

TECHNICAL MEMORANDUM

To: Frank Winslow
From: Craig Hultgren, LHG
Date: January 11, 2022
Subject: Coleman Oil, Wenatchee, Washington – Planned Remedial Action for 2022

INTRODUCTION

HydroCon Environmental, LLC (HydroCon) has prepared this technical memorandum to provide a summary of planned operations in 2022 of the remediation system located at the Coleman Oil facility in Wenatchee, Washington (the Site). A description of the remediation system and application of the treated water is provided below. The site location is shown on Figure 1.

GROUNDWATER RECOVERY, TREATMENT AND RECIRCULATION SYSTEM

The Site's groundwater treatment system was upgraded in 2020. The new system was activated in August 2020 and recirculates treated water into sumps located in the uplands area of the Site instead of discharging it into the City of Wenatchee's sanitary sewer system. Petroleum contaminated water is collected from 9 pumping wells (MW09R, MW10R, BH01R, MW17, MW24, MW28, MW29, MW30, and MW32) and treated using granular activated carbon (GAC). The treated water is temporarily placed into the storage tanks located in Tank Farm A. The treated water is enriched with oxygen using hydrogen peroxide (H₂O₂) and then discharged into one or more of the sumps that were placed in the uplands area. This creates a closed loop system designed to promote soil flushing enhance the biologic degradation of residual hydrocarbons in groundwater at the Site. Site features are shown on Figure 2.

APPLICATION OF TREATED WATER TO THE SUBSURFACE

Treated water from the remediation system is placed into one or more of the sumps that were placed in the uplands area during remedial excavations in 2017 and 2019. The remediation system was constructed with a manifold system that allows placement of the treated water into specific sump(s). HydroCon reviews the analytical results of the most recent groundwater sampling event and targets areas of higher contaminant concentrations for the application of the treated water. The concentration of gasoline range petroleum hydrocarbons (GRPH) and diesel range petroleum hydrocarbons (DRPH) and the location of the sumps and pumping wells is shown on Figures 3 and 4.

OPERATIONS AND MAINTENANCE

The new treatment system has been automated and requires less manpower to operate and maintain. Therefore, Coleman Oil has decided to take over the operations and maintenance (O&M) and Columbia River level monitoring and boom management at the site. Mr. Jim Clayson is on site every day to

monitor the remediation system, monitor the water level in the Columbia River, monitor the river for the presence or absence of petroleum hydrocarbon sheen, collect water and product levels in the site monitoring and pumping wells, compare the water level in the pumping wells to the water level settings programmed for each pumping well, and document the information in daily reports with spreadsheets. Mr. Clayson works closely with HydroCon to troubleshoot the system, perform routine maintenance, obtain site specific information as needed, and coordinate contractors and delivery of supplies. Monthly Progress reports are prepared by HydroCon to summarize system performance, sheen monitoring results, product thickness in site monitoring wells (when present), volume of water treated and volume of hydrogen peroxide used at the site. The report also documents all maintenance, repairs, carbon and boom change outs and hydrogen peroxide delivery.

ANNUAL MEETING

An annual meeting that included representatives of Coleman Oil (Mr. Jim Cach), Ecology (Mr. Frank Winslow) and HydroCon (Mr. Craig Hultgren) occurred on August 16, 2021. The topic of the meeting was to review work performed in 2021 and discuss work planned in 2022. The remediation system is the selected remedy for the site and appears to be working, as intended. Adjustments in 2022 will include doubling the rate of hydrogen peroxide injection to the treated water prior to discharge into the selected sumps. Groundwater monitoring will be performed on a semi-annual basis. The planned groundwater monitoring events in 2022 are tentatively scheduled to occur in February and August.

Please contact the undersigned at (360) 703-6079 if you have any questions regarding the information provided in this memorandum.

Sincerely,

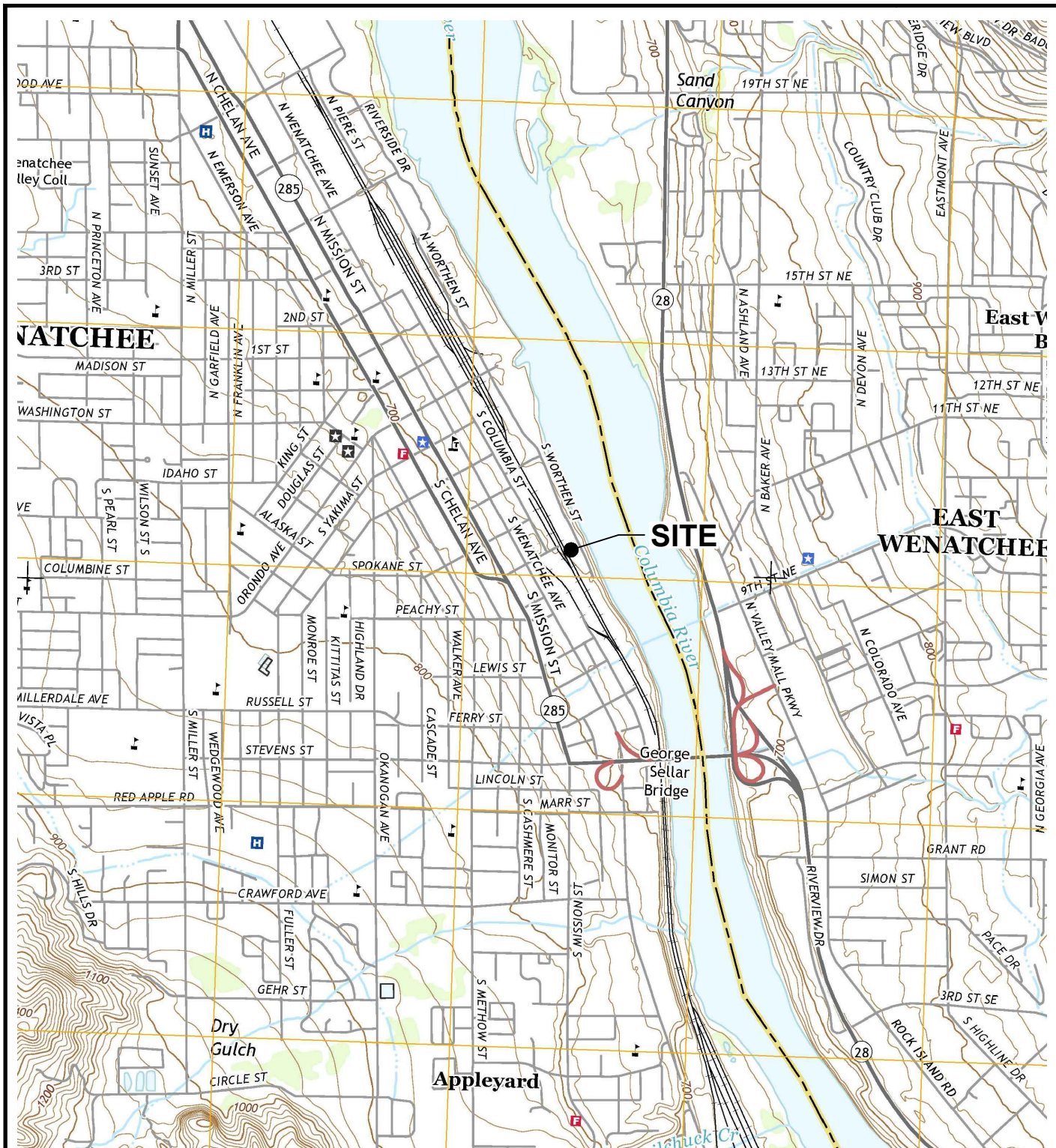
A handwritten signature in black ink, appearing to read "CH", with a stylized flourish at the end.

Craig Hultgren, LHG
Principal Geologist

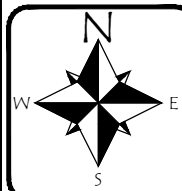
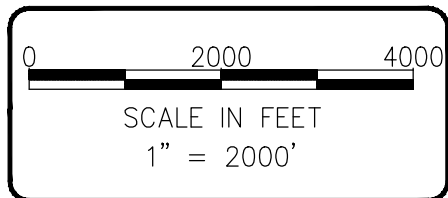
Figures

- Figure 1 – Site Location Map
- Figure 2 – Site Features
- Figure 3 – DRPH in Groundwater
- Figure 4 – GRPH in Groundwater

FIGURES



NOTE(S):
USGS, WENATCHEE QUADRANGLE
WASHINGTON
7.5 MINUTE SERIES (TOPOGRAPHIC)

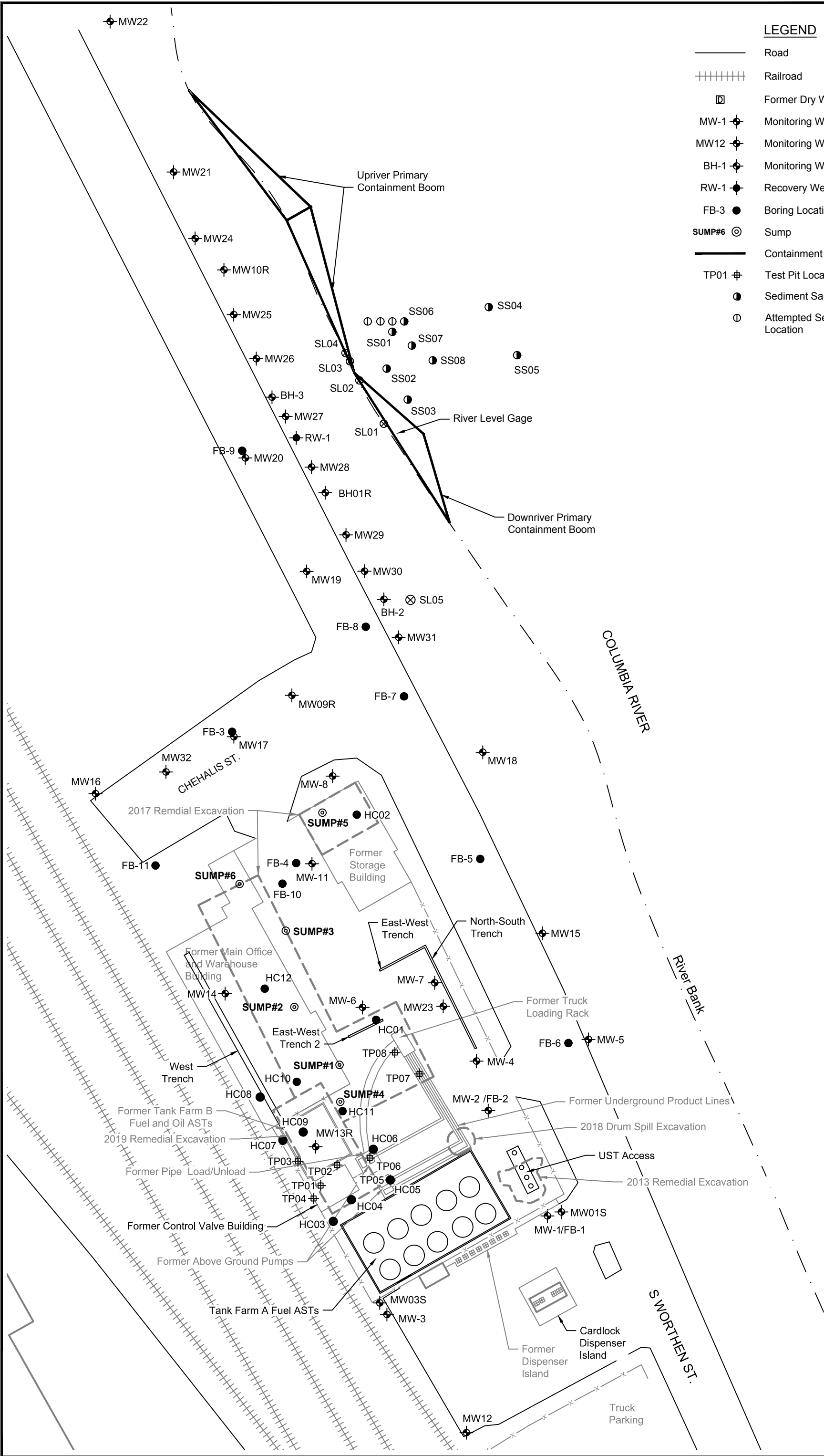


DATE: 10-18-18
DWN: JJT
CHK: RH
APPROVED: RH
PRJ. MGR: CH
PROJECT NO:
2017-074

FIGURE 1
SITE LOCATION MAP

COLEMAN OIL COMPANY
3 CHEHALIS ST.
WENATCHEE, WA.

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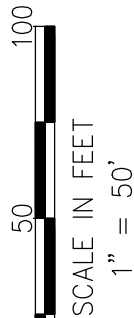


LEGEND

- Road
- +++++ Railroad
- ◻ Former Dry Well
- MW-1 Monitoring Well (FARALLON)
- MW12 Monitoring Well (HydroCon)
- BH-1 Monitoring Well (EPI, 2017)
- RW-1 Recovery Well (FARALLON)
- FB-3 Boring Locations
- SUMP#6 Sump
- Containment Booms
- TP01 Test Pit Locations
- Sediment Sample Locations
- Attempted Sediment Sample Location

FIGURE 2
SITE FEATURES
COLEMAN OIL COMPANY
3 CHEHALIS ST.
WENATCHEE, WA.

DATE: 1-10-20
DWN: JJT
CHK: CH
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PROJECT NO: 2017-074



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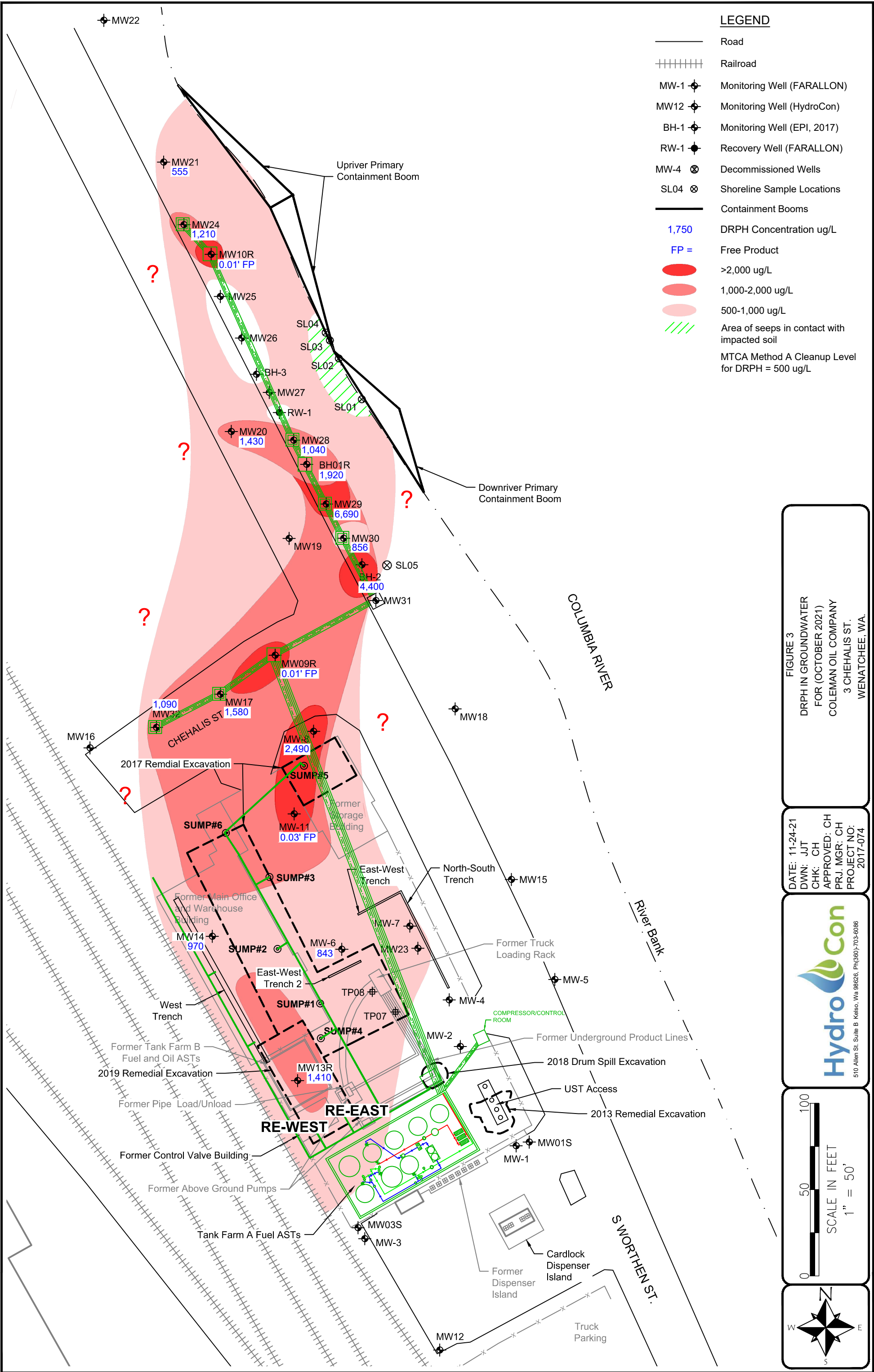


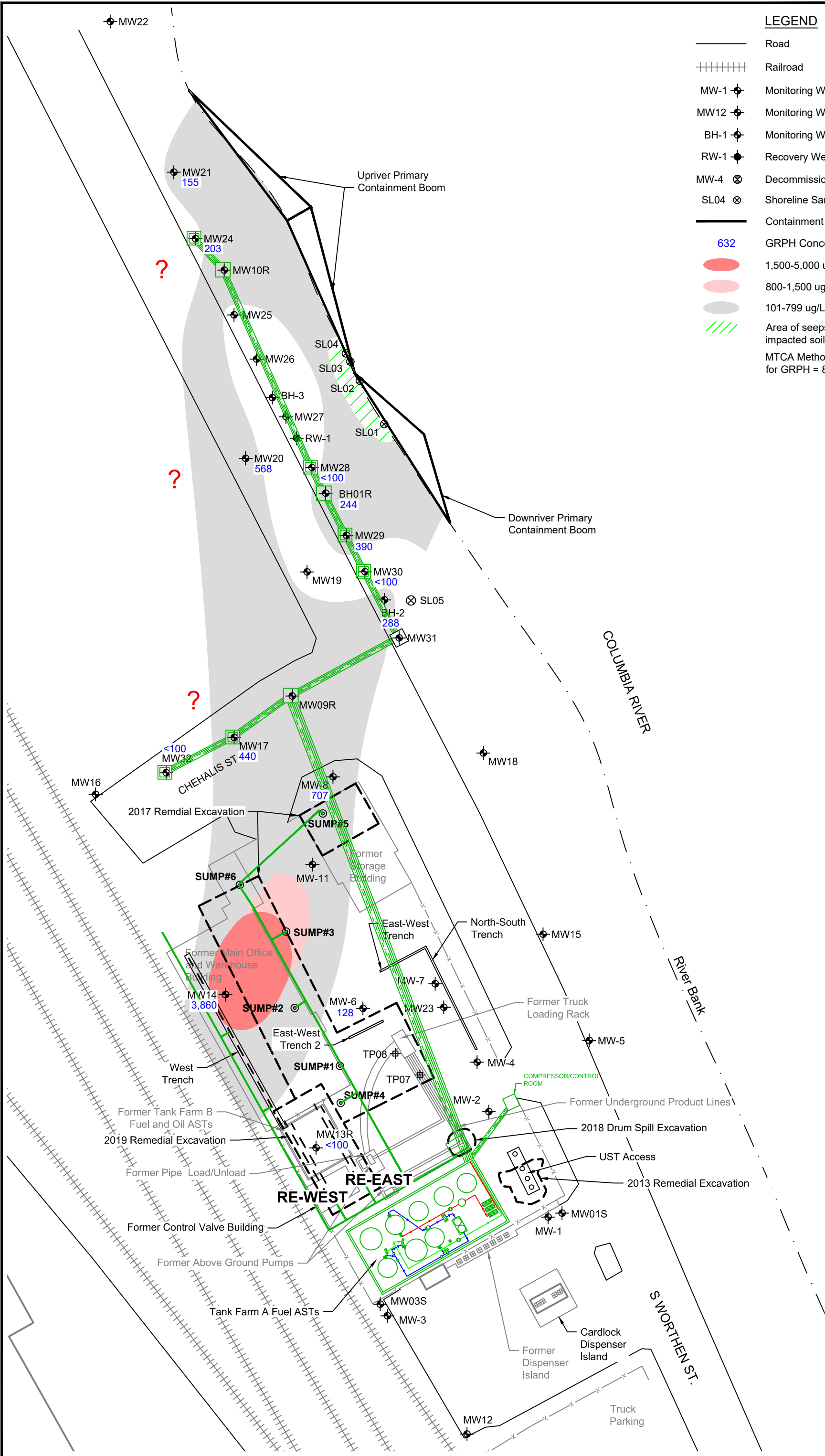
FIGURE 3
DRPH IN GROUNDWATER
FOR (OCTOBER 2021)
COLEMAN OIL COMPANY
3 CHEHALIS ST.
WENATCHEE, WA.

DATE: 11-24-21
DWN: JJT
CHK: CH
APPROVED: CH
PRJ MGR: CH
PROJECT NO: 2017-074

510 Allen St. Suite B Kelso, Wa 98626, PH(360)-703-6086

100
50
0

SCALE IN FEET
1" = 50'



LEGEND

- Road
- Railroad
- MW-1 Monitoring Well (FARALLON)
- MW12 Monitoring Well (HydroCon)
- BH-1 Monitoring Well (EPI, 2017)
- RW-1 Recovery Well (FARALLON)
- MW-4 Decommissioned Wells
- SL04 Shoreline Sample Locations
- Containment Booms
- 632 GRPH Concentration
- 1,500-5,000 ug/L
- 800-1,500 ug/L
- 101-799 ug/L
- Area of seeps in contact with impacted soil
- MTCA Method A Cleanup Level for GRPH = 800 ug/L

FIGURE 4
GRPH IN GROUNDWATER
FOR (OCTOBER 2021)
COLEMAN OIL COMPANY
3 CHEHALIS ST.
WENATCHEE, WA.

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