

August 29, 2025
File No. 04222021.00, Task 00008

MEMORANDUM

TO: Anthony Chavez, Don Hanson, Oregon Department of Environmental Quality

CC: Mike Montero, Kory Kaufman, Mitch Hanan, Croman Corp.

FROM: Barbara E. Lary, R.G., Shane Latimer, PhD.

SUBJECT: Site Wide Dioxin Investigation Work Plan
146 Mistletoe Road, Ashland, Oregon
ECSI File No: 0535

On behalf of Dwain and Bud, LLC, SCS Engineers (SCS) has prepared this work plan based on results of the most recent sampling event (June 2025) at the former Croman Mill (Site), in Ashland, Oregon (Figure 1). The results show that dioxin-impacted soil is not limited to previously defined areas but may be more widespread. A summary of these results follows as well as a proposed work plan for additional delineation of dioxin-impacted soils.

June 2025 Sampling and Results

At the request of Oregon Department of Environmental Quality (DEQ), the area proposed for a soil disposal cell was sampled down to 10 feet below ground surface (bgs), along with the perimeters of DU01 and DU03, outside the next proposed area for soil removal. In addition, a soil pile from several Southern Oregon University (SOU) construction projects, stockpiled near the site entrance, was also sampled and analyzed. A direct push drill rig was used to collect soil samples at depth from the soil disposal cell, completing 10 borings along the 600-foot-long area and collecting 3 subsamples per boring. These were combined for a single incremental sampling method (ISM) composite sample to characterize the area to be excavated for the soil disposal cell.

For each of the DU01 and DU03 perimeter samples, areas to be sampled were measured out just beyond the next proposed extent of excavation and the surface soil was sampled at approximately 0.5-foot depth. Thirty samples were collected from each side for the former dip tank and either side of the wigwam burner to create one ISM sample per area. Prior to analytical testing, each ISM sample was processed by the laboratory so that a representative sample was used for testing.

Soil was tested for dioxins/furans by EPA Method 1613, as per the previous samples from the site. Analytical results reported as TCDD equivalents for the most recent samples are listed in Table 1 attached. Results show the SOU soil pile with dioxin concentrations below the urban residential risk based concentration (RBC), although slightly above the residential RBC. The proposed soil disposal cell area showed dioxin concentrations above residential and occupational RBCs, although below the Construction worker RBC. Since this was the area where dioxin impacted soil was to be placed, these results seem to exclude it from being a viable option.

Perimeter samples from DU01 and DU03 do not show lower concentrations of dioxins when compared to previous sampling events; in some cases they appear higher. If dioxin impacts were



limited to the wood treatment area (dip tank) or waste disposal areas (e.g., burners), one would expect concentrations to decrease as distance from the suspected source increases. However, in some cases concentrations increase and in others they decrease. Thus, it appears that the impacted soils may have been spread about the site during previous demolition activities. In the case of DU03, soils appear to have perhaps been pushed away from the source and used as fill in adjacent low areas, e.g., this may be the source of the detected dioxins in the proposed soil disposal cell area along the east property boundary, next to the railroad tracks.

Investigation Work Plan

To characterize the remaining large areas of the Subject Property, SCS proposes ISM sampling for additional decision units (DUs), created based on similar uses in those areas, which can feasibly be represented by a single soil sample. This method requires a minimum of 30 subsamples to be collected over each DU area and then specially processed by the laboratory to get a representative soil sample for analysis. The DUs are depicted in Figure 1 and detailed in Table 2, below.

Since the perimeter sampling has recently been completed for the dip tank and south burner, those specific areas won't be sampled during this event but the areas around them will be. Based on an assumption that material from the south burner was pushed to the east to backfill low areas, the area around the burner will be divided into east and west DUs.

Areas covered in piles of material (e.g., rock, concrete, bark) will be sampled around the perimeters of the piles, as access allows. Where refusal is encountered prior to reaching 5 feet bgs, then at least two more locations will be attempted prior to claiming refusal. Areas where a 5-foot depth is not reached will be marked on a map.

Samples will be collected from three depths in each of the decision units so both vertical and lateral extent of dioxin contamination can be determined. A direct push drill rig will be used to obtain 5-foot long core samples in plastic sleeves via 2-inch diameter borings. The drill rig will complete 30 borings within each DU. The core will be opened and a soil sample collected from the following depths:

- 1) Approximately 0.5 feet or just under any pavement and/or surface gravel,
- 2) from 2.5 to 3.0 feet and
- 3) 4.5 to 5.0 feet.

Each depth will represent a single sample within each DU. Initially, just the shallow soil sample will be analyzed, the deeper soil samples held. If shallow soil samples have detections of dioxins above screening levels, then the next depth in that DU will be analyzed.

Table 2. Decision Units

Sample Area	Reasoning	Sampling
DU08	Soft material removed and replaced with at least 4 feet of "shale" and then covered with 1 foot of concrete. Area used for material handling and log storage but no buildings or processing.	No sampling
DU09	North area with kilns, paper wrap and north burner (already cleaned up).	30 borings <i>per area</i> : random based on access and coverage across DU. Sample: <ul style="list-style-type: none"> • 0.5' to 1.5' (under pavement and surface gravel) • 2.5' - 3.0' • 4.5' - 5.0'
DU10	Immediate area around the dip tank - Tray sorter, green chain, sawmill.	Same sampling as above
DU11	East of dip tank - bark bins, lumber storage and planing mills.	Same sampling as above.
DU12	Veneer mill and log storage - previously excavated down to "granite bedrock" to provide flat area for mill.	No sampling
DU13	Area immediately east of veneer mill - log and debarking material storage.	Same sampling as above.
DU14	West side of south burner	Same sampling as above
DU15	East side of south burner	Same sampling as above

Schedule

Drilling is tentatively scheduled to begin September 29, 2025 and will take approximately 4 to 5 days to complete. Once samples are collected and sent to the laboratory, analytical results are expected in approximately 3 to 4 weeks. If any additional analytical testing is required (deeper soil samples analyzed), that will likely take an additional 3 to 4 weeks.

Reporting

Results will be initially reported in a memorandum, including a summary table of analytical results and a map showing areas sampled. This information will be used to justify no further action or to inform options for moving forward, either for additional delineation or for determining a remedial option.

Attachments

Table 1
Figure 1

Summary of Soil Analytical Results
Proposed Additional Decision Units

Table 1. REVISED Summary of Soil Analytical Results from Confirmation Sampling
Croman Site, Ashland, Oregon

Sample ID	DU01-240425-1	DU01-240425-1-DUP	DU01-240425-0.5-W	DU01-240425-0.5-E	DU01-240425-0.5-N	DU01-240425-0.5-S	DU01_250 701_0.5 North	DU01_250 701_0.5 South	DU01_250 701_0.5 East	DU01_250 701_0.5 West	DU02-240225-1	DU02-240225-0.5-W	DU02-240225-0.5-E
Area of the Site	Wood treatment Dip Tank	Wood treatment Dip Tank	Wood treatment Dip Tank	Wood treatment Dip Tank	Wood treatment Dip Tank	Wood treatment Dip Tank	Wood treatment Dip Tank	Wood treatment Dip Tank	Wood treatment Dip Tank	Wood treatment Dip Tank	North Wood Burner	North Wood Burner	North Wood Burner
Reason for Sampling	Confirmation following excavation		Perimeter sampling following excavation				Perimeter sampling prior to excavation				Confirmation following excavation	Perimeter sampling following excavation.	
NWTPH- Gx, Dx (mg/Kg)													
gasoline (GRO)													
Diesel (DRO) heavy oil (RRO)													
RCRA 8 Metals (mg/Kg)													
Silver													
Arsenic													
Barium													
Cadmium													
Total Chromium													
Lead													
Selenium													
Total Mercury													
Dioxins and Furans (pg/g)													
2,3,7,8-TCDD equivalent (2005)	15.53	14.60	6.94	27.58	31.91	27.52	25.35	27.19	29.26	58.93	2.15 J	1.62J	3.45

Samples represent soils that have been removed.

April 2025 Confirmation Sampling

July 2025 Perimeter Sampling

Bold indicated above RBC and still present onsite.

Table 1. REVISED Summary of Soil Analytical Results from Confirmation Sampling
Croman Site, Ashland, Oregon

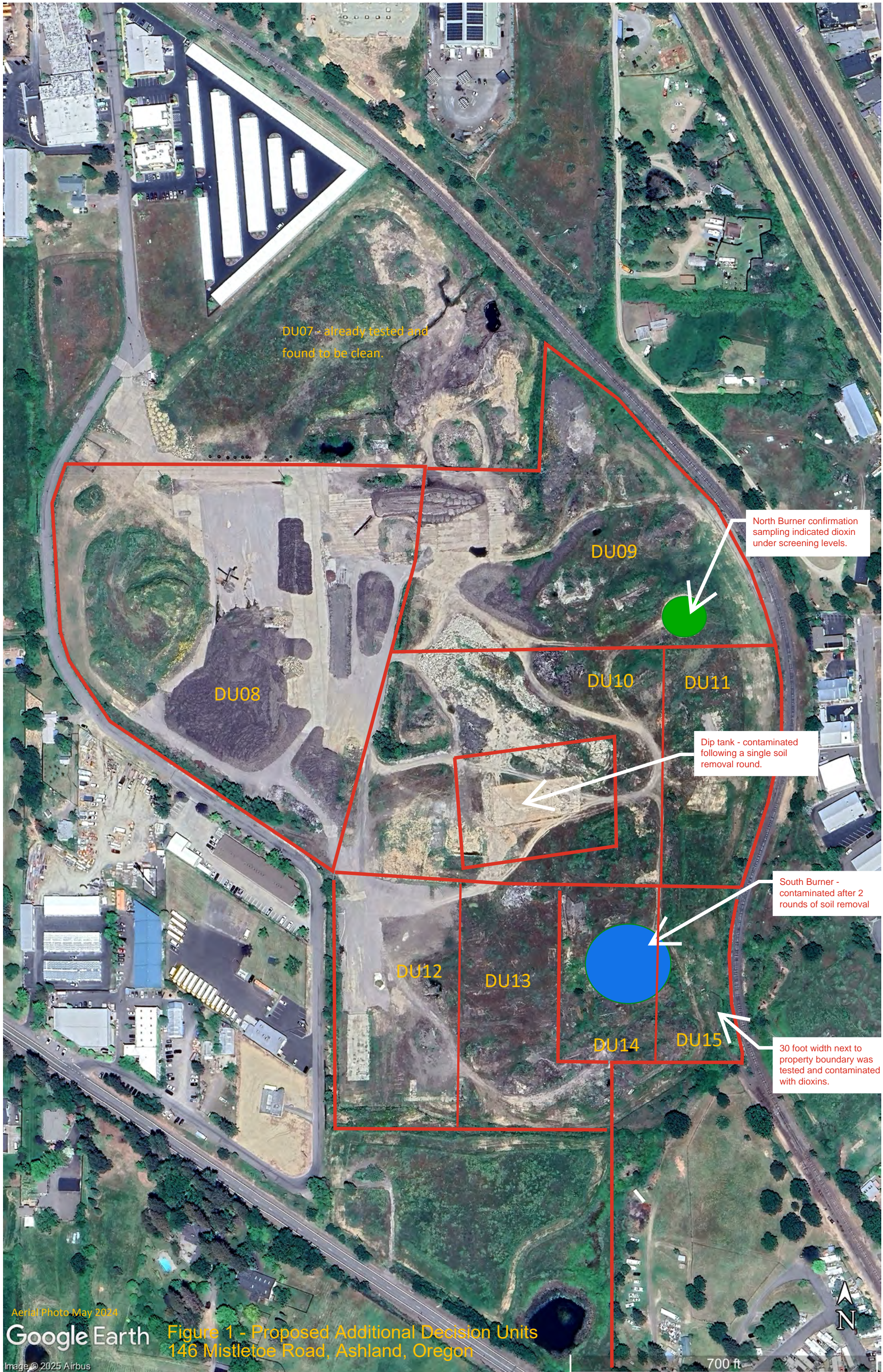
Sample ID	DU03-250130-3'	DU03-250130-W	DU03-250130-E	DU03-250730-0.5 West	DU03-250730-0.5 East	SOUPile	Soil Disposal Cell 250702	DEQ RBC Screening Level				
Area of the Site	South Wood Burner	West Side of South burner	East side of South burner	West Side of South burner	East side of South burner	Pile of soil from SOU construction	Area proposed for soil cell	Residential (DC)	Urban Residential (DC)	Occupational (DC)	Construction Worker (DC)	Excavation Worker (DC)
Reason for Sampling	Confirmation at 3' bgs	Perimeter sampling following excavation.		Perimeter sampling prior to excavation.								
NWTPH- Gx, Dx (mg/Kg)												
gasoline (GRO)						ND	ND	1200	2500	20000		> Max
Diesel (DRO)						ND	ND	1100	2200	14000		> Max
heavy oil (RRO)						ND	570	1100	2200	14000		> Max
RCRA 8 Metals (mg/Kg)												
Silver								390	780	5800		49000
Arsenic						3.9		0.43	1	1.9		420
Barium								15,000	31,000	220,000		>Max
Cadmium								78	160	1100		9700
Total Chromium								---	---	---		---
Lead						16		400	400	800		800
Selenium								---	---	---		---
Total Mercury								23	47	350		2900
Dioxins and Furans (pg/g)												
2,3,7,8-TCDD equivalent (2005)	92.96	144.82	58.18	79.41	93.73	6.19	66.04	4.7	12	16	170	4800

Samples represent soils that have been removed.

April 2025 Confirmation Sampling

July 2025 Perimeter Sampling

Bold indicated above RBC and still present onsite.



DU07 - already tested and found to be clean.

North Burner confirmation sampling indicated dioxin under screening levels.



Dip tank - contaminated following a single soil removal round.



South Burner - contaminated after 2 rounds of soil removal



30 foot width next to property boundary was tested and contaminated with dioxins.

Aerial Photo May 2024

Google Earth

Figure 1 - Proposed Additional Decision Units
146 Mistletoe Road, Ashland, Oregon

Image © 2025 Airbus

700 ft

