

Andrew Smith
Project Manager
Washington State Department of Ecology
300 Desmond Drive SE
Lacey, Washington 98503-1274

**Former Cascade Timber #1 Site, Tacoma, Washington
2021 Annual Operations & Maintenance Report**

Dear Andrew:

Ramboll US Consulting, Inc. (Ramboll), on behalf of the ASARCO Multi-State Environmental Custodial Trust (the "Trust"), has prepared this annual report to document inspection and maintenance activities conducted by the Trust during 2021 at the Former Cascade Timber #1 Site (the "Site") located in Tacoma, Washington (Figure 1) pursuant to the approved *Operation & Maintenance Plan, Former Cascade Timber #1 Site, Tacoma, Washington, Revision 1* (O&M Plan) dated February 2021.¹

Date February 25, 2022

Site Inspection

On behalf of the Trust, Ramboll inspected the Site on September 29, 2021 in accordance with procedures identified in the O&M Plan. Ramboll's inspection included the following activities:

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1. Visual inspection of the Site to evaluate evidence of the following conditions:
 - extent and type of vegetative growth;
 - erosion of the cap quarry rock layer, including evidence of erosion rills or depressions;
 - exposure or damage to the flexible membrane liner (FML; e.g., due to subsidence or bulging from landfill gas trapped in pockets under the liner);
 - significant activity or intrusion of pests or unwanted vegetation (e.g., burrowing animals or woody plants with deeper root systems);
 - slope failure or settlement of the cap system (e.g., subsidence, sink holes, cracking of soil cover, ponded water); and
 - damage or improper function of manholes, locks, gates, fencing, signage and monitoring wells.
2. Visual inspection of the containment cell leachate collection and vent systems, including any indications of damage or obstruction to the associated piping, the absence or presence of leachate in the collection sump or cleanout manhole, and any indications of leachate seepage.

¹ The Trust submitted the O&M Plan to the Washington State Department of Ecology (Ecology) on September 16, 2020. Ecology approved the O&M Plan with minor comments on February 1, 2021, resulting in Revision 1 dated February 8, 2021.

3. Inspection of surface drainage patterns (excessive wetness or dryness) and drainpipes along the edges of the containment cell for visual evidence of erosion from the cap or areas surrounding the containment cell, including any significant gaps beneath the security fence due to erosion.

No evidence of significant settling of the cap surface (e.g., depressions) was apparent based on the inspection. Appropriate signage was visible on the Site perimeter fencing, which was observed to be in satisfactory condition. Site improvements (fencing, piping, signage, etc.) were observed to be in good condition; however, Ramboll was unable to remove the manhole cover with available tools to observe for presence of leachate (additional tools have been obtained to assist with future site inspections). Weed and grass growth was observed around the perimeter of the containment cell, consistent with seasonal vegetation growth in the area. One dead tree (approximately 8 feet tall) was observed along the eastern portion of the containment cell, and an additional dead tree (approximately 5-feet tall) was observed in the northeast corner within the fence perimeter. Blackberry bush growth was also observed throughout portions of the site, however access to conduct inspections is not currently inhibited. No significant issues were identified from the inspection warranting repairs or immediate corrective action. A photographic log is provided in Attachment 1 and a site inspection report is provided in Attachment 2.

Maintenance Activities

Based on the inspection, no maintenance activities were warranted or performed in 2021 with the exception of lubrication of gate locks. As noted above, Ramboll has obtained an additional manhole cover removal tool to allow for removal of the manhole cover for future inspections.

Conclusions

Based on the condition of the vegetative cover observed during the Site visit, Ramboll observed the O&M activities to be adequate in preventing erosion and maintaining the overall integrity of the containment cell. The Site was observed to be secure, and no conditions warranting further action at this time were identified. Removal of dead trees and management of blackberry bushes can be addressed as part of future landscaping efforts, as needed. On behalf of the Trust, Ramboll will continue inspecting the condition of the Site cap, related improvements, and fencing on an annual basis in accordance with the O&M Plan.

If you have any questions or comments regarding the above, please feel free to contact me at (913) 553-5922 or smcginnis@ramboll.com.

Yours sincerely,



Steve McGinnis, PE CGWP

Managing Principal

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cc: ASARCO Multi-State Environmental Custodial Trust

Attachments:

Figure 1: Site Layout

Attachment 1: Photographic Log – September 2021 Inspection

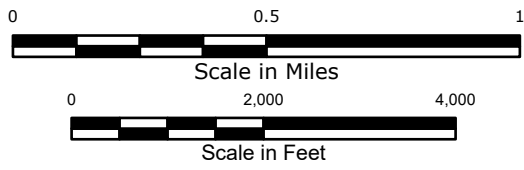
Attachment 2: Annual Site Inspection Form – September 2021 Inspection

FIGURE

C:\Users\sleick\OneDrive - Ramboll\Documents\Working\GIS\McFarland\Figures.aprx\Figure 1-Site Location Map



Legend
[Blue rectangle] Site Boundary



KEY MAP

SOURCE: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodastystyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community. Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community.
Map Scale: 1:124,000; Spatial Reference: NAD 1983 StatePlane California V FIPS 0405 Feet;
Map Center: 122°23'4\"W 47°16'38\"N



Site Location Map
Former Cascade Timber #1 Site
2502 Marine View Drive
Tacoma, WA 98422

FIGURE 1

DRAFTED BY :SLEICK DATE: 5/21/2020

PROJECT: 1690016006-001

ATTACHMENT 1

PHOTOGRAPHIC LOG – SEPTEMBER 2021 INSPECTION

Annual Inspection Report (2021)
Former Cascade Timber #1 Facility
2502 Marine View Drive, Tacoma, Washington

Date of Inspection: September 29, 2021

Arrival Time: 11:40 AM
Departure Time: 12:51 PM

Weather: 60°F Mostly cloudy with low winds

Other Notes: See inspection form.

Title: Annual Inspection Report (2021)
Site: Former Cascade Timber #1 Facility
Tacoma, Washington





Photo 1: View of the north gate (main entrance) facing Marine View Drive.



Photo 2: View of the walkway west of containment cell (facing south).



Photo 3: View of the south gate to the right and containment cell to the left (facing east).



Photo 4: View of the walkway east of containment cell (facing north) with overgrowth of weeds and dead tree.



Photo 5: View of the walkway north of containment cell with monitoring well (MCW-3, facing west).



Photo 6: View of the northeast corner containment cell with a vent pipe (facing southwest)



Photo 7: View of the north side of containment cell (facing east).



Photo 8: View of the centre of containment cell (facing east).



Photo 9: View of the east side of containment cell (facing south).



Photo 10: View of the west side of containment cell (facing north).



Photo 11: View of the south side of containment cell (facing east).



Photo 12: View of drain located at southeast corner of the containment cell.



Photo 13: View of the east side of containment cell (facing north).



Photo 14: View of the center of containment cell (facing west).



Photo 15: View of the east side of containment cell (facing south).



Photo 16: View of dead tree east of containment cell (facing south).



Photo 17: View of monitoring well (MCW-3) with an inner cap.



Photo 18: Monitoring well (MCW-3).



Photo 19:View of monitoring well (MCW-1) with an inner cap.



Photo 20: Monitoring well (MCW-1).



Photo 21: View of monitoring well (MCW-4) with an inner cap.



Photo 22: Monitoring well (MCW-4).



Photo 23: View of the monitoring well (MCW-2) with an inner cap.



Photo 24: View of a manhole and vent pipe located south of the containment cell.



Photo 25: View of the drain pipe southeast corner of the containment cell.



Photo 26: Dead tree observed in the northeast corner of the containment cell perimeter.

ATTACHMENT 2

ANNUAL SITE INSPECTION FORM – SEPTEMBER 2021 INSPECTION



**ANNUAL SITE INSPECTION FORM
FORMER CASCADE TIMBER #1 FACILITY
2502 MARINE VIEW DRIVE, TACOMA, WASHINGTON**

Inspection Conducted by: Audrey Michniak

Date of Inspection: September 29, 2021

Arrival Time: 11:40 AM

Departure Time: 12:51 PM

Weather Conditions: 60°F Mostly Cloudy with low winds

Required Site Inspection Scope of Work:

Follow health and safety precautions. Observe the entire Site systematically as follows:

- walk the perimeter of the Site to assess the gate, fencing, and overall security;
- walk the perimeter of the containment cell to assess the base of the cell, peripheral drainages, discharge pipes, leachate collection sump and cleanout manhole, and monitoring wells; and
- using a ladder, climb up to view the perimeter of the containment cell and portions of the containment cap at several locations on each side of the cell.

During the inspection, the Site Layout map will be used to ensure all areas of the Site are inspected and to document the locations of observed features, as discussed below.

Site Inspection Field Notes	
	Notes/Actions Taken or Needed
General Site Conditions	
Perimeter walk observations	The site was properly secured without any signs of vandalism. Both gates were locked at the time of inspection. Overgrowth of weeds (approximately 2 to 3-foot tall) was observed on the east and west sides of the containment cell.
Condition of manholes, locks, gates, fencing, signage, monitoring wells	Manhole is covered and lid is secure. Perimeter fence is functional with secure locks. Signs are present and readable on perimeter fence. Monitoring wells were intact and locked.
Containment Cell Inspection	
Cap vegetation (e.g., weed growth, distress, dead, inadequate)	No disturbance of earth, erosion, cracks, or mounds was observed from cell perimeter. Vegetative cover was observed on the containment cell (as viewed from cell perimeter). Minor weeds were observed on the western section of the cap and near vent pipes; the presence and nature of the weeds does not appear to have resulted in an erosion issue or damage to the cap.
Erosion (e.g., rills or depressions)	The cell cap cover consisted of rock covering, grass, and vegetation. Evidence of erosion was not observed.
FML condition (e.g., subsidence, bulging)	The liner was not visible from the cell perimeter. No bulging/subsidence observed.
Pest or vegetation intrusion (potential impacts to FML)	Vegetation was last cleared in the fall of 2019. Some growth of vegetation was present around the vent pipes. No indication of pests or burrowing animal activity were observed.
General slope failure/settlement issues (e.g., subsidence, sinkholes, cracks, ponded water)	No indications of slope failure, cracks, or settlement issues were observed. No standing water observed.
Leachate Collection and Vent System	
Damage or obstruction to piping/vents	Coating wear noted similar to previous years (2015-2020)
Absence/presence of leachate (sump or cleanout)	Leachate sump was not accessible during the baseline inspection (tools available were not sufficient to safely remove manhole cover).
Indications of potential seepage	No indications of leachate seepage were observed.
Surface Drainage	
Evidence of erosion due to surface drainage (e.g., within cell, around base of cell, around fence)	No evidence of erosion or blockage of pipes and vents (no sediment observed in drainages). No standing water observed from the cell perimeter.

Notes	<p>Due to safety constraints, Ramboll was not able to walk on top of the cell. Observations were made from a ladder along the perimeter of the cell. Both locks on the north and south gates were lubricated with WD-40 by Ramboll during the site inspection.</p>
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Maintenance Actions			
	Defect	Conditions When Maintenance is Needed	Maintenance Required and Results Expected
General Site Conditions			
General Site Conditions	Trash & Debris	Trash and debris present.	Trash and debris cleared from slopes.
Signs	Illegible or missing	Signs are missing or illegible.	Clean or replace signs. Rehang.
Gate	Routine maintenance	As moving gate parts get stiff or dirty.	Clean and lubricate hinges, latches, and locks.
Fence	Routine maintenance	Degraded, damaged, or if erosion beneath the fenceline has occurred.	Repair or replace affected portions of fenceline.
Manhole	Insecure	Verify manholes are covered/secured.	Clean, repair, or replace as necessary.
Monitoring Wells	Damaged	Surface monument or well cover is cracked	Evaluate concrete or well box repair/replacement (including ring seal).
Containment Cell Inspection			
Cover liner	Visible or breached	If portions of the liner are visible, repair without delay.	Cover liner with appropriate materials (dirt, sand, rock, etc.).
	Bulging	If bulging of liner is visible the landfill gas collection system is not working correctly.	Open area. Remove any landfill gas accumulation and repair collection system. Replace cap.
Vegetative Cover	Lack of vegetation	Lack of vegetation may be due to multiple causes.	Reseed according to seed mix specified in O&M Plan
	Unwanted vegetation	Overgrowth of weeds.	Manual removal/chemical herbicide.
	Earth disturbance	When sinkholes, standing water, cracks, or mounds are discovered.	Note depths/locations of problem areas on inspection forms. Even ground, reseed.
Leachate Collection and Vent System			
Pipes and Culverts	Malfunctioning parts	Operate all moveable parts to assure continued smooth working use.	Repair or replace parts as necessary.
	Damaged	Visible damage to piping.	Repair or replace pipe.

Maintenance Actions			
	Defect	Conditions When Maintenance is Needed	Maintenance Required and Results Expected
Leachate Collection and Vent System			
Pipes and Culverts	Vegetation	Vegetation present that reduces water flow.	Remove vegetation
	Sediment and Debris	Accumulated sediment present.	Clean/flush pipe so that it matches design.
	Coating damaged	Protective coating is damaged; rust is causing deterioration to any part of pipe.	Repair, replace or recoat pipe.
	Misalignment	If misalignment observed, evaluate affected area.	Repair or replace pipe.
	Blockage	Check culvert inlet and outlet for evidence of erosion or blockage	Remove and sediment and restore to proper flow conditions.
Surface Drainage			
Standing water	Poor drainage	Ponding water observed for prolonged periods after rain events.	Restore surface grade as appropriate.
Surface erosion near piping or cell materials	Exposed piping or other improvements	Surface material worn to expose or undermine components	Inspect to evaluate need for repairs and surface restoration to modify drainage patterns.