Areas and Vacant Lots
2.	Section 91	Fugitive Dust from Unpaved Roads, Unpaved Alleys, and Unpaved Easements Roads
3.	Section 92	Fugitive Dust from Unpaved Parking Lots
4.	Section 93	Fugitive Dust from Paved Roads and Street Sweeping Equipment
5.	Section 94	Permitting and Dust Control for Construction Activities

SECTION 90 - FUGITIVE DUST FROM OPEN AREAS AND VACANT LOTS

90.1 **FUGITIVE DUST From OPEN AREAS AND VACANT LOTS**

90.1.1 **Purpose:** To limit the EMISSION of PARTICULATE MATTER into the AMBIENT AIR from OPEN AREAS AND VACANT LOTS.

90.1.2 **Applicability:** The provisions of this Regulation shall apply to OPEN AREAS AND VACANT LOTS which are located in the PM_{10} NONATTAINMENT AREA (HYDROGRAPHIC BASIN 212) and the Apex Valley (HYDROGRAPHIC BASINS 216 and 217). Nothing in Section 90 of these Regulations shall be construed to prevent enforcement of Section 40 (Prohibition of NUISANCE Conditions) of these Regulations. The provisions of this Regulation shall not apply to Normal Farm Cultural Practices or the raising of fowl or animals. The provisions of this Regulation shall not apply to STATIONARY SOURCES as defined in Section 0, except that these control measures shall be considered as part of a BACT determination.

90.1.3 **Effective Date Of This Regulation:**

90.1.3.1 Section 90, adopted by the Clark County Board of County Commissioners on June 22, 2000, shall be effective in HYDROGRAPHIC BASIN 212 on January 1, 2001, except as otherwise provided herein.

90.1.3.2 Section 90 shall be effective in HYDROGRAPHIC BASINS 216 and 217 on April 1, 2002, except as otherwise provided herein.

90.2 **Requirements:**

90.2.1 **OPEN AREAS AND VACANT LOTS:** If OPEN AREAS AND VACANT LOTS are 5,000 square feet or larger and are disturbed by any means, including use by MOTOR VEHICLES and/or OFF-ROAD MOTOR VEHICLES or material dumping, then the OWNER AND/OR OPERATOR of such OPEN AREAS AND VACANT LOTS shall implement one or more of the CONTROL MEASURES described in Subsection 90.2.1.1 of this Regulation within 30 calendar days following the initial discovery of disturbance or vehicle use on OPEN AREAS AND VACANT LOTS. The OWNER AND/OR OPERATOR shall implement all control measures necessary to limit the disturbance of open areas and

vacant lots in accordance with the requirements of this regulation. **Advisory Notice:** In order to conserve water to the greatest extent practicable, the use of RECLAIMED WATER is highly encouraged.

90.2.1.1 **CONTROL MEASURES:**

(a) Where there is evidence of soil disturbance by MOTOR VEHICLES and/or OFF-ROAD VEHICLE use, prevent MOTOR VEHICLE and/or OFF-ROAD VEHICLE trespassing, parking, and/or access, by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees, or other effective traffic Control Measures. A stable surface area shall be established and maintained by using one of the CONTROL MEASURES set forth in Subsections 90.2.1.1(b) or (c) or by the effective application of water in compliance with the stabilization standards set forth in Subsection 90.2.1.2. Where measures to prevent vehicular trespassing and movement are not effective, the application of water will not be utilized for surface stabilization. For the purposes of this Subsection, use of or parking on OPEN AREAS AND VACANT LOTS for noncommercial and non-institutional purposes by the OWNER AND/OR OPERATOR of such OPEN AREAS AND VACANT LOTS shall not be considered vehicle use under this Subsection. In addition, vehicle use related to landscaping maintenance shall not be considered vehicle use under this Subsection. For the purpose of this Regulation, landscape maintenance does not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes; or

(b) Where a DISTURBED SURFACE AREA exists (including disturbed surfaces caused by MOTOR VEHICLES), uniformly apply and maintain surface gravel or DUST PALLIATIVES to all areas disturbed by MOTOR VEHICLES in compliance with one of the stabilization standards described in Subsection 90.2.1.2 of this Regulation; or

(c) Where a DISTURBED SURFACE AREA exists (including disturbed surfaces caused by MOTOR VEHICLES and/or OFF-ROAD MOTOR VEHICLES), apply and maintain an alternative CONTROL MEASURE approved in writing by the CONTROL OFFICER and the Region IX ADMINISTRATOR of the Environmental Protection Agency (EPA).

90.2.1.2 **Stabilization Standards:**

(a) A visible crust shall be established, as determined by Subsection 90.4.1.1 (The Drop Ball/Steel Ball Test) of these Regulations; or,

(b) A percent cover that is equal to or greater than 20% for non-erodible elements shall be established, as determined by Subsection 90.4.1.2 (Rock Test Method) of these Regulations; or,

(c) A threshold friction velocity, corrected for non-erodible elements of 100 cm/second or higher, shall be established, as determined by Subsection 90.4.1.3 (Determination Of Threshold Friction Velocity) of this Regulation; or,

(d) An alternative test method approved in writing by the CONTROL OFFICER and the Region IX ADMINISTRATOR of the EPA.

90.2.2 **Dust Mitigation Plans Required:** Any OWNER AND/OR OPERATOR of OPEN AREAS AND VACANT LOTS having a cumulative area of 10,000 acres or greater must submit a dust mitigation plan to the Department of Air Quality and Environmental Management for approval by March 31, 2003, in a format prescribed by the CONTROL OFFICER.

90.2.3 **Mechanized Weed Abatement and/or Trash Removal:** If machinery is used to clear weeds and/or trash from OPEN AREAS AND VACANT LOTS of 5,000 square feet or larger, then the following Control Measures set forth in Subsection 90.2.3.1 shall be applied. **Advisory Notice:** In order to conserve water to the greatest extent practicable, the use of RECLAIMED WATER is highly encouraged.

90.2.3.1 **CONTROL MEASURES**

(a) Pre-wet surface soils before mechanized weed abatement and/or trash removal occurs; and,

(b) Maintain dust control measures while mechanized weed abatement and/or trash removal is occurring; and,

(c) PAVE, apply gravel, apply water, or apply a suitable DUST PALLIATIVE, in compliance with the stabilization standards set forth in Subsection 90.2.1.2 of this Regulation, after mechanized weed abatement and/or trash removal occurs.

90.3 **Record Keeping Requirements**

90.3.1 **Record Keeping:** Any PERSON subject to the requirements of this Regulation shall compile and retain records that provide evidence of CONTROL MEASURE application, by indicating type of treatment or CONTROL MEASURE, extent of coverage, and date applied. The records and supporting documentation shall be made available to the CONTROL OFFICER within 24 hours of a written request.

90.3.2 **Record Retention:** Copies of the records required by Subsection 90.3.1 (Record Keeping Requirements) of this Regulation shall be retained for at least one year.

90.4 **Test Methods**

90.4.1 **Stabilization Standards For OPEN AREAS AND VACANT LOTS:** The test methods described in Subsections 90.4.1.1 through Subsections 90.4.1.3 of this Regulation shall be used to determine whether an OPEN AREA or a VACANT LOT has a stabilized surface. Should a disturbed OPEN AREA or VACANT LOT contain more than one type of disturbance, soil, or other characteristics which are visibly distinguishable, each representative surface must be tested separately for stability in an area that represents a random portion of the overall disturbed conditions of the site, utilizing the appropriate test methods in Subsections 90.4.1.1 through Subsections 90.4.1.3 of this Regulation. Depending upon test method results, include or eliminate each representative surface from the total size assessment of the DISTURBED SURFACE AREA(S).

90.4.1.1 **Soil Crust Determination (The Drop Ball Test):** Drop a steel ball with a diameter of 15.9 millimeters (0.625 inches) and a mass ranging from 16-17 grams from a distance of 30 centimeters (one foot) directly above the soil surface. If blowsand is present, clear the blowsand from the surfaces on which the soil crust test method is conducted. Blowsand is defined as thin deposits of loose uncombined grains covering less than 50% of an OPEN AREA or VACANT LOT which have not originated from the representative OPEN AREA or VACANT LOT surface being tested. If material covers a visible crust, which is not blowsand, apply the test method in Subsection 90.4.1.3 (Determination Of Threshold Friction Velocity) of this Regulation to the loose material to determine whether the surface is stabilized.

(a) A sufficient crust is defined under the following conditions: once a ball has been dropped according to Subsection 90.4.1.1 of this Regulation, the ball does not sink into the surface, so that it is partially or fully surrounded by loose grains and, upon removal of the ball, the surface upon which it fell has not been pulverized, so that loose grains are visible.

(b) Randomly select each representative DISTURBED SURFACE for the drop ball test by using a blind "over the shoulder" toss of a throwable object (for example, a metal weight with survey tape attached). Using the point of fall as the lower left hand corner, measure a 1-foot square area. Drop the ball three times within the 1-foot by 1-foot square survey area, using a consistent pattern

across the survey area. The survey area shall be considered to have passed the Soil Crust Determination Test if at least two of the three times the ball was dropped, the results met the criteria in Subsection 90.4.1.1(a) of this Regulation. Select at least two other survey areas that represent a random portion of the overall disturbed conditions of the site, and repeat this procedure. If the results meet the criteria of Subsection 90.4.1.1(a) of this Regulation for all of the survey areas tested, then the site shall be considered to have passed the Soil Crust Determination Test and shall be considered sufficiently crusted.

(c) At any given site, the existence of a sufficient crust covering one portion of the site may not represent the existence or protectiveness of a crust on another portion of the site. Repeat the soil crust test as often as necessary on each portion of the overall conditions of the site using the random selection method set forth in Subsection 90.4.1.1(b) of this Regulation for an accurate assessment.

90.4.1.2 **Rock Test Method:** The Rock Test Method, which is similar to Subsection 90.4.1.3 (Determination Of Threshold Friction Velocity) of this Regulation, examines the wind-resistance effects of rocks and other non-erodible elements on disturbed surfaces. Non-erodible elements are objects larger than 1 centimeter (cm) in diameter that remain firmly in place even on windy days. Typically, non-erodible elements include rocks, stones, glass fragments, and hardpacked clumps of soil lying on or embedded in the surface. Vegetation does not count as a non-erodible element in this method. The purpose of this test method is to estimate the percent cover of non-erodible elements on a given surface to see whether such elements take up enough space to offer protection against windblown dust. For simplification, the following test method refers to all non-erodible elements as "rocks."

(a) Randomly select a 1 meter by 1 meter survey area within an area that represents the general rock distribution on the surface (a 1 meter by 1 meter area is slightly greater than a 3 foot by 3 foot area). Use a blind "over the shoulder" toss of a throwable object (for example, a metal weight with survey tape attached) to select the survey surface and using the point of fall as the lower left hand corner, measure a 1 meter by 1 meter survey area. Mark-off the survey area by tracing a straight, visible line in the dirt along the edge of a measuring tape or by placing short ropes, yard sticks, or other straight objects in a square around the survey area.

(b) Without moving any of the rocks or other elements, examine the survey area. Since rocks greater than 3/8 inch (1 cm) in diameter

are of interest, measure the diameter of some of the smaller rocks to a get a sense of which rocks need to be considered.

(c) Mentally group the rocks greater than 3/8 inch (1cm) diameter lying in the survey area into small, medium, and large size categories. If the rocks are all approximately the same size, simply select a rock of average size and typical shape. Without removing any of the rocks from the ground, count the number of rocks in the survey area in each group and write down the resulting number.

(d) Without removing rocks, select one or two average-size rocks in each group and measure the length and width. Use either metric units or standard units. Using a calculator, multiply the length times the width of the rocks to get the average dimensions of the rocks in each group. Write down the results for each rock group.

(e) For each rock group, multiply the average dimensions (length times width) by the number of rocks counted in the group. Add the results from each rock group to get the total rock area within the survey area.

(f) Divide the total rock area, calculated in Subsection 90.4.1.2(e) of this Regulation, by two (to get frontal area). Divide the resulting number by the size of the survey area (make sure the units of measurement match), and multiply by 100 for percent rock cover. For example, the total rock area is 1,400 square centimeters, divide 1,400 by 2 to get 700. Divide 700 by 10,000 (the survey area is 1 meter by 1 meter, which is 100 centimeters by 100 centimeters or 10,000 centimeters) and multiply by 100. The result is 7% rock cover. If rock measurements are made in inches, convert the survey area from meters to inches (1 inch = 2.54 centimeters).

(g) Select and mark-off two additional survey areas and repeat the procedures described in Subsection 90.4.1.2(a) through Subsection 90.4.1.2(f) of this Regulation. Make sure the additional survey areas also represent the general rock distribution on the site. Average the percent cover results from all three survey areas to estimate the average percent of rock cover.

(h) If the average rock cover is greater than or equal to 20%, the surface is stable. If the average rock cover is less than 20%, follow the procedures in Subsection 90.4.1.2(i) of this Regulation.

(i) If the average rock cover is less than 20%, the surface may or may not be stable. Follow the procedures in Subsection 90.4.1.3 (Determination Of Threshold Friction Velocity) of this Regulation

and use the results from the rock test method as a correction (i.e., multiplication) factor. If the rock cover is at least 1%, such rock cover helps to limit windblown dust. However, depending on the soil's ability to release fine dust particles into the air, the percent rock cover may or may not be sufficient enough to stabilize the surface. It is also possible that the soil itself has a high enough Threshold Friction Velocity (TFV) to be stable without accounting for rock cover.

(j) After completing the procedures described in Subsection 90.4.1.2(i) of this Regulation, use Table 2 of this Regulation to identify the appropriate correction factor to the TFV, depending on the percent rock cover. Multiply the correction factor by the TFV value for a final TFV estimate that is corrected for non-erodible elements.

90.4.1.3 **Determination Of Threshold Friction Velocity (TFV):** For DISTURBED SURFACE AREAS that are not crusted or vegetated, determine TFV according to the following sieving field procedure (based on a 1952 laboratory procedure published by W. S. Chepil).

(a) Obtain and stack a set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm, and 0.25 mm, or obtain and stack a set of standard/commonly available sieves. Place the sieves in order according to size openings, beginning with the largest size opening at the top. Place a collector pan underneath the bottom (0.25 mm) sieve. Collect a sample of loose surface material from an area at least 30 cm by 30 cm in size, to a depth of approximately 1 cm using a brush and dustpan or other similar device. Only collect soil samples from dry surfaces (i.e., when the surface is not damp to the touch). Remove any rocks larger than 1 cm in diameter from the sample. Pour the sample into the top sieve (4 mm opening) and cover the sieve/collector pan unit with a lid. Minimize escape of particles into the air when transferring surface soil into the sieve/collector pan unit. Move the covered sieve/collector pan unit by hand using a broad, circular arm motion in the horizontal plane. Complete twenty circular arm movements, ten clockwise and ten counterclockwise, at a speed just necessary to achieve some relative horizontal motion between the sieves and the particles. Remove the lid from the sieve/collector pan unit and disassemble each sieve separately, beginning with the largest sieve. As each sieve is removed, examine it for loose particles. If loose particles have not been sifted to the finest sieve through which they can pass, reassemble and cover the sieve/collector pan unit and gently rotate it an additional ten times. After disassembling the sieve/collector pan unit, slightly tilt and gently tap each sieve, and the collector pan, so that material aligns along one side. In

doing so, minimize escape of particles into the air. Line up the sieves and collector pan in a row and visibly inspect the relative quantities of catch in order to determine which sieve (or whether the collector pan) contains the greatest volume of material. If a visual determination of relative volumes of catch among sieves is difficult, use a graduated cylinder to measure the volume. Estimate TFV for the sieve catch with the greatest volume using Table 1 of this Subsection, which provides a correlation between sieve opening size and TFV.

Table 1. Determination Of Threshold Friction Velocity

Tyler Sieve No.	ASTM 11 Sieve No.	Opening (mm)	TFV (cm/s)
5	5	4	135
9	10	2	100
16	18	1	76
32	35	0.5	58
60	60	0.25	43
Collector Pan	—	—	30

(b) Collect at least three soil samples which represent random portions of the overall conditions of the site, repeat the above TFV test method for each sample and average the resulting TFVs together to determine the TFV uncorrected for non-erodible elements. Non-erodible elements are distinct elements, in the random portion of the overall conditions of the site, that are larger than 1 cm in diameter, remain firmly in place during a wind episode, and inhibit soil loss by consuming part of the shear stress of the wind. Non-erodible elements include stones and bulk surface material but do not include flat or standing vegetation. For surfaces with non-erodible elements, determine corrections to the TFV by identifying the fraction of the survey area, as viewed from directly overhead, that is occupied by non-erodible elements using the following procedure. For a more detailed description of this procedure, see Subsection 90.4.1.2 (Rock Test Method) of this Regulation. Select a survey area of 1 meter by 1 meter that represents a random portion of the overall conditions of the site. Where many non-erodible elements lie within the survey area, separate the non-erodible elements into groups according to size. For each group, calculate the overhead area for the non-erodible elements according to the following equations:

Eq. 1: (Average length) x (Average width) = Average Dimensions.
Eq. 2: (Average Dimensions) x (Number of Elements) = Overhead Area.
Eq. 3: Overhead Area Of Group 1 + Overhead Area Of Group 2 (etc.) = Total Overhead Area.
Eq. 4: Total Overhead Area/2 = Total Frontal Area.
Eq. 5: (Total Frontal Area/Survey Area) x 100 = Percent Cover Of Non-Erodible Elements.

Note: Ensure consistent units of measurement (e.g. square meters or square inches when calculating percent cover).

Repeat this procedure on an additional two distinct survey areas that represent a random portion of the overall conditions of the site and average the results. Use Table 2 of this Subsection to identify the correction factor for the percent cover of non-erodible elements. Multiply the TFV by the corresponding correction factor to calculate the TFV corrected for non-erodible elements.

Table 2. Correction Factors For Threshold Friction Velocity

Percent Cover Of Non-Erodible Elements	Correction Factor
Greater than or equal to 10%	5
Greater than or equal to 5% and less than 10%	3
Less than 5% and greater than or equal to 1%	2
Less than 1%	None

History: Initial adoption: June 22, 2000
Amended: November 16, 2000; November 20, 2001; December 17, 2002; June 3, 2003; July 1, 2004.

SECTION 91 - FUGITIVE DUST FROM UNPAVED ROADS, UNPAVED ALLEYS, AND UNPAVED EASEMENT ROADS

91.1 **FUGITIVE DUST From Unpaved Roads, Unpaved Alleys, and Unpaved EASEMENT Roads**

91.1.1 **Purpose:** To limit the Emission of PARTICULATE MATTER into the AMBIENT AIR from unpaved roads, unpaved alleys, unpaved ROAD EASEMENTS and unpaved access roads for utilities and railroads.

91.1.2 **Applicability:** The provisions of this Regulation shall apply to unpaved roads, which includes unpaved alleys, unpaved ROAD EASEMENTS and unpaved access roads for utilities and railroads which are located in the PM_{10} NON-ATTAINMENT AREA (HYDROGRAPHIC BASIN 212) and the Apex Valley (HYDROGRAPHIC BASINS 216 and 217). Nothing in Subsections 91.1 through 91.3 of these Regulations shall be construed to prevent enforcement of Section 40 (Prohibition of NUISANCE Conditions) of these Regulations. The provisions of this Regulation shall not apply to non-commercial and non-institutional private driveways and shall not apply to horse trails, hiking paths, bicycle paths, or other similar paths that have been officially designated by a governing body for exclusive use for purposes other than travel by motor vehicles. The provisions of this Regulation shall not apply to STATIONARY SOURCES as defined in Section 0, except that these control measures shall be considered as part of a BACT determination.

91.1.3 **Effective Date Of This Regulation**:

91.1.3.1 Regulations 91.1 through 91.3 shall be effective in HYDROGRAPHIC BASIN 212 on their adoption by the District Board of Health of Clark County on June 22, 2000.

91.1.3.2 Regulations 91.1 through 91.3 shall be effective in HYDROGRAPHIC BASINS 216 and 217 on April 1, 2002.

91.2 **Requirements:**

91.2.1 **Unpaved Roads:** An OWNER AND/OR OPERATOR of an unpaved road in the PM_{10} NON-ATTAINMENT AREA, shall implement one of the CONTROL MEASURES

set forth in Subsection 91.2.1.3 of this Regulation, except as set forth in Subsection 91.2.1.1 of this Regulation. For the purpose of this Regulation, the CONTROL MEASURES shall be considered effectively implemented when the unpaved roadway complies with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation. **Advisory Notice:** In order to conserve water to the greatest extent practicable, the use of RECLAIMED WATER is highly encouraged.

91.2.1.1 **Implementation Of CONTROL MEASURES For Existing Unpaved Roads:**

91.2.1.1.1 OWNERS AND/OR OPERATORS of existing unpaved roads that were constructed prior to June 22, 2000 in HYDROGRAPHIC BASIN 212 shall implement one of the CONTROL MEASURES set forth Subsection 91.2.1.3 of this Regulation according to the following schedule:

(a) CONTROL MEASURES shall be implemented for one third (1/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by June 1, 2001.

91 CONTROL MEASURES shall be implemented for two thirds (2/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by June 1, 2002.

(c) CONTROL MEASURES shall be implemented for all unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by June 1, 2003.

(d) CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads on which vehicular traffic is equal to or greater than 150 vehicles per day that develops after June 1, 2003. CONTROL MEASURES shall be implemented within 365 calendar days following the initial discovery that vehicular traffic equals or exceeds 150 vehicles per day and that the road surface does not comply with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1(d).

(e) Non-federal Requirement: CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads having vehicular traffic of less than 150 vehicles per day within 365 calendar days following the initial discovery that the road surface does not comply with the stabilization standards set forth in Section 91.2.1.4 of this Regulation. The requirements of this

Subsection (91.2.1.1 (e) shall not constitute applicable State Implementation Plan requirements pursuant to Section 189 of the federal Clean Air Act. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1 (e)). For the purpose of this Subsection, the CONTROL MEASURES shall be considered effectively implemented when the unpaved road complies with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation.

91.2.1.1.2 OWNERS AND/OR OPERATORS of existing unpaved roads that were constructed prior to April 1, 2002 in HYDROGRAPHIC BASINS 216 and 217 shall implement one of the CONTROL MEASURES set forth Subsection 91.2.1.3 of this Regulation according to the following schedule:

(a) CONTROL MEASURES shall be implemented for one third (1/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by April 1, 2003.

(b) CONTROL MEASURES shall be implemented for two thirds (2/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by April 1, 2004.

(c) CONTROL MEASURES shall be implemented for all unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by April 1, 2005.

(d) CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads on which vehicular traffic is equal to or greater than 150 vehicles per day that develops after April 1, 2005. CONTROL MEASURES shall be implemented within 365 calendar days following the initial discovery that vehicular traffic equals or exceeds 150 vehicles per day and that the road surface does not comply with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1(d).

(e) Non-federal Requirement: CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads having vehicular traffic of less than 150 vehicles per day within 365 calendar days following the initial discovery that the road surface does not comply with the stabilization standards set forth in Section 91.2.1.4 of this Regulation. The requirements of this Subsection (91.2.1.1 (e) shall not constitute applicable State

Implementation Plan requirements pursuant to Section 189 of the federal Clean Air Act. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1 (e)). For the purpose of this Subsection, the CONTROL MEASURES shall be considered effectively implemented when the unpaved road complies with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation.

91.2.1.2 No unpaved roads or alleys may be constructed in public thoroughfares in HYDROGRAPHIC BASIN 212 after June 22, 2000, or in HYDROGRAPHIC BASINS 216 and 217 after April 1, 2002, unless the unpaved road is an interim component of an active paving project.

91.2.1.3 **CONTROL MEASURES:**

(a) PAVE, or

(b) Apply DUST PALLIATIVES, in compliance with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation, or

(c) Apply and maintain and alternative CONTROL MEASURE approved in writing by the CONTROL OFFICER and the Region IX Administrator of the EPA.

91.2.1.4 **Stabilization Standards:** For the purpose of this rule, CONTROL MEASURES shall be considered effectively implemented when stabilization observations for FUGITIVE Dust EMISSIONS from unpaved roads and unpaved alleys do not exceed 20% OPACITY and do not equal or exceed 0.33 oz/ft^2 silt loading, or do not exceed 6% silt content, as determined by Subsection 91.4.1 of these Regulations.

91.3 **Record Keeping Requirements**

91.3.1 **Record Keeping:** Any person subject to the requirements of this Regulation shall compile and retain records that provide evidence of CONTROL MEASURE application, by indicating type of treatment or CONTROL MEASURE, extent of coverage, and date applied. The records and supporting documentation shall be made available to the CONTROL OFFICER within 24 hours from written or verbal request.

91.3.2 **Records Retention:** Copies of the records required by Subsection 91.3.1 (Record Keeping Requirements) of this Regulation shall be retained for at least one year.

91.3.3 **Reports Required:** In addition to complying with the record keeping requirements specified in Subsection 91.3.1, OWNERS of unpaved roads shall be subject to the requirements set forth in Subsection 91.2.1.1, and

shall prepare and submit a written report to the CONTROL OFFICER documenting compliance with the provisions of Subsection 91.2.1.1. This report shall be prepared for the years 2001, 2002, and 2003 for OWNERS of unpaved roads in HYDROGRAPHIC BASIN 212, for the years 2003, 2004, and 2005 for OWNERS of unpaved roads in HYDROGRAPHIC BASINS 216 and 217, and shall be submitted to the CONTROL OFFICER no later than October first of each year and shall include:

91.3.3.1 The total miles of unpaved roads under the jurisdiction of the OWNER and the miles PAVED during the reporting period subject to the requirements of Subsection 91.2.1.1. Miles of PAVING for roads subject to Subsections 91.2.1.1.1(a), 91.2.1.1.1(b), and 91.2.1.1.1(c) must be listed separately from paving of roads found to be subject Subsection 91.2.1.1.1 (d). Miles of PAVING for roads subject to Subsections 91.2.1.1.2(a), 91.2.1.1.2(b), and 91.2.1.1.2(c) must be listed separately from paving of roads found to be subject Subsection 91.2.1.1.2(d).

91.4 Test Methods

91.4.1 Stabilization Test Methods For Unpaved Roads And Unpaved Alleys:

91.4.1.1 **OPACITY Test Method**: The purpose of this test method is to estimate the percent OPACITY of FUGITIVE DUST plumes caused by vehicle movement on unpaved roads, unpaved alleys, and unpaved EASEMENTS. This method can only be conducted by an individual who has received certification as a qualified Visible EMISSIONS Evaluator.

(a) Step 1: Stand at least 16.5 feet from the FUGITIVE DUST source in order to provide a clear view of the EMISSIONS with the sun oriented in the 140-degree sector to the back. Following the above requirements, make OPACITY observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

(b) Step 2: Record the FUGITIVE DUST source location, source type, method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the FUGITIVE DUST source. Also, record the time, estimated distance to the FUGITIVE DUST source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position to the FUGITIVE DUST source, and color of the plume and type of background on the visible emission observation form both when OPACITY readings are initiated and completed.

(c) Step 3: Make OPACITY observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make OPACITY observations approximately 1 meter above the surface from which the plume is generated. Note that the observation is to be made at only one visual point upon generation of a plume, as opposed to visually tracking the entire length of a dust plume as it is created along a surface. Make two observations per vehicle, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

(d) Step 4: Record the OPACITY observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average OPACITY of EMISSIONS for a 5-second period. While it is not required by the test method, EPA recommends that the observer estimate the size of vehicles which generate dust plumes for which readings are taken (e.g. mid-size passenger car or heavy-duty truck) and the approximate speeds the vehicles are traveling when readings are taken.

(e) Step 5: Repeat Step 3 (Subsection 91.4.1.1(c) of this Regulation) and Step 4 (Subsection 91.4.1.1 (d) of this Regulation) until you have recorded a total of 12 consecutive OPACITY readings. This will occur once six vehicles have driven on the source in your line of observation for which you are able to take proper readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed 1 hour. Observations immediately preceding and following interrupted observations can be considered consecutive.

(f) Step 6: Average the 12 OPACITY readings together. If the average OPACITY reading equals 20% or lower, the source is in compliance with the OPACITY standard described in Section 91 of these Regulations.

91.4.1.2 **Silt Content Test Method:** The purpose of this test method is to estimate the silt content of the trafficked parts of unpaved roads, unpaved alleys, and unpaved EASEMENTS. The higher the silt content, the greater the amount of fine dust particles that are entrained into the atmosphere when cars and trucks drive on unpaved roads, unpaved alleys, and unpaved EASEMENTS.

(a) Equipment:

(1) A set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm and 0.25 mm, a lid, and collector pan

(2) A small whiskbroom or paintbrush with stiff bristles and dustpan 1 foot in width (the broom/brush should preferably have one, thin row of bristles no longer than 1.5 inches in length)

(3) A spatula without holes

(4) A small scale with half ounce increments (e.g., postal/ package scale)

(5) A shallow, lightweight container (e.g., plastic storage container)

(6) A sturdy cardboard box or other rigid object with a level surface

(7) A calculator

(8) Cloth gloves (optional for handling metal sieves on hot, sunny days)

(9) Sealable plastic bags (if sending samples to a laboratory)

(10) A pencil/pen and paper

(b) Step 1: Look for a routinely traveled surface, as evidenced by tire tracks (only collect samples from surfaces that are not damp due to precipitation or dew). This statement is not meant to be a standard in itself for dampness where watering is being used as a CONTROL MEASURE. It is only intended to ensure that surface testing is done in a representative manner. Use caution when taking samples to ensure personal safety with respect to passing vehicles. Gently press the edge of a dustpan (1 foot in width) into the surface four times to mark an area that is 1 square foot. Collect a sample of loose surface material using a whiskbroom or brush and slowly sweep the material into the dustpan, minimizing escape of dust particles. Use a spatula to lift heavier elements such as gravel. Only collect dirt/gravel to an approximate depth of 3/8 inch or 1 cm in the 1 square foot area. If you reach a hard, underlying subsurface that is greater than 3/8 inch in depth, do not continue collecting the sample by digging into the hard surface. In other words, you are only collecting a surface sample of loose material down to 1 cm. In order to confirm that samples are collected to 1

cm in depth, a wooden dowel or other similar narrow object at least one foot in length can be laid horizontally across the survey area while a metric ruler is held perpendicular to the dowel.

- At this point, you can choose to place the sample collected into a plastic bag or container and take it to an independent laboratory for silt content analysis. A reference to the procedure the laboratory is required to follow is at the end of this section.

(c) Step 2: Place a scale on a level surface. Place a lightweight container on the scale. Zero the scale with the weight of the empty container on it. Transfer the entire sample collected in the dustpan to the container, minimizing escape of dust particles. Weigh the sample and record its weight.

(d) Step 3: Stack a set of sieves in order according to the size openings specified above, beginning with the largest size opening (4 mm) at the top. Place a collector pan underneath the bottom (0.25 mm) sieve.

(e) Step 4: Carefully pour the sample into the sieve stack, minimizing escape of dust particles by slowly brushing material into the stack with a whiskbroom or brush (on windy days, use the trunk or door of a car as a wind barricade). Cover the stack with a lid. Lift up the sieve stack and shake it vigorously up, down and sideways for at least 1 minute.

(f) Step 5: Remove the lid from the stack and disassemble each sieve separately, beginning with the top sieve. As you remove each sieve, examine it to make sure that all of the material has been sifted to the finest sieve through which it can pass; e.g. material in each sieve (besides the top sieve that captures a range of larger elements) should look the same size. If this is not the case, re-stack the sieves and collector pan, cover the stack with the lid, and shake it again for at least 1 minute (you only need to reassemble the sieve(s) that contain material, which requires further sifting).

(g) Step 6: After disassembling the sieves and collector pan, slowly sweep the material from the collector pan into the empty container originally used to collect and weigh the entire sample. Take care to minimize escape of dust particles. You do not need to do anything with material captured in the sieves; only the collector pan. Weigh the container with the material from the collector pan and record its weight.

(h) Step 7: If the source is an unpaved road, multiply the resulting weight by 0.38. If the source is an UNPAVED PARKING LOT, multiply the resulting weight by 0.55. The resulting number is the estimated silt loading. Then, divide by the total weight of the sample you recorded earlier in Step 2 (Subsection 91.4.1.2(c) of this Regulation) and multiply by 100 to estimate the percent silt content.

(i) Step 8: Select another two routinely traveled portions of the unpaved road or UNPAVED PARKING LOT and repeat this test method. Once you have calculated the silt loading and percent silt content of the 3 samples collected, average your results together.

(j) Step 9: Examine Results. If the average silt loading is less than 0.33 oz/ft², the surface is stable. If the average silt loading is greater than or equal to 0.33 oz/ft², then proceed to examine the average percent silt content. If the source is an unpaved road, unpaved alley, or unpaved EASEMENT and the average percent silt content is 6% or less, the surface is stable. If your field test results are within 2% of the standard (for example, 4%-8% silt content on an unpaved road, alley, or EASEMENT), it is recommended that you collect 3 additional samples from the source according to Step 1 (Subsection 91.4.1.2(b) of this Regulation) and take them to an independent laboratory for silt content analysis.

(k) Independent Laboratory Analysis: You may choose to collect 3 samples from the source, according to Step 1 (Subsection 91.4.1.2(b) of this Regulation), and send them to an independent laboratory for silt content analysis rather than conduct the sieve field procedure. If so, the test method the laboratory is required to use is:

"Procedures For Laboratory Analysis Of Surface/Bulk Loading Samples", (Fifth Edition, Volume I, Appendix C.2.3 "Silt Analysis", 1995), AP-42, Office of Air Quality Planning & Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina

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SECTION 92: FUGITIVE DUST FROM UNPAVED PARKING LOTS AND STORAGE AREAS

92.1 Fugitive Dust from Unpaved Parking Lots and Storage Areas

92.1.1 Purpose

The purpose of this section is to limit the emission of particulate matter into the ambient air from unpaved parking lots, including storage areas as defined in Section 0.

92.1.2 Applicability

The provisions of this regulation shall apply to unpaved parking lots and storage areas which are located in the PM_{10} nonattainment area (Hydrographic Basin 212) or in the Apex Valley (Hydrographic Basins 216 and 217), and which are not regulated by Section 94. Unpaved parking lots and storage areas include automobile impound yards, wrecking yards, automobile dismantling yards, salvage yards, material handling yards, equestrian staging facilities, and storage yards. For the purposes of this regulation, maneuvering shall not include military maneuvers or exercises conducted on federal facilities. Nothing in Sections 92.1 through 92.6 shall be construed to prevent enforcement of Section 40 ("Prohibition of Nuisance Conditions"). The provisions of this regulation shall not apply to stationary sources as defined in Section 0, except that these control measures shall be considered as part of a BACT determination.

92.2 Definitions

(a) The following term has the meanings set forth below for the purposes of Section 92. Any term not defined in these paragraphs shall have the meaning given in Section 0 or the Clean Air Act.

(b) "Equestrian staging area" means the area(s) used exclusively to load, unload, and saddle horses; organize riders before a ride; and park vehicles used to transport horses.

92.3 Requirements

92.3.1 The owner and/or operator of an existing unpaved parking lot or storage area in Hydrographic Basins 212, 216, or 217 shall implement one or more of the control measures described in Section 92.3.1.2 as necessary to comply with the stabilization standards of Section 92.4.1. For unpaved parking lots and storage areas that are utilized intermittently, for a period of 35 days or less during the calendar year, the owner and/or operator shall implement one or more of the control measures described in Section 92. 3.1.2 during the period that the unpaved parking lot or storage area is utilized for vehicle parking or storage. For the purpose of this regulation, the control measures set forth in Section 92.3.1.2 shall be considered

effectively implemented when the unpaved parking lot or storage area meets the stabilization standards described in Section 92.4.1.

92.3.1.1 New Unpaved Parking Lots or Storage Areas

No unpaved parking lots or storage areas may be constructed in Hydrographic Basins 212, 216, or 217 as of January 1, 2003 except as provided in this section.

(a) **Exemptions.** The requirements of this Section shall not be applicable to parking lots for rural public facilities, such as trailheads, campgrounds, and similar facilities where paved parking lots would conflict with the rural nature of these facilities, provided such unpaved parking lot is stabilized in accordance with Sections 92. 3.1.2(b) through (d) prior to being used. For the purposes of this Section, a rural public facility shall not include any facility located within the BLM Disposal Boundary.

(b) **Material Storage and Handling Areas.** If an area is used for storing and handling of landscaping, aggregate, and other similar bulk materials, the owner and/or operator shall implement one or more of the control measures described in Section 92. 3.1.2, subject to the approval of the Control Officer, provided, however, that all access, parking, and loading areas used by on-road vehicles shall be paved.

(c) **Tracked, Non-Rubber Tired Vehicle, or Heavy Equipment Storage Areas.** If an area is used primarily for storage of non-rubber tired vehicles or equipment that the control officer has determined to be of such weight as to damage or destroy pavement (e.g., heavy equipment), the owner and/or operator shall implement one or more of the control measures described in Section 92.3.1.2, subject to the approval of the Control Officer, provided, however, that all access, parking, and loading areas primarily used by rubber-tired vehicles shall be paved.

(d) **Equestrian Staging Areas:** Areas designed and used exclusively for the loading, unloading, and saddling of horses for equestrian activities shall be exempt from the paving requirements of this section if control measures applied to the designated areas meet the performance standards of Section 92.4. Posted vehicle speed limits for vehicles using such designated areas shall not exceed 10 miles per hour.

92.3.1.2 Control Measures

(e) Pave;

(f) Apply dust palliatives, in compliance with the stabilization standards set forth in Section 92. 4.1;

(g) Apply dust palliatives to vehicle travel lanes within the parking lot or storage area in compliance with the stabilization standards set forth in Section 92.4.1, and uniformly apply and maintain surface gravel or recycled asphalt to a depth of two inches on the vehicle parking areas;

(h) Apply and maintain an alternative control measure approved in writing by the Control Officer and the EPA Region 9 Administrator.

92.4 Performance Standards

92.4.1 Stabilization Standards

For the purpose of this regulation, control measures shall be considered effectively implemented when stabilization observations for fugitive dust emissions from unpaved parking lots or storage areas do not exceed 20 percent opacity and do not equal or exceed 0.33 oz/ft^2 silt loading, or do not exceed 8 percent silt content, as determined by Section 92.6 ("Test Methods"), except in areas on which gravel has been applied under the provisions of Section 92.3.1.2(c).

92.4.2 Prohibition of Dust Over Property Line

Where Best Available Control Measures provided for in this regulation have not been applied, no owner and/or operator of an unpaved parking lot or storage area shall permit a dust plume from that unpaved parking lot or storage area to cross a property line.

92.5 Recordkeeping Requirements

92.5.1 Recordkeeping

Any person subject to the requirements of this regulation shall compile and retain records that provide evidence of control measure application, by indicating type of treatment or control measure, extent of coverage, and date applied. The records and supporting documentation shall be made available to the Control Officer within 24 hours of a written request.

92.5.2 Records Retention

Copies of the records required by Section 92.5.1 shall be retained for at least one year. Facilities subject to Section 12.5 ("Part 70 Operating Permit Requirements") shall maintain records in accordance with Part 70 record keeping requirements.

92.6 Test Methods

92.6.1 Stabilization Test Methods for Unpaved Parking Lots and Storage Areas

92.6.1.1 Opacity Test Method

The purpose of this test method is to estimate the percent opacity of fugitive dust plumes caused by vehicle movement on unpaved parking lots and storage areas. This method can only be conducted by an individual who has received certification as a qualified Visible Emissions Evaluator.

(a) Step 1: Stand at least 16.5 feet from the fugitive dust source in order to provide a clear view of the emissions, with the sun oriented in the 140-degree sector to the back. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

(b) Step 2: Record the fugitive dust source location, source type, method of control used (if any), evaluator's name, certification data and affiliation, and a sketch of the observer's position relative to the fugitive dust source. Also, record the time, estimated distance to the fugitive dust source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), and color of the plume and type of background on the visible emission observation form when opacity readings are both initiated and completed.

(c) Step 3: Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make opacity observations approximately 1 meter above the surface from which the plume is generated. Note that the observation is to be made at only one visual point upon generation of a plume, as opposed to visually tracking the entire length of a dust plume as it is created along a surface. Make two observations per vehicle, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

(d) Step 4: Record the opacity observations to the nearest 5 percent on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a five-

second period. While it is not required by the test method, EPA recommends that the observer estimate the size of vehicles that generate dust plumes for which readings are taken (e.g., mid-size passenger car or heavy-duty truck) and the approximate speeds the vehicles are traveling when readings are taken.

(e) Step 5: Repeat Steps 3 and 4 until you have recorded a total of 12 consecutive opacity readings. This will occur once six vehicles have driven on the source in your line of observation for which you are able to take proper readings. The 12 consecutive readings must be taken within the same period of observation, but must not exceed ~~1~~one hour. Observations immediately preceding and following interrupted observations can be considered consecutive.

(f) Step 6: Average the 12 opacity readings together. If the average opacity reading equals 20 percent or lower, the source is in compliance with the opacity standard described in this regulation.

92.6.1.2 Silt Content Test Method

The purpose of this test method is to estimate the silt content of the trafficked parts of unpaved parking lots and storage areas. The higher the silt content, the greater the amount of fine dust particles that are entrained into the atmosphere when cars and trucks drive on unpaved parking lots or storage areas.

(a) Equipment:

(1) Set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm, and 0.25 mm; a lid; and collector pan;

(2) Small whiskbroom or paintbrush with stiff bristles and dustpan one foot in width (the broom/brush should preferably have one~~,~~ thin row of bristles no longer than 1.5 inches in length);

(3) Spatula without holes;

(4) Small scale with half-ounce increments (e.g., postal/package scale);

(5) Shallow, lightweight container (e.g., plastic storage container);

(6) Sturdy cardboard box or other rigid object with a level surface;

(7) Basic calculator;

(8) Cloth gloves (optional for handling metal sieves on hot, sunny days);

(9) Sealable plastic bags (if sending samples to a laboratory); and

(10) Pencil/pen and paper.

(b) Step 1: Look for a routinely traveled surface, as evidenced by tire tracks (only collect samples from surfaces that are not damp due to precipitation or dew). This statement is not meant to be a standard in itself for dampness where watering is being used as a control measure; it is only intended to ensure that surface testing is done in a representative manner. Use caution when taking samples to ensure personal safety with respect to passing vehicles. Gently press the edge of a dustpan (1 foot in width) into the surface four times to mark an area that is 1 square foot. Collect a sample of loose surface material using a whiskbroom or brush and slowly sweep the material into the dustpan, minimizing escape of dust particles. Use a spatula to lift heavier elements such as gravel. Only collect dirt/gravel to an approximate depth of 3/8 inch or 1 cm in the 1 square foot area. If you reach a hard, underlying subsurface that is greater than 3/8 inch in depth, do not continue collecting the sample by digging into the hard surface. In other words, you are only collecting a surface sample of loose material down to 1 cm. In order to confirm that samples are collected to 1 cm in depth, a wooden dowel or other similar narrow object at least one foot in length can be laid horizontally across the survey area while a metric ruler is held perpendicular to the dowel.

(1) At this point, the sample can be collected into a plastic bag or container and take it to an independent laboratory for silt content analysis. A reference to the procedure the laboratory is required to follow is at the end of this section.

(c) Step 2: Place a scale on a level surface. Place a lightweight container on the scale. Zero the scale with the weight of the empty container on it. Transfer the entire sample collected in the dustpan to the container, minimizing escape of dust particles. Weigh the sample and record its weight.

(d) Step 3: Stack a set of sieves in order according to the size openings specified above, beginning with the largest size opening (4 mm) at the top. Place a collector pan underneath the bottom (0.25 mm) sieve.

(e) Step 4: Carefully pour the sample into the sieve stack, minimizing escape of dust particles by slowly brushing material into the stack with a whiskbroom or brush (on windy days, use the trunk or door of a car as a wind barricade). Cover the stack with a lid. Lift the sieve stack and shake it vigorously up, down, and sideways for at least 1 minute.

(f) Step 5: Remove the lid from the stack and disassemble each sieve separately, beginning with the top sieve. As you remove each sieve, examine it to make sure that all of the material has been sifted to the finest sieve through which it can pass; e.g., material in each sieve (besides the top sieve that captures a range of larger elements) should look the same size. If this is not the case, restack the sieves and collector pan, cover the stack with the lid, and shake it again for at least 1 minute (you only need to reassemble the sieve(s) that contain material, which requires further sifting).

(g) Step 6: After disassembling the sieves and collector pan, slowly sweep the material from the collector pan into the empty container originally used to collect and weigh the entire sample. Take care to minimize escape of dust particles. You do not need to do anything with material captured in the sieves; only the collector pan. Weigh the container with the material from the collector pan and record its weight.

(h) Step 7: If the source is an unpaved road, multiply the resulting weight by 0.38. If the source is an unpaved parking lot or storage area, multiply the resulting weight by 0.55. The resulting number is the estimated silt loading. Then, divide by the total weight of the sample you recorded earlier in Step 2 and multiply by 100 to estimate the percent silt content.

(i) Step 8: Select another two routinely traveled portions of the unpaved road or unpaved parking lot and repeat this test method. Once you have calculated the silt loading and percent silt content of the three samples collected, average your results together.

(j) Step 9: Examine the results. If the average silt loading is less than 0.33 oz/ft^2, the surface is stable. If the average silt loading is greater than or equal to 0.33 oz/ft^2, then examine the average percent silt content. If the source is an unpaved parking lot or storage area and the average percent silt content is 8 percent or less, the surface is stable. If your field test results are within 2 percent of the standard (for example, 6-10 percent silt content on an unpaved parking lot or storage area), it is recommended that you collect three additional samples from the source according to Step 1 and take them to an independent laboratory for silt content analysis.

(k) You may choose to collect three samples from the source, according to Step 1, and send them to an independent laboratory for silt content analysis rather than conduct the sieve field procedure. If so, the test method the laboratory is required to use is described in Volume 1, Appendix C.2.3 ("Silt Analysis") of EPA's *Procedures For Laboratory Analysis of Surface/Bulk Loading Samples* (1995, fifth edition).

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SECTION 93 - FUGITIVE DUST FROM PAVED ROADS AND STREET SWEEPING EQUIPMENT

93.1 **FUGITIVE DUST From PAVED Roads and Street Sweeping Equipment**

93.1.1 **Purpose:** To limit the EMISSION of PARTICULATE MATTER into the AMBIENT AIR from PAVED roads and PAVED alleys.

93.1.2 **Applicability:** The provisions of this Regulation shall apply to PAVED roads and PAVED alleys which are located in the PM_{10} NONATTAINMENT AREA (HYDROGRAPHIC BASIN 212) and the Apex Valley (HYDROGRAPHIC BASINS 216 and 217). Nothing in Subsections 93.1 through 93.4 of these Regulations shall be construed to prevent enforcement of Section 40 (Prohibition of NUISANCE Conditions) of these Regulations. The provisions of this Regulation shall not apply to non-commercial and non-institutional private driveways. The provisions of this Regulation shall not apply to STATIONARY SOURCES as defined in Section 0, except that these control measures shall be considered as part of a BACT determination.

93.2 **Requirements:**

93.2.1 **PAVED Road Development Standards:** OWNERS AND/OR OPERATORS having jurisdiction over, or ownership of, public or private PAVED roads shall construct, or require to be constructed, all new or modified PAVED roads in conformance with the road shoulder width and drivable median stabilization requirements as specified below:

93.2.1.1 New CONSTRUCTION, MODIFICATION, or approvals of PAVED roads shall be constructed with a PAVED travel section, and four (4) feet of PAVED or stabilized shoulder on each side of the PAVED travel section. The four (4) feet of shoulder shall be PAVED or stabilized with a dust palliative or gravel to prevent the trackout of mud and dirt to the PAVED section. Where shoulder stabilization is used in place of PAVING, the stabilized shoulders must be maintained in compliance with the stabilization standards set forth in Subsection 93.2.1.5 of this Regulation.

93.2.1.2 New CONSTRUCTION, MODIFICATION, or approvals of PAVED roads on which vehicular traffic is greater than or equal to 3,000 vehicles per day after March 1, 2003 shall be constructed with a PAVED travel section, and eight (8) feet of stabilized shoulder adjacent to the PAVED travel section where right-of-way is available for the stabilized shoulder. Where the right-of-way is not available for the full eight (8) feet of stabilized shoulder, curbing shall be installed adjacent to the shoulder. Stabilized shoulders must be maintained in compliance with the stabilization standards set forth in Subsection 93.2.1.5 of this regulation.

93.2.1.3 Where curbing is constructed adjacent to and contiguous with the travel lane or PAVED shoulder of a road, the shoulder width design standards specified in Subsection 93.2.1.1 shall not be applicable.

93.2.1.4 Where PAVED roads are constructed, or modified with shoulders and/or medians, the shoulders and/or medians shall be constructed as set forth below. If the shoulder, median, or extended right-of-way is located in a limited access freeway right-of-way, then the requirements of Section 90 apply.

(a) With curbing, or

(b) With solid PAVING across the median, or

(c) Apply DUST PALLIATIVES, in compliance with the stabilization standards set forth in Subsection 93.2.1.5 of this Regulation, or

(d) Apply two (2) inches of gravel in compliance with the stabilization standards set forth in Subsection 93.2.1.5 of this Regulation, or

(e) With materials that prevent the trackout of mud and dirt to the PAVED section such as landscaping or decorative rock.

93.2.1.5 Stabilization Standards: For the purpose of this regulation, the unpaved shoulders and medians of PAVED roads shall be considered to have CONTROL MEASURES effectively implemented when FUGITIVE DUST EMISSIONS do not exceed 20% OPACITY and silt loading does not equal or exceed 0.33 oz/ft^2 silt loading, as determined by Subsection 93.4.1 (Test Methods-Stabilized PAVED Road Shoulders and Medians) of these regulations, except for unpaved shoulders on which gravel has been applied under the provisions of Subsection 93.2.1.1. Failure to comply with either the 20% OPACITY limit or silt loading limit indicates that the shoulder is not stable. Where gravel is utilized to prevent trackout from unpaved shoulders and medians of PAVED roads, surface gravel shall be

uniformly applied and maintained to a depth of two (2) inches to comply with the 20% OPACITY standards set forth in Subsection 93.4.1.1 of these Regulations and the Gravel Depth And Silt Content Test Method set forth in Subsection 93.4.1.3 of these Regulations. For the purposes of this section, the term Gravel shall include "aggregate" and shall mean unconsolidated material greater than 0.25 (1/4) inch but less than three (3) inches, and contain no more than six (6) percent silt, by dry weight, that will pass through a No. 200 sieve. Failure to comply with either the 20% OPACITY limit or the Gravel Depth And Silt Content Test Method indicates that the shoulder is not stable.

93.2.1.6 Requirements For Existing Nonconforming PAVED Roads: OWNERS AND/OR OPERATORS having jurisdiction over, or ownership of, existing public or private PAVED roads which do not conform with the requirements of Subsections 93.2.1.1 through 93.2.1.5 of this Regulation, shall reconstruct, or require to be reconstructed, the existing nonconforming PAVED road within 365 calendar days following the initial discovery that the road fails to meet the requirements set forth in Subsections 93.2.1.1 through 93.2.1.5 of these Regulations. The CONTROL OFFICER may require short-term stabilization of any PAVED road subject to the requirements set forth in Subsections 93.2.1.1 through 93.2.1. of these Regulations. Other stabilization methods of equal or greater effectiveness may be implemented with the written approval of the CONTROL OFFICER, providing emissions do not exceed 20% opacity, unless the US EPA Region 9 objects to such approval within ninety (90) days from the date notification of the proposed alternative stabilization method is sent to the US EPA Region 9 by the CONTROL OFFICER. If the US EPA Region 9 does not object within the ninety (90) days from the date notification, the proposed alternative stabilization method may be implemented. If the US EPA Region 9 objects to the proposed alternative stabilization method, the proposed alternative stabilization method shall require written approval from both the CONTROL OFFICER and the US EPA Region 9 prior to the implementation of the proposed alternative stabilization method.

93.2.2 **Street Sweeper Requirements:** After January 1, 2001, any OWNER AND/OR OPERATOR which utilizes street sweeping equipment or street sweeping services for street sweeping on PAVED roads or PAVED parking lots, shall acquire or contract to acquire only certified PM_{10}-efficient street sweeping equipment.

93.2.2.1 PM_{10}-Efficient Street Sweepers: For the purposes of Subsection 93.2.2 of this Regulation, a PM_{10}-efficient street sweeper is a street sweeper which has been certified by the South Coast Air Quality Management District (California) (SCAQMD) to comply with the District's performance

standards set forth in SCAQMD Rule 1186 utilizing the test methods set fourth in SCAQMD Rule 1186, Appendix A.

93.2.3 **Equipment Restriction:** The use of dry rotary brushes and blower devices for the removal of dirt, rock, or other debris from a PAVED road or PAVED parking lot is prohibited without the use of sufficient wetting to limit the visible emissions to not greater than 20% opacity when measured as set forth in Subsection 93.4.1.1. The use of dry rotary brushes or blower devices without the use of water is expressly prohibited.

93.2.4 **Crack Seal Equipment Requirements:** After December 31, 2005 any OWNER AND/OR OPERATOR which utilizes crack seal cleaning equipment shall acquire, or contract to acquire, only vacuum type crack cleaning seal equipment.

93.3 **Record Keeping And Reporting Requirements**

93.3.1 **Record Keeping:** Any PERSON subject to the requirements of this Regulation shall compile and retain records that provide evidence of CONTROL MEASURE application, by indicating type of treatment or CONTROL MEASURE, extent of coverage, and date applied. The records and supporting documentation shall be made available to the CONTROL OFFICER within 24 hours of a written request.

93.3.2 **Reporting Requirements:** OWNERS AND/OR OPERATORS having jurisdiction over PAVED roads shall prepare and submit a written report to the Clark County Department of Air Quality and Environmental Management documenting compliance with the provisions of this Regulation. This report shall be prepared annually on a calendar year basis. The reports shall be transmitted no later than 90 days after the end of the calendar year and shall include:

93.3.2.1 The total miles of PAVED roads under the jurisdiction of the OWNER AND/OR OPERATOR and the miles of PAVED roads constructed or modified during the reporting period.

93.3.2.2 For newly constructed or modified roads, documentation on how the requirements of Subsections 93.2.1.1 through 93.2.1.5 have been met.

93.3.2.3 Other information which may be needed by the CONTROL OFFICER for compliance with EPA requirements for enforcement of this regulation.

93.3.3 **Records Retention:** Copies of the records required by Subsection 93.3.1 (Record Keeping Requirements) of this Regulation shall be retained for at least one year.

93.4 **Test Methods**

93.4.1 **Stabilization Test Methods For UNPAVED Shoulders And Medians of PAVED Roads:**

93.4.1.1 OPACITY Test Method: The purpose of this test method is to estimate the percent OPACITY of FUGITIVE DUST plumes caused by vehicle movement on unpaved road shoulders and medians of PAVED roads. This method can only be conducted by an individual who has received certification as a qualified observer.

(a) Step 1: Stand at least 20 feet from the FUGITIVE DUST source in order to provide a clear view of the EMISSIONS with the sun oriented in the 140-degree sector to the back. Following the above requirements, make OPACITY observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

(b) Step 2: Record the FUGITIVE DUST source location, source type, method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the FUGITIVE DUST source. Also, record the time, estimated distance to the FUGITIVE DUST source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position to the FUGITIVE DUST source, and color of the plume and type of background on the visible EMISSION observation form both when OPACITY readings are initiated and completed.

(c) Step 3: Make OPACITY observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make OPACITY observations approximately 3 feet above the surface from which the plume is generated. Note that the observation is to be made at only one visual point upon generation of a plume, as opposed to visually tracking the entire length of a dust plume as it is created along a surface. Make two observations per vehicle, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

(d) Step 4: Record the OPACITY observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average OPACITY of EMISSIONS for a 5-second period. While it is not required by the test method, EPA recommends that the observer estimate the size of vehicles which generate dust plumes for which readings are taken (e.g. mid-size passenger car or heavy-duty truck) and the approximate speeds the vehicles are traveling when readings are taken.

(e) Step 5: Repeat Step 3 (Subsection 93.4.1.1 (c) of this Regulation) and Step 4 (Subsection 93.4.1.1 (d) of this Regulation) until you have recorded a total of 12 consecutive OPACITY readings. This will occur once six vehicles have driven on the source in your line of observation for which you are able to take proper readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed 1 hour. Observations immediately preceding and following interrupted observations can be considered consecutive.

(f) Step 6: Average the 12 OPACITY readings together. If the average OPACITY reading equals 20% or lower, the source is in compliance with the OPACITY standard described in Section 93 of these Regulations.

93.4.1.2 Silt Loading Test Method: The purpose of this test method is to estimate the silt loading of the representative surfaces of dust palliative and untreated shoulders and medians of PAVED roads. The higher the silt loading, the greater the amount of fine dust particles that are entrained into the atmosphere when vehicles drive on unpaved shoulders and medians of PAVED roads.

(a) Equipment:

(1) A set of sieves with the following openings: 4 millimeters (ASTM No. 5), 2 millimeters, (ASTM No. 10), 1 millimeter (ASTM No. 18), 0.5 millimeter (ASTM No. 35) and 0.25 millimeter (ASTM No. 60), (or a set of standard/commonly available sieves), a lid, and collector pan.

(2) Equipment necessary to collect a sample of material from the surface of the subject area. (e.g., a small whisk broom or paintbrush with bristles no longer than 1.5 inches, dustpan, spatula, shallow container, sealable plastic bags.)

(3) Equipment necessary to complete field analysis of material. (e.g., weighting scale with half once increments, calculator, writing material.)

(b) Step 1: Look for a representative surface within four (4) feet of the edge of the pavement. [Only collect samples from surfaces that are not damp due to precipitation or dew. This statement is not meant to be a standard in itself for dampness where watering is being used as a CONTROL MEASURE. It is only intended to ensure that surface testing is done in a representative manner.] Gently press the edge of a dustpan into the surface to mark an area that is 1 square foot. Collect a sample of loose surface material using a whiskbroom or brush and slowly sweep the material into the dustpan, minimizing escape of dust particles. Use a spatula or similar device to lift heavier elements such as gravel. Only collect dirt/gravel to an approximate depth of 3/8 inch in the 1 square foot area. If you reach a hard, underlying subsurface that is less than 3/8 inch in depth, do not continue collecting the sample by digging into the hard surface. In other words, you are only collecting a surface sample of loose material down to 3/8 inch. In order to confirm that samples are collected to 3/8 inch in depth, a wooden dowel or other similar narrow object at least one foot in length can be laid horizontally across the survey area while a ruler is held perpendicular to the dowel.

- At this point, you can choose to place the sample collected into a plastic bag or container and return to the DAQM facilities to complete the remaining steps or take it to an independent laboratory for silt loading analysis. A reference to the procedure the laboratory is required to follow is at the end of this section.

(c) Step 2: Place a scale on a level surface. Place a lightweight container on the scale. Zero the scale with the weight of the empty container on it.

(d) Step 3: Stack a set of sieves in order according to the size openings specified above, beginning with the largest size opening (4 mm) at the top. Place a collector pan underneath the bottom (0.25 mm) sieve.

(e) Step 4: Carefully pour the sample into the sieve stack, minimizing escape of dust particles by slowly brushing material into the stack with a whiskbroom or brush, (on windy days, use the trunk or door of a car as a wind barricade). Cover the stack with a lid. Lift up the sieve stack and shake it vigorously up, down and sideways or place on a powered shaker for at least 1 minute.

(f) Step 5: Remove the lid from the stack and disassemble each sieve separately, beginning with the top sieve. As you remove each sieve, examine it to make sure that all of the material has been sifted to the finest sieve through which it can pass; e.g., material in each sieve (besides the top sieve that captures a range of larger elements) should look the same size. If this is not the case, re-stack the sieves and collector pan, cover the stack with the lid, and shake it again for at least 1 minute (you only need to reassemble the sieve(s) that contain material, which requires further sifting).

(g) Step 6: After disassembling the sieves and collector pan, slowly sweep the material from the collector pan into the empty container calibrated on the scale in Step 2 (Subsection 93.4.1.2(c)). Take care to minimize escape of dust particles. You do not need to do anything with material captured in the sieves; only the collector pan. Weigh the container with the material from the collector pan and record its weight.

(h) Step 7: Multiply the resulting weight by 0.38. The resulting number is the estimated silt loading.

(i) Step 8: Select another two representative surfaces of the unpaved road shoulder or median and repeat this test method. Once you have calculated the silt loading of the 3 samples collected, average your results together.

(j) Step 9: Examine Results. If the average silt loading is less than 0.33 oz/ft^2, the surface is stable.

(k) Independent Laboratory Analysis: You may choose to collect 3 samples from the source, according to Step 1 (Subsection 93.4.1.2 (b) of this Regulation), and send them to an independent laboratory for silt loading analysis rather than conduct the sieve field procedure. If so, the test method the laboratory is required to use is:

"Procedures For Laboratory Analysis Of Surface/Bulk Loading Samples", (Fifth Edition, Volume I, Appendix C.2.3 "Silt Analysis", 1995), AP-42, Office of Air Quality Planning & Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina

93.4.1.3 **GRAVEL DEPTH AND SILT CONTENT TEST METHOD:** The purpose of this two (2) part test method is to estimate the gravel depth and silt content of graveled road shoulders and medians of PAVED roads. Two (2) inches of gravel are required to prevent vehicle tires from digging through the gravel. The higher the silt content in the top inch of the gravel, the greater the amount of fine dust particles that are entrained into the atmosphere when vehicles drive on gravel-stabilized shoulders.

(a) Equipment necessary to collect a sample of material from the surface of the subject area, including a sampling device one (1) foot by one (1) foot by one (1) inch deep, and other equipment such as, a small whisk broom or paintbrush with bristles no longer than 1.5 inches, dustpan, spatula, shallow container, sealable plastic bags, ruler, and wood dowel or similar straight edge device.

(b) Step 1: Look for a section within four (4) feet of the edge of pavement that has an existing gravel surface that appears representative of the gravel shoulder. Using the spatula, remove the gravel from a three (3) to five (5) inch diameter area to the depth of the applied gravel surface. Make sure that the removed gravel is placed well away from the cleared area. Place a wooden dowel or other similar narrow object across the cleared survey area, and measure, perpendicular to the narrow object, to depth of the cleared area to determine the depth of the gravel material. If the depth of the gravel material is less than two (2) inches, the area fails and is not considered stable. If the depth of the gravel material is two (2) inches or greater, go to Step 2 (Subsection 93.4.1.3 (c) of this Regulation).

(c) Step 2. Using the one (1) foot by one (1) foot by one (1) inch deep sampling frame, gently press the edges of the frame into the road shoulder surface to a depth of one (1) inch. Collect the sample of loose surface material using the whiskbroom, brush, spatula, and dustpan to collect the material into the sample bag, minimizing escape of dust particles. Collect all material to a one (1) inch depth in the one (1) square foot sampling frame.

(d) Step 3. Repeat Steps 1 and 2 to obtain two (2) additional samples for a total of three (3) samples. In the event any sampled location is found to have less than (2) inches of gravel under Step 1, the shoulder is considered to be unstable. Do not proceed with additional sampling.

(e) Step 4. Laboratory Analysis: Samples collected from this source, according to Step 3 (Subsection 93.4.1.3 (d) of this Regulation), are sent to a laboratory for silt content analysis. The test method the laboratory is required to use is:

i. Wet screen the entire sample through a one (1) inch sieve.

ii. For all material passing through the one (1) inch sieve, use ASTM No. 200 wet Sieve Method to determine the percentage content of silt.

(f) Step 5: Examine Results. Average the silt content for the (3) samples. If the average silt content of the three samples is equal to or less than or six (6) percent, the surface is stable.

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SECTION 94 – PERMITTING AND DUST CONTROL FOR CONSTRUCTION ACTIVITIES

94.1 **Purpose.**

94.1.1 The purpose of this section of the Air Quality Regulations is:

(a) To limit the EMISSION of PARTICULATE MATTER into the AMBIENT AIR by preventing, controlling, and mitigating FUGITIVE DUST from CONSTRUCTION ACTIVITIES; and

(b) To establish FUGITIVE DUST control standards for Clark County, define reasonable precautions for the prevention and control of FUGITIVE DUST from all CONSTRUCTION ACTIVITIES and to establish thresholds for enforcement of these standards.

94.2 **Applicability.**

94.2.1 This section of the Air Quality Regulations applies to all CONSTRUCTION ACTIVITIES that disturb or have the potential to disturb soils and that emit or have the potential to emit particulate matter into the atmosphere. This section covers the requirements for a Dust Control Permit and a Dust Mitigation Plan as well as the application procedures.

94.2.2 For the purpose of this Regulation, CONSTRUCTION ACTIVITIES include, but are not limited to, the following practices:

(a) Land clearing, maintenance, and land cleanup using machinery;

(b) soil and rock excavation or removal;

(c) soil or rock hauling;

(d) soil or rock crushing or screening;

(e) filling, compacting, stockpiling and grading;

(f) explosive blasting;

(g) demolition;

(h) implosion;

(i) handling of building materials capable of entrainment in air (e.g., sand, cement powder);

(j) abrasive blasting;

(k) concrete, stone, and tile cutting;

(l) mechanized trenching;

(m) initial landscaping;

(n) operation of motorized machinery;

(o) driving vehicles on a CONSTRUCTION site; and

(p) establishing and/or using staging areas, parking areas, material storage areas, or access routes to or from a CONSTRUCTION site.

94.2.3 This regulation shall not apply to operation of emission units or activities permitted under any other section of the Air Quality Regulations, with the specific exception that any CONSTRUCTION ACTIVITIES that occur at such facilities and the land area that Various Location Operating Permits are located on shall be subject to this regulation. In all permits issued under the Air Quality Regulations the provisions of this section shall be considered as part of a BACT determination.

94.2.4 This regulation shall not apply to NORMAL FARM CULTURAL PRACTICES and existing equestrian facilities that are in compliance with zoning requirements.

94.2.5 This regulation shall not apply to emergency activities that may disturb the soil, conducted by any utility or government agency in order to prevent public injury or restore critical utilities to functional status.

94.3 **Definitions.**

94.3.1 For the purpose of this section of the Air Quality Regulations, terms listed in this subsection have the meanings ascribed.

94.3.2 Best Available Control Measures (BACM): means those control measures that are the best available with current technology for reducing or eliminating the release of particulate matter into the atmosphere from construction activities. These include but are not limited to all measures listed in the Construction Activities Dust Control Handbook as Best Management Practices, any control measure required by a Corrective Action Order, and any other control measures required by the Control Officer.

94.3.3 Construction Activities Dust Control Handbook: means the reference manual used to complete a Dust Control Permit and a Dust Mitigation Plan, and contains a listing of the Best Management Practices, copies of

which are on file in the office of the Clark County Department of Air Quality and Environmental Management.

94.3.4 Department or DAQEM: means the Clark County Nevada, Department of Air Quality and Environmental Management.

94.3.5 Dust Mitigation Plan: means an attachment to a Dust Control Permit that lists all the Construction Activities that shall occur and the Best Management Practices that shall be used, to mitigate dust at a permitted site. Upon approval of the application the Dust Mitigation Plan becomes an enforceable part of the Dust Control Permit.

94.3.6 Gravel: means a mineral or rock aggregate ranging in size from 0.25 inch to 3 inch on its longest dimension that is either natural or the product of a mineral processing operation and contains no more than 6% silt, by weight.

94.4 **Permits Required, Exemptions from Required Permit and Responsibility when Exempt.**

94.4.1 Prior to engaging in any CONSTRUCTION ACTIVITIES, the property OWNER AND/OR OPERATOR, who is the owners designee shall apply for and obtain a DUST CONTROL PERMIT from the Clark County Department of Air Quality and Environmental Management.

94.4.2 A DUST CONTROL PERMIT shall not be required for soil disturbing or CONSTRUCTION ACTIVITIES less than 0.25 acre in overall area, mechanized trenching less than one hundred (100) feet in length, or for mechanical demolition of any structure smaller than one thousand (1,000) square feet.

94.4.3 The following activities shall not require a DUST CONTROL PERMIT:

(a) Landscaping by an individual at his/her place of residence;

(b) EMERGENCY maintenance activities conducted by government agencies on publicly maintained roads, road shoulders, right-of-ways and on public flood control facilities; or,

(c) Weed removal or dust palliative application projects conducted solely for the purpose of compliance with weed abatement or vacant land dust control regulations, wherein no grade elevation changes, no soil or rock is imported or exported, or no cut and fill operations occur. Importing of gravel or rock for use as a dust palliative is allowed under this subsection.

94.5 **Permit Applications.**

94.5.1 Application for issuance or renewal of a DUST CONTROL PERMIT shall be made on a form and in a manner prescribed by the CONTROL OFFICER.

94.5.2 Each application shall be accompanied by payment of a fee in accordance with Section 18.

94.5.3 Public agency maintenance projects, performed by that agency's employees, may be eligible for a waiver of permit fees upon approval of the CONTROL OFFICER.

94.5.4 All applications for a DUST CONTROL PERMIT shall include a Dust Mitigation Plan with appropriate CONTROL MEASURES from the Construction Activities Dust Control Handbook for every CONSTRUCTION ACTIVITY to be conducted. Other CONTROL MEASURES that are at least as effective as CONTROL MEASURES contained in the Construction Activities Dust Control Handbook may be implemented provided they meet the criteria outlined in Section 2 of the introduction to the Best Management Practices section of the handbook and with the approval of the CONTROL OFFICER.

94.5.5 An application for a DUST CONTROL PERMIT for a CONSTRUCTION project ten (10) acres or more in area, for trenching activities one (1) mile or greater in length, or for structure demolition using implosive or explosive blasting techniques, shall be required to submit a detailed supplement to the Dust Mitigation Plan. This supplement shall be in the form of a written report and shall, at minimum, detail the project description, the area and schedule of the phases of land disturbance, the Control Measures and the Contingency Measures to be used for all CONSTRUCTION ACTIVITIES. This supplement shall become part of the DUST CONTROL PERMIT as an enforceable permit condition.

94.5.6 An application for a DUST CONTROL PERMIT that includes demolition of a structure One thousand (1,000) square feet or greater in area or explosive blasting of rock or soil, shall include the appropriate supplemental form that is provided in Attachment 1 of the Construction Activities Dust Control Handbook for each activity. These forms shall become part of the DUST CONTROL PERMIT as an enforceable permit condition.

94.5.7 An application for a Dust Control Permit for a Construction project of fifty (50) acres or more in area shall contain an actual soils analysis of the entire project. The soils analysis shall use the appropriate ASTM test method to determine soil types. If the soils analysis identifies two or more soil types, the area of each soil type shall be shown on a map of the project. A copy of the map shall be included in the application for the Dust Control Permit. The soils analysis shall utilize at least one (1) sample taken from the top one (1) foot of soil for each soil type identified. The

soils analysis shall use the appropriate ASTM test to determine the silt content and optimum moisture of the sample(s). The application for the Dust Control Permit shall contain the particulate emission potential (PEP) for each soil type identified calculated from the results of the soils analysis and the Silt Content vs. Optimum Moisture Content Chart (figure 2) in the Construction Activities Dust Control Handbook. The choice of Best Management Practices for the Dust Mitigation Plan may be different for each soil type area, if not, the highest PEP identified on the project shall be used.

94.5.8 The application shall be signed by the property owner or the owner's designee as listed on the "Owner's Designee for Dust Control Permit for Construction Activities" form.

94.5.9 Upon approval, the completed DUST CONTROL PERMIT application, Dust Mitigation Plan and related maps and forms shall become a part of the DUST CONTROL PERMIT.

94.6 **DUST CONTROL PERMIT Requirements.**

94.6.1 Issuance or renewal of each DUST CONTROL PERMIT requires payment of a DUST CONTROL PERMIT fee in accordance with Section 18.

94.6.2 A DUST CONTROL PERMIT is to be granted subject to the right of inspection of such affected land without prior notice by the CONTROL OFFICER.

94.6.3 The permit shall be granted subject to, but not limited to, the following conditions:

(a) The permittee is responsible for ensuring that all PERSONS abide by the conditions of the permit and these regulations;

(b) The permittee is responsible for supplying complete copies of the DUST CONTROL PERMIT including the Dust Mitigation Plan, to all project contractors and subcontractors; and,

(c) The permittee is responsible for all permit conditions, until a Certificate of Project Completion (form DCP 08 see Attachment 1) has been submitted by the permittee and approved by the Control Officer.

94.6.4 The signature of the OWNER AND/OR OPERATOR who is the OWNER's designee on the DUST CONTROL PERMIT shall constitute agreement to accept responsibility for meeting the conditions of the permit and for ensuring that Best Available Control Measures are implemented throughout the project site.

94.6.5 Requirements and conditions of the DUST CONTROL PERMIT shall be made a part of the specifications of the CONSTRUCTION contract between the owner and prime contractor and contracts between the prime contractor and applicable subcontractors. Said contracts must provide a monetary allowance for any dust control options specified in the Dust Mitigation Plan. The amount of the allowance may be specified either by the OWNER, competitively bid, or negotiated by and amongst the parties.

94.6.6 Projects less than 0.25 acres in area under common control that are either contiguous or separated only by a public or private roadway and that cumulatively equal or exceed 0.25 acre in area are also required to obtain a DUST CONTROL PERMIT. These projects are required to meet all DUST CONTROL PERMIT requirements based on cumulative area. All contiguous projects under common control may be required to obtain and operate under a single permit, at the discretion of the CONTROL OFFICER.

94.6.7 A DUST CONTROL PERMIT shall be required for routine, public agency road maintenance, road shoulder maintenance, flood control facility maintenance, and maintenance activities that disturb soil and are capable of causing FUGITIVE DUST. Such Dust Control Permits may be issued based upon written monthly, quarterly, semi-annual, or annual schedules of work for routine maintenance activities. Such permits shall include a Dust Mitigation Plan listing all activities to be performed that may disturb the soil, and shall include BEST MANAGEMENT PRACTICES for all these activities. Public agencies shall quantify miles and acres of maintenance activities to be performed under the conditions of the Dust Control Permit.

94.6.8 The permit holder shall notify the DEPARTMENT OF AIR QUALITY AND ENVIRONMENTAL MANAGEMENT in writing within ten (10) days following the cessation of active operations on all or part of a CONSTRUCTION site when cessation will extend thirty (30) days or longer.

94.6.9 A Dust Control Permit is valid for one calendar year from the date of issuance.

94.6.10 A complete copy of the Dust Control Permit shall be kept on the project site at all times that Construction Activities occur and made available upon request of the Control Officer.

94.7 **General and Administrative Standards.**

94.7.1 Anyone engaging in CONSTRUCTION ACTIVITIES on a site having a Dust Control Permit shall be subject to all conditions set forth in that permit. Failure to comply with any condition set forth in the permit shall be in violation of this section of the Air Quality Regulations.

94.7.2 The Construction Activities Dust Control Handbook, excluding all attachments, is adopted and made a part of this section of the Air Quality Regulation, as if it were fully set forth herein, except as amended by this Regulation.

94.7.3 **DUST CONTROL PERMIT: Restrictions on issuance; Suspension; Revocation; Requirement for Bond; Right to Appeal:**

94.7.3.1 Permits shall not be issued to an applicant having outstanding unpaid DAQEM fees and/or penalties, not under appeal.

94.7.3.2 If an OWNER AND/OR OPERATOR has three (3) Notices of Violation that have been adjudicated by the HEARING OFFICER at the same project for which the Dust Control Permit was issued, the CONTROL OFFICER or his/her representative may suspend or revoke the permit. Upon suspension or revocation of a permit, all activities that are authorized by that permit shall cease. The CONTROL OFFICER shall post notices of suspension or revocation conspicuously on the property involved. The notice shall state the reasons and indicate the date and time of suspension and/or revocation. The suspension or revocation shall remain in effect until such time as rescinded by the CONTROL OFFICER. If the permit has been suspended, the permit may be reinstated. If revoked, a new permit will not be issued until an application is made and fees paid in accordance with Section 18 of these regulations. The permittee shall have a right to hearing before the HEARING OFFICER within five (5) working days from date of issuance of the suspension or revocation. Alternatively, in such instances, the CONTROL OFFICER may require compliance with Subsection 94.7.6 for all operators of earth moving or soil disturbing equipment.

94.7.3.3 If during any 180 day period an OWNER AND/OR OPERATOR has three (3) NOTICES OF VIOLATION that have been adjudicated by the HEARING OFFICER for the same construction site, the CONTROL OFFICER shall require the posting of a surety bond to ensure implementation of the mitigation measures set forth in the approved Dust Control Permit for the subject site. If an OWNER AND/OR OPERATOR has two (2) or more NOTICES OF VIOLATION that have been adjudicated by the HEARING OFFICER from the DAQEM for: failure to obtain a Dust Control Permit; failure to implement BEST MANAGEMENT PRACTICES; or failure to comply with a Corrective Action Order, the CONTROL OFFICER may, as a condition of obtaining or maintaining a Dust Control Permit, issue a Corrective Action Order requiring the OWNER AND/OR OPERATOR to post a surety bond to ensure the implementation of the mitigation measures set forth in said Dust Control Permits.

The OWNER AND/OR OPERATOR shall provide the CONTROL OFFICER the surety bond executed in a form acceptable to the CONTROL OFFICER for the approved Dust Control Permit as the principal with a corporation authorized to transact surety business in the State of Nevada. The OWNER AND/OR OPERATOR shall condition the surety bond upon the faithful performance of all other conditions of the permit and faithful compliance with the provisions of these regulations. The surety bond shall remain in effect until the construction activity specified in the said Dust Control Permit is complete and the department closes the said Dust Control Permit. The amount of each bond required by this section shall equal the estimated cost of implementing the dust CONTROL MEASURES set forth in the approved Dust Control Permit plus an additional 10% of the estimated cost to cover contingencies, as determined by the DAQEM.

94.7.3.4 Any PERSON aggrieved by a decision of the CONTROL OFFICER pursuant to this section may appeal in accordance with Section 7 of these Regulations.

94.7.4 **Corrective Action Orders (CAO) and Notices of Violation (NOV).**

94.7.4.1 If it is found that any provision of Section 94, a DUST CONTROL PERMIT, or a Dust Mitigation Plan has not been complied with, the CONTROL OFFICER may issue a Corrective Action Order to any OWNER AND/OR OPERATOR or other PERSON that they may be in violation of these regulations and said finding shall be corrected within a specified period of time, dependent upon the scope and extent of the problem.

94.7.4.2 The failure to comply with the corrective measures of a Corrective Action Order within the specified period of time shall be a violation of this section of the Air Quality Regulations.

94.7.4.3 Regardless of whether a Corrective Action Order has been issued, the CONTROL OFFICER may issue a Notice of Violation upon determination that the OWNER AND/OR OPERATOR is out of compliance with any provisions of this section of the Air Quality Regulations, a DUST CONTROL PERMIT, a Dust Mitigation Plan, or upon the failure to comply with a previously issued Corrective Action Order.

94.7.4.4 The CONTROL OFFICER, or his/her designee shall be further empowered to enter upon any said land where any loose soil or dust problem exists, and to take such remedial and corrective action as may be deemed appropriate to cope with and relieve, reduce, or remedy the loose soil, dust situation or condition, when the OWNER AND/OR OPERATOR fails to do so.

94.7.4.4.1 Any cost incurred in connection with any such remedial or corrective action by the Department of Air Quality and Environmental Management or any PERSON acting for the Department of Air Quality and Environmental Management shall be reimbursed by the land OWNER AND/OR OPERATOR. If these costs are not reimbursed the CONTROL OFFICER may request a lien be placed on the subject lands that shall remain in full force and effect until any and all such costs have been collected.

94.7.4.5 Any additional CONTROL MEASURES prescribed by the CONTROL OFFICER in a Corrective Action Order, issued to the holder of a Dust Control Permit, shall become a part of that permit's Dust Mitigation Plan.

94.7.5 **Dust Control Monitor.**

94.7.5.1 Any CONSTRUCTION project having 50 acres or more of actively disturbed soil at any given time shall be required by the CONTROL OFFICER to have in place an individual designated as the Dust Control Monitor with full authority to ensure that dust CONTROL MEASURES are implemented, including inspections, record keeping, deployment of resources, and shut-down or modification of CONSTRUCTION ACTIVITIES as needed. This individual shall be listed on the Construction Site Dust Control Monitor form provided in Attachment 1 of the Construction Activities Dust Control Handbook.

94.7.5.2 A Dust Control Monitor shall also be required for individually permitted projects that have less than fifty (50) acres of actively disturbed soil if they are:

(a) under common control and are either contiguous or separated by a public or private roadway and cumulatively have fifty (50) acres or more of actively disturbed soil; or

(b) under common control and not contiguous, but are contained within a common master-planned community and cumulatively have fifty (50) acres or more of disturbed soil.

94.7.5.3 The Dust Control Monitor shall be present at all times CONSTRUCTION ACTIVITIES occur on the project site and shall devote the majority of his/her time specifically to managing dust prevention and control on the site.

94.7.5.4 The requirement for a Dust Control Monitor shall lapse when:

(a) the area of actively disturbed soil becomes less than fifty (50) acres;

(b) the previously disturbed areas have been stabilized in accordance with the requirements of these Regulations; and,

(c) the stabilization has been approved and the acreage verified by the CONTROL OFFICER.

94.7.5.5 A Dust Control Monitor shall be considered qualified when he/she has met the following minimum qualifications:

(a) successfully completed the Basic Dust Control Class;

(b) successfully completed the Dust Control Monitor Class;

(c) two years of experience in the CONSTRUCTION industry; and,

(d) successfully completed a course that certifies him/her in Visual Emissions Evaluation (VEE) that has been approved or is conducted by the CONTROL OFFICER.

94.7.5.6 For a Dust Control Monitor to maintain his/her certification he/she must successfully complete the Dust Control Monitor class at least once every three years.

94.7.6 **Dust Control Class.**

94.7.6.1 The CONSTRUCTION site superintendent or other designated on-site representative of the project developer and all construction site supervisors and foremen shall be required to have successfully completed a Clark County Department of Air Quality and Environmental Management Dust Control Class.

94.7.6.2 Water truck and water pull driver(s) for each CONSTRUCTION project shall be required to have successfully completed a Clark County Department of Air Quality and Environmental Management Dust Control Class.

94.7.6.3 All individuals required to attend and successfully complete the Dust Control Class shall do so at least once every three years.

94.7.6.4 CONSTRUCTION site workers and equipment operators, may be required to attend a Dust Control Class as a remedial or corrective measure.

94.7.7 Signage Requirements.

94.7.7.1 For each Dust Control Permit issued where the project site is less than or equal to ten (10) acres, or for trenching projects between one hundred (100) feet and one (1) mile in length, or for demolition of a structure totaling one thousand (1,000) square feet or more, the permittee shall install a sign on the project site prior to commencing CONSTRUCTION ACTIVITY that is visible to the public and measures, at minimum, four (4) feet wide by four (4) feet high, conforming to Department policy on Dust Control Permit Design and Posting of Signage listed in Attachment 4 of the Construction Activities Dust Control Handbook.

94.7.7.2 For each Dust Control Permit issued where the project site is over ten (10) acres, or for trenching projects aggregating one (1) mile or greater in length, the permittee shall install a sign on the project site prior to commencing CONSTRUCTION ACTIVITY and visible to the public and measures, at minimum, eight (8) feet wide by four (4) feet high, conforming to Department policy on Dust Control Permit Design and Posting of Signage listed in Attachment 4 of the Construction Activities Dust Control Handbook.

94.7.7.3 Projects shorter than two (2) weeks in duration may request a waiver of the requirement of posting a DUST CONTROL PERMIT Sign.

94.7.8 **Record Keeping.**

94.7.8.1 On a site having a Dust Control Permit a written record of self inspection shall be made each day soil disturbing work is conducted. The "Record of Daily Dust Control" form provided in Appendix A of the Construction Activities Dust Control Handbook, or other written record that provides at a minimum the same information, shall be completed.

94.7.8.2 Records of CONSTRUCTION site self inspections shall be kept for a minimum of one (1) year or for six (6) months beyond the project duration, whichever is longer. Self inspection records include daily inspections for crusted or damp soil, trackout conditions and cleanup measures, daily water usage, DUST SUPPRESSANT application records, etc.

94.7.8.3 For CONTROL MEASURES involving chemical or organic soil stabilization, records shall indicate the type of product applied, vendor name, label instructions for approved usage, and the method, frequency, concentration, and quantity of application.

94.8 **Soil Stabilization Standards.**

94.8.1 All permittees, contractors, OWNERS, operators, or other PERSONS involved in CONSTRUCTION ACTIVITIES shall employ CONTROL MEASURES as set forth in the Construction Activities Dust Control Handbook.

94.8.2 One or a combination of the following methods shall be used to maintain dust control on all disturbed soils on Construction Sites and staging areas:

(a) The soil shall be maintained in a sufficiently damp condition to prevent loose grains of soil from becoming dislodged when the disturbed soil is tested using the Drop Ball Test outlined in Subsection 94.12.5; or

(b) The soil shall be crusted over by application of water, as demonstrated by the Drop Ball Test outlined in Subsection 94.12.5; or

(c) The soil shall be completely covered with clean gravel or treated with a DUST SUPPRESSANT approved by the CONTROL OFFICER, to the extent necessary to pass a Drop Ball Test outlined in Subsection 94.12.5.

94.8.3 When a CONSTRUCTION site or part thereof becomes inactive for a period of thirty (30) days or longer, long-term stabilization shall be implemented within ten (10) days following the cessation of active operations.

94.8.4 Stockpiles located within one hundred (100) yards of occupied buildings shall not be constructed over eight (8) feet in height.

94.8.5 Stockpiles over eight (8) feet high shall have a road bladed to the top to allow water truck access or shall have a sprinkler irrigation system installed, used and maintained.

94.9 **Best Available Control Measures (BACM)**

94.9.1 Any PERSON who engages in a Construction Activity as defined in this regulation shall employ BACM for the purpose of dust control.

94.9.2 All CONTROL MEASURES that are necessary to maintain soil stability as well s those listed in an approved Dust Mitigation Plan, shall be implemented twenty four (24) hours a day, seven (7) days a week, until the permit is closed in accordance with Subsection 94.6.3(c).

94.9.3 In the event there are wind conditions that cause FUGITIVE DUST EMISSIONS; in excess of 20% OPACITY using the Time Averaged Method or Intermittent Emissions Method, in excess of 50% OPACITY using the Instantaneous Method, or one hundred (100) yards in length from the point of origin, in spite of the use of Best Available CONTROL MEASURES, all CONSTRUCTION ACTIVITIES that may contribute to these emissions shall immediately cease. Water trucks and water pulls shall continue to operate under these circumstances, unless wind conditions are such that the continued operation of watering equipment cannot reduce FUGITIVE DUST EMISSIONS or that continued equipment operation poses a safety hazard.

94.9.4 If a Dust Control Permit is not required, the OWNERS, operators, or any other PERSON involved in CONSTRUCTION ACTIVITIES shall employ BEST MANAGEMENT PRACTICES, as set forth in the Construction Activities Dust Control Handbook and comply with the soil stabilization standards listed in Subsections 94.8 and emissions standards listed in Subsection 94.11.

94.10 **CONSTRUCTION ACTIVITIES Violations.**

94.10.1 Any of the following circumstances constitute a violation of the Clark County Air Quality Regulations:

(a) Failure to obtain an approved DUST CONTROL PERMIT before engaging in activities that disturb or have the potential to disturb soils and/or cause or have the potential to cause FUGITIVE DUST to enter the air.

(b) Failure to obtain an approved DUST CONTROL PERMIT for all areas subject to CONSTRUCTION ACTIVITIES.

(c) Conducting a CONSTRUCTION ACTIVITY as defined by Subsection 94.2 for which no specified control option is indicated in the approved DUST CONTROL PERMIT or the Dust Mitigation Plan.

(d) Failure to perform any duty to allow or carry out an inspection, entry, or monitoring activity required by the Department of Air Quality and Environmental Management.

(e) Failure to renew or obtain a new permit, prior to a DUST CONTROL PERMIT expiring, provided the site does not meet the exemption requirements for a DUST CONTROL PERMIT as defined in Subsection 94.4.2.

(f) Failure to implement any item that is listed as a "Requirement" in the Best Management Practices section of the Construction Activities Dust Control Handbook for an applicable Construction Activity.

(g) Failure to implement any BEST MANAGEMENT PRACTICE listed in an approved DUST CONTROL PERMIT / Dust Mitigation Plan.

(h) Failure to maintain static (not actively worked) project soils with adequate surface crusting to prevent wind erosion as measured by test method "Soil Crust Determination (The Drop Ball Test)" in Subsection 94.12.5, or alternative control measures approved in the Dust Mitigation Plan.

(i) Failure to comply with any record keeping requirements of this section.

(j) Failure to maintain project haul routes or haul roads in a stable condition as measured by the Intermittent Emissions test method outlined in Section 94.12.3.

(k) Failure to have a Dust Control Monitor in place, per Subsection 94.7.5, for a Construction project.

(l) Allowing FUGITIVE DUST emissions to exceed the standards set forth in Subsection 94.11.1 through 94.11.4.

(m) Using a dry rotary brush or blower device without sufficient water to limit emissions per Subsection 94.11.5.

(n) Allowing mud or dirt to be tracked out onto a paved road that exceed the standards set forth in Subsection 94.11.6.

(o) Failure to comply with any other provision of this section.

94.11 **Emission Standards.**

94.11.1 No PERSON shall cause or permit the handling, transporting, or storage of any material in a manner that allows visible emissions of particulate matter to exceed: 20% OPACITY using the Time Averaged Method or the Intermittent Emissions Method; 50% OPACITY using the Instantaneous Method. These Test Methods are set forth in Subsection 94.12.

94.11.2 No PERSON shall cause or permit the handling, transporting, or storage of any material in a manner that allows a dust plume that extends one hundred (100) yards or more, horizontally or vertically, from the point of origin.

94.11.3 Where a DUST CONTROL PERMIT is required and has not been issued or in the event Best Available CONTROL MEASURES have not been fully implemented, no PERSON shall cause or permit the handling, transportation, or storage of any material in a manner that exceeds the limits listed in any one of the following:

(a) The limits set forth in Subsection 94.11.1; or

(b) Allow a dust plume to extend more than one hundred (100) feet, horizontally or vertically, from the point of origin; or

(c) Allow a dust plume to cross a property line.

94.11.4 Visible emissions from abrasive blasting shall be limited to no more than an average of 40% OPACITY for any period aggregating three (3) minutes in any sixty (60) minute period, utilizing the test method set forth in Subsection 94.12.

94.11.5 The use of dry rotary brushes and blower devices for removal of deposited mud/dirt trackout from a paved road is prohibited, unless sufficient water is applied to limit the visible emissions to an OPACITY of not greater than: 20% OPACITY using the Time Averaged Method or Intermittent Emissions Method; 50% OPACITY using the Instantaneous Method. These test methods are set forth in Subsection 94.12. The use of rotary brushes without water is prohibited.

94.11.6 Mud or dirt shall not be allowed to be tracked out onto a paved road where such mud or dirt extends fifty (50) feet or more in cumulative length from the point of origin or allow any trackout to accumulate to a depth greater than 0.25 inch. Notwithstanding the preceding, all accumulations of mud or dirt on curbs, gutters, sidewalks, or paved roads including trackout less than fifty (50) feet in length and 0.25 inch in depth, shall be cleaned and

maintained to eliminate emissions of Fugitive Dust. At a minimum all trackout must be cleaned up by the end of the workday or evening shift, as applicable.

94.12 **Test Methods**

94.12.1 Visual Determination of OPACITY of EMISSIONS from Sources of Visible EMISSIONS.

Applicability: This method is applicable for the determination of the OPACITY of EMISSIONS from sources of visible EMISSIONS The Time Averaged Method requires averaging of visible EMISSION readings over a specific time period to determine the OPACITY of visible EMISSIONS. The Time Averaged Method is applicable to continuous EMISSIONS sources. The Intermittent Emissions Method requires averaging a set number of visible EMISSIONS readings to determine the OPACITY of visible EMISSIONS. The Intermittent Emissions Method is applicable to Intermittent EMISSIONS sources. The Instantaneous Method sets an OPACITY limit that shall not be exceeded at any time. The Instantaneous Method is applicable to any emissions source and is a non-federal requirement.

Principle: The OPACITY of EMISSIONS of a source of visible EMISSIONS is determined visually by an observer who has current certification approved by the Control Officer, as a qualified Visible EMISSIONS Evaluator, using US EPA Method 9.

Procedures: A qualified Visible EMISSIONS Evaluator shall use the procedures set forth in Subsections 94.12.2, 94.12.3, and 94.12.4 for visually determining the OPACITY of EMISSIONS.

94.12.2 Time Averaged Method: These procedures is for evaluating continuous FUGITIVE DUST EMISSIONS and are for the determination of the OPACITY of continuous FUGITIVE DUST EMISSIONS by a qualified observer. Continuous FUGITIVE DUST EMISSIONS sources include activities that produce emissions continuously during operations such as earthmoving, grading, and trenching. Emissions from these types of continuous activities are considered continuous even though speed of the activity may very and Emissions may be controlled to 100%, producing no visible emissions, during parts of the operation. The qualified observer should do the following:

(a) Position: Stand at a position at least twenty (20) feet from the FUGITIVE DUST source in order to provide a clear view of the EMISSIONS with the sun oriented in the 140° sector to the back. Consistent as much as possible with maintaining the above requirements, make OPACITY observations from a position such that the line of sight is approximately perpendicular to the plume and wind direction. The observer may follow the FUGITIVE DUST plume generated by mobile earth moving equipment, as long as the sun

remains oriented in the 140° sector to the back. As much as possible, do not include more than one plume in the line of sight at one time.

(b) Field Records: Record the name of the site, FUGITIVE DUST source type (e.g., earthmoving, grading, trenching), method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the FUGITIVE DUST source. Also, record the time, estimated distance to the FUGITIVE DUST source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position relative to the FUGITIVE DUST source, and color of the plume and type of background on the visible EMISSION observation when OPACITY readings are initiated and completed.

(c) Observations: Make OPACITY observations, to the extent possible, using a contrasting background that is perpendicular to the line of sight. Make OPACITY observations at a point just beyond where material is no longer being deposited out of the plume (normally three (3) feet above the surface from which the plume is generated). The initial observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume, but instead observe the plume momentarily at 15-second intervals. For FUGITIVE DUST from earthmoving equipment, make OPACITY observations at a point just beyond where material is not being deposited out of the plume (normally three (3) feet above the mechanical equipment generating the plume).

(d) Recording Observations: Record the OPACITY observations to the nearest 5% every fifteen (15) seconds on an observational record sheet. Each momentary observation recorded represents the average OPACITY of EMISSIONS for a fifteen (15) second period. If a multiple plume exists at the time of an observation, do not record an OPACITY reading. Mark an "x" for that reading. If the equipment generating the plume travels outside of the field of observation, resulting in the inability to maintain the orientation of the sun within the 140° sector or if the equipment ceases operating, mark an "x" for the fifteen (15) second interval reading. Readings identified as "x" shall be considered interrupted readings.

(e) Data Reduction For Time-Averaged Method: For each set of twelve (12) or twenty four (24) consecutive readings, calculate the appropriate average OPACITY. Sets shall consist of consecutive observations, however, readings immediately preceding and following interrupted readings shall be deemed consecutive and in no case shall two sets overlap, resulting in multiple violations.

94.12.3 Intermittent EMISSIONS Method: This procedure is for evaluating Intermittent FUGITIVE DUST EMISSIONS: This procedure is for the determination of the OPACITY of intermittent FUGITIVE DUST EMISSIONS by a qualified observer. Intermittent FUGITIVE DUST EMISSIONS sources include activities that produce

emissions intermittently such as screening, dumping, and stockpiling where predominant emissions are produced intermittently. The qualified observer should do the following:

(a) Position: Stand at a position at least twenty (20) feet from the FUGITIVE DUST source in order to provide a clear view of the EMISSIONS with the sun oriented in the 140° sector to the back. Consistent as much as possible with maintaining the above requirements, make OPACITY observations from a position such that the line of sight is approximately perpendicular to the plume and wind direction. As much as possible, do not include more than one plume in the line of sight at one time.

(b) Field Records: Record the name of the site, FUGITIVE DUST source type (e.g., pile, material handling, transfer, loading, sorting), method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the FUGITIVE DUST source. Also, record the time, estimated distance to the FUGITIVE DUST source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position relative to the FUGITIVE DUST source, and color of the plume and type of background on the visible EMISSION observation when OPACITY readings are initiated and completed.

(c) Observations: Make OPACITY observations, to the extent possible, using a contrasting background that is perpendicular to the line of sight. Make OPACITY observations at a point just beyond where material is no longer being deposited out of the plume (normally three (3) feet above the surface from which the plume is generated). Make two observations per plume at the same point, beginning with the first reading at zero (0) seconds and the second reading at five (5) seconds. The zero (0) second observation should begin immediately after a plume has been created above the surface involved.

(d) Recording Observations: Record the OPACITY observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average OPACITY of EMISSIONS for a five (5) second period.

(e) Repeat Subsection 94.12.3(c) of this Regulation and Subsection 94.12.3(d) of this Regulation until you have recorded a total of 12 consecutive OPACITY readings. This will occur once six intermit plumes on which you are able to take proper readings have been observed. The 12 consecutive readings must be taken within the same period of observation but must not exceed 1 hour. Observations immediately preceding and following interrupted observations can be considered consecutive.

(f) Average the 12 OPACITY readings together. If the average OPACITY reading equals 20% or lower, the source is in compliance with the averaged method OPACITY standard described in this Section.

94.12.4 Instantaneous Method: This is a non-federal procedure for evaluation of FUGITIVE DUST EMISSIONS: This procedure is for the instantaneous determination of the OPACITY of FUGITIVE DUST EMISSIONS by a qualified observer. This method is a Clark County local requirement and is not submitted as part of the applicable State Implementation Plan. The qualified observer should do the following:

(a) Position: Stand at a position at least twenty (20) feet from the FUGITIVE DUST source in order to provide a clear view of the EMISSIONS with the sun oriented in the 140° sector to the back. Consistent as much as possible with maintaining the above requirements, make OPACITY observations from a position such that the line of sight is approximately perpendicular to the plume and wind direction. The observer may follow the FUGITIVE DUST plume generated by mobile earth moving equipment, as long as the sun remains oriented in the 140° sector to the back. As much as possible, do not include more than one plume in the line of sight at one time.

(b) Field Records: Record the name of the site, FUGITIVE DUST source type (e.g., earthmoving, grading, storage pile, material handling, transfer, loading, sorting), method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the FUGITIVE DUST source. Also, record the time, estimated distance to the FUGITIVE DUST source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position relative to the FUGITIVE DUST source, and color of the plume and type of background on the visible EMISSION observation when OPACITY readings are initiated and completed.

(c) Observations: Make OPACITY observations, to the extent possible, using a contrasting background that is perpendicular to the line of sight. Make OPACITY observations at a point just beyond where material is no longer being deposited out of the plume (normally three (3) feet above the surface from which the plume is generated).

(d) Recording Observations: Record the OPACITY observations to the nearest 5%.

(e) Data Reduction For Instantaneous Regulations: Evaluate all observations for conformance with the instantaneous regulation.

94.12.5 Soil Crust Determination (The Drop Ball Test):

(a) Drop a steel ball with a diameter of 0.625 ($5/8^{th}$) inch and a mass ranging from 0.56-0.60 ounce from a distance of one (1) foot directly above the soil surface. If blowsand is present, clear the blowsand from the surfaces on which the soil crust test method is conducted. Blowsand is defined as thin deposits of loose uncombined grains covering less than 50% of a project site that have not originated from the representative surface being tested. If material covers a visible crust, which is not blowsand, apply the test method in Subsection 90.4.1.3 (Determination Of Threshold Friction Velocity) of this Regulation to the loose material to determine whether the surface is stabilized.

A sufficient crust is defined under the following conditions: once a ball has been dropped according to Subsection 90.4.1.1 of this Regulation, the ball does not sink into the surface, so that it is partially or fully surrounded by loose grains and, upon removing the ball, the surface upon which it fell has not been pulverized, so that loose grains are visible.

(b) Randomly select each representative disturbed surface for the drop ball test by using a blind "over the shoulder" toss of a throwable object (e.g., a metal weight with survey tape attached). Using the point of fall as the lower left hand corner, measure a one (1) foot square area. Drop the ball three times within the 1-foot by 1-foot square survey area, using a consistent pattern across the survey area. The survey area shall be considered to have passed the Soil Crust Determination Test if at least two out of the three times that the ball was dropped, the results met the criteria in Subsection 90.4.1.1(a) of this Regulation. Select at least two other survey areas that represent a random portion of the overall disturbed conditions of the site, and repeat this procedure. If the results meet the criteria of Subsection 90.4.1.1(a) of this Regulation for all of the survey areas tested, then the site shall be considered to have passed the Soil Crust Determination Test and shall be considered sufficiently crusted.

(c) At any given site, the existence of a sufficient crust covering one portion of the site may not represent the existence or protectiveness of a crust on another portion of the site. Repeat the soil crust test as often as necessary on each portion of the overall conditions of the site using the random selection method set forth in Subsection 90.4.1.1(b) of this Regulation for an accurate assessment.

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