

Phase II Report of Findings

Grants Pass Office, Bulk Plant, and Cardlock
529 NE F Street
Grants Pass, Oregon

Prepared for:
Hays Oil Company

March 2024
224002.214



Phone: (541) 827-7855 **Email:** info@shn-engr.com
Web: shn-engr.com • 803 Main Street, Ste. 401, Klamath Falls, OR 97601



Phone: (541) 827-7855 Email: info@shn-engr.com Web: shn-engr.com
803 Main Street, Ste. 401, Klamath Falls, OR 97601

Reference: 224002.214

March 27, 2024

Craig Randolph
Vice President
191 Bateman Drive
Central Point, OR 97502

**Subject: Phase II Report of Findings, Grants Pass Office, Bulk Plant, and
Cardlock, 529 NE F Street, Grants Pass, Oregon**

Dear Craig Randolph:

SHN is providing you with this Phase II Report of Findings for your Grants Pass Office, Bulk Plant, and Cardlock facility, located at 529 NE F Street, Grants Pass, Oregon. SHN has determined that further action may be necessary at the site based on the results of the recent investigation. SHN recommends submitting this Phase II report to the Oregon DEQ for review.

If you have any questions, comments, or concerns regarding this report, please call me at (530) 221-5424.

Sincerely,

SHN

A handwritten signature in blue ink, appearing to read 'RW Hess'.

Robert W. Hess, RG
Project Manager

RWH/DMW:lam

Enclosure: Report

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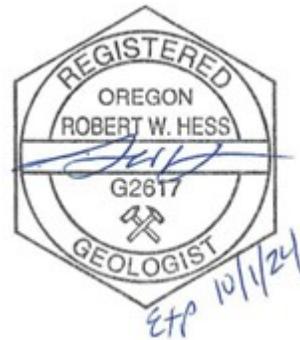
Phase II Report of Findings

Grants Pass Office, Bulk Plant, and Cardlock

529 NE F Street

Grants Pass, Oregon

Prepared for:
Hays Oil Company



Robert W. Hess, RG

signed 3/27/24

Prepared by:



803 Main Street, Ste 401
Klamath Falls, OR 97601
(541) 827-7855

March 2024

QA/QC: RMR ^{RR}
Reference: 224002.214

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Abbreviations and Acronyms

Units of Measure

<	“less than” the stated laboratory reporting limit
eV	electron volts
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
ug/L	micrograms per liter

Additional Terms

AST	aboveground storage tank
B	benzene
B#	Soil boring identification number
BB&A	BB&A Environmental
BGS	below ground surface
DEQ	Department of Environmental Quality (Oregon)
E	ethylbenzene
EDB	1,2-Dibromoethane
EDC	1,2-Dichloroethane
EPA	U.S. Environmental Protection Agency
GPRD	GPR Data, Inc.
LNAPL	light non-aqueous phase liquid
LUST	Leaking underground storage tank database
NA	not available
NWTPH-DX	Northwest total petroleum hydrocarbons as diesel
NWTPH-GX	Northwest total petroleum hydrocarbons as gasoline
ORELAP	State of Oregon Environmental Laboratory Accreditation Program
PID	photoionization detector
PVC	polyvinyl chloride
Qal	Quaternary alluvium
RBC	Risk-Based Concentration
RBCss	Risk-Based Concentrations–residential soil ingestion, dermal contact, and inhalation values
RBCw	Risk-Based Concentrations–residential ingestion & inhalation from tap water
T	toluene
TPH	total petroleum hydrocarbons
VOCs	volatile organic compounds
X	Xylenes



1.0 Introduction

On behalf of Hays Oil Company (Hays), SHN prepared this Phase II report of findings for the Grants Pass Office, Bulk Plant, and Cardlock facility, located at 529 NE F Street, Oregon (Figure 1). This report presents the site investigation results, including a human health risk-based screening level assessment based on current and likely future site uses.

The site, also known as The Oil House, is listed in the Oregon Department of Environmental Quality (DEQ) leaking underground storage tank (LUST) database as case #17-97-0067. The current case status is active with the following summary information provided from DEQ:

"The initial release that brought this site to DEQ's attention was due to a tank leak that was discovered during a site assessment on September 23, 1997. However, it appears that there were spills prior to this time in the stormwater ditch that was along the dividing property line between the Chevron facility to the west and The Oil House. Also in the past a diesel pump in the former Pump House leaked in 1987; a diesel dispenser in the northern pump island leaked from a valve about 1987-1990; stained soils were observed near The Oil House tank farm, loading rack, and inside the secondary containment structures; and gasoline leaked from the piping union below the western pump on the northern island about 1990-1991. Then additional spills were noted near the tank farm in both 1999 and 2006. The 2006 spill occurred due to an overflow of a storage trailer. At that time 15.99 tons of bulk oil contaminated soil from SW of the tank farm area was removed and disposed of at Dry Creek Landfill. Five former underground storage tanks were terminated in July 1991 and converted to an oil-water separator in 1993. One of these tanks was by-passed in 2006 since it was leaking, and in December 2014, they were taken out of service. Four of these tanks were removed and about 480 cubic yards of petroleum contaminated soils were also removed and treated offsite. The remaining tank which was east of the tank farm was filled in place with concrete slurry, and no soil samples were taken near this tank. This site investigation is on-going and currently releases of several petroleum products (gasoline, diesel, and heavy oil) as well as solvents have resulted in several plumes of impacted soil and groundwater at the site. Impacted soils extend to properties E, W, and N of the site. Four plumes of separate phase hydrocarbons underly the site; one may originate from NW of the site. The solvents may also originate offsite. Some soil and groundwater concentrations exceed residential and occupational vapor intrusion into building screening cleanup values. Some groundwater concentrations exceed construction and excavation worker in excavation screening cleanup values." (DEQ)

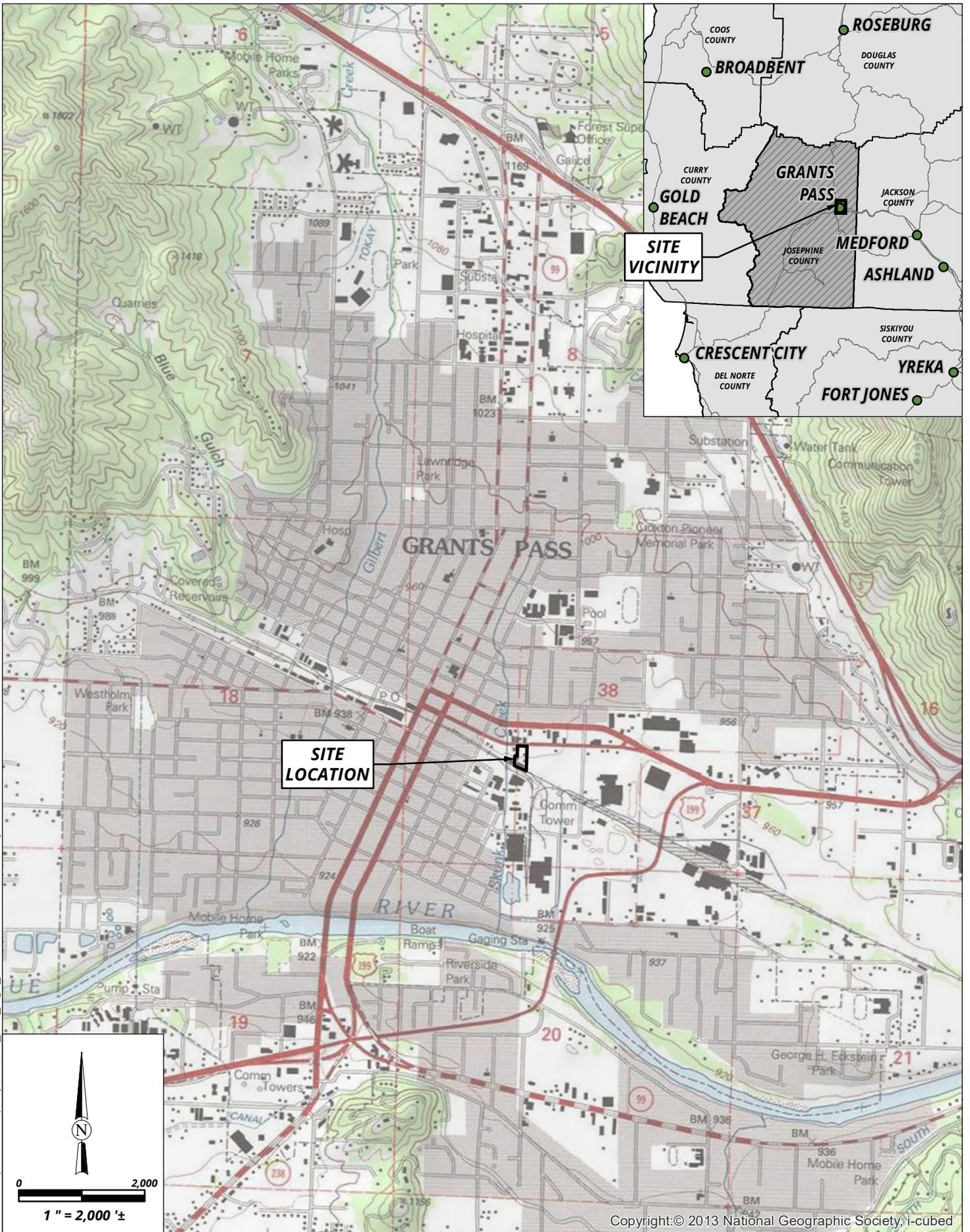
2.0 Site Setting

2.1 Site Description and Vicinity

The site is located in Grants Pass, Josephine County, Oregon. The approximate 1.39-acre site is situated at an elevation of approximately 944 feet above sea level along NE F Street (Figure 1) and is currently operated as a CFN branded cardlock facility. The site is zoned General Commercial (GC) and supports one one-story convenience store, three pump islands with eight fuel pumps under canopy in the front of the property, a large wood-framed warehouse with office space, a former fuel island under canopy without dispensers, and an aboveground storage tank (AST) tank farm and loading rack in the rear of the property. The site is paved with asphalt and concrete-surfaced areas (Figure 2), and there are occupational workers at this facility.



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Hays Oil Company
 Grants Pass Office and Bulk Plant and Cardlock
 529 NE F Street, Grants Pass, Oregon

Site Location
Phase II Site Assessment
 March 2024 - 224002.214

Figure
1

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EXPLANATION

● BORING LOCATION

□ SITE BOUNDARY

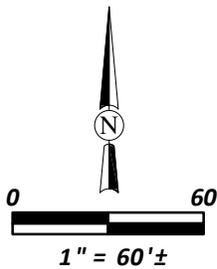


PHOTO SOURCE:
OSIP, 2022

Oregon Statewide Imagery Program (OSIP) - Oregon Imagery Framework
Implementation Team



Hays Oil Company
Grants Pass Office and Bulk Plant and Cardlock
529 NE F Street, Grants Pass, Oregon

Site Map
Phase II Site Assessment
March 2024 - 224002.214

Figure
2

The site is bordered to the north by various retail businesses, to the south by railroad tracks and beyond that commercial/industrial properties. To the east is a vacant office building and to the west is City Plywood.

2.2 Geology and Hydrology

General regional surficial geology of Grants Pass consists of Quaternary alluvium (Qal) described as stratified gravel, sand, and silt, and water-worn colluvium (USGS, 1940). Soil borings from the 2024 investigation indicate brown, gray, blue, and green sandy clays to a depth of 15 feet below ground surface (BGS). See Appendix 1 for soil boring logs from the recent investigation. Data from the United States Department of Agriculture describe the soil as Banning loam with slow infiltration rates and soil layers that impede downward movement of water.

Groundwater was encountered between 1.2 feet and 5.9 feet BGS at the site. Groundwater flow direction is south-southwest toward the Rogue River.

3.0 2024 Phase II Field Program

3.1 Objective

The objective of the work was to collect soil and groundwater samples to assess the current conditions near features of interest at the site. These features include, but are not limited to, underground storage tanks, aboveground storage tanks, fuel dispensers, loading racks, and underground product lines.

3.2 Scope of Work

The scope of work was designed to provide the information needed to meet the objective of this investigation, and was as follows:

- Conduct project implementation/management tasks.
- Field program:
 - Install soil borings using a Geoprobe®.
 - Collect soil and groundwater samples.
 - Submit the soil and groundwater samples for laboratory analysis.
 - Properly dispose of investigation derived waste.
- Prepare this report of findings.

3.3 Project Implementation

SHN coordinated and scheduled the activities related to the site investigation. SHN notified the Oregon Utility Notification Center to mark out any public utilities near the work area. In addition, a private utility-locating company, GPR Data of Happy Valley, Oregon (GPRD), conducted a utility scan, including the use of ground-penetrating radar, to confirm that the proposed boring locations were clear of underground utilities or other subsurface features.



3.4 Field Program

3.4.1 Soil Boring Installation and Sampling

On February 16 and 19, 2024, SHN supervised BB&A Environmental of Eugene, Oregon (BB&A), in the installation of 14 continuous core soil borings at the approximate locations shown on Figure 2. The soil borings were advanced with a truck-mounted Geoprobe® direct-push drill rig to approximately 5 feet below first encountered groundwater or refusal. Total depths ranged from 5 feet to 15 feet BGS.

Soil samples were collected from each boring at 5-foot intervals, as well as obviously stained sections, and field screened using a photoionization detector (PID) equipped with a 10.6 eV lamp. The sample with the highest PID reading was placed into laboratory supplied sample containers, labeled according to sample location, and placed in an iced cooler for shipment to the analytical laboratory under chain-of-custody documentation. In the event the PID did not detect volatile organic compounds in any of the samples collected from a particular boring, the 5-foot sample was submitted to the testing laboratory.

Soil was described in accordance with the Unified Soil Classification System under the direction of an Oregon-licensed geologist. Field boring logs are included in Appendix 1.

Groundwater was encountered in all 14 borings; however, only 12 groundwater samples were collected and submitted for chemical analysis. Upon reaching the target depth or refusal, a temporary ¾-inch diameter polyvinyl chloride (PVC) well with 10 feet of 0.010-foot slotted PVC screen was installed in each borehole for the collection of groundwater samples if sufficient water was present. Groundwater was collected with a peristaltic pump equipped with new Teflon tubing and decanted into new, laboratory supplied sample bottles, labeled according to sample location, and placed in an iced cooler for shipment to the analytical laboratory under chain-of-custody documentation. Two borings (B5 and B6) exhibited measurable light non-aqueous phase liquid (LNAPL); therefore, no groundwater samples were collected in these borings due to the presence of LNAPL.

Soil and groundwater samples were analyzed according to Section 3.4.4: Laboratory Analysis.

Following sample collection, the PVC screen was removed, and the borings abandoned by pouring a Portland cement grout slurry into each open borehole.

3.4.2 Equipment Decontamination Procedures

All boring and sample equipment was cleaned prior to its use on site and between each boring installation using a Liquinox® solution, followed by two rinses with distilled water.

3.4.3 Investigation-Derived Waste Management

All investigation-derived waste was placed into one 55-gallon steel drum and staged onsite pending pickup and proper disposal. BB&A will coordinate waste disposal and provide disposal documentation under separate cover.

3.4.4 Laboratory Analysis

Soil and groundwater samples were analyzed for one or more of the following constituents:

- Diesel range and Lube Oil range organics were analyzed in general accordance with Northwest Total Petroleum Hydrocarbons as Diesel (NWTPH-DX) methodology.



- Gasoline range organics were analyzed in general accordance with Northwest Total Petroleum Hydrocarbons as Gasoline (NWTPH-GX) methodology.
- Volatile organic compounds (VOCs) including, but not limited to, benzene (B), toluene (T), ethylbenzene (E), total xylenes (X), and naphthalene were analyzed in general accordance with U.S. Environmental Protection Agency (EPA) Method No. 8260B.

Sample analyses were conducted by Neilson Research Corporation, an Oregon Environmental Laboratory Accreditation Program (ORELAP)-certified analytical laboratory (OR100016-027) located in Medford, Oregon.

3.5 Soil and Groundwater Analytical Results

Table 1 presents the soil sample analytical results, and Table 2 presents the groundwater sample analytical results from the recent subsurface investigation. Certified analytical results from this investigation are included in Appendix 2. The sample results are compared to the risk-based concentrations (RBC) for individual chemicals (DEQ table Revised May 2018 and amended August 2023) that is included in Appendix 3 to determine if the site is protective of human health and the environment.



Table 1. Soil Analytical Results, February 16 and 19, 2024
Grants Pass Office, Bulk Plant, and Cardlock, 529 NE F Street, Grants Pass, Oregon
(in mg/kg)^a

Analyte	RBCss ^b	B1 ^c (10 feet) ^d	B2 (10 feet)	B3 (5 feet)	B4 (5 feet)	B5 (3.5 feet)	B6 (2.5 feet)	B7 (5 feet)
TPH ^e as Diesel	1,100	<16.6 ^f	<13.8	136	77.3	194	254	<14.8
TPH as Lube Oil	1,100	<33.2	<27.6	<29.0	<29.7	<29.6	<29.2	<29.5
TPH as Gasoline	1,200	<5.82	<5.72	40.8	1,280^g	2,760	1,890	<4.04
1,1,1-Trichloroethane	53,000	<0.138	<0.129	<0.111	<0.106	<0.0966	<0.109	<0.113
1,1-Dichloroethane	58	<0.0277	<0.0259	<0.0222	<0.0212	<0.0193	<0.0219	<0.0225
1,2,4-Trimethylbenzene	430	<0.0277	0.0414	<0.0222	20.5	113	102	0.0455
1,2-Dibromoethane (EDB)	0.16	<0.0277	<0.0259	<0.0222	<0.0212	<0.0193	<0.0219	<0.0225
1,2-Dichloroethane (EDC)	3.6	<0.0277	<0.0259	<0.0222	<0.0212	<0.0193	<0.0219	<0.0225
1,3,5-Trimethylbenzene	430	<0.0554	<0.0518	<0.0444	14.5	31.6	33.4	<0.0450
Benzene	8.2	<0.0277	<0.0259	<0.0222	0.712	8.31	1.18	<0.0225
cis-1,2-Dichloroethylene	160	<0.0277	<0.0259	<0.0222	<0.0212	<0.0193	<0.0219	<0.0225
Ethylbenzene	34	<0.0277	<0.0259	0.0657	16.2	38.4	<0.0219	<0.0225
Isopropylbenzene	3,500	<0.0277	<0.0259	0.314	7.51	3.83	5.57	<0.0225
Methyl tert-butyl ether	250	2.03	<0.0259	<0.0222	<0.0212	<0.0193	<0.0219	<0.0225
n-Propylbenzene	NA ^h	<0.0277	<0.0259	1.45	<0.0212	<0.0193	<0.0219	<0.0225
Naphthalene	5.3	<0.138	<0.129	0.389	<0.106	18.4	20.6	<0.113
Tetrachloroethene (PCE)	220	<0.0277	<0.0259	<0.0222	<0.0212	<0.0193	<0.0219	<0.0225
Toluene	5,800	<0.0554	<0.0518	<0.0444	<0.0424	67.4	0.190	<0.0450
trans-1,2-Dichloroethylene	1,600	<0.0277	<0.0259	<0.0222	<0.0212	<0.0193	<0.0219	<0.0225
Vinyl chloride	0.36	<0.0554	<0.0518	<0.0444	<0.0424	<0.0386	<0.0483	<0.0450
Xylenes, Total	1,400	<0.0554	<0.0518	<0.0444	3.83	1.84	0.956	<0.0450



Table 1. Soil Analytical Results, February 16 and 19, 2024
Cont. Grants Pass Office, Bulk Plant, and Cardlock, 529 NE F Street, Grants Pass, Oregon
(in mg/kg)^a

Analyte	RBCss ^b	B8 ^c (4 feet) ^d	B9 (5 feet)	B10 (3 feet)	B11 (5 feet)	B12 (5 feet)	B13 (7.5 feet)	B14 (5 feet)
TPH ^e as Diesel	1,100	<14.7 ^f	<15.3	11,600^g	2,420	<15.2	<14.1	<14.9
TPH as Lube Oil	1,100	<29.5	<30.6	<590	<29.9	<30.4	<29.5	<29.9
TPH as Gasoline	1,200	<4.72	<4.65	2,950	1,940	21.7	<3.90	<4.44
1,1,1-Trichloroethane	53,000	<0.110	<0.115	<0.109	<0.111	<0.116	<0.0979	<0.0993
1,1-Dichloroethane	58	<0.0220	<0.0230	<0.0217	<0.0222	<0.0232	<0.0196	<0.0199
1,2,4-Trimethylbenzene	430	0.0251	0.0294	55.9	0.323	0.0398	0.0200	<0.0199
1,2-Dibromoethane (EDB)	0.16	<0.0220	<0.0230	<0.0217	<0.0222	<0.0232	<0.0196	<0.0199
1,2-Dichloroethane (EDC)	3.6	<0.0220	<0.0230	<0.0217	<0.0222	<0.0232	<0.0196	<0.0199
1,3,5-Trimethylbenzene	430	<0.0440	<0.0459	16.6	2.74	<0.0463	<0.0391	<0.0397
Benzene	8.2	<0.0220	<0.0230	12.8	3.25	0.329	<0.0196	<0.0199
cis-1,2-Dichloroethylene	160	<0.0220	<0.0230	<0.0217	<0.0222	<0.0232	<0.0196	<0.0199
Ethylbenzene	34	<0.0220	<0.0230	20.2	14.1	0.160	<0.0196	<0.0199
Isopropylbenzene	3,500	<0.0220	<0.0230	2.90	6.74	0.129	<0.0196	<0.0199
Methyl tert-butyl ether	250	<0.0220	<0.0230	<0.0217	<0.0222	<0.0232	<0.0196	<0.0199
n-Propylbenzene	NA ^h	<0.0220	<0.0230	11.2	20.6	0.472	<0.0196	<0.0199
Naphthalene	5.3	<0.110	<0.115	7.88	31.3	0.840	<0.0979	<0.0993
Tetrachloroethene (PCE)	220	<0.0220	<0.0230	<0.0217	<0.0222	<0.0232	<0.0196	<0.0199
Toluene	5,800	<0.0440	<0.0459	1.60	0.630	<0.0463	<0.0391	<0.0397
trans-1,2-Dichloroethylene	1,600	<0.0220	<0.0230	<0.0217	<0.0222	<0.0232	<0.0196	<0.0199
Vinyl chloride	0.36	<0.0440	<0.0459	<0.0435	<0.0443	<0.0463	<0.0391	<0.0397
Xylenes, Total	1,400	<0.0440	<0.0459	1.96	2.97	0.0810	<0.0391	<0.0397

- a. mg/kg: milligrams per kilogram
- b. RBCss: residential Risk-Based Concentrations
- c. B1: boring ID
- d. approximate sample depth
- e. TPH: total petroleum hydrocarbons
- f. <: less than the stated reporting limit
- g. Bold: exceeds residential RBCs
- h. NA: not applicable



Table 2. Groundwater Analytical Results, February 16 and 19, 2024
Grants Pass Office, Bulk Plant, and Cardlock, 529 NE F Street, Grants Pass, Oregon
(in ug/L^a) unless stated otherwise

Analyte	RBCw ^b	B1 ^c	B2	B3	B4	B5	B6	B7
TPH ^d as Diesel (mg/L) ^e	0.100	6.18 ^f	<0.0472 ^g	0.475	1.62	LNAPL ^h	LNAPL	<0.0472
TPH as Lube Oil (mg/L)	0.100	<0.0948	0.711	0.440	<0.100	LNAPL	LNAPL	0.786
TPH as Gasoline (mg/L)	0.110	1.17	<0.0500	1.33	14.2	LNAPL	LNAPL	0.595
1,1,1-Trichloroethane	8,000	<0.500	<0.500	<0.500	<0.500	LNAPL	LNAPL	<0.500
1,1-Dichloroethane	2.8	<0.500	<0.500	<0.500	<0.500	LNAPL	LNAPL	<0.500
1,2,4-Trimethylbenzene	54	<0.500	<0.500	<0.500	561	LNAPL	LNAPL	81.7
1,2-Dibromoethane (EDB)	0.0075	<0.500	<0.500	<0.500	<0.500	LNAPL	LNAPL	<0.500
1,2-Dichloroethane (EDC)	0.17	<0.500	<0.500	<0.500	<0.500	LNAPL	LNAPL	<0.500
1,3,5-Trimethylbenzene	59	<0.500	<0.500	<0.500	160	LNAPL	LNAPL	25.2
Benzene	0.46	<0.350	<0.350	20.4	1,160	LNAPL	LNAPL	1.03
cis-1,2-Dichloroethylene	36	<0.500	<0.500	<0.500	<0.500	LNAPL	LNAPL	<0.500
Ethylbenzene	1.5	<0.500	<0.500	27.7	977	LNAPL	LNAPL	46.5
Isopropylbenzene	440	6.59	<0.500	28.2	160	LNAPL	LNAPL	3.97
Methyl tert-butyl ether	14	193	121	<0.500	1,830	LNAPL	LNAPL	<0.500
n-Propylbenzene	NA ⁱ	27.1	<0.500	144	460	LNAPL	LNAPL	15.5
Naphthalene	0.17	<2.00	<2.00	70.0	635	LNAPL	LNAPL	20.1
Tetrachloroethene (PCE)	12	<0.500	<0.500	<0.500	<0.500	LNAPL	LNAPL	<0.500
Toluene	1,100	<0.500	<0.500	0.610	10.8	LNAPL	LNAPL	1.34
trans-1,2-Dichloroethylene	360	<0.500	<0.500	<0.500	<0.500	LNAPL	LNAPL	<0.500
Vinyl chloride	0.027	<0.500	<0.500	<0.500	<0.500	LNAPL	LNAPL	<0.500
Xylenes, Total	190	<0.500	<0.500	1.29	676	LNAPL	LNAPL	56.1



Table 2. Groundwater Analytical Results, February 16 and 19, 2024
Cont. Grants Pass Office, Bulk Plant, and Cardlock, 529 NE F Street, Grants Pass, Oregon
(in ug/L^a) unless stated otherwise

Analyte	RBCw ^b	B8 ^c	B9	B10	B11	B12	B13	B14
TPH ^d as Diesel (mg/L) ^e	0.100	<0.0472 ^g	<0.0472	232^f	62.9	52.7	<0.0472	<0.0472
TPH as Lube Oil (mg/L)	0.100	1.36	0.390	<0.0943	<0.0971	<0.0943	0.776	3.27
TPH as Gasoline (mg/L)	0.110	<0.0500	<0.0500	10.4	57.0	11.0	<0.0500	<0.0500
1,1,1-Trichloroethane	8,000	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,1-Dichloroethane	2.8	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,2,4-Trimethylbenzene	54	<0.500	0.620	62.9	1,040	7.08	<0.500	<0.500
1,2-Dibromoethane (EDB)	0.0075	<0.500	<0.500	<0.500	<0.500	0.610	<0.500	<0.500
1,2-Dichloroethane (EDC)	0.17	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,3,5-Trimethylbenzene	59	<0.500	<0.500	34.1	521	<0.500	<0.500	<0.500
Benzene	0.46	<0.350	<0.350	1,500	1,120	295	<0.350	<0.350
cis-1,2-Dichloroethylene	36	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Ethylbenzene	1.5	<0.500	0.710	112	1,420	31.4	<0.500	<0.500
Isopropylbenzene	440	<0.500	<0.500	62.2	143	135	<0.500	<0.500
Methyl tert-butyl ether	14	<0.500	0.940	167	<0.500	<0.500	<0.500	<0.500
n-Propylbenzene	NA ⁱ	<0.500	<0.500	136	393	476	<0.500	<0.500
Naphthalene	0.17	<2.00	<2.00	11.6	860	109	<2.00	<2.00
Tetrachloroethene (PCE)	12	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Toluene	1,100	<0.500	1.28	45.3	79.5	7.26	<0.500	<0.500
trans-1,2-Dichloroethylene	360	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Vinyl chloride	0.027	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Xylenes, Total	190	<0.500	2.87	97.2	1,240	16.9	<0.500	<0.500

a. TPH: total petroleum hydrocarbons

b. ug/L: micrograms per liter

c. RBCw: residential Risk-Based Concentrations

d. B1: boring ID

e. mg/L: milligrams per liter

f. Bold: exceeds residential RBCs

g. <: less than the stated reporting limit

h. LNAPL: no sample collected due to measurable light non-aqueous phase liquid

i. NA: not available



4.0 Investigation Summary

Contaminant concentrations in soil and groundwater samples collected during this investigation are summarized as follows:

- A total of 14 soil samples and 12 groundwater samples were collected from 14 soil borings installed as part of this investigation.
- Boring depths ranged from approximately 5 to 15 feet BGS.
- Groundwater depths ranged from 1.2 to 5.9 feet BGS.
- Measurable thickness of LNAPL was detected in borings B5 and B6 at 2.75 inches and 0.5 inches respectively; therefore, no groundwater samples were collected from these locations.
- 5 of the 14 soil samples submitted for chemical analysis exceeded various RBC scenarios.
 - Boring B4, exceeded residential soil risk-based concentration (RBC) guidelines for total petroleum hydrocarbons (TPH) as gasoline; however, the sample did not exceed the urban residential, occupational, or construction & excavation worker receptor scenarios.
 - Boring B5 exceeded the residential soil and urban residential soil RBC guidelines for TPH as gasoline. Boring B5 also exceeded the residential soil RBC for benzene, ethylbenzene, and naphthalene.
 - Boring B6 exceeded the residential soil RBC guidelines for TPH as gasoline and naphthalene.
 - Boring B10 exceeded the residential, urban residential, and occupational soil RBC guidelines for TPH as diesel. Boring B10 exceeded the residential RBC for TPH as gasoline, benzene, and naphthalene.
 - Boring B11 exceeded the residential soil RBC for TPH as diesel and TPH as gasoline. Boring B11 exceeded the residential and occupational soil RCB for naphthalene.
- All 12 groundwater samples submitted for chemical analysis exceeded various RBC scenarios.
 - Residential, urban residential, and occupational groundwater RBCs for TPH as diesel were exceeded in borings B1, B3, B4, B10, B11, and B12.
 - Construction worker groundwater RBCs for TPH as diesel were exceeded in borings B10, B11, and B12.
 - Residential, urban residential, and occupational groundwater RBCs for TPH as gasoline were exceeded in borings B1, B3, B4, B7, B10, B11, and B12.
 - Construction worker groundwater RBCs for TPH as diesel were exceeded in boring B11.
 - Residential, urban residential, and occupational groundwater RBCs for benzene were exceeded in borings B3, B4, B7, B10, B11, and B12.
 - Construction worker groundwater RBCs for benzene were exceeded in borings B3, B4, B10, B11, and B12.
 - For additional groundwater RBC exceedances, see Table 2 and compare with RBC values in Appendix 3.
- Soil at the site is loam with slow infiltration rates and low permeability which inhibit the vertical and horizontal migration of contaminants.



5.0 Recommendations

SHN concludes that results from this investigation support the recommendation that further action may be necessary at the site. SHN recommends submitting this Phase II report to Oregon DEQ for review.

6.0 References

State of Oregon Department of Environmental Quality, Environmental Cleanup Program. (Revised 2018; amended June 2023). "Appendix A: Table of Risk-Based Concentrations (RBCS)," in "Risk-Based Decision Making for the Remediation of Contaminated Sites." Portland, OR:DEQ.

United States Geologic Survey. (1940) Preliminary Geologic Map of the Grants Pass Quadrangle.
NR:USGS



Field Notes

1



BORING LOG

BORING NO.

B1

Page 1 of

PROJECT	Hays Oil	SHN JOB NO.	224002.214
LOCATION	529 NE F Street, Grants Pass, OR	PROJECT MGR.	RWH
CLIENT	Hays Oil	FIELD REP.	
CONTRACTOR	BB&A	DATE & TIME STARTED	0810 2/16/2024
DRILLER	J Justin	DATE & TIME FINISHED	

Elevation	ft.	Datum	Boring Location									
Item	Casing	Sampler	Core Barrel	Rig Make & Model				Hammer Type		Drilling Mud		Total Depth
Type		MC	NA	<input type="checkbox"/> Truck	<input type="checkbox"/> Tripod	<input type="checkbox"/> Cat-Head	<input type="checkbox"/> Safety	<input type="checkbox"/> Bentonite	15'			
Inside Diameter (in.)		2"	NA	<input type="checkbox"/> ATV	<input checked="" type="checkbox"/> Geoprobe	<input type="checkbox"/> Winch	<input type="checkbox"/> Doughnut	<input type="checkbox"/> Polymer				
Hammer Weight (lb.)	NA			<input type="checkbox"/> Track	<input type="checkbox"/> Air Track	<input type="checkbox"/> Roller Bit	<input type="checkbox"/> Automatic	<input checked="" type="checkbox"/> None				
Hammer Fall (in.)	NA			<input type="checkbox"/> Skid	<input type="checkbox"/> Hand Auger	<input type="checkbox"/> Cutting Head	Drilling Notes:					

Depth (ft.)	Recovery %	Blow Counts	Sample Depth (ft.)	Sample Time	PID (ppm)	USCS Symbol	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel		Sand			Field Test						
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength		
0																			
2.48'	100																		
5	60				35.1	CL	gray/blue, moist, odor, smooth clay												
							CL - 7.5' brown gray, moist, odor clay												
10					37.3														
	100				19.3		- 12' gray, wet, odor sand with clay with sand												
15					10.8	CL	brown, saturated, no odor sandy clay with gravel												
20																			

Water Level Data			Depth in feet to:		Sample ID		Well Diagram		Summary			
Date	Time	Elapsed Time (hr.)	First Water	Stabilized Water	CC	Cont. Core	<input type="checkbox"/>	Riser Pipe	Boring Depth (Linear ft.) _____ Sample Method _____ Number of Samples _____			
					T	Thin Wall Tube	<input type="checkbox"/>	Screen				
					U	Undisturbed Sample	<input type="checkbox"/>	Filter Sand	BORING NO. _____			
					S	Split Spoon Sample	<input type="checkbox"/>	Cuttings				
					G	Geoprobe	<input type="checkbox"/>	Grout				
							<input type="checkbox"/>	Concrete				
							<input type="checkbox"/>	Bentonite Seal				

Field Tests	Dilatancy:	R - Rapid S - Slow N - None	Plasticity:	N - Nonplastic L - Low M - Medium H - High
	Toughness:	L - Low M - Medium H - High	Dry Strength:	N - None L - Low M - Medium H - High V - Very High

NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identifications based on ASTM Method D2248 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"

Sheen in GW bucket



BORING LOG

BORING NO.

B2

Page 1 of

PROJECT	Hays Oil	SHN JOB NO.	224002.214
LOCATION	529 NE F Street, Grants Pass, OR	PROJECT MGR.	RWH
CLIENT	Hays Oil	FIELD REP.	
CONTRACTOR	BB&A	DATE & TIME STARTED	0855 2/16/2024
DRILLER	dustin	DATE & TIME FINISHED	

Elevation	ft.	Datum	Boring Location	
Item	Casing	Sampler	Core Barrel	Rig Make & Model
Type		UC	NA	<input type="checkbox"/> Truck <input type="checkbox"/> Tripod <input type="checkbox"/> Cat-Head <input type="checkbox"/> ATV <input checked="" type="checkbox"/> Geoprobe <input type="checkbox"/> Winch <input type="checkbox"/> Track <input type="checkbox"/> Air Track <input type="checkbox"/> Roller Bit <input type="checkbox"/> Skid <input type="checkbox"/> Hand Auger <input type="checkbox"/> Cutting Head
Inside Diameter (in.)		2"	NA	
Hammer Weight (lb.)	NA			<input type="checkbox"/> Safety <input type="checkbox"/> Bentonite <input type="checkbox"/> Doughnut <input type="checkbox"/> Polymer <input type="checkbox"/> Automatic <input checked="" type="checkbox"/> None
Hammer Fall (in.)	NA			Drilling Notes:

Depth (ft.)	Recovery %	Blow Counts	Sample Depth (ft.)	Sample Time	PID (ppm)	USCS Symbol	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel					Sand					Field Test				
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength					
0							Asphalt															
2.0'	40																					
5					0.2	SC	very coarse brown & green clayey sand, diorite, no odor, moist clayey sand with gravel															
10	30		X		1.1	SC	green/gray clay, very coarse sand diorite, no odor, moist & dry at very end of drive clayey sand with gravel															
15																						
20																						

Water Level Data				Sample ID		Well Diagram		Summary				
Date	Time	Elapsed Time (hr.)	Depth in feet to:		CC	Cont. Core	<input type="checkbox"/>	Riser Pipe	Boring Depth (Linear ft.) _____ Sample Method _____ Number of Samples _____			
			First Water	Stabilized Water	T	Thin Wall Tube	<input type="checkbox"/>	Screen				
					U	Undisturbed Sample	<input type="checkbox"/>	Filter Sand				
					S	Split Spoon Sample	<input type="checkbox"/>	Cuttings				
					G	Geoprobe	<input type="checkbox"/>	Grout				
							<input type="checkbox"/>	Concrete				
							<input type="checkbox"/>	Bentonite Seal				

Field Tests	Dilatancy: R - Rapid S - Slow N - None	Plasticity: N - Nonplastic L - Low M - Medium H - High
	Toughness: L - Low M - Medium H - High	Dry Strength: N - None L - Low M - Medium H - High V - Very High

NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identifications based on ASTM Method D2248 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"



BORING LOG

BORING NO.

83

Page 1 of

PROJECT	Hays Oil	SHN JOB NO.	224002.214
LOCATION	529 NE F Street, Grants Pass, OR	PROJECT MGR.	RWH
CLIENT	Hays Oil	FIELD REP.	
CONTRACTOR	BB&A	DATE & TIME STARTED	0940 2/16/2024
DRILLER	Justin	DATE & TIME FINISHED	

Elevation	ft.	Datum	Boring Location										
Item	Casing	Sampler	Core Barrel	Rig Make & Model			Hammer Type		Drilling Mud		Total Depth		
Type		MC	NA	<input type="checkbox"/> Truck	<input type="checkbox"/> Tripod	<input type="checkbox"/> Cat-Head	<input type="checkbox"/> Safety	<input type="checkbox"/> Bentonite	10'				
Inside Diameter (In.)		2"	NA	<input type="checkbox"/> ATV	<input checked="" type="checkbox"/> Geoprobe	<input type="checkbox"/> Winch	<input type="checkbox"/> Doughnut	<input type="checkbox"/> Polymer					
Hammer Weight (lb.)				<input type="checkbox"/> Track	<input type="checkbox"/> Air Track	<input type="checkbox"/> Roller Bit	<input type="checkbox"/> Automatic	<input checked="" type="checkbox"/> None					
Hammer Fall (In.)		NA		<input type="checkbox"/> Skid	<input type="checkbox"/> Hand Auger	<input type="checkbox"/> Cutting Head	Drilling Notes:						

Depth (ft.)	Recovery %	Blow Counts	Sample Depth (ft.)	Sample Time	PID (ppm)	USCS Symbol	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel		Sand			Field Test						
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength		
0							Asphalt												
5			X			b.6 CL	gray blue, moist, odor, white powder-like substance that looks like clay sand, clay												
10						b.0 CL	mottled brown & green, very fine sand, moist, no odor, yellow/brown stringy grass? roots? sandy clay												
15																			
20																			

Water Level Data					Sample ID		Well Diagram			Summary				
Date	Time	Elapsed Time (hr.)	Depth in feet to:		CC	Cont. Core	<input type="checkbox"/>	Riser Pipe	Boring Depth (Linear ft.) _____ Sample Method _____ Number of Samples _____ BORING NO. _____					
			First Water	Stabilized Water	T	Thin Wall Tube	<input type="checkbox"/>	Screen						
					U	Undisturbed Sample	<input type="checkbox"/>	Filter Sand						
					S	Split Spoon Sample	<input type="checkbox"/>	Cuttings						
					G	Geoprobe	<input type="checkbox"/>	Grout	<input type="checkbox"/>	Concrete				
							<input type="checkbox"/>	Bentonite Seal						

Field Tests	Dilatancy:	R - Rapid S - Slow N - None	Plasticity:	N - Nonplastic L - Low M - Medium H - High
	Toughness:	L - Low M - Medium H - High	Dry Strength:	N - None L - Low M - Medium H - High V - Very High

NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identifications based on ASTM Method D2248 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"

Shawn [signature]



BORING LOG

BORING NO.

B4

Page 1 of

PROJECT	Hays Oil	SHN JOB NO.	224002.214
LOCATION	529 NE F Street, Grants Pass, OR	PROJECT MGR.	RWH
CLIENT	Hays Oil	FIELD REP.	
CONTRACTOR	BB&A	DATE & TIME STARTED	10:20 2/16/2024
DRILLER	Justin	DATE & TIME FINISHED	

Elevation	ft.	Datum	Boring Location									
Item	Casing	Sampler	Core Barrel	Rig Make & Model				Hammer Type		Drilling Mud		Total Depth
Type		NA	NA	<input type="checkbox"/> Truck	<input type="checkbox"/> Tripod	<input type="checkbox"/> Cat-Head	<input type="checkbox"/> Safety	<input type="checkbox"/> Bentonite	10'			
Inside Diameter (in.)		2"	NA	<input type="checkbox"/> ATV	<input checked="" type="checkbox"/> Geoprobe	<input type="checkbox"/> Winch	<input type="checkbox"/> Doughnut	<input type="checkbox"/> Polymer				
Hammer Weight (lb.)	NA			<input type="checkbox"/> Track	<input type="checkbox"/> Air Track	<input type="checkbox"/> Roller Bit	<input type="checkbox"/> Automatic	<input checked="" type="checkbox"/> None				
Hammer Fall (in.)	NA			<input type="checkbox"/> Skid	<input type="checkbox"/> Hand Auger	<input type="checkbox"/> Cutting Head	Drilling Notes:					

Depth (ft.)	Recovery %	Blow Counts	Sample Depth (ft.)	Sample Time	PID (ppm)	USCS Symbol	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel					Sand					Field Test					
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength						
0							Asphalt																
5.0	100		X			472.2 CL	gray/blue, moist, odor, white powder like substance that looks like sand clay																
10	100						CL mottled brown & green, very fine sand, moist, no odor sandy clay																
15																							
20																							

Water Level Data			Sample ID		Well Diagram		Summary	
Date	Time	Elapsed Time (hr.)	Depth in feet to:	CC	Cont. Core	<input type="checkbox"/>	Riser Pipe	Boring Depth (Linear ft.)
			First Water	T	Thin Wall Tube	<input type="checkbox"/>	Screen	Sample Method
			Stabilized Water	U	Undisturbed Sample	<input type="checkbox"/>	Filter Sand	Number of Samples
				S	Split Spoon Sample	<input type="checkbox"/>	Cuttings	
				G	Geoprobe	<input type="checkbox"/>	Grout	
						<input type="checkbox"/>	Concrete	BORING NO.
						<input type="checkbox"/>	Bentonite Seal	

Field Tests	Dilatancy:	R - Rapid S - Slow N - None	Plasticity:	N - Nonplastic L - Low M - Medium H - High
	Toughness:	L - Low M - Medium H - High	Dry Strength:	N - None L - Low M - Medium H - High V - Very High

NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identifications based on ASTM Method D2248 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"

seen in bucket
very slow recharge



BORING LOG

BORING NO.

B5

Page 1 of

PROJECT	Hays Oil	SHN JOB NO.	224002.214
LOCATION	529 NE F Street, Grants Pass, OR	PROJECT MGR.	RWH
CLIENT	Hays Oil	FIELD REP.	
CONTRACTOR	BB&A	DATE & TIME STARTED	1125 2/16/2004
DRILLER	JUSTIN	DATE & TIME FINISHED	

Elevation	ft.	Datum	Boring Location									
Item	Casing	Sampler	Core Barrel	Rig Make & Model				Hammer Type		Drilling Mud		Total Depth
Type		IMC	NA	<input type="checkbox"/> Truck	<input type="checkbox"/> Tripod	<input type="checkbox"/> Cat-Head	<input type="checkbox"/> Safety	<input type="checkbox"/> Bentonite	10'			
Inside Diameter (In.)		2"	NA	<input type="checkbox"/> ATV	<input checked="" type="checkbox"/> Geoprobe	<input type="checkbox"/> Winch	<input type="checkbox"/> Doughnut	<input type="checkbox"/> Polymer				
Hammer Weight (lb.)	NA			<input type="checkbox"/> Track	<input type="checkbox"/> Air Track	<input type="checkbox"/> Roller Bit	<input type="checkbox"/> Automatic	<input checked="" type="checkbox"/> None				
Hammer Fall (in.)	NA			<input type="checkbox"/> Skid	<input type="checkbox"/> Hand Auger	<input type="checkbox"/> Cutting Head	Drilling Notes:					

Depth (ft.)	Recovery %	Blow Counts	Sample Depth (ft.)	Sample Time	PID (ppm)	USCS Symbol	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel					Sand					Field Test		
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength			
0							Asphalt													
3.4'	100		X			CL	gray/blue, moist, odor, white powder like substance that looks like sand, minor sand, sandy clay													
5						SC	dark gray brown, sand, odor moist clayey sand													
10	100																			
15																				
20																				

Water Level Data				Sample ID		Well Diagram		Summary	
Date	Time	Elapsed Time (hr.)	Depth in feet to:		CC	Well Diagram		Boring Depth (Linear ft.)	
			First Water	Stabilized Water	T	<input type="checkbox"/> Riser Pipe		Sample Method	
					U	<input type="checkbox"/> Screen		Number of Samples	
					S	<input type="checkbox"/> Filter Sand			
					G	<input type="checkbox"/> Cuttings			
						<input type="checkbox"/> Grout			
						<input type="checkbox"/> Concrete			
						<input type="checkbox"/> Bentonite Seal			

Field Tests	Dilatancy: R - Rapid S - Slow N - None	Plasticity: N - Nonplastic L - Low M - Medium H - High
	Toughness: L - Low M - Medium H - High	Dry Strength: N - None L - Low M - Medium H - High V - Very High

NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identifications based on ASTM Method D2248 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"

Product! 2 3/4" product, from bailer



BORING LOG

BORING NO.

B6

Page 1 of

PROJECT	Hays Oil	SHN JOB NO.	224002.214
LOCATION	529 NE F Street, Grants Pass, OR	PROJECT MGR.	RWH
CLIENT	Hays Oil	FIELD REP.	
CONTRACTOR	BB&A	DATE & TIME STARTED	12:10 2/16/2024
DRILLER	Justin	DATE & TIME FINISHED	

Elevation	ft.	Datum	Boring Location	
Item	Casing	Sampler	Core Barrel	Rig Make & Model
Type		MC	NA	<input type="checkbox"/> Truck <input type="checkbox"/> Tripod <input type="checkbox"/> Cat-Head
Inside Diameter (in.)		2"	NA	<input type="checkbox"/> ATV <input checked="" type="checkbox"/> Geoprobe <input type="checkbox"/> Winch
Hammer Weight (lb.)	NA			<input type="checkbox"/> Track <input type="checkbox"/> Air Track <input type="checkbox"/> Roller Bit
Hammer Fall (in.)	NA			<input type="checkbox"/> Skid <input type="checkbox"/> Hand Auger <input type="checkbox"/> Cutting Head
Drilling Notes:				

Depth (ft.)	Recovery %	Blow Counts	Sample Depth (ft.)	Sample Time	PID (ppm)	USCS Symbol	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel		Sand			Field Test						
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength		
0			X				Asphalt												
5							CL green/gray, moist, minor sand, white powder like substance that looks like sand, odor sandy clay												
10							CL dark gray/brown, moist, odor sandy clay												
15																			
20																			

Water Level Data				Sample ID		Well Diagram		Summary	
Date	Time	Elapsed Time (hr.)	Depth in feet to:		CC	Cont. Core	<input type="checkbox"/>	Riser Pipe	Boring Depth (Linear ft.)
			First Water	Stabilized Water	T	Thin Wall Tube	<input type="checkbox"/>	Screen	Sample Method
					U	Undisturbed Sample	<input type="checkbox"/>	Filter Sand	Number of Samples
					S	Split Spoon Sample	<input type="checkbox"/>	Cuttings	
					G	Geoprobe	<input type="checkbox"/>	Grout	
							<input type="checkbox"/>	Concrete	BORING NO.
							<input type="checkbox"/>	Bentonite Seal	

Field Tests	Dilatancy:	R - Rapid S - Slow N - None	Plasticity:	N - Nonplastic L - Low M - Medium H - High
	Toughness:	L - Low M - Medium H - High	Dry Strength:	N - None L - Low M - Medium H - High V - Very High

NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identifications based on ASTM Method D2248 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"

Product! 0.5" product, from bailer



BORING LOG

BORING NO.

B7

Page 1 of

PROJECT	Hays Oil	SHN JOB NO.	224002.214
LOCATION	529 NE F Street, Grants Pass, OR	PROJECT MGR.	RWH
CLIENT	Hays Oil	FIELD REP.	
CONTRACTOR	BB&A	DATE & TIME STARTED	030 2/16/2024
DRILLER	<i>Justin</i>	DATE & TIME FINISHED	

Elevation	ft.	Datum	Boring Location	
Item	Casing	Sampler	Core Barrel	Rig Make & Model
Type		MC	NA	<input type="checkbox"/> Truck <input type="checkbox"/> Tripod <input type="checkbox"/> Cat-Head <input type="checkbox"/> ATV <input checked="" type="checkbox"/> Geoprobe <input type="checkbox"/> Winch <input type="checkbox"/> Track <input type="checkbox"/> Air Track <input type="checkbox"/> Roller Bit <input type="checkbox"/> Skid <input type="checkbox"/> Hand Auger <input type="checkbox"/> Cutting Head
Inside Diameter (in.)		2"	NA	
Hammer Weight (lb.)	NA			<input type="checkbox"/> Safety <input type="checkbox"/> Bentonite <input type="checkbox"/> Doughnut <input type="checkbox"/> Polymer <input type="checkbox"/> Automatic <input checked="" type="checkbox"/> None
Hammer Fall (in.)	NA			Drilling Notes:

Depth (ft.)	Recovery %	Blow Counts	Sample Depth (ft.)	Sample Time	PID (ppm)	USCS Symbol	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel		Sand			Field Test					
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength	
0							Asphalt											
3.6' 5	60																	
			X		26.0	CL	green/gray, moist, minor sand, white powder like substance that looks like sand, odor sandy clay											
	95				0.2	CL	brown & red brown mottled with some gray/blue, some black smearing, no odor clay											
10																		
15																		
20																		

Water Level Data				Sample ID		Well Diagram		Summary	
Date	Time	Elapsed Time (hr.)	Depth in feet to:		CC				
			First Water	Stabilized Water	T <td><input type="checkbox"/> Riser Pipe</td> <td colspan="3">Boring Depth (Linear ft.) _____</td>	<input type="checkbox"/> Riser Pipe	Boring Depth (Linear ft.) _____		
					U <td><input type="checkbox"/> Screen</td> <td colspan="3">Sample Method _____</td>	<input type="checkbox"/> Screen	Sample Method _____		
					S <td><input type="checkbox"/> Filter Sand</td> <td colspan="3">Number of Samples _____</td>	<input type="checkbox"/> Filter Sand	Number of Samples _____		
					G <td><input type="checkbox"/> Cuttings</td> <td colspan="3">BORING NO. _____</td>	<input type="checkbox"/> Cuttings	BORING NO. _____		
						<input type="checkbox"/> Grout			
						<input type="checkbox"/> Concrete			
						<input type="checkbox"/> Bentonite Seal			

Field Tests Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil Identifications based on ASTM Method D2248 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"



BORING LOG

BORING NO.

B9

Page 1 of

PROJECT	Hays Oil	SHN JOB NO.	224002.214
LOCATION	529 NE F Street, Grants Pass, OR	PROJECT MGR.	RWH
CLIENT	Hays Oil	FIELD REP.	
CONTRACTOR	BB&A	DATE & TIME STARTED	0955 10/2/19/2024
DRILLER	Justin	DATE & TIME FINISHED	

Elevation	ft.	Datum	Boring Location	
Item	Casing	Sampler	Core Barrel	Rlg Make & Model
Type		MC	NA	<input type="checkbox"/> Truck <input type="checkbox"/> Tripod <input type="checkbox"/> Cat-Head <input type="checkbox"/> ATV <input checked="" type="checkbox"/> Geoprobe <input type="checkbox"/> Winch <input type="checkbox"/> Track <input type="checkbox"/> Air Track <input type="checkbox"/> Roller Bit <input type="checkbox"/> Skid <input type="checkbox"/> Hand Auger <input type="checkbox"/> Cutting Head
Inside Diameter (in.)		2"	NA	<input type="checkbox"/> Safety <input type="checkbox"/> Bentonite <input type="checkbox"/> Doughnut <input type="checkbox"/> Polymer <input type="checkbox"/> Automatic <input checked="" type="checkbox"/> None
Hammer Weight (lb.)	NA			Drilling Notes:
Hammer Fall (in.)	NA			

Depth (ft.)	Recovery %	Blow Counts	Sample Depth (ft.)	Sample Time	PID (ppm)	USCS Symbol	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel					Sand					Field Test				
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength					
0	95		X		6.7	-4'	Asphalt															
5					2.0	CL	gray/blue, minor sand, no odor moist, mica, white powder like substance that looks like sand Sandy clay															
10																						
15																						
20																						

1.8'

Water Level Data				Sample ID		Well Diagram		Summary			
Date	Time	Elapsed Time (hr.)	Depth in feet to:		CC	<input type="checkbox"/> Riser Pipe <input type="checkbox"/> Screen <input type="checkbox"/> Filter Sand <input type="checkbox"/> Cuttings <input type="checkbox"/> Grout <input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite Seal		Boring Depth (Linear ft.) _____ Sample Method _____ Number of Samples _____ BORING NO. _____			
			First Water	Stabilized Water	T						
					U						
					S						
					G						

Field Tests	Dilatancy:	R - Rapid S - Slow N - None	Plasticity:	N - Nonplastic L - Low M - Medium H - High
	Toughness:	L - Low M - Medium H - High	Dry Strength:	N - None L - Low M - Medium H - High V - Very High

NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identifications based on ASTM Method D2248 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"



BORING LOG

BORING NO.

B10

Page 1 of

PROJECT: Hays Oil
 LOCATION: 529 NE F Street, Grants Pass, OR
 CLIENT: Hays Oil
 CONTRACTOR: BB&A
 DRILLER: Justin

SHN JOB NO.: 224002.214
 PROJECT MGR.: RWH
 FIELD REP.:
 DATE & TIME STARTED: 1050 2/19/2024
 DATE & TIME FINISHED:

Elevation		ft.	Datum	Boring Location				
Item	Casing	Sampler	Core Barrel	Rig Make & Model		Hammer Type	Drilling Mud	Total Depth
Type		MC	NA	<input type="checkbox"/> Truck	<input type="checkbox"/> Tripod	<input type="checkbox"/> Cat-Head	<input type="checkbox"/> Bentonite	10'
Inside Diameter (In.)		2"	NA	<input type="checkbox"/> ATV	<input checked="" type="checkbox"/> Geoprobe	<input type="checkbox"/> Winch	<input type="checkbox"/> Polymer	
Hammer Weight (lb.)		NA		<input type="checkbox"/> Track	<input type="checkbox"/> Air Track	<input type="checkbox"/> Roller Bit	<input checked="" type="checkbox"/> None	
Hammer Fall (In.)		NA		<input type="checkbox"/> Skid	<input type="checkbox"/> Hand Auger	<input type="checkbox"/> Cutting Head		

Depth (ft.)	Recovery %	Blow Counts	Sample Depth (ft.)	Sample Time	PID (ppm)	USCS Symbol	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel					Sand					Field Test		
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength			
0							Concrete													
3.9'	90		X		2096		-3' greasy													
5					1220	CL	gray/blue, minor sand, odor, moist, white powderlike substance like sand													
10					40.2	CL	blue, sand, odor, moist Sand clay													
15																				
20																				

Water Level Data				Sample ID		Well Diagram		Summary	
Date	Time	Elapsed Time (hr.)	Depth in feet to:		CC	Cont. Core	<input type="checkbox"/>	Riser Pipe	Boring Depth (Linear ft.)
			First Water	Stabilized Water	T	Thin Wall Tube	<input type="checkbox"/>	Screen	Sample Method
					U	Undisturbed Sample	<input type="checkbox"/>	Filter Sand	Number of Samples
					S	Split Spoon Sample	<input type="checkbox"/>	Cuttings	
					G	Geoprobe	<input type="checkbox"/>	Grout	
							<input type="checkbox"/>	Concrete	BORING NO.
							<input type="checkbox"/>	Bentonite Seal	

Field Tests Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identifications based on ASTM Method D2248 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"

Sheen / greasy ^{GW} bucket

No thickness measured with interface meter



BORING LOG

BORING NO.

B12

Page 1 of

PROJECT	Hays Oil	SHN JOB NO.	224002.214
LOCATION	529 NE F Street, Grants Pass, OR	PROJECT MGR.	RWH
CLIENT	Hays Oil	FIELD REP.	
CONTRACTOR	BB&A	DATE & TIME STARTED	1250 2/19/2024
DRILLER	Justin	DATE & TIME FINISHED	

Elevation	ft.	Datum	Boring Location	
Item	Casing	Sampler	Core Barrel	Rig Make & Model
Type		W	NA	<input type="checkbox"/> Truck <input type="checkbox"/> Tripod <input type="checkbox"/> Cat-Head <input type="checkbox"/> ATV <input checked="" type="checkbox"/> Geoprobe <input type="checkbox"/> Winch <input type="checkbox"/> Track <input type="checkbox"/> Air Track <input type="checkbox"/> Roller Bit <input type="checkbox"/> Skid <input type="checkbox"/> Hand Auger <input type="checkbox"/> Cutting Head
Inside Diameter (in.)				Hammer Type: <input type="checkbox"/> Safety <input type="checkbox"/> Doughnut <input type="checkbox"/> Automatic Drilling Mud: <input type="checkbox"/> Bentonite <input type="checkbox"/> Polymer <input checked="" type="checkbox"/> None
Hammer Weight (lb.)	NA			Total Depth: 10'
Hammer Fall (in.)	NA			Drilling Notes:

Depth (ft.)	Recovery %	Blow Counts	Sample Depth (ft.)	Sample Time	PID (ppm)	USCS Symbol	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel					Sand					Field Test			
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength				
0	85						Concrete														
5	90		X		173.9	CL	blue, minor sand, odor, white powder like substance that looks like sand moist sandy clay														
10					3.3		-7.5'														
15					0.0	CL	gray & brown mottled, very fine sand, no odor, moist sandy clay														
20																					

Water Level Data				Sample ID		Well Diagram		Summary				
Date	Time	Elapsed Time (hr.)	Depth in feet to:		CC	Cont. Core	<input type="checkbox"/>	Riser Pipe	Boring Depth (Linear ft.) _____			
			First Water	Stabilized Water	T	Thin Wall Tube	<input type="checkbox"/>	Screen	Sample Method _____			
					U	Undisturbed Sample	<input type="checkbox"/>	Filter Sand	Number of Samples _____			
					S	Split Spoon Sample	<input type="checkbox"/>	Cuttings	BORING NO. _____			
					G	Geoprobe	<input type="checkbox"/>	Grout				
							<input type="checkbox"/>	Concrete				
							<input type="checkbox"/>	Bentonite Seal				

Field Tests	Dilatancy: R - Rapid S - Slow N - None	Plasticity: N - Nonplastic L - Low M - Medium H - High
	Toughness: L - Low M - Medium H - High	Dry Strength: N - None L - Low M - Medium H - High V - Very High

NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identifications based on ASTM Method D2248 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"

Analytical Laboratory Reports

2



Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

February 29, 2024

Robert Hess
SHN Civil Engineering, Env Services
350 Hartnell Ave, Ste B
Redding, CA 96002-1875
TEL: (530) 221-5424
FAX

RE: 224002.214 Hays Oil

Order No.: 24020789

Dear Robert Hess:

Neilson Research Corporation received 27 sample(s) on 2/19/2024 for the analyses presented in the following report.

The results relate only to the parameters tested or to the sample as received by the laboratory. This report shall not be reproduced except in full, without the written approval of Neilson Research Corporation. If you have any questions regarding these test results, please feel free to call.

Sincerely,
Neilson Research Corporation

Tamra Schmedemann
Senior Project Manager
245 S Grape St
Medford, OR 97501



Original



Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

Case Narrative

WO#: 24020789
Date: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services

Project: 224002.214 Hays Oil

The analyses were performed according to the guidelines in the Neilson Research Corporation Quality Assurance Program. This report contains analytical results for the sample(s) as received by the laboratory.

Neilson Research Corporation certifies that this report is in compliance with the requirements of NELAP. No unusual difficulties were experienced during analysis of this batch except as noted below or qualified with data flags on the reports.

Analytical Comments for EPA8260_5035_S, Sample MB-24357, Batch ID 24357 : The surrogate, dibromofluoromethane, is out of control limits in the method blank. This surrogate is acceptable in all of the samples and other QC samples. Sample results are not affected.

Analytical Comments for EPA8260_5035_S, Sample LCS-24357, Batch ID 24357 : Methyl tert-butyl ether (MtBE) is out of control limits biased high. Sample results may be biased high if MTBE is present. Samples that are none detect are not affected.

Analytical Comments for NWTPHDX_W, Sample 24020789-02A, Batch ID 24374 : The homogeneity of diesel in the sample appears to have affected the matrix spike results.

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Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-01
Client Sample ID: B1-10
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 8:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.138	mg/Kg-dry		02/20/24 10:19 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0554	mg/Kg-dry		02/20/24 10:19 TCB
Benzene	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
Methyl tert-butyl ether	EPA 8260 B	A	2.03	N	1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
Naphthalene	EPA 8260 B	A	ND		1	0.138	mg/Kg-dry		02/20/24 10:19 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
Toluene	EPA 8260 B	A	ND		1	0.0554	mg/Kg-dry		02/20/24 10:19 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0277	mg/Kg-dry		02/20/24 10:19 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0554	mg/Kg-dry		02/20/24 10:19 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.0554	mg/Kg-dry		02/20/24 10:19 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		58.4		1	10 - 152	%Rec		02/20/24 10:19 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		54.0		1	35 - 122	%Rec		02/20/24 10:19 TCB
Surr: Dibromofluoromethane	EPA 8260 B		59.0		1	28 - 148	%Rec		02/20/24 10:19 TCB
Surr: Toluene-d8	EPA 8260 B		61.8		1	41 - 144	%Rec		02/20/24 10:19 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

Percent Moisture	NWTPH		25		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-01
Client Sample ID: B1-10
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 8:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	ND		1	16.6	mg/Kg-dry		02/22/24 8:42 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	33.2	mg/Kg-dry		02/22/24 8:42 TJW
Surr: o-Terphenyl	NWTPH-DX		80.5		1	50 - 150	%Rec		02/22/24 8:42 TJW
NORTHWEST TPH GASOLINE IN SOIL									
TPH as Gasoline	NWTPH-GX	A	ND		1	5.82	mg/Kg-dry		02/21/24 8:28 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		88.7		1	50 - 150	%Rec		02/21/24 8:28 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-02
Client Sample ID B1
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 8:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
Benzene	EPA 8260 B	A	ND		1	0.350	µg/L		02/21/24 9:24 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
Isopropylbenzene	EPA 8260 B	A	6.59		1	0.500	µg/L		02/21/24 9:24 TCB
Methyl tert-butyl ether	EPA 8260 B	A	193	R3	15	7.50	µg/L		02/21/24 11:12 TCB
n-Propylbenzene	EPA 8260 B	A	27.1	MI	1	0.500	µg/L		02/21/24 9:24 TCB
Naphthalene	EPA 8260 B	A	ND		1	2.00	µg/L		02/21/24 9:24 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
Toluene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 9:24 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		92.9		1	80 - 120	%Rec		02/21/24 9:24 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		99.9		1	80 - 120	%Rec		02/21/24 9:24 TCB
Surr: Dibromofluoromethane	EPA 8260 B		100		1	80 - 120	%Rec		02/21/24 9:24 TCB
Surr: Toluene-d8	EPA 8260 B		105		1	80 - 120	%Rec		02/21/24 9:24 TCB

NORTHWEST TPH DX IN WATER

Diesel Range (C12 - C24)	NWTPH-DX	A	6.18	N	1	0.0474	mg/L		02/22/24 2:17 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	0.0948	mg/L		02/22/24 2:17 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-02
Client Sample ID: B1
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 8:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NORTHWEST TPH DX IN WATER									
Surr: o-Terphenyl	NWTPH-DX		81.4		1	50 - 150	%Rec		02/22/24 2:17 TJW
NORTHWEST TPH GASOLINE IN WATER									
Gasoline Range (C6 - C12)	NWTPH-GX	A	1.17		1	0.0500	mg/L		02/20/24 8:16 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		85.6		1	50 - 150	%Rec		02/20/24 8:16 TJW

QUALIFIERS

C1 Sample container temperature is out of limit as specified at testcode
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 E Value above quantitation range
 MI Recovery outside control limits due to Matrix Interference
 PL Permit Limit

Original

NELAP

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-03
Client Sample ID: B2-10
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 9:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.129	mg/Kg-dry		02/20/24 11:44 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	0.0414		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0518	mg/Kg-dry		02/20/24 11:44 TCB
Benzene	EPA 8260 B	A	ND		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
Naphthalene	EPA 8260 B	A	ND		1	0.129	mg/Kg-dry		02/20/24 11:44 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
Toluene	EPA 8260 B	A	ND		1	0.0518	mg/Kg-dry		02/20/24 11:44 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0259	mg/Kg-dry		02/20/24 11:44 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0518	mg/Kg-dry		02/20/24 11:44 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.0518	mg/Kg-dry		02/20/24 11:44 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		70.9		1	10 - 152	%Rec		02/20/24 11:44 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		70.7		1	35 - 122	%Rec		02/20/24 11:44 TCB
Surr: Dibromofluoromethane	EPA 8260 B		73.4		1	28 - 148	%Rec		02/20/24 11:44 TCB
Surr: Toluene-d8	EPA 8260 B		79.8		1	41 - 144	%Rec		02/20/24 11:44 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

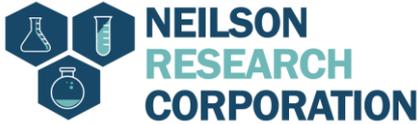
Percent Moisture	NWTPH		9.6		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-03
Client Sample ID: B2-10
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 9:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	ND		1	13.8	mg/Kg-dry		02/22/24 9:58 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	27.6	mg/Kg-dry		02/22/24 9:58 TJW
Surr: o-Terphenyl	NWTPH-DX		90.7		1	50 - 150	%Rec		02/22/24 9:58 TJW
NORTHWEST TPH GASOLINE IN SOIL									
TPH as Gasoline	NWTPH-GX	A	ND		1	5.72	mg/Kg-dry		02/21/24 9:51 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		123		1	50 - 150	%Rec		02/21/24 9:51 TJW

QUALIFIERS

C1 Sample container temperature is out of limit as specified at testcode
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 E Value above quantitation range
 MI Recovery outside control limits due to Matrix Interference
 PL Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-04
Client Sample ID: B2
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 9:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
Benzene	EPA 8260 B	A	ND		1	0.350	µg/L		02/21/24 10:45 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
Methyl tert-butyl ether	EPA 8260 B	A	121		10	5.00	µg/L		02/23/24 11:33 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
Naphthalene	EPA 8260 B	A	ND		1	2.00	µg/L		02/21/24 10:45 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
Toluene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 10:45 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		92.6		1	80 - 120	%Rec		02/21/24 10:45 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		98.8		1	80 - 120	%Rec		02/21/24 10:45 TCB
Surr: Dibromofluoromethane	EPA 8260 B		92.7		1	80 - 120	%Rec		02/21/24 10:45 TCB
Surr: Toluene-d8	EPA 8260 B		94.9		1	80 - 120	%Rec		02/21/24 10:45 TCB

NORTHWEST TPH DX IN WATER

TPH as Diesel	NWTPH-DX	A	ND		1	0.0472	mg/L		02/22/24 3:15 TJW
Lube Oil Range (C24 - C40)	NWTPH-DX	A	0.711		1	0.0943	mg/L		02/22/24 3:15 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-04
Client Sample ID: B2
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 9:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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NORTHWEST TPH DX IN WATER

Surr: o-Terphenyl	NWTPH-DX		58.1		1	50 - 150	%Rec		02/22/24 3:15 TJW
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NORTHWEST TPH GASOLINE IN WATER

TPH as Gasoline	NWTPH-GX	A	ND		1	0.0500	mg/L		02/20/24 9:12 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		99.3		1	50 - 150	%Rec		02/20/24 9:12 TJW

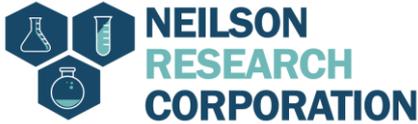
QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-05
Client Sample ID: B3
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 10:15:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.111	mg/Kg-dry		02/20/24 12:11 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0444	mg/Kg-dry		02/20/24 12:11 TCB
Benzene	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
Ethylbenzene	EPA 8260 B	A	0.0657		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
Isopropylbenzene	EPA 8260 B	A	0.314		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
n-Propylbenzene	EPA 8260 B	A	1.45		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
Naphthalene	EPA 8260 B	A	0.389		1	0.111	mg/Kg-dry		02/20/24 12:11 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
Toluene	EPA 8260 B	A	ND		1	0.0444	mg/Kg-dry		02/20/24 12:11 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 12:11 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0444	mg/Kg-dry		02/20/24 12:11 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.0444	mg/Kg-dry		02/20/24 12:11 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		72.4		1	10 - 152	%Rec		02/20/24 12:11 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		85.1		1	35 - 122	%Rec		02/20/24 12:11 TCB
Surr: Dibromofluoromethane	EPA 8260 B		76.0		1	28 - 148	%Rec		02/20/24 12:11 TCB
Surr: Toluene-d8	EPA 8260 B		90.4		1	41 - 144	%Rec		02/20/24 12:11 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

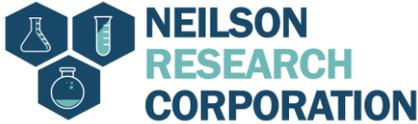
Percent Moisture	NWTPH		17		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-05
Client Sample ID: B3
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 10:15:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	136		1	14.5	mg/Kg-dry		02/22/24 10:24 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	29.0	mg/Kg-dry		02/22/24 10:24 TJW
Surr: o-Terphenyl	NWTPH-DX		114		1	50 - 150	%Rec		02/22/24 10:24 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	40.8		1	4.71	mg/Kg-dry		02/21/24 10:18 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		91.1		1	50 - 150	%Rec		02/21/24 10:18 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

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 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-06
Client Sample ID: B3
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 10:15:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
Benzene	EPA 8260 B	A	20.4		1	0.350	µg/L		02/21/24 11:38 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
Ethylbenzene	EPA 8260 B	A	27.7		1	0.500	µg/L		02/21/24 11:38 TCB
Isopropylbenzene	EPA 8260 B	A	28.2		1	0.500	µg/L		02/21/24 11:38 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
n-Propylbenzene	EPA 8260 B	A	144		10	5.00	µg/L		02/21/24 16:06 TCB
Naphthalene	EPA 8260 B	A	70.0		1	2.00	µg/L		02/21/24 11:38 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
Toluene	EPA 8260 B	A	0.610		1	0.500	µg/L		02/21/24 11:38 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 11:38 TCB
Xylenes, Total	EPA 8260 B	A	1.29		1	0.500	µg/L		02/21/24 11:38 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		93.8		1	80 - 120	%Rec		02/21/24 11:38 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		106		1	80 - 120	%Rec		02/21/24 11:38 TCB
Surr: Dibromofluoromethane	EPA 8260 B		94.0		1	80 - 120	%Rec		02/21/24 11:38 TCB
Surr: Toluene-d8	EPA 8260 B		102		1	80 - 120	%Rec		02/21/24 11:38 TCB

NORTHWEST TPH DX IN WATER

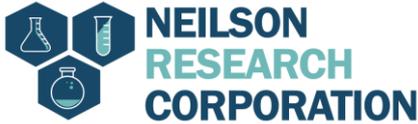
Diesel Range (C12 - C24)	NWTPH-DX	A	0.475		1	0.0472	mg/L		02/22/24 3:34 TJW
Lube Oil Range (C24 - C40)	NWTPH-DX	A	0.440		1	0.0943	mg/L		02/22/24 3:34 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-06
Client Sample ID: B3
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 10:15:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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NORTHWEST TPH DX IN WATER

Surr: o-Terphenyl	NWTPH-DX		15.4	MI	1	50 - 150	%Rec		02/22/24 3:34 TJW
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NORTHWEST TPH GASOLINE IN WATER

Gasoline Range (C6 - C12)	NWTPH-GX	A	1.33		1	0.0500	mg/L		02/20/24 9:39 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		92.9		1	50 - 150	%Rec		02/20/24 9:39 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-07
Client Sample ID B4
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 10:45:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.106	mg/Kg-dry		02/20/24 12:37 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0212	mg/Kg-dry		02/20/24 12:37 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	20.5		15	0.318	mg/Kg-dry		02/20/24 17:28 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0212	mg/Kg-dry		02/20/24 12:37 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0212	mg/Kg-dry		02/20/24 12:37 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	14.5		15	0.637	mg/Kg-dry		02/20/24 17:28 TCB
Benzene	EPA 8260 B	A	0.712		1	0.0212	mg/Kg-dry		02/20/24 12:37 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0212	mg/Kg-dry		02/20/24 12:37 TCB
Ethylbenzene	EPA 8260 B	A	16.2		15	0.318	mg/Kg-dry		02/20/24 17:28 TCB
Isopropylbenzene	EPA 8260 B	A	7.51		15	0.318	mg/Kg-dry		02/20/24 17:28 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0212	mg/Kg-dry		02/20/24 12:37 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.0212	mg/Kg-dry		02/20/24 12:37 TCB
Naphthalene	EPA 8260 B	A	ND		1	0.106	mg/Kg-dry		02/20/24 12:37 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0212	mg/Kg-dry		02/20/24 12:37 TCB
Toluene	EPA 8260 B	A	ND		1	0.0424	mg/Kg-dry		02/20/24 12:37 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0212	mg/Kg-dry		02/20/24 12:37 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0424	mg/Kg-dry		02/20/24 12:37 TCB
Xylenes, Total	EPA 8260 B	A	3.83		1	0.0424	mg/Kg-dry		02/20/24 12:37 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		65.4		1	10 - 152	%Rec		02/20/24 12:37 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		82.3		1	35 - 122	%Rec		02/20/24 12:37 TCB
Surr: Dibromofluoromethane	EPA 8260 B		78.0		1	28 - 148	%Rec		02/20/24 12:37 TCB
Surr: Toluene-d8	EPA 8260 B		88.6		1	41 - 144	%Rec		02/20/24 12:37 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

Percent Moisture	NWTPH		17		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-07
Client Sample ID: B4
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 10:45:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

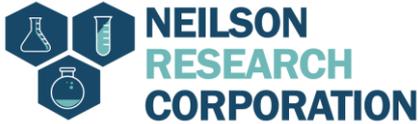
Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
Diesel Range (C12 - C24)	NWTPH-DX	A	77.3		1	14.9	mg/Kg-dry		02/22/24 10:49 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	29.7	mg/Kg-dry		02/22/24 10:49 TJW
Surr: o-Terphenyl	NWTPH-DX		96.7		1	50 - 150	%Rec		02/22/24 10:49 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	1280		10	46.0	mg/Kg-dry		02/21/24 10:45 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		71.3		10	50 - 150	%Rec		02/21/24 10:45 TJW

QUALIFIERS

C1 Sample container temperature is out of limit as specified at testcode
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 E Value above quantitation range
 MI Recovery outside control limits due to Matrix Interference
 PL Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-08
Client Sample ID: B4
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 10:45:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:05 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:05 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	561		20	10.0	µg/L		02/21/24 16:33 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:05 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:05 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	160		20	10.0	µg/L		02/21/24 16:33 TCB
Benzene	EPA 8260 B	A	1160		20	7.00	µg/L		02/21/24 16:33 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:05 TCB
Ethylbenzene	EPA 8260 B	A	977		20	10.0	µg/L		02/21/24 16:33 TCB
Isopropylbenzene	EPA 8260 B	A	160		20	10.0	µg/L		02/21/24 16:33 TCB
Methyl tert-butyl ether	EPA 8260 B	A	1830		30	15.0	µg/L		02/21/24 18:20 TCB
n-Propylbenzene	EPA 8260 B	A	460		20	10.0	µg/L		02/21/24 16:33 TCB
Naphthalene	EPA 8260 B	A	635		20	40.0	µg/L		02/21/24 16:33 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:05 TCB
Toluene	EPA 8260 B	A	10.8		1	0.500	µg/L		02/21/24 12:05 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:05 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:05 TCB
Xylenes, Total	EPA 8260 B	A	676		20	10.0	µg/L		02/21/24 16:33 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		92.3		1	80 - 120	%Rec		02/21/24 12:05 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		99.2		1	80 - 120	%Rec		02/21/24 12:05 TCB
Surr: Dibromofluoromethane	EPA 8260 B		97.1		1	80 - 120	%Rec		02/21/24 12:05 TCB
Surr: Toluene-d8	EPA 8260 B		104		1	80 - 120	%Rec		02/21/24 12:05 TCB

NORTHWEST TPH DX IN WATER

Diesel Range (C12 - C24)	NWTPH-DX	A	1.62		1	0.0500	mg/L		02/22/24 4:13 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	0.100	mg/L		02/22/24 4:13 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-08
Client Sample ID: B4
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 10:45:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NORTHWEST TPH DX IN WATER									
Surr: o-Terphenyl	NWTPH-DX		51.0		1	50 - 150	%Rec		02/22/24 4:13 TJW
NORTHWEST TPH GASOLINE IN WATER									
Gasoline Range (C6 - C12)	NWTPH-GX	A	14.2		10	0.500	mg/L		02/20/24 14:48 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		109		1	50 - 150	%Rec		02/20/24 10:06 TJW

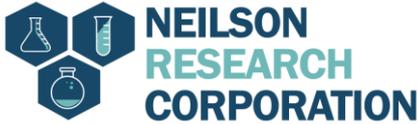
QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

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 245 S Grape St
 Medford, OR 97501
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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-09
Client Sample ID: B5-3.5
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 11:45:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.0966	mg/Kg-dry		02/20/24 13:04 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0193	mg/Kg-dry		02/20/24 13:04 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	113		30	0.580	mg/Kg-dry		02/22/24 18:56 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0193	mg/Kg-dry		02/20/24 13:04 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0193	mg/Kg-dry		02/20/24 13:04 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	31.6		10	0.386	mg/Kg-dry		02/20/24 17:55 TCB
Benzene	EPA 8260 B	A	8.31		10	0.193	mg/Kg-dry		02/20/24 17:55 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0193	mg/Kg-dry		02/20/24 13:04 TCB
Ethylbenzene	EPA 8260 B	A	38.4		10	0.193	mg/Kg-dry		02/20/24 17:55 TCB
Isopropylbenzene	EPA 8260 B	A	3.83		1	0.0193	mg/Kg-dry		02/20/24 13:04 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0193	mg/Kg-dry		02/20/24 13:04 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.0193	mg/Kg-dry		02/20/24 13:04 TCB
Naphthalene	EPA 8260 B	A	18.4		10	0.966	mg/Kg-dry		02/20/24 17:55 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0193	mg/Kg-dry		02/20/24 13:04 TCB
Toluene	EPA 8260 B	A	67.4		20	0.773	mg/Kg-dry		02/22/24 12:45 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0193	mg/Kg-dry		02/20/24 13:04 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0386	mg/Kg-dry		02/20/24 13:04 TCB
Xylenes, Total	EPA 8260 B	A	1.84		1	0.0386	mg/Kg-dry		02/20/24 13:04 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		67.0		1	10 - 152	%Rec		02/20/24 13:04 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		81.8		1	35 - 122	%Rec		02/20/24 13:04 TCB
Surr: Dibromofluoromethane	EPA 8260 B		79.3		1	28 - 148	%Rec		02/20/24 13:04 TCB
Surr: Toluene-d8	EPA 8260 B		93.4		1	41 - 144	%Rec		02/20/24 13:04 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

Percent Moisture	NWTPH		16		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-09
Client Sample ID: B5-3.5
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 11:45:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
Diesel Range (C12 - C24)	NWTPH-DX	A	194		1	14.8	mg/Kg-dry		02/22/24 11:15 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	29.6	mg/Kg-dry		02/22/24 11:15 TJW
Surr: o-Terphenyl	NWTPH-DX		106		1	50 - 150	%Rec		02/22/24 11:15 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	2760		50	248	mg/Kg-dry		02/21/24 13:26 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		81.8		10	50 - 150	%Rec		02/21/24 11:36 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-10
Client Sample ID: B6-2.5
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 12:25:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.109	mg/Kg-dry		02/20/24 13:30 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0219	mg/Kg-dry		02/20/24 13:30 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	102		28	0.613	mg/Kg-dry		02/26/24 15:01 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0219	mg/Kg-dry		02/20/24 13:30 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0219	mg/Kg-dry		02/20/24 13:30 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	33.4		15	0.657	mg/Kg-dry		02/20/24 18:21 TCB
Benzene	EPA 8260 B	A	1.18		1	0.0219	mg/Kg-dry		02/20/24 13:30 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0219	mg/Kg-dry		02/20/24 13:30 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.0219	mg/Kg-dry		02/20/24 13:30 TCB
Isopropylbenzene	EPA 8260 B	A	5.57		20	0.438	mg/Kg-dry		02/22/24 13:12 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0219	mg/Kg-dry		02/20/24 13:30 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.0219	mg/Kg-dry		02/20/24 13:30 TCB
Naphthalene	EPA 8260 B	A	20.6		20	2.19	mg/Kg-dry		02/22/24 13:12 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0219	mg/Kg-dry		02/20/24 13:30 TCB
Toluene	EPA 8260 B	A	0.190		1	0.0438	mg/Kg-dry		02/20/24 13:30 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0219	mg/Kg-dry		02/20/24 13:30 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0438	mg/Kg-dry		02/20/24 13:30 TCB
Xylenes, Total	EPA 8260 B	A	0.956		1	0.0438	mg/Kg-dry		02/20/24 13:30 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		63.0		1	10 - 152	%Rec		02/20/24 13:30 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		81.1		1	35 - 122	%Rec		02/20/24 13:30 TCB
Surr: Dibromofluoromethane	EPA 8260 B		75.8		1	28 - 148	%Rec		02/20/24 13:30 TCB
Surr: Toluene-d8	EPA 8260 B		94.0		1	41 - 144	%Rec		02/20/24 13:30 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

Percent Moisture	NWTPH		15		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-10
Client Sample ID: B6-2.5
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 12:25:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	254		1	14.6	mg/Kg-dry		02/22/24 11:40 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	29.2	mg/Kg-dry		02/22/24 11:40 TJW
Surr: o-Terphenyl	NWTPH-DX		111		1	50 - 150	%Rec		02/22/24 11:40 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	1890		10	49.8	mg/Kg-dry		02/21/24 12:03 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		67.4		10	50 - 150	%Rec		02/21/24 12:03 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-11
Client Sample ID: B7
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 12:45:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.113	mg/Kg-dry		02/20/24 13:56 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	0.0455		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0450	mg/Kg-dry		02/20/24 13:56 TCB
Benzene	EPA 8260 B	A	ND		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
Naphthalene	EPA 8260 B	A	ND		1	0.113	mg/Kg-dry		02/20/24 13:56 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
Toluene	EPA 8260 B	A	ND		1	0.0450	mg/Kg-dry		02/20/24 13:56 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0225	mg/Kg-dry		02/20/24 13:56 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0450	mg/Kg-dry		02/20/24 13:56 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.0450	mg/Kg-dry		02/20/24 13:56 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		71.9		1	10 - 152	%Rec		02/20/24 13:56 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		80.9		1	35 - 122	%Rec		02/20/24 13:56 TCB
Surr: Dibromofluoromethane	EPA 8260 B		75.1		1	28 - 148	%Rec		02/20/24 13:56 TCB
Surr: Toluene-d8	EPA 8260 B		89.7		1	41 - 144	%Rec		02/20/24 13:56 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

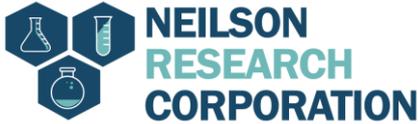
Percent Moisture	NWTPH		18		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-11
Client Sample ID: B7
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 12:45:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	ND		1	14.8	mg/Kg-dry		02/22/24 12:06 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	29.5	mg/Kg-dry		02/22/24 12:06 TJW
Surr: o-Terphenyl	NWTPH-DX		85.5		1	50 - 150	%Rec		02/22/24 12:06 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	ND		1	4.04	mg/Kg-dry		02/21/24 12:31 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		94.6		1	50 - 150	%Rec		02/21/24 12:31 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-12
Client Sample ID: B7
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 12:45:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:32 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:32 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	81.7		1	0.500	µg/L		02/21/24 12:32 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:32 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:32 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	25.2		1	0.500	µg/L		02/21/24 12:32 TCB
Benzene	EPA 8260 B	A	1.03		1	0.350	µg/L		02/21/24 12:32 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:32 TCB
Ethylbenzene	EPA 8260 B	A	46.5		1	0.500	µg/L		02/21/24 12:32 TCB
Isopropylbenzene	EPA 8260 B	A	3.97		1	0.500	µg/L		02/21/24 12:32 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:32 TCB
n-Propylbenzene	EPA 8260 B	A	15.5		1	0.500	µg/L		02/21/24 12:32 TCB
Naphthalene	EPA 8260 B	A	20.1		1	2.00	µg/L		02/21/24 12:32 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:32 TCB
Toluene	EPA 8260 B	A	1.34		1	0.500	µg/L		02/21/24 12:32 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:32 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:32 TCB
Xylenes, Total	EPA 8260 B	A	56.1		1	0.500	µg/L		02/21/24 12:32 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		94.2		1	80 - 120	%Rec		02/21/24 12:32 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		100		1	80 - 120	%Rec		02/21/24 12:32 TCB
Surr: Dibromofluoromethane	EPA 8260 B		91.7		1	80 - 120	%Rec		02/21/24 12:32 TCB
Surr: Toluene-d8	EPA 8260 B		98.8		1	80 - 120	%Rec		02/21/24 12:32 TCB

NORTHWEST TPH DX IN WATER

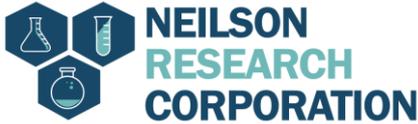
TPH as Diesel	NWTPH-DX	A	ND		1	0.0472	mg/L		02/22/24 4:51 TJW
Lube Oil Range (C24 - C40)	NWTPH-DX	A	0.786		1	0.0943	mg/L		02/22/24 4:51 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-12
Client Sample ID: B7
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/16/2024 12:45:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NORTHWEST TPH DX IN WATER									
Surr: o-Terphenyl	NWTPH-DX		66.8		1	50 - 150	%Rec		02/22/24 4:51 TJW
NORTHWEST TPH GASOLINE IN WATER									
Gasoline Range (C6 - C12)	NWTPH-GX	A	0.595		1	0.0500	mg/L		02/20/24 10:33 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		96.2		1	50 - 150	%Rec		02/20/24 10:33 TJW

QUALIFIERS

C1 Sample container temperature is out of limit as specified at testcode
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 E Value above quantitation range
 MI Recovery outside control limits due to Matrix Interference
 PL Permit Limit

Original

NELAP

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 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-13
Client Sample ID: B8-4
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 10:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.110	mg/Kg-dry		02/20/24 14:23 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	0.0251		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0440	mg/Kg-dry		02/20/24 14:23 TCB
Benzene	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
Naphthalene	EPA 8260 B	A	ND		1	0.110	mg/Kg-dry		02/20/24 14:23 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
Toluene	EPA 8260 B	A	ND		1	0.0440	mg/Kg-dry		02/20/24 14:23 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0220	mg/Kg-dry		02/20/24 14:23 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0440	mg/Kg-dry		02/20/24 14:23 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.0440	mg/Kg-dry		02/20/24 14:23 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		73.7		1	10 - 152	%Rec		02/20/24 14:23 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		81.0		1	35 - 122	%Rec		02/20/24 14:23 TCB
Surr: Dibromofluoromethane	EPA 8260 B		75.6		1	28 - 148	%Rec		02/20/24 14:23 TCB
Surr: Toluene-d8	EPA 8260 B		89.5		1	41 - 144	%Rec		02/20/24 14:23 TCB

NWTPHDX_S PERCENT MOISTURE

Percent Moisture	NWTPH		17		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-13
Client Sample ID: B8-4
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 10:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	ND		1	14.7	mg/Kg-dry		02/22/24 12:31 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	29.5	mg/Kg-dry		02/22/24 12:31 TJW
Surr: o-Terphenyl	NWTPH-DX		93.3		1	50 - 150	%Rec		02/22/24 12:31 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	ND		1	4.72	mg/Kg-dry		02/21/24 12:58 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		97.5		1	50 - 150	%Rec		02/21/24 12:58 TJW

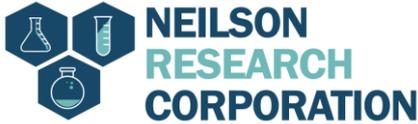
QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

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 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-14
Client Sample ID: B8
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 10:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
Benzene	EPA 8260 B	A	ND		1	0.350	µg/L		02/21/24 12:59 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
Naphthalene	EPA 8260 B	A	ND		1	2.00	µg/L		02/21/24 12:59 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
Toluene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 12:59 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		92.3		1	80 - 120	%Rec		02/21/24 12:59 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		99.5		1	80 - 120	%Rec		02/21/24 12:59 TCB
Surr: Dibromofluoromethane	EPA 8260 B		97.7		1	80 - 120	%Rec		02/21/24 12:59 TCB
Surr: Toluene-d8	EPA 8260 B		102		1	80 - 120	%Rec		02/21/24 12:59 TCB

NORTHWEST TPH DX IN WATER

TPH as Diesel	NWTPH-DX	A	ND		1	0.0472	mg/L		02/22/24 5:10 TJW
Lube Oil Range (C24 - C40)	NWTPH-DX	A	1.36		1	0.0943	mg/L		02/22/24 5:10 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-14
Client Sample ID: B8
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 10:30:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NORTHWEST TPH DX IN WATER									
Surr: o-Terphenyl	NWTPH-DX		67.1		1	50 - 150	%Rec		02/22/24 5:10 TJW
NORTHWEST TPH GASOLINE IN WATER									
TPH as Gasoline	NWTPH-GX	A	ND		1	0.0500	mg/L		02/20/24 11:01 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		96.7		1	50 - 150	%Rec		02/20/24 11:01 TJW

QUALIFIERS

C1 Sample container temperature is out of limit as specified at testcode
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 E Value above quantitation range
 MI Recovery outside control limits due to Matrix Interference
 PL Permit Limit

Original

NELAP

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-15
Client Sample ID: B9
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 9:20:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.115	mg/Kg-dry		02/20/24 14:49 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	0.0294		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0459	mg/Kg-dry		02/20/24 14:49 TCB
Benzene	EPA 8260 B	A	ND		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
Naphthalene	EPA 8260 B	A	ND		1	0.115	mg/Kg-dry		02/20/24 14:49 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
Toluene	EPA 8260 B	A	ND		1	0.0459	mg/Kg-dry		02/20/24 14:49 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0230	mg/Kg-dry		02/20/24 14:49 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0459	mg/Kg-dry		02/20/24 14:49 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.0459	mg/Kg-dry		02/20/24 14:49 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		75.3		1	10 - 152	%Rec		02/20/24 14:49 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		82.0		1	35 - 122	%Rec		02/20/24 14:49 TCB
Surr: Dibromofluoromethane	EPA 8260 B		76.2		1	28 - 148	%Rec		02/20/24 14:49 TCB
Surr: Toluene-d8	EPA 8260 B		88.6		1	41 - 144	%Rec		02/20/24 14:49 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

Percent Moisture	NWTPH		19		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-15
Client Sample ID: B9
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 9:20:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	ND		1	15.3	mg/Kg-dry		02/22/24 12:57 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	30.6	mg/Kg-dry		02/22/24 12:57 TJW
Surr: o-Terphenyl	NWTPH-DX		93.0		1	50 - 150	%Rec		02/22/24 12:57 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	ND		1	4.65	mg/Kg-dry		02/21/24 13:55 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		94.8		1	50 - 150	%Rec		02/21/24 13:55 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-16
Client Sample ID B9
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 9:20:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	0.620		1	0.500	µg/L		02/21/24 13:25 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
Benzene	EPA 8260 B	A	ND		1	0.350	µg/L		02/21/24 13:25 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
Ethylbenzene	EPA 8260 B	A	0.710		1	0.500	µg/L		02/21/24 13:25 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
Methyl tert-butyl ether	EPA 8260 B	A	0.940		1	0.500	µg/L		02/21/24 13:25 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
Naphthalene	EPA 8260 B	A	ND		1	2.00	µg/L		02/21/24 13:25 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
Toluene	EPA 8260 B	A	1.28		1	0.500	µg/L		02/21/24 13:25 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:25 TCB
Xylenes, Total	EPA 8260 B	A	2.87		1	0.500	µg/L		02/21/24 13:25 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		94.8		1	80 - 120	%Rec		02/21/24 13:25 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		99.2		1	80 - 120	%Rec		02/21/24 13:25 TCB
Surr: Dibromofluoromethane	EPA 8260 B		91.2		1	80 - 120	%Rec		02/21/24 13:25 TCB
Surr: Toluene-d8	EPA 8260 B		97.2		1	80 - 120	%Rec		02/21/24 13:25 TCB

NORTHWEST TPH DX IN WATER

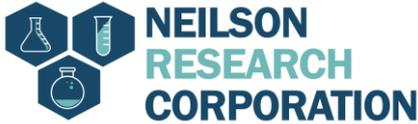
TPH as Diesel	NWTPH-DX	A	ND		1	0.0472	mg/L		02/22/24 5:30 TJW
Lube Oil Range (C24 - C40)	NWTPH-DX	A	0.390		1	0.0943	mg/L		02/22/24 5:30 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-16
Client Sample ID: B9
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 9:20:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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NORTHWEST TPH DX IN WATER

Surr: o-Terphenyl	NWTPH-DX		2.92	MI	1	50 - 150	%Rec		02/22/24 5:30 TJW
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NORTHWEST TPH GASOLINE IN WATER

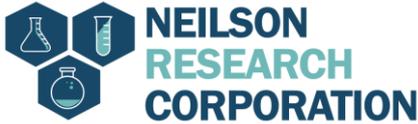
TPH as Gasoline	NWTPH-GX	A	ND		1	0.0500	mg/L		02/20/24 11:28 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		97.7		1	50 - 150	%Rec		02/20/24 11:28 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-17
Client Sample ID: B10-3
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 11:15:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.109	mg/Kg-dry		02/20/24 15:16 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0217	mg/Kg-dry		02/20/24 15:16 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	55.9		15	0.326	mg/Kg-dry		02/20/24 18:48 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0217	mg/Kg-dry		02/20/24 15:16 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0217	mg/Kg-dry		02/20/24 15:16 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	16.6		15	0.652	mg/Kg-dry		02/20/24 18:48 TCB
Benzene	EPA 8260 B	A	12.8		15	0.326	mg/Kg-dry		02/20/24 18:48 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0217	mg/Kg-dry		02/20/24 15:16 TCB
Ethylbenzene	EPA 8260 B	A	20.2		15	0.326	mg/Kg-dry		02/20/24 18:48 TCB
Isopropylbenzene	EPA 8260 B	A	2.90		1	0.0217	mg/Kg-dry		02/20/24 15:16 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0217	mg/Kg-dry		02/20/24 15:16 TCB
n-Propylbenzene	EPA 8260 B	A	11.2		15	0.326	mg/Kg-dry		02/20/24 18:48 TCB
Naphthalene	EPA 8260 B	A	7.88		15	1.63	mg/Kg-dry		02/20/24 18:48 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0217	mg/Kg-dry		02/20/24 15:16 TCB
Toluene	EPA 8260 B	A	1.60		1	0.0435	mg/Kg-dry		02/20/24 15:16 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0217	mg/Kg-dry		02/20/24 15:16 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0435	mg/Kg-dry		02/20/24 15:16 TCB
Xylenes, Total	EPA 8260 B	A	1.96		1	0.0435	mg/Kg-dry		02/20/24 15:16 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		57.6		1	10 - 152	%Rec		02/20/24 15:16 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		94.3		1	35 - 122	%Rec		02/20/24 15:16 TCB
Surr: Dibromofluoromethane	EPA 8260 B		75.4		1	28 - 148	%Rec		02/20/24 15:16 TCB
Surr: Toluene-d8	EPA 8260 B		117		1	41 - 144	%Rec		02/20/24 15:16 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

Percent Moisture	NWTPH		15		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-17
Client Sample ID: B10-3
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 11:15:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	11600		20	295	mg/Kg-dry		02/22/24 13:23 TJW
TPH as Lube Oil	NWTPH-DX	A	ND	ER	20	590	mg/Kg-dry		02/22/24 13:23 TJW
Surr: o-Terphenyl	NWTPH-DX		0	S1	20	50 - 150	%Rec		02/22/24 13:23 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	2950		50	209	mg/Kg-dry		02/21/24 16:24 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		269	MI	10	50 - 150	%Rec		02/21/24 14:22 TJW

QUALIFIERS

C1 Sample container temperature is out of limit as specified at testcode
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 E Value above quantitation range
 MI Recovery outside control limits due to Matrix Interference
 PL Permit Limit

Original

NELAP

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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-18
Client Sample ID B10
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 11:15:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:52 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:52 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	62.9		1	0.500	µg/L		02/21/24 13:52 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:52 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:52 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	34.1		1	0.500	µg/L		02/21/24 13:52 TCB
Benzene	EPA 8260 B	A	1500		20	7.00	µg/L		02/21/24 17:00 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:52 TCB
Ethylbenzene	EPA 8260 B	A	112		20	10.0	µg/L		02/21/24 17:00 TCB
Isopropylbenzene	EPA 8260 B	A	62.2		1	0.500	µg/L		02/21/24 13:52 TCB
Methyl tert-butyl ether	EPA 8260 B	A	167		20	10.0	µg/L		02/21/24 17:00 TCB
n-Propylbenzene	EPA 8260 B	A	136		20	10.0	µg/L		02/21/24 17:00 TCB
Naphthalene	EPA 8260 B	A	11.6		1	2.00	µg/L		02/21/24 13:52 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:52 TCB
Toluene	EPA 8260 B	A	45.3		1	0.500	µg/L		02/21/24 13:52 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:52 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 13:52 TCB
Xylenes, Total	EPA 8260 B	A	97.2		1	0.500	µg/L		02/21/24 13:52 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		90.0		1	80 - 120	%Rec		02/21/24 13:52 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		109		1	80 - 120	%Rec		02/21/24 13:52 TCB
Surr: Dibromofluoromethane	EPA 8260 B		107		1	80 - 120	%Rec		02/21/24 13:52 TCB
Surr: Toluene-d8	EPA 8260 B		117		1	80 - 120	%Rec		02/21/24 13:52 TCB

NORTHWEST TPH DX IN WATER

TPH as Diesel	NWTPH-DX	A	232		100	4.72	mg/L		02/23/24 12:11 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	0.0943	mg/L		02/22/24 6:47 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-18
Client Sample ID: B10
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 11:15:00 AM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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NORTHWEST TPH DX IN WATER

Surr: o-Terphenyl	NWTPH-DX		0	MI	1	50 - 150	%Rec		02/22/24 6:47 TJW
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NORTHWEST TPH GASOLINE IN WATER

Gasoline Range (C6 - C12)	NWTPH-GX	A	10.4		10	0.500	mg/L		02/20/24 15:16 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		109		1	50 - 150	%Rec		02/20/24 11:56 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-19
Client Sample ID B11
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 12:30:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.111	mg/Kg-dry		02/20/24 15:42 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 15:42 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	0.323		1	0.0222	mg/Kg-dry		02/20/24 15:42 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 15:42 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 15:42 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	2.74		1	0.0443	mg/Kg-dry		02/20/24 15:42 TCB
Benzene	EPA 8260 B	A	3.25		1	0.0222	mg/Kg-dry		02/20/24 15:42 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 15:42 TCB
Ethylbenzene	EPA 8260 B	A	14.1		15	0.333	mg/Kg-dry		02/20/24 19:14 TCB
Isopropylbenzene	EPA 8260 B	A	6.74		15	0.333	mg/Kg-dry		02/20/24 19:14 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0222	mg/Kg-dry		02/20/24 15:42 TCB
n-Propylbenzene	EPA 8260 B	A	20.6		15	0.333	mg/Kg-dry		02/20/24 19:14 TCB
Naphthalene	EPA 8260 B	A	31.3		15	1.66	mg/Kg-dry		02/20/24 19:14 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 15:42 TCB
Toluene	EPA 8260 B	A	0.630		1	0.0443	mg/Kg-dry		02/20/24 15:42 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0222	mg/Kg-dry		02/20/24 15:42 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0443	mg/Kg-dry		02/20/24 15:42 TCB
Xylenes, Total	EPA 8260 B	A	2.97		1	0.0443	mg/Kg-dry		02/20/24 15:42 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		57.0		1	10 - 152	%Rec		02/20/24 15:42 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		111		1	35 - 122	%Rec		02/20/24 15:42 TCB
Surr: Dibromofluoromethane	EPA 8260 B		79.3		1	28 - 148	%Rec		02/20/24 15:42 TCB
Surr: Toluene-d8	EPA 8260 B		147	MI	1	41 - 144	%Rec		02/20/24 15:42 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

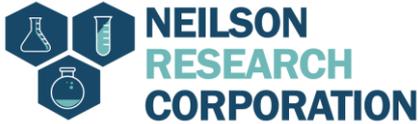
Percent Moisture	NWTPH		16		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-19
Client Sample ID: B11
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 12:30:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	2420		10	149	mg/Kg-dry		02/23/24 11:51 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	29.9	mg/Kg-dry		02/22/24 14:40 TJW
Surr: o-Terphenyl	NWTPH-DX		128		1	50 - 150	%Rec		02/22/24 14:40 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	1940		50	192	mg/Kg-dry		02/21/24 16:51 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		286	MI	10	50 - 150	%Rec		02/21/24 15:17 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-20
Client Sample ID B11
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 12:30:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:19 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:19 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	1040		20	10.0	µg/L		02/21/24 17:26 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:19 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:19 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	521		20	10.0	µg/L		02/21/24 17:26 TCB
Benzene	EPA 8260 B	A	1120		20	7.00	µg/L		02/21/24 17:26 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:19 TCB
Ethylbenzene	EPA 8260 B	A	1420		20	10.0	µg/L		02/21/24 17:26 TCB
Isopropylbenzene	EPA 8260 B	A	143		20	10.0	µg/L		02/21/24 17:26 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:19 TCB
n-Propylbenzene	EPA 8260 B	A	393		20	10.0	µg/L		02/21/24 17:26 TCB
Naphthalene	EPA 8260 B	A	860		20	40.0	µg/L		02/21/24 17:26 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:19 TCB
Toluene	EPA 8260 B	A	79.5		1	0.500	µg/L		02/21/24 14:19 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:19 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:19 TCB
Xylenes, Total	EPA 8260 B	A	1240		20	10.0	µg/L		02/21/24 17:26 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		92.2		20	80 - 120	%Rec		02/21/24 17:26 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		101		20	80 - 120	%Rec		02/21/24 17:26 TCB
Surr: Dibromofluoromethane	EPA 8260 B		100		20	80 - 120	%Rec		02/21/24 17:26 TCB
Surr: Toluene-d8	EPA 8260 B		103		20	80 - 120	%Rec		02/21/24 17:26 TCB

NORTHWEST TPH DX IN WATER

TPH as Diesel	NWTPH-DX	A	62.9		20	0.971	mg/L		02/22/24 7:45 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	0.0971	mg/L		02/22/24 7:25 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

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 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-20
Client Sample ID: B11
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 12:30:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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NORTHWEST TPH DX IN WATER

Surr: o-Terphenyl	NWTPH-DX		0	MI	1	50 - 150	%Rec		02/22/24 7:25 TJW
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NORTHWEST TPH GASOLINE IN WATER

Gasoline Range (C6 - C12)	NWTPH-GX	A	57.0		20	1.00	mg/L		02/22/24 16:10 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		203	MI	20	50 - 150	%Rec		02/22/24 16:10 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-21
Client Sample ID: B12
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 1:00:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.116	mg/Kg-dry		02/20/24 16:09 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	0.0398		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0463	mg/Kg-dry		02/20/24 16:09 TCB
Benzene	EPA 8260 B	A	0.329		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
Ethylbenzene	EPA 8260 B	A	0.160		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
Isopropylbenzene	EPA 8260 B	A	0.129		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
n-Propylbenzene	EPA 8260 B	A	0.472		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
Naphthalene	EPA 8260 B	A	0.840		1	0.116	mg/Kg-dry		02/20/24 16:09 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
Toluene	EPA 8260 B	A	ND		1	0.0463	mg/Kg-dry		02/20/24 16:09 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0232	mg/Kg-dry		02/20/24 16:09 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0463	mg/Kg-dry		02/20/24 16:09 TCB
Xylenes, Total	EPA 8260 B	A	0.0810		1	0.0463	mg/Kg-dry		02/20/24 16:09 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		69.9		1	10 - 152	%Rec		02/20/24 16:09 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		82.4		1	35 - 122	%Rec		02/20/24 16:09 TCB
Surr: Dibromofluoromethane	EPA 8260 B		73.6		1	28 - 148	%Rec		02/20/24 16:09 TCB
Surr: Toluene-d8	EPA 8260 B		89.7		1	41 - 144	%Rec		02/20/24 16:09 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

Percent Moisture	NWTPH		18		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-21
Client Sample ID: B12
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 1:00:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	ND		1	15.2	mg/Kg-dry		02/22/24 15:06 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	30.4	mg/Kg-dry		02/22/24 15:06 TJW
Surr: o-Terphenyl	NWTPH-DX		97.9		1	50 - 150	%Rec		02/22/24 15:06 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	21.7		1	4.15	mg/Kg-dry		02/21/24 15:44 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		94.3		1	50 - 150	%Rec		02/21/24 15:44 TJW

QUALIFIERS	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
	ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-22
Client Sample ID: B12
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 1:00:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:46 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:46 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	7.08		1	0.500	µg/L		02/21/24 14:46 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	0.610		1	0.500	µg/L		02/21/24 14:46 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:46 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:46 TCB
Benzene	EPA 8260 B	A	295		20	7.00	µg/L		02/21/24 17:53 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:46 TCB
Ethylbenzene	EPA 8260 B	A	31.4		1	0.500	µg/L		02/21/24 14:46 TCB
Isopropylbenzene	EPA 8260 B	A	135		20	10.0	µg/L		02/21/24 17:53 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:46 TCB
n-Propylbenzene	EPA 8260 B	A	476		20	10.0	µg/L		02/21/24 17:53 TCB
Naphthalene	EPA 8260 B	A	109		20	40.0	µg/L		02/21/24 17:53 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:46 TCB
Toluene	EPA 8260 B	A	7.26		1	0.500	µg/L		02/21/24 14:46 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:46 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 14:46 TCB
Xylenes, Total	EPA 8260 B	A	16.9		1	0.500	µg/L		02/21/24 14:46 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		92.2		1	80 - 120	%Rec		02/21/24 14:46 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		100		1	80 - 120	%Rec		02/21/24 14:46 TCB
Surr: Dibromofluoromethane	EPA 8260 B		103		1	80 - 120	%Rec		02/21/24 14:46 TCB
Surr: Toluene-d8	EPA 8260 B		116		1	80 - 120	%Rec		02/21/24 14:46 TCB

NORTHWEST TPH DX IN WATER

TPH as Diesel	NWTPH-DX	A	52.7		20	0.943	mg/L		02/22/24 8:23 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	0.0943	mg/L		02/22/24 8:04 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-22
Client Sample ID: B12
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 1:00:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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NORTHWEST TPH DX IN WATER

Surr: o-Terphenyl	NWTPH-DX		0	MI	1	50 - 150	%Rec		02/22/24 8:04 TJW
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NORTHWEST TPH GASOLINE IN WATER

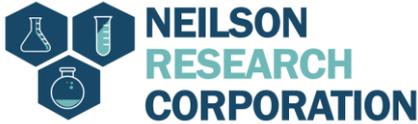
Gasoline Range (C6 - C12)	NWTPH-GX	A	11.0		10	0.500	mg/L		02/22/24 17:05 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		130		10	50 - 150	%Rec		02/22/24 17:05 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-23
Client Sample ID: B13
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 1:40:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.0979	mg/Kg-dry		02/20/24 16:36 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	0.0200		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0391	mg/Kg-dry		02/20/24 16:36 TCB
Benzene	EPA 8260 B	A	ND		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
Naphthalene	EPA 8260 B	A	ND		1	0.0979	mg/Kg-dry		02/20/24 16:36 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
Toluene	EPA 8260 B	A	ND		1	0.0391	mg/Kg-dry		02/20/24 16:36 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0196	mg/Kg-dry		02/20/24 16:36 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0391	mg/Kg-dry		02/20/24 16:36 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.0391	mg/Kg-dry		02/20/24 16:36 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		70.6		1	10 - 152	%Rec		02/20/24 16:36 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		79.1		1	35 - 122	%Rec		02/20/24 16:36 TCB
Surr: Dibromofluoromethane	EPA 8260 B		73.4		1	28 - 148	%Rec		02/20/24 16:36 TCB
Surr: Toluene-d8	EPA 8260 B		87.4		1	41 - 144	%Rec		02/20/24 16:36 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

Percent Moisture	NWTPH		16		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-23
Client Sample ID: B13
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 1:40:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	ND		1	14.7	mg/Kg-dry		02/22/24 15:31 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	29.5	mg/Kg-dry		02/22/24 15:31 TJW
Surr: o-Terphenyl	NWTPH-DX		91.1		1	50 - 150	%Rec		02/22/24 15:31 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	ND		1	3.90	mg/Kg-dry		02/21/24 17:21 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		92.4		1	50 - 150	%Rec		02/21/24 17:21 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP

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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-24
Client Sample ID: B13
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 1:40:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
Benzene	EPA 8260 B	A	ND		1	0.350	µg/L		02/21/24 15:12 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
Naphthalene	EPA 8260 B	A	ND		1	2.00	µg/L		02/21/24 15:12 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
Toluene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:12 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		91.7		1	80 - 120	%Rec		02/21/24 15:12 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		97.6		1	80 - 120	%Rec		02/21/24 15:12 TCB
Surr: Dibromofluoromethane	EPA 8260 B		102		1	80 - 120	%Rec		02/21/24 15:12 TCB
Surr: Toluene-d8	EPA 8260 B		105		1	80 - 120	%Rec		02/21/24 15:12 TCB

NORTHWEST TPH DX IN WATER

TPH as Diesel	NWTPH-DX	A	ND		1	0.0472	mg/L		02/22/24 8:43 TJW
Lube Oil Range (C24 - C40)	NWTPH-DX	A	0.776		1	0.0943	mg/L		02/22/24 8:43 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

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 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services **Collection Date:** 2/19/2024 1:40:00 PM
Lab ID: 24020789-24 **Received Date:** 2/19/2024 4:36:00 PM
Client Sample ID: B13 **Matrix:** AQUEOUS
Project: 224002.214 Hays Oil
Sample Address:

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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NORTHWEST TPH DX IN WATER

Surr: o-Terphenyl	NWTPH-DX		25.1	MI	1	50 - 150	%Rec		02/22/24 8:43 TJW
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NORTHWEST TPH GASOLINE IN WATER

TPH as Gasoline	NWTPH-GX	A	ND		1	0.0500	mg/L		02/20/24 13:51 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		89.0		1	50 - 150	%Rec		02/20/24 13:51 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-25
Client Sample ID: B14
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 2:30:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.0993	mg/Kg-dry		02/20/24 17:02 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.0397	mg/Kg-dry		02/20/24 17:02 TCB
Benzene	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND	Q	1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
Naphthalene	EPA 8260 B	A	ND		1	0.0993	mg/Kg-dry		02/20/24 17:02 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
Toluene	EPA 8260 B	A	ND		1	0.0397	mg/Kg-dry		02/20/24 17:02 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.0199	mg/Kg-dry		02/20/24 17:02 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.0397	mg/Kg-dry		02/20/24 17:02 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.0397	mg/Kg-dry		02/20/24 17:02 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		70.0		1	10 - 152	%Rec		02/20/24 17:02 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		76.0		1	35 - 122	%Rec		02/20/24 17:02 TCB
Surr: Dibromofluoromethane	EPA 8260 B		70.2		1	28 - 148	%Rec		02/20/24 17:02 TCB
Surr: Toluene-d8	EPA 8260 B		83.2		1	41 - 144	%Rec		02/20/24 17:02 TCB

**NWTPHDX_S
 PERCENT MOISTURE**

Percent Moisture	NWTPH		16		1	1.0	% Wt		02/21/24 16:53 BAD
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QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-25
Client Sample ID: B14
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 2:30:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: SOLID

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
NWTPHDX_S									
NORTHWEST TPH DX IN SOIL									
TPH as Diesel	NWTPH-DX	A	ND		1	14.9	mg/Kg-dry		02/22/24 15:57 TJW
TPH as Lube Oil	NWTPH-DX	A	ND		1	29.9	mg/Kg-dry		02/22/24 15:57 TJW
Surr: o-Terphenyl	NWTPH-DX		92.0		1	50 - 150	%Rec		02/22/24 15:57 TJW
NORTHWEST TPH GASOLINE IN SOIL									
Gasoline Range (C6 - C12)	NWTPH-GX	A	ND		1	4.44	mg/Kg-dry		02/21/24 17:48 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		87.8		1	50 - 150	%Rec		02/21/24 17:48 TJW

QUALIFIERS	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
	ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

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 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-26
Client Sample ID: B14
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 2:30:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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VOLATILE ORGANICS BY EPA 8260B

1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
Benzene	EPA 8260 B	A	ND		1	0.350	µg/L		02/21/24 15:39 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
Naphthalene	EPA 8260 B	A	ND		1	2.00	µg/L		02/21/24 15:39 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
Toluene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 15:39 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		94.1		1	80 - 120	%Rec		02/21/24 15:39 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		98.0		1	80 - 120	%Rec		02/21/24 15:39 TCB
Surr: Dibromofluoromethane	EPA 8260 B		90.7		1	80 - 120	%Rec		02/21/24 15:39 TCB
Surr: Toluene-d8	EPA 8260 B		97.4		1	80 - 120	%Rec		02/21/24 15:39 TCB

NORTHWEST TPH DX IN WATER

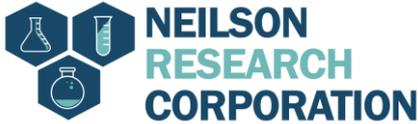
TPH as Diesel	NWTPH-DX	A	ND		1	0.0472	mg/L		02/22/24 9:02 TJW
Lube Oil Range (C24 - C40)	NWTPH-DX	A	3.27		1	0.0943	mg/L		02/22/24 9:02 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-26
Client Sample ID: B14
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 2:30:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: AQUEOUS

Sample Location: Grab

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
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NORTHWEST TPH DX IN WATER

Surr: o-Terphenyl	NWTPH-DX		69.6		1	50 - 150	%Rec		02/22/24 9:02 TJW
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NORTHWEST TPH GASOLINE IN WATER

TPH as Gasoline	NWTPH-GX	A	ND		1	0.0500	mg/L		02/20/24 14:19 TJW
Surr: 4-Bromofluorobenzene	NWTPH-GX		89.5		1	50 - 150	%Rec		02/20/24 14:19 TJW

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	MI	Recovery outside control limits due to Matrix Interference
ND	Not Detected at the Reporting Limit	PL	Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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 Website: www.nrclabs.com

Analytical Report

WO#: 24020789
 Date Reported: 2/29/2024

CLIENT: SHN Civil Engineering, Env Services
Lab ID: 24020789-27
Client Sample ID: Trip Blank
Project: 224002.214 Hays Oil
Sample Address:

Collection Date: 2/19/2024 2:30:00 PM
Received Date: 2/19/2024 4:36:00 PM
Matrix: WATER

Sample Location: Lab Water

Analyses	Method	NELAP Status	Result	Qual	DF	RL	Units	MCL	Date Analyzed/Analyst
VOLATILE ORGANICS									
1,1,1-Trichloroethane (1,1,1-TCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
1,1-Dichloroethane (1,1-DCA)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
1,2,4-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
1,2-Dibromoethane (EDB)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
1,2-Dichloroethane (EDC)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
1,3,5-Trimethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
Benzene	EPA 8260 B	A	ND		1	0.350	µg/L		02/21/24 8:57 TCB
cis-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
Ethylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
Isopropylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
Methyl tert-butyl ether	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
n-Propylbenzene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
Naphthalene	EPA 8260 B	A	ND		1	2.00	µg/L		02/21/24 8:57 TCB
Tetrachloroethene (PCE)	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
Toluene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
trans-1,2-Dichloroethylene	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
Vinyl chloride	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
Xylenes, Total	EPA 8260 B	A	ND		1	0.500	µg/L		02/21/24 8:57 TCB
Surr: 1,2-Dichlorobenzene-d4	EPA 8260 B		96.3		1	80 - 120	%Rec		02/21/24 8:57 TCB
Surr: 4-Bromofluorobenzene	EPA 8260 B		99.0		1	80 - 120	%Rec		02/21/24 8:57 TCB
Surr: Dibromofluoromethane	EPA 8260 B		96.4		1	80 - 120	%Rec		02/21/24 8:57 TCB
Surr: Toluene-d8	EPA 8260 B		98.2		1	80 - 120	%Rec		02/21/24 8:57 TCB

QUALIFIERS

C1 Sample container temperature is out of limit as specified at testcode
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 E Value above quantitation range
 MI Recovery outside control limits due to Matrix Interference
 PL Permit Limit

Original

NELAP NELAP A Accredited in accordance with NELAP ORELAP 100016, OR-028



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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_5035_S

Sample ID: MB-24357	SampType: MBLK	TestCode: EPA8260_503	Units: mg/Kg	Prep Date: 2/20/2024	RunNo: 47465						
Client ID: PBS	Batch ID: 24357	TestNo: SW8260B	E5035	Analysis Date: 2/20/2024	SeqNo: 777797						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane (1,1,1-TCA)	ND	0.125									
1,1-Dichloroethane (1,1-DCA)	ND	0.0250									
1,2,4-Trimethylbenzene	ND	0.0250									
1,2-Dibromoethane (EDB)	ND	0.0250									
1,2-Dichloroethane (EDC)	ND	0.0250									
1,3,5-Trimethylbenzene	ND	0.0500									
Benzene	ND	0.0250									
cis-1,2-Dichloroethylene	ND	0.0250									
Ethylbenzene	ND	0.0250									
Isopropylbenzene	ND	0.0250									
Methyl tert-butyl ether	ND	0.0250									
n-Propylbenzene	ND	0.0250									
Naphthalene	ND	0.125									
Tetrachloroethene (PCE)	ND	0.0250									
Toluene	ND	0.0500									
trans-1,2-Dichloroethylene	ND	0.0250									
Vinyl chloride	ND	0.0500									
Xylenes, Total	ND	0.0500									
Surr: 1,2-Dichlorobenzene-d4	1.47		2.000		73.7	52	92				
Surr: 4-Bromofluorobenzene	1.49		2.000		74.4	58	106				
Surr: Dibromofluoromethane	1.25		2.000		62.7	63	127				SN
Surr: Toluene-d8	1.65		2.000		82.4	67	130				

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
 MI Recovery outside control limits due to Matrix Interference ND Not Detected at the Reporting Limit PL Permit Limit
 RL Reporting Detection Limit

Original



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 Medford, OR 97501
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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

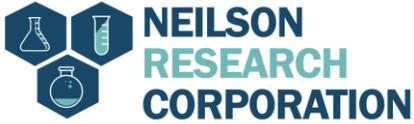
Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_5035_S

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
LCS-24357	LCS	EPA8260_503	mg/Kg	2/20/2024	47465						
Client ID:	Batch ID:	TestNo:		Analysis Date:	SeqNo:						
LCSS	24357	SW8260B	E5035	2/20/2024	777799						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane (1,1,1-TCA)	0.874	0.125	1.000	0	87.5	66	115				
1,1-Dichloroethane (1,1-DCA)	0.912	0.0250	1.000	0	91.2	70	114				
1,2,4-Trimethylbenzene	0.973	0.0250	1.000	0	97.3	80	109				
1,2-Dibromoethane (EDB)	0.840	0.0250	1.000	0	84.0	74	107				
1,2-Dichloroethane (EDC)	0.928	0.0250	1.000	0	92.8	74	115				
1,3,5-Trimethylbenzene	0.970	0.0500	1.000	0	97.0	76	111				
Benzene	1.00	0.0250	1.000	0	100	65	118				
cis-1,2-Dichloroethylene	0.944	0.0250	1.000	0	94.4	71	112				
Ethylbenzene	1.02	0.0250	1.000	0	102	81	107				
Isopropylbenzene	1.02	0.0250	1.000	0	102	76	111				
Methyl tert-butyl ether	1.08	0.0250	1.000	0	108	74	107				SN
n-Propylbenzene	1.02	0.0250	1.000	0	102	82	110				
Naphthalene	0.842	0.125	1.000	0	84.2	67	118				
Tetrachloroethene (PCE)	0.943	0.0250	1.000	0	94.3	74	112				
Toluene	1.01	0.0500	1.000	0	101	80	111				
trans-1,2-Dichloroethylene	0.874	0.0250	1.000	0	87.4	67	115				
Vinyl chloride	0.870	0.0500	1.000	0	87.1	50	103				
Xylenes, Total	2.89	0.0500	3.000	0	96.4	80	108				
Surr: 1,2-Dichlorobenzene-d4	1.42		2.000		71.2	52	92				
Surr: 4-Bromofluorobenzene	1.54		2.000		77.0	58	106				
Surr: Dibromofluoromethane	1.56		2.000		77.8	63	127				
Surr: Toluene-d8	1.78		2.000		88.9	67	130				

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
 MI Recovery outside control limits due to Matrix Interference ND Not Detected at the Reporting Limit PL Permit Limit
 RL Reporting Detection Limit

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 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_5035_S

Sample ID: 24020789-01BMS	SampType: MS	TestCode: EPA8260_503	Units: mg/Kg-dry	Prep Date: 2/20/2024	RunNo: 47465						
Client ID: B1-10	Batch ID: 24357	TestNo: SW8260B	E5035	Analysis Date: 2/20/2024	SeqNo: 777801						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane (1,1,1-TCA)	1.02	0.138	1.108	0	92.2	53	131				
1,1-Dichloroethane (1,1-DCA)	0.964	0.0277	1.108	0	87.0	54	135				
1,2,4-Trimethylbenzene	1.13	0.0277	1.108	0	102	65	131				
1,2-Dibromoethane (EDB)	1.02	0.0277	1.108	0.01939	90.6	65	126				
1,2-Dichloroethane (EDC)	1.10	0.0277	1.108	0	99.3	56	140				
1,3,5-Trimethylbenzene	1.13	0.0554	1.108	0	102	49	147				
Benzene	1.16	0.0277	1.108	0	105	53	138				
cis-1,2-Dichloroethylene	0.999	0.0277	1.108	0	90.2	53	137				
Ethylbenzene	1.20	0.0277	1.108	0	108	64	127				
Isopropylbenzene	1.18	0.0277	1.108	0.01773	105	60	139				
Methyl tert-butyl ether	3.21	0.0277	1.108	2.030	106	62	129				
n-Propylbenzene	1.18	0.0277	1.108	0.01551	105	48	146				
Naphthalene	1.08	0.138	1.108	0	97.4	60	152				
Tetrachloroethene (PCE)	1.09	0.0277	1.108	0	98.5	61	135				
Toluene	1.18	0.0554	1.108	0	106	59	139				
trans-1,2-Dichloroethylene	0.952	0.0277	1.108	0	86.0	52	138				
Vinyl chloride	0.908	0.0554	1.108	0	82.0	33	149				
Xylenes, Total	3.38	0.0554	3.324	0	102	65	129				
Surr: 1,2-Dichlorobenzene-d4	1.33		2.216		59.8	10	152				
Surr: 4-Bromofluorobenzene	1.36		2.216		61.5	35	122				
Surr: Dibromofluoromethane	1.40		2.216		63.3	28	148				
Surr: Toluene-d8	1.57		2.216		70.8	41	144				

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
 MI Recovery outside control limits due to Matrix Interference ND Not Detected at the Reporting Limit PL Permit Limit
 RL Reporting Detection Limit

Original



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_5035_S

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
24020789-01BMSD	MSD	EPA8260_503	mg/Kg-dry	2/20/2024	47465						
Client ID:	Batch ID:	TestNo:	E5035	Analysis Date:	SeqNo:						
B1-10	24357	SW8260B	E5035	2/20/2024	777802						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane (1,1,1-TCA)	1.05	0.138	1.108	0	94.4	53	131	1.021	2.36	36	
1,1-Dichloroethane (1,1-DCA)	1.04	0.0277	1.108	0	93.5	54	135	0.9639	7.20	36	
1,2,4-Trimethylbenzene	1.14	0.0277	1.108	0	103	65	131	1.130	0.635	40	
1,2-Dibromoethane (EDB)	1.01	0.0277	1.108	0.01939	89.7	65	126	1.023	0.979	38	
1,2-Dichloroethane (EDC)	1.10	0.0277	1.108	0	99.4	56	140	1.100	0.0503	35	
1,3,5-Trimethylbenzene	1.13	0.0554	1.108	0	102	49	147	1.127	0.539	39	
Benzene	1.16	0.0277	1.108	0	104	53	138	1.162	0.478	46	
cis-1,2-Dichloroethylene	0.989	0.0277	1.108	0	89.3	53	137	0.9988	0.947	35	
Ethylbenzene	1.20	0.0277	1.108	0	108	64	127	1.197	0.231	46	
Isopropylbenzene	1.20	0.0277	1.108	0.01773	106	60	139	1.180	1.44	38	
Methyl tert-butyl ether	3.48	0.0277	1.108	2.030	131	62	129	3.209	7.99	37	S
n-Propylbenzene	1.20	0.0277	1.108	0.01551	107	48	146	1.178	1.82	41	
Naphthalene	1.11	0.138	1.108	0	100	60	152	1.079	2.83	39	
Tetrachloroethene (PCE)	1.09	0.0277	1.108	0	98.8	61	135	1.091	0.355	40	
Toluene	1.17	0.0554	1.108	0	106	59	139	1.178	0.377	46	
trans-1,2-Dichloroethylene	1.01	0.0277	1.108	0	91.4	52	138	0.9523	6.15	35	
Vinyl chloride	0.926	0.0554	1.108	0	83.6	33	149	0.9080	1.93	50	
Xylenes, Total	3.37	0.0554	3.324	0	102	65	129	3.379	0.164	46	
Surr: 1,2-Dichlorobenzene-d4	1.31		2.216		59.3	10	152		0	0	
Surr: 4-Bromofluorobenzene	1.35		2.216		60.7	35	122		0	0	
Surr: Dibromofluoromethane	1.40		2.216		63.3	28	148		0	0	
Surr: Toluene-d8	1.54		2.216		69.6	41	144		0	0	

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
 MI Recovery outside control limits due to Matrix Interference ND Not Detected at the Reporting Limit PL Permit Limit
 RL Reporting Detection Limit

Original



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 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_5035_S

Sample ID: MB-24389	SampType: MBLK	TestCode: EPA8260_503	Units: mg/Kg	Prep Date: 2/22/2024	RunNo: 47501						
Client ID: PBS	Batch ID: 24389	TestNo: SW8260B	E5035	Analysis Date: 2/22/2024	SeqNo: 778059						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.0250									
Isopropylbenzene	ND	0.0250									
Naphthalene	ND	0.125									
Toluene	ND	0.0500									
Surr: 1,2-Dichlorobenzene-d4	1.51		2.000		75.7	52	92				
Surr: 4-Bromofluorobenzene	1.74		2.000		87.0	58	106				
Surr: Dibromofluoromethane	1.98		2.000		99.0	63	127				
Surr: Toluene-d8	2.09		2.000		104	67	130				

Sample ID: LCS-24389	SampType: LCS	TestCode: EPA8260_503	Units: mg/Kg	Prep Date: 2/22/2024	RunNo: 47501						
Client ID: LCSS	Batch ID: 24389	TestNo: SW8260B	E5035	Analysis Date: 2/22/2024	SeqNo: 778079						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	0.935	0.0250	1.000	0	93.5	80	109				
Isopropylbenzene	0.944	0.0250	1.000	0	94.4	76	111				
Naphthalene	0.857	0.125	1.000	0	85.7	67	118				
Toluene	0.951	0.0500	1.000	0	95.1	80	111				
Surr: 1,2-Dichlorobenzene-d4	1.49		2.000		74.6	52	92				
Surr: 4-Bromofluorobenzene	1.72		2.000		85.9	58	106				
Surr: Dibromofluoromethane	1.92		2.000		96.0	63	127				
Surr: Toluene-d8	2.06		2.000		103	67	130				

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
 MI Recovery outside control limits due to Matrix Interference ND Not Detected at the Reporting Limit PL Permit Limit
 RL Reporting Detection Limit

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 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_5035_S

Sample ID: 24020808-01BMS	SampType: MS	TestCode: EPA8260_503	Units: mg/Kg-dry	Prep Date: 2/22/2024	RunNo: 47501						
Client ID: BatchQC	Batch ID: 24389	TestNo: SW8260B	E5035	Analysis Date: 2/22/2024	SeqNo: 778629						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	1.31	0.0342	1.368	0	95.4	65	131				
Isopropylbenzene	1.30	0.0342	1.368	0	94.8	60	139				
Naphthalene	1.19	0.171	1.368	0	86.6	60	152				
Toluene	1.32	0.0684	1.368	0	96.7	59	139				
Surr: 1,2-Dichlorobenzene-d4	1.90		2.736		69.5	10	152				
Surr: 4-Bromofluorobenzene	2.18		2.736		79.6	35	122				
Surr: Dibromofluoromethane	2.38		2.736		87.1	28	148				
Surr: Toluene-d8	2.60		2.736		95.0	41	144				

Sample ID: 24020808-01BMSD	SampType: MSD	TestCode: EPA8260_503	Units: mg/Kg-dry	Prep Date: 2/22/2024	RunNo: 47501						
Client ID: BatchQC	Batch ID: 24389	TestNo: SW8260B	E5035	Analysis Date: 2/22/2024	SeqNo: 778630						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	1.33	0.0342	1.368	0	96.9	65	131	1.305	1.56	40	
Isopropylbenzene	1.32	0.0342	1.368	0	96.6	60	139	1.298	1.83	38	
Naphthalene	1.26	0.171	1.368	0	92.0	60	152	1.185	6.04	39	
Toluene	1.42	0.0684	1.368	0	104	59	139	1.324	7.32	46	
Surr: 1,2-Dichlorobenzene-d4	2.01		2.736		73.4	10	152		0	0	
Surr: 4-Bromofluorobenzene	2.28		2.736		83.4	35	122		0	0	
Surr: Dibromofluoromethane	2.55		2.736		93.2	28	148		0	0	
Surr: Toluene-d8	2.86		2.736		105	41	144		0	0	

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
 MI Recovery outside control limits due to Matrix Interference ND Not Detected at the Reporting Limit PL Permit Limit
 RL Reporting Detection Limit

Original



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_W

Sample ID: MB	SampType: MBLK	TestCode: EPA8260_W	Units: µg/L	Prep Date: 2/21/2024	RunNo: 47467						
Client ID: PBW	Batch ID: R47467	TestNo: SW8260B		Analysis Date: 2/21/2024	SeqNo: 778387						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane (1,1,1-TCA)	ND	0.500									
1,1-Dichloroethane (1,1-DCA)	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.500									
1,2-Dibromoethane (EDB)	ND	0.500									
1,2-Dichloroethane (EDC)	ND	0.500									
1,3,5-Trimethylbenzene	ND	0.500									
Benzene	ND	0.350									
cis-1,2-Dichloroethylene	ND	0.500									
Ethylbenzene	ND	0.500									
Isopropylbenzene	ND	0.500									
Methyl tert-butyl ether	ND	0.500									
n-Propylbenzene	ND	0.500									
Naphthalene	ND	2.00									
Tetrachloroethene (PCE)	ND	0.500									
Toluene	ND	0.500									
trans-1,2-Dichloroethylene	ND	0.500									
Vinyl chloride	ND	0.500									
Xylenes, Total	ND	0.500									
Surr: 1,2-Dichlorobenzene-d4	38.9		40.00		97.4	80	120				
Surr: 4-Bromofluorobenzene	40.3		40.00		101	80	120				
Surr: Dibromofluoromethane	41.2		40.00		103	80	120				
Surr: Toluene-d8	39.8		40.00		99.5	80	120				

Qualifiers:	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range	H	Holding times for preparation or analysis exceeds
	MI	Recovery outside control limits due to Matrix Interference	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Detection Limit				

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 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_W

Sample ID: 24020789-02BMS	SampType: MS	TestCode: EPA8260_W	Units: µg/L	Prep Date: 2/21/2024	RunNo: 47467						
Client ID: B1	Batch ID: R47467	TestNo: SW8260B		Analysis Date: 2/21/2024	SeqNo: 778390						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane (1,1,1-TCA)	19.7	0.500	20.00	0	98.5	70	130				
1,1-Dichloroethane (1,1-DCA)	18.3	0.500	20.00	0	91.4	70	130				
1,2,4-Trimethylbenzene	16.9	0.500	20.00	0.4900	82.2	70	130				
1,2-Dibromoethane (EDB)	22.0	0.500	20.00	0	110	70	130				
1,2-Dichloroethane (EDC)	22.4	0.500	20.00	0	112	70	130				
1,3,5-Trimethylbenzene	17.3	0.500	20.00	0	86.3	70	130				
Benzene	21.3	0.350	20.00	0	107	70	130				
cis-1,2-Dichloroethylene	20.1	0.500	20.00	0	101	70	130				
Ethylbenzene	19.7	0.500	20.00	0	98.4	70	130				
Isopropylbenzene	28.8	0.500	20.00	6.590	111	70	130				
Methyl tert-butyl ether	337	0.500	20.00	194.8	712	70	130				ER3
n-Propylbenzene	60.8	0.500	20.00	27.07	169	70	130				MI
Naphthalene	20.4	2.00	20.00	0	102	70	130				
Tetrachloroethene (PCE)	18.7	0.500	20.00	0	93.6	70	125				
Toluene	20.5	0.500	20.00	0.2700	101	70	130				
trans-1,2-Dichloroethylene	20.0	0.500	20.00	0	100	70	130				
Vinyl chloride	15.7	0.500	20.00	0	78.4	70	130				
Xylenes, Total	58.1	0.500	60.00	0	96.8	70	130				
Surr: 1,2-Dichlorobenzene-d4	38.8		40.00		97.0	80	120				
Surr: 4-Bromofluorobenzene	39.9		40.00		99.7	80	120				
Surr: Dibromofluoromethane	39.0		40.00		97.5	80	120				
Surr: Toluene-d8	39.8		40.00		99.5	80	120				

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
 MI Recovery outside control limits due to Matrix Interference ND Not Detected at the Reporting Limit PL Permit Limit
 RL Reporting Detection Limit

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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_W

Sample ID: 24020789-02BMSD	SampType: MSD	TestCode: EPA8260_W	Units: µg/L	Prep Date: 2/21/2024	RunNo: 47467						
Client ID: B1	Batch ID: R47467	TestNo: SW8260B	Analysis Date: 2/21/2024	SeqNo: 778391							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane (1,1,1-TCA)	20.7	0.500	20.00	0	104	70	130	19.70	5.05	20	
1,1-Dichloroethane (1,1-DCA)	18.3	0.500	20.00	0	91.4	70	130	18.28	0.0547	20	
1,2,4-Trimethylbenzene	19.1	0.500	20.00	0.4900	93.2	70	130	16.92	12.2	20	
1,2-Dibromoethane (EDB)	22.2	0.500	20.00	0	111	70	130	21.96	0.907	20	
1,2-Dichloroethane (EDC)	21.7	0.500	20.00	0	109	70	130	22.38	3.04	20	
1,3,5-Trimethylbenzene	18.9	0.500	20.00	0	94.5	70	130	17.26	9.07	20	
Benzene	21.3	0.350	20.00	0	106	70	130	21.31	0.141	20	
cis-1,2-Dichloroethylene	19.8	0.500	20.00	0	99.0	70	130	20.12	1.65	20	
Ethylbenzene	20.5	0.500	20.00	0	102	70	130	19.67	3.99	20	
Isopropylbenzene	27.3	0.500	20.00	6.590	103	70	130	28.77	5.35	20	
Methyl tert-butyl ether	261	0.500	20.00	194.8	329	70	130	337.3	25.7	20	ER3
n-Propylbenzene	50.0	0.500	20.00	27.07	115	70	130	60.84	19.6	20	
Naphthalene	21.4	2.00	20.00	0	107	70	130	20.45	4.40	20	
Tetrachloroethene (PCE)	19.1	0.500	20.00	0	95.4	70	125	18.71	1.91	20	
Toluene	21.3	0.500	20.00	0.2700	105	70	130	20.54	3.68	20	
trans-1,2-Dichloroethylene	20.3	0.500	20.00	0	102	70	130	20.03	1.34	20	
Vinyl chloride	15.0	0.500	20.00	0	75.0	70	130	15.67	4.44	20	
Xylenes, Total	59.6	0.500	60.00	0	99.4	70	130	58.07	2.63	20	
Surr: 1,2-Dichlorobenzene-d4	38.5		40.00		96.2	80	120		0	0	
Surr: 4-Bromofluorobenzene	40.7		40.00		102	80	120		0	0	
Surr: Dibromofluoromethane	39.9		40.00		99.7	80	120		0	0	
Surr: Toluene-d8	40.4		40.00		101	80	120		0	0	

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_W

Sample ID: LCS 20 - 14991	SampType: LCS	TestCode: EPA8260_W	Units: µg/L	Prep Date: 2/21/2024	RunNo: 47467						
Client ID: LCSW	Batch ID: R47467	TestNo: SW8260B		Analysis Date: 2/21/2024	SeqNo: 778451						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane (1,1,1-TCA)	18.0	0.500	20.00	0	89.9	70	130				
1,1-Dichloroethane (1,1-DCA)	18.3	0.500	20.00	0	91.5	70	130				
1,2,4-Trimethylbenzene	19.9	0.500	20.00	0	99.4	70	130				
1,2-Dibromoethane (EDB)	21.5	0.500	20.00	0	108	70	130				
1,2-Dichloroethane (EDC)	23.6	0.500	20.00	0	118	70	130				
1,3,5-Trimethylbenzene	21.2	0.500	20.00	0	106	70	130				
Benzene	21.4	0.350	20.00	0	107	70	130				
cis-1,2-Dichloroethylene	19.3	0.500	20.00	0	96.4	70	130				
Ethylbenzene	20.3	0.500	20.00	0	101	70	130				
Isopropylbenzene	20.5	0.500	20.00	0	103	70	130				
Methyl tert-butyl ether	19.4	0.500	20.00	0	97.1	70	130				
n-Propylbenzene	20.6	0.500	20.00	0	103	70	130				
Naphthalene	17.2	2.00	20.00	0	86.0	70	130				
Tetrachloroethene (PCE)	19.3	0.500	20.00	0	96.7	70	125				
Toluene	20.8	0.500	20.00	0	104	70	130				
trans-1,2-Dichloroethylene	19.1	0.500	20.00	0	95.5	70	130				
Vinyl chloride	16.4	0.500	20.00	0	81.8	70	130				
Xylenes, Total	61.3	0.500	60.00	0	102	70	130				
Surr: 1,2-Dichlorobenzene-d4	38.2		40.00		95.4	80	120				
Surr: 4-Bromofluorobenzene	39.5		40.00		98.7	80	120				
Surr: Dibromofluoromethane	37.7		40.00		94.3	80	120				
Surr: Toluene-d8	41.7		40.00		104	80	120				

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
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 RL Reporting Detection Limit

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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: EPA8260_W

Sample ID: LCS 20 - 14991	SampType: LCS	TestCode: EPA8260_W	Units: µg/L	Prep Date: 2/23/2024	RunNo: 47549						
Client ID: LCSW	Batch ID: R47549	TestNo: SW8260B	Analysis Date: 2/23/2024	SeqNo: 778837							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	20.0	0.500	20.00	0	99.8	70	130				

Sample ID: MB	SampType: MBLK	TestCode: EPA8260_W	Units: µg/L	Prep Date: 2/23/2024	RunNo: 47549						
Client ID: PBW	Batch ID: R47549	TestNo: SW8260B	Analysis Date: 2/23/2024	SeqNo: 778839							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	ND	0.500									

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: NWTPHDX_S

Sample ID: MB-24375	SampType: MBLK	TestCode: NWTPHDX_S	Units: mg/Kg	Prep Date: 2/21/2024	RunNo: 47550						
Client ID: PBS	Batch ID: 24375	TestNo: NWTPHDX	NWTPHDX	Analysis Date: 2/22/2024	SeqNo: 778854						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Diesel	ND	12.5									
TPH as Lube Oil	ND	25.0									
Surr: o-Terphenyl	4.50		5.000		90.0	50	150				

Sample ID: LCS-24375	SampType: LCS	TestCode: NWTPHDX_S	Units: mg/Kg	Prep Date: 2/21/2024	RunNo: 47550						
Client ID: LCSS	Batch ID: 24375	TestNo: NWTPHDX	NWTPHDX	Analysis Date: 2/22/2024	SeqNo: 778854						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Diesel	284	12.5	250.0	0	113	50	150				
Surr: o-Terphenyl	6.02		5.000		120	50	150				

Sample ID: 24020789-01AMS	SampType: MS	TestCode: NWTPHDX_S	Units: mg/Kg-dry	Prep Date: 2/21/2024	RunNo: 47550						
Client ID: B1-10	Batch ID: 24375	TestNo: NWTPHDX	NWTPHDX	Analysis Date: 2/22/2024	SeqNo: 778857						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Diesel	360	16.4	327.4	0	110	50	150				
Surr: o-Terphenyl	7.27		6.549		111	50	150				

Sample ID: 24020789-01AMSD	SampType: MSD	TestCode: NWTPHDX_S	Units: mg/Kg-dry	Prep Date: 2/21/2024	RunNo: 47550						
Client ID: B1-10	Batch ID: 24375	TestNo: NWTPHDX	NWTPHDX	Analysis Date: 2/22/2024	SeqNo: 778858						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:	C1 Sample container temperature is out of limit as specified at testcode	E Value above quantitation range	H Holding times for preparation or analysis exceeds
	MI Recovery outside control limits due to Matrix Interference	ND Not Detected at the Reporting Limit	PL Permit Limit
	RL Reporting Detection Limit		

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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: NWTPHDX_S

Sample ID: 24020789-01AMSD	SampType: MSD	TestCode: NWTPHDX_S	Units: mg/Kg-dry	Prep Date: 2/21/2024	RunNo: 47550						
Client ID: B1-10	Batch ID: 24375	TestNo: NWTPHDX	NWTPHDX	Analysis Date: 2/22/2024	SeqNo: 778858						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH as Diesel	372	16.6	331.2	0	112	50	150	360.0	3.15	25	
Surr: o-Terphenyl	7.85		6.623		118	50	150		0	0	

Qualifiers:

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range	H	Holding times for preparation or analysis exceeds
MI	Recovery outside control limits due to Matrix Interference	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit				

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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: NWTPHDX_W

Sample ID: MB-24374	SampType: MBLK	TestCode: NWTPHDX_W	Units: mg/L	Prep Date: 2/21/2024	RunNo: 47551						
Client ID: PBW	Batch ID: 24374	TestNo: NWTPHDX	NWHCID	Analysis Date: 2/22/2024	SeqNo: 778885						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Diesel	ND	0.0500									
TPH as Lube Oil	ND	0.100									
Surr: o-Terphenyl	0.0144		0.02000		72.2	50	150				

Sample ID: LCS-24374	SampType: LCS	TestCode: NWTPHDX_W	Units: mg/L	Prep Date: 2/21/2024	RunNo: 47551						
Client ID: LCSW	Batch ID: 24374	TestNo: NWTPHDX	NWHCID	Analysis Date: 2/22/2024	SeqNo: 778886						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Diesel	0.776	0.0500	1.000	0	77.6	50	150				
Surr: o-Terphenyl	0.0205		0.02000		103	50	150				

Sample ID: 24020789-02AMS	SampType: MS	TestCode: NWTPHDX_W	Units: mg/L	Prep Date: 2/21/2024	RunNo: 47551						
Client ID: B1	Batch ID: 24374	TestNo: NWTPHDX	NWHCID	Analysis Date: 2/22/2024	SeqNo: 778888						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Diesel	6.16	0.0472	0.9434	6.185	-2.90	50	150				S
Surr: o-Terphenyl	0.0241		0.01887		128	50	150				

Sample ID: 24020789-02AMSD	SampType: MSD	TestCode: NWTPHDX_W	Units: mg/L	Prep Date: 2/21/2024	RunNo: 47551						
Client ID: B1	Batch ID: 24374	TestNo: NWTPHDX	NWHCID	Analysis Date: 2/22/2024	SeqNo: 778889						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:	C1 Sample container temperature is out of limit as specified at testcode	E Value above quantitation range	H Holding times for preparation or analysis exceeds
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	RL Reporting Detection Limit		

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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: NWTPHDX_W

Sample ID: 24020789-02AMSD	SampType: MSD	TestCode: NWTPHDX_W	Units: mg/L	Prep Date: 2/21/2024	RunNo: 47551						
Client ID: B1	Batch ID: 24374	TestNo: NWTPHDX	NWHCID	Analysis Date: 2/22/2024	SeqNo: 778889						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH as Diesel	4.72	0.0485	0.9709	6.185	-151	50	150	6.157	26.4	20	S
Surr: o-Terphenyl	0.0207		0.01942		106	50	150		0	20	

Qualifiers:

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range	H	Holding times for preparation or analysis exceeds
MI	Recovery outside control limits due to Matrix Interference	ND	Not Detected at the Reporting Limit	PL	Permit Limit
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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: NWTPHGX_5035_S

Sample ID: MB-24373	SampType: MBLK	TestCode: NWTPHGX_5	Units: mg/Kg	Prep Date: 2/21/2024	RunNo: 47555						
Client ID: PBS	Batch ID: 24373	TestNo: NWTPHGX	EPA 5035	Analysis Date: 2/21/2024	SeqNo: 779063						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Gasoline ND 5.00
 Surr: 4-Bromofluorobenzene 1.99 2.000 99.3 50 150

Sample ID: LCS-24373	SampType: LCS	TestCode: NWTPHGX_5	Units: mg/Kg	Prep Date: 2/21/2024	RunNo: 47555						
Client ID: LCSS	Batch ID: 24373	TestNo: NWTPHGX	EPA 5035	Analysis Date: 2/21/2024	SeqNo: 779064						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Gasoline 18.7 5.00 25.00 0 74.9 70 130
 Surr: 4-Bromofluorobenzene 1.83 2.000 91.6 50 150

Sample ID: 24020789-01BMS	SampType: MS	TestCode: NWTPHGX_5	Units: mg/Kg-dry	Prep Date: 2/21/2024	RunNo: 47555						
Client ID: B1-10	Batch ID: 24373	TestNo: NWTPHGX	EPA 5035	Analysis Date: 2/21/2024	SeqNo: 779066						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Gasoline 32.1 5.82 29.10 0 110 70 130
 Surr: 4-Bromofluorobenzene 2.08 2.328 89.2 50 150

Sample ID: 24020789-01BMSD	SampType: MSD	TestCode: NWTPHGX_5	Units: mg/Kg-dry	Prep Date: 2/21/2024	RunNo: 47555						
Client ID: B1-10	Batch ID: 24373	TestNo: NWTPHGX	EPA 5035	Analysis Date: 2/21/2024	SeqNo: 779067						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Gasoline 32.3 5.82 29.10 0 111 70 130 32.05 0.810 25

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
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 RL Reporting Detection Limit

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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: NWTPHGX_5035_S

Sample ID: 24020789-01BMSD	SampType: MSD	TestCode: NWTPHGX_5	Units: mg/Kg-dry	Prep Date: 2/21/2024	RunNo: 47555						
Client ID: B1-10	Batch ID: 24373	TestNo: NWTPHGX	EPA 5035	Analysis Date: 2/21/2024	SeqNo: 779067						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	2.07		2.328		88.8	50	150		0	0	

Qualifiers:

C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range	H	Holding times for preparation or analysis exceeds
MI	Recovery outside control limits due to Matrix Interference	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit				

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QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: NWTPHGX_W

Sample ID: LCS	SampType: LCS	TestCode: NWTPHGX_	Units: mg/L	Prep Date: 2/20/2024	RunNo: 47479						
Client ID: LCSW	Batch ID: R47479	TestNo: NWTPHGX	Analysis Date: 2/20/2024	SeqNo: 777666							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Gasoline 0.550 0.0500 0.5000 0 110 70 130
 Surr: 4-Bromofluorobenzene 0.0360 0.04000 90.1 50 150

Sample ID: LCSD	SampType: LCSD	TestCode: NWTPHGX_	Units: mg/L	Prep Date: 2/20/2024	RunNo: 47479						
Client ID: LCSS02	Batch ID: R47479	TestNo: NWTPHGX	Analysis Date: 2/20/2024	SeqNo: 777668							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Gasoline 0.537 0.0500 0.5000 0 107 70 130 0.5500 2.42 20
 Surr: 4-Bromofluorobenzene 0.0381 0.04000 95.3 50 150 0 0

Sample ID: MB	SampType: MBLK	TestCode: NWTPHGX_	Units: mg/L	Prep Date: 2/20/2024	RunNo: 47479						
Client ID: PBW	Batch ID: R47479	TestNo: NWTPHGX	Analysis Date: 2/20/2024	SeqNo: 777669							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Gasoline ND 0.0500
 Surr: 4-Bromofluorobenzene 0.0390 0.04000 97.5 50 150

Sample ID: 24020789-02BMS	SampType: MS	TestCode: NWTPHGX_	Units: mg/L	Prep Date: 2/20/2024	RunNo: 47479						
Client ID: B1	Batch ID: R47479	TestNo: NWTPHGX	Analysis Date: 2/20/2024	SeqNo: 777671							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH as Gasoline 1.72 0.0500 0.5000 1.175 109 70 130

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
 MI Recovery outside control limits due to Matrix Interference ND Not Detected at the Reporting Limit PL Permit Limit
 RL Reporting Detection Limit

Original



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

TestCode: NWTPHGX_W

Sample ID: 24020789-02BMS	SampType: MS	TestCode: NWTPHGX_	Units: mg/L	Prep Date: 2/20/2024	RunNo: 47479						
Client ID: B1	Batch ID: R47479	TestNo: NWTPHGX		Analysis Date: 2/20/2024	SeqNo: 777671						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.0403		0.04000		101	50	150				

Sample ID: LCS	SampType: LCS	TestCode: NWTPHGX_	Units: mg/L	Prep Date: 2/22/2024	RunNo: 47556						
Client ID: LCSW	Batch ID: R47556	TestNo: NWTPHGX		Analysis Date: 2/22/2024	SeqNo: 778953						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH as Gasoline	0.564	0.0500	0.5000	0	113	70	130				
Surr: 4-Bromofluorobenzene	0.0354		0.04000		88.4	50	150				

Sample ID: LCSD	SampType: LCSD	TestCode: NWTPHGX_	Units: mg/L	Prep Date: 2/22/2024	RunNo: 47556						
Client ID: LCSS02	Batch ID: R47556	TestNo: NWTPHGX		Analysis Date: 2/22/2024	SeqNo: 778955						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH as Gasoline	0.491	0.0500	0.5000	0	98.3	70	130	0.5644	13.8	20	
Surr: 4-Bromofluorobenzene	0.0362		0.04000		90.4	50	150		0	0	

Sample ID: MB	SampType: MBLK	TestCode: NWTPHGX_	Units: mg/L	Prep Date: 2/22/2024	RunNo: 47556						
Client ID: PBW	Batch ID: R47556	TestNo: NWTPHGX		Analysis Date: 2/22/2024	SeqNo: 778956						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH as Gasoline	ND	0.0500									
Surr: 4-Bromofluorobenzene	0.0381		0.04000		95.2	50	150				

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode E Value above quantitation range H Holding times for preparation or analysis exceeds
 MI Recovery outside control limits due to Matrix Interference ND Not Detected at the Reporting Limit PL Permit Limit
 RL Reporting Detection Limit

Original



Neilson Research Corporation
 245 S Grape St
 Medford, OR 97501
 TEL: (541) 770-5678 FAX: (541) 770-2901
 Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: 24020789
 29-Feb-24

Client: SHN Civil Engineering, Env Services
Project: 224002.214 Hays Oil

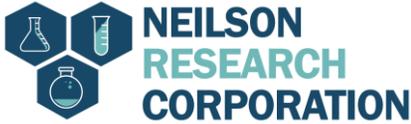
TestCode: NWTPHGX_W

Sample ID: MB	SampType: MBLK	TestCode: NWTPHGX_	Units: mg/L	Prep Date: 2/22/2024	RunNo: 47556						
Client ID: PBW	Batch ID: R47556	TestNo: NWTPHGX		Analysis Date: 2/22/2024	SeqNo: 778956						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 24020789-20BMS	SampType: MS	TestCode: NWTPHGX_	Units: mg/L	Prep Date: 2/22/2024	RunNo: 47556						
Client ID: B11	Batch ID: R47556	TestNo: NWTPHGX		Analysis Date: 2/22/2024	SeqNo: 778958						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH as Gasoline	65.1	1.00	10.00	56.98	81.3	70	130				
Surr: 4-Bromofluorobenzene	0.0680		0.8000		8.50	50	150				MI

Qualifiers: C1 Sample container temperature is out of limit as specified at testcode
 E Value above quantitation range
 H Holding times for preparation or analysis exceeds
 MI Recovery outside control limits due to Matrix Interference
 ND Not Detected at the Reporting Limit
 PL Permit Limit
 RL Reporting Detection Limit

Original



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 Website: www.nrclabs.com

Sample Log-In Check List

Client Name: **SHNCONSULTING_RED** Work Order Number: **24020789** RcptNo: **1**

Logged by:	Tamra Schmedemann	2/19/2024 4:36:00 PM	<i>Tamra Schmedemann</i>
Completed By:	Tamra Schmedemann	2/19/2024 5:09:25 PM	<i>Tamra Schmedemann</i>
Reviewed By:	Tamra Schmedemann	2/19/2024 5:09:29 PM	<i>Tamra Schmedemann</i>

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 Custody seals intact on shipping container/cooler? Yes No Not Present
 No. Seal Date: Signed By:
 5. Was an attempt made to cool the samples? Yes No NA
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA

Samples were collected the same day and chilled.

7. Sample(s) in proper container(s)? Yes No
 8. Sufficient sample volume for indicated test(s)? Yes No
 9. Are samples (except VOA and ONG) properly preserved? Yes No
 10. Was preservative added to bottles? Yes No NA
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes No No VOA Vials
 12. Were any sample containers received broken? Yes No
 13. Does paperwork match bottle labels? Yes No
 (Note discrepancies on chain of custody)
 14. Are matrices correctly identified on Chain of Custody? Yes No
 15. Is it clear what analyses were requested? Yes No
 16. Were all holding times able to be met? Yes No
 (If no, notify customer for authorization.)

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.5	Good				TRS
2	2.5	Good				TRS
3	7.2	Good				TRS

This Chain of Custody is a LEGAL DOCUMENT and must be filled out accurately.

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information	Section D Rush Status (Subject to Scheduling)																														
Company: SHN	Project Name: Hays Oil	Attention: Accounts Payable	<input checked="" type="checkbox"/> Standard: 10 Business Days																														
Address: 803 Main Street, Suite 401 Klamath Falls, OR 97601	Project Number: 224002.214	Company Name: SHN	<input type="checkbox"/> Priority: 5 Business Days (List x 1.50)																														
Email: rhess@shn-engr.com	Report To: Robert Hess	Address: 812 W Wabash Ave Eureka, CA 95501	<input type="checkbox"/> Express: 3 Business Days (List x 1.75)																														
Phone: 530-221-5424 Fax: 530-221-0135	Copy To: <i>dchristensen@shn-engr.com</i>	P.O. # 224002.214	<input type="checkbox"/> Rush: 2 Business Days (List x 2.00)																														
Collected By (Print): <i>Dana Christensen</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="10" style="text-align: center;">Analysis Requested</th> </tr> <tr> <td style="width: 5%;">No. of Containers</td> <td style="width: 5%;">NWTPHDX</td> <td style="width: 5%;">NWTPHGX</td> <td style="width: 5%;">8260 RBDM</td> <td style="width: 5%;"></td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Analysis Requested										No. of Containers	NWTPHDX	NWTPHGX	8260 RBDM							5										<input type="checkbox"/> Rush: 1 Business Day (List x 2.50)
Analysis Requested																																	
No. of Containers			NWTPHDX	NWTPHGX	8260 RBDM																												
5																																	
Collected By (Sign): <i>[Signature]</i>	Authorized <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Rush: Same Day (List x 3.00)																														
Email Report <input checked="" type="checkbox"/> Mail Report <input type="checkbox"/> Fax Report <input type="checkbox"/>																																	

Section E Sample Information										NRC Workorder # <i>24020289</i> (Lab Use Only)	
Sample ID	Comp/Grab	Matrix*	Date Collected	Time Collected						Remarks / Field Data	NRC Sample # (Lab Use Only)
B1-10	G	S	2/16/24	0830			01				
B1	G	W	2/16/24	0930			02				
B2-10	G	S	2/16/24	0930			03				
B2	G	W	2/16/24	0930			04				
B3	G	S	2/16/24	1015			05				
B3	G	W	2/16/24	1015			04				
B4	G	S	2/16/24	1045			07				
B4	G	W	2/16/24	1045			08				
B5-3.5	G	S	2/16/24	1145			09				
B6-2.5	G	S	2/16/24	1225			10				

*Matrix: DW - Drinking Water WW - Wastewater W - Water S - Soil/Solid SL - Sludge O - Oil WP - Wipe OT - Other

Section F			
Relinquish/Receive	Sign	Print	Date
Relinquished By: <i>[Signature]</i>		<i>Dana Christensen</i>	<i>2/19/24</i>
Received By:			
Relinquished By:			
Received By:			
Relinquished By:			
Received By Laboratory: <i>[Signature]</i>		<i>Tamara S. Medlock</i>	<i>2/19/24 10:30</i>

Section G Lab Use Only	
Temp: <i>2.5</i>	
≤6°C: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Received on Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Number of Bottles Received: <i>9</i>	
pH Checked: <i>NA</i>	
COC Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
Field Blank Included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Received Via UPS FedEx Other Hand

Payment: Invoice Cash VISA, M/C Check # _____ Amount _____

This Chain of Custody is a LEGAL DOCUMENT and must be filled out accurately.

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information	Section D Rush Status (Subject to Scheduling)																														
Company: SHN	Project Name: Hays Oil	Attention: Accounts Payable	<input checked="" type="checkbox"/> Standard: 10 Business Days																														
Address: 803 Main Street, Suite 401 Klamath Falls, OR 97601	Project Number: 224002.214	Company Name: SHN	<input type="checkbox"/> Priority: 5 Business Days (List x 1.50)																														
Email: rhess@shn-engr.com	Report To: Robert Hess	Address: 812 W Wabash Ave Eureka, CA 95501	<input type="checkbox"/> Express: 3 Business Days (List x 1.75)																														
Phone: 530-221-5424 Fax: 530-221-0135	Copy To: <i>dchristensen@shn-engr.com</i>	P.O. # 224002.214	<input type="checkbox"/> Rush: 2 Business Days (List x 2.00)																														
Collected By (Print): <i>Dana Christensen</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="10">Analysis Requested</th> </tr> <tr> <th>No. of Containers</th> <th>NWTPHDX</th> <th>NWTPHGX</th> <th>8260 RBDM</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </tbody> </table>		Analysis Requested										No. of Containers	NWTPHDX	NWTPHGX	8260 RBDM																	<input type="checkbox"/> Rush: 1 Business Day (List x 2.50)
Analysis Requested																																	
No. of Containers			NWTPHDX	NWTPHGX	8260 RBDM																												
Collected By (Sign): <i>[Signature]</i>	Authorized <input type="checkbox"/> Yes <input type="checkbox"/> No																																
Email Report <input checked="" type="checkbox"/> Mail Report <input type="checkbox"/> Fax Report <input type="checkbox"/>																																	

Section E Sample Information															NRC Workorder # <i>24030789</i> (Lab Use Only)			
Sample ID	Comp/Grab	Matrix*	Date Collected	Time Collected	No. of Containers	NWTPHDX	NWTPHGX	8260 RBDM								Remarks / Field Data	NRC Sample # (Use Only)	(Lab)
<i>B7</i>	<i>G</i>	<i>S</i>	<i>2/16/24</i>	<i>1245</i>	<i>5</i>	<i>1</i>	<i>1</i>	<i>1</i>									<i>11</i>	
<i>B7</i>	<i>G</i>	<i>W</i>	<i>2/16/24</i>	<i>1245</i>	<i>9</i>	<i>1</i>	<i>1</i>	<i>1</i>									<i>12</i>	
<i>BB-4</i>	<i>G</i>	<i>S</i>	<i>2/19/24</i>	<i>1030</i>	<i>5</i>	<i>1</i>	<i>1</i>	<i>1</i>									<i>13</i>	
<i>B8</i>	<i>G</i>	<i>W</i>	<i>2/19/24</i>	<i>1030</i>	<i>9</i>	<i>1</i>	<i>1</i>	<i>1</i>									<i>14</i>	
<i>B9</i>	<i>G</i>	<i>S</i>	<i>2/19/24</i>	<i>0920</i>	<i>5</i>	<i>1</i>	<i>1</i>	<i>1</i>									<i>15</i>	
<i>B9</i>	<i>G</i>	<i>W</i>	<i>2/19/24</i>	<i>0920</i>	<i>9</i>	<i>1</i>	<i>1</i>	<i>1</i>									<i>16</i>	
<i>B10-3</i>	<i>G</i>	<i>S</i>	<i>2/19/24</i>	<i>1115</i>	<i>5</i>	<i>1</i>	<i>1</i>	<i>1</i>									<i>17</i>	
<i>B10</i>	<i>G</i>	<i>W</i>	<i>2/19/24</i>	<i>1115</i>	<i>9</i>	<i>1</i>	<i>1</i>	<i>1</i>									<i>18</i>	
<i>B11</i>	<i>G</i>	<i>S</i>	<i>2/19/24</i>	<i>1230</i>	<i>5</i>	<i>1</i>	<i>1</i>	<i>1</i>									<i>19</i>	

*Matrix: DW - Drinking Water WW - Wastewater W - Water S - Soil/Solid SL - Sludge O - Oil WP - Wipe OT - Other

Section F Relinquish/Receive			
Relinquish/Receive	Sign	Print	Date
Relinquished By: <i>[Signature]</i>	<i>[Signature]</i>	<i>Dana Christensen</i>	<i>2/19/2024</i>
Received By:			
Relinquished By:			
Received By:			
Relinquished By:			
Received By Laboratory: <i>Tama Schmiedem</i>	<i>[Signature]</i>	<i>Tama Schmiedem</i>	<i>2/19/24 16:34</i>

Section G Lab Use Only	
Temp:	<i>2.50</i>
≤6°C:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Received on Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Number of Bottles Received:	
pH Checked:	<i>N/A</i>
COC Seals Intact:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Field Blank Included:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Received Via	<input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other <input checked="" type="checkbox"/> Hand

Payment: <i>[Signature]</i> <input type="checkbox"/> Invoice <input type="checkbox"/> Cash <input type="checkbox"/> VISA, M/C <input type="checkbox"/> Check # _____ Amount _____

This Chain of Custody is a LEGAL DOCUMENT and must be filled out accurately.

Section A Required Client Information Company: SHN Address: 803 Main Street, Suite 401 Klamath Falls, OR 97601 Email: rhess@shn-engr.com Phone: 530-221-5424 Fax: 530-221-0135 Collected By (Print): <u>Dana Christensen</u> Collected By (Sign): <u>[Signature]</u> Email Report <input checked="" type="checkbox"/> Mail Report <input type="checkbox"/> Fax Report <input type="checkbox"/>	Section B Required Project Information Project Name: Hays Oil Project Number: 224002.214 Report To: Robert Hess Copy To: <u>dchristensen@shn-engr.com</u>	Section C Invoice Information Attention: Accounts Payable Company Name: SHN Address: 812 W Wabash Ave Eureka, CA 95501 P.O. # 224002.214	Section D Rush Status (Subject to Scheduling) <input checked="" type="checkbox"/> Standard: 10 Business Days <input type="checkbox"/> Priority: 5 Business Days (List x 1.50) <input type="checkbox"/> Express: 3 Business Days (List x 1.75) <input type="checkbox"/> Rush: 2 Business Days (List x 2.00) <input type="checkbox"/> Rush: 1 Business Day (List x 2.50) <input type="checkbox"/> Rush: Same Day (List x 3.00) Authorized <input type="checkbox"/> Yes <input type="checkbox"/> No
---	--	--	--

Section E Sample Information					Analysis Requested										NRC Workorder # <u>24020789</u> (Lab Use Only)				
Sample ID	Comp/Grab	Matrix*	Date Collected	Time Collected	No. of Containers	NWTPHDX	NWTPHGX	8260 RBDM									Remarks / Field Data	NRC Sample # (Lab Use Only)	(Lab)
B11	G	W	2/19/24	1230	9													20	
B12	G	S	2/19/24	1300	5													21	
B12	G	W	2/19/24	1300	9													22	
B13	G	S	2/19/24	1340	5													23	
B13	G	W	2/19/24	1340	9													24	
B14	G	S	2/19/24	1430	5													25	
B14	G	W	2/19/24	1430	9													26	

*Matrix: DW - Drinking Water WW - Wastewater W - Water S - Soil/Solid SL - Sludge O - Oil WP - Wipe OT - Other

Section F			
Relinquish/Receive	Sign	Print	Date
Relinquished By: <u>[Signature]</u>		Dana Christensen	2/19/24
Received By:			1636
Relinquished By:			
Received By:			
Relinquished By:			
Received By Laboratory: <u>Jamie Schneider</u>		<u>Jamie Schneider</u>	2/19/24

Section G	
Lab Use Only	
Temp: <u>7.0</u>	
≤6°C: ___ Yes ___ No	
Received on Ice: ___ Yes ___ No	
Number of Bottles Received: <u>6</u>	
pH Checked: <u>N/A</u>	
COC Seals Intact: ___ Yes ___ No <u>X</u> NA	
Field Blank Included: ___ Yes ___ No	

Received Via UPS FedEx Other Hand

Payment: Invoice Cash VISA, M/C Check # Amount

-
- A Total Alkalinity and Bicarbonate Alkalinity results are to a pH endpoint of 4.5. Carbonate Alkalinity result is to a pH endpoint of 8.3.
- A-LL The total low level alkalinity results are to a pH endpoint of 4.3-4.7 pH units per SM 2320B-2011.
- B Analyte detected in the associated method blank.
- C Sample(s) does not meet NELAP/ORELAP sample acceptance criteria. See Case Narrative.
- C1 Sample(s) does not meet NELAP/ORELAP sample acceptance criteria for temperature.
- CF Results confirmed by re-analysis.
- CU Cleanup performed as specified by method.
- E Estimated value.
- ER Elevated reporting limit due to matrix. Report limits (MDLs, MRLs & PQLs) are adjusted based on variations in sample preparation amounts, analytical dilutions, and percent solids, where applicable.
- FC Fecal Coliforms: Sample(s) received past 40 CFR Part 136 specified holding time. Results reported as estimated values.
- HP Sample re-analysis performed outside of method specified holding time.
- HR Sample received outside of method specified holding time.
- HS Sample analyzed for volatile organics contained headspace.
- HT At the client's request, the sample was analyzed outside of method specified holding time.
- H Analysis performed outside of method specified holding time.
- J Analyte detected below the Minimum Reporting Limit (MRL) and above the Method Detection Limit (MDL). The J flag result is an estimated value and the user should be aware that this data is of limited reliability.
- L Dissolved metals were not filtered within 15 minutes of collection per 40 CFR Part 136.
- MI Surrogate, Duplicate Sample (DUP) or Matrix Spikes recoveries are out of control limits due to matrix interference. Sample results may be biased.
- N See Case Narrative on page 2 of report.
- Q Initial calibration verification (ICV), continuing calibration verification (CCV) or laboratory control sample (LCS), and/or matrix spikes exceeded high recovery limits, but associated samples are non-detect and the sample results are not affected. Data meets EPA/NELAP requirements.
- R Relative percent difference (RPD) is outside of the accepted recovery limits.
- R1 The numerical difference between the parent sample and the duplicate (DUP) is outside of the accepted recovery limits. Greater than 5 degrees for Flashpoint, or greater than 0.1 pH units for pH.
- R3 The relative percent difference (RPD) and/or percent recovery for the duplicate (DUP) or matrix spike (MS)/matrix spike duplicate (MSD) cannot be accurately calculated due to the concentration of analyte already present in the sample.
- R4 The Relative percent difference (RPD) is not within control limits because the concentration of the sample result is too low to represent proper statistical error.
- R5 The difference between the BOD/CBOD results for the highest and lowest dilution used for the calculation is >30% because the results are too low to represent proper statistical error. The BOD/CBOD sample result is an average of all qualified bottles for each dilution series. The sample results are not affected.
- R6 The difference between the BOD/CBOD results for the highest and lowest dilution used for the calculation is >30%. This may indicate a possible matrix interference. The BOD/CBOD sample result is an average of all qualified bottles for each dilution series.
- S Surrogate and/or matrix spike recovery is outside of the accepted recovery limits. Sample results may be biased.
- S1 Surrogate or matrix spike recovery is outside of control limits due to dilution necessary for analysis.
- SC Sub-contracted to another laboratory for analysis.
- SP Sample(s) were not collected per EPA Method 5035A protocols. The results are considered minimum values.
- * Value exceeds Maximum Contaminant Level or is outside the acceptable range.<<>>

**DEQ Risk-Based
Concentration
Tables**

3



RISK-BASED CONCENTRATIONS FOR INDIVIDUAL CHEMICALS (This table shows the lower of non-carcinogenic and carcinogenic RBCs and should be used for most screening purposes instead of the Excel version.)

Contaminated Medium	SOIL mg/Kg (ppm)										SOIL mg/Kg (ppm)			SOIL mg/Kg (ppm)			SOIL mg/Kg (ppm)						GROUNDWATER (µg/L (ppb))					
	Soil Ingestion, Dermal Contact, and Inhalation (RBC _{SS})										Volatilization to Outdoor Air (RBC _{SO})			Vapor Intrusion into Buildings (RBC _{SI}) No longer applicable Ø			Leaching to Groundwater (RBC _{SW})						Ingestion & Inhalation from Tapwater (RBC _{TW})					
	Residential		Urban Residential		Occupational		Construction Worker		Excavation Worker		Residential		Urban Residential	Occupational	Residential		Urban Residential	Occupational	Residential		Urban Residential		Occupational		Residential	Urban Residential	Occupational	
Exposure Pathway	Soil Ingestion, Dermal Contact, and Inhalation (RBC _{SS})										Volatilization to Outdoor Air (RBC _{SO})			Vapor Intrusion into Buildings (RBC _{SI}) No longer applicable Ø			Leaching to Groundwater (RBC _{SW})						Ingestion & Inhalation from Tapwater (RBC _{TW})					
Receptor Scenario	Residential		Urban Residential		Occupational		Construction Worker		Excavation Worker		Residential		Urban Residential	Occupational	Residential		Urban Residential	Occupational	Residential		Urban Residential		Occupational		Residential	Urban Residential	Occupational	
Direct or Indirect Pathway (see notes)	DC		DC		DC		DC		DC		IVS		IVS	IVS	IVS		IVS	IVS	IS		IS		IS		DS	DS	DS	
Contaminant	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note		
Acenaphthene	nc, v	4,700	>Csat	9,400	>Csat	70,000	>Csat	21,000	>Csat	590,000	>Csat	-	>Max	-	>Max	-	>Max	-	>Csat	-	>Csat	-	>Csat	510	2,400	2,500		
Acrylonitrile	c, v	0.86		2.5		4.0		40		1,100		1.3		3.1		5.8			0.00036	0.0016	0.0017		0.052	0.23	0.25			
Aldrin	c, v	0.031		0.078		0.13		1.1		30	>Csat	-	>Csat	-	>Csat	-	>Csat		0.023	0.10	0.10		0.00092	0.0042	0.0042			
Anthracene	nc, v	23,000	>Csat	47,000	>Csat	350,000	>Csat	110,000	>Csat	-	>Max	-	>Max	-	>Max	-	>Max		-	>Csat	-	>Csat	-	>S	-	>S		
Arsenic	c, nv	0.43		1.0		1.9		15		420		-	NV	-	NV	-	NV		*	*	*		0.052	0.21	0.31			
Barium	nc, nv	15,000		31,000		220,000		69,000		-	>Max	-	NV	-	NV	-	NV		*	*	*		4,000	15,000	33,000			
Benz[a]anthracene	c, nv	1.1		2.5		21	>Csat	170	>Csat	4,800	>Csat	-	>Csat	-	>Csat	-	>Csat		1.6	6.0	-	>Csat	0.030	0.11	0.38			
Benzene	c, v	8.2		24		37		380		11,000	>Csat	11		27		50			0.023	0.10	0.10		0.46	2.0	2.1			
Benzidine	c, nv	0.00052		0.0012		0.01		0.082		2.3		-	NV	-	NV	-	NV		0.000038	0.00012	0.0007		0.00011	0.00034	0.00190			
Benzo[a]pyrene (BaP equivalents) **	c*, nv	0.11		0.25		2.1		17	>Csat	490	>Csat	-	NV	-	NV	-	NV		4.4	-	>Csat	-	>Csat	0.025	0.080	0.47		
Benzo[b]fluoranthene	c, v	1.1		2.5		21	>Csat	170	>Csat	4,900	>Csat	-	NV	-	NV	-	NV		-	>Csat	-	>Csat	-	>Csat	0.25	0.80	-	>S
Benzo[k]fluoranthene	c, nv	11	>Csat	25	>Csat	210	>Csat	1,700	>Csat	49,000	>Csat	-	NV	-	NV	-	NV		-	>Csat	-	>Csat	-	>Csat	-	>S	-	>S
Beryllium	c*, nv	160		310		2,300		700		19,000		-	NV	-	NV	-	NV		*	*	*		40	150	330			
Bis(2-ethylhexyl)phthalate	c, nv	39		97		160	>Csat	1,300	>Csat	37,000	>Csat	-	NV	-	NV	-	NV		-	>Csat	-	>Csat	-	>Csat	5.6	22	33	
Bromodichloromethane	c, v	3.4		12		15		230		6,300	>Csat	2.4		5.7		11			0.0020	0.0091	0.0088		0.13	0.62	0.6			
Bromoform	c, v	57		170		260		2,700	>Csat	74,000	>Csat	81		190		360			0.046	0.20	0.22		3.3	15	16			
Bromomethane	nc, v	46		92		750		370		10,000	>Csat	170		170		700			0.083	0.30	0.40		7.5	28	36			
Cadmium	c*, nv	78		160		1,100		350		9,700		-	NV	-	NV	-	NV		-	*	*		20	73	160			
Carbon tetrachloride	c, v	7.5		21		34		320		8,900	>Csat	15		35		65			0.013	0.055	0.058		0.46	2.0	2.1			
Chlorobenzene	nc, v	530		1,100	>Csat	8,700	>Csat	4,700	>Csat	130,000	>Csat	-	>Csat	-	>Csat	-	>Csat		5.8	22	27		77	290	350			
Chlorodibromomethane (dibromochloromethane)	c, v	3.7		12		17		210		5,800	>Csat	3.3		7.8		14			0.0024	0.011	0.011		0.17	0.77	0.77			
Chloroethane (ethyl chloride)	nc, v	160,000	>Csat	320,000	>Csat	-	>Max	-	>Max	-	>Max	-	>Csat	-	>Csat	-	>Csat		310	1,100	1,300		21,000	76,000	88,000			
Chloroform	c, v	5.8		22		26		410		11,000	>Csat	3.9		9.2		17			0.0034	0.016	0.015		0.22	1.0	0.98			
Chloromethane	nc, v	1,400	>Csat	2,900	>Csat	25,000	>Csat	25,000	>Csat	700,000	>Csat	-	>Csat	-	>Csat	-	>Csat		2.2	7.9	9.1		190	690	790			
Chlordane	c, v	1.7		4.2		7.4		61	>Csat	1,700	>Csat	-	>Csat	-	>Csat	-	>Csat		0.45	2.1	2.1		0.045	0.20	0.21			
Chromium (III)	nc, nv	120,000		230,000		-	>Max	530,000		-	>Max	-	NV	-	NV	-	NV		*	*	*		30,000	110,000	250,000			
Chromium (VI)	c, nv	0.30		0.67		6.3		49		1,400		-	NV	-	NV	-	NV		-	*	*		0.05	0.16	0.90			
Chrysene	c, nv	110	>Csat	250	>Csat	2,100	>Csat	17,000	>Csat	490,000	>Csat	-	NV	-	NV	-	NV		-	>Csat	-	>Csat	-	>Csat	-	>S	-	>S
Copper	nc, nv	3,100		6,200		47,000		14,000		390,000		-	NV	-	NV	-	NV		*	*	*		800	2,900	6,500			
Cyanide (hydrogen cyanide) ^	nc, v	14		28		170		110		3,000		80		80		340			0.88	3.2	3.9		1.5	5.4	6.5			
DDD (4,4'-Dichlorodiphenyldichloroethane)	c*, nv	2.2		4.4		12		9.7		270		-	NV	-	NV	-	NV		1.1	3.7	2.6		0.031	0.10	0.074			
DDE (4,4'-Dichlorodiphenyldichloroethene)	c, v	1.8		4.5		8.2		66		1,800		-	>Csat	-	>Csat	-	>Csat		1.6	7.4	7.5		0.046	0.21	0.21			
DDT (4,4'-Dichlorodiphenyltrichloroethane)	c, nv	1.9		4.6		8.5		66		1,800		-	NV	-	NV	-	NV		12	46	70		0.23	0.92	1.4			
Dibenz[a,h]anthracene	c, nv	0.11		0.25		2.1		17	>Csat	490	>Csat	-	NV	-	NV	-	NV		-	>Csat	-	>Csat	-	>Csat	0.025	0.080	0.47	
1,2-Dichlorobenzene	nc, v	2,200	>Csat	4,400	>Csat	36,000	>Csat	20,000	>Csat	560,000	>Csat	-	>Csat	-	>Csat	-	>Csat		36	140	160		300	1,200	1,400			
1,4-Dichlorobenzene	c, v	14		62		64		1,300	>Csat	36,000	>Csat	8.1		19		36			0.057	0.27	0.25		0.48	2.3	2.1			
3,3-Dichlorobenzidine	c, nv	1.2		3.0		5.1		42	>Csat	1,200	>Csat	-	NV	-	NV	-	NV		0.17	0.67	1.0		0.17	0.69	1.0			
1,1-Dichloroethane	c, v	58		190		260		3,200	>Csat	89,000	>Max	56		130		240			0.044	0.20	0.20		2.8	13	13			
1,1-Dichloroethene	nc, v	1,800	>Csat	3,500	>Csat	29,000	>Csat	13,000	>Csat	370,000	>Csat	-	>Csat	-	>Csat	-	>Csat		6.7	25	32		280	1,100	1,400			
cis-1,2-Dichloroethene	nc, v	160		310		2,300	>Csat	710		20,000	>Csat	-	>Max	-	>Max	-	>Max		0.63	2.4	4.5		36	140	260			
trans-1,2-Dichloroethene	nc, v	1,600	>Csat	3,100	>Csat	23,000	>Csat	7,100	>Csat	200,000	>Csat	-	>Max	-	>Max	-	>Max		7.0	27	51		360	1,400	2,600			
Dichloroether	c, v	0.29		0.96		1.3		16		450		0.53		1.2		6.9			0.00019	0.00087	0.00087		0.014	0.062	0.063			
Dichloromethane	c, v	76		170		1,600		2,100	>Csat	58,000	>Csat	-	>Csat	-	>Csat	-	>Csat		0.14	0.44	2.4		11	37	200			
Dichlorophenoxyacetic acid, 2,4- (2,4-D)	nc, nv	630	>Csat	1,300	>Csat	8,200	>Csat	2,700	>Csat	74,000	>Csat	-	NV	-	NV	-	NV		2.3	8.8	16		170	670	1,200			
Dieldrin	c, nv	0.034		0.085		0.14		1.2		33	>Csat	-	NV	-	NV	-	NV		0.010	0.037	0.030		0.0017	0.0061	0.005			
Dinitrotoluene, 2,6-	c, nv	0.36		0.90		1.5		13		350		-	NV	-	NV	-	NV		0.0089	0.035	0.049		0.049	0.19	0.27			
Di-N-propylnitrosamine (N-nitroso-di-N-propylamine)	c, nv	0.078		0.19		0.33		2.7		74		-	NV	-	NV	-	NV		0.00094	0.0038	0.0054		0.011	0.043	0.062			

Contaminated Medium	SOIL mg/Kg (ppm)										SOIL mg/Kg (ppm)			SOIL mg/Kg (ppm)			SOIL mg/Kg (ppm)			GROUNDWATER (µg/L (ppb))														
Exposure Pathway	Soil Ingestion, Dermal Contact, and Inhalation (RBC _{SS})										Volatilization to Outdoor Air (RBC _{SO})			Vapor Intrusion into Buildings (RBC _{SI}) No longer applicable Ø			Leaching to Groundwater (RBC _{SW})			Ingestion & Inhalation from Tapwater (RBC _{TW})														
Receptor Scenario	Residential		Urban Residential		Occupational		Construction Worker		Excavation Worker		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational							
Direct or Indirect Pathway (see notes)	DC		DC		DC		DC		DC		IVS		IVS		IVS		IVS		IVS		IVS		IS		IS		IS		DS		DS		DS	
Contaminant	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note		
Dioxane, 1,4-	c, v	5.4		14		24		210		5,900		28		67		370							0.0023		0.0099		0.012		0.46		2.0		2.4	
Diphenylnitrosamine	c, nv	110		280	>Csat	470	>Csat	3,800	>Csat	110,000	>Csat	-	NV	-	NV	-	NV					10		39		45		13		49		57		
EDB (1,2-dibromoethane)	c, v	0.16		0.53		0.73		9.0		250		0.15		0.35		0.65						0.00012		0.00056		0.00056		0.0075		0.034		0.034		
EDC (1,2-dichloroethane)	c, v	3.6		12		16		200		5,600	>Csat	3.4		8.1		15						0.0028		0.013		0.013		0.17		0.78		0.78		
Endosulfan, (alpha-beta)	nc, v	380	>Csat	760	>Csat	4,900	>Csat	1,600	>Csat	45,000	>Csat	-	>Max	-	>Max	-	>Max					-	>Csat	-	>Csat	-	>Csat	98		-	>S	-	>S	
Endrin	nc, nv	19	>Csat	38	>Csat	250	>Csat	80	>Csat	2,200	>Csat	-	NV	-	NV	-	NV					11		-	>Csat	-	>Csat	1.9		9.5		8.6		
Ethylbenzene	c, v	34		110		150		1,700		49,000	>Csat	36		85		160						0.22		0.94		0.90		1.5		6.7		6.4		
Fluoranthene	nc, nv	2,400	>Csat	4,800	>Csat	30,000	>Csat	10,000	>Csat	280,000	>Csat	-	NV	-	NV	-	NV					-	>Csat	-	>Csat	-	>Csat	-	>S	-	>S	-	>S	
Fluorene	nc, v	3,100	>Csat	6,300	>Csat	47,000	>Csat	14,000	>Csat	390,000	>Csat	-	>Max	-	>Max	-	>Max					-	>Csat	-	>Csat	-	>Csat	280		1,400		1,300		
Formaldehyde	c, v	15		69		64		1,600		44,000	>Csat	48		110		630						0.0020		0.0093		0.0086		0.43		2.0		1.0		
Heptachlor	c, v	0.11		0.28		0.45		4.0		110		18		42		230						0.017		0.063		0.048		0.0014		0.0051		0.0039		
Heptachlor Epoxide	c, v	0.055		0.14		0.24		2.0		56		28		66		-	>Csat					0.0042		0.018		0.016		0.0014		0.0059		0.0053		
Hexachlorobenzene	c, v	0.21		0.67		0.93		11		320		1.0		2.4		13						0.018		0.083		0.084		0.0098		0.045		0.045		
Hexachlorocyclohexane, alpha- (alpha-HCH)	c, nv	0.086		0.21		0.36		3.0		83	>Csat	-	NV	-	NV	-	NV					0.0063		0.024		0.023		0.0075		0.028		0.027		
Hexachlorocyclohexane, gamma- (Lindane)	c, nv	0.49		1.2		2.1		17		470	>Csat	-	NV	-	NV	-	NV					0.036		0.13		0.13		0.043		0.16		0.16		
Hexachloroethane	c, v	7.4		24		32		180		5,100	>Csat	8.1		19		36						0.022		0.095		0.087		0.34		1.5		1.3		
Indeno[1,2,3-cd]pyrene	c, nv	1.1	>Csat	2.5	>Csat	21	>Csat	170	>Csat	4,900	>Csat	-	NV	-	NV	-	NV					-	>Csat	-	>Csat	-	>Csat	-	>S	-	>S	-	>S	
Lead	nc, nv	400	L	400	L	800	L	800	L	800	L	L	NV	-	NV	-	NV					30	L	30	L	30	L	15	L	15	L	15	L	
Manganese	nc, nv	1,800		3,600		25,000		8,200		230,000		-	NV	-	NV	-	NV					*		*		*		480		1,800		3,900		
MCPA ((4-chloro-2-methylphenoxy)acetic acid)	nc, nv	32		63		410	>Csat	130		3,700	>Csat	-	NV	-	NV	-	NV					0.097		0.40		0.61		7.4		30		47		
Mercury	nc, nv	23		47		350		110		2,900		-	NV	-	NV	-	NV					*		*		*		6.0		22		49		
MTBE (methyl t-butyl ether)	c, v	250		730		1,100		12,000	>Csat	320,000	>Csat	340		810		1,500						0.11		0.50		0.54		14		64		68		
Naphthalene	c, v	5.3		25		23		580		16,000	>Csat	6.4		15		83						0.077		0.37		0.34		0.17		0.78		0.72		
Nickel	c, nv	1,500		3,100		22,000		7,000		190,000		-	NV	-	NV	-	NV					*		*		*		400		1,500		3,300		
Pentachlorophenol	c, nv	1.0		2.6		4.0		34		960		-	NV	-	NV	-	NV					0.066		0.23		0.17		0.044		0.15		0.12		
Polychlorinated biphenyls (Total PCBs)**	c, v	0.23		0.33		0.59		4.9	>Csat	140	>Csat	-	>Csat	-	>Csat	-	>Csat					0.24		1.1		1.1		0.006		0.028		0.028		
iso-Propylbenzene (cumene)	nc, v	3,500	>Csat	7,000	>Csat	57,000	>Csat	27,000	>Csat	750,000	>Csat	-	>Csat	-	>Csat	-	>Csat					96		-	>Csat	-	>Csat	440		1,800		2,000		
Pyrene	nc, v	1,800	>Csat	3,600	>Csat	23,000	>Csat	7,500	>Csat	210,000	>Csat	-	>Max	-	>Max	-	>Max					-	>Csat	-	>Csat	-	>Csat	110	>S	-	>S	-	>S	
Silver	nc, nv	390		780		5,800		1,800		49,000		-	NV	-	NV	-	NV					*		*		*		100		370		820		
Styrene	nc, v	7,900	>Csat	16,000	>Csat	130,000	>Csat	56,000	>Csat	-	>Max	-	>Csat	-	>Csat	-	>Csat					170		640		800		1,200		4,600		5,700		
2,3,7,8-TCDD (dioxin) equivalents **	c, v	0.0000047		0.000012		0.000016		0.00017		0.0048		0.010		0.024		0.13						6.8E-06		0.000031		0.000031		0.00000091		0.0000042		0.0000042		
Tetrachloroethene (PCE)	c, v	220	>Csat	540	>Csat	1,000	>Csat	1,800	>Csat	50,000	>Csat	-	>Csat	-	>Csat	-	>Csat					0.46		1.9		1.9		12		49		48		
Toluene	nc, v	5,800	>Csat	12,000	>Csat	88,000	>Csat	28,000	>Csat	770,000	>Csat	-	>Csat	-	>Csat	-	>Csat					84		340		490		1,100		4,400		6,300		
Toxaphene	c, nv	0.49		1.2		2.1		17		470		-	NV	-	NV	-	NV					0.36		1.2		0.93		0.015		0.053		0.04		
Trichloro-1,1,2-trifluoroethane, 1,1,2- (Freon 113)	nc, v	400,000	>Csat	800,000	>Csat	-	>Max	-	>Max	-	>Max	-	>Csat	-	>Csat	-	>Csat					-	>Csat	-	>Csat	-	>Csat	55,000		-	>S	-	>S	
Trichloroethane, 1,1,1-	c, v	53,000	>Csat	110,000	>Csat	870,000	>Csat	470,000	>Csat	-	>Max	-	>Csat	-	>Csat	-	>Csat					190		710		880		8,000		30,000		37,000		
Trichloroethane, 1,1,2-	c, v	3.2		6.3		26		54		1,500	>Csat	5.6		6.7		24						0.0063		0.029		0.029		0.28		1.3		1.3		
Trichloroethene	c, v	6.7		17		51		130		3,700	>Csat	15		33		96						0.013		0.053		0.087		0.49		2.0		3.3		
Trichlorofluoromethane (Freon 11)	nc, v	7,600	>Csat	15,000	>Csat	130,000	>Csat	69,000	>Csat	-	>Max	-	>Csat	-	>Csat	-	>Csat					61		230		280		1,100		4,200		5,200		
Trichlorophenol, 2,4,6-	c, nv	49		120		210		270		7,400	>Csat	-	NV	-	NV	-	NV					2.4		8.9		8.9		4.4		17		16		
Trimethylbenzene, 1,2,4-	nc, v	430		860		6,900	>Csat	2,900	>Csat	81,000	>Csat	-	>Csat	-	>Csat	-	>Csat					10		43		48		54		230		250		
Trimethylbenzene, 1,3,5-	nc, v	430	>Csat	860	>Csat	6,900	>Csat	2,900	>Csat	81,000	>Csat	-	>Csat	-	>Csat	-	>Csat					11		45		53		59		240		280		
Vinyl chloride	c, v	0.36		0.80		4.4		34		950	>Csat	5.3		6.5		89						0.00057		0.0014		0.010		0.027		0.066		0.49		
Xylenes	nc, v	1,400	>Csat	2,900	>Csat	25,000	>Csat	20,000	>Csat																									

Contaminated Medium		GROUNDWATER (µg/L (ppb))						GROUNDWATER (µg/L (ppb))						GROUNDWATER (µg/L (ppb))						Soil Vapor (µg/m³)						AIR (µg/m³)					
Exposure Pathway		Volatilization to Outdoor Air (RBC _{wo})						Vapor Intrusion into Buildings (RBC _{wi}) Use Separate DEQ VI RBCs 0						GW in Excavation (RBC _{we})						Vapor Intrusion into Buildings (RBC _{sv}) Use Separate DEQ VI RBCs 0						INHALATION (RBC _{air})					
Receptor Scenario		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		Construction & Excavation Worker		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational					
Direct or Indirect Pathway (see notes)		IVW		IVW		IVW		IVW		IVW		IVW		DS		ICA		ICA		ICA		DCA		DCA		DCA					
Contaminant	Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note						
Acenaphthene	nc, v	-	>S	-	>S	-	>S							-	>S							-	>Pv	-	>Pv	-	>Pv				
Acrylonitrile	c, v	2,200		5,300		9,800								250								0.041		0.098		0.18					
Aldrin	c, v	-	>S	-	>S	-	>S							3.5								0.00057		0.0014		0.0025					
Anthracene	nc, v	-	>S	-	>S	-	>S							-	>S							-	>Pv	-	>Pv	-	>Pv				
Arsenic	c, nv	-	NV	-	NV	-	NV							6,300								0.00065		0.0015		0.0029					
Barium	nc, nv	-	NV	-	NV	-	NV							-	>S							0.52		0.52		2.2					
Benz[a]anthracene	c, v	-	>S	-	>S	-	>S							-	>S							0.017		0.033		0.20					
Benzene	c, v	3,100		7,400		14,000								1,800								0.36		0.85		1.6					
Benzidine	c, nv	-	NV	-	NV	-	NV							17								0.000015		0.000029		0.00018					
Benzo[a]pyrene (BaP equivalents) **	c, nv	-	NV	-	NV	-	NV							-	>S							0.0017		0.0021		0.0088					
Benzo[b]fluoranthene	c, nv	-	NV	-	NV	-	NV							-	>S							0.017		0.033		0.20					
Benzo[k]fluoranthene	c, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Beryllium	c, nv	-	NV	-	NV	-	NV							270,000								0.0012		0.0028		0.0051					
Bis(2-ethylhexyl)phthalate	c, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Bromodichloromethane	c, v	1,400		3,200		6,000								450								0.076		0.18		0.33					
Bromoform	c, v	130,000		300,000		550,000								14,000								2.6		6.0		11					
Bromomethane	nc, v	32,000		32,000		130,000								1,200								5.2		5.2		22					
Cadmium	c, nv	-	NV	-	NV	-	NV							130,000								0.0016		0.0037		0.0068					
Carbon tetrachloride	c, v	1,800		4,200		7,700								1,800								0.47		1.1		2.0					
Chlorobenzene	nc, v	-	>S	-	>S	-	>S							10,000								52		52		220					
Chlorodibromomethane (dibromochloromethane)	c, v	3,900		9,300		17,000								610								0.10		0.25		0.45					
Chloroethane (ethyl chloride)	nc, v	-	>S	-	>S	-	>S							2,400,000								10000		10000		44000					
Chloroform	c, v	1,400		3,400		6,300								720								0.12		0.29		0.53					
Chloromethane	nc, v	440,000		440,000		1,800,000								22,000								94		94		390					
Chlordane	c, v	-	>S	-	>S	-	>S							-	>S							0.028		0.066		0.12					
Chromium (III)	nc, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Chromium (VI)	c, nv	-	NV	-	NV	-	NV							9,400								0.000012		0.000023		0.00015					
Chrysene	c, nv	-	NV	-	NV	-	NV							-	>S							1.7		3.3		>Pv					
Copper	nc, nv	-	NV	-	NV	-	NV							5,400,000								-	>Pv	-	>Pv	-	>Pv				
Cyanide (hydrogen cyanide) ^	nc, v	32,000		32,000		140,000								190								0.83		0.83		3.5					
DDD (4,4'-Dichlorodiphenyldichloroethane)	c, nv	-	NV	-	NV	-	NV							3.2								0.041		0.096		0.18					
DDE (4,4'-Dichlorodiphenyldichloroethene)	c, v	-	>S	-	>S	-	>S							-	>S							0.029		0.068		0.13					
DDT (4,4'-Dichlorodiphenyltrichloroethane)	c, nv	-	NV	-	NV	-	NV							-	>S							0.029		0.068		0.13					
Dibenz[a,h]anthracene	c, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
1,2-Dichlorobenzene	nc, v	-	>S	-	>S	-	>S							37,000								210		210		880					
1,4-Dichlorobenzene	c, v	4,900		12,000		21,000								1,500								0.26		0.6		1.1					
3,3-Dichlorobenzidine	c, nv	-	NV	-	NV	-	NV							-	>S							0.0083		0.020		0.036					
1,1-Dichloroethane	c, v	16,000		37,000		68,000								10,000								1.8		4.1		7.7					
1,1-Dichloroethene	c, v	570,000		570,000		2,400,000								44,000								210		210		880					
cis-1,2-Dichloroethene	nc, v	-	>S	-	>S	-	>S							18,000								-	>Pv	-	>Pv	-	>Pv				
trans-1,2-Dichloroethene	nc, v	-	>S	-	>S	-	>S							180,000								-	>Pv	-	>Pv	-	>Pv				
Dichloroethylether	c, v	5,700		13,000		30,000								51								0.0085		0.02		0.037					
Dichloromethane	c, v	1,000,000	>S	2,000,000	>S	1.3E+07	>S							79,000								100		190		1200					
Dichlorophenoxyacetic acid, 2,4- (2,4-D)	nc, nv	-	NV	-	NV	-	NV							77,000								-	>Pv	-	>Pv	-	>Pv				
Dieldrin	c, v	-	NV	-	NV	-	NV							2.4								0.00061		0.0014		0.0027					
Dinitrotoluene, 2,6-	nc, nv	-	NV	-	NV	-	NV							830								-	>Pv	-	>Pv	-	>Pv				
Di-N-propylnitrosamine (N-nitroso-di-N-propylamine)	c, nv	-	NV	-	NV	-	NV							370								0.0014		0.0033		0.0061					
Dioxane, 1,4-	c, nv	820,000		1,900,000		4,500,000								3,400								0.56		1.3		2.5					
Diphenylnitrosamine	c, nv	-	NV	-	NV	-	NV							-	>S							1.1		2.6		4.7					
EDB (1,2-dibromoethane)	c, v	180		430		790								27								0.0047		0.011		0.020					
EDC (1,2-dichloroethane)	c, v	2,100		4,900		9,000								630								0.11		0.26		0.47					
Endosulfan, (alpha-beta)	nc, v	-	>S	-	>S	-	>S							-	>S							-	>Pv	-	>Pv	-	>Pv				
Endrin	nc, nv	-	NV	-	NV	-	NV							170								-	>Pv	-	>Pv	-	>Pv				

Contaminated Medium		GROUNDWATER (µg/L (ppb))						GROUNDWATER (µg/L (ppb))						GROUNDWATER (µg/L (ppb))						Soil Vapor (µg/m³)						AIR (µg/m³)					
Exposure Pathway		Volatilization to Outdoor Air (RBC _{wo})						Vapor Intrusion into Buildings (RBC _{wi}) Use Separate DEQ VI RBCs 0						GW in Excavation (RBC _{we})						Vapor Intrusion into Buildings (RBC _{sv}) Use Separate DEQ VI RBCs 0						INHALATION (RBC _{air})					
Receptor Scenario		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		Construction & Excavation Worker		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational					
Direct or Indirect Pathway (see notes)		IVW		IVW		IVW		IVW		IVW		IVW		DS		ICA		ICA		ICA		DCA		DCA		DCA					
Contaminant	Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note						
Ethylbenzene	c, v	9,900	>S	23,000	>S	43,000	>S							4,500								1.1		2.7		4.9					
Fluoranthene	nc, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Fluorene	nc, v	-	>S	-	>S	-	>S							-	>S							-	>Pv	-	>Pv	-	>Pv				
Formaldehyde	c*, nv	1,500,000		3,700,000		8,500,000								1,300								0.22		0.51		0.94					
Heptachlor	c, v	-	>S	-	>S	-	>S							1.8								0.0022		0.0051		0.0094					
Heptachlor Epoxide	c, v	-	>S	-	>S	-	>S							3.2								0.0011		0.0026		0.0047					
Hexachlorobenzene	c, v	-	>S	-	>S	-	>S							-	>S							0.0061		0.014		0.027					
Hexachlorocyclohexane, alpha- (alpha-HCH)	c, nv	-	NV	-	NV	-	NV							18	>S							0.0016		0.0037		0.0068					
Hexachlorocyclohexane, gamma- (Lindane)	c, nv	-	NV	-	NV	-	NV							100								0.0091		0.021		0.040					
Hexachloroethane	c*, v	5,000		12,000		22,000								700								0.26		0.60		1.1					
Indeno[1,2,3-cd]pyrene	c, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Lead	nc, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Manganese	nc, nv	-	NV	-	NV	-	NV							3,200,000								0.052		0.052		0.22					
MCPA ((4-chloro-2-methylphenoxy)acetic acid)	nc, nv	-	NV	-	NV	-	NV							1,700								-	>Pv	-	>Pv	-	>Pv				
Mercury	nc, nv	-	NV	-	NV	-	NV							-	>S							0.31		0.31		1.3					
MTBE (methyl t-butyl ether)	c, v	350,000		830,000		1,500,000								63,000								11		26		47					
Naphthalene	c, v	3,600		8,500		16,000	>S							500								0.083		0.20		0.36					
Nickel	c*, nv	-	NV	-	NV	-	NV							-	>S							0.011		0.026		0.047					
Penlchlorophenol	c, nv	-	NV	-	NV	-	NV							53								0.55		1.3		2.4					
Polychlorinated biphenyls (Total PCBs) **	c*, v	-	>S	-	>S	-	>S							30								0.0038		0.0090		0.017					
iso-Propylbenzene (cumene)	nc, v	-	>S	-	>S	-	>S							51,000								420		420		1800					
Pyrene	nc, v	-	>S	-	>S	-	>S							-	>S							-	>Pv	-	>Pv	-	>Pv				
Silver	nc, nv	-	NV	-	NV	-	NV							1,100,000								-		-		-					
Styrene	nc, v	-	>S	-	>S	-	>S							170,000								1000		1000		4400					
2,3,7,8-TCDD (dioxin) equivalents **	c, v	0.022		0.052		0.11								0.00045								5.6E-8		1.3E-7		2.5E-7					
Tetrachloroethene (PCE)	c*, v	64,000		150,000		-	>S							5,600								11		26		47					
Toluene	nc, v	-	>S	-	>S	-	>S							220,000								5200		5200		22000					
Toxaphene	c, nv	-	NV	-	NV	-	NV							18								0.0088		0.021		0.038					
Trichloro-1,2,2-trifluoroethane, 1,1,2- (Freon 113)	nc, v	-	>S	-	>S	-	>S							-	>S							31000		31000		130000					
Trichloroethane, 1,1,1-	nc, v	-	>S	-	>S	-	>S							1,100,000								5200		5200		22000					
Trichloroethane, 1,1,2-	c*, v	4,700		5,600		21,000								49								0.18		0.21		0.77					
Trichloroethene	c*, v	3,300		6,900		20,000								430								0.47		1.0		2.9					
Trichlorofluoromethane (Freon 11)	nc, v	780,000		780,000		-	>S							160,000								730		730		3,100					
Trichlorophenol, 2,4,6-	c*, nv	-	NV	-	NV	-	NV							1,700								0.91		2.1		4.0					
Trimethylbenzene, 1,2,4-	nc, v	-	>S	-	>S	-	>S							6,300								63		63		260					
Trimethylbenzene, 1,3,5-	nc, v	-	>S	-	>S	-	>S							7,500								63		63		260					
Vinyl chloride	c, v	350		430		5,900								960								0.17		0.20		2.8					
Xylenes	nc, v	-	>S	-	>S	-	>S							23,000								100		100		440					
Generic Gasoline	nc, v	>S		>S		>S								14,000								390		390		1,700					
Generic Diesel/Heating Oil	nc, v	>S		>S		>S								>S								100		100		440					
Generic Mineral/Insulating Oil	nc, nv	>S		>S		>S								>S								150		150		620					

NOTES:
 Direct or Indirect Pathway Codes have the following meanings: DC means it is a direct contact pathway with a limiting value of Csat. IVS means it is an indirect pathway with a limiting value of Csat. DS means it is a direct contact pathway with a limiting value equal to the solubility, S. IVW means it is an indirect pathway with a limiting value equal to the solubility, S. DCA means it is a direct contact pathway with a limiting value equal to the vapor pressure, Pv.
 The symbols in the "Note" columns are explained below. The references can be found in *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (DEQ, 2003)
 c This chemical is a known or suspected carcinogen. The RBCs in this row were calculated using equations for carcinogens.
 c* The RBCs in this row were calculated using equations for both carcinogens and noncarcinogens (where lower). For some scenarios the RBCs based on non-carcinogenic effects are lower than RBCs based on cancer effects for these chemicals. You should use the lower of the calculated RBCs for each exposure scenario, as shown in this table.
 >Csat This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to "ChemData" page for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present. See Section B.2.1.4 for additional information.
 L The values for lead reported in this table are not calculated. See Section B.3.4 for the source of the lead numbers and information on applying them.
 >Max The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.



NA
nc
nv
>Pv
>S
v
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Not Available.

This chemical is a noncarcinogen. The RBCs in this row were calculated using equations for noncarcinogens. When carcinogenic RBCs can be calculated and the noncancer RBC is lower, (nc) is shown in the notes.

This chemical is considered "nonvolatile" for purposes of the exposure calculations. A chemical is defined as nonvolatile if the Henry's law constant is less than 1×10^{-5} atm/m³-mole and vapor pressure less than one mm mercury.

The air concentration reported for the RBC exceeds the vapor pressure of the pure chemical. It can be assumed that this constituent cannot create an unacceptable risk by this pathway. See Section B.2.1.4 for additional information.

This groundwater RBC exceeds the solubility limit. Refer to Appendix D for the corresponding value of S. Groundwater concentrations in excess of S indicate that free product may be present. See Section B.2.1.4 for additional information.

This chemical is classified as "volatile" for purposes of the exposure calculations in this document. A chemical is defined as volatile if the Henry's law constant is greater than or equal to 1×10^{-5} atm/m³-mole or vapor pressure greater than or equal to one mm mercury.

Leaching-to-Groundwater RBCs are not provided for inorganic chemicals. If this pathway is of concern, then site-specific leaching tests must be performed.

Compounds in this category are considered in aggregate as a chemical class and should be evaluated as single substances. See notes to accompany Risk-Based Concentrations for Individual Chemicals, November 1, 2015.

When "Show All Values" is not selected on the Main Menu, all RBC values for indirect pathways that exceed a limit (C_{sat}, S, or Pv) are removed from the table and replaced with "-". If you suspect that a chemical may be present at high concentrations on airborne dust rather than vapor, the vapor pressure limit does not apply, so use the RBC_{air} value.

DEQ no longer screens vapor intrusion risks based on soil data.

Vapor intrusion RBCs are now in a separate DEQ RBC table for screening vapor intrusion risk from groundwater and soil vapor.

Eureka, CA | Redding, CA | Willits, CA | Fort Bragg, CA | Coos Bay, OR | Klamath Falls, OR

