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ARCHITECTURE • ENGINEERING • ENVIRONMENTAL • TRANSPORTATION

March 31, 2000

RE: Fraser Shipyards, Inc.
Remedial Excavation Work Plan
SEH No. FRASE9401.00 14.00

Mr. Steven LaValley, Hazardous Waste Specialist
Wisconsin Department of Natural Resources
1705 Tower Avenue
Superior, WI 54880

Dear Mr. LaValley:

On behalf of Fraser Shipyards, Inc. (Fraser), Short Elliott Hendrickson Inc. (SEH) is submitting this Remedial Excavation Work Plan to the Wisconsin Department of Natural Resources (WDNR) for Area of Concern (AOC) #5 at Fraser Shipyards in Superior, Wisconsin. Lead and chromium contaminated soils were identified in an isolated area at AOC #5, the Paint Waste Staging Area, at concentrations exceeding the ch. NR 720 Wisconsin Administrative Code soil cleanup standards. The concentrations of lead and chromium in the soil exceed the Table 2, ch. NR 720 Residual Contaminant Level (RCL) for industrial sites and remediation of the soil is warranted.

The purpose of this plan is to provide details of the remedial alternative chosen for AOC #5, a schedule and other pertinent project information to the WDNR, Fraser, and SEH personnel involved with this project. The Fraser Shipyards, Inc. Site Investigation Work Plan dated November 1993 and Site Investigation and Closure Plan dated May 1994 provide detailed history, waste handling procedures, and other pertinent project information, including a Site Health and Safety Plan.

Project Contacts

1. Ron Peterson, Superintendent
Fraser Shipyards, Inc.
Third Street and Clough Avenue
Superior, WI 54880
(715) 394-7787
2. Cyrus Ingraham, P.E., Project Manager
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Mr. Steven LaValley
March 31, 2000
Page 3

Post Excavation Sampling

Confirmatory soils samples will be collected from the walls and floor of the final excavation at AOC #5 on 25 foot grid intervals as specified in the WDNR Guidance for Conducting Environmental Response Actions. Sample collection will be performed in accordance with SEH standard protocol that is included as an attachment to this plan. Post excavation samples will be maintained at a temperature of less than four degrees Celsius in ice filled coolers and shipped to a WDNR approved laboratory using one day delivery service under chain of custody procedures. A minimum of five laboratory verification samples, one from each wall and one from the base of the excavation will be collected from AOC #5. Confirmatory soil samples will be analyzed for the following parameters:

<u>Parameter</u>	<u>Method</u>
Lead	EPA SW 846-6010
Chromium	EPA SW 846-6010

Laboratory analysis will be conducted with a rapid turn around time in order to identify the limits of excavation in a timely manner. U.S. Filter of Rothschild, Wisconsin has been selected to perform the laboratory analysis for the Fraser project. U.S. Filter's Wisconsin certified laboratory number is 737053130. Specific documentation and QA/QC procedures that will be followed are included in the Fraser Shipyards, Inc. Site Investigation Work Plan (November 1993.)

SEH anticipates excavation of approximately 18 to 25 cubic yards of contaminated soils. Fraser intends to commence excavation activities by April 17 and therefore respectfully requests WDNR approval of this Remedial Excavation Work Plan. Closure documentation of AOC #5 is anticipated within six weeks of excavation completion. If you have any questions or comments regarding this Remedial Excavation Work Plan, please feel free to contact us.

Sincerely,
Short Elliott Hendrickson Inc.



Gloria Chojnacki
Sr. Environmental Scientist



Cyrus Ingraham, P.E.
Principal

GGC/ggc/CWI
Attachments

c: Ron Peterson, Superintendent - Fraser Shipyards, Inc.

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**Table 1
Soil Analytical Results**

Analytical Parameters	ch. NR 720 soil industrial cleanup standards	Boring No./Depth (ft)/Date								
		B-9	B-10		B-11	B-12		HA-1	HA-2	HA-3
		2-2.5	0-0.6	2-2.5	0-0.5	0-0.5	2-2.5	0-0.5	0-0.5	0-0.5
		1-11-94	1-11-94	1-11-94	1-11-94	1-11-94	1-11-94	8-16-96	8-16-96	8-16-96
AOC #5 - Paint Waste Staging Area										
FID (units)	NSE	1000+	0	--	0	1.4	1000+	--	--	--
PID (units)	NSE	42	36	--	34	34	50	--	--	--
VOCs (8010/8020 or 8021) mg/kg	various	BDL	--	BDL	--	--	BDL	--	--	--
Metals (mg/kg)										
Lead (6010)	500	685*	--	270	66.1	--	177	38.5	20.4	48.3
Cadmium (6010)	510	0.18	--	0.28	0.64	--	0.38	--	--	--
Chromium (6010)	200	22.7	--	274**	22.2	--	23.1	16.1	14.9	17.4
Mercury (7471)	NSE	0.083	--	0.25	BDL	--	BDL	--	--	--
BDL = Below laboratory detection limits -- = Not analyzed * = Exceeds ch. NR 720 soil cleanup standards NSE = No standard established * = TCLP - Lead, B-9 = BDL ASTM - Lead, B-9 = BDL ** = TCLP - Chromium, B-10 (2-2.5') = BDL Compiled by: <u>GGC</u> Checked by: <u>JJT</u>										

Protocol for Excavation Sampling and Investigation of Subsurface Soils - Backhoe

A backhoe is used at the site for excavating surface and subsurface soils from specific locations. This provides for visual observation of subsurface conditions, and allows for collection of soil samples at depth. Excavated soils are loaded directly onto trucks for transport to a landfill or treatment facility. When possible, "clean" soils are kept separate from contaminated soils and all "clean" soils are used as backfill for the final excavation. Clean offsite granular soils are used as backfill for the excavation after sampling is performed.

Soil samples are generally collected from varying depths to obtain representative samples. A grab sample of soil is extracted from the excavation using the backhoe bucket, and the bucket is then placed on the ground surface next to the excavation. A sample is collected from the bucket using decontaminated stainless steel sampling equipment. Visual observations are made of the test pits during excavation activities, and soil samples are classified in the field by SEH's Site Representative. Sample lithology is recorded using the Unified Soil Classification System. Soil test pit logs, documenting soil types and subsurface conditions, are completed by the Site Representative.

During excavation and sampling activities, soils are screened for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID) or flame ionization detector (FID). VOCs are common components of a variety of environmental contaminants, including industrial solvents, petroleum products and wide range of other industrial compounds. The PID and FID are also used to monitor ambient air concentrations at the excavation and within the work zone during the soil excavation, in accordance with SEH's Site Health and Safety Plan. Personal protective equipment is utilized by sampling personnel during sampling, as specified in the Site Health and Safety Plan.

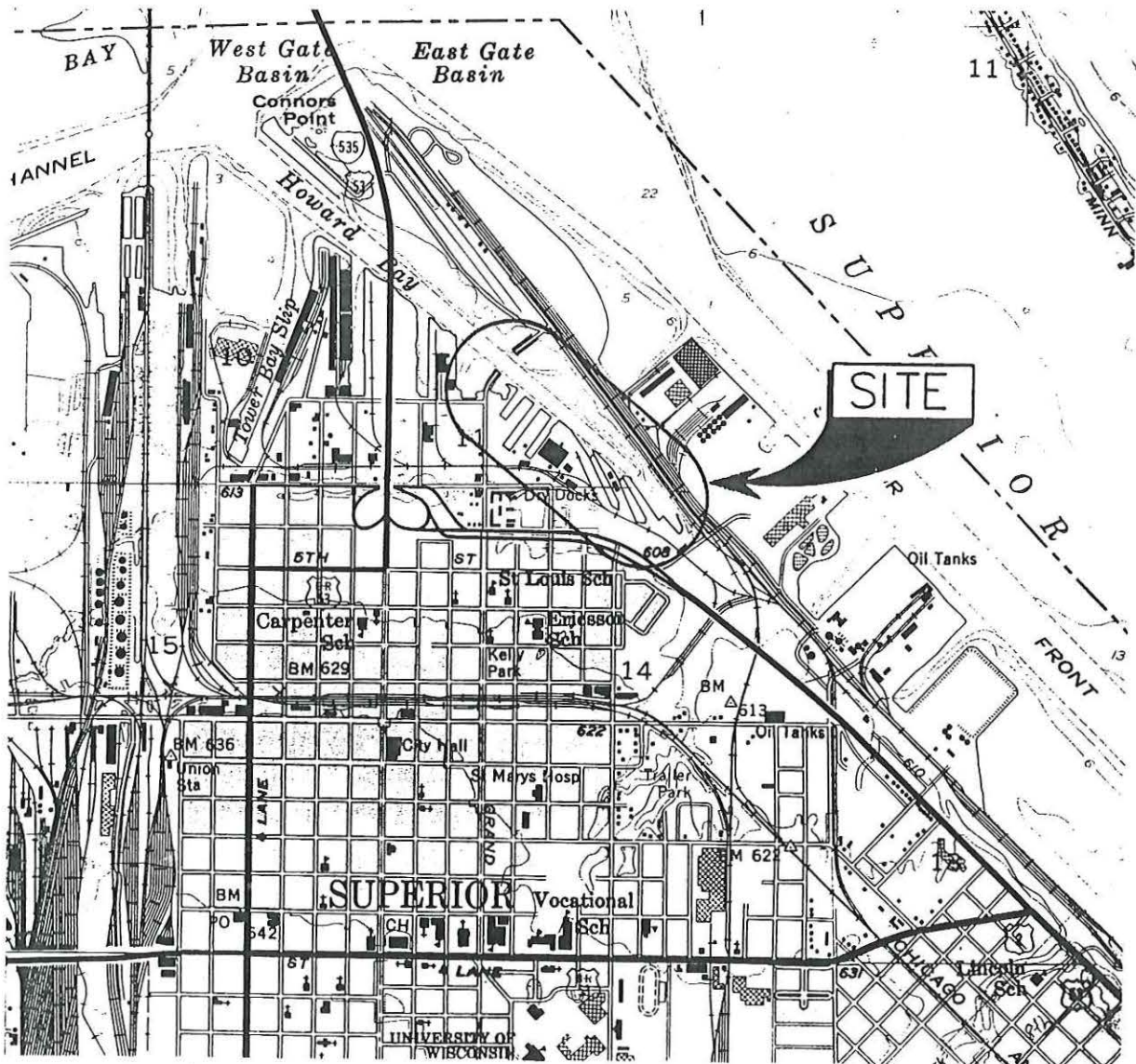
Soil samples are obtained from the central portion of each bucket, and not from areas near the bucket surface. Stainless steel sampling equipment used to collect the soil sample from the bucket is decontaminated between samples using a soap and water wash followed by a distilled water rinse.

Soil samples are collected in laboratory-clean glass sample jars. These are labeled with the sample designation, location, date, time and sampler. Sample collection and preservation procedures will follow the latest WDNR LUST Guidance protocol. Collected samples are preserved on ice and shipped to the contracted analytical laboratory. SEH standard chain of custody procedures are followed regarding the shipment and receipt of samples.

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 0 500 1000 2000



E:\WASTE\FRASER\9401\PLAN\FUA6

1	03/28/00	-	JLE	03/00	GC	03/00			GL	3/20/00
NO.	DATE	ISSUE/REVISIONS	DRAWN BY		DESIGN		FIELD REVIEW		QC CHECK	

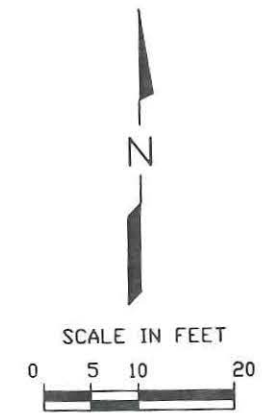
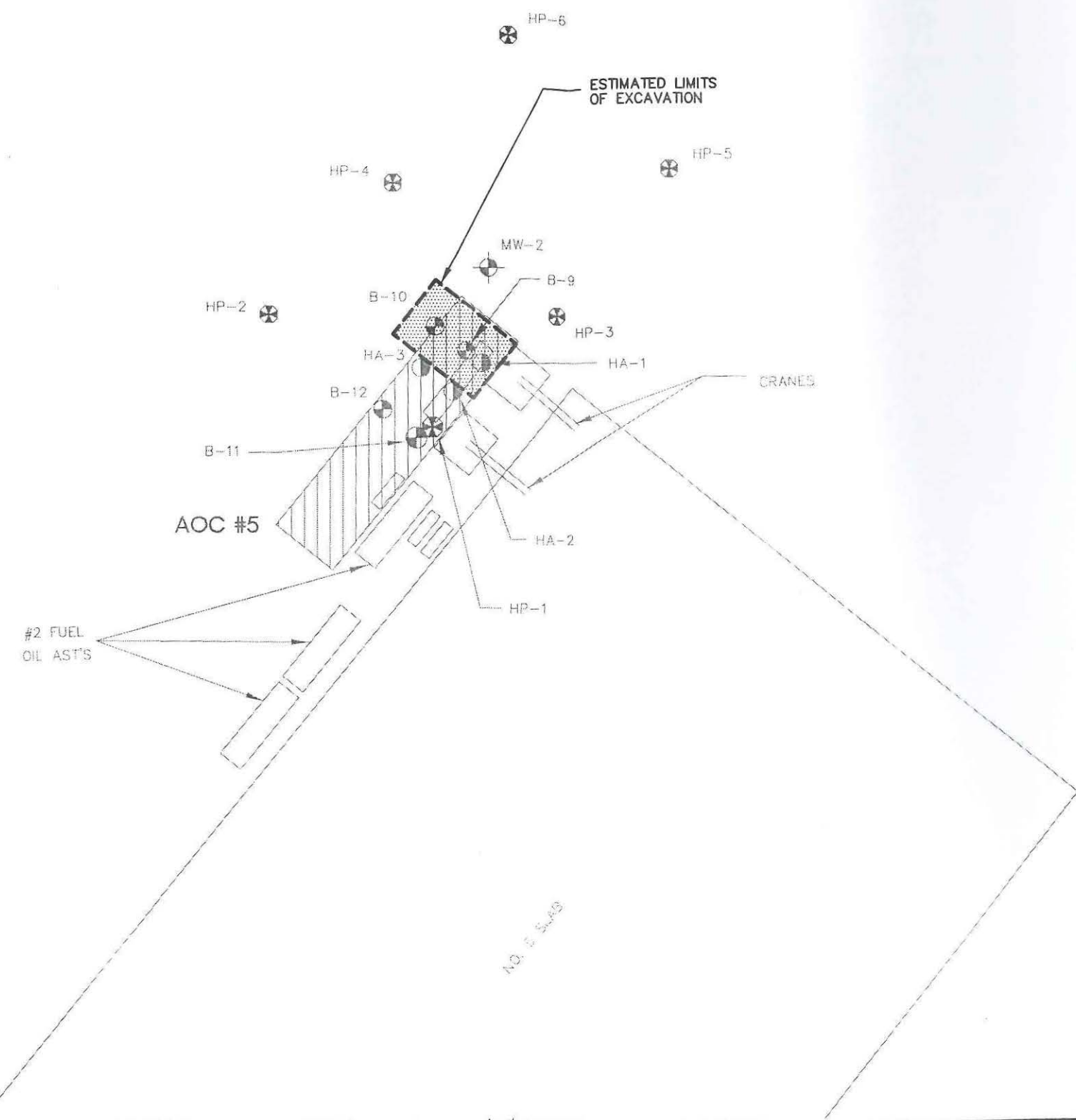


FRASER SHIPYARDS, INC.
AOC #5 WORKPLAN

FIGURE 1
SITE LOCATION

PROJ. NO. FRAS9401	1
DATE 03/28/00	
3	

E:\WASTE\FRAS9401\PLAN\FUD2



LEGEND

- MW-2 EXISTING MONITORING WELL LOCATION AND NUMBER
- B-12 SOIL BORING LOCATION AND NUMBER
- HP-1 HYDRAULIC PROBE GROUNDWATER SAMPLE LOCATION
- HA-1 HAND AUGER LOCATION
- AOC #5 AREA OF CONCERN
- RAILROAD
- STORM SEWER OUTLET
- SUB STATION (600 KVA)

1	03/28/00	-----	JLE	03/00	JEG	03/00				
NO.	DATE	ISSUE/REVISIONS	DRAWN BY	DESIGN	FIELD REVIEW	QC CHECK				



FRASER SHIPYARDS, INC.
AOC #5 WORKPLAN

FIGURE 3
ESTIMATED LIMITS
OF EXCAVATION

PROJ. NO.	FRAS9401	3
DATE	03/28/00	