

August 14, 2007

Mr. Brian A. Rakvica, P.E. Nevada Division of Environmental Protection Bureau of Corrective Actions 2030 E. Flamingo Road, Suite 230 Las Vegas, Nevada 89119-0818

Subject: Phase 2 Sampling and Analysis Plan to Conduct Soil Characterization, Tronox Parcels "A" and "B" Site, Henderson, Nevada (Revision 1)

### Dear Brian:

On behalf of Tronox, Basic Environmental Company (BEC) appreciates the opportunity to submit this letter Phase 2 Sampling and Analysis Plan (SAP) to conduct soil characterization of the Tronox Parcels "A" and "B" (portions of APN Nos. 178-01-401-001, 178-12-101-002, 178-12-201-006, and 178-12-601-005). Parcels A and B will collectively be referred to as the Site for the purposes of this work plan. The Site is located north of Warm Springs Road, 1/4 mile west of the intersection with Boulder Highway, in Henderson, Nevada. Figure 1 illustrates the location of the subject Site relative to the Tronox property. Figures 2 and 3 show details of the Parcels A and B themselves. Legal boundaries of the Parcels A and B will be provided to the Nevada Division of Environmental Protection (NDEP) prior to issuance of the requested No Further Action Determinations (NFADs). It should be noted that the Nevada Pick-A-Part facility is not a part of the Site.

This revision of the SAP, Revision 1, incorporates comments received from the NDEP, dated August 6, 2007, on Revision 0 of the SAP, dated July 24, 2007. The NDEP comments and BRC's response to these comments, as well as a redline version of the text, are included in Attachment A.

### **Background**

The Site, which represents a portion of the Tronox property, is comprised of primarily of vacant land, and includes an area in the northeast corner of the Parcel formerly leased by Lavern Vohs. BEC also recognizes that other historic uses/disposals on or near the Site may have occurred. A Phase 1 investigation has been performed on the Site. The Phase 1 investigation, Site visits and historical aerial photographs analysis indicate the presence of certain debris, gravel, fill and concrete/asphalt piles, an abandoned baghouse of unknown origin, and multiple five gallon pails of what appears to be oil to be located on the Site. In addition, there are at least two "homeless" camps that may or may not be currently in use on the Site. Given the vicinity of BMI Industrial Companies, it is also possible that the Site or portions thereof could also have been indirectly impacted by such operations.

Several monitoring wells are located within these properties, which are used by several of the BMI plant operating companies. For example, Tronox collected a groundwater sample from monitoring well M95 during it's recent (December 2006) Phase A source area investigation. Low

parts per billion (ppb) levels of several volatile organic compounds (VOCs) were detected in this sample. Chloroform was detected at 350 ppb. In addition, Stauffer Management Company LLC (Stauffer), Montrose Chemical Corporation of California (Montrose), Syngenta Crop Protection, Inc., and Pioneer Americas, LLC (the Companies) conducted quarterly groundwater samples from three monitoring wells within the property (H-49A, H-56A, and H-58A). Similar results were found to the Tronox sampling event, that is, low ppb levels of VOCs. No chemicals, including VOCs, were found at levels in wells within the Site higher than wells located upgradient of parcels A and B in any of the previous sampling events. This suggests that there are not any on-Site sources of groundwater impacts.

This Sampling and Analysis Plan will focus on the upper 10 feet of soil in order to obtain a No Further Action (NFA) determination from the NDEP in order to support future industrial/commercial use on this Site. No residential use is planned.

### **Objective**

The objective of the field investigation is to identify and characterize the distribution of Site-related chemicals (SRC) in the vicinity of the future land use features (e.g., warehouses, commercial office buildings) and historical site features (e.g., debris piles, burn areas due to homeless activities, etc.). Surface and shallow subsurface samples that will be collected are depth-discrete soil matrix samples. Sample locations have been placed to both evaluate potential future land use exposures (although future plans are not fully defined at this time), and to characterize potential source areas on the Site. The sample locations provide spatial coverage of the Site (Figures 2 and 3). The rationale for location of the sampling points is to ensure that the entire Site is reasonably and completely covered for sampling purposes in order to obtain data that is representative of the Site, that specific locations within the Site that were potentially impacted are also sampled, and that the sampled concentrations can be meaningfully used in subsequent risk assessments, if needed. Ultimately, the purpose of this sampling is to support the NFADs for Parcels A and B.

### Scope of Work

The following is the proposed scope of work for investigating the Site and meeting the SAP objectives. The scope of work has been divided into three main tasks: 1) Field Implementation; 2) Data Evaluation; and 2) Reporting.

### Task 1: Field Implementation

The purpose of the intrusive investigation is to collect data sufficient to meet the objectives of the SAP. All sampling and sample handling procedures will be consistent with the NDEP-approved BRC Field Sampling and Standard Operating Procedures (FSSOP) (BRC and MWH, 2006a).

The proposed analyte list is composed of VOCs, semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), polyaromatic hydrocarbons (PAHs), metals, organochlorine pesticides, perchlorate, ions (including chloride, nitrate, nitrite, and sulfate), radionuclides, and asbestos. This list includes all of the compounds (with a few additional modifications as discussed subsequently) on Tronox's "reduced list" as shown in Table 1. Tronox's reduced list was developed as a subset of the entire suite of Tronox SRCs based on the findings of the Tronox Phase A Source Area Investigation.

The modifications are as follows: first, in general instead of analyzing for specific members of certain analyte categories like metals, VOCs and SVOCs, the entire suite will be analyzed and reported; second, the organophosphate pesticide and chlorinated herbicide suites were eliminated since only three detections were in these analytical suites (dimethoate and demeton-o) which were at least an order of magnitude below their respective U.S. Environmental Protection Agency (USEPA) Region 9 industrial preliminary remediation goals (PRGs); third, polychlorinated biphenyls (PCBs) were eliminated since only a single Aroclor was detected once (in the central portion of the Tronox property at 20 feet below ground surface (bgs), well south of the Site) below it's respective PRG; fourth, not all SRCs are proposed to be analyzed at all depths in this SAP (for example, asbestos is proposed to be analyzed in surface soil samples only); and lastly, although dioxins/furans are not on the Tronox SRC list, because they may potentially be present on the Site (for example in the burn areas), they are also proposed for analysis in surface soil samples. Summary results of the Tronox Phase A investigation for PCBs, organophosphate pesticides, and chlorinated herbicides are provided in Table 2.

Given the absence of direct operations on this Site of a nature commensurate to that which took place on the Tronox plant site itself, the proposed SRC list and proposed sampling should characterize those sources that were located on the Site, as well as likely chemicals that may have been deposited on the Site via fugitive dust emissions from the Tronox operations and property and/or other neighboring BMI plants. The proposed analyte list for this SAP is presented in Table 1. Unless otherwise noted in the footnotes in Table 1, all analytes will be analyzed at all locations. BEC notes that this analyte list may not be appropriate for any future planned investigations (such as the proposed Tronox Phase B investigation) at the Site (which will extend from below 10 feet bgs to groundwater).

### **Pre-Field Activities**

The pre-field activities will be conducted in accordance with applicable standard operating procedures (SOPs; BRC and MWH, 2006a). The BRC Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HASP) prepared for the BMI Common Areas (BRC and MWH, 2006b,c) will be used for this proposed scope of work. All work will be completed under the direction of a State of Nevada Certified Environmental Manager.

### Soil Borings

The SOPs referred to in the following discussion are documented in the FSSOP. BEC will implement field screening using photoionization detectors (PIDs) (using two lamps) in accordance with SOP-39. SOP-1 will be followed for all drilling activities including Hollow Stem Auger drilling. The field geologist will prepare logs for each boring indicating the Unified Soil Classification System (USCS) soil classification (SOP-17), an estimate of field moisture content, sampling depths, progress of drilling (SOP-15), final completion depth, and the nature and resolution of any problems encountered.

Soil sample and auger boring locations will be surveyed using a handheld GPS to a horizontal accuracy of 3 meters (approximately 10 feet) or better. Soil cuttings generated during soil sampling and drilling activities will be collected on visqueen, analyzed, and appropriately disposed off. Due to the nature of the shallow sampling, it is not anticipated that a significant amount of excess soil will be generated as a result of the sampling, or that the soils will require special handling. Also, because the groundwater at the Site is generally 25 to 30 feet bgs, it is not anticipated that groundwater will be encountered during drilling of the shallow borings. The

quality assurance/quality control (QA/QC) procedures that will be followed during the field investigation are detailed in Section B of the QAPP (BRC and MWH, 2006b).

Soil matrix samples will be collected based on random sample locations placed within a 4-acre grid across the Site. The grid has been modified in this revision of the SAP based on the following: 1) started the grid along the western parcel boundary (for each parcel independently), 2) combined partial grids with either other partial grids or whole grids (which resulted in irregular shaped grid cells), and 3) made all grids approximately four acres in size. Grid sizes range from 1.2 to 4.5 acres. The random sample locations were supplemented with judgmental sampling locations targeting specific site features (e.g., miscellaneous pile locations). The rationale for the various judgmental sampling locations is provided below:

- Parcel A, grid cell 'A-A3' gravel pile location;
- Parcel A, grid cell 'A-A2' historical northwestern ditch;
- Parcel A, grid cell 'A-C3' abandoned baghouse of unknown origin;
- Parcel B, grid cell 'B-A4' debris pile location;
- Parcel B, grid cell 'B-A4' fill pile location;
- Parcel B, grid cell 'B-B2' concrete/asphalt pile location;
- Parcel B, grid cell 'B-C2' concrete/asphalt pile location;
- Parcel B, grid cell 'B-C2' debris pile location; and
- Parcel B, grid cell 'B-A4' multiple five gallon pails of what appears to be waste oil.

Soil borings will be advanced with a hollow-stem auger to a total depth of 10 feet below ground surface (bgs). Soil samples will be collected at approximately zero (i.e., surface) and 10 feet bgs. Soil samples will be analyzed for the analyte list provided in Table 1, with limitations as noted in the footnotes to this table.

#### Task 2: Data Evaluation

Once the data are collected, BEC will subject the data to validation per procedures agreed to previously with the NDEP and consistent with the QAPP (BRC and MWH, 2006b). Only those data determined by the QA/QC review to be suitable for use will be considered for the site data set. A separate Data Validation Summary Report will be prepared and submitted to NDEP.

### Task 2: Reporting

Upon receipt of laboratory analytical results, an investigation report will be prepared. The report shall contain, but not be limited to, the following items:

- A summary of the sampling procedures conducted;
- Sampling location map;
- Soil boring logs;
- An evaluation and summary of the collected data;
- Tables(s) summarizing soil results; and
- If appropriate, plan view maps indicating the locations of detected constituents in soil.

Given the depth to groundwater at the Site (approximately 25 to 30 feet bgs, as measured at onsite monitoring wells), and the fact that future development will cover the Site with paved areas and buildings, migration of chemicals at the Site to groundwater is considered unlikely. However, once the data are collected this will be evaluated in the report. It should also be noted that development of the site will not preclude future groundwater investigation or remediation activities that may need to be conducted by Tronox.

Following collection and analysis of soil samples, the data will be discussed with the NDEP. This will include a comparison to recently approved BRC-TIMET background data set (TetraTech, 2007). If required upon this evaluation, a risk assessment will be conducted to evaluate the potential risks to future on-site human receptors. The receptors identified to be evaluated in the risk assessment will be consistent with the proposed development of the Site. These receptors will include construction workers, indoor commercial workers, and outdoor maintenance workers. Because the proposed development does not include residential units, on-site residents will not be evaluated. The risk assessment will be conducted using standard USEPA guidance, input parameters, and methods. A risk assessment work plan will be submitted to NDEP after sample results have been obtained and NDEP approval will be obtained prior to conducting the risk assessment.

## **Schedule**

Once final approval of the SAP is received from NDEP, field implementation activities can commence within one to two weeks. BEC will provide NDEP with at least one week notice prior to the initiation of field activities at the Site. It is anticipated that this work can be completed within one week, depending on field conditions. The soil samples will be submitted to the laboratories and placed on a standard turn around time, which is 28 days for the complete analyte list. A report will be completed within three weeks after the final data are received from the laboratory and validated.

### **Closing Remarks**

See attached for appropriate certification language and signature. Please direct any remaining questions or comments you may have to me at 626-382-0001.

Sincerely,

**Basic Environmental Company** 

Ranajit Sahu, CEM Project Manager

Attachments: Attachment A – NDEP Comments on Revision 0 of the SAP and BRC's Response to Comments

Table 1 – Project List of Analytes – Soil

Table 2 – Tronox Phase A PCB, Organophosphorous Pesticide and Chlorinated Herbicide Results Summary

Figure 1 – Tronox/BEC Parcel Map

Figure 2 – Proposed Sample Locations – Parcel "A"

Figure 3 – Proposed Sample Locations – Parcel "B"

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. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.

August 14, 2007

Dr. Ranajit Sahu, C.E.M. (No. EM-1699, Exp. 10/07/2007)

Date

**BRC** Project Manager



TABLE 1
PROJECT LIST OF ANALYTES – SOIL
(Page 1 of 11)

					Soil Sample Analysis	
Parameter of	Analytical		CAS	Tronox	Surface	Subsurface
Interest	Method	Compound List	Number	SRC	(0 ft bgs)	(10 ft bgs)
Ions	EPA 300.0	Bromide	24959-67-9		X	X
		Bromine	7726-95-6		Х	X
		Chlorate	14866-68-3	X	X	X
		Chloride	16887-00-6	X	X	X
		Chlorine (soluble)	7782-50-5	X	X	X
		Chlorite	14998-27-7		X	X
		Fluoride	16984-48-8		X	Х
		Nitrate (as N)	14797-55-8	X	Х	Х
		Nitrite (as N)	14797-65-0		X	X
		Orthophosphate	14265-44-2	Х	Х	X
		Sulfate	14808-79-8	X	X	Х
	EPA 314.0	Perchlorate	14797-73-0	X	X	X
Polychlorinated	EPA 8290	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001-02-0	X	Х	
Dibenzodioxins/		1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268-87-9	X	X	
Dibenzofurans		1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4	X	Х	
		1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822-46-9	Х	Х	
		1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7	X	Х	
		1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9	Х	Х	
		1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227-28-6	X	Х	
		1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9	Х	Х	
		1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653-85-7	Х	Х	
		1,2,3,7,8,9-Hexachlorodibenzofuran	72918-21-9	Х	Х	
		1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408-74-3	Х	Х	
		1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6	Х	Х	
		1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321-76-4	Х	Х	
		2,3,4,6,7,8-Hexachlorodibenzofuran	60851-34-5	Х	Х	
		2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4	Х	Х	
		2,3,7,8-Tetrachlorodibenzofuran	51207-31-9	Х	Х	
		2,3,7,8-Tetrachlororodibenzo-p-dioxin	1746-01-6	Х	Х	
Asbestos	Elutriator/TEM	Asbestos	1332-21-4	Х	Х	

TABLE 1
PROJECT LIST OF ANALYTES – SOIL
(Page 2 of 11)

					Soil Samp	ole Analysis
Parameter of	Analytical		CAS	Tronox	Surface	Subsurface
Interest	Method	Compound List	Number	SRC	(0 ft bgs)	(10 ft bgs)
Metals	EPA 6020/6010B	Aluminum	7429-90-5	X	X	X
		Antimony	7440-36-0	Х	X	X
		Arsenic	7440-38-2	Х	X	Х
		Barium	7440-39-3	Х	X	X
		Beryllium	7440-41-7	X	X	X
		Boron	7440-42-8	X	X	X
		Cadmium	7440-43-9	X	Χ	X
		Calcium	7440-70-2	Х	X	X
		Chromium	7440-47-3	Х	Х	Х
		Cobalt	7440-48-4	Х	Х	Х
		Copper	7440-50-8	Х	Х	Х
		Iron	7439-89-6	Х	Х	Х
		Lead	7439-92-1	Х	Х	Х
		Lithium	1313-13-9		Х	Х
		Magnesium	7439-95-4	Х	Х	Х
		Manganese	7439-96-5	Х	Х	Х
		Molybdenum	7439-98-7	Х	Х	Х
		Nickel	7440-02-0	Х	Х	Х
		Niobium	7440-03-1		Х	Х
		Palladium	7440-05-3		Х	Х
		Phosphorus	7723-14-0	Х	Х	Х
		Platinum	7440-06-4	Х	Х	Х
		Potassium	7440-09-7	Х	Х	Х
		Selenium	7782-49-2	Х	Х	Х
		Silicon	7440-21-3	Х	Х	Х
		Silver	7440-22-4	Х	Х	Х
		Sodium	7440-23-5	Х	Х	Х
		Strontium	7440-24-6	Х	Х	Х
		Sulfur	7704-34-9		Х	Х
		Thallium	7440-28-0	Х	Х	Х
		Tin	7440-31-5	Х	Х	Х
		Titanium	7440-32-6	Х	Х	Х

TABLE 1
PROJECT LIST OF ANALYTES – SOIL
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Parameter of	Analytical		CAS	Tronox	Soil Samp Surface	le Analysis Subsurface
Interest	Method	Compound List	Number	SRC	(0 ft bgs)	(10 ft bgs)
Metals	EPA 6020/6010B	Tungsten	7440-33-7	X	X	X
(continued)	E1 A 0020/0010D	Uranium	7440-61-1	X	X	X
(continueu)		Vanadium	7440-62-2	X	X	X
		Zinc	7440-66-6	X	X	X
		Zirconium	7440-67-7	Α	X	X
	EPA 7196A	Chromium (VI)	18540-29-9	Х	X	X
Polychlorinated	EPA 8141A	Aroclor 1016	12674-11-2	X	, , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , ,
Biphenyls (PCBs) <sup>1</sup>	LIA 0141A	Aroclor 1010 Aroclor 1221	11104-28-2	X		
Diplicity is (1 CDs)		Aroclor 1232	11141-16-5	X		
		Aroclor 1232 Aroclor 1242	53469-21-9	X		
		Aroclor 1248	12672-29-6	X		
		Aroclor 1254	11097-69-1	X		
		Aroclor 1260	11096-82-5	X		
Organophosphorous	EPA 8141A	Azinphos-Methyl	86-50-0	X		
Pesticides <sup>1</sup>		Bolstar	35400-43-2	X		
1 050101005		Chlorpyrifos	2921-88-2	X		
		Coumaphos	56-72-4	X		
		Demeton-O	298-03-3	X		
		Demeton-S	126-75-0	Х		
		Diazinon	333-41-5	Х		
		Dichlorvos	62-73-7	Х		
		Dimethoate	60-51-5	Х		
		Disulfoton	298-04-4	Х		
		Epn	2104-64-5	Х		
		Ethoprop	13194-48-4	Х		
		Ethyl Parathion	56-38-2	Х		
		Famphur	52-85-7	Х		
		Fensulfothion	115-90-2	Х		
		Fenthion	55-38-9	Х		
		Malathion	121-75-5	Х		
		Merphos	150-50-5	Х		
		Methyl Parathion	298-00-0	Х		

TABLE 1
PROJECT LIST OF ANALYTES – SOIL
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					Soil Samp	ole Analysis
Parameter of	Analytical		CAS	Tronox	Surface	Subsurface
Interest	Method	Compound List	Number	SRC	(0 ft bgs)	(10 ft bgs)
Organophosphorous	EPA 8141A	Mevinphos	7786-34-7	X		
Pesticides <sup>1</sup>		Naled	300-76-5	X		
(continued)		Phorate	298-02-2	X		
		Ronnel	299-84-3	X		
		Stirphos	22248-79-9	X		
		Sulfotep	3689-24-5	X		
		Thionazin	297-97-2	Х		
		Tokuthion	34643-46-4	Х		
		Trichloronate	327-98-0	Х		
Organochlorine	EPA 8081A	2,4-DDD	53-19-0	Х	Х	Х
Pesticides		2,4-DDE	3424-82-6	Х	Х	Х
		4,4-DDD	72-54-8	Х	Х	Х
		4,4-DDE	72-55-9	Х	Х	Х
		4,4-DDT	50-29-3	Х	Х	Х
		Aldrin	309-00-2	Х	Х	Х
		alpha-BHC	319-84-6	Х	Х	Х
		alpha-Chlordane	5103-71-9	Х	Х	Х
		beta-BHC	319-85-7	Х	Х	Х
		Chlordane	57-74-9	Х	Х	Х
		delta-BHC	319-86-8	Х	Х	Х
		Dieldrin	60-57-1	Х	Х	Х
		Endosulfan I	959-98-8	Х	Х	Х
		Endosulfan II	33213-65-9	Х	Х	Х
		Endosulfan sulfate	1031-07-8	Х	Х	Х
		Endrin	72-20-8	Х	Х	Х
		Endrin aldehyde	7421-93-4	Х	Х	Х
		Endrin ketone	53494-70-5	Х	Х	Х
		gamma-BHC (Lindane)	58-89-9	Х	Х	Х
		gamma-Chlordane	5103-74-2	Х	Х	Х

TABLE 1
PROJECT LIST OF ANALYTES – SOIL
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					Soil Samp	ole Analysis
Parameter of	Analytical		CAS	Tronox	Surface	Subsurface
Interest	Method	Compound List	Number	SRC	(0 ft bgs)	(10 ft bgs)
Organochlorine	EPA 8081A	Heptachlor	76-44-8	X	X	Х
Pesticides		Heptachlor epoxide	1024-57-3	X	X	Х
(continued)		Methoxychlor	72-43-5	Х	Х	Х
		Toxaphene	8001-35-2	Х	Х	Х
Chlorinated Herbicides <sup>1</sup>	EPA 8151A	2,4,5-TP (Silvex)	93-72-1	Х		
Polynuclear	EPA 8310 <sup>2</sup>	Acenaphthene	83-32-9	Х	Х	Х
Aromatic		Acenaphthylene	208-96-8	Х	Х	Х
Hydrocarbons		Anthracene	120-12-7	Х	Х	Х
		Benzo(a)anthracene	56-55-3	Х	Х	Х
		Benzo(a)pyrene	50-32-8	Х	Х	Х
		Benzo(b)fluoranthene	205-99-2	Х	Х	Х
		Benzo(g,h,i)perylene	191-24-2	Х	Х	Х
		Benzo(k)fluoranthene	207-08-9	Х	Х	Х
	EPA 8310 <sup>2</sup>	Chrysene	218-01-9	Х	Х	Х
		Dibenzo(a,h)anthracene	53-70-3	Х	Х	Х
		Indeno(1,2,3-cd)pyrene	193-39-5	Х	Х	Х
		Phenanthrene	85-01-8	Х	Х	Х
		Pyrene	129-00-0	Х	Х	Х
Radionuclides	HASL A-01-R	Thorium-228	14274-82-9	Х	Х	Х
		Thorium-230	14269-63-7	Х	Х	Х
		Thorium-232	7440-29-1	Х	Х	Х
		Uranium-233/234	13966-29-5	Х	Х	Х
		Uranium 235/236	15117-96-1	Х	Х	Х
		Uranium-238	7440-61-1	Х	Х	Х
	EPA 903.0 / 903.1	Radium-226	13982-63-3	Х	Х	Х
	EPA 904.0	Radium-228	15262-20-1	Х	Х	Х
Semivolatile	EPA 8270C <sup>3</sup>	1,2,4,5-Tetrachlorobenzene	95-94-3		Х	Х
Organic		1,2-Diphenylhydrazine	122-66-7		Х	Х
Compounds		1,4-Dioxane	123-91-1		Х	Х
		2,2'/4,4'-Dichlorobenzil	3457-46-3		Х	Х
		2,4,5-Trichlorophenol	95-95-4		Х	Х
		2,4,6-Trichlorophenol	88-06-2		Х	Х

TABLE 1
PROJECT LIST OF ANALYTES – SOIL
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					Soil Sample Analysis	
Parameter of	Analytical		CAS	Tronox	Surface	Subsurface
Interest	Method	Compound List	Number	SRC	(0 ft bgs)	(10 ft bgs)
Semivolatile	EPA 8270C <sup>3</sup>	2,4-Dichlorophenol	120-83-2		Х	Х
Organic		2,4-Dimethylphenol	105-67-9		Х	Х
Compounds		2,4-Dinitrophenol	51-28-5		Х	Х
(continued)		2,4-Dinitrotoluene	121-14-2		Х	Х
		2,6-Dinitrotoluene	606-20-2		Х	Х
		2-Chloronaphthalene	91-58-7		Х	Х
		2-Chlorophenol	95-57-8		Х	Х
		2-Methylnaphthalene	91-57-6		Х	Х
		2-Nitroaniline	88-74-4		Х	Х
		2-Nitrophenol	88-75-5		Х	Х
		3,3-Dichlorobenzidine	91-94-1		Х	Х
		3-Nitroaniline	99-09-2		Х	Х
		4,4'-Dichlorobenzil	3457-46-3		Х	Х
		4-Bromophenyl phenyl ether	101-55-3		Х	Х
		4-Chloro-3-methylphenol	59-50-7		Х	Х
		4-Chlorophenyl phenyl ether	7005-72-3		X	X
		4-Chlorothioanisole	123-09-1		X	Х
		4-Chlorothiophenol	106-54-7		Х	Х
		4-Nitroaniline	100-01-6		Х	Х
		4-Nitrophenol	100-02-7		X	Х
		Acenaphthene	83-32-9	X	Х	Х
		Acenaphthylene	208-96-8	X	X	Х
		Acetophenone	98-86-2		Х	Х
		Aniline	62-53-3		X	X
		Anthracene	120-12-7	X	X	Х
		Azobenzene	103-33-3		Х	Х
		Benzo(a)anthracene	56-55-3	X	X	Х
		Benzo(a)pyrene	50-32-8	Х	Х	Х
		Benzo(b)fluoranthene	205-99-2	Х	Х	Х
		Benzo(g,h,i)perylene	191-24-2	Х	Х	Х
		Benzo(k)fluoranthene	207-08-9	X	Х	Х
		Benzoic acid	65-85-0		Х	Х

TABLE 1
PROJECT LIST OF ANALYTES – SOIL
(Page 7 of 11)

					Soil Sample Analysis	
Parameter of	Analytical		CAS	Tronox	Surface	Subsurface
Interest	Method	Compound List	Number	SRC	(0 ft bgs)	(10 ft bgs)
Semivolatile	EPA 8270C <sup>3</sup>	Benzyl alcohol	100-51-6		X	Χ
Organic		bis(2-Chloroethoxy)methane	111-91-1		X	Х
Compounds		bis(2-Chloroethyl) ether	111-44-4		Х	X
(continued)		bis(2-Chloroisopropyl) ether	108-60-1		Х	X
		bis(2-Ethylhexyl) phthalate	117-81-7		Х	Х
		bis(Chloromethyl) ether	542-88-1		X	X
		bis(p-Chlorophenyl) sulfone	80-07-9		Х	Х
		bis(p-Chlorophenyl)disulfide	1142-19-4		Х	Х
		Butylbenzyl phthalate	85-68-7		Х	Х
		Carbazole	86-74-8		Х	Х
		Chrysene	218-01-9	Х	Х	Х
		Dibenzo(a,h)anthracene	53-70-3	Х	Х	Х
		Dibenzofuran	132-64-9		Х	Х
		Dichloromethyl ether	542-88-1		Х	Х
		Diethyl phthalate	84-66-2		Х	Х
		Dimethyl phthalate	131-11-3		Х	Х
		Di-n-butyl phthalate	84-74-2		Х	Х
		Di-n-octyl phthalate	117-84-0		Х	Х
		Diphenyl disulfide	882-33-7		Х	X
		Diphenyl sulfide	139-66-2		Х	Х
		Diphenyl sulfone	127-63-9		Х	Х
		Fluoranthene	206-44-0	Х	Х	Х
		Fluorene	86-73-7	Х	Х	Х
		Hexachlorobenzene	118-74-1	Х	Х	Х
		Hexachlorobutadiene	87-68-3		Х	Х
		Hexachlorocyclopentadiene	77-47-4		Х	Х
		Hexachloroethane	67-72-1		Х	Х
		Hydroxymethyl phthalimide	118-29-6		Х	Х
		Indeno(1,2,3-cd)pyrene	193-39-5	Х	Х	Х
		Isophorone	78-59-1		Х	Х
		m,p-Cresol	106-44-5		Х	Х
		Naphthalene	91-20-3	Х	Х	Х

TABLE 1
PROJECT LIST OF ANALYTES – SOIL
(Page 8 of 11)

					Soil Sample Analysis		
Parameter of	Analytical		CAS	Tronox	Surface	Subsurface	
Interest	Method	Compound List	Number	SRC	(0 ft bgs)	(10 ft bgs)	
Semivolatile	EPA 8270C <sup>3</sup>	Nitrobenzene	98-95-3	X	Х	Х	
Organic		N-nitrosodi-n-propylamine	621-64-7		Х	Х	
Compounds		N-nitrosodiphenylamine	86-30-6		Х	Х	
(continued)		o-Cresol	95-48-7		Х	Х	
		Octachlorostyrene	29082-74-4	Х	Х	Х	
		p-Chloroaniline (4-Chloroaniline)	106-47-8		Х	Х	
		p-Chlorobenzenethiol	106-54-7		Х	Х	
		Pentachlorobenzene	608-93-5		Х	Х	
		Pentachlorophenol	87-86-5		Х	Х	
		Phenanthrene	85-01-8	Х	Х	Х	
		Phenol	108-95-2		Х	Х	
		Phthalic acid	88-99-3		Х	Х	
		Pyrene	129-00-0	Х	Х	Х	
		Pyridine	110-86-1	Х	Х	Х	
		Thiophenol	108-98-5		Х	Х	
		Tentatively Identified Compounds (TICs)			Х	Х	
Volatile	EPA 8260B	1,1,1,2-Tetrachloroethane	630-20-6		Х	Х	
Organic		1,1,1-Trichloroethane	71-55-6	Х	Х	Х	
Compounds		1,1,2,2-Tetrachloroethane	79-34-5		Х	Х	
		1,1,2-Trichloroethane	79-00-5		Х	Х	
		1,1-Dichloroethane	75-34-3		Х	Х	
		1,1-Dichloroethene	75-35-4		Х	Х	
		1,1-Dichloropropene	563-58-6		Х	Х	
		1,2,3-Trichlorobenzene	87-61-6		Х	Х	
		1,2,3-Trichloropropane	96-18-4		Х	Х	
		1,2,4-Trichlorobenzene	120-82-1		Х	Х	
		1,2,4-Trimethylbenzene	95-63-6		Х	Х	
		1,2-Dichlorobenzene	95-50-1	Х	Х	Х	
		1,2-Dichloroethane	107-06-2		Х	Х	
		1,2-Dichloroethene	540-59-0		Х	Х	
		1,2-Dichloropropane	78-87-5		Х	Х	
		1,3,5-Trichlorobenzene	108-70-3		Х	Х	

TABLE 1
PROJECT LIST OF ANALYTES – SOIL
(Page 9 of 11)

					Soil Samp	ole Analysis
Parameter of	Analytical		CAS	Tronox	Surface	Subsurface
Interest	Method	Compound List	Number	SRC	(0 ft bgs)	(10 ft bgs)
Volatile	EPA 8260B	1,3,5-Trimethylbenzene	108-67-8		Х	Х
Organic		1,3-Dichlorobenzene	541-73-1	Х	Х	Х
Compounds		1,3-Dichloropropene	542-75-6		Х	Х
(continued)		1,3-Dichloropropane	142-28-9		Х	Х
		1,4-Dichlorobenzene	106-46-7	Х	Х	Х
		2,2-Dichloropropane	594-20-7		Х	Х
		2,2-Dimethylpentane	590-35-2		Х	Х
		2,2,3-Trimethylbutane	464-06-2		Х	Х
		2,3-Dimethylpentane	565-59-3		Х	Х
		2,4-Dimethylpentane	108-08-7		Х	Х
		2-Chlorotoluene	95-49-8		Х	Х
		2-Hexanone	591-78-6	Х	Х	Х
		2-Methylhexane	591-76-4		Х	Х
		2-Nitropropane	79-46-9		Х	Х
		3,3-Dimethylpentane	562-49-2		Х	Х
		3-Ethylpentane	617-78-7		Х	Х
		3-Methylhexane	589-34-4		Х	Х
		4-Chlorobenzene	108-90-7		Х	Х
		4-Chlorotoluene	106-43-4		Х	Х
		4-Methyl-2-pentanone (MIBK)	108-10-1	Х	Х	Х
		Acetone	67-64-1	Х	Х	Х
		Acetonitrile	75-05-8		Х	Х
		Benzene	71-43-2	Х	Х	Х
		Bromobenzene	108-86-1		Х	Х
		Bromodichloromethane	75-27-4		Х	Х
		Bromoform	75-25-2		Х	Х
		Bromomethane	74-83-9		Х	Х
		Carbon disulfide	75-15-0		Х	Х
		Carbon tetrachloride	56-23-5		Х	Х
		Chlorobenzene	108-90-7	Х	Х	Х
		Chlorobromomethane	74-97-5		Х	Х
		Chlorodibromomethane	124-48-1		Х	Х

TABLE 1
PROJECT LIST OF ANALYTES – SOIL
(Page 10 of 11)

					Soil Sample Analysis	
Parameter of	Analytical		CAS	Tronox	Surface	Subsurface
Interest	Method	Compound List	Number	SRC	(0 ft bgs)	(10 ft bgs)
Volatile	EPA 8260B	Chloroethane	75-00-3		Х	Х
Organic		Chloroform	67-66-3	Х	Х	Х
Compounds		Chloromethane	74-87-3		Х	Х
(continued)		cis-1,2-Dichloroethene	156-59-2		Х	Х
		cis-1,3-Dichloropropene	10061-01-5		X	X
		Cymene (Isopropyltoluene)	99-87-6		X	X
		Dibromochloroethane	73506-94-2		X	X
		Dibromochloromethane	124-48-1		X	Х
		Dibromochloropropane	96-12-8		X	Х
		Dibromomethane	74-95-3		X	Х
		Dichloromethane (Methylene chloride)	75-09-2		Х	Х
		Dimethyldisulfide	624-92-0		X	Х
		Ethanol	64-17-5		X	X
		Ethylbenzene	100-41-4	X	Х	Х
		Freon-11 (Trichlorofluoromethane)	75-69-4		X	X
		Freon-113 (1,1,2-Trifluoro-1,2,2-trichloroethane)	76-13-1		X	X
		Freon-12 (Dichlorodifluoromethane)	75-71-8		X	X
		Heptane	142-82-5		Х	Х
		Isoheptane	31394-54-4		Х	Х
		Isopropylbenzene	98-82-8		X	X
		m,p-Xylene	mp-XYL	X	Х	Х
		Methyl ethyl ketone (2-Butanone)	78-93-3	X	X	X
		Methyl iodide	74-88-4		Х	X
		MTBE (Methyl tert-butyl ether)	1634-04-4	X	X	X
		n-Butyl benzene	104-51-8		Х	X
		n-Propylbenzene	103-65-1		X	X
		Nonanal	124-19-6		X	X
		o-Xylene	95-47-6	X	Х	Х
		sec-Butylbenzene	135-98-8		Х	Х
		Styrene	100-42-5		X	X
		tert-Butyl benzene	98-06-6		Х	Х
		Tetrachloroethene	127-18-4	X	X	X

# TABLE 1 PROJECT LIST OF ANALYTES – SOIL (Page 11 of 11)

					Soil Samp	le Analysis
Parameter of Interest	Analytical Method	Compound List	CAS Number	Tronox SRC	Surface (0 ft bgs)	Subsurface (10 ft bgs)
Volatile	EPA 8260B	Toluene	108-88-3	Х	Х	Х
Organic		trans-1,2-Dichloroethene	156-60-5		Х	Х
Compounds		trans-1,3-Dichloropropene	10061-02-6		Х	Х
(continued)		Trichloroethene	79-01-6	Х	Х	Х
		Vinyl acetate	108-05-4		Х	Х
		Vinyl chloride	75-01-4		Х	Х
		Xylenes (total)	1330-20-7	Х	Х	Х
		Tentatively Identified Compounds (TICs)			Х	Х
Total Petroleum	EPA 8015	Diesel	64742-46-7	Х	Х	Х
Hydrocarbons		Gasoline	8006-61-9	Х	Х	Х
		Grease	68153-81-1	Х	Х	Х

### Notes:

The laboratory will be instructed to report the top 25 Tentatively Identified Compounds (TICs) under method 8260B and 8270C.

<sup>&</sup>lt;sup>1</sup>PCBs, organophosphorous pesticides and chlorinated herbicides are not included in the analyte list. See text for rationale.

<sup>&</sup>lt;sup>2</sup>For polynuclear aromatic hydrocarbons, Method 8270C is the primary analytical method, but Method 8310 may be used if necessary.

<sup>&</sup>lt;sup>3</sup>Method 3540 for extraction and Method 3640 for cleanup are to be used as appropriate.

TABLE 2
TRONOX PHASE A PCB, ORGANOPHOSPHOROUS PESTICIDE AND CHLORINATED HERBICIDE RESULTS SUMMARY (Page 1 of 2)

					Minimum	Maximum	Minimum	Maximum	
Method	Matrix	Chemical	Count	Hits	Detect	Detect	DL	DL	PRG/MCL
Polychlorinated	Soil (mg/kg)	Aroclor-1016	130	0			0.034	0.055	21.2
Biphenyls		Aroclor-1221	130	0			0.034	0.055	0.74
(PCBs)		Aroclor-1232	130	0			0.034	0.055	0.74
		Aroclor-1242	130	0			0.034	0.055	0.74
		Aroclor-1248	130	0			0.034	0.055	0.74
		Aroclor-1254	130	0			0.034	0.055	0.74
		Aroclor-1260	130	1	0.47	0.47	0.034	0.055	0.74
	Groundwater (ug/L)	Aroclor-1016	30	0			0.1	0.1	0.5
		Aroclor-1221	30	0			0.1	0.1	0.5
		Aroclor-1232	30	0			0.1	0.1	0.5
		Aroclor-1242	30	0			0.1	0.1	0.5
		Aroclor-1248	30	0			0.1	0.1	0.5
		Aroclor-1254	30	0			0.1	0.1	0.5
		Aroclor-1260	30	0			0.1	0.1	0.5
Organophosphorous	Soil (mg/kg)	Azinphos-Methyl	36	0			0.014	0.017	
Pesticides		Bolstar	36	0			0.014	0.017	
		Chlorpyrifos	36	0			0.021	0.026	1,847
		Coumaphos	36	0			0.014	0.017	
		Demeton-O	36	1	0.092	0.092	0.041	0.05	24.6
		Demeton-S	36	0			0.016	0.019	24.6
		Diazinon	36	0			0.023	0.028	554
		Dichlorvos	36	0			0.024	0.03	5.9
		Dimethoate	36	3	0.011	0.013	0.023	0.028	123
		Disulfoton	36	0			0.05	0.062	24.6
		Epn	36	0			0.014	0.017	6.16
		Ethoprop	36	0			0.016	0.019	
		Ethyl Parathion	36	0			0.019	0.023	3,694
		Famphur	36	0			0.014	0.017	
		Fensulfothion	36	0			0.014	0.017	
		Fenthion	36	0			0.034	0.043	
		Malathion	36	0			0.016	0.019	12,312
		Merphos	36	0			0.031	0.039	
		Methyl Parathion	36	0			0.021	0.026	154
		Mevinphos	36	0			0.016	0.019	
		Naled	36	0			0.034	0.043	1,231
		Phorate	36	0			0.021	0.026	123
		Ronnel	36	0			0.019	0.023	30,780
		Stirphos	36	0			0.016	0.019	72

TABLE 2 TRONOX PHASE A PCB, ORGANOPHOSPHOROUS PESTICIDE AND CHLORINATED HERBICIDE RESULTS SUMMARY (Page 2 of 2)

					Minimum	Maximum	Minimum	Maximum	
Method	Matrix	Chemical	Count	Hits	Detect	Detect	DL	DL	PRG/MCL
Organophosphorous	Soil (mg/kg)	Sulfotep	36	0			0.021	0.026	308
Pesticides		Thionazin	36	0			0.019	0.023	
		Tokuthion	36	0			0.021	0.026	
		Trichloronate	36	0			0.021	0.026	
	Groundwater (ug/L)	Azinphos-Methyl	30	0			2.5	2.5	
		Bolstar	30	0			1	1	
		Chlorpyrifos	30	0			1	1	
		Coumaphos	30	0			1	1	
		Demeton-O	30	0			1	1	
		Demeton-S	30	0			1	1	
		Diazinon	30	0			1	1	
		Dichlorvos	30	0			1	1	
		Dimethoate	30	0			1	1	
		Disulfoton	30	0			0.5	0.5	
		Epn	30	0			1.2	1.2	
		Ethoprop	30	0			0.5	0.5	
		Ethyl Parathion	30	0			1	1	
		Famphur	30	0			1	1	
		Fensulfothion	30	0			2.5	2.5	
		Fenthion	30	0			2.5	2.5	
		Malathion	30	0			1.2	1.2	
		Merphos	30	0			5	5	
		Methyl Parathion	30	0			4	4	
		Mevinphos	30	0			6.2	6.2	
		Naled	30	0			1	1	
		Phorate	30	0			1.2	1.2	
		Ronnel	30	0			10	10	
		Stirphos	30	0			3.5	3.5	
		Sulfotep	30	0			1.5	1.5	
		Thionazin	30	0			1	1	
		Tokuthion	30	0			1.6	1.6	
		Trichloronate	30	0			0.5	0.5	
Chlorinated	Soil (mg/kg)	2,4,5-TP (Silvex)	3	0			0.021	0.025	4,925
Herbicides	Groundwater (ug/L)	2,4,5-TP (Silvex)	4	0			1	1	50

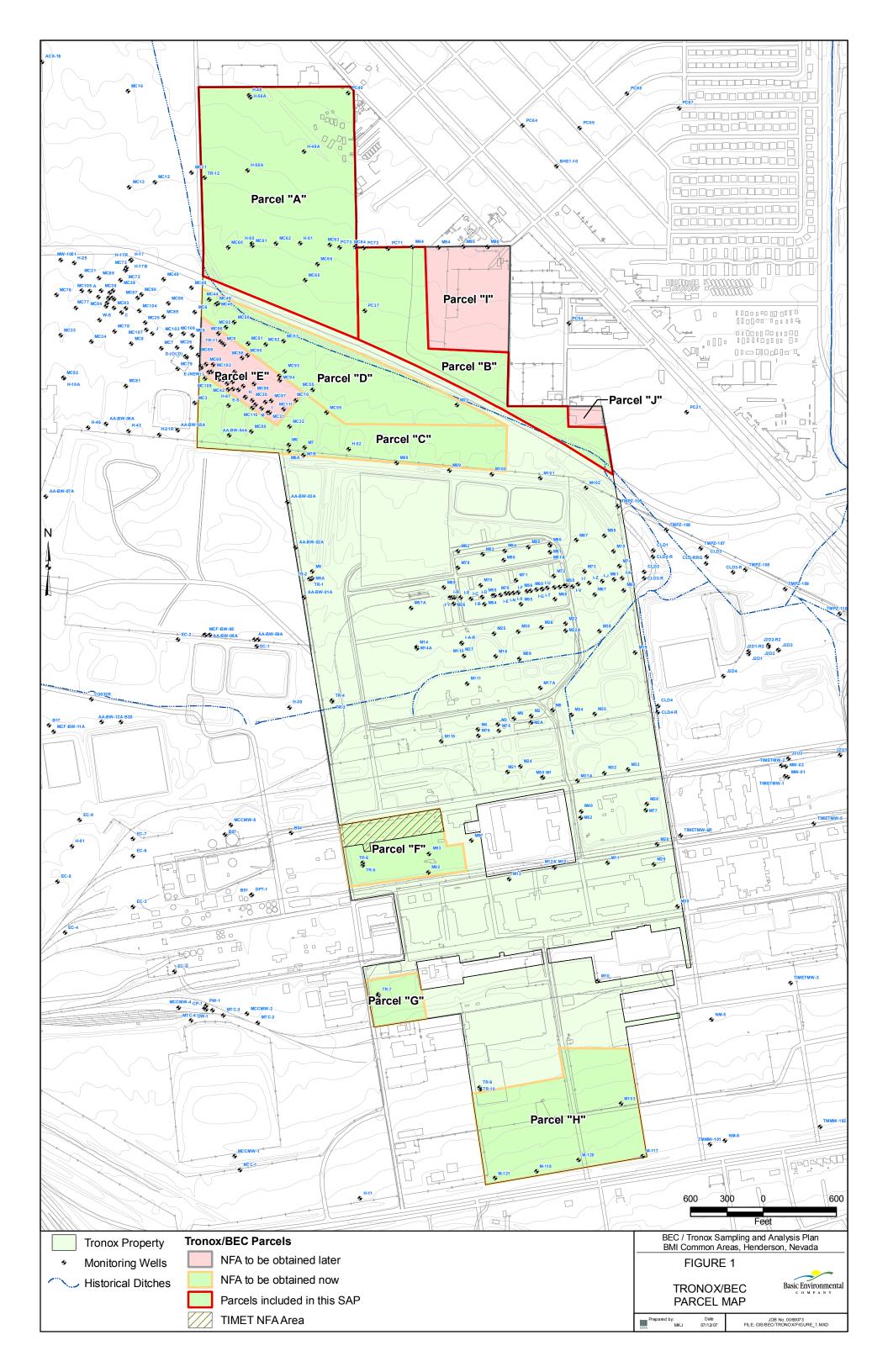
<sup>-- =</sup> None detected/none established.

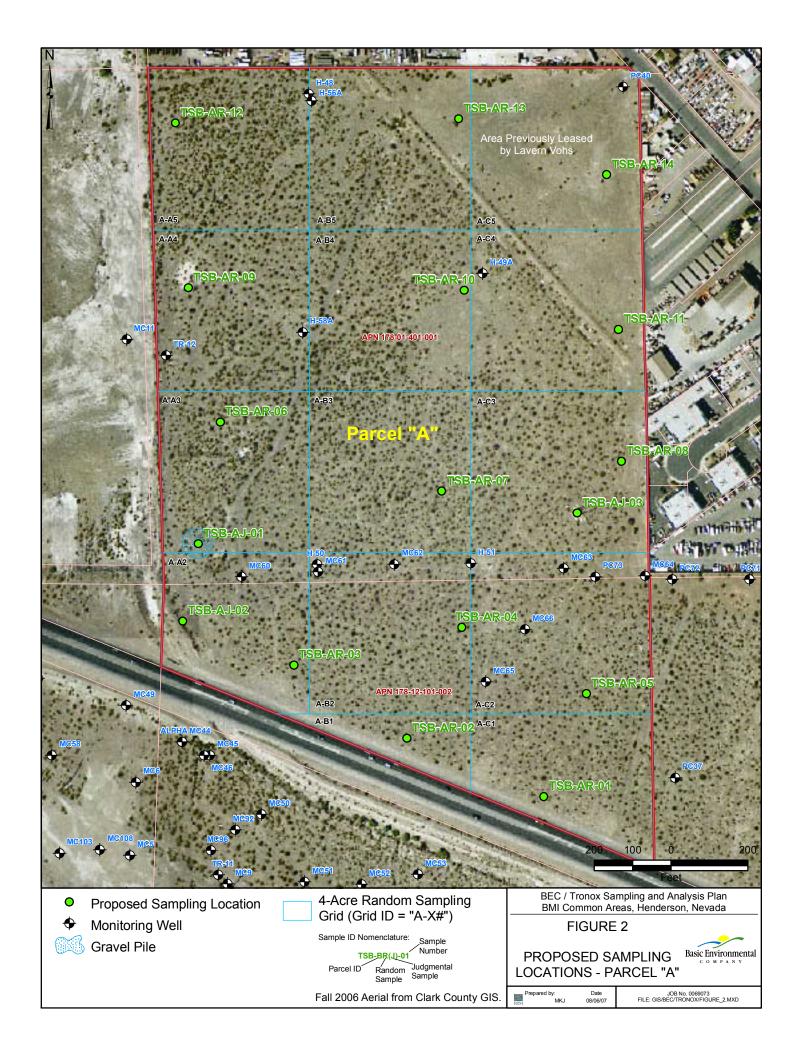
PRG = U.S. Environmental Protection Agency (USEPA) Region 9 preliminary remediation goal

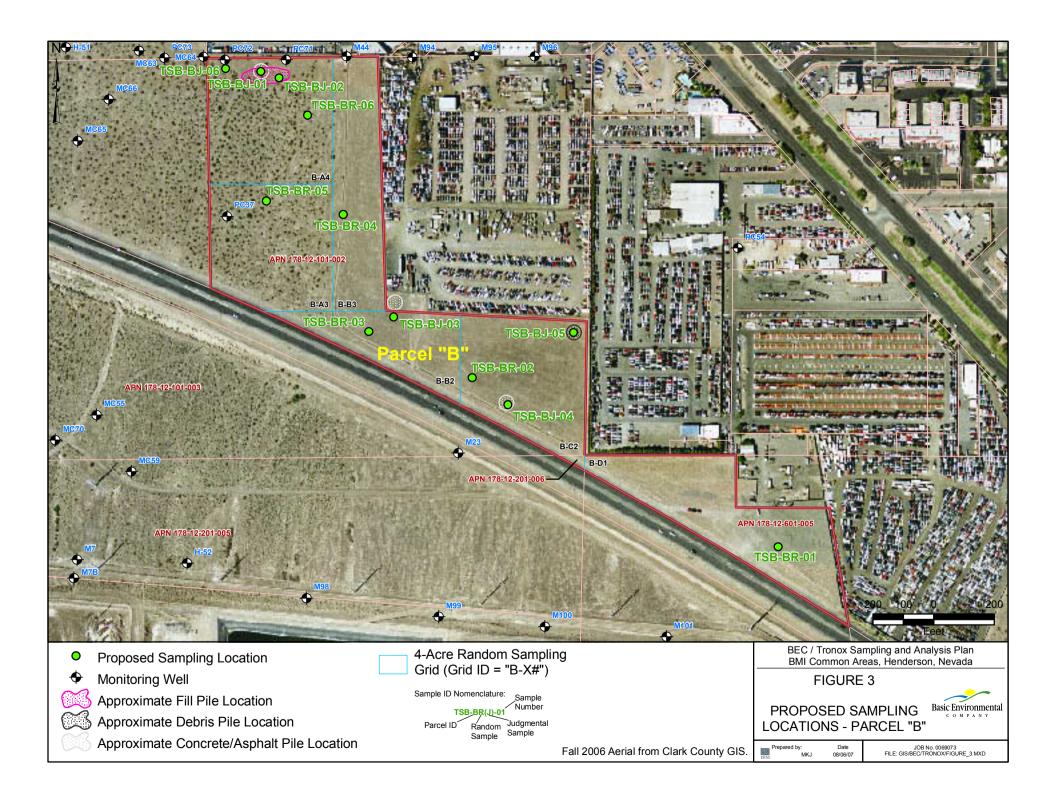
MCL = USEPA Maximum Contaminant Level

DL = detection limit









# ATTACHMENT A

RESPONSE TO NDEP COMMENTS DATED AUGUST 6, 2007 ON THE PHASE 2 SAMPLING AND ANALYSIS PLAN FOR TRONOX PARCELS "A" AND "B" DATED JULY 24, 2007, REVISION 0 AND REDLINE/STRIKEOUT VERSION OF THE TEXT

# Attachment A Response to NDEP Comments Dated August 6, 2007 on the Phase 2 Sampling and Analysis Plan for Tronox Parcels "A" and "B" Dated July 24, 2007, Revision 0

1. General comment, TRX should include a discussion on where the judgmental samples were chosen and/or why they were chosen.

**Response:** Rationale for each of the judgmental samples has been included in the Sampling and Analysis Plan.

- 2. Scope of Work, Task 1: Field Implementation, the basis for the reduced list of analytes is not defensible.
- a. NDEP has not received TRX's Phase A data; therefore, any eliminations of any site-related chemicals (SRCs) based on the Phase A results or background comparisons to the Phase A results cannot be evaluated at this time. NDEP cannot review statements by TRX that are based upon data that has not been submitted. The discussion that TRX is presenting must be supported by data.
- b. Statements such as "the only detection in that analytical suite...was very low" have no meaning. It would be more appropriate to compare an actual data point to a meaningful metric.
- c. Please note and revise text accordingly that dioxins/furans are listed on the TRX SRC list dated March 2006.
- d. If TRX wants to move forward with the Phase 2 Sampling, then TRX should supply different rationale/evidence for the exclusion of a SRC or include the SRC in the analytical list in Table 1.

**Response:** The list of proposed analytes has been expanded. Where it is proposed that certain suites of Tronox SRC analytes not be used in the proposed sampling, additional justification including previously collected data summaries are provided.

3. Scope of Work, Task 1: Field Implementation, 3rd paragraph, page 3, a proposed schedule for additional deeper (greater than 10' below ground surface [fbgs]) should be submitted by TRX for these parcels and BEC should provide a proposed schedule for construction of potential surface improvements. These schedules will help the NDEP determine if the construction schedule will interfere with the characterization schedule by buildings, etc. being constructed and occupied prior to the potential for the characterization data to illustrate unacceptable risk to on site workers and customers.

**Response:** Tronox expects that the deeper sampling will be conducted in the November 2007 timeframe. This is in advance of the likely sale of the site and therefore in advance of any proposed construction on the site. Thus there should not be any interference by site buildings and the like nor any risks to site workers and customers.

4. Schedule, 1st paragraph, please verify that the 28 day turn around time is applicable to all analytes (i.e.: asbestos).

**Response:** The 28 day turnaround is appropriate for asbestos. However, since radionuclides have been added to the analytical suite for sampling, the turnaround time has been increased to 35 days.

5. Table 1, soil samples collected at 5 fbgs are not listed on this table; however, the last paragraph on page 3 states that samples will be collected at 0, 5, and 10 fbgs. This table needs to be modified to match the text.

**Response:** The intent was to collect soil samples at 0 and 10 ft bgs. The text has been revised to be consistent with Table 1.

- 6. Figures 2 and 3, the NDEP has the following comments:
- a. As noted above, please provide discussion on how each of the judgmental samples was selected.

Response: See response to comment #1 above.

b. Grids should be labeled for ease of discussion.

**Response:** Grid labels have been included in the revised figures.

7. Figure 2, the NDEP requests that the 5 partial grids adjacent to the eastern property boundary of the site be sampled.

**Response:** The grid system for each of the parcels has been modified. Each grid is approximately 4 acres in size (ranging from 4.5 to 1.2 acres). A random sample has been placed in each of the grid cells. Some of the previous partial grids have been combined.

- 8. Figure 3, the NDEP requests that the following grids be sampled:
  - a. grid adjacent to the east of the grid containing TSB-BR-05
  - b. grid adjacent to the east of the grid containing TSB-BR-04
  - c. grid adjacent to the south of the grid containing TSB-BJ-04
  - d. grid adjacent to the east of the grid containing TSB-BR-01
  - e. grid adjacent to the south of the grid described in comment 8.d
  - f. grid adjacent to the east of the grid described in comment 8.d
  - g. grid adjacent to the east of the grid described in comment 8.e

**Response:** See response to comment #7 above.



July 24 August 14, 2007

Mr. Brian A. Rakvica, P.E. Nevada Division of Environmental Protection Bureau of Corrective Actions 2030 E. Flamingo Road, Suite 230 Las Vegas, Nevada 89119-0818

Subject: Phase 2 Sampling and Analysis Plan to Conduct Soil Characterization, Tronox Parcels "A" and "B" Site, Henderson, Nevada (Revision 1)

### Dear Brian:

On behalf of Tronox, Basic Environmental Company (BEC) appreciates the opportunity to submit this letter Phase 2 Sampling and Analysis Plan (SAP) to conduct soil characterization of the Tronox Parcels "A" and "B" (portions of APN Nos. 178-01-401-001, 178-12-101-002, 178-12-201-006, and 178-12-601-005). Parcels A and B will collectively be referred to as the Site for the purposes of this work plan. The Site is located north of Warm Springs Road, 1/4 mile west of the intersection with Boulder Highway, in Henderson, Nevada. Figure 1 illustrates the location of the subject Site relative to the Tronox property. Figures 2 and 3 show details of the Parcels A and B themselves. Legal boundaries of the Parcels A and B will be provided to the Nevada Division of Environmental Protection (NDEP) prior to issuance of the requested No Further Action Determinations (NFADs). It should be noted that the Nevada Pick-A-Part facility is not a part of the Site.

This revision of the SAP, Revision 1, incorporates comments received from the NDEP, dated August 6, 2007, on Revision 0 of the SAP, dated July 24, 2007. The NDEP comments and BRC's response to these comments, as well as a redline version of the text, are included in Attachment A.

### **Background**

The Site, which represents a portion of the Tronox property, is comprised of primarily of vacant land, and includes an area in the northeast corner of the Parcel formerly leased by Lavern Vohs. BEC also recognizes that other historic uses/disposals on or near the Site may have occurred. A Phase 1 investigation has been performed on the Site. The Phase 1 investigation, Site visits and historical aerial photographs analysis indicate the presence of certain debris, gravel, fill and concrete/asphalt piles, an abandoned baghouse of unknown origin, and multiple five gallon pails of what appears to be oil to be located on the Site. In addition, there are at least two "homeless" camps that may or may not be currently in use on the Site. Given the vicinity of BMI Industrial Companies, it is also possible that the Site or portions thereof could also have been indirectly impacted by such operations.

Several monitoring wells are located within these properties, which are used by several of the BMI plant operating companies. For example, Tronox collected a groundwater sample from monitoring well M95 during it's recent (December 2006) Phase A source area investigation. Low

parts per billion (ppb) levels of several volatile organic compounds (VOCs) were detected in this sample. Chloroform was detected at 350 ppb. In addition, Stauffer Management Company LLC (Stauffer), Montrose Chemical Corporation of California (Montrose), Syngenta Crop Protection, Inc., and Pioneer Americas, LLC (the Companies) conducted quarterly groundwater samples from three monitoring wells within the property (H-49A, H-56A, and H-58A). Similar results were found to the Tronox sampling event, that is, low ppb levels of VOCs. No chemicals, including VOCs, were found at levels in wells within the Site higher than wells located upgradient of parcels A and B in any of the previous sampling events. This suggests that there are not any on-Site sources of groundwater impacts.

This Sampling and Analysis Plan will focus on the upper 10 feet of soil in order to obtain a No Further Action (NFA) determination from the NDEP in order to support future industrial/commercial use on this Site. No residential use is planned.

### **Objective**

The objective of the field investigation is to identify and characterize the distribution of Site-related chemicals (SRC) in the vicinity of the future land use features (e.g., warehouses, commercial office buildings) and historical site features (e.g., debris piles, burn areas due to homeless activities, etc.). Surface and shallow subsurface samples that will be collected are depth-discrete soil matrix samples. Sample locations have been placed to both evaluate potential future land use exposures (although future plans are not fully defined at this time), and to characterize potential source areas on the Site. The sample locations provide spatial coverage of the Site (Figures 2 and 3). The rationale for location of the sampling points is to ensure that the entire Site is reasonably and completely covered for sampling purposes in order to obtain data that is representative of the Site, that specific locations within the Site that were potentially impacted are also sampled, and that the sampled concentrations can be meaningfully used in subsequent risk assessments, if needed. Ultimately, the purpose of this sampling is to support the NFADs for Parcels A and B.

### Scope of Work

The following is the proposed scope of work for investigating the Site and meeting the SAP objectives. The scope of work has been divided into three main tasks: 1) Field Implementation; 2) Data Evaluation; and 2) Reporting.

### Task 1: Field Implementation

The purpose of the intrusive investigation is to collect data sufficient to meet the objectives of the SAP. All sampling and sample handling procedures will be consistent with the NDEP-approved BRC Field Sampling and Standard Operating Procedures (FSSOP) (BRC and MWH, 2006a).

The proposed analyte list is composed of VOCs, semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), polyaromatic hydrocarbons (PAHs), metals, organochlorine pesticides, perchlorate, ions (including chloride, nitrate, nitrite, and sulfate), radionuclides, and asbestos. This list includes all of the compounds (with a few additional modifications as discussed subsequently) on Tronox's "reduced list" as shown in Table 1. Tronox's reduced list was developed as a subset of the entire suite of Tronox SRCs based on the findings of the Tronox Phase A Source Area Investigation.

The modifications are as follows: first, in general instead of analyzing for specific members of certain analyte categories like metals, VOCs and SVOCs, the entire suite will be analyzed and reported; second, the organophosphate pesticide suite was and chlorinated herbicide suites were eliminated since the only detection three detections were in that these analytical suites (dimethoate) was very low and demeton-o) which were at least an order of magnitude below their respective U.S. Environmental Protection Agency (USEPA) Region 9 industrial preliminary remediation goals (PRGs); third, the radionuclide suite waspolychlorinated biphenyls (PCBs) were eliminated since the Phase A results for radionuclides were consistent with background per only a single Aroclor was detected once (in the central portion of the Tronox property at 20 feet below ground surface (bgs), well south of the Site) below it's respective PRG; fourth, not all SRCs are proposed to be analyzed at all depths in this SAP (for example, asbestos is proposed to be analyzed in surface soil samples only); and lastly, although dioxins/furans are not on the Tronox SRC list, because they may potentially be present on the Site (for example in the burn areas), they are also proposed for analysis in surface soil samples. Summary results of the Tronox Phase A investigation for PCBs, organophosphate pesticides, and chlorinated herbicides are provided in Table 2.

Given the absence of direct operations on this Site of a nature commensurate to that which took place on the Tronox plant site itself, the proposed SRC list and proposed sampling should characterize those sources that were located on the Site, as well as likely chemicals that may have been deposited on the Site via fugitive dust emissions from the Tronox operations and property and/or other neighboring BMI plants. The proposed analyte list for this SAP is presented in Table 1. Unless otherwise noted in the footnotes in Table 1, all analytes will be analyzed at all locations. BEC notes that this analyte list may not be appropriate for any future planned investigations (such as the proposed Tronox Phase B investigation) at the Site (which will extend from below 10 feet below ground surface [bgs] to groundwater).

### **Pre-Field Activities**

The pre-field activities will be conducted in accordance with applicable standard operating procedures (SOPs; BRC and MWH, 2006a). The BRC Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HASP) prepared for the BMI Common Areas (BRC and MWH, 2006b,c) will be used for this proposed scope of work. All work will be completed under the direction of a State of Nevada Certified Environmental Manager.

### Soil Borings

The SOPs referred to in the following discussion are documented in the FSSOP. BEC will implement field screening using photoionization detectors (PIDs) (using two lamps) in accordance with SOP-39. SOP-1 will be followed for all drilling activities including Hollow Stem Auger drilling. The field geologist will prepare logs for each boring indicating the Unified Soil Classification System (USCS) soil classification (SOP-17), an estimate of field moisture content, sampling depths, progress of drilling (SOP-15), final completion depth, and the nature and resolution of any problems encountered.

Soil sample and auger boring locations will be surveyed using a handheld GPS to a horizontal accuracy of 3 meters (approximately 10 feet) or better. Soil cuttings generated during soil sampling and drilling activities will be collected on visqueen, analyzed, and appropriately disposed off. Due to the nature of the shallow sampling, it is not anticipated that a significant amount of excess soil will be generated as a result of the sampling, or that the soils will require

special handling. Also, because the groundwater at the Site is generally 25 to 30 feet bgs, it is not anticipated that groundwater will be encountered during drilling of the shallow borings. The quality assurance/quality control (QA/QC) procedures that will be followed during the field investigation are detailed in Section B of the QAPP (BRC and MWH, 2006b).

Soil matrix samples will be collected based on random sample locations placed within a 4-acre grid across the Site, and at each of the. The grid has been modified in this revision of the SAP based on the following: 1) started the grid along the western parcel boundary (for each parcel independently), 2) combined partial grids with either other partial grids or whole grids (which resulted in irregular shaped grid cells), and 3) made all grids approximately four acres in size. Grid sizes range from 1.2 to 4.5 acres. The random sample locations were supplemented with judgmental sampling locations targeting specific site features (e.g., miscellaneous pile locations.). The rationale for the various judgmental sampling locations is provided below:

- Parcel A, grid cell 'A-A3' gravel pile location;
- Parcel A, grid cell 'A-A2' historical northwestern ditch;
- Parcel A, grid cell 'A-C3' abandoned baghouse of unknown origin;
- Parcel B, grid cell 'B-A4' debris pile location;
- Parcel B, grid cell 'B-A4' fill pile location;
- Parcel B, grid cell 'B-B2' concrete/asphalt pile location;
- Parcel B, grid cell 'B-C2' concrete/asphalt pile location;
- Parcel B, grid cell 'B-C2' debris pile location; and
- Parcel B, grid cell 'B-A4' multiple five gallon pails of what appears to be waste oil.

Soil borings will be advanced with a hollow-stem auger to a total depth of 10 feet below ground surface (bgs). Soil samples will be collected at approximately zero (i.e., surface), five) and 10 feet bgs. Soil samples will be analyzed for the analyte list provided in Table 1, with limitations as noted in the footnotes to this table.

### Task 2: Data Evaluation

Once the data are collected, BEC will subject the data to validation per procedures agreed to previously with the NDEP and consistent with the QAPP (BRC and MWH, 2006b). Only those data determined by the QA/QC review to be suitable for use will be considered for the site data set. A separate Data Validation Summary Report will be prepared and submitted to NDEP.

### Task 2: Reporting

Upon receipt of laboratory analytical results, an investigation report will be prepared. The report shall contain, but not be limited to, the following items:

- A summary of the sampling procedures conducted;
- Sampling location map;
- Soil boring logs;
- An evaluation and summary of the collected data;
- Tables(s) summarizing soil results; and
- If appropriate, plan view maps indicating the locations of detected constituents in soil.

Given the depth to groundwater at the Site (approximately 25 to 30 feet bgs, as measured at onsite monitoring wells), and the fact that future development will cover the Site with paved areas and buildings, migration of chemicals at the Site to groundwater is considered unlikely. However, once the data are collected this will be evaluated in the report. It should also be noted that development of the site will not preclude future groundwater investigation or remediation activities that may need to be conducted by Tronox.

Following collection and analysis of soil samples, the data will be discussed with the NDEP. This will include a comparison to recently approved BRC-TIMET background data set (TetraTech, 2007). If required upon this evaluation, a risk assessment will be conducted to evaluate the potential risks to future on-site human receptors. The receptors identified to be evaluated in the risk assessment will be consistent with the proposed development of the Site. These receptors will include construction workers, indoor commercial workers, and outdoor maintenance workers. Because the proposed development does not include residential units, on-site residents will not be evaluated. The risk assessment will be conducted using standard U.S. Environmental Protection Agency (USEPA) guidance, input parameters, and methods. A risk assessment work plan will be submitted to NDEP after sample results have been obtained and NDEP approval will be obtained prior to conducting the risk assessment.

### **Schedule**

Once final approval of the SAP is received from NDEP, field implementation activities can commence within one to two weeks. BEC will provide NDEP with at least one week notice prior to the initiation of field activities at the Site. It is anticipated that this work can be completed within one week, depending on field conditions. The soil samples will be submitted to the laboratories and placed on a standard turn around time, which is 28 days for the complete analyte list. A report will be completed within three weeks after the final data are received from the laboratory and validated.

### **Closing Remarks**

See attached for appropriate certification language and signature. Please direct any remaining questions or comments you may have to me at 626-382-0001.

Sincerely,

**Basic Environmental Company** 

Ranajit Sahu, CEM Project Manager

Attachments: <u>Attachment A – NDEP Comments on Revision 0 of the SAP and BRC's Response to Comments</u>

Table 1 – Project List of Analytes – Soil

<u>Table 2 – Tronox Phase A PCB, Organophosphorous Pesticide and Chlorinated</u> Herbicide Results Summary

Figure 1 – Tronox/BEC Parcel Map

Figure 2 – Proposed Sample Locations – Parcel "A"

Figure 3 – Proposed Sample Locations – Parcel "B"

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. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.

<del>July 24</del><u>August 14</u>, 2007

Dr. Ranajit Sahu, C.E.M. (No. EM-1699, Exp. 10/07/2007) Date BRC Project Manager