TETRA TECH

Carlos Menor Salazar
Project Manager

March 14, 2022

Mr. Jacob Hassan
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U.S. Environmental Protection Agency Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Subject: Air Monitoring and Sampling Plan (Revision 2)
Edwardsville Oil Spill - ER
Edwardsville, Madison County, Illinois
EPA Contract No. 68-HE-0519-D0005
TO-TOLIN No. TBD
Document Tracking No. TBD

Dear Mr. Vrabec:

Tetra Tech, Inc. (Tetra Tech) is submitting the attached Air Monitoring and Sampling Plan (Revision 2) for the Edwardsville Oil Spill Site (the Site) for your review and comment. This plan summarizes the air and water quality monitoring and multi-media sampling activities that will be conducted as part of the emergency response at the Site.

If you have any questions regarding this plan, please contact me at 312-[redacted] or via e-mail at [redacted] @tetratech.com.

Sincerely,

Carlos Menor Salazar
Project Manager

Enclosure

cc: Chris Burns, Tetra Tech START Program Manager
TO-TOLIN File

AIR MONITORING AND SAMPLING PLAN
EDWARDSVILLE OIL SPILL EMERGENCY RESPONSE SITE
EDWARDSVILLE, MADISON COUNTY, ILLINOIS

Revision 2

Prepared for

U.S. Environmental Protection Agency
Emergency Response Branch
Region 5
77 West Jackson Boulevard
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Submitted by

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EPA Contract No. 68HE0519D0005

TO-TOLIN. **TBD**
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March 14, 2022

Prepared by	Approved by	Approved by
[redacted]		[redacted]
Katherine Cooper, on behalf of Carlos Menor Salazar Project Manager	TBD QA Reviewer	Jacob Hassan On-Scene Coordinator

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1 USCG OIL SAMPLE HANDLING AND TRANSMITTAL GUIDE

2 ERT STANDARD OPERATING PROCEDURES

1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has tasked the Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) under contract number 68HE0519D0005, task order line-item number (TOLIN) to be determined (TBD) to perform air monitoring and multi-media sampling at the Edwardsville Oil Spill Emergency Response Site (the Site). A crude oil discharge was observed in Cahokia Creek, a tributary to the Mississippi River. EPA has requested that START (1) conduct air monitoring (2) conduct sheen net, air, and surface water sampling and (2) provide technical support during the emergency response. The purpose of the monitoring and sampling activities is to investigate the migration of crude oil and the associated fugitive emissions and evaluate immediate threats to human health or the environment.

This Air Monitoring and Sampling Plan (AMSP) outlines the air monitoring and multi-media sampling that will be conducted during the emergency response. START will conduct real-time air monitoring to document the levels of volatile organic compounds (VOC), percent lower explosive limit (%LEL), percent oxygen ($\%O_2$), carbon monoxide (CO), hydrogen sulfide (H_2S), and benzene in ambient air. Per EPA direction, START will conduct air monitoring 1) in ambient air near the oil containment and collection booms, 2) in ambient air in areas surrounding oil discharge, and 3) in residential areas near the oil discharge. START will conduct air sampling to evaluate potential contamination impacts to ambient air surrounding the oil discharge area.

Sheen net sampling will be conducted to identify unique chemical characteristics of the oil discharge. Sheen net samples will tentatively be collected from the sheen closest to and downstream of the oil discharge, from the discharge source, and from surface water at an unimpacted upstream location. Water samples will be collected from surface water bodies as needed, which may include, but are not limited to, drainage ditches, catch basins, canals, creeks, and rivers. All air and water samples will be submitted to a Tetra Tech-procured laboratory for analysis. Sheen net samples will be submitted to the United States Coast Guard (USCG) Marine Safety Lab for fingerprint analysis.

This plan discusses the site background information in Section 2.0; the project objectives and data use in Section 3.0; the field investigation and sampling activities in Section 4.0; the decontamination procedures in Section 5.0; the sample handling procedures in Section 6.0; the field quality control (QC) procedures in Section 7.0; the data evaluation and management in Section 8.0; and the deliverables in Section 9.0. References cited throughout the plan are listed in Section 10.0. Site figures are presented in Appendix A, and Tetra Tech Standard Operating Procedures (SOP) are presented in Appendix B. The USCG Oil Sample

Handling and Transmittal Guide is presented in Attachment 1. EPA Environmental Response Team (ERT) SOPs are presented in Attachment 2.

2.0 SITE BACKGROUND

This section describes the Site's location and presents site and project descriptions.

2.1 SITE LOCATION AND DESCRIPTION

The Site is located near the intersection of IL Route 143 and Old Alton-Edwardsville Road in Edwardsville, Illinois, Madison County, Illinois (Appendix A, Figure 1), at Cahokia Creek. The Cahokia Creek flows westward and joins the Mississippi River approximately 9.5 miles downstream of the spill area. Review of the Inland Sensitivity Atlas (ISA) pipeline layers identified four underground petroleum pipelines at the Site.

The Site is located in a rural mixed commercial and residential area. The Site includes the surrounding residential neighborhoods, commercial properties, and agricultural and forested areas. The Site is bordered to the north by intersection of IL Route 143 and Old Alton-Edwardsville Road, with the Cahokia Creek and agricultural properties beyond; to the east and south by Old Alton-Edwardsville Road, with a Norfolk Southern railroad track and residential and commercial properties beyond; and to the west by forested land, with residential properties beyond (Appendix A, Figure 2). The geographic coordinates at the approximate center of the Site are latitude [redacted] degrees north and longitude -[redacted] degrees west.

2.2 SITE HISTORY

At approximately 9:50 am on March 11, 2022 a crude oil discharge occurred from a 22-inch diameter Marathon Pipe Line, LLC (Marathon) pipeline. The pipeline runs parallel to the Cahokia Creek for approximately 1-mile near the spill area and is approximately 4 feet below ground surface (bgs). The discharge is ongoing as of 2300 March 11 with over 120,000 gallons reported to be discharged so far. After the discharge was detected on March 11, 2022, Marathon shut down the pipeline and mobilized response resources. Marathon deployed containment boom on the Cahokia Creek.

3.0 PROJECT OBJECTIVES AND DATA USE

The air monitoring objectives are to (1) determine if the concentrations of total VOCs, benzene, or other chemical vapors in ambient air pose an immediate health and safety risk to occupants; and (2) determine the extent of the petroleum vapor impacts throughout the adjacent neighborhood.

Air sampling will be conducted to determine the concentration of VOCs in ambient air during the emergency response activities. The sheen net sampling objective is to provide a fingerprint of the unique chemical characteristics of the oil discharge material. Surface water sampling will be conducted to evaluate the concentration and potential migration of contamination at the Site. Water quality monitoring may be performed to determine if the release has impacted water quality parameters within the water column.

4.0 SITE ACTIVITIES

This section describes the scope of work, details the air monitoring and multi-media sampling activities that will take place during the emergency response activities, and describes the water quality monitoring activities that may take place during the emergency response activities, as needed.

4.1 SCOPE OF WORK

During the emergency response, START will perform the following field activities:

- Conduct air monitoring of ambient air in accordance with Tetra Tech SOP No. 073-2, "Air Quality Monitoring" (Appendix B). Air will be monitored for VOCs, %LEL, $\%O_2$, CO, H_2S, and benzene.
- Collect sheen net samples for fingerprint analysis in accordance with the USCG Oil Sample Handling and Transmittal Guide (Attachment 1).
- Submit sheen net samples to the USCG Marine Safety Lab for fingerprint analysis in accordance with USCG Oil Sample Handling and Transmittal Guide (Attachment 1) and Tetra Tech SOP 019-8 "Packaging and Shipping Samples" (Appendix B).
- Collect air samples from targeted areas by using batch certified, stainless steel 6-liter SUMMA canisters attached to 24-hour flow controllers, less than 24-hour flow controllers, or no flow controllers (grab sample), in accordance with EPA SOP No. 1704 Revision 01, "SUMMA Canister Sampling" (Attachment 2) and EPA SOP No. 2008, "General Air Sampling Guidelines" (Attachment 2).
- Collect water samples from surface water bodies to evaluate Site contaminant concentrations and potential migration, which may include drainage ditches, catch basins, canals, creeks, and rivers. Surface water sampling will be conducted in accordance with Tetra Tech SOP 009-5 "Surface Water Sampling" (Appendix B).
- Submit air and water samples to a Tetra Tech-procured laboratory for analysis in accordance with Tetra Tech SOP 019-8 "Packaging and Shipping Samples" (Appendix B).
- Analyze air samples for VOCs. Air samples will also be analyzed for H_2S, if directed by EPA.
- Analyze water samples for VOCs, semivolatile organics (SVOCs), gasoline-range organics (GRO), diesel-range organics (DRO), oil-range organics (ORO).

In addition, if directed by EPA, Tetra Tech may conduct one or more of the following activities:

- Conduct water quality monitoring of surface waters in accordance with Tetra Tech SOP No. 011-4 "Field Measurement of Water Temperature, Tetra Tech SOP No. 012-5 "Field Measurement of

pH", Tetra Tech SOP No. 013-4 Field Measurement of Specific Conductance", and Tetra Tech SOP No. 088-3 "Field Measurement of Water Turbidity" (Appendix B). Water quality parameters that may be monitored include dissolved oxygen, oxidation reduction potential (ORP), pH, conductivity, temperature, and turbidity.

Tetra Tech will document all activities, including data and field measurements, in the field logbook, field data sheets, or custom Survey123 forms. Photographic and written logbook documentation activities will accord with Tetra Tech SOP No. 024-3, "Recording Notes in Field Logbooks" (Appendix B), and Tetra Tech's "Quality Assurance Project Plan [QAPP] for START" (Tetra Tech 2022a).

4.2 AIR QUALITY MONITORING

During the emergency response activities, START will monitor ambient air at the Site for VOCs, benzene, %LEL, $\%O_2$, H_2S, and CO. START will conduct air monitoring to determine if VOCs and benzene at the source area are harmful to responders and the surrounding population. Ambient air monitoring will be conducted using a MultiRAE Pro and a UltraRAE 3000 (equipped with benzene separation tubes). Air monitoring will also be conducted using a TVA2020 Toxic Vapor Analyzer (TVA), if directed by EPA.

START will conduct ambient air monitoring with a MultiRAE Pro to monitor for VOCs, %LEL, $\%O_2$, CO, and H_2S and an UltraRAE 3000 to monitor for benzene vapors. If directed by EPA, a toxic vapor analyzer (TVA) may be used to monitor for VOCs. Each MultiRAE Pro unit contains a photoionization detector (PID) capable of monitoring for total VOCs down to a concentration of 10 parts per billion (ppb). The MultiRAE Pro unit also contains sensors to measure %LEL, $\%O_2$, CO, and H_2S in parts per million (ppm). The UltraRAE 3000 unit includes a PID that is capable of monitoring benzene from 0.5 ppm to 200 ppm. The TVA unit includes a PID and a flame ionization detector (FID) capable of monitoring organic and inorganic compounds in ppm.

Prior to use, START will calibrate the air monitoring instruments in the field daily and record the calibration information in the site logbook. Throughout use, START will bump test the air monitoring instruments in the field and record the bump test information in the site logbook. All air monitoring readings will be recorded in the field logbook, field data sheets, or custom Survey123 forms. Any air monitoring readings above background will be reported to the EPA On-Scene Coordinator (OSC). Data irregularities and problems, such as sensor drift and potential sources of VOCs unrelated to the oil discharge, will be identified, investigated, and resolved.

START will periodically monitor ambient air near the release area for VOCs, %LEL, %O2, H_2S, and CO to assess whether contamination from the Site is impacting ambient air. Table 1 shows the appropriate regulatory thresholds that must be considered to evaluate monitoring data. Real-time monitoring results

will be used as indicators to determine the appropriate level of personal protective equipment (PPE) for responders and whether VOCs and benzene associated with the release have impacted nearby residences or businesses. Any sustained concentration of VOCs or benzene above 5.0 ppm or 0.5 ppm, respectively, in ambient air will require evaluating appropriate engineering controls and PPE.

TABLE 1: PROPOSED ACTION LEVELS BASED ON DIRECT-READING INSTRUMENTS

Parameter	ACGIH TLV	NIOSH REL	OSHA PEL	NAAQS	Level D Action Level	Level C Action Level	Level B Action Level
VOC*	NA	NA	NA	NA	<5 ppm	Any response above background to 5 ppm (sustained for 5 minutes)*	> 5 to 500 ppm*
LEL	10%			NA	< 5%	≥ 5 to 10%	> 10% (evacuate)
O_2	< 19.5% and > 23.5%			NA	19.5 to 23.5%		< 19.5% or > 23.5% (evacuate)
CO	25 ppm	35 ppm	50 ppm	9 ppm	< 25 ppm	None, use Level B	> 25 ppm
H_2S	0.1 ppm	10 ppm	20 ppm	NA	< 1 ppm	> 1 ppm	> 15 ppm
Benzene	0.5 ppm	0.1 ppm	1 ppm	NA	< 1 ppm	Any response above background to 250 ppm	> 250 ppm

*VOC Action Levels based on approved Site-Specific Health and Safety Plan

Notes:

>	greater than
≥	greater than or equal to
<	less than
%	percent
ACGIH	American Conference of Governmental Industrial Hygienists
CO	carbon monoxide
H_2S	hydrogen sulfide
LEL	lower explosive limit
NA	not applicable
NAAQS	National Ambient Air Quality Standard
NIOSH	National Institute of Occupational Health and Safety
O_2	oxygen
OSHA	Occupational Safety and Health Administration
PEL	permissible exposure limit
ppm	parts per million
REL	recommended exposure limit
TLV	threshold limit value
VOC	volatile organic compound

4.3 WATER QUALITY MONITORING (IF NEEDED)

During the emergency response activities, START may monitor water quality parameters in surface water at the Site for dissolved oxygen, ORP, pH, conductivity, temperature, and turbidity. START will conduct water quality monitoring to determine the impact the oil discharge may have on water quality in surface waters at the Site.

Water quality monitoring will be conducted using a YSI water quality monitor. Water quality measurements will be collected from the center of the water column, approximately halfway between the bottom of the creek and the water surface.

The YSI water quality system specifications for each parameter are listed below:

- The YSI water quality meter is capable of monitoring for dissolved oxygen down to 0 percent (%) and up to 500% with an accuracy of with an accuracy of plus or minus 2 percent (±2%) of the measurement or 2% air saturation, whichever is greater.
- The YSI water quality meter is capable of monitoring for ORP down to negative (-)1,999 millivolts (mV) and up to 1,999 mV with an accuracy of ±2% mV in redox standards.
- The YSI water quality meter is capable of monitoring for pH at a range of 0 standard units (SU) to 14 SU with an accuracy of ±2% SU.
- The YSI water quality meter is capable of monitoring for conductivity at a range of 0 millisieverts per centimeter to 200 mS/cm with an accuracy of ±0.5% of measurement or 0.001 mS/cm, whichever is greater.
- The YSI water quality meter is capable of monitoring for temperature at a range of -5 degrees Celsius (°C) to 70°C with an accuracy of ±0.2°C.
- The YSI water quality meter is capable of monitoring for turbidity down to 0.1 nephelometric turbidity unit (NTU) with an accuracy of ±2% of the measurement or 0.3 NTU, whichever is greater.

The YSI water quality meters will be operated and calibrated in accordance with the manufacturer's instructions to ensure the precision and accuracy of the instrument. Prior to use, START will calibrate the YSI instrument in the field daily and record the calibration information in the site logbook. START will conduct water quality monitoring in accordance with Tetra Tech SOP No. 011-4 “Field Measurement of Water Temperature, Tetra Tech SOP No. 012-5 “Field Measurement of pH”, Tetra Tech SOP No. 013-4

Field Measurement of Specific Conductance", and Tetra Tech SOP No. 088-3 "Field Measurement of Water Turbidity" (Appendix B). All water quality monitoring readings will be recorded in the field logbook, field data sheets, or custom Survey123 forms.

Water quality measurements will be compared to measurements collected from an upstream monitoring location used as a background location. Any sustained water quality monitoring readings above background will be reported to the EPA On-Scene Coordinator (OSC). Data irregularities and problems, such as sensor drift and potential sources of VOCs unrelated to the oil discharge, will be identified, investigated, and resolved.

4.4 SHEEN NET SAMPLING

During the emergency response activities, START will collect sheet net samples representative of the crude oil discharge. Sheen net samples will be submitted for fingerprint analysis to identify unique chemical characteristics of the material. The sheen net sampling will be conducted in accordance with USCG Oil Sample Handling and Transmittal Guide (Attachment 1). The sheen net samples will be appropriately containerized and preserved, kept under strict chain of custody, and delivered to the USCG Marine Safety Lab.

4.5 WATER SAMPLING

During the emergency response activities, START will collect water samples from surface waters. Water sample collection from sewer water and private wells is not planned but is included in this AMSP as a contingency measure. Water sampling will be conducted to evaluate the concentration and potential migration of contamination at the Site. Sample locations will be determined in the field based on EPA and START technical knowledge of the response area and conditions.

All water samples will be submitted to Teklab in Collinsville, Illinois with a 24-hour turnaround time for the following analyses:

- VOCs by EPA SW-846 Method 8260B
- SVOCs by EPA SW-846 Method 8270D
- GRO, DRO, and ORO by EPA SW-846 Method 8015C
- pH by EPA SW-846 Method 9040C

Table 2 summarizes the number of samples to be collected, the proposed analytical methods, containerization and preservation requirements, and holding times. All water samples will be collected in appropriate pre-cleaned containers, preserved as required by each method, and immediately stored on ice upon sample collection.

4.5.1 Surface Water Sampling

START will collect water samples from surface water bodies to evaluate Site contaminant concentrations and potential migration, which may include drainage ditches, catch basins, canals, creeks, and rivers. Surface water sampling will be conducted in accordance with Tetra Tech SOP 009-5, "Surface Water Sampling" (Appendix B). When possible, surface water samples will be collected using a disposable sample collection bottle. The disposable sample collection bottle will be used to transfer water directly to laboratory-provided sample containers. Surface water sample results will be compared to surface water standards for Chronic Aquatic Life and Human Health provided in 35 Illinois Administrative Code Part 302 (IAC Part 302).

4.6 AIR SAMPLING

During the emergency response activities, START will collect SUMMA canister samples of ambient air near residential communities. Ambient air samples will be submitted for laboratory analysis to determine the concentrations of VOCs and benzene present during the emergency response activities. Ambient air samples may also be submitted for laboratory analysis to determine the concentrations of H_2S present during the emergency response activities, if directed by EPA. The air sampling will be conducted in accordance with EPA SOP No. 1704 Revision 01, "SUMMA Canister Sampling" and EPA SOP No. 2008, "General Air Sampling Guidelines" (Attachment 2).

4.6.1 Ambient Air Sampling

Ambient air samples will be collected outdoors at various locations focused in residential areas. EPA will identify ambient air sampling locations where elevated levels of VOCs, benzene, or H_2S are detected during real time air monitoring. EPA may determine to conduct air sampling near the source area during point source removal operations in residential areas.

The ambient air samples for VOC analysis will be collected through an individually certified stainless-steel SUMMA canister with either a 24-hour or 8-hour flow controller. Once the SUMMA canister is in the appropriate sampling location, the canister valve will be opened, and the initial vacuum and start time will be recorded on an air sampling data form. At the end of the flow controller time, the canister valve will be

closed, and the end time and ending vacuum will be recorded. The ambient air samples will be delivered to Teklab in Collinsville, Illinois under a signed chain-of-custody form and analyzed for VOCs via EPA Method TO-15 with a 24-hour turnaround time. Analytical results will be compared to EPA Regional Screening Level (RSL) for residential air using an HQ of 1 and TCR of 10^{-6} (EPA 2021a).

If directed by EPA, ambient air samples for H_2S analysis will be collected through an individually certified stainless-steel glass-lined SUMMA canister with either a 24-hour or 8-hour flow controller or a Radiello passive sampling badge.

Ambient air samples for H_2S analysis collected through a SUMMA canister will be collected using the following procedure. Once the SUMMA canister is in the appropriate sampling location, the canister valve will be opened, and the initial vacuum and start time will be recorded on an air sampling data form. At the end of the flow controller time, the canister valve will be closed, and the end time and ending vacuum will be recorded. The ambient air samples will be delivered to the ALS laboratory located in Salt Lake City, Utah under a signed chain-of-custody form and analyzed for VOCs via EPA Method TO-15 and H_2S by American Society for Testing and Materials (ASTM) D 5504 with a 24-hour turnaround time. Analytical results will be compared to EPA Regional Screening Level (RSL) for residential air using an HQ of 1 and TCR of 10^{-6} (EPA 2021a).

Ambient air samples for H_2S analysis collected through a Radiello™ passive sampling badge will be conducted in accordance with manufacturer's instructions, the ALS laboratory analytical method, and EPA SOP No. 2008, "General Air Sampling Guidelines" (Attachment 2). The Radiello™ passive sampling badge fitted with a zinc acetate adsorbent cartridge will be deployed to the appropriate sampling location and the start time will be recorded on an air sampling data form. At the end of sampling duration, the passive sampling badge will be placed in an individual plastic bag and sealed. The ambient air samples will be delivered to the ALS laboratory located in Cincinnati, Ohio under a signed chain-of-custody form and analyzed for H_2S via ALS SOP IH-007 "Colorimetric Determination of Hydrogen Sulfide in Air" with a 24-hour turnaround time. Analytical results will be compared to EPA Regional Screening Level (RSL) for residential air using an HQ of 1 and TCR of 10^{-6} (EPA 2021a).

TABLE 2: SAMPLE SUMMARY

Matrix	Analytical Parameter	Analytical Method	Volume and Containers	Preservation Requirements	Holding Time	Number of Samples	Number of Field Duplicates	Number of MS/MSDs	Number of Blanks*	Total Number of Samples to Lab
Ambient Air	VOCs	TO-15	One 6-L SUMMA canister	NA	30 days	TBD	1 per 10 field samples	NA	NA	TBD
Ambient Air	VOCs and H_2S	TO-15 and ASTM D 5504	One glass-lined 6-L SUMMA canister	NA	24 hours	TBD	1 per 10 field samples	NA	NA	TBD
Ambient Air	H_2S	SOP IH-007	Radiello™ passive sampling badge	NA	6 months	TBD	1 per 10 field samples	NA	NA	TBD
Water	VOCs	SW-846 8260B	Three 40-mL amber glass jar	HCl, pH < 2, no headspace, cool, < 6°C	14 days	TBD	1 per 10 field samples	1 per 20 field samples	1 trip blank per cooler, 1	TBD
Water	SVOCs	SW-846 8270D	Two 1-L amber glass jar	Cool, < 6°C	7 days/40 days after extraction	TBD	1 per 10 field samples	1 per 20 field samples	NA	TBD
Water	GROs	SW-846 8015C	Three 40-mL amber glass jar	Cool, < 6°C, HCL to pH < 2	14 days	TBD	1 per 10 field samples	1 per 20 field samples	NA	TBD
Water	OROs	SW-846 8015C	One 2-L amber glass jar	Cool, < 6°C, HCL to pH < 2	7 days/40 days after extraction	TBD	1 per 10 field samples	1 per 20 field samples	NA	TBD
Water	DROs	SW-846 8015C	One 2-L amber glass jar	Cool, < 6°C, HCL to pH < 2	7 days/40 days after extraction	TBD	1 per 10 field samples	1 per 20 field samples	NA	TBD
Water	pH	SW-846 9040C	One 250-mL plastic bottle	Cool, < 6°C	Analyze immediately	TBD	1 per 10 field samples	1 per 20 field samples	NA	TBD

Notes:

***** One rinsate blank required per analytical parameter per sampling event when non-dedicated sampling equipment is used.

[1] Ambient air samples will be analyzed for H2S if directed by EPA

°C	degrees Celsius	MS/MSD	matrix spike matrix spike duplicate
<	less than	mL	milliliter
ASTM	American Society for Testing and Materials	NA	not applicable
DRO	diesel-range organic	ORO	oil-range organics
EPA	US Environmental Protection Agency	PCB	polychlorinated biphenyl
GRO	gasoline-range organic	SVOC	semi-volatile organic compound
HCL	Hydrochloric acid	TAL	Target Analyte List
L	liter	TBD	to be determined
		VOC	volatile organic compound

5.0 DECONTAMINATION PROCEDURES

When possible, sampling equipment used by Tetra Tech START will be disposable. Used disposable sampling equipment and PPE will be double-bagged and stored on-site, pending decisions about future removal actions. If non-disposable sampling equipment is deemed necessary, that equipment will be decontaminated following work at each sampling location by use of a hand brush, Liquinox wash, and tap water rinse. Decontamination procedures will accord with Tetra Tech SOP No. 002-4, "General Equipment Decontamination" (Appendix B). Decontamination water use will be minimized. Typically, 5 to 10 gallons of rinsate water is generated. Disposal of rinsate water will occur on-site by discharging it onto the (hard) ground surface. Paper towels may be used to soak up small amounts of water and will be disposed of with the dry industrial waste.

6.0 SAMPLE HANDLING

Each sample will be labeled to identify its location. Samples will be identified by a unique sample identification number, as described in Table 3.

TABLE 3: SAMPLE NOMENCLATURE

Sample Type	Nomenclature Format	Description
Sheen Net	EOS-SHEEN##-MMDDYY	EOS: Edwardsville Oil Spill Site identifier SHEEN##: Sheen net sample number ## MMDDYY: Sample Date
Ambient Air	EOS-AA##-MMDDYY	EOS: Edwardsville Oil Spill Site Identifier IA##: Ambient air sample number ## MMDDYY: Sample date
Surface Water	EOS-SW##-MMDDYY	EOS: Edwardsville Oil Spill Site identifier SW##: Surface water sample ## MMDDYY: Sample date
Private Well Water	EOS-PW##-MMDDYY	EOS: Edwardsville Oil Spill Site identifier PW##: Private well sample number ## MMDDYY: Sample date

Notes: MMDDYY – month/day/year

7.0 FIELD QUALITY CONTROL

Field QC measures will consist of proper equipment calibration, adherence to instrument manufacturer user manuals, USCG guides, and Tetra Tech and ERT SOPs for air monitoring, air sampling, and documentation of monitoring activities in the site logbook as described in the Tetra Tech "QAPP for START" (Tetra Tech 2022a), Tetra Tech SOP No. 024-3, "Recording Notes in Field Logbooks" (Appendix B), and EPA SOP No. 2008 "General Air Sampling Guidelines" (Attachment 1). Field QC measures will also adhere to proper water sampling procedures in accordance with Tetra Tech SOP No. 009-5, "Surface Water Sampling"

(Appendix B), Tetra Tech SOP No. 061-3, "Field Measurement of Groundwater Indicator Parameters" (Appendix B), and EPA SOP No. ASBPROC-305-R4 "Potable Water Supply Sampling" (Attachment 1).

The MultiRAE will be calibrated and bump tested according to the manufacturer's instructions to ensure precision and accuracy of the instrument response to standard. The calibration standard for the MultiRAE is as follows:

- VOCs – 10 ppm or 100 ppm isobutylene
- LEL – 50% LEL for methane
- H_2S – 10 ppm
- CO – 50 ppm
- $\%O_2$ – 18.0%

The UltraRAE and TVA will be calibrated and bump tested according to the manufacturer's instructions to ensure precision and accuracy of the instrument response to standard. The calibration standard for the UltraRAE and 5 ppm for benzene. The calibration standard for the TVA is as follows:

PID – 10 ppm isobutylene

FID – 50 ppm methane

8.0 DATA EVALUATION AND MANAGEMENT

START will use direct-reading instruments with data logging capability and record field measurements in Survey 123 and the field logbook. The data will be evaluated after each screening to identify any results above background. Digital data collected during site activities will be subject to routine quality assurance (QA)/QC checks. These QA/QC checks will be performed daily, at a minimum, and will be implemented any time data are transitioned from one operating platform to another. For example, data entered on a tablet computer will be subject to a QA/QC check when they are downloaded from Survey123 or a similar application. The same data will then be subject to a QA/QC check when uploaded to the central project Scribe database, and a final QA/QC check will be performed as the central project Scribe database is populated with analytical results. The Scribe database will be published to Scribe.net for data accessibility. When laboratory results are received, Tetra Tech will review the laboratory data packages for completeness and accuracy and will conduct Stage III data validation in accordance with EPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (EPA 2020) and the EPA NFG for Inorganic Superfund Methods Data Review (EPA 2020).

9.0 DELIVERABLES

Within 10 days of receiving the laboratory results, Tetra Tech will conduct Stage III data validation and provide the EPA OSC with the associated data validation report. All project deliverables will receive an internal QC review before they are released, per guidelines established in the Tetra Tech START Quality Management Plan (QMP) (Tetra Tech 2022b).

10.0 REFERENCES

35 Illinois Administrative Code 302, "Subpart B: General Use Water Quality Standards." On-Line Address: https://www.ilga.gov/commission/jcar/admincode/035/03500302sections.html

Tetra Tech, Inc. (Tetra Tech). 2022a. "Quality Assurance Project Plan [QAPP] for START V." Revision 3. EPA Region 5. January.

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