

# **TIME-CRITICAL REMOVAL ACTION REPORT**

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*Onalaska Wood Pyrolysis  
Onalaska, Lewis County, Washington*

*SSID: 10TH*

*Contract No.: 68HE0720D0005*

*Task Order No.: 68HE0721F0069*



Prepared for:

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## LIST OF ATTACHMENTS\*

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- Attachment A Digital Photograph Report
- Attachment B Site Logbooks
- Attachment C 2021 TCRA Waste Sample Data
- Attachment D Laboratory Data Packages
- Attachment E Data Quality Assurance Review Memoranda

**\*Attachments listed are provided in this portable document format (PDF) report.**

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- Figure 1-1 Site Location Map
- Figure 1-2 Site Area Map
- Figure 2-1 Site Plan

**\*Figures listed are provided in this PDF report.**

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**LIST OF ACRONYMS**

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AST	aboveground storage tank
CFR	Code of Federal Regulations
CJC	CJC West, LLC
COC	contaminant of concern
CY	cubic yard
DMP	Data Management Plan
DOT	U.S Department of Transportation
EPA	U. S. Environmental Protection Agency
Ecology	Washington State Department of Ecology
EMB	Emergency Management Branch
EQM	Environmental Quality Management
ERRS	Emergency and Rapid Response Services
HASP	Health and Safety Plan
HAZCAT	Hazard Categorization
ID	Identification
mg/m <sup>3</sup>	milligrams per cubic meter
NaOH	Sodium hydroxide
NCP	National Contingency Plan
o-cresol	2-methyphenol
OSC	On-Scene Coordinator
OWE	Onalaska Wood Energy, LLC
PAH	polycyclic aromatic hydrocarbons
p-cresol	4-methyphenol
PDF	portable document format
PM	particulate matter
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act
RDMP	Regional Data Management Plan

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**LIST OF ACRONYMS (CONTINUED)**

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RML	Removal Management Level
RSE	Removal Site Evaluation
SAP	Sampling and Analysis Plan
Site	Onalaska Wood Pyrolysis Site
SEMS	Superfund Enterprise Management System
SSID	Site Spill Identification
START	Superfund Technical Assessment and Response Team
SVOC	semi volatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
TCRA	Time-Critical Removal Action
TWA	time-weighted average
VOC	volatile organic compound
Water District	Lewis County Water District #2
WESTON®	Weston Solutions, Inc.

## EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA) tasked Weston Solutions, Inc. (WESTON®) the Superfund Technical Assessment and Response Team (START) to provide technical support and documentation of on-site activities conducted by EPA and Emergency Response and Rapid Services (ERRS) contractor, Environmental Quality Management (EQM), during the Time-Critical Removal Action (TCRA) at the Onalaska Wood Pyrolysis Site (Site) located in Onalaska, Lewis County, Washington. This work was completed under START Contract No. 68HE0720D0005 and Task Order No. 68HE0721F0069. The Superfund Enterprise Management System (SEMS) Identification (ID) number for the Site is WAN001020623. The TCRA was initiated following the EPA Removal Site Evaluation (RSE) conducted during two site visits in March and April 2021 where waste sample analytical results indicated the presence of site-specific contaminants of concern (COCs). The COCs included benzene, 2-methyphenol (o-cresol) and 4-methyphenol (p-cresol), along with other polycyclic aromatic hydrocarbons (PAHs) that exceeded EPA Resource Conservation Recovery Act (RCRA) Hazardous Waste criteria, EPA Removal Management Levels (RMLs), and/or Washington State Dangerous Waste regulations.

TCRA activities were completed between 14 June 2021 and 29 July 2021. START conducted perimeter and on-site air monitoring, collected samples for waste characterization, compiled logbook and photographic documentation of Site conditions and ERRS removal activities. START conducted air monitoring throughout the removal action for particulate matter (PM) and toxic vapors using TSI DustTrak™ II 8530 particulate monitors and AreaRAE® monitors, respectively. No PM or toxic vapors exceeded the Site-specific action levels during the removal action activities.

The following waste was consolidated, processed, and disposed of by EPA during the TCRA:

- A total of 68,972 gallons of liquid RCRA Hazardous Waste
- A total of 22,800 gallons of liquid Washington State Dangerous Waste
- A total of 450 cubic yards (CY) of solid RCRA Hazardous Waste (260 CY of solid waste and 190 CY of contaminated debris)

- Based on First Step hazardous categorization results of 193 unknown containers located on-site, 15 different Department of Transportation (DOT) waste streams were generated and bulked into 24 containers.
- An estimated 140 CY of scrap metal was recycled.

START prepared this report to describe the technical scope of work completed under the TCRA conducted at the Onalaska Wood Pyrolysis Plant site. The EPA On-Scene Coordinator (OSC) was Brooks Stanfield.

# 1 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) tasked Weston Solutions, Inc. (WESTON®), under Superfund Technical Assessment and Response Team (START) Contract No. 68HE0720D0005 and Task Order No. 68HE0721F0069, to provide technical support and documentation during Time-Critical Removal Action (TCRA) activities conducted at the Onalaska Wood Pyrolysis Site (Site) located at 1674 State Highway 508 in Onalaska, Lewis County, Washington. A Site Location Map and Site Area Map are presented as Figures 1-1 and 1-2, respectively. The Superfund Enterprise Management System (SEMS) Identification (ID) for the Site is WAN001020623. EPA was supported by START and the Emergency Rapid Response Service (ERRS) contractor, Environmental Quality Management (EQM), during the TCRA activities that began in June 2021 and ended in July 2021. This report has been prepared to describe the technical scope of work completed during the Onalaska Wood Pyrolysis TCRA carried out by EPA.

## 1.1 PROJECT OBJECTIVES

The primary objectives of this TCRA were to eliminate the threat to public health and the environment, as related to criteria set forth in *40 Code of Federal Regulation (CFR) 300.415(b)*, posed by a release of liquid hazardous and solid waste associated with the Site.

The TCRA was initiated based on previous investigations conducted by the Washington Department of Ecology (Ecology), and the 2021 Removal Site Evaluation (RSE) (WESTON, 2021a). The previous investigations identified concentrations of volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs), including wood tar and wood vinegar, which are designated as Washington State Dangerous Waste and/or RCRA hazardous waste. Based on these findings and on a formal request from Ecology, EPA completed an Action Memorandum dated May 18, 2021, authorizing the removal of hazardous waste from the Site. The action memorandum met several factors under Section 300.415(b)(2) of the *National Contingency Plan* (NCP) including the following:

- Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants, or contaminants.
- Actual or potential contamination of drinking water supplies or sensitive ecosystems.
- Hazardous substances, pollutants, or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.
- Weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or be released.
- Threat of fire or explosion.
- The availability of other appropriate federal or state response mechanisms to respond to the release.

## 1.2 SCOPE OF WORK

The START scope of work for the Onalaska Wood Pyrolysis Plant TCRA included providing technical assistance to EPA and the ERRS contractor, conducting perimeter and on-site air monitoring, collecting waste material samples, subcontracting laboratory analysis, conducting data validation, and managing data. START also provided written and digital documentation of Site activities.

Additional START TCRA activities included:

- Developing a site-specific Sampling and Analysis Plan (SAP) WESTON, 2021b, Site Specific Data Management Plan (SSDMP) WESTON, 2021c, and Health and Safety Plan (HASP).
- Assisting with the consolidation, bulking, and ultimate disposal of liquid waste at an EPA-approved facility.
- Conducting First Step Hazard Categorization on numerous, miscellaneous containers for eventual bulking and ultimate waste disposal at an EPA-approved facility.
- Serving as Site Safety Officer and using particulate and toxic vapor air monitoring instruments, while adhering to standard cleanup safety practices, to ensure the safety of workers and the nearby community during the removal operations.

The ERRS contractors were responsible for the removal of identified hazardous substances on-site, profiling, transportation, and disposal to EPA-approved disposal facilities, while maintaining engineering controls to minimize off-site migration of Site-related COCs. ERRS removal and

disposal activities included the bulking of liquid waste, pH buffering of liquid to expedite the disposal of liquid waste, consolidation of solid waste, arranging of transportation and disposal services for solid and hazardous waste, and decontamination of secondary containment areas. ERRS was responsible for decontamination of equipment, and dust control throughout the removal operations.

### **1.3 REPORT FORMAT**

This report has been organized as follows:

- Section 1 – Introduction
- Section 2 – Site Description and Background
- Section 3 – Actions Taken
- Section 4 – Analytical Data
- Section 5 – Final Site Conditions and Summary
- Section 6 – References

Figures, tables, and appendices referred to in this report are presented in this portable document format (PDF) report.

## 2 SITE DESCRIPTION AND BACKGROUND

Information regarding the Site location and description, operational history, and previous investigations is included in this section.

### 2.1 SITE LOCATION AND DESCRIPTION

<b>Site Name:</b>	Onalaska Wood Pyrolysis Plant
<b>Location:</b>	1674 State Highway 508, Onalaska, WA 98532
<b>SEMS ID:</b>	WAN001020623
<b>SSID:</b>	10TH
<b>Latitude, Longitude:</b>	46.572695° North, 122.729594° West

The Onalaska Wood Pyrolysis Plant is located at 1674 State Highway 508, Onalaska, Lewis County, Washington. The Site includes an 8-acre former sawmill that was converted into an industrial facility for the pyrolysis of wood waste in 2015. Residential and agricultural land surround the Site. The Site is bordered to the north by State Highway 508, to the east by an inactive lumber yard and residence, to the south by a Lewis County Water District #2 (Water District) wastewater treatment plant, and to the west by a residential area. A Site Plan is provided as Figure 2-1

The Site consisted of:

- open-air warehouse/former sawmill building on the northern area of the Site
- open-air warehouse/former sawmill building on the southern area of the Site
- dry kiln building
- lean to/outdoor overhang area
- secondary containment with five Aboveground Storage Tanks (ASTs)
- two standalone 500-gallon poly tanks
- pyrolysis building
- wood chip storage tents
- stormwater ponds

- biochar pile
- fire station pump house
- AST for process water storage
- a vacant residence

Most of the Site property was paved or covered by facility buildings and/or debris; the west and south sides of the Site were heavily vegetated. The topography at the Site slopes to the northwest, and west. Overland flow pathway is to the north/northwest into an off-site drainage ditch that flows west along the northern boundary of the Site along State Highway 508. The drainage ditch discharges into Gheer Creek, the closest surface water body, which is located approximately 150 feet (ft) from the northwest corner of the Site. Gheer Creek originates from Carlisle Lake, which is less than half a mile from the Site and is a tributary of the South Fork Newaukum River, Carlisle Lake subsequently flows into the South Fork Newaukum River and eventually into the Chehalis River. Gheer Creek supports native runs of Chinook salmon, along with stocks of hatchery-produced coho salmon and steelhead. Gheer Creek specifically serves as a rearing habitat for juvenile coho and steelhead as part of an aquaculture technical program at Onalaska High School.

## **2.2 SITE OPERATIONAL HISTORY**

The Site originally operated as a former open-air sawmill facility that was converted into a pyrolysis plant in 2015 by Onalaska Wood Energy, LLC (OWE). OWE began pyrolysis activities at the Site and operated from 2015 to 2018 under a lease agreement. The pyrolysis process generated a wood Biochar product that could be sold primarily as a soil amendment for agricultural applications. Wood tar and wood vinegar were two additional principal byproducts that were generated in the pyrolysis process. OWE reported to Ecology that concentrations of toxics in the wood tar and wood vinegar did not exceed state and federal hazardous waste thresholds and that there was a market for their resale. OWE was unsuccessful in providing verifiable analytical data to support these claims and never successfully identified a resale market for the waste. In March 2020, OWE ceased operations leaving an estimated 100,000 gallons of accumulated wood tar and wood vinegar waste on the Site.

On June 30, 2020, Ecology's Southwest Regional Office received a letter from the Water District expressing concerns that a new company had restarted pyrolysis operations at the Site. The Water District operates the community's only wastewater treatment plant, which is located adjacent to the Site. The letter explained how past practices of "dumping toxic industrial waste" into the county sewer system had disrupted the plant's treatment processes. The letter also recounted that after the Water District requested OWE to provide information on the contents of the waste OWE had released into the sewer, OWE reportedly began dumping the material directly onto the ground, which migrated into the treatment plant via a drainage ditch.

Following up on the Water District's complaint, Ecology learned that a new entity, CJC West, LLC (CJC), had taken over the pyrolysis operations and equipment at the Site. Ecology issued CJC a Notice to Comply on September 16, 2020. The notice cited violations of the conditions for exemption for large quantity waste generators and directed CJC to take specific actions to safely manage and dispose of the waste that had accumulated on-site. Ecology never received a formal response from CJC following the issuance of the notice. In December 2020, Ecology contacted EPA to discuss the potential human health and environmental risks at the Site as well as waste removal options. CJC ceased operations at the Site in February 2021 and did not respond to subsequent inquiries made by Ecology.

### **2.3 SUMMARY OF PREVIOUS INVESTIGATIONS AND SITE VISITS**

The Site has been the focus of several environmental inspections and compliance concerns over the past 5 years.

#### **2016 Washington Department of Ecology Site Visit**

In 2016, while the facility was in operation, Ecology conducted a Site visit and collected samples from the wood tar/wood vinegar mixture and sent them for laboratory analysis. The analytical results reported concentrations of phenol, 2-butanone, benzene, and xylene, among other VOCs, and several PAHs. The concentrations of 2-butanone and benzene exceeded the Resource Conservation and Recovery Act (RCRA) characteristics for Hazardous Waste. The wood tar/wood vinegar mixture was designated as a characteristic Hazardous Waste with RCRA waste codes

D035 (2-butanone) and D018 (benzene). OWE left the wood tar/wood vinegar mixture in several hundred containers located on-site.

### **2020/2021 Lewis County Fire Marshal Site Visit**

Two fires reportedly occurred at the Site between December 2020 and January 2021 resulting in site visits and a subsequent Lewis County Building Official/Fire Marshal report. The fire marshal reported a fire hazard concern from a large volume of dried woodchips throughout the Site. They were also concerned about the approximately 40,000 gallons of liquid hazardous waste stored in 275-gallon totes inside a structurally unsound building that was at risk of collapsing in a snow or high wind event.

### **2021 EPA Removal Site Evaluation**

Concerns among state and county officials increased over the continued presence of hazardous waste following the two separate fire incidents reported above. Based on the Site's history and concerns over the impact on local estuaries, EPA conducted a RSE in March 2021 and April 2021 to assess the presence, concentrations, and migration pathways of hazardous substances at the Site to determine risks of exposure. During the RSE, EPA observed an estimated 100,000 gallons of wood tar/wood vinegar mixture being stored in five ASTs (three 8,000-gallon poly ASTs, one 3,000-gallon poly AST, an 800-gallon steel AST, two 500-gallon poly containers, and two-hundred-and-eighty-eight 275-gallon poly totes) at the Site. The majority of hazardous waste was outside or within buildings that were not secure and provided no secondary containment. The five ASTs were located within a concrete secondary containment that had an estimated 15,000 gallons of a rainwater and wood vinegar/tar mixture. An unknown amount of wood tar was observed in the bottom of the secondary containment. Cracks in the secondary containment and visual evidence of the secondary containment historically overflowing had led to staining of the surrounding soil.

Wood vinegar samples showed pH consistently between 1.8 and 3. Two contaminants, 2-methylphenol (o-cresol) and 4-methylphenol (p-cresol), were detected in wood vinegar at concentrations high enough to be designated as a D023 and D024 characteristic RCRA Hazardous Wastes for toxicity. Both are acutely toxic to humans through dermal contact.

Concentrations of naphthalene and 2,4-dimethylphenol in wood tar exceeded EPA Removal Management Levels (RMLs). Due to elevated benzene, the wood tar waste was designated as a D018 RCRA Hazardous Waste.

### **3 ACTIONS TAKEN**

The TCRA project team consisted of EPA, ERRS, and START. Removal actions took place between June 14, 2021, and July 29, 2021, under the direction of the EPA OSC, Brooks Stanfield.

START provided written and photographic documentation, air monitoring, sampling to assist ERRS with bulking of solid waste operations, and technical assistance during the removal activities. START initiated container sampling, First Step Hazard Categorization, and research to aid in the disposal of approximately 193 unknown containers. This information was provided to EPA and ERRS to determine appropriate Department of Transportation (DOT) hazard categories for bulking and disposal purposes.

ERRS was responsible for the removal and disposal of waste containers and their contents. The ERRS TCRA included preparing the poly totes and ASTs for wood vinegar decanting removal; pH balancing/preparing wood vinegar as needed prior to transportation to disposal facilities; wood tar removal from totes and ASTs for solidification with woodchips; and deconstructing of poly totes and ASTs for transportation to EPA-approved disposal facilities.

Digital photographs are provided as Attachment A and Site logbook notes are provided as Attachment B.

#### **3.1 HEALTH AND SAFEETY**

HASPs were developed by START and ERRS prior to mobilization to the Site. START assisted EPA with developing an “Umbrella” HASP that incorporated the ERRS and START HASPs and included the following elements:

- Safety and health risk or hazard analysis
- Employee training requirements
- Personal protective equipment (PPE)
- Medical surveillance requirements
- Air monitoring
- Site control measures

- Decontamination procedures
- Emergency response plan
- Spill containment program
- Project-specific COVID-19 prevention requirements

Before the TCRA began, the project team reviewed the HASP and conducted a walk to familiarize themselves with the Site and hazardous conditions; including the locations of stored waste and physical hazards located throughout the Site.

The Umbrella HASP included special provisions to prevent the transmission and spread of COVID-19. These provisions included Interim EPA COVID-19 Health and Safety Guidelines and protocols for daily worker health and temperature screenings. Daily all-hands safety meetings were conducted outdoors with attendees spaced 6 feet apart or more. Handwashing/sanitizing facilities were provided at locations convenient to the command post and work locations. Site personnel were reminded of the required protocols and prevention measures defined in the HASP, such as wearing face coverings, wiping down equipment and work areas daily with sanitizer, avoiding handshakes, and social distancing.

### **3.2 AIR MONITORING**

START utilized DustTrak™ monitors for particulate matter (PM) and AreaRAE® monitors for chemicals of concern in the vicinity of the removal activities. Four monitoring locations were established to provide air quality data for worker health and safety and to ensure on-site operations were not impacting the nearby community. The DustTrak™ and AreaRAE® monitors were zero calibrated daily and data was transmitted real-time and monitored remotely. Real-time data, supported by a Viper® data communication system, aided in decision-making regarding dust and chemical hazards migrating from active waste-removal areas. Water trucks were used to suppress dust during removal activities. The particulate time-weighted average (TWA) never exceeded the site-specific action level of 1.0 milligrams per cubic meter (mg/m<sup>3</sup>) for particulates in air during removal activities.

### 3.3 REMOVAL ACTIONS

Based on information obtained during the EPA 2021 RSE, the proposed removal actions included:

- Consolidation and disposal of liquid hazardous and non-hazardous waste
- Consolidation and disposal of solid hazardous waste
- Assessment, characterization, and bulking of unknown containers located on-site

#### 3.3.1 Liquid Hazardous Waste Consolidation/Disposal

Approximately 100,000 gallons of wood vinegar contained in totes, ASTs, and within secondary containment was identified during the EPA RSE. Consolidation and disposal of wood vinegar was prioritized due to the volume and potential threat of release. Totes and ASTs with wood vinegar were pumped/decanted of free liquid waste into 5,000-gallon vacuum trucks for off-site transportation and disposal. The management of the wood vinegar for off-site disposal included the following processes:

- Establishing a temporary containment area for liquid waste transfer
- Treating waste by filtration and/or pH adjustments for transfer
- Decanting/pumping liquid waste for transfer into tanker trucks

ERRS established two temporary staging areas with a secondary containment to facilitate the liquid waste transfer from the 275-gallon totes of wood vinegar into vacuum trucks for off-site transportation and disposal. Each containment area had the capacity to hold approximately 20 to 22 totes. Wood vinegar stored in ASTs was managed in place and free liquids were transferred into vacuum trucks. The wood tar vinegar/rainwater mixture within the secondary containment was managed in place and transferred to vacuum trucks.

Due to off-loading issues at the disposal facility and limited availability of disposal facilities accepting wood vinegar waste, modifications to the on-site waste preparation for disposal was required. During the off-loading process, the vacuum trucks were encountering problems due to suspended solids (wood tar) coating the inside of the tanker and associated valves. The suspended solids also created challenges for the disposal facility to process the liquid waste. ERRS began

filtering the wood vinegar using a 200-micron “sock filters” to remove the suspended wood tar before loading the free liquid into the vacuum trucks. This method proved to be effective in preventing accumulation of suspended solids in vacuum trucks that were transporting wood vinegar.

Due to limited disposal facilities and storage capacity accepting wood vinegar waste, on-site pre-treatment became a requirement during the course of the project to facilitate a timely removal of the waste. Disposal facilities with remaining capacity to receive wood vinegar required the wood vinegar solution be shipped with a pH between 6.0 and 7.0. Wood vinegar stored on-site typically had a pH of approximately 3.0, requiring adjustments to meet the new disposal facility requirements. ERRS utilized sodium hydroxide (NaOH) to raise the pH up to meet the disposal facility requirements.

A total of 91,777 gallons of wood vinegar was transported off-site for disposal (68,977 gallons of RCRA Hazardous Waste-designated wood vinegar and the 22,800 gallons of Washington State Dangerous Waste-designated wood vinegar) at EPA-approved disposal facilities.

### **3.3.2 Solid Hazardous Waste Consolidation/Disposal**

Solid hazardous waste (wood tar) identified on-site required consolidation and solidification to facilitate off-site disposal. After free liquids were removed from the totes, ASTs, and secondary containment, as described in 3.3.1, the remaining on-site viscous tar material required solidification to facilitate off-site disposal. Prior to solidification, debris was removed from the secondary containment and placed in 20-Cubic Yards (CY) roll-off boxes for off-site transportation.

After removing the free liquids from the totes and ASTs, estimated volumes of wood tar were documented. Totes containing wood tar were placed within the AST secondary containment for consolidation and solidification. The tops and sides of the totes and ASTs were cut open to facilitate the removal of the wood tar. Wood tar located in the ASTs was removed and consolidated with wood tar removed from the totes for solidification and off-site transportation and disposal.

Prior to solidification of the wood tar, START collected samples of the saw dust/woodchips stored on-Site for waste characterization prior to using the material for a binding agent in the solidification process. Samples were analyzed for benzene by SW8260D/Toxicity Characteristic Leaching Procedure (TCLP) Zero Headspace Extraction (ZHE) and SVOCs by SW8270 TCLP Extraction analysis. Analytical results reported no SVOCs or benzene, indicating the material could be used for solidification purposes. ERRS utilized the concrete secondary containment area to mix the wood tar and the saw dust/woodchips for solidification. After the waste was solidified it was loaded into 20-CY roll-off boxes for off-site transportation and disposal.

Following waste solidification operations, the secondary containment was decontaminated of wood tar residue and breached to minimize the accumulation of future rainwater. ERRS removed and segregated non-wood tar-contaminated metal from the totes for off-site recycling. An estimated 450 CY (260 CY of wood tar and 190 CY of wood tar-contaminated debris) of solid hazardous waste was transported off-site for disposal at an EPA-approved disposal facility. An estimated 140 CY of scrap metal was shipped off-site for recycling.

### **3.3.3 Assessment and Characterization of Unknown Wastes**

An estimated 193 miscellaneous containers and drums of unknown origin were observed behind totes in areas of the Site that were previously not accessible due to safety considerations. First Step Hazard Characterization (HAZCAT) operations were conducted on the contents of the unknown containers to determine DOT hazard classifications. Based on the HAZCAT results, 15 different DOT waste streams were generated. The containers were overpacked based on the DOT classification and subsequently shipped for off-site disposal.

### **3.3.4 Post Removal Remaining Waste Materials and Other Environmental Concerns**

Upon completion of the removal action, the pyrolysis, dry kiln, lean to area, and north and south warehouse/sawmill buildings remained on-site. The pyrolysis machinery and associated parts remain inside the secured pyrolysis building. It is assumed that some residual wood tar or wood vinegar waste remains contained inside the workings of the pyrolysis unit itself, however any such material does not currently pose a threat of release. Visually stained soil was observed on-site and was not addressed as part of this TCRA. The Biochar pile, initially located outdoors and exposed

to the elements in the southwestern corner of the property, was relocated into the open spaces beneath the north and south warehouse/sawmill buildings at the request of the Lewis County Fire Department. Super sacks of Biochar were relocated to the lean-to area to prevent weathering.

### 3.4 WASTE DISPOSAL SUMMARY

As part of the TCRA, EPA removed and disposed of wood vinegar hazardous waste liquid, State-regulated wood vinegar liquid waste, wood tar hazardous solid waste and debris, scrap metal for recycling, and miscellaneous chemical containers. Details of waste stream disposal are provided in Table 3-1.

**Table 3-1 Waste Disposal Summary**

Waste Stream	Description	Medium	Quantity Disposed
RCRA Hazardous Waste Wood Vinegar	RCRA wood vinegar from totes, ASTs, and pH-balanced wood vinegar volume	Liquid	68,977 gallons
Washington State Dangerous Waste Wood Vinegar (secondary containment)	Standing wood vinegar in secondary containment	Liquid	22,800 gallons
RCRA Hazardous Waste Tar Solids	Wood tar/woodchip mixture	Solid	260 CY
RCRA Hazardous Waste Tar coated debris	Wood tar-coated debris, including poly tote and poly AST body/casings, debris found inside secondary containment, any wood tar covered pallets	Solid	190 CY
Scrap Metal (recycling)	Cleaned scrap metal from totes and ASTs	Solid	140 CY
Miscellaneous chemical containers	Site container chemical solid and liquid contents	Mixed	24 bulk containers

Notes:

AST           aboveground storage tank  
 CY           cubic yard  
 pH           Potential Hydrogen  
 RCRA       Resource Conservation and Recovery Act

## **4 ANALYTICAL DATA**

### **4.1 ANALYTICAL TESTING**

During the TCRA, START collected two samples of the saw dust/woodchips stored on-site for waste characterization for benzene following SW8260D/TCLP ZHE and SVOCs by SW8270 TCLP Extraction analysis. Laboratory analysis was conducted by Fremont Analytical Laboratory located at 3600 Avenue North in Seattle, Washington. Sampling conducted during the TCRA was in accordance with the site-specific TCRA SAP (WESTON, 2021b). Samples were properly packed for shipment and dispatched to the laboratory for analysis along with signed chain-of-custody documentation.

Analytical results and Laboratory Data Packages are available in Appendices C and D, respectively.

### **4.2 DATA USABILITY**

The data was determined to be of acceptable quality for their intended use. The reported results for aniline and 3,3'-dichlorobenzene from sample WTWS-01-1 were rejected due to low matrix spike and/or matrix spike duplicate recoveries. This finding has no material impact on the intended use of the data as these analytes do not have RCRA disposal criteria. A Data Quality Assurance Review Memoranda is available in Attachment E.

### **4.3 DATA REPORTING**

In accordance with the EPA Region 10 Regional Data Management Plan (RDMP), field data was managed in accordance with the SSDMP, which was updated as conditions required. Following collection, field data was processed to generate a Scribe-compatible file, which was imported into a Scribe database. The Scribe datasets were published to Scribe.net (project ID 4236).

## **5 FINAL SITE CONDITIONS AND SUMMARY**

Final Site conditions and demobilization activities included EPA notifying the property owner and Ecology that residual wood tar or wood vinegar waste could remain contained inside the pyrolysis unit itself. EPA advised the property owners that any efforts to disassemble the unit should involve a plan to properly contain and dispose of any hazardous waste found inside. The property owner also agreed to take responsibility for the 350 gallons of red-dye diesel and acetylene tanks in the south warehouse/sawmill. The Biochar pile, initially located outdoors and exposed to the elements in the southwestern corner of the property, was moved into the open spaces beneath the north and south warehouse/sawmill buildings at the request of the Lewis County Fire Department. Super sacks on-site containing Biochar were moved beneath the lean-to area to prevent weathering. Prior to demobilization, ERRS and START applied caution tape to dangerous areas on-site, such as the pyrolysis machinery, stairway, and the condemned building footprint.

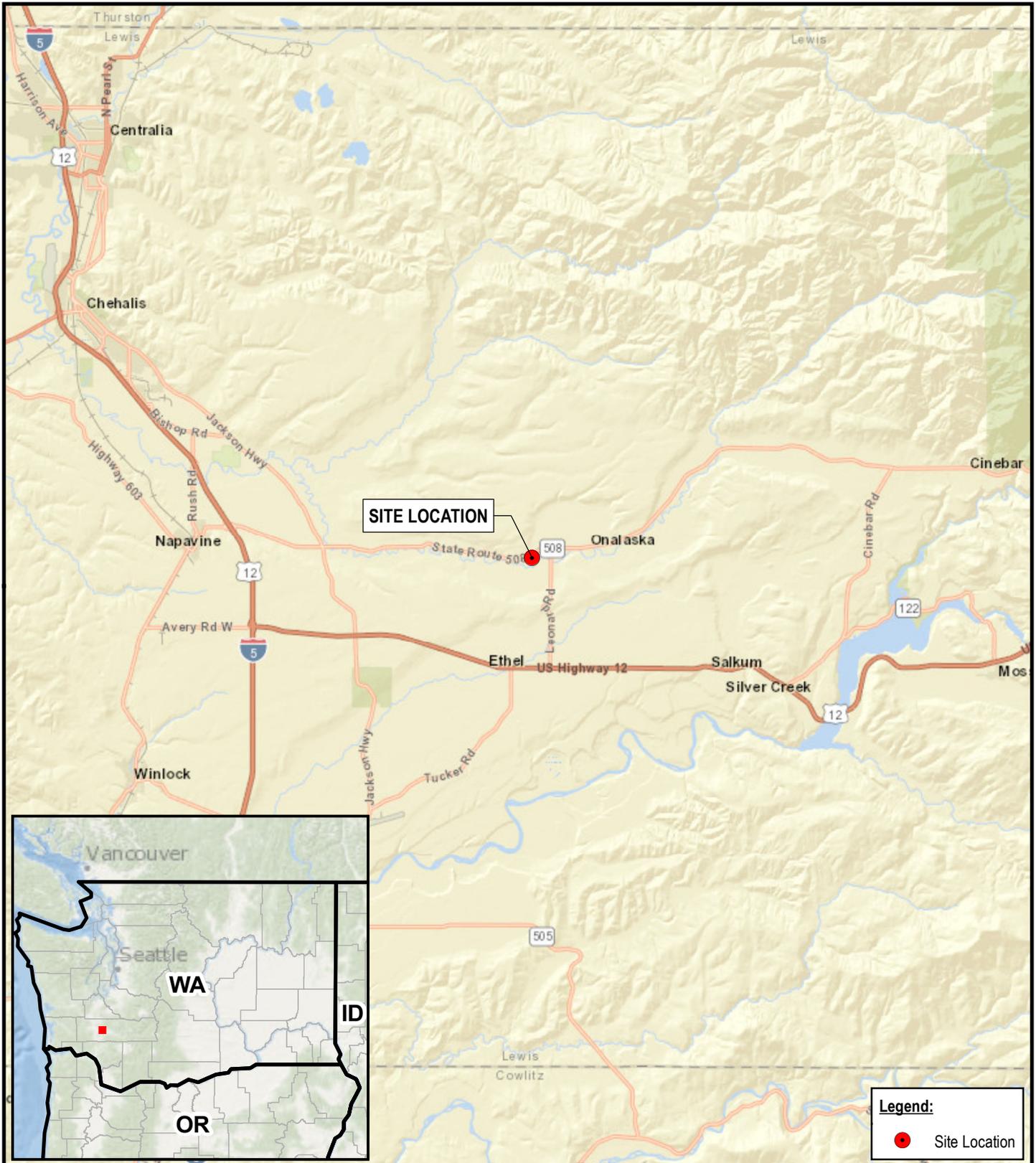
Upon completion of TCRA operations, EPA, Ecology, ERRS, and START conducted a final Site walk, confirming that wood vinegar and wood tar wastes in targeted totes, ASTs, and the secondary containment had been removed from the Site. Demolition/deconstruction and removal of the cleaned out secondary containment walls, poly totes, steel and poly ASTs, and tote metal casings were also confirmed.

## **6 REFERENCES**

Weston Solutions, Inc. a (WESTON, 2021a), Superfund Technical Assistance and Response Team (START-V) Removal Site Evaluation Report, June 2021.

WESTON, 2021b, START-V Site-Specific Sampling and Analysis Plan. June 2021.

WESTON, 2021c, START-V Site-Specific Data Management Plan. June 2021.



Source:  
 Background: ESRI World Street Map (2021)  
 Inset Background: ESRI Ocean Basemap (2021)

SSID: 10TH  
 TO No./Subtask No.: 68HE0721F0069



**US EPA REGION 10**



Weston Solutions, Inc.  
 START V

**FIGURE 1-1**  
**SITE LOCATION MAP**  
 ONALASKA WOOD PYROLYSIS  
 1674 STATE HIGHWAY 508  
 ONALASKA, LEWIS COUNTY, WA

DECEMBER 2021

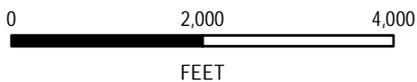


Legend:

Site Boundary

Source:  
 Background: ESRI World Imagery (2021)  
 Inset Background: ESRI Ocean Basemap (2021)

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 TO No./Subtask No.: 68HE0721F0069



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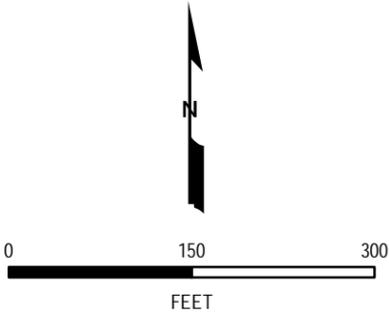
FIGURE 1-2  
 SITE AREA MAP  
 ONALASKA WOOD PYROLYSIS  
 1674 STATE HIGHWAY 508  
 ONALASKA, LEWIS COUNTY, WA

DECEMBER 2021



**LEGEND**

-  Lewis County Water District #2 Wastewater Treatment Facility
-  Site Boundary
-  Gheer Creek



Source:  
Background: Google Earth (2021)  
SSID: 10TH  
TO No./Subtask No.: 68HE0721F0069



**FIGURE 2-1**  
SITE PLAN  
ONALASKA WOOD PYROLYSIS  
1674 STATE HIGHWAY 508  
ONALASKA, LEWIS COUNTY, WA  
DECEMBER 2021

**ATTACHMENT C  
2021 TCRA Waste Sample Data**

Analyte	CAS NO.	Units	RCRA Hazardous Criteria <sup>1</sup>	OWP-WTAR1-07 6/30/2021	OWP-WTAR2-07 6/30/2021
<b>Volatile Organic Compound (EPA Method SW8260D)</b>					
Benzene	71-43-2	mg/L	0.5	0.202 U	0.148 U
<b>Semivolatile Organic Compound (EPA Method SW8270E)</b>					
1,4-Dichlorobenzene	106-46-7	mg/L	7.5	0.00554 U	0.00512 U
2,4,5-Trichlorophenol	95-95-4	mg/L	400	0.0831 U	0.0768 U
2,4,6-Trichlorophenol	88-06-2	mg/L	2	0.0831 U	0.0768 U
2,4-Dinitrotoluene	121-14-2	mg/L	0.13	0.0554 U	0.0512 U
3-Methylphenol and 4-Methylphenol coelution	34-Cresol	mg/L	200	71 U	53.9 U
Hexachlorobenzene	118-74-1	mg/L	0.13	0.00831 U	0.00768 U
Hexachlorobutadiene	87-68-3	mg/L	0.5	0.0415 U	0.0384 U
Hexachloroethane	67-72-1	mg/L	3	0.00415 U	0.00384 U
Nitrobenzene	98-95-3	mg/L	2	0.0138 U	0.0128 U
o-Cresol	95-48-7	mg/L	200	30.7 U	23.4 U
Pentachlorophenol	87-86-5	mg/L	100	0.0277 U	0.0256 U
Pyridine	110-86-1	mg/L	5	0.0554 U	0.0512U

Notes:

<sup>1</sup> RCRA Regulations for the Identification and Listing of Hazardous Waste, 40 Code of Federal Regulations 261

Abbreviations:

CAS = Chemical Abstracts Service

mg/L = milligrams per liter

RCRA = Resource Conservation and Recovery Act

TCRA = Time-Critical Removal Action

U = Analyte included in the analysis, but not detected