Environmental Covenants, Institutional and Engineering Control Plan
Tronox LLC
Henderson, Nevada

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Prepared For:

Tronox LLC
560 West Lake Mead Parkway
Henderson, Nevada 89015

Prepared By:

Northgate Environmental Management, Inc.
300 Frank H. Ogawa Plaza, Suite 510
Oakland, California 94612

Deni Chambers, CEM
Principal-in-Charge

Derrick Willis, CEM
Project Manager

Alan Leavitt
QA/QC Manager

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1.0 INTRODUCTION

This Environmental Covenants, Institutional and Engineering Control Plan for the Tronox Facility, located in Henderson, Nevada (the IC/EC Plan) describes the proposed institutional and engineering controls for specified areas at the Tronox Henderson facility (the Site). The Site location is shown in Figure 1.

The IC/EC Plan has incorporated comments from the Nevada Division of Environmental Protection (NDEP) and addressed issues identified by NDEP in letters to Tronox dated June 4, 2010, July 30, 2010, August 31, 2010, September 14, 2010 and November 5, 2010. In addition to the above input from NDEP, a consultation occurred with NDEP on December 2, 2010 where possible demarcation methods and materials were discussed, and on December 6th, NDEP presented comments on the November 19, 2010 Tronox submittal of the IC/EC Plan. Tronox submitted Errata to the IC/EC Plan on November 24, 2010.

The objectives of the IC/EC Plan are to:

- Identify areas of the Site where institutional controls or engineering controls will be needed based upon our current understanding of chemical concentration data, facility operations, and Site features; and
- Establish a process for the long-term implementation of the above controls through the use of environmental covenants, as authorized by NRS 445D.010 *et seq*.

During our meeting on February 5, 2010, NDEP discussed its previous experience regarding the use of environmental covenants at other sites. We understand that the regulatory approval process may take considerable time, and that the property owner would bear the burden of managing the environmental covenant areas and the Environmental Risk Management Plan (ERMP; discussed in Section 2.7 below) to protect potential receptors. Tronox also understands that an environmental covenant must be recorded with the County Recorder for each of these areas.

1.1 Institutional and Engineering Controls

"Institutional controls" (IC) refer to administrative and/or legal measures that minimize the potential for human exposure to contamination by limiting land or resource use. Some examples of institutional controls include easements, covenants, well drilling prohibitions, zoning restrictions, and special building permit requirements. Institutional controls are often used in conjunction with engineering measures such as waste treatment or containment actions.

"Engineering controls" (EC) refer to physical measures to minimize the potential for migration of contaminants or to prevent exposure to contamination. Examples of typical engineering controls include slurry walls to prevent migration of groundwater, surface caps to prevent erosion of soil or human contact with soil, and vapor barriers to prevent the intrusion of volatile organic compounds into buildings.

1.2 Environmental Covenants

"Environmental covenants" refer to the statutory process for implementing, modifying, terminating and enforcing activity and use limitations, including institutional and engineering controls, as set in NRS 445D.010 *et seq*.

1.3 Current Use of Site

The Site has been used since the early 1940s for industrial purposes. Ongoing operations at the Site include the manufacture of manganese dioxide, boron trichloride, and elemental boron. The Tronox facility operates 24 hours a day, seven days a week, and employs approximately 90 workers. Existing Site improvements include over 15 buildings to support these manufacturing operations (Figure 2). Other improvements include wastewater retention/treatment ponds, high-voltage electrical lines, gas lines, the groundwater collection and treatment system, access roads, rail spurs, and various other features.

Buildings and other facilities that are currently operational and or serve a plant function at the Site include the following:

- Unit Buildings 1, 2, 3, 4, 5, and 6 and associated piping;
- Mn-1 Operational Pond;
- Leach Plant;
- Steam Plant;
- Boron Operation Building;
- Maintenance Building;
- Laboratory;
- Groundwater collection and treatment facilities and BT equalization tanks;
- GW-11 and WC-West and WC-East Ponds;
- Electrical substations;
- Former Hazardous Waste Storage Shed (two tanks in lined basin used by Tronox now overlie this area);

- Aboveground diesel storage tanks;
- Active railroad track areas;
- High voltage electric power transmission towers; and
- Facility infrastructure including pipelines and other utility features.

1.4 Potential Future Uses of Site

The Site is zoned as “Industrial”. Contemplated future uses include both industrial and commercial development. There is no plan to use any part of the Site for residential purposes, schools, hospitals, or other potentially sensitive land uses. Therefore, the potential need for institutional and engineering controls and our identification of the specific locations where those institutional and engineering controls will be implemented is predicated on the continued industrial or commercial use of the Site. Tronox is willing to implement deed restrictions to guard against the possibility of changes in land use in the future.

2.0 PLANNED INSTITUTIONAL AND ENGINEERING CONTROL AREAS

2.1 Areas of Site with Soil Exceeding Remedial Goals

Chemicals of concern (COCs) in Site soils include perchlorate, asbestos, arsenic, dioxin/furans, volatile and semi-volatile organic compounds (VOCs and SVOCs) and others. It is Tronox's intent to remediate all contaminated soils where feasible. "Contaminated soil" is generally defined as soil with chemical concentrations exceeding NDEP worker Basic Comparison Levels (BCLs) (or modified risk-based goals as agreed upon by NDEP) or leaching-based site-specific levels (LSSLs). For metals where background concentrations exceed BCLs (e.g., arsenic), "contaminated soil" is defined as soil with chemical concentrations that result in a determination that concentrations are greater than background for the whole of the remediation zone (RZ). There are no NDEP BCLs for asbestos; therefore, "contaminated soil" is defined as soil that contains one or more long fibers (amphibole) and/or five or more long fibers (chrysotile).

In areas of the Site where existing infrastructure or facility operations preclude the removal (excavation) of contaminated soil, ICs, ECs, and alternative remedial methods are being considered, as appropriate for the specific contaminants. For example, we are currently evaluating the feasibility of remediating perchlorate-impacted soils at depth using soil flushing or other remedial alternatives, and therefore these areas are not currently proposed for ICs or ECs.

Areas of the Site that are proposed for ICs or ECs are identified in Table 1 and Figure 3. It would be technically infeasible or cost-prohibitive to remediate most of these areas because they are located beneath existing operational facilities or within critical utility corridors where excavation would be unsafe and/or would likely damage utilities. Note that there are no areas proposed for ICs/ECs north of the GW-11 and WC ponds.

The COCs in the areas where ICs and ECs are being proposed are the following:

- dioxin
- benzo(a)pyrene (B(a)P)
- asbestos
- arsenic
- perchlorate (only co-located with other COCs)
- hexachlorobenzene (HCB)
- manganese

For the above chemicals, the presence of buildings or pavement on top of contaminated soil results in that soil being "capped", and as such, the building or pavement provides the engineering control to prevent or greatly reduce potential exposure pathways. It will be necessary for the property owner responsible for the EC areas to maintain the EC so the measures continue to function as envisioned in this Plan. Areas where ICs and ECs are being requested will also be shown on the individual Remediation Zone Excavation Plans. The next section of this IC/EC Plan provides a discussion of the rationale for implementing ICs and ECs and identification of the specific areas where ICs and ECs are proposed.

2.2 Areas of the Site Planned for Engineering and Institutional Controls

The two reasons for utilizing ICs and ECs in different areas of the Site are the following:

- Contaminated soil areas are located beneath existing, operational structures, and it is technically infeasible or cost prohibitive to access these areas for excavation; and
- Contaminated 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.

The following set of decision rules was developed to determine the extent of the IC/EC areas.

1. Unless a utility line is known to be out of service, Tronox assumes all utility lines are active;
2. Protect all active utility lines;
3. No excavation within 5 feet of water lines;
4. No excavation within 12 feet of center line of railroad lines. Excavations beyond this point will be inclined at 3:1 to the bottom of the excavation;
5. No excavation within 2 feet of all other utility lines;
6. Excavations that are 3 feet deep or less have vertical sides except where they are supporting utilities where the ground will be sloped at 1:1;
7. Excavations that are deeper than 3 feet have a 1:1 slope, unless otherwise noted; and
8. Excavations next to concrete foundations or footings are sloped at 2:1, starting below the top of the foundations.

The above decision rules are based on the following:

- Temporary construction sloping (1:1 horizontal to vertical) is based on field observations of native material stability. The Contractor proposed 1.5:1 but at Tronox's direction was able to steepen the slopes to 1:1;
- The setback from water lines was established through discussions with Basic Water staff;
- The setback from the railroad tracks was developed from standard setback requirements for shoring established by Union Pacific Railroad. Slope inclination (3:1) in lieu of shoring beyond the setback is based on bearing capacity and distribution of stress theory. The concept is to keep the stresses due to loading within the slope boundary. In addition, due to the consequence of a bearing capacity failure, some engineering judgment has been applied;
- Setbacks from all other utility lines is based on engineering judgment; and
- Slopes in the area of footings are based on principal of bearing capacity and distribution of stress theory.

Table 1 lists the rationale for the ICs/ECs, the specific Site features that could be impacted by excavation, the RZs that are associated with the proposed IC/EC areas, the assessor's parcels associated with each IC/EC area and the volume of soil associated with each IC/EC area. This IC/EC Plan provides individual figures for each IC/EC area showing the details of each area (Figures 5 through 20, and the legend for the individual IC/EC area figures is provided in Figure 4. Text describing each of the IC/EC areas and the rationale for implementing ICs/ECs in these areas is provided below. In addition to specific IC/EC measures that will be implemented in each of the IC/EC areas, a legal description will be prepared for the IC/EC areas once the RZ excavations are complete. This description will identify the parcel the in which control area is located and will provide a surveyed description of the location of the I/E within the parcel.

2.2.1 I/E 1: Sodium Chlorate Filter Cake Process Area

The sodium chlorate filter cake process area is part of the Manganese Dioxide process operations and cannot be removed. The concrete slab for the process area is located in RZ-B-13, and is approximately 52' x 46' x 12" thick. The slab is underlain by 2" of sand and a 20 mil membrane. Excavation Area RZ-B-13 covers approximately ½ of the slab area. Therefore, the portion of RZ-B-13 that cannot be excavated is designated as I/E 1, as shown on Figure 5. The excavation depth in RZ-B-13 is 4 inches and will be excavated to the edge of the slab. No setback or slope is proposed. I/E 1 is located in Assessor's Parcel Number (APN) 17812801001. Information related to I/E 1, including the COCs present in RZ-B-13 and the maximum depth of excavation, is presented in Table 1. Tronox estimates that the volume of impacted soil that will remain in

place in this area is 15 cubic yards. The concrete slab will function as an engineered control, capping the contaminated soil and preventing or greatly limiting the potential for contact with contaminated soil.

2.2.2 I/E 2: Unit Building 1

Excavation polygons RZ-B-01, RZ-B-04A, -04B, -04C, -06A, and -14 extend under the footprint of Unit Building 1. This building is currently supports the high-pressure chlorine line used by the Timet facility and cannot be demolished as part of Site remediation or redevelopment activities. Because of the building obstruction, portions of these excavation polygons will not be excavated. Unit Building 1 will function as an engineered control, capping the soil and preventing or greatly limiting the potential for contact with contaminated soil. I/E 2 is located in APN 17813101002, and the extent of I/E 2 is shown on Figure 6. Table 1 includes a summary of the excavation polygons that will be impacted by ICs/ECs in this area and the depth of excavation for each polygon. Tronox estimates that the volume of impacted soil that will remain in place in this area is 364 cubic yards.

2.2.3 I/E 3: Unit Building 2

Excavation polygons RZ-B-04D, -06 and -07B, -10, and -18 extend under the footprint of Unit Building 2. This building is currently used for chlorine line support and this area also includes an electrical substation, and cannot be demolished as part of Site remediation or redevelopment activities. Because of the building obstruction, portions of these remediation zones will not be excavated. Unit Building 2 will function as an engineered control, capping the soil and preventing or greatly limiting the potential for contact with contaminated soil. I/E 3 is located in APN 17813101002, and the extent of I/E 3 is shown on Figure 7. Table 1 includes a summary of the excavation polygons that will be impacted by ICs/ECs in this area and the depth of excavation for each polygon. Tronox estimates that the volume of impacted soil that will remain in place in this area is 3261 cubic yards.

2.2.4 I/E 4: Unit Building 3

Excavation polygon RZ-B-12 extends into Unit Building 3. This building is still active, is currently used for chlorine line support, includes an electrical substation, and cannot be demolished as part of Site remediation or redevelopment activities. Because of the building obstruction, portion of the excavation polygon may not be excavated. Unit Building 3 will function as an engineering control, capping the soil and preventing or greatly limiting the potential for contact with contaminated soil. I/E 4 is located in APNs 17813501001,

17813101002, and 17812801001. The extent of I/E 4 is shown on Figure 8. Table 1 includes a summary of the excavation polygons that will be impacted by ICs/ECs in this area and the depth of excavation for each polygon. Tronox estimates that the volume of impacted soil that will remain in place in this area is 181 cubic yards.

2.2.5 I/E 5: Unit Building 4

Excavation polygon RZ-B-20 extends under the footprint of Unit Building 4. This building is still active, is currently used for chlorine line support, includes an electrical substation, and cannot be demolished as part of Site remediation or redevelopment activities. Because of the building obstruction, a portion of this excavation polygon will not be excavated. Unit Building 4 will function as an engineering control, capping the soil and preventing or greatly limiting the potential for contact with contaminated soil. I/E 5 is located in APNs 17813501001 and 17812801001. The extent of I/E 5 is shown on Figure 9. Table 1 includes a summary of the excavation polygons that will be impacted by ICs/ECs in this area and the depth of excavation for each polygon. Tronox estimates that the volume of impacted soil that will remain in place in this area is 481 cubic yards.

2.2.6 I/E 6: Lhoist Plant Road

The road into the Lhoist (formerly Chemstar) plant is active and used by trucks entering and exiting the plant, and excavation in the road will limit use of the road by Lhoist. Lhoist hauls 24 hours a day, five days a week. Excavation polygon RZ-C-27 extends underneath the road that leads into the Lhoist plant. Tronox intends to work with Lhoist to reduce impacts to Lhoist operations during the excavation activities. This may include excavating in strips and moving the traffic to alternative locations during excavation and backfilling. I/E 6 also includes the utility lines north of the Lhoist road. These utilities include an active water line and gas line. Other out-of-service utilities are also present in this utility corridor. The water line is extremely fragile with a high potential to break due to construction activities. The gas line is at a depth of 4 feet and is relatively close to the water line. Since the presence of these utilities precludes excavation to a depth of 10 feet in this area, some supporting soil will remain below these lines. For this reason I/E 6 continues to be an I/E area. I/E 6 is located in APNs 17813501001 and 17812801001, and the extent of I/E 6 is shown on Figure 10. Table 1 includes a summary of the excavation polygons that will be impacted by ICs/ECs in this area, the depth of excavation for each polygon and estimated volume of contaminated soil that will remain in place in each excavation polygon. Tronox estimates that the volume of impacted soil that will remain in place in this area is 482 cubic yards.

The road is paved with asphaltic concrete, and this road will function as an engineered control, capping the soil and preventing or greatly limiting the potential for contact with contaminated soil. The current Tronox Site property owner will be responsible for maintenance of the engineering control measures. In these areas, the impacted soil will be covered with demarcation boundary fencing and a minimum of 4 feet of clean fill will be placed above the demarcation fencing. No unintentional exposure should occur, therefore, no additional engineering control measure is recommended.

2.2.7 I/E 7: 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. RZ-C-16 and -16A extend into the steam plant. Because of the above obstructions, a portion of RZ-C-16 to a depth of 1 foot and RZ-16A to a depth of 2 feet cannot be excavated without extreme difficulty as described below, and this area is designated as I/E7, as shown in Figure 11. I/E 7 is located in APN 17812701001, and Table 1 includes information related to I/E 7, including a summary of the excavation polygons in this area, the depth of excavation for each polygon, and estimated volume of contaminated soil that will remain in place in each excavation polygon. Tronox estimates that the volume of impacted soil that will remain in place in I/E 7 is 321 cubic yards.

Removal of soil from under and around the existing above-grade piping will be a difficult and costly operation. Hand work will be required. In addition, some of the pipe rack footings are failing and the pipe racks are leaning. Excavation in these areas will exacerbate the condition requiring temporary support of the racks and construction of new foundations. The transformer concrete pad and the steam plant slab will function as engineering controls, capping the soil and preventing or greatly reducing the potential for contact with contaminated soil. Areas where there are no concrete pads or other obstructions will be excavated to the design depth. An engineering control such as a spray applied asphaltic coating will also be implemented at I/E 7 where soil is not removed to protect human health and the environment until the contaminated soil is removed. The I/C will require that soil excavations in this area be performed in accordance with the procedures outlined in the Environmental Risk Management Plan. Tronox estimates that the volume of impacted soil that will remain in place in this area is 321 cubic yards.

2.2.8 I/E 8: Diesel Tank

The diesel tank serves as the emergency fuel source for the steam plant. If electricity were to fail, the diesel tank would be used power an emergency generator to supply electricity to maintain steam for operation of the facility. The diesel tank and the tank containment structure cannot be removed and RZ-C-22, -23 and -27 extend underneath the tank containment structure. Therefore, portions of these excavation polygons cannot be excavated and this area is designated as I/E 8, as shown on Figure 12. Excavations adjacent to the tank containment in these areas will begin at the edge of the containment. No setback is proposed. The diesel tank is serviced by two pipelines (an inlet and an outlet). A portion of one of these lines is hidden below ground. I/E 8 is located in APN 17812801001 and information related to this control area, including the amount of impacted soil in the excavation polygons, the COCs for each polygon, and the maximum depth of excavation, is presented in Table 1. Tronox estimates that the volume of impacted soil that will remain in place in this area is 351 cubic yards.

The containment structure will function as an engineered control, capping the soil and preventing or greatly limiting the potential for contact with contaminated soil. The power poles and wiring coming from the east and the piping going west from the tank may be temporarily taken out of service to facilitate removing as much contaminated soil as possible from this area.

2.2.9 I/E 9: BT Tank Area

The BT tanks and containment structure are actively used by Veolia as part of the treatment system for remediating groundwater, and cannot be removed. RZ-C-28D, -28F, -29, and -30 extend underneath the tank containment structure. Therefore, portions of these excavation polygons cannot be excavated and this area is designated as I/E 9, as shown on Figure 13. I/E 9 is located in APN 17812301003 and information related to this control area, including the amount of impacted soil in the excavation polygons, the COCs for each polygon, and the maximum depth of excavation, is presented in Table 1. Tronox estimates that the volume of impacted soil that will remain in place in this area is 5177 cubic yards.

The containment structure will function as an engineered control, capping the soil and preventing or greatly limiting the potential for contact with contaminated soil.

2.2.10 I/E 10: NV Energy Transmission Line Towers

Excavation cannot be performed within 10 feet of the NV Energy Transmission Line towers present on the Site. NV Energy policy prohibits excavating within 10 feet of the footings for the towers. RZ-D-01B, RZ-D-02, RZ-D-03, and RZ-D-12 extend into this area and therefore,

portions of these RZs cannot be excavated. This area is designated as I/E 10, as shown on Figure 14. I/E 10 is located in APNs 17812202004 and 17812301003 and information related to this control area, including the amount of impacted soil in the excavation polygons, the COCs for each polygon, and the maximum depth of excavation, is presented in Table 1. Tronox estimates that the volume of impacted soil that will remain in place in this area is 963 cubic yards.

This area is unpaved, and an engineering control such as a chip seal or spray-on asphaltic coating will be constructed to protect human health and the environment until the contaminated soil is removed. The IC associated with this area will require that soil excavations be performed in accordance with the procedures outlined in the Environmental Risk Management Plan. Additionally, excavations adjacent to I/E 10 will utilize a slope of 1.5:1 in order to remove the maximum amount of contaminated soil removed while maintaining the integrity of the concrete footings.

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.

2.2.11 I/E 11: Groundwater Treatment System Equalization Tanks

Equalization tanks for the groundwater treatment system and associated influent and effluent pipelines and electrical and control lines for the equalization tanks are actively used by Veolia and cannot be removed. RZ-D-16, -16A, -17C, and -18 extend beneath the equalization tanks and associated pipelines and electrical and control lines, and therefore portions of these excavation polygons cannot be excavated. The depth to the utility lines ranges from 3 inches to 3 feet in these areas. The utilities include, among others, two buried 8-inch effluent lines and two on-grade effluent lines. This area is designated as I/E 11, and is shown on Figure 15. I/E 11 is located in APNs 17812201004 and 17812301003, and information related to this control area is presented in Table 1. Excavations will be performed in RZ-D-16 and-16A. However, some contaminated soil will remain below the pipelines. We currently estimate that the volume of impacted soil that will remain in place in this area is 1,675 cubic yards. This estimate assumes an average planned excavation depth of 2 feet over the equalization tank area, and a planned excavation depth of 9 feet over the area covered by the associated influent and effluent pipelines and electrical and control lines for the equalization tanks. The estimated 2 foot depth under the equalization tanks is an approximate average of 0.33 feet and 5 feet in adjacent areas, the design depths for RZ-D-17C and -18, respectively.

The equalization tanks are on concrete pads, and the pads will function as an engineered control for this portion of I/E 11. Additionally, the remainder of this control area will be covered at the ground surface by asphaltic chip seal, which will function as an engineered control for the remaining portions of this control area. These engineered controls will cap the soil at the ground surface, preventing or mitigating the potential for contact with contaminated soil.

2.2.12 I/E 12: GW-11 Pond and Berms and WC Ponds and Berms

The GW-11 pond and berms and the WC ponds and berms are actively used by Veolia and Tronox and cannot be removed. The berms around the ponds contain impacted soil, but this soil cannot be excavated because of the potential to compromise the integrity of the ponds. Therefore this area has been designated as I/E12, as shown in Figure 16. The perchlorate remediation process pipelines (PRP Pipelines) are located within I/E 12, and the boundaries for I/E 12 in the vicinity of these pipelines were developed, in part, utilizing a 10 foot offset from the top of the perchlorate remediation process pipelines, and an excavation that is sloped 3:1 to the design excavation depth. I/E 12 is located in APNs 17812201004, 17812301003 and 17812601004, and information related to this control area is presented in Table 1. Tronox estimates that the volume of impacted soil that will remain in place in this area, including the GW-11 Pond, the WC Ponds and the berms for these ponds is 408,658 cubic yards. This estimate assumes an average excavation depth over the entire area of 5 feet. This volume estimate for the embankments is based on the depth of the impacted soil equal to the depths of the adjacent excavation areas. Because there is no chemical data available for the bottoms of the ponds, an average of the depths of the adjacent areas (approximately 5 feet) was used to estimate the depth of impacted soil beneath the ponds. Because the ponds are double-lined and impacted soil may have been removed from within the pond footprints during construction, this estimate may exceed the actual volume of impacted soil.

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 of 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 will be capped at the surface with asphaltic chip seal, and this engineered control will prevent dust generation, act as a surface marker, and greatly reduce the potential for contact with the contaminated soil.

2.2.13 I/E 13: Former Hazardous Waste Storage Area

The former hazardous waste storage area is beneath two tanks and a membrane-lined containment area used by Tronox, and cannot be removed. Portions of RZ-B-07A, -08, and -09 extend into the hazardous waste storage area, and therefore portions of these excavation polygons cannot be excavated. The excavations associated with RZ-B-07A, -08, and -09 will be excavated to the limits of the membrane. No setback is proposed and standard 1:1 sloping will be used. This area has been designated as I/E 13, as shown in Figure 17. I/E 13 is located in APN 17812401009 and 17813101002 and information related to this control area, including the volume of soil impacted in each of the excavation polygons, the COCs in each polygon, and the maximum depth of excavation, is presented in Table 1. Tronox estimates that the volume of impacted soil that will remain in place in this area is 2647 cubic yards.

The hazardous waste storage area is overlain by high density polyethylene sheeting for containment of tank contents, and this sheeting will function as an engineered control, capping the soil and preventing or greatly limiting the potential for contact with contaminated soil.

2.2.14 I/E 14: Lhoist Road (Avenue F) Fire Line and Utility Lines

There are two utility lines that run beneath Avenue F in the vicinity of RZ-C-06, including a water line, and a storm drain. These utilities are active and will not be removed. RZ-C-06 extends to a depth of 9 feet bgs, and excavation in this area to that depth will encounter these utility lines. Therefore, the portion of RZ-C-06 that in the vicinity of these utilities is designated as I/E 14, as shown on Figure 18. I/E 14 is located in APN 17812401005 and information related to this control area, including the volume of soil impacted in RZ-C-06, the COCs in RZ-C-06 and the maximum depth of excavation, is presented in Table 1. Tronox estimates that the volume of impacted soil that will remain in place in this area is 90 cubic yards.

Avenue F and the pavement adjacent to the road will be the engineered control for I/E 14. A demarcation marker will be placed on the subsurface slopes and covered with a minimum of four feet of clean imported soil. The excavation for RZ-C-06 adjacent to I/E 14 will utilize a slope of 1:1 to a depth of 9 feet bgs. Because of the fragility of the water lines, we will not excavate within 5 feet of the water line as described in Section 2.2 of this report.

2.2.15 I/E 15: Lhoist Road, Railroad Line and Utility Lines

There are a variety of utility lines that run beneath Avenue F in the vicinity of RZ-C-12 and RZ-C-13A, including a water line, storm drain, sanitary sewer, and an electrical conduit. Additionally, two railroad line runs through a portion of RZ-C-13A. Both the utilities and the

southern-most railroad line are active and will not be removed. RZ-C-12 extends to a depth of 11 feet bgs, and excavation in this area to that depth will encounter these utility lines. The portions of, RZ-C-12 and RZ-C-13A that overlie these features are designated as I/E 15, as shown on Figure 19. I/E 15 is located in APNs 17812401005, 17812801003, and 17812401004, and information related to this control area, including the volume of soil impacted in these excavation polygons, the COCs in the excavation polygons, and the maximum depth of excavation, is presented in Table 1. Tronox estimates that the volume of impacted soil that will remain in place in this area is 513 cubic yards.

Avenue F and the pavement adjacent to the road and the railroad tracks will function as an engineered control for I/E 15. The current Tronox Site property owner will be responsible for maintenance of the engineering control measure. In the utility area, the impacted soil will be covered with demarcation boundary fencing and a minimum of 4 feet of clean fill will be placed above the demarcation fencing. Therefore, no unintentional exposure should occur. In the area of the railroad tracks, an engineering control measure such as a spray-on asphaltic layer will be constructed to reduce potential exposure to soils left in-place.

2.2.16 I/E 16: 9th Street Utility Lines

There are a variety of utility lines that run beneath 9th Street in the vicinity of RZ-C-22B including a fiber PC duct, a gas line, a sanitary sewer line, a water line, and a tailing line. All of these utilities are active and will not be removed. RZ-C-22B extends to a depth of 8 feet bgs, and excavation in this area to that depth will encounter these utility lines. Therefore, the portion of RZ-C-22Bb that overlies these features is designated as I/E 16, as shown on Figure 20. I/E 16 is located in APN 17812401001 and information related to this control area including the volume of soil impacted in RZ-C-22B, the COCs in RZ-C-22B and the maximum depth of excavation is presented in Table 1. Tronox estimates that the volume of impacted soil that will remain in place in this area is 1,592 cubic yards. 9th Street and the pavement adjacent to the road will function as an engineered control for I/E 16. I/E 16 is in the leased area. The property owner will be responsible for maintenance of the engineering control measure.

2.3 Site Survey

The I/E areas will be surveyed by a State of Nevada licensed Land Surveyor prior to backfilling to establish the key locations of the remaining contaminated soil so in the future these areas can be accurately located and remediated. The key locations will include corner points, toe of slope points and top of slope points. All measurements will include x, y, and z coordinates. The surveys will be based on a permanent benchmark on the Tronox Site.

2.4 Demarcation Fencing

In areas where an excavation has left contaminated soil in place and the soil will be below the final ground surface, orange plastic fencing will be placed on the surface of the impacted soil and will be secured using pins or spikes to the ground surface. The entire surface will be covered.

The fencing will be covered by clean soil as the excavation is backfilled. The fencing will serve as a visible indicator when contaminated soil is being encountered in future excavations.

An area adjacent to the WC East and West Ponds was backfill prior to placing the demarcation fencing. The fill placed in this area is white crushed limestone. Instead of excavating these slopes to place the fencing, Tronox proposes to use the color difference between the white fill and the tan/brown on-site soil as the demarcation.

A plan will be prepared and presented in the closure report noting the location of all buried demarcation areas. If the demarcation fencing is damaged during an excavation, it will be replaced in accordance with the requirements of the Environmental Risk Management Plan. A memorandum discussing the demarcation fencing was submitted by Tronox on December 15, 2010 and was approved by NDEP on December 16, 2010.

2.5 Surface Marking of I/E Areas and Groundbreaking Permits

The I/E areas will be marked in the field to alert site workers of the presence of contaminated soil in the subsurface. The markers will consist of metal signs supported on standard metal sign posts set in concrete. The signs will be of sufficient size to be seen at a distance of 100 feet. The signs will at a minimum contain the following information:

- The I/E number;
- A statement alerting the worker of the presence of subsurface contaminated soil;
- A statement to note that digging in this area is prohibited without a groundbreaking permit; and
- A phone number to call to obtain a groundbreaking permit.

Signs will be placed at corner points and every 200 lineal feet to mark large areas such as the GW-11 and WC ponds and at corner points and centerline alignments in small areas. If the I/E area is under a road, the signs will be located at the edge of the road shoulder.

A groundbreaking permit system is currently in use by Tronox to control excavations on the facility. This system is effective in protecting site workers and the facility infrastructure. This system will be modified to include the I/E areas and procedures to be used if excavating in the

I/E areas is required in the future, as described in the Environmental Risk Management Plan. The property owner will adopt the Tronox groundbreaking permit model or develop their own system. The property owner will be the point of contact for the areas of the Facility not leased by Tronox.

2.6 Environmental Covenant Plan Development and Implementation

Once NDEP approves the proposed ICs and ECs, Tronox will prepare an environmental covenant which will include a detailed map of the areas, a listing of the ICs and ECs to be implemented, and environmental covenant language to be officially recorded for NDEP's approval.

2.7 Preparation of Environmental Risk Management Plan

Tronox is currently preparing an Environmental Risk Management Plan (ERMP) that describes the ICs and ECs that have been implemented at the Site. Additionally, the ERMP describes the soil, soil vapor, and groundwater management procedures to be followed to prevent inadvertent migration of COCs or potential exposure to COCs during Site activities. As appropriate, institutional controls, environmental covenants, and the ERMP may be memorialized in an environmental covenant, as authorized by NRS 445D.010 *et seq*.

2.8 Additional Investigation

This IC/EC Plan presents the limits of excavation areas based on currently available data for the Unit Buildings. Very limited data exists for these buildings. When these buildings are no longer needed and they are demolished, further environmental investigation should be performed to further delineate the extent of areas where chemicals exceed the Comparison Criteria. This further investigation may change the shapes and extent of I/E areas pertaining to the Unit Buildings (I/E 2 through I/E 5; figures 6 through 9).

TABLE

FIGURES

ATTACHMENT A