

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 2 of 6

Section 1. Contact and Recipient Information

Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

Last Name	First	MI	Organization/ Business Name
McCue	John		City of Hayward
Mailing Address			City
15889 West 3rd Street PO Box 969			Hayward
			State
			WI
			ZIP Code
			54843
Phone # (include area code)	Fax # (include area code)	Email	
(715) 634-4612	(715) 634-5868	pw3@centurytel.net	

The requester listed above: (select all that apply)

- Is currently the owner
 Is considering selling the Property
 Is renting or leasing the Property
 Is considering acquiring the Property
 Is a lender with a mortgagee interest in the Property
 Other. Explain the status of the Property with respect to the applicant:

John McCue is the Director of Public Works for the City of Hayward (Owner)

Contact Information (to be contacted with questions about this request)

Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name
McCue	John		City of Hayward
Mailing Address			City
15889 West 3rd Street PO Box 969			Hayward
			State
			WI
			ZIP Code
			54843
Phone # (include area code)	Fax # (include area code)	Email	
(715) 634-4612	(715) 634-5868	pw3@centurytel.net	

Environmental Consultant (if applicable)

Contact Last Name	First	MI	Organization/ Business Name
Kent	Brian		Short Elliott Hendrickson Inc
Mailing Address			City
329 Jay Street Suite 301			La Crosse
			State
			WI
			ZIP Code
			54601
Phone # (include area code)	Fax # (include area code)	Email	
(715) 456-4621	(888) 908-8166	bkent@sehinc.com	

Section 2. Property Information

Property Name	FID No. (if known)
Hayward CTY Landfill #1751	858011330
BRRTS No. (if known)	Parcel Identification Number
0258000380	
Street Address	City
US63 & Stress Road	Hayward
	State
	WI
	ZIP Code
	54843
County	Municipality where the Property is located
Sawyer	<input checked="" type="radio"/> City <input type="radio"/> Town <input type="radio"/> Village of Hayward
	Property is composed of:
	<input type="radio"/> Single tax parcel <input checked="" type="radio"/> Multiple tax parcels
	Property Size Acres
	20

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1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

- No Yes

Date requested by: _____

Reason:

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

- No. **Include the fee that is required for your request in Section 3, 4 or 5.**
 Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:

Section 3. Technical Assistance or Post-Closure Modifications;

Section 4. Liability Clarification; or Section 5. Specialized Agreement.

Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: [Numbers in brackets are for WI DNR Use]

- No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - **Include a fee of \$350.** Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.
- Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of \$700.**
- Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of \$1050.**
- Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of \$1050.**
- Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of \$1050.**
- Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of \$1050.**
- Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of \$350**
- Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of \$425.**
- Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of \$425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

- Schedule a Technical Assistance Meeting - **Include a fee of \$700.**
- Hazardous Waste Determination - **Include a fee of \$700.**
- Other Technical Assistance - **Include a fee of \$700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

- Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of \$1050, and:**
- Include a fee of \$300 for sites with residual soil contamination; and
- Include a fee of \$350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

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Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this form.

Section 5. Request for a Specialized Agreement

Select the type of agreement needed. Include the appropriate draft agreements and supporting materials. Complete Sections 6 and 7 of this form. More information and model draft agreements are available at: dnr.wi.gov/topic/Brownfields/lgu.html#tabx4.

- Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]
 - ❖ Include a fee of \$700, and the information listed below:
 - (1) Phase I and II Environmental Site Assessment Reports,
 - (2) a copy of the Property deed with the correct legal description.
- Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]
 - ❖ Include a fee of \$700, and the information listed below:
 - (1) Phase I and II Environmental Site Assessment Reports,
 - (2) a copy of the Property deed with the correct legal description.
- Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]
 - ❖ Include a fee of \$1400, and the information listed below:
 - (1) a draft schedule for remediation; and,
 - (2) the name, mailing address, phone and email for each party to the agreement.

Section 6. Other Information Submitted

Identify all materials that are included with this request.

Send both a paper copy of the signed form and all reports and supporting materials, and an electronic copy of the form and all reports, including Environmental Site Assessment Reports, and supporting materials on a compact disk.

Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.

- Phase I Environmental Site Assessment Report - Date: _____
- Phase II Environmental Site Assessment Report - Date: _____
- Legal Description of Property (required for all liability requests and specialized agreements)
- Map of the Property (required for all liability requests and specialized agreements)
 - Analytical results of the following sampled media: Select all that apply and include date of collection.
 - Groundwater Soil Sediment Other medium - Describe: _____
 - Date of Collection: _____
- A copy of the closure letter and submittal materials
- Draft tax cancellation agreement
- Draft agreement for assignment of tax foreclosure judgment
- Other report(s) or information - Describe: All historic reports sent to WDNR prior

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?

- Yes - Date (if known): 09/01/1988
- No

Note: The Notification for Hazardous Substance Discharge (non-emergency) form is available at: dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf.

Section 7. Certification by the Person who completed this form

- I am the person submitting this request (requester)
- I prepared this request for: _____
Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

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Jim McCue
Signature

9/13/21
Date Signed

Director of Public Works
Title

(715) 634-4612
Telephone Number (include area code)

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Section 8. DNR Contacts and Addresses for Request Submittals

Send or deliver one paper copy and one electronic copy on a compact disk of the completed request, supporting materials, and fee to the region where the property is located to the address below. Contact a [DNR regional brownfields specialist](#) with any questions about this form or a specific situation involving a contaminated property. For electronic document submittal requirements see: <http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf>.

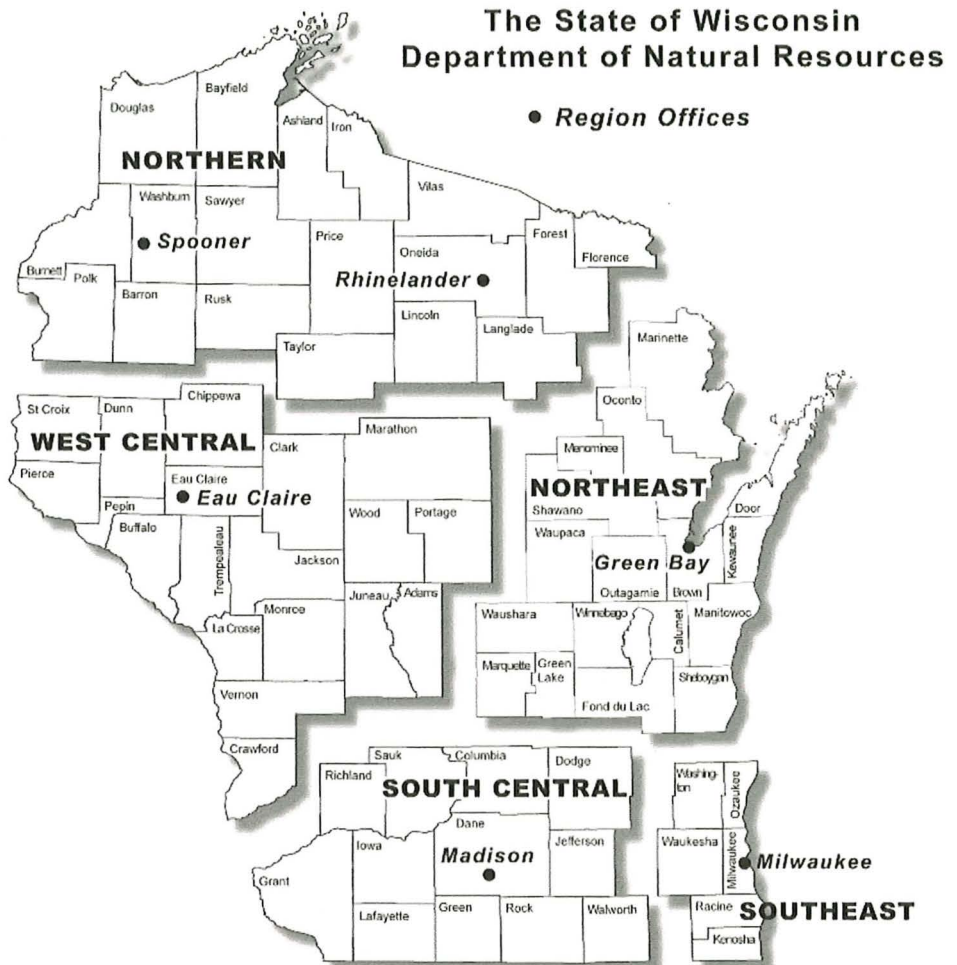
DNR NORTHERN REGION
 Attn: RR Program Assistant
 Department of Natural Resources
 223 E Steinfest Rd Antigo, WI 54409

DNR NORTHEAST REGION
 Attn: RR Program Assistant
 Department of Natural Resources
 2984 Shawano Avenue
 Green Bay WI 54313

DNR SOUTH CENTRAL REGION
 Attn: RR Program Assistant
 Department of Natural Resources
 3911 Fish Hatchery Road
 Fitchburg WI 53711

DNR SOUTHEAST REGION
 Attn: RR Program Assistant
 Department of Natural Resources
 2300 North Martin Luther King Drive
 Milwaukee WI 53212

DNR WEST CENTRAL REGION
 Attn: RR Program Assistant
 Department of Natural Resources
 1300 Clairemont Ave.
 Eau Claire WI 54702



Note: These are the Remediation and Redevelopment Program's designated regions. Other DNR program regional boundaries may be different.

DNR Use Only			
Date Received	Date Assigned	BRRTS Activity Code	BRRTS No. (if used)
DNR Reviewer		Comments	
Fee Enclosed? <input type="radio"/> Yes <input type="radio"/> No	Fee Amount \$	Date Additional Information Requested	Date Requested for DNR Response Letter
Date Approved	Final Determination		



Site Investigation Work Plan

Hayward Landfill Phase 2 PFAS Assessment

Hayward, Wisconsin

HAYWA 159031 | August 27, 2021



Building a Better World
for All of Us®

Engineers | Architects | Planners | Scientists



Building a Better World
for All of Us®

August 27, 2021

RE: Hayward Landfill Phase 2 PFAS
Assessment
Site Investigation Work Plan
Hayward, Wisconsin
SEH No. HAYWA 159031 4.00

Mr. John Sager, Hydrogeologist
Wisconsin Department of Natural Resources
1701 N. 4th Street
Superior, WI 54880

Dear: Mr. Sager:

On behalf of the City of Hayward (City), Short Elliott Hendrickson Inc. (SEH®) is submitting a copy of the enclosed work plan entitled "Hayward Landfill Phase 2 PFAS Assessment - Site Investigation Work Plan." This work plan is being submitted to the Wisconsin Department of Natural Resources (WDNR) in response to the WDNR's request for additional investigation of emerging contaminants (i.e., perfluoroalkyl and polyfluoroalkyl substances (PFAS)).

This work plan is being provided to you for formal review by WDNR, thus please issue an invoice for the associated review fee to the City. Comments generated during the WDNR review of this work plan will be used to modify the proposed investigation as necessary. Please feel free to contact me via email at bkent@sehinc.com or at 715.456.4621 if you have any questions related to the project or the proposed investigation activities.

Sincerely,

A handwritten signature in black ink, appearing to read "BKent", is written over a light blue horizontal line.

Brian L. Kent, CHMM
Project Manager

JEG/jeg/hbh/blk/bko

x:\fjh\haywa\159031\3-env-stdy-regs\pfas investigation\phase 2 investigation\hayward landfill pfas ph2 work plan 8.27.2021.docx

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 10 North Bridge Street, Chippewa Falls, WI 54729-2550

715.720.6200 | 800.472.5881 | 888.908.8166 fax | sehinc.com

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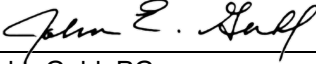
Site Investigation Work Plan

Hayward Landfill Phase 2 PFAS Assessment
Hayward, Wisconsin

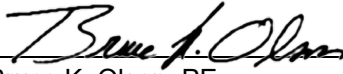
Prepared for:
The City of Hayward
Hayward, Wisconsin

Prepared by:
Short Elliott Hendrickson Inc.
10 North Bridge Street
Chippewa Falls, WI 54729-2550
715.720.6200

I, John Guhl, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that to the best of my knowledge, all of the information contained in this document is correct and the document was pre-pared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

	120	8/27/201
John Guhl, PG Hydrogeologist	PG Number	Date

I, Bruce Olson, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

	8/27/2021
Bruce K. Olson, PE Principal	Date



Distribution

No. of Copies	Sent to
1	John Sager, Hydrogeologist Wisconsin Department of Natural Resources 1701 N 4th Street Superior, WI 54880Superior, WI 54880
1	John McCue, Public Works Director City of Hayward 15589 west 3rd Street P.O. Box 969 Hayward, WI 54843

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Certification Page
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- Appendix C Site Health and Safety Plan

Site Investigation Work Plan

Hayward Landfill Phase 2 PFAS Assessment

Stress Road, Hayward, Wisconsin, WDNR License No. 01751

Prepared for City of Hayward

1 Introduction

This Site Investigation (SI) Work Plan (Work Plan) was prepared by Short Elliott Hendrickson Inc. (SEH®) on behalf of the City of Hayward (City) for proposed site investigation activities. The former Hayward Landfill property (hereafter referred to as “site”) has historically been used as a landfill facility formerly accepting various waste materials. The site is located on Stress Road in the City of Hayward, Wisconsin. This Work Plan was prepared to describe the proposed SI activities that will be completed at the site. The SI is specifically intended to assess degree and extent of perfluoroalkyl and polyfluoroalkyl substances (PFAS) previously identified in site groundwater. The activities outlined in this Work Plan have been selected to attempt to identify both horizontal and vertical extent of the site PFAS impacts. This Work Plan was written in general accordance with s. NR 716.07 and 716.09 Wisconsin Administrative Code.

1.1 Project Contacts

1. John McCue, Public Works Director
City of Hayward
15589 West 3rd Street
P.O Box 969
Hayward, WI 54843
715.634.4612
2. John Sager, Hydrogeologist
Wisconsin Department of Natural Resources
1701 N 4th Street
Superior, WI 54880
715.392.7822
3. Brian L. Kent, CHMM
Short Elliott Hendrickson Inc.
321 Jay Street Suite 301
La Crosse, WI 54601
715.456.4621

2 Background Information and Site Scoping

The site is owned by the City and is located near Highway 63 on Stress Road in Hayward, Wisconsin. The site is further described as being located in Section 28, T41N, R9W in Sawyer County, Wisconsin. The general site location is provided on Figure 1, “Site Location.”

The City operated the landfill for approximately 21-years and closed it in 1985. Municipal, commercial, and demolition waste were disposed in the waste containment area, which encompassed approximately 9.1 acres of the 20-acre site. Groundwater impacts from volatile organic compounds (VOCs) were identified associated with the landfill subsequent to closure. As a result, SEH designed and implemented an active soil gas extraction system which operated for several years and successfully addressed the VOC groundwater impacts, and the soil gas extraction system was shut down.

In 2020, WDNR began transferring the oversight of the Hayward Landfill site internally between departments. However, as a result of the transfer process, WDNR required evaluation of emerging contaminants (i.e., PFAS) as part of approving long term care requirements for the landfill. The evaluation indicated waste containing PFAS were likely disposed at the landfill over time during landfill operation. The WDNR then required an investigation at the landfill to determine if PFAS was present in groundwater and agreed to an approach of sampling eight existing monitoring wells for one round of PFAS analysis. The results of the PFAS groundwater investigation indicated that PFAS was present in several site wells at concentrations exceeding proposed State regulatory criteria. WDNR has now required additional PFAS assessment of the groundwater at the landfill to assess degree and extent of PFAS impacts.

There are currently no known municipal wells located within 1,200 feet of the site. However, potable water is supplied by private wells to several residences and businesses in the vicinity of the site, some of which are within 1,200 feet of the site. The existing private wells in the proximity of the site are largely to the south of the site. The existing monitoring wells, piezometers, and nearby private wells are depicted on Figure 2, "Monitoring Well, Piezometer, and Private Well Locations."

If present, residual contamination within the refuse at the site is expected to migrate vertically through site soils. Soils in the vicinity of the site are expected to be granular soils originating from glacial outwash deposits. Hydraulic conductivities of these soils are expected to be quite high. Thus, backfill of utility trenches are not expected to be a preferential route for contaminant migration.

SEH does not believe contamination at the site presents potential impacts to items listed in s. NR 716.07(8).

3 Physiographical and Geological Setting

3.1 Physiography and Topography

The Hayward area is within the geographical province of the central plain, with the northern highlands geographical province located just to the north. The central plain geographical province is generally characterized as having limited topography with occasional hills, and is typically underlain by sandstone bedrock (Martin, 1965). The northern highland geographical province just north of the site comprises much of northern Wisconsin, with bedrock consisting of Precambrian igneous and metamorphic deposits. The northern highland geographical province is now known for extensive forest areas, lakes, and wetlands (Martin, 1965).

The elevation at and around the site is approximately 1200 feet above mean sea level (MSL) (USGS, 1971). Site topography is relatively flat, with storm water generally draining toward the west toward a wetland area and to the south, toward the Namekagon River.

3.2 Soils

Soils in the vicinity of the site are typically sand and gravels of pitted outwash deposits. Thickness of unconsolidated deposits in the vicinity of the site generally range from 100 to 200 feet (Young, 1973).

3.3 Geology

The bedrock geology of the Hayward vicinity consists of undifferentiated Cambrian aged sandstone sedimentary rocks (Ostrom, 1981). The sandstones are sometimes interbedded with layers of dolomite and shale. The Cambrian sandstone is underlain by Precambrian basement complex, with the overlying sandstone pinching out and disappearing to the north.

3.4 Hydrogeology

Groundwater availability in the vicinity of the City is provided predominantly from either the unconsolidated pitted outwash deposits or the underlying sandstone bedrock located in the vicinity of the site (Young, 1973). Regionally groundwater flow is generally to the east (Young, 1973). Locally, groundwater flow direction is to the south, toward the Namekagon River. Local groundwater flow patterns are often influenced by topography and by local drainage and surface water bodies. Depth to groundwater in the existing site monitoring wells generally ranges from approximately 10 to 30 feet below ground surface at a hydraulic gradient of approximately 0.005 ft/ft.

4 Proposed Site Investigation

The WDNR has requested the City to perform an additional PFAS assessment at the site to define degree and extent of PFAS groundwater impacts identified during the earlier site investigation. In order to attempt to address this request by WDNR, SEH proposes to perform the field activities described below. The activities performed will be conducted in accordance with SEH's Standard Operating Procedures (SOPs) and Quality Assurance/ Quality Control (QA/QC) Program which are found in Appendix A, "Standard Operating Procedures" and Appendix B, "Documentation and Quality Assurance/Quality Control."

4.1 Field Investigation

SEH proposes a phased additional investigation approach to assess the degree and extent of PFAS impacts at the site and to investigate whether off site migration of PFAS has occurred. A total of fifteen existing monitoring points are currently proposed for inclusion on one round of PFAS groundwater analysis. These points consist of five shallow monitoring wells, five shallow piezometers, and five deep piezometers. The well nests to be included are the MW-1, MW-7, MW-8, MW-9, and MW-10 well nests (Figure 2). The intent of this scope of sampling is to provide vertical delineation of PFAS impacts as well as down gradient extent of PFAS impacts. No private well sampling is proposed until further evaluation of data suggests assessment of individual private wells is warranted, and since the private well pumps and conveyance systems are likely constructed with PFAS containing materials.

The groundwater samples will be collected using the protocols for PFAS sampling defined by the Michigan Department of Environmental Quality's (MDEQ) October 16, 2018, document "PFAS Sampling Guidance" (included in Appendix B). Water level measurements will be recorded at each sampling location to confirm depth to groundwater and direction of groundwater flow.

The groundwater samples will then be collected using sample-dedicated polyethylene disposable bailers, placed in laboratory-clean analytical bottles, and chilled to four degrees C. The analytical samples will be submitted to Eurofins analytical laboratory in West Sacramento, California via overnight courier for analysis. Sample collection, handling, and shipment will be conducted using standard chain-of-custody documentation. The samples will be analyzed for 36 PFAS compounds including perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) using EPA method 537.1.

One sample duplicate will be collected from one of the above listed wells following the same sampling protocol listed above, and one field blank will be collected using PFAS free water provided by Eurofins. A laboratory provided trip blank will accompany the collected monitoring well and quality control samples. The quality control samples will be analyzed for the Wisconsin 36 PFAS compounds using EPA Method 537.1.

Sampling precautions against outside contaminants being introduced to the samples will include:

- Washing the water level indicator with an Alconox/PFAS free water solution followed by a PFAS free water rinse after each measurement,
- Utilizing PFAS-free bailers and bailer rope,
- Utilizing clothing and equipment of acceptable materials as defined in the MDEQ PFAS Sampling Guidance,
- Refraining from the use of sun block or insect repellent before and during sampling and sample processing,
- Using sample specific powder free nitrile gloves,
- Purging of five well volumes of water from each sampled well prior to sampling,
- Filling of sample bottles directly from the bailer,
- Refraining from placement of sample bottles or caps on the ground during the sampling procedure,
- Placing each discreet sample, as well as sample ice, in closed zipper-locking plastic bags for shipment,
- Collecting equipment blank and trip blank samples for quality control purposes.

Upon completion of sampling, each sampling point will be secured. The one-time use sampling equipment will be disposed as solid waste.

4.2 Laboratory Analysis

The groundwater samples collected for analysis will be submitted to Eurofins' analytical laboratory in West Sacramento, California (Wisconsin Lab Certification No. 998204680) via overnight courier. The samples will be analyzed for concentrations of 36 PFAS compounds required by WDNR.

4.3 Investigative Waste Storage and Disposal

Groundwater generated during SI activities will be managed and disposed as required. If evidence of non-aqueous phase liquids are present, excess groundwater generated during well sampling would be collected and stored for future disposal. Disposable equipment (i.e., personal protective equipment, disposable sampling tools) will be placed in plastic waste bags and disposed as solid waste.

5 Laboratory Methods

Laboratory methodologies for sample analysis will follow the latest accepted WDNR protocol. At this time, the following methodologies apply to parameters anticipated at the site.

Analyte	Method Reference	Method Detection Limit (MDL)	Bottle Preservation
Groundwater PFAS	EPA Method 537.1 Modified	Varies	None

6 Report

SEH will prepare an SI report for the site and submit the report to the WDNR following completion of field activities and laboratory analyses. The report will describe the degree and extent of groundwater impacts for PFAS identified at the site, and other results of the site investigation. The results of the SI as well as potential recommendations for additional investigation will be included in the narrative section of the report.

7 Estimated Work Schedule

Task	Tentative Dates for Task Completion
1. SI Field Work	September 2021
2. SI Report	November 2021

8 Site Health and Safety Plan

See Appendix C.

9 References

Martin, L., 1965, "The Physical Geography of Wisconsin." University of Wisconsin Press.

Ostrom, M. E., 1981, "Bedrock Geology of Wisconsin." Wisconsin Geological and Natural History Survey.

United States Geological Survey (USGS), 1971, "Bean Lake, Wisconsin Quadrangle, and Stanberry East, Wisconsin Quadrangle" 7.5-minute topographic map.

Young, H. L., and S. M. Hindall, 1973, "Water Resources of Wisconsin, St Croix River Basin," Wisconsin Geological and Natural History Survey, Hydrologic Investigations Atlas HA-451.

JEG/jeg/hbh

Figures

Figure 1 – Title Sheet/Site Location

Figure 2 – Monitoring Well, Piezometer, and Private Well Locations

HAYWARD LANDFILL

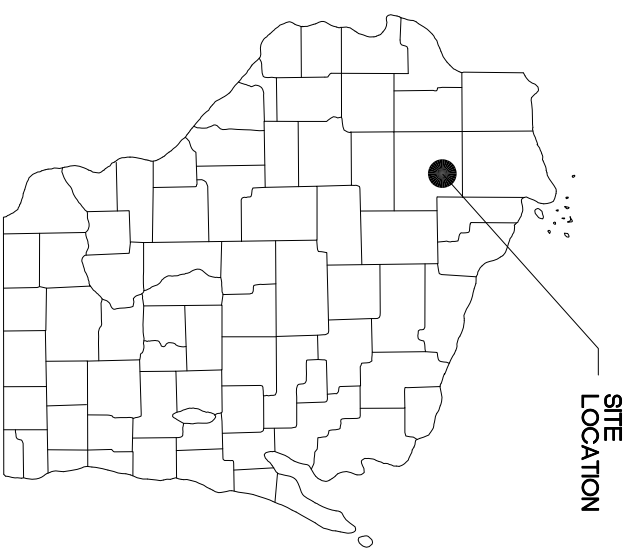
SITE INVESTIGATION WORK PLAN

PHASE 2 PFAS ASSESSMENT

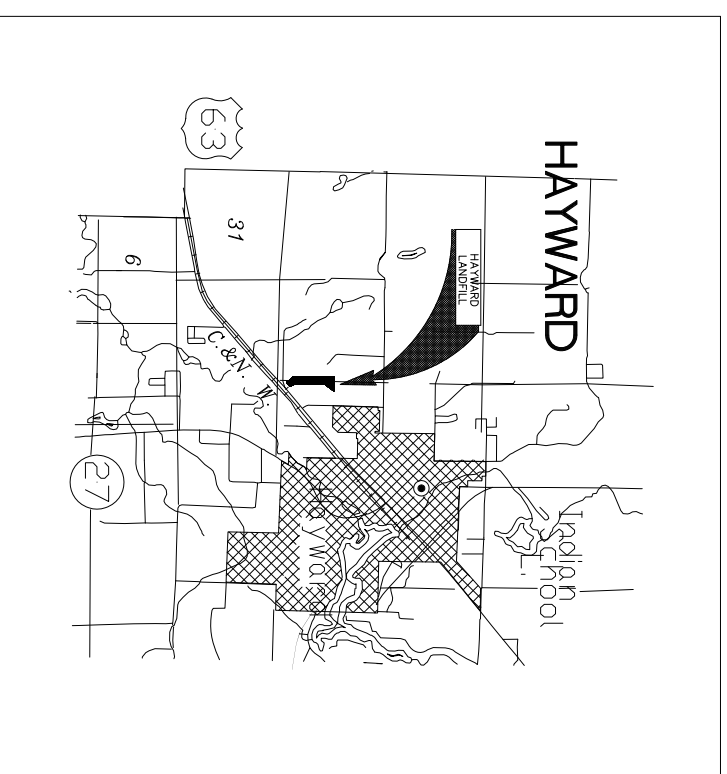
WDNR LICENSE NO. 01751

INDEX

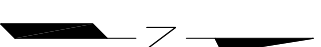
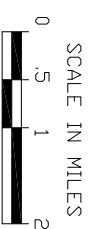
- 1/2 TITLE SHEET/ SITE LOCATION
- 2/2 MONITORING WELL, PIEZOMETER, AND PRIVATE WELL LOCATIONS



COUNTY LOCATION MAP



SITE LOCATION MAP



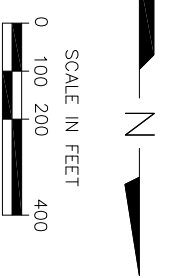
PREPARED FOR:

CITY OF HAYWARD
P.O. BOX 593
HAYWARD, WISCONSIN

PREPARED BY:

SHORT ELLIOTT HENDRICKSON, INC.
ENVIRONMENTAL SERVICE AREA
421 FRENETTE DRIVE
CHIPPEWA FALLS, WISCONSIN

NO.	DATE	ISSUE/REVISIONS	DRAWN BY	DESIGN	FIELD REVIEW	QC CHECK	PROJ. NO. HAYMA159031	FIGURE 1	1
1	08/21	ISSUED TO WDNR	RJH	08/21	RJH	08/21		TITLE SHEET/ SITE LOCATION	2



LEGEND:

- MW-2 MONITORING WELL LOCATION AND NUMBER
- MW-1 MONITORING WELL - PIEZOMETER NEST LOCATION AND NUMBER
- PW-9 PRIVATE WELL LOCATION AND NUMBER
- B-6 TEMPORARY MONITORING WELL LOCATION AND NUMBER
- BM-6 BENCHMARK LOCATION AND NUMBER
- CP-11 SURVEY CONTROL POINT LOCATION AND NUMBER

NOTES:

1. APPROXIMATE LOCATION OF FACILITY PROPERTY LINE BASED ON MAY 29, 1984, SITE SURVEY BY ANDERSON-RITCHEE ENGINEERING + SURVEY CO.
2. APPROXIMATE REFUSE DISPOSAL LIMITS BASED ON MAY 29, 1984, SITE SURVEY BY ANDERSON-RITCHEE ENGINEERING + SURVEY CO. AND ON-SITE OBSERVATIONS BY SEH.
3. PIEZOMETERS ARE LOCATED IN GENERAL LOCATION OF CORRESPONDING NUMBERED MONITORING WELLS.

SURVEY CONTROL POINTS/ BENCHMARKS			
NO.	STATION	DESCRIPTION	ELEV.
CP-8	54+47N, 54+79E	3/4" IRON PIPE	1192.86
CP-10	71+47N, 53+77E	3/4" IRON PIPE	1199.04
CP-11	60+66N, 54+42E	5/8" REBAR	1193.71
BM-6	59+75N, 55+84E	CONCRETE CORNER	1198.95

NO.	DATE	ISSUE/REVISIONS	ISSUED TO WDNR	DESIGN	FIELD REVIEW	QC CHECK
1	08/21		RJH			
	08/21		RJH			
	08/21					
	08/21					



**SITE INVESTIGATION WORK PLAN
PHASE 2 PFAS ASSESSMENT
HAYWARD LANDFILL
HAYWARD, WISCONSIN**

Appendix A

Standard Operating Procedures

Well Development, Stabilization and Sampling

Groundwater monitoring wells are developed and sampled according to WDNR guidelines outlined in NR 141.21. Wells which cannot be purged dry are surged and purged for 30 minutes prior to well development using a bottom-loading disposable plastic bailer. Ten well volumes are removed from the well during development. Wells that can be purged dry are bailed slowly to avoid agitation. The well is purged dry twice and allowed to recover prior to sampling. Following development, water is collected from the well using a bottom sampling bailer and placed in laboratory supplied sample bottles. The sample bottles are placed in an ice-filled cooler, stored under refrigerated conditions and sent to the laboratory following chain of custody procedures.

Sampling procedures used after the initial round of groundwater monitoring follow WDNR guidelines outlined in PUBL-WR-168. In low permeability formations, the well is bailed dry using a disposable plastic bailer. The well is sampled after a sufficient volume of water is present in the well for the required analyses. In high permeability formations, four well volumes are bailed from the well prior to sampling.

Groundwater Sampling Procedures

Monitoring Wells

Groundwater samples are collected from monitoring wells after initial well development following WDNR Guidelines contained in PUBL-WR-16887, "Groundwater Sampling Procedures."

Wells That Can Be Purged Dry

1. Pump or bail the well dry.
2. Allow the well to recover after purging.
3. Purge the well a second time (if time permits).
4. Collect the water sample as soon as there is a sufficient volume of water for the intended analysis.

Wells That Cannot Be Purged Dry

5. Remove four well volumes.
6. Purge wells by bailing as near the water surface as possible.
7. Disposable bailers are used to purge and collect water samples. Bailer rope is kept as clean as possible during purging and sampling activities. Water samples are collected from the bottom of the bailer and poured into laboratory provided glass containers. Sample bottles are filled until a positive meniscus is formed at the brim of the container. Agitation and turbulence is avoided while filling the sample bottles. Disposable nitrile gloves are worn while collecting samples. Sample bottles are tightly sealed after filling, placed on ice in a cooler, repacked in the office, and sent to the laboratory following chain of custody protocol.

Private Water Supplies

Water samples are collected prior to entering any treatment system and from a tap as close as possible to the well. The tap is opened and water allowed to run at least five minutes before sampling. Sample collection procedures follow those previously described in the previous section.

Appendix B

Documentation and Quality Assurance/Quality Control

Documentation and Quality Assurance/Quality Control (QA/QC)

Specific documentation and QA/QC procedures will be followed during the investigative activities at the site to ensure that accurate and representative data is collected. This section describes the procedures to be followed during field activities only. Additional information regarding site activities is contained in Appendix A, "Standard Operating Procedures." The laboratory QA/QC procedures will be performed in accordance with specific method requirements and laboratory standard operating procedures.

A written log will be used to document field procedures and conditions. The written log will be kept in a bound field book with pre-numbered pages. Field notes will be entered with an indelible ink pen at the time information is obtained. Field notes will be entered daily when activities occur. The field notes will include at least the following information:

- Date
- Field personnel (including owner, consultants, subcontractors, regulatory agency)
- Weather (temperature, cloud cover, wind, precipitation)
- Equipment (including screening, sampling, subcontractor equipment)
- Calibrations performed, calibration curves or standards
- Results and techniques used for field screening
- Sampling locations (this requires an accurate map)
- Methods and/or devices used in sampling
- Decontamination procedures used
- Time and date of sample collection
- Type of sample (soil, groundwater, surface water, etc.)
- Field preservation performed
- Field QC data associated with the sample
- Sample ID (must clearly correlate to sample locations shown on a map)
- Any deviations from work plan, SOP or special conditions

In addition to the written log, a photographic log may also be prepared documenting pertinent field conditions and sampling procedures. The photographs will be labeled to indicate the subject, date, time, direction and other relevant information. Upon completion of the field activities, the photographs will be assembled and placed in the project file.

For this project, quality assurance is the overall program for assuring reliability of field and analytical data. Quality control is the routine application of procedures for obtaining prescribed standards of performance during the field activities.

All sampling equipment will be stainless steel and decontaminated prior to use in the field, or disposable and dedicated to a single sample. When field equipment will be reused in the field (i.e., collect samples at different depths or locations), the non-disposable equipment will be decontaminated prior to reuse. The decontamination method involves a detergent or trisodium phosphate (TSP) wash, and a triple rinse with deionized water. The sampling equipment for the project will include a stainless-steel split spoon, stainless steel or disposable bailers, and stainless steel spatulas. Sample collection will begin at the point of assumed

least contamination and continue toward the areas of potential higher contamination. Samples will be transferred directly into laboratory clean glass bottles with Teflon caps.

Individual labels describing the sample, number, location, sampler's name, date, preservatives, and other relevant information will be attached to the bottles upon collection. All samples will be tracked using strict chain of custody procedures. Sample bottles will be tracked from the laboratory to the field and back to the analytical laboratory. The chain of custody will also document relevant sampling and preservation.

Field QA samples will include the following:

- Duplicate samples are discrete samples obtained from the same location and time. These samples are generally formed by splitting a larger sample into two subsamples.
- Temperature blanks are additional water samples collected in the same manner as samples, used to determine the temperature of samples on receipt by the lab.
- Field blanks are water samples processed through the same sampling and filtering equipment, used as a check on decontamination procedures (not collected when sampling with disposable bailers).
- Trip blanks are reagent water samples analyzed before leaving the lab and on their return as a check on contamination from sources outside samples (unless otherwise specified).

Field QA samples will be handled and stored in an identical manner as actual samples. Results of the analysis of duplicates, temperature, field, and trip blanks will be included in the SI report.

Appendix C

Site Health and Safety Plan

SITE HEALTH AND SAFETY PLAN

Site Name: Closed Hayward Landfill Site Contact: John McCue
US Highway 63 (near Stress Road), Sawyer
Address: County, WI. Phone: 715.634.4612
Hayward, WI

I. Site Coordination

Site Supervisor/Safety Officer	<u>Mike Rohlik</u>	Phone # (work)	<u>715.720.6226</u>
		(cell)	<u>715.271.1059</u>
Project Manager	<u>Brian Kent</u>	Phone # (work)	<u>608.498.4844</u>
		(cell)	<u>715.456.4621</u>
Corp. Health & Safety Director	<u>Kevin Accola</u>	Phone # (work)	<u>715.720.6249</u>
		(cell)	<u>715.271.7500</u>

II. Emergency Information

A. Emergency Contacts

Fire Department	<u>911</u>	Poison Control Center	<u>608.262.3702</u>
Police Department	<u>911</u>	24 LUST Hotline	<u>608.266.3232</u>
Sheriff Department	<u>911</u>	Chemtrec	<u>800.424.9300</u>
Rock County Emergency Medical Services	<u>911</u>	Coast Guard	<u>715.779.3950</u>
Ambulance	<u>911</u>	AT&F (Explosives Info)	<u>800.424.9555</u>

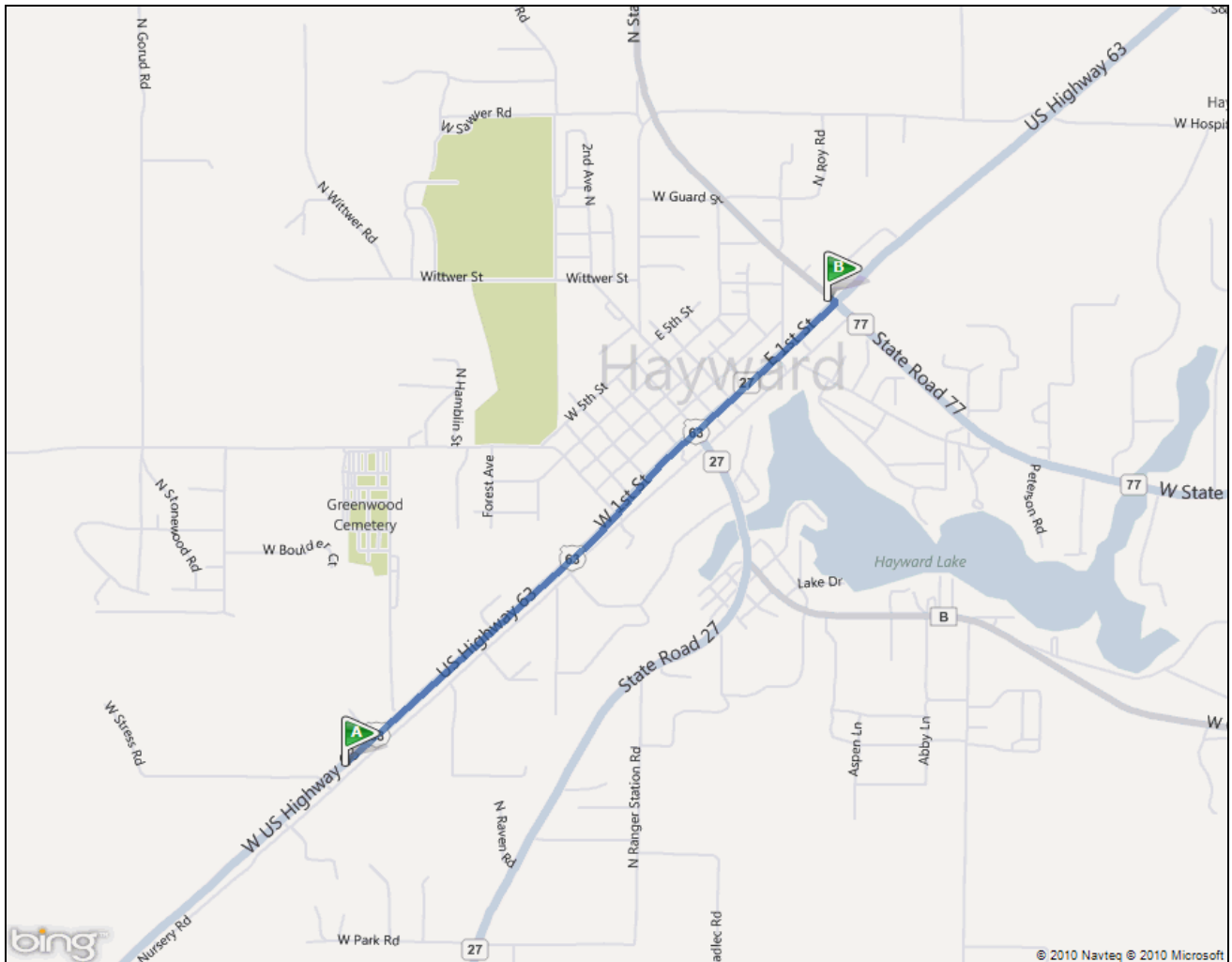
Hospital Hayward Area Memorial Hospital located at 11040 North State Road 77, Hayward, WI

1. *Directions to Hospital: From the site proceed northeast on **US Highway 63**
2. Proceed on approximately 2.0 miles to SR-77
3. Turn **left** (northwest) onto **State Road 77**

Continue approximately 200 feet to **Hayward Area Memorial Hospital** located at **11040 North State Road 77**, Hayward, WI.

*See map on next page for detailed instructions.

A. Hospital Route Map



*For internal use only.

B. Emergency Response

Refer to the SOP for Emergency Response Procedures, which can be found in Attachment A.

C. Site Evacuation

The evacuation signal for the site is three short blasts of a horn, either on a motor vehicle or an air horn.

Evacuation routes and assembly points will be determined at the site. Preferably the meeting place should be upwind of the work activities and at a safe distance. In the event of an evacuation, the following must be observed:

- Employees in the immediate vicinity should shut down all operating equipment and disconnect electrical and gasoline or diesel combustion power sources to machinery unless their well being is in imminent danger.
- Immediately after personnel are alerted, they will evacuate the facility via the nearest escape route.
- All evacuated personnel will assemble at the predetermined meeting place.
- The Site Safety Officer will ensure all employees have evacuated before departing.
- Employees should move quickly and calmly without panic.
- Employees should not smoke.
- Once assembled, employees should remain calm and quiet until the Site Safety Officer assesses the situation. Each employee must report to the Site Safety Officer until everyone is accounted for and evacuation is complete.

D. First Aid

Refer to the SOP for First Aid found in Attachment B.

III. Applicability

The purpose of this Site Health and Safety Plan (SHSP) is to assign responsibilities, establish personal protection standards and safety practices and procedures, and provide for contingencies that may arise during site operations.

The provisions of the plan are required for all onsite SEH personnel who are engaged in hazardous material management activities including, but not limited to, initial site reconnaissance, preliminary field investigations, mobilization, project operations, and demobilization. This plan complies with Occupational Safety and Health Administration (OSHA) standards 29 Code of Federal Regulations (CFR) 1910.120.

SEH personnel working at this site meet the training requirements of 29 CFR 1910.120: Hazardous Waste Operations and Emergency Response (HAZWOPER). Documentation of this training can be obtained upon written request to the SEH Health and Safety Director, 6808 Odana Road Suite 200, Madison, Wisconsin 53719.

The health and safety procedures set forth in this SHSP are based on the site conditions and chemical hazards known or expected to be present using site data available at the time this SHSP was written. This SHSP is intended solely for SEH personnel to use for the activities described herein. This SHSP is subject to revision by the Site Safety Officer when deemed necessary by actual site conditions encountered during field activities.

This SHSP does not supersede or in any way relieve subcontractors of their obligations under any applicable OSHA regulations including: 29 CFR 1910, Occupational Safety and Health Standards; and 29 CFR 1926, Health and Safety Regulations for Construction. Before field activities begin, all contractors and subcontractors must develop their own SHSP. A copy of this SHSP will be provided upon request, but this is not a substitute for an independent plan by the contractor or subcontractor.

IV. Project Objectives

The objective of the project is to complete a round groundwater sampling on 15 nested groundwater monitoring wells.

V. Hazard Evaluation

A. Scope of Work

Scope of work:

Groundwater sampling

B. Potential Hazards

The following waste types may be encountered at the site:

Contaminated Groundwater

Physical hazards that could be encountered at the site include:

Slips, Trips and Falls

C. Chemical/Physical Hazard Summary

List information for each contaminant or class of contaminants, which could potentially be present at each location.

Location	Matrix	Compound*	Max. Concentrations ¹ (µg/l)	Route of Exposure	Symptoms
Monitoring wells	Groundwater/ Surface water	Benzene	6.7	Inhalation, ingestion, skin/eye contact	Dizziness, pallor, excitation, weakness, headache, breathlessness
		Chlorobenzene	1.2	Inhalation, skin/eye contact, ingestion	Headache, dizziness, nausea, vomiting, fatigue
		Chloroethane	3.0	Inhalation, skin/eye contact, ingestion	Headache, dizziness, nausea, vomiting, fatigue
		1,1-Dichloroethane	2.7	Inhalation, skin/eye contact, ingestion	Eye/nose/respiratory irritant, dizziness, headache, nausea
		cis-1,2-Dichloroethene	140	Inhalation, skin/eye contact, ingestion	Nausea, vomiting, weakness, tremor, gastrointestinal cramps, central nervous system depression, skin/eye irritant, narcosis
		trans-1,2-Dichloroethene	0.49	Inhalation, skin/eye contact, ingestion	Nausea, vomiting, weakness, tremor, gastrointestinal cramps, central nervous system depression, skin/eye irritant, narcosis
		Ethylbenzene	0.22	Inhalation, ingestion, skin/eye contact	Dizziness, depression, eye/nose irritant, blisters, corneal injury
		Methyl Ethyl Ketone	0.92	Inhalation, ingestion, skin/eye contact	Headache, dizziness, nausea, vomiting, fatigue
		Methylene Chloride	0.75	Inhalation, ingestion, skin/eye contact	Anesthetic, nausea, dizziness, skin/eye irritant
		Naphthalene	1.9	Inhalation, ingestion, skin/eye contact	Headache, dizziness, nausea, skin/eye/nose/throat irritant
		Toluene	1.5	Inhalation, ingestion, skin/eye contact	Headache, dizziness, vomiting, diarrhea
		Tetrachloroethene	0.3	Inhalation, ingestion, skin/eye contact	Eye/nose/respiratory irritant, flush face/neck, nausea, headache, dizziness, liver damage. Carcinogen
		Tetrahydrofuran	120	Ingestion, inhalation, skin/eye contact	Eye/nose/respiratory irritant, dermatitis, headache, dizziness
		Trichloroethylene	--	Inhalation, skin/eye contact, ingestion, absorption	Skin/eye irritant, central nervous system depression, anesthesia
		Total Trimethylbenzenes	2.5	Ingestion, inhalation, skin/eye contact	Eye/nose/respiratory irritant, dermatitis, nausea, headache, dizziness, narcosis
Vinyl Chloride	37	Ingestion, inhalation, skin/eye contact	Abdominal pain, GI bleeding, hepatomegaly. Carcinogen		
Total Xylenes	37.2	Ingestion, inhalation, skin/eye contact	Headache, dizziness, skin/eye irritant, cough, pulmonary edema, nausea, vomiting, cramps		

* = Compound information for each substance can be found in Attachment C.

¹ = Max. concentrations represent groundwater monitoring data obtained from monitoring wells at the site.

-- = Unknown concentration

D. Exposure Limits and Recognition Qualities

Compound	Compound Class*	Exposure Standards			Recognition Qualities	
		PEL/TLV (ppm)	STEL (ppm)**	IDLH (ppm)	Odor Threshold (ppm)	LEL/UEL (%)
Benzene	VOC	0.1	1 ppm	500	4.68	1.2/7.8
Chlorobenzene		75	--	1,000	0.21	1.3/9.6
Chloroethane		1,000	--	3,800	--	3.8/15.4
1,1-Dichloroethane		100	--	3,000	--	5.4/11.4
cis & trans-1,2-Dichloroethene		200	--	1,000	--	5.6/12.8
Ethylbenzene		100	--	800	140	0.8/6.7
Methyl Ethyl Ketone		--	0.2 (NIOSH Ceiling)	--	10	Unknown
Methylene Chloride		500	2,000/5 minutes	2,300	300	13/23
Naphthalene		10	15	250	--	0.9/5.9
Toluene		200	500 ppm/10 minutes	500	0.17	1.1/7.1
Tetrachloroethene		100	300/5 minutes	150	5	Not flammable
Tetrahydrofuran		200	250/5 minutes	2,000	20-50	2.0/11.8
Trichloroethene		100	300/5 minutes	1,000	50	8/10.5
Total Trimethylbenzenes		--	--	--	--	0.9/6.4
Vinyl Chloride		1	5 (Ceiling)	--	260	3.6/33
Total Xylenes	100	150	900	0.5	0.9/7	

* = Compound classes include: VOCs, explosive gas, dust, particulate, insecticides, etc.
 ** = Maximum 15-minute exposure unless specified.
 -- = Unknown

E. Additional Concerns

Fire Protection/Fire Prevention: Operations involving the potential for fire hazards shall be conducted in a manner as to minimize the risk. Non-sparking tools and fire extinguishers shall be used or available as appropriate. Sources of ignition shall be removed. When necessary, explosion-proof instruments and/or bonding and grounding will be used to prevent fire or explosion.

Utilities: Overhead and underground utility hazards shall be identified and/or inspected prior to conducting operations involving potential contact. Diggers Hotline will be notified at least 3 working days prior to beginning field activities when applicable.

Weather Condition Restrictions: The Site Safety Officer has the authority, should severe weather threaten, to place site activities on standby, cease operations and/or evacuate Site as deemed necessary.

Weather conditions onsite cannot be controlled. Site personnel are to be aware of the warnings of impending severe weather and the precautions that are to be taken when severe weather threatens. Refer to the SOP for Severe Weather found in Attachment D.

Temperature Stress: Hot or cold weather is generally a consideration at any site and cannot be controlled. Site workers need to be aware of engineering controls, which can reduce temperature stress, the signs and symptoms of temperatures stress and first aid measures for victims of temperature stress. Refer to the SOP for First Aid found in Attachment B.

General Site Health and Safety Rules: Some general safe work practices apply to all sites. Refer to the SOP for General Site Health and Safety Rules found in Attachment E.

VI. Site Control

A. Present Site Security

None.

B. Site Security Upgrades Needed

None.

C. Zone of Contamination

Zone boundaries do not need to be marked. Generally, the area within 20 feet of field operations is considered the Exclusion Zone and requires the use of applicable personal protection equipment (PPE).

D. Entry Restrictions

Only authorized personnel are permitted within the Exclusion Zone.

VII. Ambient Air Monitoring

A. General

Continuous monitoring will be performed for the hazards presented in Section V, D, "Exposure Limits and Recognition Qualities," to ensure proper selection of engineering controls, work practices, and personal protective equipment. Continuous monitoring will be conducted during invasive field activities. The appropriate level of protection will be selected based on the monitoring results and the corresponding action levels shown on the table in Section VII, B, "Monitoring Requirements."



B. Monitoring Requirements

Location	Compound	Equipment	Action Level*	Protective Level
Soil Borings	VOCs	PID/FID	< Background	D
			Background - 5 units above Background	C
			>5 units above Background	Cease operations; re-evaluate work plan.

*All ambient measurements taken to evaluate employee exposures must be taken in the individuals breathing zone and must be fairly constant for at least 30 seconds.

Before any field activities commence, the background levels of the site must be measured and noted. Daily background readings must be conducted away from areas of potential contamination to obtain accurate results.

All site readings along with the date, time, background level, weather conditions, wind direction and speed, and the location where the background level was recorded must be noted in the field book or on an Air Monitoring Form.

C. Instrument Calibration and Maintenance

Field instruments will be calibrated and maintained according to the manufacturer's recommendations. Photoionization detectors (PIDs) and flame ionization detectors (FIDs) will be calibrated with the appropriate calibration gas (i.e., isobutylene for PIDs and methane for FIDs). The instruments will be calibrated with the following frequency:

1. At the beginning of each day.
2. After any significant changes in humidity or temperature (more than 15 degrees F).
3. After any repairs to the instrument are performed.

VIII. Personal Protective Equipment (PPE)

All field activities will be performed at the appropriate level of protection for the action levels specified in Section VII, B. The following table describes the equipment required for various levels of protection.

Equipment Need	Type/Material	Protection Level			
		A ¹	B ¹	C	D
Protective Coveralls or Work Clothes					X
Boots with Steel Toe and Shank				X	X
Hard Hat				X	X
Safety Glasses				X	X
Disposable Gloves/Boot Covers	Nitrile				X
Hearing Protection				X	X
Chemical-Resistant Coveralls	Polyethylene Coated Tyvek			X	



Chemical-Resistant Inner/Outer Gloves	Nitrile/Viton			X	
Chemical-Resistant Boot Covers				X	
Two-way Radio Communication					
Air-Purifying Respirator with Cartridges ²	Full face, Organic Vapor			X	
Escape Respirator					
Positive Pressure SCBA					
Fully-Encapsulating, Chemical-Resistant Suit					

¹ = The SEH Corporate Safety Director will select appropriate equipment for jobs requiring level A or B.

² = The SEH Corporate Safety Director will select appropriate cartridges for specific jobs.

IX. Decontamination

Use the SOP for Personal and Equipment Decontamination at the highest protection level used onsite each day. See Attachment F for Decontamination SOP.

X. Confined Space Entry

Confined space entry is not allowed in the scope of this SHSP. Should a confined space entry situation be encountered, the Project Manager and Health and Safety Administrator must be notified and provisions for confined space entry must be added to this SHSP.

XI. Drum Sampling/Handling

Drum sampling/handling is not anticipated for the project at this time. If drum sampling becomes necessary, applicable drum sampling and handling procedures must be added to this SHSP.

MFR//



ATTACHMENT A

Field Emergency Response Procedures



ATTACHMENT A

Field Emergency Response Procedures

Based on the type of potential hazards that may be present, the SEH Project Manager and SEH Health and Safety Director are to determine if a site specific emergency response plan is necessary prior to the beginning of work. If a site specific plan is necessary, it is to be attached to the Site Health and Safety Plan (SHSP).

General

In the event of an emergency situation, SEH employees will provide useful information regarding the incident to emergency response personnel. Stick to helpful facts and avoid placing blame or judgement.

At a safe distance and at the appropriate time, write down all that is remembered regarding the incident. This information may be important later when facts are sorted out.

- How did it happen?
- Who was doing what?
- What did you see?
- What did you hear?

Small Fires

Even a minor fire can become a serious problem, particularly when adjacent to flammable or combustible materials. The first few minutes after discovery of a fire are the most critical in preventing a larger emergency. Take the following actions immediately.

1. In case of a fire or explosion, immediately shut down possible ignition sources and stop any work in progress. Give priority to assisting injured persons.
2. Alert other personnel in the vicinity and send someone for assistance.
3. If it is a small fire - one that can be extinguished within 30 seconds or with one fire extinguisher - attempt to extinguish the blaze if:
 - Conditions are safe
 - You are not alone
 - You have the proper class of fire extinguisher
 - You have been properly trained to use a fire extinguisher

4. A combination (ABC) extinguisher can be used against the following classes of fires:

- Class A fires - ordinary combustible solids such as paper, wood, coal, rubber and textiles
- Class B fires - petroleum hydrocarbons (diesel fuel, motor oil and grease) and volatile flammable solvents
- Class C fires - electrical equipment

Note: ABC extinguishers are not effective against Class D fires which include combustible or reactive metals (such as sodium and potassium), metal hydrides or organometallics. Special Class D extinguishers are required.

5. Avoid entrapment by a fire; always fight from a position accessible to an exit.
6. If there is any chance that the fire cannot be controlled by locally available personnel and equipment, the following action should then be taken:
 - Activate the emergency alarm system (if available) and notify the local fire department.
 - Confine the emergency to prevent further spread of the fire.



- Assist injured personnel and provide first aid or transportation to medical assistance, if necessary.
7. Next, notify the client if the client is in close proximity to the fire.
 8. If the fire department is contacted, be prepared to tell them:
 - Who you are
 - Your location (reference site hospital route map)
 - Type of fire (i.e., electrical, chemical, combustible solids, vapor)
 - If the fire is extinguished
 - The need for medical assistance
 - Other potential hazards in the area (i.e., proximity to bulk tanks, downed electrical lines, poor access)
 - What you will be doing after you hang up the phone and where they can find or reach you
 9. Upon arrival of the local fire department, turn over command to them and explain the situation. Contact the SEH Project Manager and SEH Health and Safety Director.

Large Fire or Explosion

1. If the fire is too large to extinguish within 30 seconds, immediately notify people in the area and then call the local fire department. Be prepared to tell them:
 - Who you are
 - Your location
 - Type of fire (i.e., electrical, chemical, combustible solids, vapor)
 - If the fire is extinguished
 - The need for medical assistance
 - Other potential hazards in the area (i.e., proximity to bulk tanks, downed electrical lines, poor access)
 - What you will be doing after you hang up the phone and where they can find you or reach you
2. Upon arrival of the fire department, turn over command to them and explain the situation. Contact the SEH Project Manager and SEH Health and Safety Director.

Flammable/Combustible Liquid Spills

1. If a spill of a flammable or combustible liquid occurs, all possible sources of ignition should be extinguished or removed immediately.
2. Use Material Safety Data Sheets (MSDSs), analytical information from laboratory personnel, and any other available sources of information, together with your own expertise to determine if spill control and cleanup can be safely accomplished with the personnel and materials available onsite.
3. The following general spill cleanup procedures can be utilized, but more specific techniques might be required for certain chemicals and, if necessary, will be included in Section XI of this SHSP.
 - Vermiculite or suitable absorbent may be used to solidify free liquids.
 - Both spilled liquids and solid residues must be contained in drums.
 - If a spill occurs on soil, it must be scraped and contained.
 - The appropriate state agency must also be notified immediately when a spill occurs to the environment.



ATTACHMENT B

First Aid

I

ATTACHMENT B

First Aid

A. Bites

Animal Bites: Thoroughly wash the wound with soap and water. Flush the area with running water and apply a sterile dressing. Control bleeding and immobilize the affected part until the victim has been attended by a physician. See that the animal is kept alive and in quarantine. Obtain name and address of the owner of the animal.

Insect Bites: Remove "stinger" if present. Keep affected part down below the level of the heart. Apply ice bag. For minor bites and stings apply soothing lotions, such as calamine. Watch for sign of an allergic reaction.

Spider/Tick Bites: Wash the wound with soap and water. If the spider is suspected to be poisonous (i.e. Brown Recluse or Black Widow), call the Poison Control Center for instruction on immediate care and seek medical attention immediately.

B. Burns and Scalds

Care for burns and scalds using the following three basic steps.

I. Stop the Burning

- Put flames out.
- Remove the victim from the source of the burn.

2. Cool the Burn

- Use large amounts of cool water to cool the burned area.
 - Do not use ice or ice water other than on superficial burns.
- Use tub, shower, or garden hose to immerse burned areas.
- Used soaked towels or other wet cloths to cool a burned face or other areas that cannot be immersed.
- Keep cloths cool by adding more water.

3. Cover the Burn

- Use dry, sterile dressings or a clean cloth and loosely bandage them in place.
- Covering the burn helps keep air out and prevents infection.

Note: Do not apply vaseline or grease to any burn. Follow the guidelines listed below for the different types of burns.

Minor Burns: Do not break blisters or remove tissue. Seek medical attention.

Severe Burns: Do not remove adhered particles of clothing. Keep burned feet or legs elevated. Seek medical attention immediately.

Chemical Burns: Wash away the chemical with large amounts of water. Remove the victim's chemical-soaked clothing. If dry lime, brush away before flushing. Seek medical attention.

C. Cramps

Symptoms: Cramps in muscles of abdomen and extremities. Heat exhaustion may also be present.

Treatment: Same as for heat exhaustion in Subpart I of this attachment.

D. Cuts

Apply pressure with sterile gauze dressing, and elevate the area until bleeding stops. If bleeding persists, apply pressure to a pressure point. Apply a bandage and seek medical attention.



E. Eyes

Foreign Objects: Keep the victim from rubbing their eye. Flush the eye with water. If flushing fails to remove the object, apply a dry, protective dressing to both eyes to limit movement of the affected eye. Seek medical attention immediately.

Chemicals: Flood the eye thoroughly with water for 15 minutes. Cover both eyes with a dry pad and seek medical attention.

F. Fainting

Keep the victim lying down. Loosen tight clothing. If vomiting occurs, roll victim onto their side and turn head to the side. If necessary wipe out their mouth. Maintain an open airway. Bathe their face gently with cool water. Unless recovery is prompt, seek medical attention.

G. Fractures

Deformity of an injured part usually means a fracture. If fracture is suspected, splint the body part. **DO NOT ATTEMPT TO MOVE THE FRACTURED BODY PART.** Seek medical attention immediately.

H. Frostbite

Symptoms: Just before frostbite occurs, skin may be flushed, then change to white or grayish-yellow. Pain may be felt early, then subside. Blisters may appear. Affected part feels very cold and numb.

Treatment: Bring victim indoors, cover the frozen area using extra clothing and blankets. Warm frozen area quickly by immersion in warm water (100-105 degrees F) - **NOT HOT WATER. DO NOT RUB THE PART.** Seek medical attention immediately.

F. Heat Exhaustion

Caused by overexposure to heat, either sun or indoors.

Symptoms: Near normal body temperature, skin is pale and clammy. Profuse sweating, tiredness, weakness, headache, perhaps cramps, nausea, dizziness, and possible fainting.

Treatment: Keep victim lying down and raise victim's feet. Loosen clothing, apply cool wet cloths. If conscious, give sips of cool water or liquids with electrolytes like diluted Gatorade over a period of one hour. If vomiting occurs, discontinue liquids. Seek medical attention immediately.

G. Sunstroke

Symptoms: Body temperature is high (106 F or higher). Skin is hot, red and dry. Pulse is rapid and strong. Victim may be unconscious.

Treatment: Keep victim lying down with head elevated. Remove clothing and repeatedly sponge the bare skin with cool water or rubbing alcohol. Seek medical attention immediately.

H. Poisoning

Call the Poison Control Center for instruction on immediate care. If victim becomes unconscious, keep the airway open. If breathing stops, give rescue breathing and monitor pulse. If pulse stops, begin cardiopulmonary resuscitation (CPR). Seek medical attention immediately.

I. Poison Ivy or Poison Oak

Remove contaminated clothing; wash **all** exposed areas thoroughly with soap and water, followed by rubbing alcohol. If rash is mild, apply calamine or other soothing skin lotion. If a severe reaction occurs, seek medical attention immediately.

J. Puncture Wounds

If puncture wound is deeper than skin surface, seek medical attention. Serious infection can arise unless proper treatment is received.



K. Sprains

Elevate injured part and apply ice bag or cold packs. **DO NOT SOAK IN HOT WATER.** If pain and swelling persist, seek medical attention.

L. Unconsciousness

Seek medical attention immediately. Never attempt to give food or drink. Keep victim lying flat, maintain open airway. If victim is not breathing, begin rescue breathing and monitor pulse. If pulse stops, begin CPR.

M. General Sequence for Treatment of Exposures to Unknown Chemicals

1. Check the victim's condition.
2. Immediately notify the appropriate emergency contacts listed on page 1 of this SHSP.
3. Quickly protect yourself from exposure before attempting to rescue the victim.
4. Decontaminate the victim.
5. Treat cessation of breathing first.
6. If the victim has no pulse, perform CPR.
7. Treat eye injuries next.
8. Treat skin contact.
9. Treat shock.

Preliminary Assessment

Make a quick assessment of the likely routes of exposure by examining the eyes, mouth, nose and skin of the victim for signs of the chemical itself or damage it has caused such as swelling, redness, bleeding, burns, discharge of fluid or mucous or pallor.

- Drooling, difficult swallowing, or distended and painful or hard, rigid abdomen all indicate possible ingestion of a corrosive or caustic substance.
- If respirations are rapid, shallow, noisy or labored, suspect inhalation.
- If the face has been splashed with chemical, eye contact is likely.

Poisoning by Inhalation

1. Immediately notify the appropriate emergency contacts listed on page 1 of this SHSP.
2. Remove the victim from the contaminated area while protecting yourself from exposure using a self-contained breathing apparatus (SCBA).
3. Remove contaminated clothing and equipment from the victim while wearing protective equipment.
4. If breathing has stopped, open airway, begin rescue breathing using a disposable resuscitator. **DO NOT** use direct mouth-to-mouth resuscitation.
 - Check the victim's condition.
 - Call for medical assistance.
 - Maintain an open airway.
 - Monitor breathing.
 - Monitor the pulse.
 - Continue your efforts until help arrives or the victim begins breathing on their own.
 - Keep the victim warm and quiet.



5. If the victim is unconscious but breathing:

- Lay the victim on their back. If the victim is vomiting, turn them on their side.
- Clear the airway and loosen tight clothing.
- Keep victim warm and quiet.
- Do not leave the victim unattended.
- Never give an unconscious person anything to drink.

6. If the victim is conscious:

- Lay the victim down, cover the victim with a blanket and keep them quiet.
- Loosen tight clothing.

Poisoning by Ingestion

1. Remove the victim from exposure while protecting yourself from exposure.

2. Call the Poison Control Center phone number listed on page 1 of this SHSP.

3. Notify an emergency medical service of the nature of the exposure and arrange for transport to a medical facility.

4. Consult the MSDS to determine whether to offer victim water to drink or to induce vomiting and by what means. (The Poison Control Center may be able to provide this information.)

5. If the victim is conscious:

- Have the victim rinse out his mouth with water.
- If there are no signs of burns, swallowing difficulty or abdominal problems and victim is conscious and if so advised by a physician or Poison Control Center:
 - Induce vomiting by giving two teaspoons of Syrup of Ipecac. Follow with at least one cup of water. **DO NOT** use milk. If you do not have Syrup of Ipecac, induce vomiting by asking the victim to touch the back of the throat with a finger, spoon handle or blunt instrument.
 - Have the victim sit up or lean forward while vomiting.
 - Give the victim one to two cups of water after vomiting has ceased.

6. If the victim is unconscious:

- Lay the victim on their left side, bending her right hip. Loosen their collar and belt.
- Maintain an open airway.
- **DO NOT** give an unconscious person anything to drink.
- Arrange for transport to the nearest medical facility.
- Stand by to administer rescue breathing and CPR if needed. Be sure to wipe or rinse all traces of chemical from in and around the victim's mouth before starting rescue breathing. Always use disposable resuscitators. **DO NOT** use direct mouth-to-mouth resuscitation.
- If breathing has stopped, begin rescue breathing using a disposable resuscitator and avoid mouth-to-mouth contact.

7. If the victim vomits, save the vomitus and send it to the medical facility for analysis.

8. If the victim shows signs of shock (a weak, rapid pulse; pale clammy skin; cold hands and feet), elevate the victim's feet eight to twelve inches and cover the victim with a blanket.

9. **DO NOT** give someone who is convulsing anything to drink.

10. **DO NOT** leave the victim alone except to call for emergency assistance.

Poisoning by Skin Contact

1. Remove the victim from the contaminated area, being careful to protect your lungs, skin and eyes.
3. Notify a physician, emergency room, or poison control center of the accident and obtain advice.
4. Remove the victim's clothing, shoes and jewelry from the affected areas, cutting them off if necessary. Do this under a shower or while flushing with water.
5. Continue to flush with water until all traces of the chemical are gone and any slippery feeling has disappeared. Rinse for at least 15 minutes.
6. Cover the victim with a blanket or dry clothing.
7. In case of inflammation, burns, blisters or pain, loosely apply a dry, sterile dressing or a clean, dry cloth.
8. If the victim is in shock:
 - Lay the victim down on his side and cover him with a blanket.
 - Elevate the victim's feet eight to twelve inches.
 - Notify an emergency medical service of the nature of the exposure.

DO NOT break open blisters or remove skin. If clothing is stuck to the skin after flushing with water, do not remove it.

DO NOT rub or apply pressure to the affected area.

DO NOT apply any oily substance to the affected skin.

DO NOT use hot water.

DO NOT leave the victim alone.

Poisoning by Eye Contact

Remove the victim from the contaminated area, being careful to protect your lungs, skin and eyes. Immediately:

1. Flush the victim's eye(s) with clean tepid water for at least 15 minutes.
2. Have the victim lie or sit down and tilt head back.
3. Hold eyelid(s) open and pour water slowly over the eyeball(s) starting at the inner corners by the nose allowing the water to flow to the outer corners of the eye.
4. The victim may be in great pain and want to keep eyes closed or rub them but you must rinse the chemical out of the eye(s) in order to prevent possible permanent damage.
5. Ask the victim to look up, down and side to side as you rinse.
6. Call an emergency medical service and arrange for transport to the nearest facility for examination and treatment as soon as possible. Even if there is no pain and vision is good, a physician should examine the eye(s) since delayed damage may occur.
7. If the eye(s) is(are) painful:
 - Cover loosely with gauze or a clean, dry cloth
 - Maintain verbal and physical contact with the victim

ATTACHMENT C

Potential Contaminants/Compounds

ATTACHMENT D

Severe Weather

ATTACHMENT D

Severe Weather

When projects are conducted outside, the potential for severe weather must be considered. Thunderstorms, tornadoes and winter storms can develop quickly, jeopardizing your safety. The following emergency procedures are to be followed in the event of severe weather.

Thunderstorms and Lightning

Monitor weather conditions at all times while working. At a sign of an impending storm - increased cloudiness, darkened skies, increased wind - listen to a radio for the latest weather information.

When a thunderstorm accompanied by lightning is in the project area:

- Cease work immediately and shut down all powered equipment, such as drill rigs.
- Seek shelter inside nearby buildings or trailers. If there are no buildings nearby, seek shelter inside your vehicle.
- If you are caught outside, do not stand beneath tall, isolated trees or telephone poles. Avoid areas projecting above the landscape, such as hill tops. In open areas, go to a low place such as a ravine or valley. Stay away from open water, metal equipment, wire fences and metal pipes. If you are in a group of people in the open, spread out, staying several yards apart.
- If you are caught in a level field or open area far from shelter and you feel your hair stand on end, lightning may be about to strike you. Drop to your knees and bend forward, putting your hands on your knees. You should minimize the body area in direct contact with the ground; **DO NOT LIE FLAT ON THE GROUND.**
- If someone has been struck by lightning, monitor life signs and begin administering rescue breathing or CPR as needed. Seek medical attention.
- Check conscious victims for burns, especially at the fingers and toes and next to buckles and jewelry. Keep the victim calm and still. Administer first aid for shock.

Tornadoes

Tornadoes usually develop from thunderstorms and normally occur at the trailing edge of the storm. Most tornadoes occur in the months of April, May, June, and July in the late afternoon and early evening hours.

When storms are predicted for the project area, monitor weather conditions by radio. A tornado watch is issued when favorable conditions exist for the development of a tornado. A tornado warning is issued by the local weather service office when a tornado has actually been sighted or is strongly indicated by radar.

- If a tornado warning is issued, seek shelter immediately. If there are permanent buildings located onsite, go there immediately, moving toward interior hallways or small rooms on the lowest floor.
- If a tornado warning is issued and you are in a vehicle or a site trailer, leave and go to the nearest building, ditch, ravine, or culvert and lie flat. Shield your head from flying debris using your hands.
- Once a tornado has passed the site, site personnel are to assemble at the designated assembly area to determine if anyone is missing. Administer first aid and seek medical attention as needed.

Winter Storms

When snow or ice storms are predicted for the project area, site personnel should monitor weather conditions by radio. A winter storm watch is issued when a storm has formed and is approaching the area. A winter storm warning is issued when a storm is imminent and immediate action is to be taken.

- When a storm watch is issued, monitor weather conditions and prepare to terminate site activities. Notify the Project Manager of the situation. Seek shelter at site buildings or leave the site and seek warm shelter.
- If you are caught in a severe winter storm while traveling, seek warm shelter if road conditions prevent safe travel.
- If you are stranded in a vehicle during a winter storm:
 - **Stay in the vehicle.** Disorientation comes quickly in blowing and drifting snow
 - Wait for help
 - Keep a window open an inch or so to avoid carbon monoxide poisoning
 - Run the engine and heater sparingly
 - Keep watch - do not let everyone sleep at the same time
 - Exercise occasionally

ATTACHMENT E

General Health and Safety Rules

ATTACHMENT E

General Health and Safety Rules

General Health and Safety Rules

- Use proper lifting techniques when handling heavy articles. Keep the load close to the body, bend your knees, never twist or turn with a load. When in doubt, get help or divide the load.
- Immediately report to your supervisor any condition or practice you think might cause injury to employees or others or damage to property, equipment or environment.
- Do not participate in horseplay.
 - Do not distract others from their work.
- Always wear a safety belt, whether passenger or driver, when in a motor vehicle on company business.

Safety Rules for Field Work

- Read the SHSP before field mobilization. Comply with its requirements at all times.
- Wear personal protective equipment in all operations where there is possible exposure to hazardous conditions or where the need for using such equipment to reduce the hazards is designated in the Site Health and Safety Plan (SHSP).
 - Hard hats are required in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns.
 - Hearing protection is required when exposure to noise is above OSHA allowable levels (>85 dBA).
 - Eye and/or face protection is required when machines or operations present potential physical or health hazards to the eyes or face.
 - Respiratory protection is required when controls fail or are inadequate to prevent harmful exposure.
 - Foot protection is required as necessary to prevent injury from dropped or falling objects.
- Personal flotation devices are required when working over or near water.
- Observe all safety signs and do not remove any "lock-out" tags.
- Wear radiation badge when working with nuclear testing equipment.
- Follow procedures outlined in Troxler Manual when using, transporting or storing nuclear density meter.
- Use proper lifting techniques when transporting nuclear meters or other heavy articles.
- Secure all loose equipment in the motor vehicles to inhibit equipment movement during sudden stops.
- Stay away from the swing of the backhoe bucket and all moving parts on drill rigs. Approach only when operator is aware of your presence.
- Always use ground-fault interrupters in all circuits that might be exposed to moisture or are used outside.
- Use only grounded or double insulated power tools.
- Notify the Health and Safety Administrator or Site Safety Officer of any unsafe acts or conditions.
- Site personnel are to notify Site Safety Officer at the first indication that they are experiencing temperature stress or any signs or symptoms which may be due to exposure of chemicals.
- Site personnel are expected to comply with applicable OSHA, EPA or other regulatory agency standards and regulations at all times.



Safety Rules for Work in or Near Manholes, Trenches and Excavations

DO NOT enter confined spaces such as pits, trenches, tanks or manholes unless confined space entry procedures are specifically included in the SHSP and are fully implemented. Most work can be performed without entering trenches or excavation. Make the necessary engineering changes to accomplish the task without entering the trench or excavation. For example, soil samples can be taken from the backhoe bucket eliminating the need for anyone to enter the excavation.

If such changes cannot be implemented, the **SHSP MUST BE AMENDED** to include confined space entry procedures. Enter only if the excavation is constructed according to OSHA standards and the SHSP specifically addressed entry into excavations. Excavations are to be filled in or barricaded at the end of the workday.

Safety Rules When Working Near Highways, Construction Site Traffic or Heavy Equipment

The following precautions should be taken when working near highways and on construction sites.

- Set out traffic cones, warning signs, and flashers when performing field work in traffic areas.
- In traffic areas and on construction sites where heavy equipment is operating, wear luminous traffic vests.
- Use safety signs when performing bridge and highway surveys and use warning lights on vehicles, as appropriate.
- Let the construction equipment operators know you are around. Use "eye to eye" contact and hand gestures prior to setting up for a test.
- Check the traffic pattern on construction projects before entering with a vehicle.
- If practical, use the motor vehicle on a large site to divert construction traffic around the test area.
- Park the motor vehicle between your work area and the operating equipment. Always work a significant distance behind your vehicle in case it is struck.

Safety Rules for Hazardous Waste Sites

- All employees handling hazardous waste samples or who may be exposed to hazardous waste must be active participants in SEH's medical surveillance program.
- A respirator cannot be worn when beards or any other facial hair interferes with the face-to-respirator seal. Individuals with such facial hair are not to be allowed to work in Levels B or C.
- Personnel onsite must use the buddy system when wearing respiratory protective equipment. Visual contact must be maintained between pairs onsite. Entry team members are to remain close together to assist each other during emergencies.
- Smoking is not permitted at the site.
- Eating and drinking are only permitted in the support or clean zone.
- No "souvenirs" or samples not required for the project are to be collected.
- Samples are to be placed in approved containers before they can be removed from the site. Only approved or designated vehicles can be used to transport samples.
- Samples are to be left in the designated sample preparation area.
- Contaminated field apparel that has not been decontaminated cannot be worn in the office.
- Field samples are to be disposed of properly.
- Contact with contaminated or suspected contaminated surfaces is to be avoided.
- Do not walk through puddles, discolored surface, kneel on the ground, or lean, sit, or place equipment on visibly stained surfaces.
- Drums or tanks found onsite cannot to be opened or moved unless specific drum/tank remediation tasks are specifically included in the SHSP and are fully implemented.



- Use work schedules that minimize time spent in hazardous areas.
- Use work assignments that place employees upwind of sources of air contaminants.
- Have a copy of the SHSP readily available, for review by employees. The Site Safety Officer will verify that all SEH personnel entering the site have read and signed the SHSP.

Basics of Good Lifting Techniques

Sometimes it is necessary to load and unload moderate to heavy sampling equipment by hand. Site workers should not try to lift too much weight at one time (i.e., loads should be broken down if possible). When lifting heavy equipment is necessary, knowing the proper ways to lift can save you a great deal of pain and misery from a sprained back.

- 1. Size up the load before trying to lift it.** Test the weight by lifting at one of the corners. If the load is too heavy or of an awkward shape, the best thing to do is get help from another site worker, if available. If you have to lift it alone, make sure you can handle the weight.
- 2. BEND THE KNEES.** This is the single most important rule when lifting moderate to heavy objects. When lifting a crate or box, your feet should be placed close to the object. Center yourself over the load, then bend your knees and get a good hand hold. Lift straight up, smoothly. Allow your legs, not your back, to do the work.
- 3. Do not twist or turn your body once you have made the lift.** Keep the load close to your body, and keep it steady. Any sudden twisting or turning could result in injury to your back.
- 4. Make sure you can carry the load where you need to go before attempting to move it.** Also, make sure your path is clear of obstacles and that there are no hazards, such as fallen logs or other trip hazards. Turn your body by changing foot positions, and be sure of your footing before setting out.
- 5. Set the load down properly.** It is just as important setting it down as lifting it. Lower the body slowly by bending your knees, letting your legs do most of the work. Don't let go of the load until it is secure on the floor.
- 6. Always push, not pull, the object when possible.** Pushing puts less strain on the back and is safer, should the object tip.

If a back injury occurs as a result of site work, an injury report must be filled out in accordance with corporate policy.



ATTACHMENT F

Decontamination

ATTACHMENT F

Decontamination

Standard Decontamination Procedures

- A decontamination area (Contamination Reduction Zone) should be located between the Hot Line (upwind boundary of the Exclusion Zone) and the Support Zone boundary.
- A personnel decontamination station (PDS) should be established.
- All personnel should proceed through the appropriate contamination reduction sequence upon leaving the contamination area.
- All protective gear should be left onsite during any lunch break following decontamination procedures.
- Material Safety Data Sheets (MSDSs) for chemicals used during decontamination procedures should be made available to those who are potentially exposed to these chemicals.

Decontamination of Equipment

To the extent possible, measures should be taken to prevent contamination of sampling and monitoring equipment. (Sampling devices may become contaminated.) Once contaminated, it is difficult to clean instruments without damaging them. Any delicate instrument that cannot be decontaminated easily should have a bag taped and secured around it before use. Openings should be made in the bag for sample intake.

A. Sampling Devices

Sampling devices require cleaning with a detergent or other chemically compatible solvent and must be triple rinsed with clean solutions or deionized water.

B. Tools

Wooden tools are difficult to decontaminate because they absorb chemicals. They should be kept onsite and handled only by protected workers. After use in a contaminated area, wooden tools should be discarded. For decontamination of other tools, follow the same procedure as for sampling devices (above).

C. Respirators

Certain parts of contaminated respirators, such as the harness assembly and cloth components, are difficult to decontaminate. If grossly contaminated, they may have to be discarded. Rubber components can be soaked in soap and water and scrubbed with a brush.

D. Sanitizing of Personal Protective Equipment

Respirators, reusable protective clothing, and other personal articles must be decontaminated and sanitized before being reused. The inside of masks and clothing becomes soiled because of exhalation, body oils, and perspiration. The manufacturer's instructions should be followed to sanitize the respirator mask. If practical, protective clothing should be machine washed after a thorough decontamination; otherwise, it must be cleaned by hand.

E. Disposal of Contaminated Materials

All materials and equipment used for decontamination must be disposed of properly. Clothing, tools, buckets, brushes, and all other equipment that is contaminated must be secured in drums or other containers and labeled. Clothing not completely decontaminated onsite should be secured in plastic bags before being removed from the site.

Contaminated wash and rinse solutions should be contained by using step-in-containers (e.g., child's wading pool) to hold spent solutions. Another containment method is to dig a trench about 4 inches deep and line it with plastic. In both cases, the spent solutions should be transferred to drums, which should be labeled and disposed of with other contaminated materials onsite.



F. Minimal Decontamination

Less extensive procedures for decontamination can be subsequently established when disposable clothing and equipment are used, the type and degree of contamination are known, or the potential for transfer is judged to be minimal by the Site Safety Officer in consultation with the Project Manager or Health and Safety Administrator

G. Closure of the Personnel Decontamination Station

All disposable clothing and plastic sheeting used during the operation should be double bagged, labeled, and either contained onsite or removed to a disposal facility. Grossly contaminated protective clothing should be disposed of onsite with the permission of the property owner or removed to a disposal facility. Cloth items should be bagged and removed from the site for final cleaning. All wash tubs, pails, or other containers should be thoroughly washed, rinsed, and dried prior to removal from the site.

Level D Decontamination

Equipment Drop

Deposit equipment used onsite (tools, sampling devices, monitoring equipment, radios, etc.) on plastic drop cloths. Decontaminate or contain items for disposal before removal from exclusion zone.

Outer Boot/Glove Wash and Rinse

(Optional, include if necessary for gross decontamination)

Scrub outer boots/gloves and/or splash suit with decontamination solution then rinse with water.

Outer Boot/Glove Removal

Remove outer boots/gloves:

- If outer boots/gloves are disposable, deposit them in the appropriate plastic-lined container.
- If outer boots/gloves are not disposable, store them in a clean, dry place.

Outer Garment Removal

Remove chemical protective outer garments and deposit them in an appropriate container. Remove hard hat and safety glasses. Decontaminate them as necessary and deposit on a clean surface.

Inner Glove Removal

Remove inner gloves and deposit them in the appropriate container for disposal.

Field Wash

Thoroughly wash hands and face with soap and water. Shower as soon as possible.

Level C Decontamination

The maximum and minimum decontamination layout for Level C is shown conceptually in Figures E-1 and E-2.

Equipment Drop

Deposit equipment used onsite (tools, sampling devices, monitoring equipment, radios, etc.) on plastic drop cloths. Decontaminate or dispose of items before removal from exclusion zone.

Outer Boot/Glove Wash and Rinse

Scrub outer boots/gloves and/or splash suit with decontamination solution then rinse with water.



Outer Boot/Glove Removal

Remove outer boots/gloves:

- If outer boots/gloves are disposable, deposit them in the appropriate plastic-lined container.
- If outer boots/gloves are not disposable, store them in a clean, dry place.

Outer Garment Removal

Remove chemical-protective outer garments and deposit them in the appropriate container.

Respiratory Protection Removal

Remove hard hat and respirator and deposit them on a clean surface. Discard respirator cartridges in the appropriate container. Wash and rinse hard hat and respirator. Wipe off and store respirator in a clean, dry location.

Inner Glove Removal

Remove inner gloves and deposit them in the appropriate container for disposal.

Field Wash

Thoroughly wash hands and face with soap and water. Shower as soon as possible.

Level C Decontamination for Respirator Cartridge Exchange

Equipment Drop

Deposit equipment used onsite (tools, sampling devices, monitoring equipment, radios, etc.) on plastic drop cloths. Decontaminate or dispose of items before removal from exclusion zone.

Outer Boot/Glove Wash and Rinse

Scrub outer boots/gloves and/or splash suit with decontamination solution then rinse with water.

Outer Boot/Glove Removal

Remove outer boots/gloves:

- If outer boots/gloves are disposable, deposit them in the appropriate plastic-lined container.
- If outer boots/gloves are not disposable, store them in a clean, dry place.

Respirator Cartridge Change

Exchange respirator cartridges. Don new outer boots/gloves. Tape joints and return to exclusion zone.



ATTACHMENT G

Handling Drums and Containers

Introduction

In general, employees of SEH Inc. will not be routinely handling drums and other waste containers at a hazardous waste site. Nevertheless, there may be occasions where handling hazardous waste containers will be necessary. In the event this occurs, employees must use extreme caution and be mindful of the fact that handling these containers can be one of the most hazardous site activities. Hazards include detonations, fires, explosions, vapor generation, and physical injury that may result from moving heavy containers by hand and walking around stacked drums, deteriorated drums and heavy equipment. While these hazards are often Present, proper work practices, such as minimizing handling and using equipment and procedures that isolate workers from hazardous substances, can minimize the risks to site personnel. Some basic procedural steps that might be considered for drum handling are illustrated in Figure 8-1, "Flow Chart for Drum Handling".

Regulations

The following regulations should be consulted when handling drums and containers:

- a. E.P.A. (40 CFR Part 265) stipulates requirements for types of containers; maintenance of containers; maintenance of structures, such as berms and dikes, that contain leaking waste; and design and maintenance of storage areas.
- b. DOT (49 CFR Parts 171-178) stipulates requirements for shipping containers and procedures for shipment of hazardous wastes.
- c. OSHA (29 CFR Parts 1910 and 1926) include general requirements and standards for storing, containing, and handling chemicals and containers; for protection of health; and for maintaining equipment used for handling hazardous materials.

Inspection

Before handling any drum, a thorough visual inspection should be made by the employee. This initial inspection may reveal signs of the drum's contents (e.g., symbols, words, or other marks), or signs that a drum is deteriorated (e.g., corrosion, rust, leaks) or under pressure (e.g., swelling, bulging). Often times the construction of the drum itself may provide a clue to its contents (See Tables G-1 and G-2). In addition, monitoring around the drums (e.g., using organic vapor monitors, radiation survey instruments, etc.) may reveal further information about their contents.

Planning

Based on what is observed in the preliminary inspection, a more detailed work plan can be developed. This plan should specify the extent of container handling necessary, the employees assigned to the job, and the most appropriate procedure based on the hazards associated with the probable drum contents.



**TABLE G-1
SPECIAL DRUM TYPES AND THEIR ASSOCIATED HAZARDS**

DRUM TYPE	HAZARDS
Polyethylene or PVC-lined drums	Often contain strong acids or bases. If the lining is punctured, the substance usually quickly corrodes the steel, resulting in a significant leak or spill.
Exotic metal drums (e.g., aluminum, nickel, stainless, steel, or other unusual metal)	Very expensive drums that usually contain an extremely dangerous material.
Single-walled drums used as a pressure vessel	These drums have fittings for both product filling and placement of an inert gas, such as nitrogen. May contain reactive, flammable, or explosive substances.
Laboratory packs	Used for disposal of expired chemicals and process samples from university laboratories, hospitals, and similar institutions. Individual containers within the lab pack are often not packed in absorbent material. They may contain incompatible materials, radioisotopes, -shock-sensitive, highly volatile, highly corrosive, or very toxic exotic chemicals. Laboratory packs can be an ignition source for fires at hazardous waste sites.

**TABLE G-2
INFORMATION PROVIDED BY DRUMHEAD CONFIGURATION**

CONFIGURATION	INFORMATION
Whole lid removable	Designed to contain solid material
Has a bung	Designed to contain a liquid
Contains a liner	May contain a highly corrosive or otherwise hazardous material

Handling, Opening and Sampling

In the event that employees become involved in handling hazardous waste drums, it will most likely be for any one of the following reasons:

- a. Responding to obvious problems that might impair worker safety, such as the presence of explosive or radioactive substances.
- b. Unstacking and re-orienting drums for sampling.
- c. Organizing drums into different areas on-site to facilitate characterization and clean-up activities.

Because of the extreme health and safety hazards associated with handling drums and other containers, employees shall handle them only when absolutely necessary and properly authorized. To minimize the likelihood of injury, drums should be handled, opened and sampled using a drum grappler, hydraulically or pneumatically operated impact wrench or drum piercer, or other piece of equipment that physically separates the worker from the drum.

If at all possible, drums should be opened and sampled in place to minimize the potential for accidents. (See OSHA CFR 29 1910.120 (j) 2 and 7 for more details regarding opening drums and containers and sampling drums and containers.)

Any drum containing radioactive waste should not be handled by SEH employees until persons with expertise in health physics have been consulted. Likewise, drums that contain packaged laboratory wastes (Lab packs), or explosive/shock sensitive wastes should not be handled by any employee until specialized assistance has been obtained. (See OSHA 29 CFR 1910.120(j) 4-5 for more details.) Similar precautions prevail for bulging drums or for drums that are leaking, open or deteriorated.

Characterization

After drums have been sampled, their contents should be characterized and classified into general categories such as inorganic acids, heavy metals, pesticides, etc. Figure 8-2 gives an example of a characterization sheet for drums. Following characterization, compatible drum contents may be mixed together and placed in bulk containers such as tanks or vacuum trucks for transport to treatment, storage or disposal facilities, or the drums may be "staged" or organized to facilitate further characterization and site clean-up.

Staging

Although employees are advised to minimize drum handling, drums must sometimes be staged (i.e., moved in an organized manner to pre-designated areas) to facilitate waste characterization and clean-up and to protect drums from potentially hazardous site conditions that could result in explosions or ignition. Staging involves a trade-off between the increased hazards associated with drum movement and the decreased hazards associated with the enhanced organization and accessibility of materials. Figure 8-3 shows possible staging areas at a hazardous waste site. The number of staging areas must be kept to a minimum. Adequate access and exit routes must be maintained at all times.



Bulking and Shipment

The final container staging (bulking) area should be located as close as possible to the site exit to facilitate off-site shipment of wastes and to enhance the safety of these operations. A traffic circulation plan that minimizes conflict between clean-up teams and waste haulers should be devised. Adequate space for vehicles to turn around should be provided, and vehicle drivers should be outfitted with appropriate protective equipment. All drums should be tightly sealed before loading, and leaking or deteriorated drums should be placed in an overpack drum prior to shipment. Drums should not be double stacked for shipment. All drums must be secured to prevent shifting during transport. Vehicles should be decontaminated prior to leaving the site to ensure that contaminants are not carried onto public roads. Lastly, procedures for responding quickly to off-site vehicle breakdowns/accidents should be developed to ensure minimal public impact.

Special Case Problems

In addition to drums, employees may encounter several other kinds of waste containers at hazardous waste sites. These may include tanks, vaults, vacuum trucks, compressed gas cylinders, ponds, and lagoons. Each waste container will require special handling procedures. For example, with elevated tanks, safety lines and harnesses may be necessary to prevent employees from falling. Ponds and lagoons present a unique danger to employees. The danger of drowning is particularly serious for employees suited in protective equipment. For this reason, it shall be the policy of SEH that any necessary entrance to these situations be thoroughly covered in the site HSP. With regards to handling other containers, employees must follow several basic safe handling principles. These include:

- a. Advance planning
- b. Minimizing contact with the container and the waste
- c. Carefully inspecting the container prior to opening
- d. Characterizing the waste prior to bulking or shipment



Spill Control

A spill containment program is required wherever drum and container rupture may result in a major spill. (OSHA does not define major spill). This may be part of an overall spill control plan, which describes actions which are to be taken if either a minor or major spill occurs. Spill control activities are generally broken down into the following three types: Basic, Containment and Confinement.

1. **Basic** control prevents further release. This may include shutting off a valve or positioning a drum so that the hole is at the top.
2. **Containment** includes those procedures undertaken to keep a material in its container. Containment activities include plugging and patching leaks and overpacking.
 - a. *Plugging* – a plug is placed in the leaking drum to prevent or limit further release. Common plugging materials include wood, soap, and rags. All plug materials must be compatible with the chemical which is leaking.
 - b. *Patching* – a patch is applied over the leaking area. Patching materials include rubber, patching mud, and tape. Patching materials must be compatible with the chemical which is leaking.
 - c. *Overpacking* – placing a leaking drum into a larger drum will contain the spread of the contents.
3. **Confinement** includes those procedures used to keep a material in a defined area. These activities include confining a spill or release by diking, blocking, absorption, and/or collection.
 - a. *Diking* - dikes may be built around the perimeter of the leak with sand, earth, straw, sorbent, or similar materials. The type of diking material used must be compatible with the spill material. Plastic sheeting can be used as an additional barrier to slow leakage, if appropriate.
 - b. *Blocking* - drains, ditches, or storm sewers should be covered and blocked to prevent run-off spill materials. This blocking can be done with a sorbent pad, a piece of plastic, or a rubber pad. If flammable or toxic materials enter these systems, the potential for damage to property or people is increased.
 - c. *Absorption* - run-off can sometimes be absorbed with (lilt, sand, soda ash, saw dust, wood chips, peat moss, vermiculite, or other material. The sorbent material should be positioned so that spill material runs into it. Care must be taken to be certain that the sorbent is compatible with the spill.
 - d. *Collection* - run-off can also be collected in containers such as drums or buckets.

Confinement is done from a distance. Employees should maintain enough distance to prevent contact with the leaking material. During containment, employees should approach the point of release. Your potential for exposure is generally greater during containment.





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