APRIL 22, 2010

WORKPLAN TO CONDUCT AN ADDITIONAL MIDDLE ZONE DNAPL INVESTIGATION

HENDERSON, NEVADA

REVISION 1.0

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

1640 South Stapley Drive , Suite 124
Mesa, AZ 85204
Phone: 480.345.0888
Fax: 480.730.0508

April 22, 2010

VIA FEDERAL EXPRESS

Mr. William Knight
Nevada Division of Environmental Protection
2030 E. Flamingo Road, Suite 230
Las Vegas, Nevada 89119

Re: Workplan to Conduct an Additional Middle Zone DNAPL Investigation Henderson, Nevada Revision 1.0

Dear Mr. Knight:

Enclosed please find the revised document titled:

WORKPLAN TO CONDUCT AN ADDITIONAL MIDDLE ZONE
DNAPL INVESTIGATION
HENDERSON, NEVADA
REVISION 1.0

If you have any questions, please contact me at the number listed above.

HARGIS + ASSOCIATES, INC.

Michael R. Long, RG, CEM
Principal Hydrogeologist
Nevada Certified Environmental Manager
No. EM - 1891 (Expires 05/27/10)

MRL/erl

Enclosure

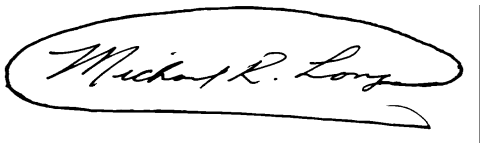
cc: Mr. Jim Najima, Nevada Division of Environmental Protection

Other Offices:
San Diego, CA
Tucson, AZ

JURAT

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.

HARGIS + ASSOCIATES, INC.



Michael R. Long, RG, CEM
Principal Hydrogeologist
Nevada Certified Environmental Manager
No. EM - 1891 (Expires 05/27/10)

Date Signed: April 22, 2010

HARGIS + ASSOCIATES, INC.

WORKPLAN TO CONDUCT AN ADDITIONAL MIDDLE ZONE

DNAPL INVESTIGATION

HENDERSON, NEVADA

TABLE OF CONTENTS

Section Page

ACRONYMS AND ABBREVIATIONS iii

1.0 INTRODUCTION 1
1.1 BACKGROUND 1
1.2 PROJECT OBJECTIVE AND APPROACH 3

2.0 SCOPE OF WORK 5
2.1 REVIEW AND CONSOLIDATION OF EXISTING INFORMATION 5
2.2 SAMPLING OF EXISTING MIDDLE ZONE MONITOR WELLS 5
2.3 INSTALLATION OF ADDITIONAL MIDDLE ZONE MONITOR WELLS 6
2.3.1 Locations of Additional Middle Zone Wells 7
2.3.2 DNAPL Inspection of Core 7
2.3.3 Soil Sampling 8
2.3.4 Monitor Well Construction 8
2.3.5 Monitor Well Completion and Development 8
2.4 INITIAL GROUNDWATER SAMPLING AND WATER LEVEL MONITORING 9
2.5 CONTINGENCY PLAN FOR ADDING ADDITIONAL MONITOR WELLS 10
2.6 EVALUATING AND REPORTING 10
2.7 PROGRAM SCHEDULE 10

3.0 REFERENCES 12

TABLE OF CONTENTS (continued)

TABLES

Table

1 CURRENT MIDDLE ZONE MONITOR WELL CONSTRUTION DETAILS

ILLUSTRATIONS

Figure

1 LOCATION MAP
2 EVIDENCE OF POTENTIAL DNAPL IN THE MIDDLE ZONE
3 PROPOSED DNAPL SAMPLE AND WELL LOCATIONS

APPENDICES

Appendix

A SITE-RELATED CHEMICALS LIST

ACRONYMS AND ABBREVIATIONS

BRC	Basic Remediation Company
CAMU	Corrective Action Management Unit
DO	dissolved oxygen
DNAPL	dense non-aqueous phase liquid
EC	electrical conductivity
EPA	Environmental Protection Angency
FSSOP	field sampling and standard operating procedures
GWTS	groundwater treatment system
H+A	Hargis + Associates, Inc.
µg/kg	micrograms per kilograms
µg/l	micrograms per liter
NDEP	Nevada Division of Environmental Protection
Olin	Olin Corporation
OCPs	Organochlorine Pesticides
PID/FID	photoionization detector/flame ionization detector
SOPs	standard operating procedures
SRCs	site-related chemicals
SVOCs	semi volatile organic compounds
the Site	Henderson, Nevada site
VOCs	volatile organic compounds

WORKPLAN TO CONDUCT AN ADDITIONAL MIDDLE ZONE DNAPL INVESTIGATION HENDERSON, NEVADA

1.0 INTRODUCTION

This workplan has been prepared by Hargis + Associates, Inc. (H+A) to describe an additional dense non-aqueous phase liquid (DNAPL) reconnaissance program for the Henderson, Nevada site (the Site) as requested by the Nevada Division of Environmental Protection (NDEP) in its comments to the 2009 Comprehensive Groundwater Data Evaluation Report (H+A, 2009).

1.1 BACKGROUND

Groundwater sampling and DNAPL monitoring performed during the recent 2009 Site-Wide annual monitoring event completed in the fourth quarter 2009 (H+A, 2009) indicated a marked increase in concentrations of certain site related compounds (SRCs) in the vicinity of Middle Zone monitor well MC-MW-18 compared to previous groundwater analyses. Monitor well MC-MW-18 is located northeast of the Olin manufacturing facilities, on Tronox property and is the northeastern-most Middle Zone DNAPL reconnaissance monitor well installed as part of the DNAPL investigation (Figure 1) conducted in 2008. Marked increases in concentrations relative to 2008 were observed as follows:

- benzene, which increased from 26,000 micrograms per liter (µg/l) to 43,000 µg/l;
- chlorobenzene, which increased from 110,000 to 430,000;
- 1,2-dichlorobenzene, which increased from 2,700 µg/l to 680,000 µg/l,
- and 1,4-dichlorobenzene, which increased from 5,700 to 270,000 µg/l.

In addition, field sampling notes indicated visible NAPL was observed in the groundwater sample from this well. This observation was unexpected as no indication of DNAPL had been

noted during screening of the soil core during well construction, nor did the first groundwater samples collected from this well contain concentrations of VOCs that were indicative of DNAPL. Based on this field observation, confirmatory water level and interface probe measurements were obtained at MC-MW-18. The inter-face probe detected variations in fluid density at approximately 113.5 feet and gave a continuous high density reading at 117.3 feet. Subsequently, a bailed sample of black fluid was collected from approximately 117 to 119.5 feet below the measuring point, (the bottom of DNAPL trap at the base of the well casing is at 121.5 feet Table 1).

Samples were collected of this fluid and sent to the laboratory for analysis. The samples were analyzed for Volatile Organic Compounds (VOCs – Environmental Protection Agency [EPA] method 5030B/8260B), Semi-Volatile Organic Compounds (SVOCs - EPA Method 3580A/8270C), and Organo-chlorine Pesticides (OCPs - EPA Method 8081). The results from the analysis indicated the presence of a mixed DNAPL and included the following constituents:

VOCs

- Benzene – 16,000,000 µg/kg
- Carbon Tetrachloride – 3,500,000 µg/kg
- Chlorobenzene – 620,000,000 µg/kg
- Chloroform – 2,900,000 µg/kg
- 2-Chlorotoluene – 450,000 µg/kg
- 4-Chlorotoluene – 320,000 µg/kg
- 1,2-Dichlorobenzene – 49,000,000 µg/kg
- 1,3- Dichlorobenzene – 4,500,000 µg/kg
- 1,4- Dichlorobenzene – 130,000,000 µg/kg
- 1,2,3- Trichlorobenzene – 510,000 µg/kg
- 1,2,4-Trichlorobenzene – 3,300,000 µg/kg

SVOCs

- 1,2-Dichlorobenzene – 62,000 µg/kg
- 1,3-Dichlorobenzene – 3,800 µg/kg
- 1,4-Dichlorobenzene – 130,000 µg/kg

OCPs

- 2,4' – DDT – 110,000 µg/kg
- 4,4' – DDD – 15,000 µg/kg
- 2,4' – DDE – 210,000 µg/kg
- 4,4' – DDE – 540,000 µg/kg
- 4,4' – DDT – 670,000 µg/kg
- Alpha – benzene hexachloride – 39,000 µg/kg
- Beta – benzene hexachloride – 9,300 µg/kg
- Delta – benzene hexachloride – 4,000 µg/kg

Note: Values are reported as micrograms per kilogram (ug/kg) of product.

This October 2009 detection of DNAPL in MC-MW-18 extends the area where DNAPL has been observed at the Site. Figure 2 presents a revised map of evidence of DNAPL for the Middle Zone that includes the new information from well MC-MW-18.

The initial sampling data, as measured during the 2009 Site-Wide monitoring event, was presented in the 2009 Comprehensive Groundwater Data Evaluation Report (H+A, 2009) to which NDEP commented on by requesting a comprehensive DNAPL investigation workplan be developed.

1.2 PROJECT OBJECTIVE AND APPROACH

To respond to the NDEP request, this workplan has been developed to enhance the current information available regarding the vertical and horizontal location of DNAPL material in the Middle Zone.

The objectives of the workplan are to collect additional groundwater samples from existing monitor wells to help locate, drill, and construct additional DNAPL reconnaissance borings/monitor wells to assess the current vertical and horizontal extent of DNAPL. An additional objective of the anticipated monitor wells is to allow collection of groundwater samples and potentially DNAPL samples to help evaluate the chemical composition and

physical characteristics of the DNAPL. This information may be used to evaluate the potential mobility of the DNAPL and the potential for migration of the DNAPL that might influence future remedial options.

The elements of this workplan are:

- Review data from all known Middle Zone monitor wells and DNAPL reconnaissance borings completed in the downgradient vicinity of MC-MW-18 including wells recently installed by Tronox;
- Collect groundwater samples from existing downgradient Middle Zone monitor wells to ascertain if the measured percent groundwater solubility is indicative of DNAPL presence in these existing monitor wells. The sampling program will consist of two concurrent programs as follows: 1) the sampling to be conducted in late April and early May for the 2010 Site-Wide monitoring program that will sample Middle Zone wells MC-MW-12, -17, and MCF-BW-09B in the vicinity of MC-MW-18, and 2) concurrent sampling of Tronox Middle Zone monitor wells M-136, -150, TR-02, and -04 (Figure 1);
- Construct and sample additional borings and/or monitor wells screened in the Middle Zone downgradient of MC-MW-18 as may be required to evaluate the nature, extent, and mobility of DNAPL. It is anticipated that three additional Middle Zone wells will be required to adequately locate and evaluate the nature of the DNAPL presence.

2.0 SCOPE OF WORK

To enhance the knowledge of the lateral and vertical extent of the area where DNAPL materials exist, the following work will be completed.

2.1 REVIEW AND CONSOLIDATION OF EXISTING INFORMATION

As part of the development of this workplan, a detailed review of existing data from all known Middle Zone monitor wells and DNAPL reconnaissance borings completed in the downgradient vicinity of MC-MW-18, including wells recently installed by Tronox, has begun. Data sets included in this review are:

- Historical groundwater data collected from monitor wells MC-MW-12, -17, -18 and MCF-BW-09B;
- Soil analysis data from the DNAPL reconnaissance investigation completed in 2008, and
- Recent sampling data from Tronox.

This data set forms the basis for the investigation.

2.2 SAMPLING OF EXISTING MIDDLE ZONE MONITOR WELLS

Four existing Tronox Middle Zone monitor wells (Table 1 and Figure 1) will be sampled.
The four wells include:

- Middle Zone monitor well TR-04 is located approximately 500 feet north of MC-MW-18. This is the closest Middle Zone north of MC-MW-18;
- Middle Zone monitor well TR-02 is located on the eastern edge of the Basic Remediation Company Corrective Action Management Unit (BRC CAMU) and will be used as a downgradient sampling location;
- Middle Zone monitor well M-136 is located directly near the northwest corner of the Tronox interceptor field and will be used as a downgradient sampling location, and

- Middle Zone monitor well M-150 is located directly south (upgradient) of the middle section of the Tronox Interceptor field and will be used as a downgradient sampling location.

In addition, the groundwater samples collected from Middle Zone monitor wells MC-MW-12, -17, -18 and MCF-BW-09B, as part of the Site Wide monitoring program, will also be included in the data set to evaluate the current extent of DNAPL in the area.

Groundwater sampling of the above listed monitor wells will utilize low-flow sampling procedures in accordance with the Companies' Field Sampling and Standard Operating Procedures (FSSOP) document (H+A, 2007). Prior to groundwater sampling, a decontaminated interface probe will be used to determine depth to water and the presence of any variations in fluid density.

All samples listed above as part of this program will be analyzed for analyzed for routine VOCs and organochlorine pesticides. Additionally, wells M-136, -150, TR-02, and -04 will be analyzed for SVOCs as these wells have not be sampled for this chemical suite in the past. There will be a level IV data validation for these samples.

2.3 INSTALLATION OF ADDITIONAL MIDDLE ZONE MONITOR WELLS

Based on the sampling data, additional Middle Zone wells will likely be sited and installed downgradient and/or east of well MC-MW-18. For the purposes of this workplan, it is assumed that three additional monitor wells will be installed following the guidelines in the FSSOP (H+A, 2007) and the on-site hydrogeologist's observations. In addition, as discussed further in Section 2.5, in case the three anticipated wells are not sufficient to define the extent of the DNAPL, contingency planning will be completed in advance to install additional DNAPL reconnaissance borings or Middle Zone monitor wells located north and east of the three anticipated wells.

2.3.1 Locations of Additional Middle Zone Wells

The locations for the three anticipated new Middle Zone monitor wells will provide broader coverage of the Middle Zone near and downgradient of MC-MW-18, as well as allow for the lateral and vertical extent of the area where DNAPL materials exist to be more clearly resolved (Figure 3). The anticipated additional Middle Zone monitor wells will be located as follows:

- One Middle Zone monitor well may be installed near RB-17 directly east of MC-MW-18. This location will be the eastern most DNAPL monitoring location;
- One Middle Zone monitor well may be installed near the property boundary between Olin and Tronox approximately 500 feet west of RB-15, and
- One Middle Zone monitor well may be installed directly downgradient of MC-MW-18. The location of this monitor well will be based on the analytical results of the above mentioned groundwater sampling. If the downgradient groundwater sampling results, especially those from TR-04, indicate that DNAPL compound concentrations are less than 1% solubility, the well will be installed as shown in Scenario 1 on Figure 3. If the groundwater sampling results from TR-04 indicate concentrations of DNAPL compounds are of one percent solubility or higher, the well will be located as indicated in Scenario 2 in Figure 3.

2.3.2 DNAPL Inspection of Core

The on-site hydrogeologist will screen each boring for evidence of the presence of DNAPL using methods consistent with the FSSOP (H+A, 2007). The screening will include:

- Direct visual observation of the core or drill cuttings;
- Screening the core or cuttings with PID/FID instruments, and
- If core is collected, the core will be tested with hydrophobic flexible membranes (FLUTe® ribbon).

The PID/FID screening will be conducted at intervals of approximately one to five feet, and at major lithologic changes. Lithologic changes from sand to fine-grained soils will be selected preferentially for screening. The on-site hydrogeologist will enter notes regarding the DNAPL screening in the boring log and field notebook.

2.3.3 Soil Sampling

Soil samples will be analyzed for only the DNAPL-forming compounds that were detected in soil samples from the results of the previous DNAPL reconnaissance borings and monitor wells including, VOCs (EPA 8260B), SVOCs (EPA 8270C) and organochlorine pesticides (EPA 8081A).

2.3.4 Monitor Well Construction

The monitor wells will be constructed similar to MC-MW-17, and -18 and will be consistent with the methods described in the FSSOP (H+A, 2007). Each well will feature a 4-inch ID stainless steel screen in the selected screen interval with a three foot stainless steel DNAPL trap below the screen. The well will be constructed with 4-inch ID steel casing from land surface to the top of the screened interval. The borehole annulus in the screened interval will be filled with gravel pack material to at least three feet above the screen then a minimum of 3 feet above the screen. A bentonite pellet seal will be placed on the top of the gravel pack material and the remainder of the borehole annulus will be sealed with neat cement from the top of the bentonite pellets to land surface.

2.3.5 Monitor Well Completion and Development

The monitor wells will be completed at ground surface with water-tight, flush-mounted well vaults or water-tight, monument well vaults, depending on the surroundings of the well. Nevada State Plane coordinate locations and the elevations of the top of the well casings will be determined by a Nevada-licensed surveyor after completion of the monitor wells.

Prior to the start of well development a decontaminated interface probe will be used to determine depth to water and the presence of any variations in fluid density. The monitor wells will be developed using surging, bailing, and/or pumping techniques. Temperature, pH, dissolved oxygen (DO), turbidity, and electrical conductivity (EC) of the development water will be monitored during well development activities. Pumping rates and volumes also will be

recorded. Well development will continue until the temperature, pH, and EC measured from the monitor well is stable and the discharge is sediment-free. Development water will be temporarily stored in either 55-gallon drums or a large volume polyethylene tank in the vicinity of the groundwater treatment system (GWTS), pending waste characterization and appropriate disposal. Standard Operating Procedures (SOPs) for field parameter and well discharge measurements are detailed in the FSSOP (H+A, 2007).

2.4 INITIAL GROUNDWATER SAMPLING AND WATER LEVEL MONITORING

After the wells are developed, initial groundwater samples will be collected. The initial samples will be collected a minimum of seven days after development. Initial sampling of the newly installed monitor wells will follow low-flow sampling procedures in accordance with the Companies' FSSOP (H+A, 2007). Prior to groundwater sampling, a decontaminated interface probe will be used to determine depth to water and the presence of any variations in fluid density.

The initial groundwater samples collected from the new monitor wells will be analyzed for the full Montrose and Stauffer SRC list (Appendix A) except as noted below, similar to previous initial well sampling conducted as part of the Montrose/Stauffer Phase II program:

- Groundwater samples for pentachlorophenol and hexachlorobenzene will be analyzed for using Method 8270 and the results reported as part of the method 8270 compound list.

There will be a level IV data validation for these samples.

2.5 CONTINGENCY PLAN FOR ADDING ADDITIONAL MONITOR WELLS

As a contingency, planning will be completed in advance to support the installation of additional reconnaissance borings or Middle Zone monitoring wells if the scope of work covered by this workplan is insufficient to adequately define the nature and extent of the DNAPL presence. Such planning will include coordination with Olin and Tronox for access to additional investigation locations, utility clearances, and contingency contracting with the drilling firm. Such an expansion of the scope of work would be performed as an addendum to this document to reduce planning time and will incorporate consultation with NDEP to define the purpose and locations of the additional borings

2.6 EVALUATING AND REPORTING

The data collected in this investigation will be provided to NDEP as a data submittal report. The data submittal will include a brief description of the field investigation procedures, the lithologic logs, well construction diagrams, and the analytical results of the DNAPL screening and initial groundwater samples. A brief concluding section will assess the success of the program in meeting expectations and will provide conclusions, or, if necessary, a path forward.

2.7 PROGRAM SCHEDULE

Groundwater sampling to be conducted as part of 2010 Site-Wide annual monitoring round will commence on April 13, 2010. The additional Tronox well sampling will be performed concurrently while the sampling team for the Site-Wide program is in the field. Sampling of the Tronox wells is anticipated for the latter part of the program in early May 2010.

Subsequent additional monitor well installation will commence upon approval of this workplan by NDEP and review of the groundwater sampling results, assuming access to all of the drilling locations is readily obtainable, the projected date is approximately mid July. Once in the field the expected time required for installation, development, sampling, and testing of the monitor wells is approximately 21 days. The data submittal report is anticipated to be delivered within

30 days of the sampling of the monitor wells. The time frame for data submittal will be based on the results from this program and discussion with NDEP.

3.0 REFERENCES

Hargis + Associates, Inc.[H+A], 2007. Field Sampling and Standard Operating Procedures, Site-Wide Soil and Groundwater Investigations, Former Montrose and Stauffer Sites, Henderson, Nevada. May 11, 2007.

_____, 2009. 2009 Comprehensive Groundwater Data Evaluation Report, Former Montrose and Stauffer Facilities, Henderson, Nevada. February 12, 2010. [NDEP acceptance status: comments provided March 1, 2010]

TABLE 1
CURRENT MIDDLE ZONE MONITOR WELL CONSTRUTION DETAILS

Location ID	Survey Coordinates		Elevations			
	Northing	Easting	Ground Elevation	Top of Screen Elev	Bottom of Screen Elev	Muddy Creek Elevation
M-136	26719889.77	827165.34	1749.09	1669.39	1659.39	1718.59
M-150	26719569.84	828058.96	1756.55	1631.55	1611.55	1728.55
MCF-BW-09B	26719452.86	825735.13	1761.63	1703.63	1683.63	1708.13
MC-MW-12	26717903.04	826293.89	1797.38	1697.38	1677.38	1737.38
MC-MW-15	26718415.14	825513.65	1786.65	1703.55	1683.55	1736.65
MC-MW-17	26717707.84	826576.82	1797.67	1727.17	1707.17	1750.67
MC-MW-18	26718439.15	826495.85	1784.50	1688.00	1668.00	1723.50
TR-02	26719955.00	826157.00	1752.18	1608.18	1578.18	1715.18
TR-04	26718952.00	826343.00	1770.08	1646.08	1626.08	1743.08

EXPLANATION

- ● EXISTING MIDDLE ZONE MONITOR WELL LOCATIONS
- ● EXISTING RECONNAISSANCE BORING LOCATIONS

N

0 400 800 Feet

2010 MIDDLE ZONE DNAPL WORKPLAN
FORMER MONTROSE AND STAUFFER FACILITIES
HENDERSON, NEVADA

PROJECT AREA AND WELL LOCATION MAP

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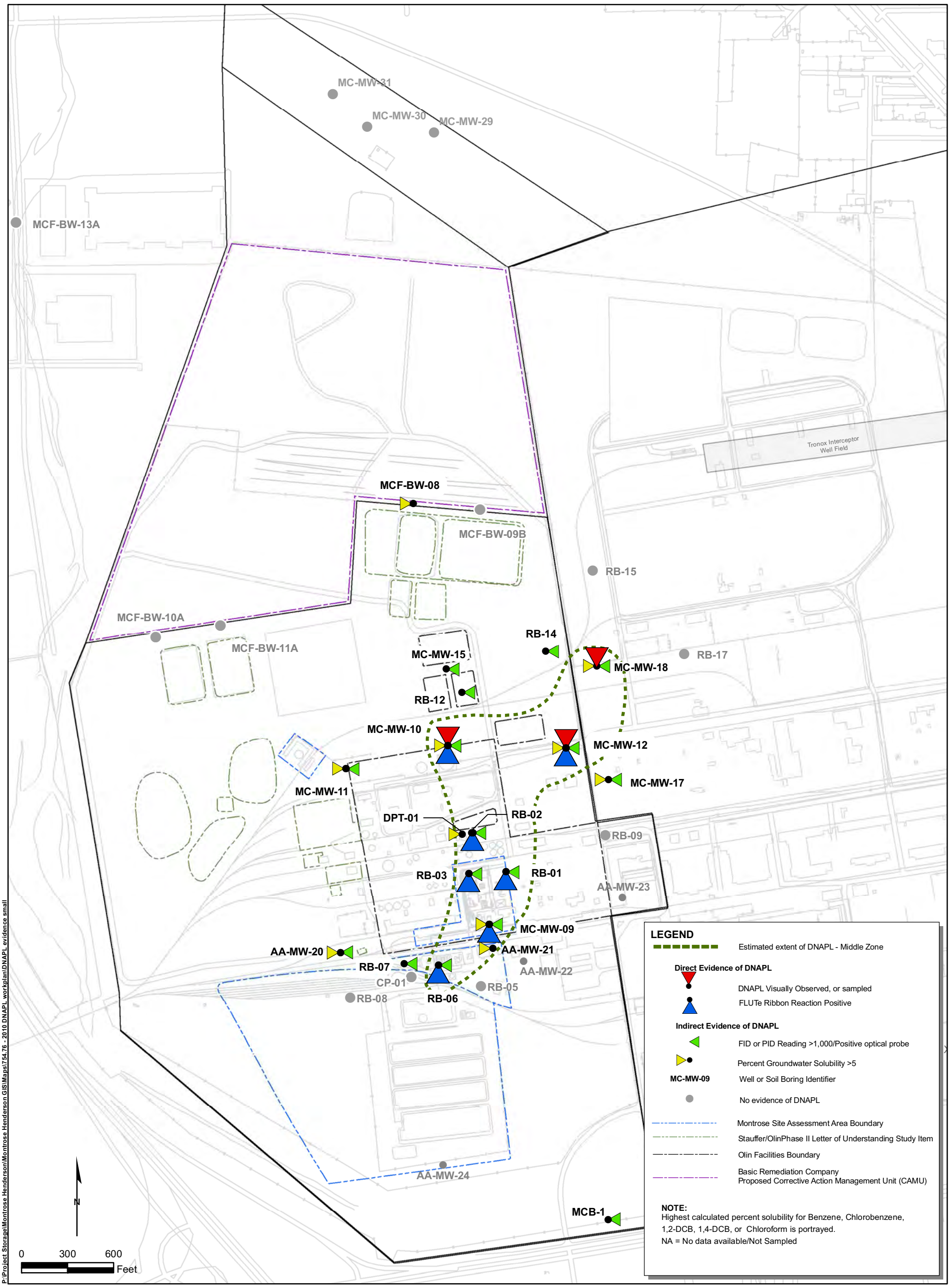
FIGURE 1

PREP BY: DAT
REV BY: MRL
DATE: 4/22/2010
PROJECT: 754.76



P:\Project Storage\Montrose Henderson\Montrose Henderson GIS\Maps\754.76 - 2010 DNAPL workplan\DNAPL evidence small

Evaluating Evidence of DNAPL

Direct Evidence – proof positive that DNAPL exists at location of boring or well.

- Visual evidence and positive FLUTe® ribbon reaction provides evidence of the type of DNAPL present, i.e. residual or disseminated DNAPL in the soil or aquifer matrix.
- Samples of free phase NAPL indicate the presence of pooled NAPL.

Indirect Evidence – indicates that DNAPL may be present locally; used as corroborative evidence of DNAPL; should be evaluated carefully and qualified if direct evidence is not observed at sample location.

- Positive finding using a NAPL probe provides only evidence of the existence of fluids of different specific gravity, density or optical properties; does not provide indication of the chemical make up of the fluid.
- Elevated concentrations of organic chemicals detected in soil vapor or groundwater by chemical analysis or PID/FID measurements only indicate that potentially a DNAPL source exists nearby in the soil matrix or up-gradient in the groundwater, or may indicate the existence of residual elevated dissolved phase concentrations from a former DNAPL source.
- Calculated percent of water solubility data for dissolved phase groundwater samples (1% solubility rule of thumb) has the same limitation as concentration data, if the calculated percent water solubility is less than 100; the data are only an indicator that DNAPL is potentially present nearby or up gradient.
  - It is noted, however, that higher values of percent solubility provides stronger evidence of the presence of DNAPL.
  - It also must be noted that water solubility of potential NAPL forming organic compounds can vary in composite or mixed NAPLs such as those observed at this site. The presence of common solvents like benzene, PCE, TCE and TCA can complicate the use of calculated percent solubility of the other potential NAPL forming chemicals.
- Presence of organic odors does not provide sufficient evidence to determine if the odors are related to organic compounds as NAPL or as dissolved-phase in groundwater or soil moisture.

2010 MIDDLE ZONE DNAPL WORKPLAN
FORMER MONTROSE AND STAUFFER FACILITIES
HENDERSON, NEVADA

EVIDENCE OF POTENTIAL DNAPL IN THE MIDDLE ZONE

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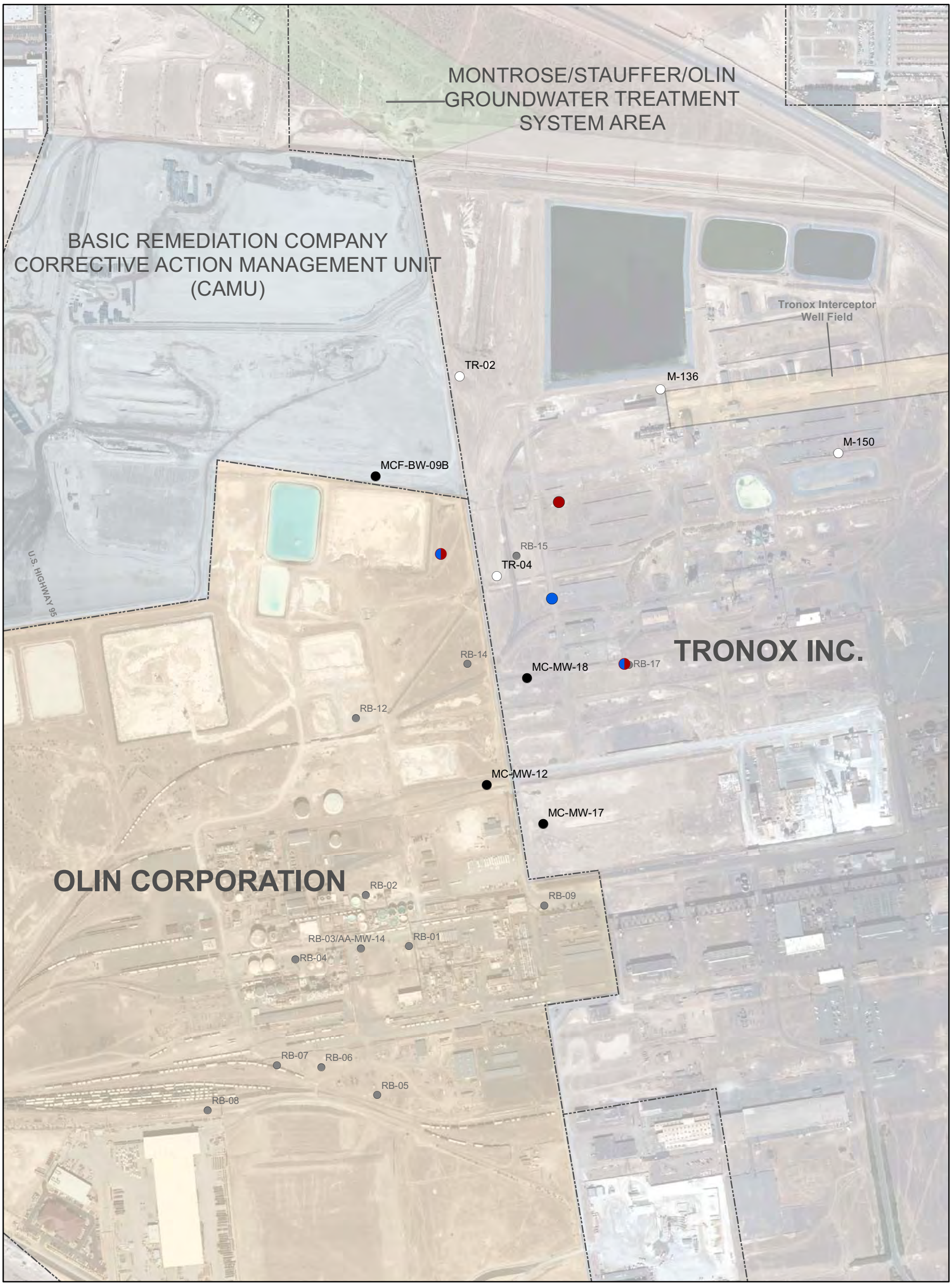
FIGURE 2

PREP BY: DAT REV BY: MRL	DATE: 3/16/2010 FILE: DNAPL evidence small.mxd	PROJECT: 754.76



EXPLANATION

- SCENARIO 1 MONITOR WELL LOCATION
- SCENARIO 1 OR 2 MONITOR WELL LOCATION
- SCENARIO 2 MONITOR WELL LOCATION
- MONITOR WELLS SAMPLED AS PART OF THE 2010 PROGRAM
- ADDITIONAL MONITOR LOCATIONS TO BE SAMPLED
- EXISTING RECONNAISSANCE BORING LOCATIONS

N

0 250 500 Feet

2010 MIDDLE ZONE DNAPL WORKPLAN
FORMER MONTROSE AND STAUFFER FACILITIES
HENDERSON, NEVADA

WELL SAMPLING LOCATIONS AND POTENTIAL NEW WELL LOCATIONS

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FIGURE 3

PREP BY: DAT
REV BY: MRL
DATE: 4/22/2010
PROJECT: 754.76

APPENDIX A

SITE-RELATED CHEMICALS LIST

APPENDIX A
SITE-RELATED CHEMICALS LIST

GROUP	CHEMICAL	CAS NUMBER	MONTROSE SRC	SMC SRC	WATER	SOIL	TEST METHOD	LABORATORY
ALDEHYDES	Acetaldehyde	75-07-0	✓		Y	Y	USEPA Method 8315A	TestAmerica
ALDEHYDES	Chloral	75-87-6	✓				USEPA Method 8270C Modified	TestAmerica
ALDEHYDES	Chloral Hydrate	302-17-0	✓		Y	Y	USEPA Method 8270C Modified	TestAmerica
ALDEHYDES	Chloroacetaldehyde	107-20-0	✓		Y	Y	USEPA Method 8315A	TestAmerica
ALDEHYDES	Dichloroacetaldehyde	79-02-7	✓				USEPA Method 8270C Modified	TestAmerica
ALDEHYDES	Formaldehyde	50-00-0		✓	Y	Y	U.S. EPA Test Method 8315A	TestAmerica
ASBESTOS	Asbestos	1332-21-4		✓			TEM	Fiberquant
CHEMICALS UNDER REVIEW	Total Petroleum Hydrocarbons	NA		✓	Y	Y	U.S. EPA Test Method 8015M with silica gel cleanup (U.S. EPA Test Method 3630C)	TestAmerica
DIOXINS/FURANS	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001-02-0		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268-87-9		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822-46-9		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,4,6,7,8-Hexachlorodibenzofuran	67562-39-4		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227-28-6		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653-85-7		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,7,8,9-Hexachlorodibenzofuran	72918-21-9		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408-74-3		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321-76-4		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	2,3,4,6,7,8-Hexachlorodibenzofuran	60851-34-5		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	2,3,7,8-Tetrachlorodibenzofuran	51207-31-9		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
DIOXINS/FURANS	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6		✓	Y	Y	U.S. EPA Test Method 8290	Maxxam Analytics, Inc.
GENERAL CHEMICAL	Total Dissolved Solids	NA	✓	✓	Y	Y	USEPA Method 160.1	TestAmerica
INDICATOR CHEMICAL	Alkalinity as CaCO3 [Sodium Hydroxide]	NA	✓		Y	Y	Alkalinity-USEPA 310.1	TestAmerica
INDICATOR CHEMICAL	Ammonia-N2	7664-41-7	✓	✓	Y	Y	USEPA 350.3 MOD.	TestAmerica
INDICATOR CHEMICAL	Chloride	16887-00-6	✓		Y	Y	USEPA Method 9056	TestAmerica
INDICATOR CHEMICAL	Iron (Total)	7439-89-6	✓	✓	Y	Y	USEPA Method 6010B	TestAmerica
INDICATOR CHEMICAL	pH (in Soil)	NA	✓		Y	Y	USEPA Method 9045	TestAmerica
INDICATOR CHEMICAL	pH (in Water)	NA	✓		Y	Y	USEPA Method 9040	TestAmerica
INDICATOR CHEMICAL	Sodium	7440-23-5	✓	✓	Y	Y	USEPA Method 6010B	TestAmerica
INDICATOR CHEMICAL	Sulfate	14808-79-8	✓		Y	Y	USEPA Method 9056	TestAmerica
INDICATOR CHEMICAL	Sulfur - total	63705-05-5	✓				USEPA Method 6010B	Maxxam Analytics, Inc.
INDICATOR CHEMICAL	Total Phosphorus	7723-14-0	✓	✓	Y	Y	USEPA Method 365.3	TestAmerica
INORGANIC	Ammonium Chloride	12125-02-9	✓		Y	Y		TestAmerica
INORGANIC	Bicarbonate	71-52-3		✓	Y	Y	U.S. EPA Test Method 310.1 and 160.1	TestAmerica
INORGANIC	Calcium carbonate	471-34-1		✓	Y	Y	U.S. EPA Test Method 310.1	TestAmerica
INORGANIC	Calcium hydroxides	1305-62-0		✓	Y	Y	U.S. EPA Test Method 6020/6010B and 150.1	TestAmerica
INORGANIC	Chloride	16887-00-6	✓		Y	Y	USEPA Method 9056	TestAmerica
INORGANIC	Chlorine	7782-50-5	✓	✓	Y	Y		TestAmerica

APPENDIX A
SITE-RELATED CHEMICALS LIST

GROUP	CHEMICAL	CAS NUMBER	MONTROSE SRC	SMC SRC	WATER	SOIL	TEST METHOD	LABORATORY
INORGANIC	Cyanide	57-12-5	✓	✓	Y	Y	USEPA Method 9010/9014	TestAmerica
INORGANIC	Ferric Chloride	7705-08-0	✓		Y	Y		TestAmerica
INORGANIC	Fluoride	16984-48-8	✓		Y	Y	USEPA Method 9056	TestAmerica
INORGANIC	Graphite	7782-42-5		✓	Y	Y	U.S. EPA Test Method 415.1	TestAmerica
INORGANIC	Hydrochloric Acid	7647-01-0	✓	✓	Y	Y		TestAmerica
INORGANIC	Iodine	7553-56-2		✓	Y	Y	U.S. EPA Test Method 345.1	Weck Laboratories, Inc
INORGANIC	Iodine chloride	7790-99-0		✓	Y	Y	U.S. EPA Test Method 345.1, 300.0 and 160.1	TestAmerica
INORGANIC	Magnesium hydroxide	1309-42-8		✓	Y	Y	U.S. EPA Test Method 6020/6010B	TestAmerica
INORGANIC	Magnesium oxide	1309-48-4		✓	Y	Y	U.S. EPA Test Method 6020/6010B	TestAmerica
INORGANIC	Nitrate	14797-55-8		✓	Y	Y	U.S. EPA Test Method 300.0 and 160.1	TestAmerica
INORGANIC	Nitrogen Chloride	10025-85-1	✓	✓				TestAmerica
INORGANIC	Phosphoric Acid	7664-38-2	✓	✓	Y	Y		TestAmerica
INORGANIC	Phosphorus pentasulfide	1314-80-3		✓	Y	Y	365.1	TestAmerica
INORGANIC	Phosphorus Trichloride	7719-12-2	✓		Y	Y		TestAmerica
INORGANIC	Sodium carbonate	497-19-8		✓	Y	Y	U.S. EPA Test Method 6020/6010B and 310.1	TestAmerica
INORGANIC	Sodium chlorate	7775-09-9		✓	Y	Y	U.S. EPA Test Method 6020/6010B and 300.0	TestAmerica
INORGANIC	Sodium chloride	7647-14-5		✓	Y	Y	U.S. EPA Test Method 6020/6010B and 300.0	TestAmerica
INORGANIC	Sodium Hydroxide	1310-73-2	✓	✓	Y	Y		TestAmerica
INORGANIC	Sodium Hypochlorite	7681-52-9	✓	✓	Y	Y		TestAmerica
INORGANIC	Sodium salt of Diethyl phosphorodithioic acid	3338-24-7		✓			HPLC, 6020/6010B, 160.1, and 310.1	TestAmerica
INORGANIC	Sodium salt of Dimethyl phosphorodithioic acid	26377-29-7		✓			HPLC, 6020/6010B, 160.1, and 310.1	TestAmerica
INORGANIC	Sodium sulfate	7757-82-6		✓	Y	Y	U.S. EPA Test Method 6020/6010B and 300.0	TestAmerica
INORGANIC	Sulfate	14808-79-8	✓		Y	Y	USEPA Method 9056	TestAmerica
INORGANIC	Sulfuric Acid	7664-93-9	✓	✓	Y	Y		TestAmerica
INORGANIC	Total Dissolved Solids	TDS		✓	Y	Y	U.S. EPA Test Method 160.1	TestAmerica
INORGANIC	White phosphorus	12185-10-3		✓	Y	Y	Amperometric Dissolved Oxygen Field Method	Data Chem
METAL	Aluminum	7429-90-5	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Antimony	7440-36-0	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Arsenic	7440-38-2	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Barium	7440-39-3	✓		Y	Y	USEPA Method 6020	TestAmerica
METAL	Beryllium	7440-41-7	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Cadmium	7440-43-9	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Calcium	7440-70-2	✓	✓	Y	Y	USEPA Method 6010B	TestAmerica
METAL	Chromium (Total)	7440-47-3	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Chromium VI (in Soil)	18540-29-9	✓	✓	Y	Y	USEPA Method 3060A / 7199	TestAmerica
METAL	Chromium VI (in Water)	18540-29-9	✓	✓	Y	Y	USEPA Method 218.6	TestAmerica
METAL	Cobalt	7440-48-4	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Copper	7440-50-8	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Iron (Total)	7439-89-6	✓	✓	Y	Y	USEPA Method 6010B	TestAmerica
METAL	Lead	7439-92-1	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Magnesium	7439-95-4	✓	✓	Y	Y	USEPA Method 6010B	TestAmerica
METAL	Manganese	7439-96-5	✓	✓	Y	Y	USEPA Method 6020	TestAmerica

APPENDIX A
SITE-RELATED CHEMICALS LIST

GROUP	CHEMICAL	CAS NUMBER	MONTROSE SRC	SMC SRC	WATER	SOIL	TEST METHOD	LABORATORY
METAL	Mercury [Mercury (in Soil)]	7439-97-6	✓	✓	Y	Y	USEPA Method 7471	TestAmerica
METAL	Mercury [Mercury (in Water)]	7439-97-6	✓	✓	Y	Y	USEPA Method 7470	TestAmerica
METAL	Molybdenum	7439-98-7	✓		Y	Y	USEPA Method 6020	TestAmerica
METAL	Nickel	7440-02-0	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Phosphorus	7723-14-0	✓	✓	Y	Y	USEPA Method 6010B	TestAmerica
METAL	Phosphorus, white	7723-14-0	✓	✓	Y	Y	USEPA Method 7580M	TestAmerica
METAL	Potassium	7440-09-7	✓	✓	Y	Y	USEPA Method 6010B	TestAmerica
METAL	Selenium	7782-49-2	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Silver	7440-22-4	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Sodium	7440-23-5	✓	✓	Y	Y	USEPA Method 6010B	TestAmerica
METAL	Sulfur, molecular	7704-34-9	✓		Y	Y	USEPA Method 6010B	Maxxam Analytics, Inc.
METAL	Thallium	7440-28-0	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Tin	7440-31-5	✓	✓	Y	Y	USEPA Method 6010B	TestAmerica
METAL	Titanium	7440-32-6		✓	Y	Y	U.S. EPA Test Method 6020/6010B	TestAmerica
METAL	Uranium	7440-61-1			Y		USEPA Method 6020	TestAmerica
METAL	Vanadium	7440-62-2	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
METAL	Zinc	7440-66-6	✓	✓	Y	Y	USEPA Method 6020	TestAmerica
ORGANIC ACIDS	4-Chlorobenzene Sulfonic Acid (pCBSA)	98-66-8	✓	✓			HPLC	Alpha Analytical
ORGANIC ACIDS	Benzenesulfonic acid	98-11-3		✓			HPLC	Alpha Analytical
ORGANIC ACIDS	Diethyl phosphorodithioic acid	298-06-6		✓			HPLC	Alpha Analytical
ORGANIC ACIDS	Dimethyl phosphorodithioic acid	756-80-9		✓			HPLC	Alpha Analytical
ORGANIC ACIDS	Phthalic acid	88-99-3		✓			HPLC	Alpha Analytical
PCB	2,2'-Dichlorobiphenyl	13029-08-8	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	2,3'-Dichlorobiphenyl	25569-80-6	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	2,3-Dichlorobiphenyl	16605-91-7	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	2,4'-Dichlorobiphenyl	34883-43-7	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	2,4-Dichlorobiphenyl	33284-50-3	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	2,5-Dichlorobiphenyl	34883-39-1	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	2,6-Dichlorobiphenyl	33146-45-1	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	3,3'-Dichlorobiphenyl	2050-67-1	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	3,4'-Dichlorobiphenyl	2974-90-5	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	3,4-Dichlorobiphenyl	2974-92-7	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	3,5-Dichlorobiphenyl	34883-41-5	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	4,4'-Dichlorobiphenyl	2050-68-2	✓		Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	Aroclor 1016	12674-11-2	✓	✓	Y	Y	USEPA Method 8082	TestAmerica
PCB	Aroclor 1221	11104-28-2	✓	✓	Y	Y	USEPA Method 8082	TestAmerica
PCB	Aroclor 1232	11141-16-5	✓	✓	Y	Y	USEPA Method 8082	TestAmerica
PCB	Aroclor 1242	53469-21-9	✓	✓	Y	Y	USEPA Method 8082	TestAmerica
PCB	Aroclor 1248	12672-29-6	✓	✓	Y	Y	USEPA Method 8082	TestAmerica
PCB	Aroclor 1254	11097-69-1	✓	✓	Y	Y	USEPA Method 8082	TestAmerica
PCB	Aroclor 1260	11096-82-5	✓	✓	Y	Y	USEPA Method 8082	TestAmerica
PCB	PCB 077	32598-13-3	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.

APPENDIX A
SITE-RELATED CHEMICALS LIST

GROUP	CHEMICAL	CAS NUMBER	MONTROSE SRC	SMC SRC	WATER	SOIL	TEST METHOD	LABORATORY
PCB	PCB 081	70362-50-4	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	PCB 105	32598-14-4	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	PCB 114	74472-37-0	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	PCB 118	31508-00-6	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	PCB 123	65510-44-3	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	PCB 126	57465-28-8	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	PCB 156	38380-08-4	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	PCB 157	69782-90-7	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	PCB 167	52663-72-6	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	PCB 169	32774-16-6	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PCB	PCB 189	39635-31-9	✓	✓	Y		USEPA Method 1668	Maxxam Analytics, Inc.
PESTICIDE	2,4' -DDD	53-19-0	✓	✓			USEPA Method 8081A	TestAmerica
PESTICIDE	2,4' -DDE	3424-82-6	✓	✓			USEPA Method 8081A	TestAmerica
PESTICIDE	2,4' -DDT	789-02-6	✓				USEPA Method 8081A	TestAmerica
PESTICIDE	4,4' -DDD	72-54-8	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	4,4' -DDE	72-55-9	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	4,4' -DDT	50-29-3	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	A-BHC	319-84-6	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	Aldrin	309-00-2	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	B-BHC	319-85-7	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	Carbophenothion	786-19-6		✓			U.S. EPA Test Method 8141A	TestAmerica
PESTICIDE	D-BHC	319-86-8	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	Dieldrin	60-57-1	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	Endosulfan I	959-98-8	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	Endosulfan Sulfate	1031-07-8	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	Endrin	72-20-8	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	Endrin Aldehyde	7421-93-4	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	G-BHC	58-89-9	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	Heptachlor Epoxide	1024-57-3	✓	✓	Y	Y	USEPA Method 8081A	TestAmerica
PESTICIDE	Methyl-carbophenothion	953-17-3		✓			U.S. EPA Test Method 8141A	TestAmerica
PESTICIDE	Phosmet	732-11-6		✓			U.S. EPA Test Method 8141A	TestAmerica
SVOC	1-(4-chlorophenyl)-1-propanone	6285-05-8	✓				USEPA Method 8270C	TestAmerica
SVOC	1,1'-Sulfonybis benzene	127-63-9		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	1,2,3,4-Tetrachlorobenzene	634-66-2	✓	✓			USEPA Method 8270C	TestAmerica
SVOC	1,2,4,5-Tetrachlorobenzene	95-94-3	✓	✓			USEPA Method 8270C	TestAmerica
SVOC	1,2-Diphenyl hydrazine	122-66-7	✓				USEPA Method 8270C	TestAmerica
SVOC	1-chloro-4-(methylsulfonyl) benzene	98-57-7		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	2,2'-Dichlorobenzil	21854-95-5	✓		Y	Y	USEPA Method 8270C	TestAmerica
SVOC	2,4,5-Trichlorophenol	95-95-4	✓	✓	Y	Y	USEPA Method 8270C	TestAmerica
SVOC	2,4,6-Trichlorophenol	88-06-2	✓	✓			USEPA Method 8270C	TestAmerica
SVOC	2,4-Dichlorophenol	120-83-2	✓	✓	Y	Y	USEPA Method 8270C	TestAmerica
SVOC	2,4-Dimethylphenol	105-67-9		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica

APPENDIX A
SITE-RELATED CHEMICALS LIST

GROUP	CHEMICAL	CAS NUMBER	MONTROSE SRC	SMC SRC	WATER	SOIL	TEST METHOD	LABORATORY
SVOC	2-Chlorophenol	95-57-8	✓	✓	Y	Y	USEPA Method 8270C	TestAmerica
SVOC	4,4'-Dichlorobenzil	3457-46-3	✓				USEPA Method 8270C	TestAmerica
SVOC	4-Chloro-3-methylphenol	35421-08-0	✓		Y	Y	USEPA Method 8270C	TestAmerica
SVOC	4-Chlorophenyl methyl sulfide	123-09-1		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica
SVOC	4-Nitrophenol	100-02-7	✓				USEPA Method 8270C	TestAmerica
SVOC	Benzo(a)anthracene	56-55-3		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	Benzo(a)pyrene	50-32-8	✓	✓			USEPA Method 8270C	TestAmerica
SVOC	Benzo(b)fluoranthene	205-99-2		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica
SVOC	Benzo(g,h,i)perylene	191-24-2		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica
SVOC	Benzo(k)fluoranthene	207-08-9		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica
SVOC	Benzoic Acid	65-85-0	✓	✓			USEPA Method 8270C	TestAmerica
SVOC	Benzophenone	119-61-9		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	✓	✓			USEPA Method 8270C	TestAmerica
SVOC	Bis-(chloromethyl)ether	542-88-1		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica
SVOC	Bis(p-chlorophenyl)disulfide	1142-19-4		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	Chlorobenzenethiol	106-54-7		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	Chrysene	218-01-9	✓	✓	Y	Y	USEPA Method 8270C	TestAmerica
SVOC	Dibenzo(a,h)anthracene	53-70-3		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica
SVOC	Diethyl phthalate	84-66-2		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica
SVOC	Di-n-butyl phthalate	84-74-2	✓	✓	Y	Y	USEPA Methods 8260B and 8270C	TestAmerica
SVOC	Di-n-octyl phthalate	117-84-0		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	Fluoranthene	206-44-0	✓	✓	Y	Y	USEPA Method 8270C	TestAmerica
SVOC	Hexachlorobenzene	118-74-1	✓	✓	Y	Y	USEPA Method 8270C	TestAmerica
SVOC	Hexachloroethane	67-72-1		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	N-Hydroxymethylphthalimide	118-29-6		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	Octachlorostyrene	29082-74-4	✓	✓			USEPA Method 8270C Specific TIC	TestAmerica
SVOC	p-Chlorophenyl sulfone	80-07-9		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	Pentachlorobenzene	608-93-5	✓	✓			USEPA Method 8270C	TestAmerica
SVOC	Pentachlorophenol	87-86-5	✓		Y	Y	USEPA Method 8270C	TestAmerica
SVOC	Phenanthrene	85-01-8		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica
SVOC	Phenol (Total)	108-95-2	✓	✓	Y	Y	USEPA Method 8270C	TestAmerica
SVOC	Phenyl disulfide	882-33-7		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	Phenyl sulfide	139-66-2		✓			U.S. EPA Test Method 8270C	TestAmerica
SVOC	Pyrene	129-00-0	✓	✓	Y	Y	USEPA Method 8270C	TestAmerica
SVOC	Pyridine	110-86-1		✓	Y	Y	U.S. EPA Test Method 8270C	TestAmerica
SVOC	Thiophenol	108-98-5		✓			U.S. EPA Test Method 8270C	TestAmerica
TIC	1,1'-Thiobis [4-Chloro]Benzene	5181-10-2		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	1,2,3,5-Tetrachlorobenzene	634-90-2	✓	✓			USEPA Method 8270C Specific TIC	TestAmerica
TIC	1,2,3-Trimethylbenzene	526-73-8		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	1,2,4-Trithiolane	289-16-7		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	1,5-Dichloroanthracene	6406-96-8	✓				USEPA Method 8270C Specific TIC	TestAmerica

APPENDIX A
SITE-RELATED CHEMICALS LIST

GROUP	CHEMICAL	CAS NUMBER	MONTROSE SRC	SMC SRC	WATER	SOIL	TEST METHOD	LABORATORY
TIC	1,8-Dichloroanthracene	14381-66-9	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	1-Nitropropane	108-03-2	✓				USEPA Method 8260B Specific TIC	TestAmerica
TIC	2,2,2-Trichloroethanol	115-20-8	✓				USEPA Method 8260B Specific TIC	TestAmerica
TIC	2,3-Dichloroanthracene	613-07-0	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	2,3-Dichlorostyrene	213-28-6	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	2,4-Dichlorostyrene	21-27-5	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	2,5-Dichlorostyrene	1123-84-8	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	2,6-dichlorostyrene	28469-92-3	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	2-Chloro benzenethiol	6320-03-2		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	2-Chlorobenzyl chloride	611-19-8	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	2-Nitropropane	79-46-9	✓				USEPA Method 8260B Specific TIC	TestAmerica
TIC	3,4-dichlorostyrene	2039-83-0	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	3,5-Heptanedione, 2,6-Dimethyl	18362-64-6		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	3-Chloro-Benzenethiol	2037-31-2		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	3-Chlorobenzyl chloride	620-20-2	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	3-Hexene-2,5-Dione (cis and trans)	4436-75-3		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	4-Chloro benzoylchloride	122-01-0		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	4-Chlorobenzaldehyde	104-88-1		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	4-Chloro-benzoic Acid	26264-09-5		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	4-Chlorobenzyl chloride	104-83-6	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	9,10-Dichloroanthracene	605-48-1	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	Alkane	NA	✓				USEPA Method 8260B TIC Analysis	TestAmerica
TIC	Alkyl Alkane	NA	✓				USEPA Method 8260B TIC Analysis	TestAmerica
TIC	Benzenesulfinothioic acid, phenylester	1208-20-4		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	bis-(2-chlorophenylmethanone)	NA	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	bis-(3-chlorophenylmethanone)	NA	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	bis-(4-chlorophenylmethanone)	90-98-2	✓	✓			USEPA Method 8270C Specific TIC	TestAmerica
TIC	Chloroalkylbenzene	NA	✓				USEPA Methods 8260B or 8270C TIC Analysis	TestAmerica
TIC	Chloro-iodo-Benzene	615-41-8		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Chloromethyl phthalimide	17564-64-6		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Cyclododecene (CDEN)	1501-82-2	✓				USEPA Method 8270 Specific TIC	TestAmerica
TIC	Ethyl Ether	60-29-7	✓				USEPA Method 8260B Specific TIC	TestAmerica
TIC	Heptachlorostyrene	61255-81-0	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	Hexachlorostyrene	61128-00-5	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	Isoheptane	31394-54-4		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Methanone, (3-Chlorophenyl)(4-Chlorophenyl)	7498-66-0		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Methylsulfinyl benzene	1193-82-4		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Methylthio-Benzene	100-68-5		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	O,O,A-Trimethlylester phosphorodithioic acid	2953-29-9		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Octasulfur	10544-50-0		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Paraformaldehyde	30525-89-4		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Pentachlorocyclohexane	22138-39-2	✓				USEPA Method 8270C Specific TIC	TestAmerica

APPENDIX A
SITE-RELATED CHEMICALS LIST

GROUP	CHEMICAL	CAS NUMBER	MONTROSE SRC	SMC SRC	WATER	SOIL	TEST METHOD	LABORATORY
TIC	Pentachlorostyrene	83484-75-7	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	Phthalimide	85-41-6		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Polyethylene Glycol	25322-68-3	✓				USEPA Methods 8260B and 8270C Specific TIC	TestAmerica
TIC	Sodium thiophenate	930-69-8		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Sulfenone	80-00-2		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Tetrachlorocyclohexane	129-00-0	✓	✓			USEPA Method 8270C Specific TIC	TestAmerica
TIC	Tetrachlorostyrene	NA	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	Tetrachlorothiophene	6012-97-1		✓			U.S. EPA Test Method 8270C and 8260B	TestAmerica
TIC	Trichlorostyrene	NA	✓				USEPA Method 8270C Specific TIC	TestAmerica
TIC	Unknown	NA	✓				USEPA Method 8270C or 8260B TIC Evaluation	TestAmerica
TIC	Unknown Brominated Hydrocarbon	NA	✓				USEPA Method 8270C or 8260B TIC Evaluation	TestAmerica
TIC	Unknown Chlorinated Aromatics	NA	✓				USEPA Method 8270C or 8260B TIC Evaluation	TestAmerica
TIC	Unknown Chlorinated Benzene	NA	✓				USEPA Method 8270C or 8260B TIC Evaluation	TestAmerica
TIC	Unknown Chlorinated Compound	NA	✓				USEPA Method 8270C or 8260B TIC Evaluation	TestAmerica
TIC	Unknown Chlorinated Hydrocarbon	NA	✓				USEPA Method 8270C or 8260B TIC Evaluation	TestAmerica
TIC	Unknown Chlorinated Ketone	NA	✓				USEPA Method 8270C or 8260B TIC Evaluation	TestAmerica
TIC	Unknown Hydrocarbon	NA	✓				USEPA Method 8270C or 8260B TIC Evaluation	TestAmerica
TIC	Unknown Organic Acid	NA	✓				USEPA Method 8270C or 8260B TIC Evaluation	TestAmerica
VOC	1,1,1,2-Tetrachloroethane	630-20-6	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	1,1,2,2-Tetrachloroethane	79-34-5	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	1,1,2-Trichloroethane	79-00-5	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	1,1-Dichloroethane	75-34-3	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	1,1-Dichloroethene	75-35-4	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	1,1-Dichloropropene	563-58-6	✓				USEPA Method 8260B	TestAmerica
VOC	1,2,3-Trichlorobenzene	87-61-6	✓	✓	Y	Y	USEPA Methods 8260B and 8270C	TestAmerica
VOC	1,2,3-Trichloropropane	96-18-4	✓				USEPA Method 8260B	TestAmerica
VOC	1,2,4-Trichlorobenzene	120-82-1	✓	✓			USEPA Methods 8260B and 8270C	TestAmerica
VOC	1,2,4-Trimethylbenzene	95-63-6	✓	✓			USEPA Method 8260B	TestAmerica
VOC	1,2-Dichlorobenzene	95-50-1	✓	✓	Y	Y	USEPA Methods 8260B and 8270C	TestAmerica
VOC	1,2-Dichloroethane	107-06-2	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	1,3,5-Trichlorobenzene	108-70-3	✓	✓			USEPA Methods 8260B and 8270C	TestAmerica
VOC	1,3,5-Trimethylbenzene	108-67-8	✓	✓			USEPA Method 8260B	TestAmerica
VOC	1,3-Dichlorobenzene	541-73-1	✓	✓	Y	Y	USEPA Methods 8260B and 8270C	TestAmerica
VOC	1,3-Dichloropropane	142-28-9	✓				USEPA Method 8260B	TestAmerica
VOC	1,4-Dichlorobenzene	106-46-7	✓	✓	Y	Y	USEPA Methods 8260B and 8270C	TestAmerica
VOC	1-Methylethylbenzene	98-82-8	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	2,2,3-Trimethylbutane	464-06-2		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	2,2-Dimethylpentane	590-35-2		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	2,3-Dimethylpentane	565-59-3		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	2,4-Dimethylpentane	108-08-7		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	2-Butanone	78-93-3	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	2-Chlorotoluene	95-49-8	✓				USEPA Method 8260B	TestAmerica

APPENDIX A
SITE-RELATED CHEMICALS LIST

GROUP	CHEMICAL	CAS NUMBER	MONTROSE SRC	SMC SRC	WATER	SOIL	TEST METHOD	LABORATORY
VOC	2-Hexanone	591-78-6	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	2-Methylhexane	591-76-4		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	3,3-Dimethylpentane	562-49-2		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	3-Chlorobenzoic Acid	535-80-8	✓					TestAmerica
VOC	3-Ethylpentane	617-78-7		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	3-Methylhexane	589-34-4		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	4-Chlorobenzoic Acid	74-11-3	✓					TestAmerica
VOC	4-Chlorotoluene	106-43-4	✓				USEPA Method 8260B	TestAmerica
VOC	4-methyl-2-pentanone	108-10-1	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Acetone	67-64-1	✓	✓	Y	Y	USEPA Method 8260B	TestAmerica
VOC	Benzene	71-43-2	✓	✓	Y	Y	USEPA Method 8260B	TestAmerica
VOC	Bromobenzene	108-86-1	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Bromochloromethane	74-97-5	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Bromoform	75-25-2	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Carbon disulfide	75-15-0		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	Carbon Tetrachloride	56-23-5	✓	✓	Y	Y	USEPA Method 8260B	TestAmerica
VOC	Chlorobenzene	108-90-7	✓	✓	Y	Y	USEPA Method 8260B	TestAmerica
VOC	Chloroform	67-66-3	✓	✓	Y	Y	U.S. EPA Test Method 8260B	TestAmerica
VOC	Chloromethane	74-87-3	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	cis-1,2-Dichloroethene	156-59-2	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Dibromochloroethane	73506-94-2	✓				USEPA Method 8260B	TestAmerica
VOC	Dibromochloromethane	124-48-1	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Dibromochloropropane (DBCP)	96-12-8	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Dichlorodifluoromethane	75-71-8	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Dimethyldisulfide	624-92-0		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	Ethyl Alcohol (Ethanol)	64-17-5	✓	✓			USEPA Method 8260B	TestAmerica
VOC	Ethyl Chloride	75-00-3	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Ethylbenzene	100-41-4	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Hexachlorobutadiene	87-68-3	✓	✓	Y	Y	USEPA Method 8260B	TestAmerica
VOC	Isopropyl toluene	25155-15-1	✓				USEPA Method 8260B	TestAmerica
VOC	m,p-Xylene	136777-61-2		✓	Y	Y	U.S. EPA Test Method 8260B	TestAmerica
VOC	Methanol (Methyl alcohol)	67-56-1		✓			U.S. EPA Test Method 8015B	TestAmerica
VOC	Methylene Chloride	75-09-2	✓	✓	Y	Y	USEPA Method 8260B	TestAmerica
VOC	Naphthalene	91-20-3	✓	✓	Y	Y	USEPA Methods 8260B and 8270C	TestAmerica
VOC	n-Butyl benzene	104-51-8	✓				USEPA Method 8260B	TestAmerica
VOC	n-Heptane	142-82-5		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	Nonanal	124-19-6		✓			U.S. EPA Test Method 8260B	TestAmerica
VOC	n-Propyl benzene	103-65-1	✓				USEPA Method 8260B	TestAmerica
VOC	Rubber hydrocarbon solvent	64475-85-0	✓		Y	Y	USEPA Method 8015B Modified	TestAmerica
VOC	sec-Butyl benzene	135-98-8	✓				USEPA Method 8260B	TestAmerica
VOC	Styrene	100-42-5	✓				USEPA Method 8260B	TestAmerica
VOC	tert-Butyl benzene	98-06-6	✓				USEPA Method 8260B	TestAmerica

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SITE-RELATED CHEMICALS LIST

GROUP	CHEMICAL	CAS NUMBER	MONTROSE SRC	SMC SRC	WATER	SOIL	TEST METHOD	LABORATORY
VOC	Tetrachloroethene (PCE)	127-18-4	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Toluene	108-88-3	✓	✓	Y	Y	USEPA Method 8260B	TestAmerica
VOC	trans-1,2-Dichloroethene	156-60-5	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	trans-1,3-Dichloropropene	10061-02-6	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Trichloroethene (TCE)	79-01-6	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Trichlorofluoromethane	75-69-4	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Vinyl chloride	75-01-4	✓		Y	Y	USEPA Method 8260B	TestAmerica
VOC	Xylene (o)	1330-20-7	✓	✓	Y	Y	USEPA Method 8260B	TestAmerica
VOC	Xylenes (m,p)	1330-20-7	✓	✓	Y	Y	USEPA Method 8260B	TestAmerica

Notes:
CAS - Chemical Abstract Service
SRC - Site-related chemical
SMC - Stauffer Management Company
USEPA - United States Environmental Protection Agency
TEM - Transmission electron microscopy
NA - Not Applicable due to impractible analysis or certification does not exist
PCB - Poly Chlorinated Biphenyl
SVOC - Semi-volatile organic compound
TIC -Tentatively identified compound
VOC - Volatile organic compound