



State of Utah

GARY R. HERBERT
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Department of
Environmental Quality

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Executive Director

DIVISION OF ENVIRONMENTAL
RESPONSE AND REMEDIATION

Brent H. Everett
Director

ERRC-140-17

September 8, 2017

Martin McComb
Ryan Dunham
U.S. Environmental Protection Agency, Region 8
1595 Wynkoop Street
Denver, Colorado 80202-1129

RE: Trip Report for EPA Removal Assessment Project Support at Reilly Tar in between Provo and Springville, Utah

Dear Sirs:

Enclosed for your review is the *Trip Report* for the **Reilly Tar** site located in Utah County, Utah.

After reviewing the *Trip Report*, please inform Melissa Ottley at (801) 536-0026 of any comments or changes that need to be incorporated in the final version of the document.

Sincerely,

Dale T. Urban, P.G.
Site Assessment Section Manager
Division of Environmental Response and Remediation

DTU/MO/ab

Enclosure

cc: Bryce Larsen, Environmental Health Director, Utah County Health Department (letter only)

Removal Assessment Trip Report

**Reilly Tar
Utah County, Utah**

**UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF ENVIRONMENTAL RESPONSE AND REMEDIATION
SITE ASSESSMENT SECTION
195 NORTH 1950 WEST
SALT LAKE CITY, UTAH 84116
(801) 536-4100**



**Melissa Ottley
Utah Department of Environmental Quality**

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
	A. SITE DESCRIPTION	1
	B. REMOVAL ASSESSMENT.....	1
	C. STATEMENT OF WORK.....	1
II.	PLANNING	2
III.	OPERATIONS	2
	A. REMOVAL ASSESSMENT FIELD WORK.....	2
	i. June 20, 2017 Field Work	2
	ii. June 21, 2017 Field Work	3
	iii. June 22, 2017 Field Work	3
	B. DEVIATIONS TO APPROVED WORK PLAN.....	3
IV.	REPORTING	3

LIST OF FIGURES, TABLES, AND APPENDICES

FIGURES:

Figure 1	Site Map
Figure 2	Sampling Locations

TABLES:

Table 1	GPS Sampling Coordinates
Table 2	Soil Sample Depth Intervals and Sampling Times/Dates

APPENDICES:

Appendix A	Scope of Work/Sampling Analysis Plan
Appendix B	Sampling Photos
Appendix C	Field Notes

I. INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, the Superfund Amendments and Reauthorization Act (SARA) of 1986, in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and through an approved Utah Department of Environmental Quality (UDEQ) Removal Assessment Scope of Work/Sampling Analysis Plan (Appendix A) with the U.S. Environmental Protection Agency, Region 8 (EPA), the UDEQ, Division of Environmental Response and Remediation (DERR) has prepared this trip report to document the work completed for removal assessment support at Reilly Tar (herein referred to as the "Site") in Utah County, Utah. The Removal Assessment is being led by the EPA Emergency Response Unit.

A. SITE DESCRIPTION

The Site, located at 2555 South Industrial Parkway in Utah County (Figure 1), operated as a coal tar distillery from 1924 to 2002. As a result of these operations soil, sediment, groundwater, and surface water on-site has been contaminated with volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals. The Resource Conservation and Recovery Act (RCRA) program administered by the Division of Waste Management and Radiation Control (DWMRC) has regulated the site since the early 1990's. The property owner was preparing to do a risk assessment at the site when the owners of the property went bankrupt in May 2016. Production operations at the Site were discontinued in 2001 and decommissioning of the facility occurred during 2002. All structures were removed from the Site during 2006. Currently only concrete foundations remain.

B. REMOVAL ASSESSMENT

EPA's Emergency Response Unit performed a Removal Assessment (RA) with technical support from the UDEQ. The specific objective of this project was to obtain environmental samples from areas most likely contaminated by historic tar distillation processes. The overall objectives of this RA were to evaluate site conditions and determine where contaminant concentrations are the highest, and which environmental media may most benefit from an EPA Removal Action. In addition to this, some limited surface water and sediment sampling was conducted to support the EPA Site Assessment Program's evaluation of the surface water pathway. The Quality Assurance Program Plan (QAPP) for Environmental Data Operations for the CERCLA Branch, Final Plan Revision # 5 (revised November 2016) was determined to be appropriate for this project based on previous work completed with the EPA Site Assessment Program.

C. STATEMENT OF WORK

The EPA On-Scene Coordinator (OSC) requested removal assessment support from UDEQ including completion of three tasks: planning, operations and reporting. The planning tasks included initial coordination with the DWMRC, EPA, and the Trustee; development of a UDEQ RA support budget, preparation of a Scope of Work/Sampling Analysis Plan (SOW/SAP); and health and safety plan (HASP); the acquisition of off-site access; and preparation of a local Contract Laboratory Program (CLP) laboratory request. The operations

task included field work involving the collection of soil, surface water, and sediment; the tracking of GPS coordinates at each sampling location (Table 1); and taking photographs (Appendix B) and field notes (Appendix C). The reporting task included generating a SCRIBE project which was completed for all samples submitted to the Contract Laboratory Program (CLP) laboratory and published to SCRIBE.net.

II. PLANNING

Two site visits were conducted prior to field work, the first in January 2017 with the DERR and DWMRC, and the second in February 2017 with the DERR, DWMRC, EPA, and the Trustee's contractors. A SOW/SAP was developed in response to the request for removal assessment support (Attachment A). The SOW/SAP details the analysis of VOCs, SVOCs, and metals for all media sampled, and cyanide analysis of soil and sediment. A local CLP laboratory, ALS Laboratory Group located in Taylorsville, Utah was obtained for sample drop-off and analysis. Organics were assigned Case #47044 and inorganics were assigned Case #47050.

III. OPERATIONS

A. REMOVAL ASSESSMENT FIELD WORK

The removal assessment began on June 19, 2017 at noon with trench planning and preliminary excavation. The EPA OSC coordinated with START Contractors responsible for mapping the excavations on-site, and Environmental Restoration LLC was responsible for the excavation work. The source area assessment activities, which included soil sampling, began in the northern half of the site and moved southwest, eventually ending in the southern half of the Site later in the week. A strong aromatic hydrocarbon odor was observed during all excavation work that took place on-site, getting stronger and more potent the farther west we dug. The multirae monitor provided by the START contractor stopped working due to high temperatures after the first trench was complete. Surface water and sediment sampling on-site included two sampling locations, one on the northeast side of the site in the Ironton Canal and one on the northwest side of the site in the Ironton Canal (Figure 2). Off-site sampling included three sample points located along the Ironton Canal, downgradient, west of the Site (Figure 2).

i. June 20, 2017 Field Work

UDEQ arrived on-site at 09:48. Personnel included Melissa Ottley and Chris Martin. Temperature was around 85°F with clear skies and slight shifting winds. The Trimble used for GPS tracking was calibrated while UDEQ and EPA conducted a brief pre-sampling conference. It was decided that four depth intervals (Table 2) would be collected at each sampling point rather than the two depth intervals specified by the approved SOW/SAP (Appendix A). Excavation of the test pits had already begun. Sampling was initiated at 10:30. A total of 16 soil samples (four sample locations at four depth intervals) were collected throughout the remainder of the day (Figure 2, Table 2). These included an intended background sample (RT-SS-001) and a field duplicate (RT-SS-003).

ii. June 21, 2017 Field Work

UDEQ arrived on-site at 09:35, temperatures were around 86°F with clear skies and a slight breeze. UDEQ staff (Melissa Ottley and Chris Martin), along with EPA Site Assessment Manager Ryan Dunham left the Site to begin off-site sampling in the Ironton Canal. Sampling started farthest downstream at RT-SW/SD-05/06 (Figure 2) and moved upstream to the east. All six surface water and sediment samples were collected before heading back to DERR offices at 16:35.

iii. June 22, 2017 Field Work

UDEQ arrived on-site at 10:00, temperatures were at about 80°F with clear skies and a faint breeze. UDEQ staff (Melissa Ottley and Chris Martin), along with START contractor Molly Patterson revisited all surface water and sediment sampling locations to take more pictures, so that Molly could add the GPS coordinates to her mapping system. The fifth and final soil sample was taken at 13:20 from two depth intervals (Table 2) from the southern portion of the Site up against the western fence (RT-SS-005 on Figure 2).

B. DEVIATIONS FROM APPROVED WORK PLAN

The following changes were made in the field.

- Four depth intervals were taken from four soil sample locations, the fifth soil sample location consisted of two depth intervals (Table 2).
- The multirae monitor provided for the project ceased operating after a few hours on the first day due to high field temperatures.
- All samples taken were delivered to the lab the morning after collection to allow time to cool to the proper temperature rather than the day they were collected.
- Groundwater samples were listed as possible opportunity samples to be taken from excavation test pits if groundwater was encountered. While groundwater was encountered in most of the excavation test pits, it was decided in the field and agreed upon by all parties not to be collected as groundwater is already known to be contaminated by previous sampling events and was not the focus of this removal assessment.


IV. REPORTING

UDEQ entered all sample locations, sample analyses, and GPS coordinates into SCRIBE which was then published to SCRIBE.net for use by START Contractors. The completion of this report documents the work completed by the UDEQ as described in the SOW/SAP.

FIGURES



Legend

-  Site Boundary
-  Ironton_Canal

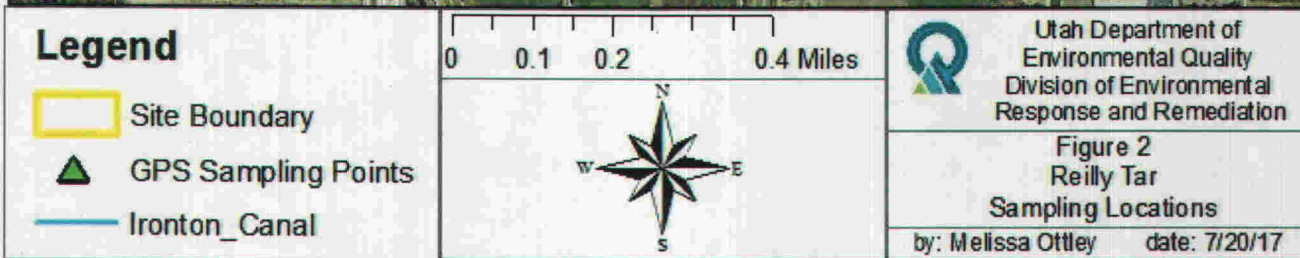
0 0.0425 0.085 0.17 Miles



Utah Department of
Environmental Quality
Division of Environmental
Response and Remediation

Figure 1
Reilly Tar
Site Map

by: Melissa Ottley date: 8/2/17



Utah Department of
Environmental Quality
Division of Environmental
Response and Remediation

Figure 2
Reilly Tar
Sampling Locations

by: Melissa Ottley date: 7/20/17

TABLES

Table 1 GPS Sampling Coordinates		
<u>Reilly Tar</u>		
Sample ID	GPS Coodinates	
	Latitude	Longitude
RT-SS-001	40.197426	-111.629020
RT-SS-002/003	40.198583	-111.627939
RT-SS-004	40.198754	-111.630729
RT-SS-005	40.197621	-111.630019
RT-SW/SD-01	40.199477	-111.627948
RT-SW/SD-02	40.199511	-111.630942
RT-SW-SD-03	40.199319	-111.639753
RT-SW/SD-04	40.199204	-111.643753
RT-SW/SD-05/06	40.201778	-111.655332

Table 2**Soil Sample Depth Intervals and Sampling Times/Dates**Reilly Tar

Sample ID	Depth (inches) below grade	Date	Time
RT-SS-001-001	0 - 12	6/20/2017	14:40
RT-SS-001-002	12 - 24	6/20/2017	14:49
RT-SS-001-003	24 - 42	6/20/2017	15:00
RT-SS-001-004	42 - 60	6/20/2017	15:02
RT-SS-002-001	0 - 8	6/20/2017	10:35
RT-SS-002-002	8 - 24	6/20/2017	10:45
RT-SS-002-003	24 - 54	6/20/2017	10:53
RT-SS-002-004	54 - 84	6/20/2017	11:01
RT-SS-003-001	0 - 8	6/20/2017	11:18
RT-SS-003-002	8 - 24	6/20/2017	11:20
RT-SS-003-003	24 - 54	6/20/2017	11:34
RT-SS-003-004	54 - 84	6/20/2017	11:36
RT-SS-004-001	0 - 24	6/20/2017	16:02
RT-SS-004-002	24 - 48	6/20/2017	16:03
RT-SS-004-003	48 - 120	6/20/2017	16:05
RT-SS-004-004	120 - 156	6/20/2017	16:06
RT-SS-005-001	0 - 18	6/22/2017	13:20
RT-SS-005-002	18 - 48	6/22/2017	13:24

APPENDICES

APPENDIX A
Scope of Work/Sampling Analysis Plan

**Scope of Work & Sampling Analysis Plan
For EPA Removal Assessment Project Support**

**Reilly Tar
Utah County, Utah**

Prepared by:

**UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF ENVIRONMENTAL RESPONSE AND REMEDIATION
SITE ASSESSMENT SECTION
195 NORTH 1950 WEST
SALT LAKE CITY, UTAH 84116
(801) 536-4100**



**Melissa Ottley
Utah Department of Environmental Quality**

TABLE OF CONTENTS

1.0	INTRODUCTION	1
A.	SITE DESCRIPTION	1
B.	STATEMENT OF WORK	1
2.0	REMOVAL ASSESSMENT	2
3.0	QAPP PROCEDURES	2
4.0	SAMPLING PLAN.....	3

APPENDICES

Appendix A:	Figures
	Proposed Soil, Surface Water and Sediment Sampling Locations
	Site Vicinity Map
Appendix B:	Tables
	1. Sample Description and Rationale – Soil
	2. Sample Description and Rationale – Surface Water and Sediment
	3. Sample Analysis Checklist
Appendix C:	Data Quality Objectives
Appendix D:	Off-Site Access Form
Appendix E:	Health and Safety Plan

1. Introduction

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, the Superfund Amendments and Reauthorization Act (SARA) of 1986, in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and through a Cooperative Agreement with the U.S. Environmental Protection Agency, Region 8 (EPA), the Utah Department of Environmental Quality (UDEQ), Division of Environmental Response and Remediation (DERR) has prepared this proposed Scope of Work and Sampling Analysis Plan (SOW/SAP) for Removal Assessment support at the Reilly Tar (herein referred to as the "Site") located in Utah County, Utah.

A. Site Description

The Site, located at 2555 South Industrial Parkway in Utah County (Appendix A), operated as a coal tar distillery from 1924 to 2002. As a result of these operations soil, sediment, groundwater, and surface water on-site has been contaminated with volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals. The Resource Conservation and Recovery Act (RCRA) program administered by the Division of Waste Management and Radiation Control (DWMRC) has regulated the site since the early 1990's. The property owner was preparing to do a risk assessment at the site when the owners of the property went bankrupt in May 2016. Production operations at the Site were discontinued in 2001 and decommissioning of the facility occurred during 2002. All structures were removed from the Site during 2006, currently only concrete foundations remain.

B. Statement of Work

Martin McComb, who is the on-scene coordinator (OSC), is requesting field support from UDEQ for an upcoming removal assessment by performing the project planning, operations, and reporting tasks as shown in the Table below.

UDEQ Removal Assessment Support Activities

Task	Description	Anticipated Dates
Planning		
Initial Coordination	Includes coordination with the DWMRC, EPA, and Trustee	January 2017 - Present
Site Visits	Two site visits were performed, the first with the DERR & DWMRC and the second with the DERR, DWMRC, EPA, and the Trustee's contractors	January & February 2017

Develop Project Documents	Develop Health & Safety Plan, a SOW/SAP, Data Quality Objectives, Quality Assurance/Quality Control protocols, the acquisition of off-site access, and a local laboratory request	April & June 2017
Operations		
Field Work	Collection of soil, sediment (including field use of multirae monitor), groundwater and, surface water. Samples will be delivered to a local Contract Laboratory Program (CLP) laboratory for analysis	June 2017
Analysis of Environmental Samples	Creating analysis tables based on validated analytical laboratory results	July & August 2017
Reporting		
Trip Report	Develop Trip Report including GPS coordinates, photos, and field notes	August 2017
Send Data to EPA	The DERR will send all validated data results to EPA contractor who will upload the information into EPA's data viewer	August 2017

2. Removal Assessment

EPA's Emergency Response Unit will perform a Removal Assessment (RA) with technical support from the UDEQ. The specific objective of this project is to obtain environmental samples from areas most likely contaminated by historic tar distillation processes. The overall objectives of this RA are to evaluate site conditions and determine where contaminant concentrations are the highest, and which environmental media may most benefit from an EPA Removal Action. In addition to this, some limited surface water and sediment sampling will be conducted to support the EPA's Site Assessment Program's evaluation of the surface water pathway. The Quality Assurance Program Plan (QAPP) for Environmental Data Operations for the CERCLA Branch, Final Plan Revision # 5 (revised November 2016) was determined to be appropriate for this project based on previous work completed with the EPA Site Assessment Program.

3. QAPP Procedures

Sampling will proceed according to methods and QA/QC procedures outlined in the DERR CLERCLA QAPP. All samples will be preserved by cooling with ice to 4 degrees Celsius (4°C). Sampling analyses will include VOC, SVOC, metals for all media sampled, and cyanide will be analyzed in soil and sediment samples. VOC water samples, in addition to being preserved with ice, will also be preserved with hydrochloric acid as specified under CLP sampling guidelines and analyzed for EPA methods 8260C/8270D under Routine Analytical Services (RAS) for target compound list as defined under the CLP program. Water samples for total metals, in addition to being preserved with ice, will also be preserved

with nitric acid as specified under the CLP program and analyzed for total metals using EPA method ICP-AES 6010D and 200.7.

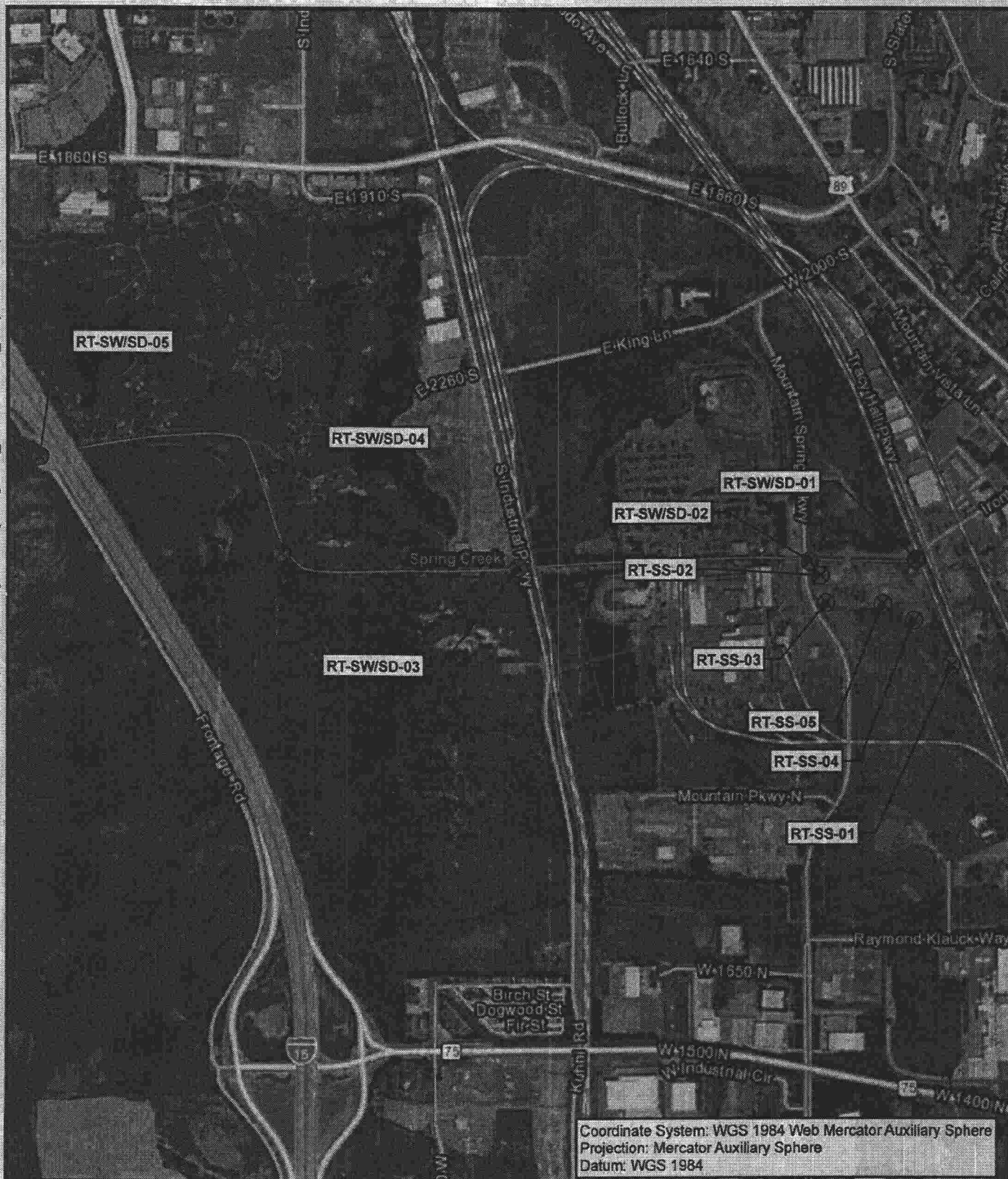
4. Sampling Plan

Sampling for this project will include the analysis of VOCs, SVOCs, and metals for all media, and cyanide analysis of soil and sediment. Sample descriptions and rationale are provided in Tables 1 and 2. One field duplicate and one lab duplicate will be taken from each medium, for each type of analysis for QA/QC purposes (Table 3). This RA includes five surface water sample locations and five sediment sample locations (Appendix A). Sediment samples will be collected from 0 - 6" below surface (Table 2). Up to 15 soil samples will be collected from two depth intervals (0 - 6" and 6 + ") from test pits using a backhoe, provided by EPA or EPA contactors. One soil sample will be collected on-site for use as a potential background sample. Soil sample locations will be determined based on observations in the field. Additionally, EPA will calibrate and provide a multirae monitor in order to analyze head space for all soil samples collected for VOC analysis. Groundwater samples will be taken from these open test pits as opportunity samples when groundwater is encountered (up to 15 groundwater samples may be taken for VOCs, SVOCs, and metals). Some of the existing monitoring wells will be bailed and observed for Light Non-Aqueous Phase Liquids (LNAPLs).

The UDEQ staff will collect all samples, perform multirae monitoring for all volatile soil samples, take GPS coordinates for each sample location, take photos, and record field notes. Additionally, the UDEQ will deliver all samples to a local CLP laboratory for analysis (if approval is obtained from the EPA CLP Laboratory Coordinator).

APPENDIX A

Figures



Legend

- Surface Water/Sediment Sample Location
- Surface Soil Sample Location
- Streams

0 500 1,000 2,000 Feet



Prepared for:
U.S. EPA Region 8



Contract No.:
EP-S8-13-01

TDD:
1701-07
TO:
0004

The source of this map image is Esri, used by EPA with Esri's permission



Prepared By:
Weston Solutions, Inc.
START IV



Suite 100
1435 Garrison Street
Lakewood, CO 80215

FIGURE 1 PROPOSED SAMPLE LOCATIONS MAP REILLY TAR & CHEMICAL CORP. PROVO, UTAH

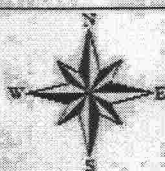
Date: 3/16/2017



Legend

-  Site Boundary
-  Ironton Canal

0 0.0425 0.085 0.17 Miles



Utah Department of
Environmental Quality
Division of Environmental
Response and Remediation

Reilly Tar
Site Vicinity Map

by: Melissa Ottley date: 5/26/17

APPENDIX B

Tables

TABLE 1
SAMPLE DESCRIPTION AND RATIONALE - SOIL

RELLY TAR
CERCLIS ID# UT000908/644

Sample Number	Sample Type	Approx. Depth (inches)	Analysis	Rationale
RT-SS-01	Soil	0-6	VOC, SVOC, Metals & Cyanide	Background
RT-SS-02	Soil	0-6	VOC, SVOC, Metals & Cyanide	Source Soil
RT-SS-03	Soil	0-6	VOC, SVOC, Metals & Cyanide	Field Duplicates QA/QC (of RT-SS-01)
RT-SS-04	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-05	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-06	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-07	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-08	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-09	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-10	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-11	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-12	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-13	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-14	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-15	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-16	Soil	0-6	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-001	Soil	6+	VOC, SVOC, Metals & Cyanide	Background
RT-SS-002	Soil	6+	VOC, SVOC, Metals & Cyanide	Source Soil
RT-SS-003	Soil	6+	VOC, SVOC, Metals & Cyanide	Lab Duplicates QA/QC (of RT-SS-001)
RT-SS-004	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-005	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-006	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-007	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-008	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-009	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-010	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-011	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-012	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-013	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-014	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-015	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)
RT-SS-016	Soil	6+	VOC, SVOC, Metals & Cyanide	Other Possible Source Area (opportunity)

TABLE 2
SAMPLE DESCRIPTION AND RATIONALE - SURFACE WATER
AND SEDIMENT

REILLY TAR
CERCLIS ID# UTD009087644

Sample Number	Sample Type	Approx. Depth (inches)	Analysis	Rationale
RT-SW-01	Surface Water	—	VOC, SVOC, Metals	Background
RT-SW-02	Surface Water	—	VOC, SVOC, Metals	Determine if an Observed Release can be attributed to Reilly Tar
RT-SW-03	Surface Water	—	VOC, SVOC, Metals	Determine if other possible sites may be impacting the canal
RT-SW-04	Surface Water	—	VOC, SVOC, Metals	Determine if sensitive environments are subject to actual contamination
RT-SW-05	Surface Water	—	VOC, SVOC, Metals	Determine if sensitive environments are subject to actual contamination
RT-SW-06	Surface Water	—	VOC, SVOC, Metals	Field Duplicates QA/QC (of RT-SW-05)
RT-SW-07	DI Water	—	VOC, SVOC, Metals	Trip Blank
RT-SD-01	Sediment	0 - 6	VOC, SVOC, Metals, & Cyanide	Background
RT-SD-02	Sediment	0 - 6	VOC, SVOC, Metals, & Cyanide	Determine if an Observed Release can be attributed to Reilly Tar
RT-SD-03	Sediment	0 - 6	VOC, SVOC, Metals, & Cyanide	Determine if other possible sites may be impacting the canal
RT-SD-04	Sediment	0 - 6	VOC, SVOC, Metals, & Cyanide	Determine if sensitive environments are subject to actual contamination
RT-SD-05	Sediment	0 - 6	VOC, SVOC, Metals, & Cyanide	Determine if sensitive environments are subject to actual contamination
RT-SD-06	Sediment	0 - 6	VOC, SVOC, Metals, & Cyanide	Lab Duplicates QA/QC (of RT-SW-04)

Reilly Tar
CERCLIS ID# UTD009087644

			LABORATORY PARAMETERS							QA/QC					
SAMPLE NUMBER	TYPE	APPROX. DEPTH (Inches)	Total Metals	Cyanide	VOCs	SVOCs	Pesticides/PCBs	Spec. Org.	Trip Blank	Decontamination	Lab Duplicate	Field Duplicate	Opportunity	Background	
RT-SW-01	Surface Water	--	X		X	X								X	
RT-SW-02	Surface Water	--	X		X	X									
RT-SW-03	Surface Water	--	X		X	X									
RT-SW-04	Surface Water	--	X		X	X									
RT-SW-05	Surface Water	--	X		X	X									
RT-SW-06	Surface Water	--	X		X	X						X			
RT-SW-07	DI-Water	--	X		X	X			X						
RT-SD-01	Sediment	0 - 6	X	X	X	X								X	
RT-SD-02	Sediment	0 - 6	X	X	X	X									
RT-SD-03	Sediment	0 - 6	X	X	X	X									
RT-SD-04	Sediment	0 - 6	X	X	X	X									
RT-SD-05	Sediment	0 - 6	X	X	X	X									
RT-SD-06	Sediment	0 - 6	X	X	X	X					X				
RT-SS-01	Soil/Source	0 - 6	X	X	X	X								X	
RT-SS-02	Soil	0 - 6	X	X	X	X									
RT-SS-03	Soil	0 - 6	X	X	X	X						X			
RT-SS-04	Soil	0 - 6	X	X	X	X							X		
RT-SS-05	Soil	0 - 6	X	X	X	X							X		
RT-SS-06	Soil	0 - 6	X	X	X	X							X		
RT-SS-07	Soil	0 - 6	X	X	X	X							X		
RT-SS-08	Soil	0 - 6	X	X	X	X							X		
RT-SS-09	Soil	0 - 6	X	X	X	X							X		
RT-SS-10	Soil	0 - 6	X	X	X	X							X		
RT-SS-11	Soil	0 - 6	X	X	X	X							X		
RT-SS-12	Soil	0 - 6	X	X	X	X							X		
RT-SS-13	Soil	0 - 6	X	X	X	X							X		
RT-SS-14	Soil	0 - 6	X	X	X	X							X		
RT-SS-15	Soil	0 - 6	X	X	X	X							X		
RT-SS-16	Soil	0 - 6	X	X	X	X							X		
RT-SS-001	Soil	6 +	X	X	X	X								X	
RT-SS-002	Soil/Source	6 +	X	X	X	X									
RT-SS-003	Soil	6 +	X	X	X	X					X				
RT-SS-004	Soil	6 +	X	X	X	X							X		
RT-SS-005	Soil	6 +	X	X	X	X							X		
RT-SS-006	Soil	6 +	X	X	X	X							X		
RT-SS-007	Soil	6 +	X	X	X	X							X		
RT-SS-008	Soil	6 +	X	X	X	X							X		
RT-SS-009	Soil	6 +	X	X	X	X							X		
RT-SS-010	Soil	6 +	X	X	X	X							X		
RT-SS-011	Soil	6 +	X	X	X	X							X		
RT-SS-012	Soil	6 +	X	X	X	X							X		
RT-SS-013	Soil	6 +	X	X	X	X							X		
RT-SS-014	Soil	6 +	X	X	X	X							X		
RT-SS-015	Soil	6 +	X	X	X	X							X		
RT-SS-016	Soil	6 +	X	X	X	X							X		

APPENDIX C

Data Quality Objectives

**Data Quality Objectives for
Reilly Tar**

Problem Statement	Identifying the Decisions	Decision Inputs	Study Boundaries	Decision Rules	Tolerance Limits on Errors	Optimization of Sample Design
<p>The question to be resolved by this Removal Assessment (RA) is to determine the "hot spots" of contamination and associated contaminant levels. The contamination is a result of historic tar distilling operations. The RA is designed to determine if contamination from the site has migrated into the environment via the surface water and sediment pathways and establish where the areas of highest soil and groundwater contamination are on-site.</p> <p>Team Members: DERR Project Manager – Melissa Ottley, Chris Martin Site Assessment Section Manager – Dale Urban Environmental Toxicologist – Scott Everett CERCLA Branch Manager – Duane Mortensen EPA OSC – Martin McComb EPA Site Assessment Manager – Ryan Dunham</p>	<p>There are two principal study questions for the site: (1) Where are the major sources of contamination located on-site within the soil and groundwater (2) Establish background conditions in Ironton Canal prior to Reilly outfall, and to determine if other possible sites may be impacting Ironton Canal.</p>	<p>Laboratory analytical data for groundwater, surface water, sediment, and soil samples will be collected to determine the potential extent of impacts to the site and if contaminants are migrating off-site.</p> <p>Comparison of analytical results against the EPA Superfund Chemical Data Matrix (SCDM) Benchmarks (Reference Dose and Cancer Risk) will be used when available (Regional Screening Levels (RSLs)).</p>	<p>The site is located in Provo City, Utah, in a heavily industrialized area. Potential environmental targets that may be impacted from the site include the Ironton Canal and aquatic environments downstream of the site which flows west into the wetlands along Mill Race. Mill Race flows westward for approximately 0.6 miles to Provo Bay of Utah Lake</p> <p>Soil samples will be collected from excavated test pits on site, opportunity groundwater samples will be taken from these test pits when groundwater is encountered; surface water and sediment samples will be collected from Ironton Canal.</p>	<p>The endpoint of the sampling event will be dependent on sample results. All sample results will be compared to the background sample results. Depending on sampling results, EPA's removal program will determine if a Removal Action is appropriate.</p>	<p>Judgmental sampling will be used to bias samples toward more potentially contaminated areas or areas that require further characterization.</p> <p>Detection limits utilized by the laboratory are the EPA Method Detection Limit (MDL) procedures found in Title 40 Code of Federal Regulations (CFR) Parts 403.12 and 136.</p>	<p>Surface water, sediment, and soil sample locations will be determined prior to the start of field work. Groundwater samples will be collected as opportunity samples.</p> <p>Proposed sample locations may be changed in the field due to utility locations, on-Site debris, construction activities, and remaining structures.</p>

APPENDIX D
Off-Site Access Form

CONSENT FOR ACCESS TO PROPERTY

Site Name, CERCLIS ID#
City, Utah

Name of Owner:

Address of Owner:

Address of Property Subject to Access:

A. I, the authorized representative of the owner of the property described above ("Owner"), consent to officers, employees, contractors, subcontractors, and other authorized representatives of the United States Environmental Protection Agency ("EPA") and the Utah Department of Environmental Quality ("UDEQ") entering and having continued access to the above referenced ("Property") for the following purposes:

1. Conducting field inspections and investigations;
2. Taking samples of surface soil, subsurface soil, or water on the Property;
3. Drilling, boring or punching of holes for surface and subsurface investigations;
and
4. Other such actions as may be necessary to protect human health and the environment.

B. Owner understands that these actions by EPA and UDEQ are undertaken pursuant to their response and enforcement responsibilities under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") 42 U.S.C. § 9601, et seq. Notwithstanding any provision of this Consent for Access, the UDEQ and EPA retain all of their access authorities and rights, as well as all of their rights to require land/water use restrictions, including enforcement authorities related thereto, under CERCLA, RCRA and any other applicable federal or State statute or regulation. EPA, UDEQ, and Owner recognize that granting access does not constitute an admission of liability under CERCLA, RCRA, and any other applicable federal or State statute or regulation. EPA, UDEQ, and Owner retain all rights and defenses under CERCLA, RCRA, and any other applicable federal or State statute or regulation. Liability for damage caused by negligence is governed by applicable law. Nothing in this Consent for Access constitutes a waiver of sovereign immunity.

C. The undersigned certifies that he/she is fully authorized to grant the access provided herein on behalf of Owner and to execute and legally bind Owner to this document.

Section 19-6-304 of the Utah Code Ann. provides that, upon request as indicated below, the Owner may have a split sample if possible and may obtain an analysis of the sample available. To these ends, please mark your preference below:

- ☐ I wish to obtain splits of all samples collected on the Property and a receipt describing each sample taken. I understand that I must provide the necessary sample containers to obtain these splits. The responsibility of choosing an analytical laboratory and the cost of analysis of the splits is solely mine.
- ☐ When available to UDEQ, Owner wishes to obtain a copy of the final analytical results report and laboratory data concerning the samples taken from the Property. Indicate address where results should be sent to: _____.

Authorized Signature: _____

Print Name: _____

Date: _____

Telephone Number: _____

Email Address: _____

Site Name:

Project Manager:

APPENDIX E

Health and Safety Plan

SITE HEALTH AND SAFETY PLAN

SITE NAME: Reilly Tar

ADDRESS: Site is located at 2555 South Industrial Parkway, Utah County, Utah. It is in unincorporated Utah County

SITE CHARACTERISTICS

SITE DESCRIPTION: The site operated as a coal tar distillery from 1924 to 2002, and is located in an industrial area. It is mostly contaminated with, and will be sampled for metals, VOCs, and SVOCs. The site property covers over 37 acres between the Denver and Rio Grande Western Railroad tracks and the Pacific States Cast Iron Pipe Company.

SITE HISTORY: The operation of the coal tar distillery which took place from 1924 to 2002, produced coal tar, liquid pitch, and creosote oil products. Analytical results from past sampling events show elevated levels of VOCs, SVOCs, and cyanide in soil, sediments, groundwater, and surface water.

HAZARD EVALUATION

CONTAMINANTS LIKELY FOUND ON-SITE: Contaminants of concern are VOCs, SVOCs, and metals. Contaminants are not likely to be found at concentrations that present an immediate threat to on-site personnel.

ON-SITE HAZARDS: Sampling will be taking place around excavations, workers will use caution when anywhere near these excavations making sure the operator of any machinery is aware of their presence. Workers will not enter excavations, but sample media that is brought up with the excavator. Workers will use caution when collecting surface water samples from Ironton Canal and work in a team of at least two people. Slip, trips, falls, and water hazards.

PRIMARY ROUTES OF EXPOSURE: Inhalation is the likeliest route of exposure; however, the risk of exposure to on-site contaminants is low.

SAFETY MEASURES

LEVEL OF PROTECTION: Level D

SAFETY EQUIPMENT:

High visibility clothing (DEQ vests);
Safety glasses (when necessary);

Steel-toed boots; Hard Hats;
Sampling Gloves

SURVEILLANCE AND MONITORING EQUIPMENT: None

EMERGENCY CONTACTS

NEAREST HOSPITAL: Utah Valley Hospital
ADDRESS: 1134 North 500 West, Provo, Utah
PHONE: (801) 357-7850

DIRECTIONS: Drive northbound on Industrial Parkway. Stay right onto 2000 S and then turn left onto State Street. At 300 South turn left (westbound). Drive to University Avenue and turn right (northbound). Turn left (westbound) at 500 North. Turn right onto 500 West, drive northbound to 1150 North. Utah Valley Hospital is on the right (east) side of the street. See Figure-Hospital Route (attached).

LOCAL HEALTH DEPARTMENT: Utah County Health Department
CONTACT: Bryce Larsen
ADDRESS: 151 S. University Ave
Provo, Utah 84601
PHONE: (801) 851-7525 (office); (801) 558-8442 (cell)

SIGNATURES

DERR Team Leader

Date

Supervisor

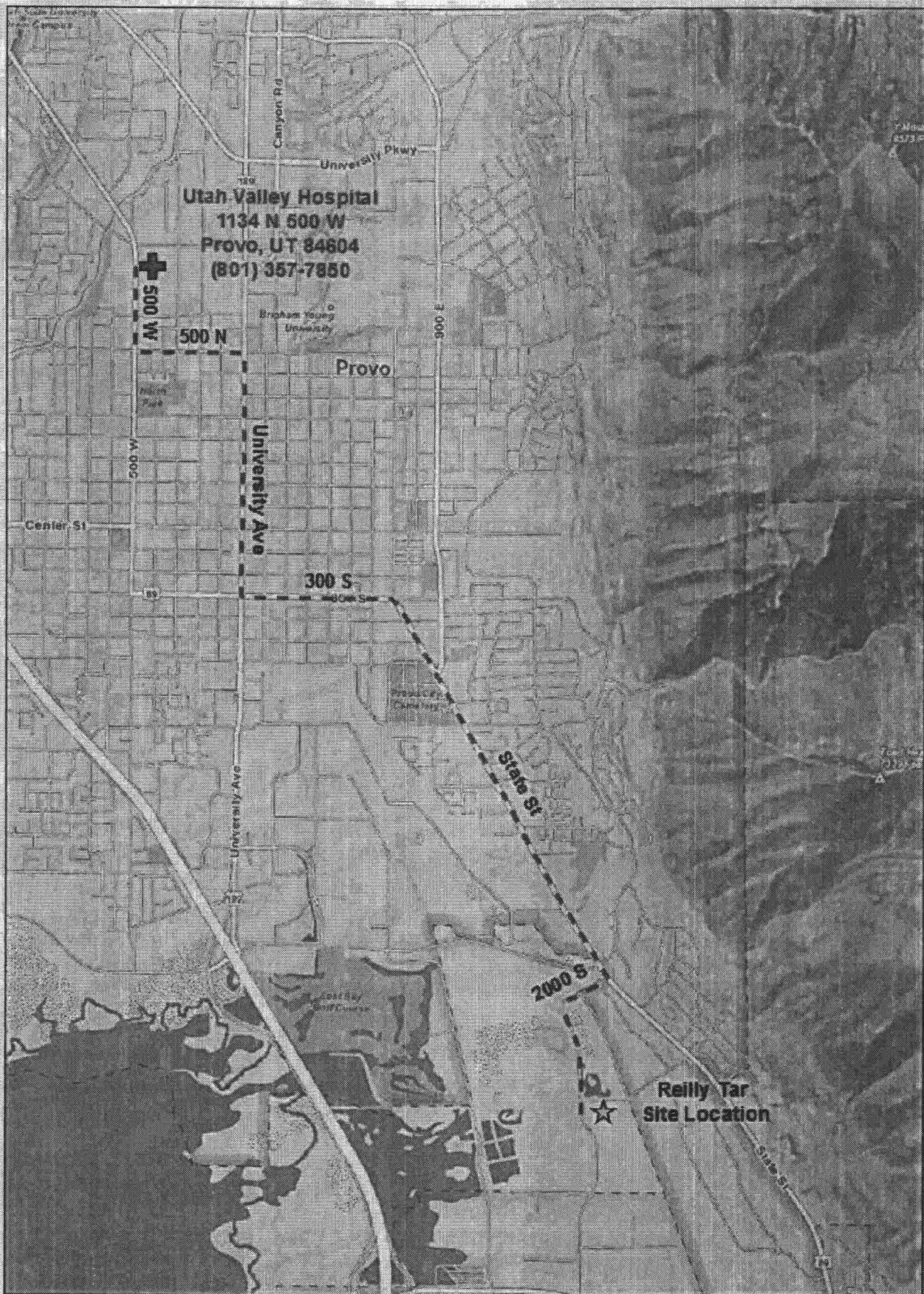
Date

DERR Sample Team Member

Date

DERR Safety Officer

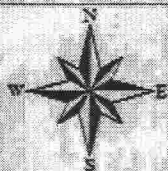
Date



Legend

- ★ Site
- ✚ Hospital
- - - Hospital Route

0 0.25 0.5 1 Miles



Utah Department of
Environmental Quality
Division of Environmental
Response and Remediation

Reilly Tar
Health & Safety Plan
Hospital Route

by: Melissa Ottley date: 4/06/17

APPENDIX B

Sampling Photos

Sampling Photos

Reilly Tar

June 19, 2017

First excavation in southeast corner of the northern half of the Site (facing east).



Second excavation located just west of the first (facing east).



Third excavation directly north of the first excavation (facing north).



Darker layers begin to appear accompanied by a strong aromatic hydrocarbon odor in the third excavation.



Groundwater encountered in third excavation with a sheen showing on the surface (facing south). Aromatic hydrocarbon odor began getting stronger from this excavation on west through the site.



June 20, 2017 – Soil sample collection begins



RT-SS-002 (field sample) and RT-SS-003 (field duplicate) at four depth intervals, laid out by excavator in piles for easier collection (facing northeast)



RT-SS-002 & 003 facing southeast



RT-SS-002 & 003



RT-SS-002 & 003



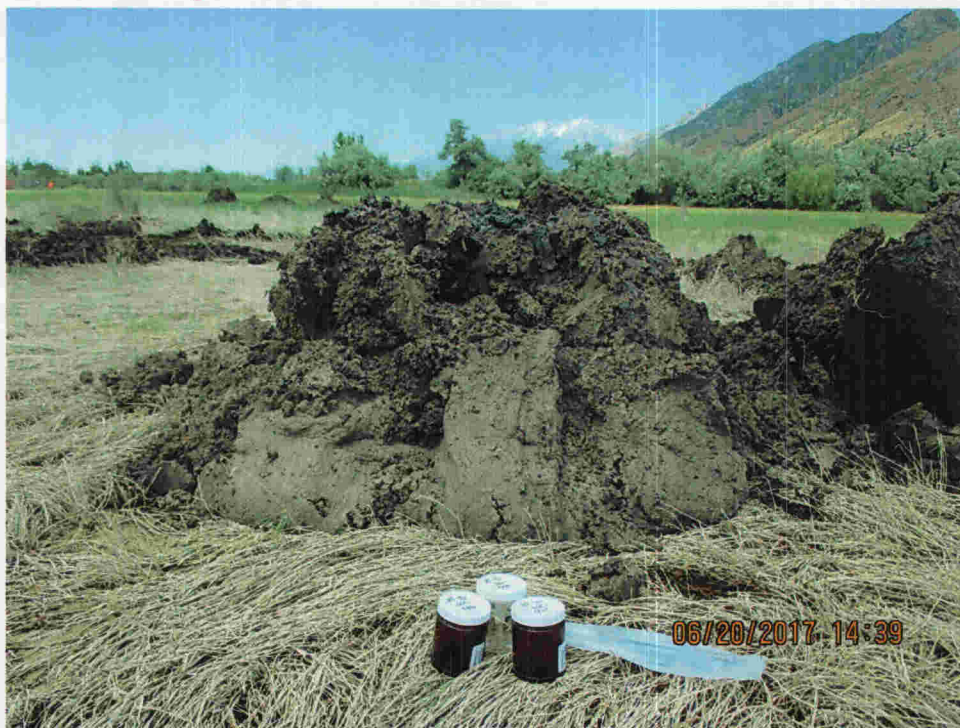
RT-SS-001 collected at four depth intervals from the middle of the southern portion of the site (facing west)



RT-SS-001 facing northwest.



RT-SS-001 facing northeast.



RT-SS-004 collected at four depth intervals from west side of northern portion of the site (facing east).



RT-SS-004



RT-SS-004 facing southeast



RT-SS-004



June 21, 2017 – Surface Water and Sediment Collection Begin
RT-SW/SD-05 (field sample) and RT-SW/SD-06 (field duplicate)
Facing west toward Utah Lake



RT-SW/SD-05 & 06 facing east toward Wasatch Mountains



RT-SW/SD-05 & 06 the area was surrounded by wetland reeds (facing southwest).



RT-SW/SD-04 (Field Sample) Looking down into the canal (north facing). More wetland reeds.



RT-SW/SD-04 surrounding area



RT-SW/SD-04 facing west



RT-SW/SD-04 surrounding area (facing southwest)



RT-SW/SD-03 Field Sample (facing east)



RT-SW/SD-03 facing east



RT-SW/SD-03 facing northeast



RT-SW/SD-03 facing southeast



RT-SW/SD-02 (field sample) Notice Fish



RT-SW/SW-02 looking down into canal



RT-SW/SD-02



RT-SW/SD-01 (Field Sample) Looking down into canal



RT-SW/SD-01 facing west



June 22, 2017

RT-SS-005 (Field Sample, also used for QA/QC) two depth intervals sampled



RT-SS-005 facing southwest



RT-SS-005



RT-SS-005



RT-SS-005 facing west



APPENDIX C

Field Notes

Reilly Jar June 19, 2017

on-site at noon, 85°-90° F, slight breeze. Clear skies. DERR, Weston, EPA, & Environmental Restoration

on-site. Began Trenching in the Southeast corner at 13:00. Calibrating multirae meter w/ Weston at 13:15.

First trench 5-7 feet (SE corner)

outside of bag VOC = 70 ppb at 13:50

inside of bag after volatilizing VOC =

First trench 7-9 feet (SE corner)

outside of bag VOC = 30 ppb at 13:53

inside of bag after volatilizing VOC =

First trench 9-11 feet (SE corner)

outside of bag VOC = 800-300 ppb at 14:00

inside of bag after volatilizing =

First trench 11-13 ft (SE corner)

outside of bag VOC = 700 ppb at 14:05

inside of bag

Multirae stopped working after first trench. Trenching continued.

Left site at 16:15

MD
6/19/17

6/20/11 T. 85° F. Clear Skies
On-site at 9:48 am. DERR personnel
include Chris Martin & Melissa Otten.
Slips, trips, & falls discussed. Safety
tailgate including safety around heavy
machinery. Calibrating Trimble at 10:00
Pre-sample conference w/ EPA, it has
been decided that 4 depth intervals
will be collected rather than the 2
depth intervals specified by the approved
Scope of Work / Sampling Analysis Plan
(SOW/SAP). Sampling beginning at 10:30
RT-SS-002-001 Taken at 10:35
from 0-8 inches VOCs, SVOC, metals, Cyanide
RT-SS-002-002 Taken at 10:45
from 8"-2 feet / 08"-24"; VOCs, SVOCs, met. cyanide
RT-SS-002-003 Taken at 10:53
from 24"-4 feet / 4.5 feet; VOCs, SVOCs, metals, cyanide
RT-SS-002-004 Taken at 11:01
from 5 feet - 7 feet; VOCs, SVOCs, metals, cyanide
First layer gravelly top layer, Second
layer dark tar - loose; Third layer sludgy
more compacted, fourth layer is dark / gray
clayish type soil. Field dup taken at RT-SS-002
RT-SS-003-001 Taken at 11:18
RT-SS-003-002 Taken at 11:20

RT-SS-003-003 Taken at 11:34

RT-SS-003-004 taken at 11:36

→ Line Item: Trip blank collected this morning at 8:11 am from DERR sample room. RT-SS-001 being taken in the southern portion of the site, through the gated area. This will be our background. Intended background, may just be confirmation. Excavation starting at 14:22.

RT-SS-001-001 Taken at 14:40

Depth from 0-1 foot.

RT-SS-001-002 Taken at 14:49

Depth from 1 foot - 2 feet

RT-SS-001-003 Taken at 15:00

Depth from 2 feet - 3.5 feet

RT-SS-001-004 Taken at 15:02

Depth from 3.5 feet - 5 feet

First interval 0-1 foot silty sand, low plasticity, moist, greyish brown, tan

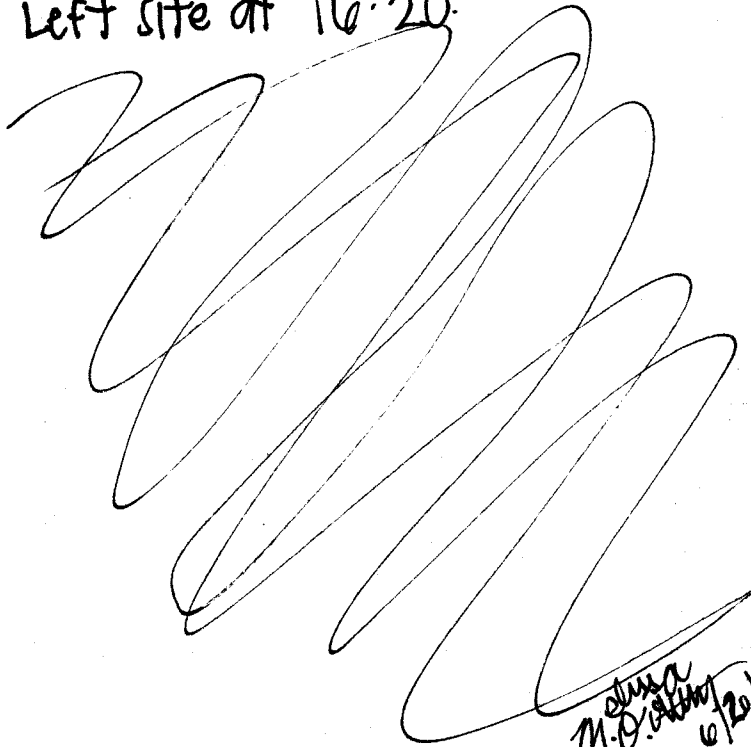
Second interval 1ft - 2 feet iron oxide staining, fine sand, sandy silt, dark brown clay

Third interval, iron oxide staining, less than 2nd interval, clay-cy, dark brown, greyish

Fourth interval, dark saturated clay greyish brown.

Rite in the Rain

RT-SS-004 samples taken from the
Southwest corner of the North portion of site
RT-SS-004-001 Taken at 16:02
Taken from 0 - 2 feet.
RT-SS-004-002 Taken at 16:03
Taken from 2 feet - 4 feet.
RT-SS-004-003 Taken at 16:05
Taken from 4 feet - 10 feet.
RT-SS-004-004 Taken at 16:06
Taken from 10 feet - 13 feet
Left site at 16:20.



Melissa
M.D. Allen
6/20/17

6/21/2017

On-site at 9:35 Excavation is ~~not~~ still being conducted. Chris Martin, Melissa O'Brien & Ryan Dunham to be collecting surface water & sediment samples today. Clear skies, 85°F, slight breeze. Arrived at first surface water and sediment sampling location at 10:00.

RT-SW-05 Metals collected at 10:08

SW-05 VOCs collected at 10:15

SW-05 SVOCs collected at 10:22

RT-SW-06 Metals collected at 10:08

SW-06 VOCs collected at 10:15

SW-06 SVOCs collected at 10:22

Surface water has high turbidity

RT-SD-05 Metals collected at 10:49

RT-SD-05 VOCs collected at 10:39

RT-SD-05 SVOCs collected at 10:39

RT-SD-06 Metals/uranide collected at 10:47

RT-SD-06 VOCs collected at 10:39

RT-SD-06 SVOCs collected at 10:39

Left sampling location at 10:57

Arrived at SW/SD-04 at 12:46.

RT-SW-04 VOCs taken at 12:55

RT-SW-04 SVOCs taken at 12:56

Rite in the Rain

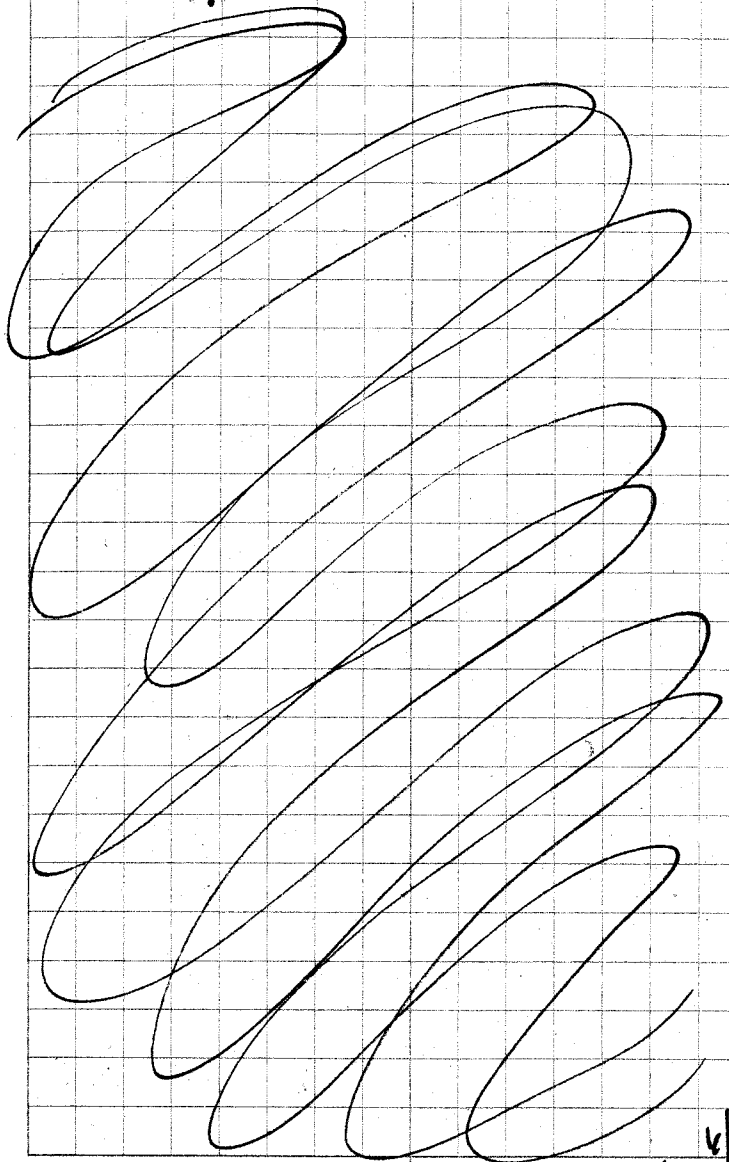
RT-SW-04 Metals taken at 12:57
RT-SD-04 VOCs taken at 13:28
RT-SD-04 SVOCs taken at 13:28
RT-SD-04 Metals & cyanide taken at 13:33
Water is clear, moving slowly
at RT-03 at 13:40

RT-SW-03 SVOC collected at 13:52
RT-SW-03 VOC collected at 13:58
RT-SW-03 Metals collected at 13:56
RT-SD-03 VOCs collected at 14:02
RT-SD-03 SVOCs collected at 14:02
RT-SD-03 Metals collected at 14:05

Back on site to RT-SW-02 at 14:50
RT-SW-02 VOCs collected at 15:05
RT-SW-02^{no} SVOCs collected at 15:07
RT-SW-02^{no} Metals collected at 15:08
RT-SD-02^{no} VOCs collected at 15:15
RT-SD-02^{no} SVOCs collected at 15:15
RT-SD-02^{no} Metals & cyanide collected at 15:19

arrived at RT-SW-01 at 15:44
RT-SW-01 VOCs collected at 15:49
RT-SW-01 SVOCs collected at 15:51
RT-SW-01 Metals collected at 15:50
RT-SD-01 VOCs collected at 15:54
RT-SD-01 SVOCs collected at 15:55
RT-SD-01 Metals/cyanide collected at 15:56

Leaving site at 16:35.



6/21/17
M. J. R. R.

6/22/2017

Temp. about 80°F, clear skies, slight breeze. On site at 10:00 am, Melissa Utterly & Chris Martin.

Going back to all surface water & sediment sampling locations to collect more pictures / descriptions & show Molly Patterson - western solutions, our locations so she can collect GPS points

To SW-05 / 06 at 10:31. Water is a bit foamy, sudzy, murky, high turbidity, surrounded by cat-tail, & other wetland grasses.

To SW-04 at 10:58 clear water

To SW-03 at 11:10. clear water schools of minnows swimming around

Soil Sample #5 being taken by MW-14 in the southern portion of the property

up against the western fence. RT-SS-005-001 taken at 13:20

includes VOCs, SVOCs, Metals & cyanide RT-SS-005-002 taken at 13:24

includes VOCs, SVOCs, Metals, & cyanide RT-SS-005-001 taken from 0-1.5 ft

RT-SS-005-002 taken from 1.5 ft - 4 ft This will be marked on C&C in scrub as a lab dup.

6/22/17 mluwett

7/20/17

GPS Coordinates pulled from Trimble:
(in order the samples were collected)

RT-SS-002 | 003 :

Lat. 40.198583 Long. -111.627939

RT-SS-001:

Lat: 40.197426 Long. -111.629020

RT-SS-004:

Lat: 40.198754 Long. -111.630729

RT-SS-005:

Lat. 40.197621 Long. -111.630019

End of Soil Samples collected.

RT-SW|SD|005 | 006 :

Lat. 40.201778 Long. -111.655332

RT-SW|SD|004:

Lat. 40.199204 Long. -111.643753

RT-SW|SD-003:

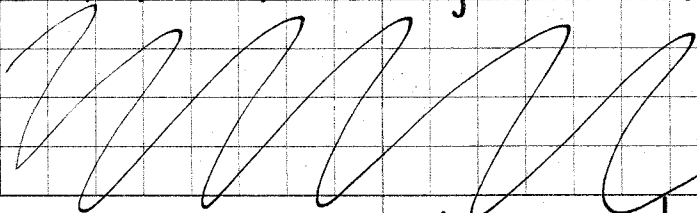
Lat. 40.199319 Long. -111.639753

RT-SW|SD-002:

Lat. 40.199511 Long. -111.630942

RT-SW|SD-001:

Lat. 40.199477 Long. -111.627948



Melissa M. Kelley 7/20/17