



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 10**  
**1200 6<sup>TH</sup> AVENUE**  
**SEATTLE, WASHINGTON 98101**

**DATE:** See date of Section Chief signature

**SUBJECT:** CLEAN AIR ACT INSPECTION REPORT  
Waste Connections Finley Buttes Landfill, Boardman, OR

**FROM:** Daniel Heins, Environmental Scientist  
Air Toxics Enforcement Section, EPA Region 10

**THRU:** Derrick Terada, Acting Section Chief  
Air Toxics Enforcement Section, EPA Region 10

**TO:** File

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**BASIC INFORMATION**

**Facility Name:** Waste Connections Finley Buttes Landfill

**Facility Location:** 73221 Bombing Range Rd, Boardman, OR 97818

**Date of Inspection:** On Site Inspection: June 29, 2022  
Virtual Conference: July 6, 2022

**EPA Inspector(s):**

1. Daniel Heins, Environmental Scientist <sup>a,b</sup>
2. Alyson Skeens, Clean Air Act Inspector <sup>a,b</sup>

**Other Attendees:**

1. Darren Hansen, Environmental Specialist – Waste Connections <sup>a,b</sup>
2. Angie Tomlinson, Environmental Manager – Waste Connections <sup>a</sup>
3. Brian Evola, Finley District Manager – Waste Connections <sup>a,b</sup>
4. Jeremy Fink, Finley Assistant District Manager – Waste Connections <sup>a,b</sup>
5. Gerry Friesen, Managing Member – Finley Bioenergy <sup>a,b</sup>
6. Blain Middleton, Power Plant Manager – Finley Bioenergy <sup>a,b</sup>
7. Jeffrey Leadford, Project Manager – SCS <sup>a</sup>
8. Doug Welch, Environmental Engineer – Oregon Department of Environmental Quality (DEQ) <sup>a,c</sup>
9. Heather Kuoppamaki, Senior Air Quality Engineer – ODEQ <sup>a,c</sup>

<sup>a</sup> Attended virtual conference

<sup>b</sup> Present for monitoring / on-site, full day

<sup>c</sup> Present for monitoring / on-site, morning only

**Contact Email Address:** brian.evola@wasteconnections.com

**Facility Type:** Municipal solid waste (MSW) landfill

**Purpose of Inspection:** Surface emissions monitoring (SEM) and evaluating compliance with landfill air rules.

**Regulations Central to Inspection:** 40 C.F.R. Part 60, Subpart WWW; Oregon State Plan implementing 40 C.F.R. Part 60, Subpart Cf; 40 C.F.R. Part 63, Subpart AAAA

**On Site (6/29) Arrival Time:** 09:00

**On Site (6/29) Departure Time:** 15:00

**Virtual Conference (7/6) Start Time:** 09:00

**Virtual Conference (7/6) End Time:** 11:00

**Inspection Type:**

- ☐ Unannounced Inspection
- ☒ Announced Inspection

**SITE OVERVIEW**

The following information was obtained verbally from Waste Connections representatives, including their consultants, during the virtual conference.

**Operations Overview:**

The Finley Buttes Landfill ("the Landfill") is owned and operated by Waste Connections. Finley Bioenergy owns and operates the associated gas to energy plant and is contracted for elements of the operation and monitoring of the gas collection and control system (GCCS) at the Landfill. SCS also is utilized as a consultant by Waste Connections for the GCCS and air compliance. The Landfill began operation in the 1980s. Finley Bioenergy began operations in 2007. The GCCS was first operated in 2004.

The entire landfill has a bottom liner. The Landfill receives approximately 2,800 to 3,200 tons per day. The site has a capacity of 138 million megagrams. 135 acres have been constructed to date. As of 2021 (not reflecting the newly constructed Cell 9a), 23.4 acres were under final cover, 96.4 acres were under intermediate cover, and 0.9 acres of the Landfill with a GCCS was under daily cover. Auto fluff mixed with soil is used as an alternative daily cover, otherwise 6 inches of soil is used. Intermediate cover consists of 18 inches of soils. Final cover consists of 3 to 4 feet of soils, without any synthetic liner.

Leachate is collected in sumps and pumped to two ponds. Collected leachate evaporates and is also recirculated into the Landfill. Liquid wastes are both solidified before placement at the Landfill and directly added. The Landfill operates with a Research, Demonstration, & Development (RD&D) Permit.

The GCCS has approximately 100 wells, primarily consisting of horizontal wells. These wells are spaced 120 feet horizontally and 60 feet vertically. Some horizontals have gas collection from both sides. Horizontal wells are placed surrounded by rock, providing additional drainage, helping avoid liquid buildup in perforated sections of the wells. Wells with liquid build up in the non-perforated section can be pumped out. All wells route to a common header, with collected gas typically routed to the Finley Bioenergy plant. The Landfill typically collects approximately 1,600 standard cubic feet per minute (scfm) of gas. If not routing gas to Finley Bioenergy, Waste Connections routes the gas to an open flare with a 2,000 scfm capacity. The Finley Bioenergy facility has three Caterpillar 3520 engines, rated for 4.8 megawatts and typically running at 4 to 4.6 megawatts. They each control roughly 550 scfm of collected gas.

### **SITE TOUR — JUNE 29, 2022**

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☐ Provided Small Business Resource Information Sheet
- ☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
- ☒ Provided CBI warning to facility

### **Data Collected and Observations:**

Daniel Heins conducted the SEM with the EPA TVA2020, with Blain Middleton taking confirmation readings with their Elkin IRwin and Alyson Skeens taking notes. Blain Middleton initially was monitoring using a wind-shield hood that Waste Connections began using as of the most recent survey in anticipation of Oregon state-level SEM rules. After determining that the hood was preventing reliable measurement of confirmation readings, particularly at penetration points, Blain Middleton removed the hood for the rest of the monitoring that day. The morning monitoring was conducted from 09:45 to 12:00, and the afternoon monitoring was from 12:55 to 14:30.

Daniel Heins requested that Waste Connections raise any safety concerns as applicable that should prevent or delay monitoring in any area. Daniel Heins showed Waste Connections the spacer on the end of the TVA probe used to ensure that the probe inlet was greater than 5 centimeters above the ground and asked that Waste Connections articulate if they at any point had any concerns with his monitoring technique or found any reason to consider any of the documented exceedances as invalid. At no point during the monitoring did Waste Connections personnel state that they believed any of the exceedance points were improperly monitored. Waste Connections did note that Daniel Heins was monitoring where Waste Connections does not, specifically in the area of daily cover and in the area of special waste disposal, but did not raise any safety concerns about monitoring in those areas. Waste Connections also stated that they had not been monitoring pieces of exposed waste that Daniel Heins was taking readings at.

In the daily cover area, there was a large pile of special wastes, most prominently including broken down wind turbines. While Daniel Heins was conducting SEM over other neighboring areas under daily cover, Gerry Friesen repeatedly suggested that EPA should monitor that pile "for consistency" with Daniel Heins's guidance that areas with new waste under daily cover on top of waste greater than 5 years old should only be excluded if there is an active safety concern.

Daniel Heins monitored around the outside edges of the pile, but did not attempt to monitor inside the pile, and clarified that while an unusual situation, the inside area of the pile would likely be acceptably excluded as an area dangerous for monitoring. Outside of the special waste pile on top of the cover, Daniel Heins observed consistent readings between 50 and 100 ppm in some areas of the daily cover, but as low as under 10 ppm in other areas.

EPA detected 15 points in exceedance of the surface methane standard. Five exceedances were at points of cover penetration by the GCCS and five exceedances were at locations with clearly identifiable exposed waste.

Exposed waste was observed in multiple locations, particularly on the north slope in the intermediate cover area and on the daily cover area of Cell 8b. This included waste emerging from underneath the cover in addition to waste blown by the wind or that had rolled downhill.

**Photos and/or Videos:** were taken during the inspection. See Appendix A.

**Field Measurements:** were taken during this inspection. See Appendix B.

#### **INSPECTION CONFERENCE — JULY 6, 2022**

- ☒ Provided U.S. EPA point of contact to the facility
- ☒ Provided CBI warning to facility

#### **Staff Interview:**

Daniel Heins asked how Waste Connections decides to pump out wells. Waste Connections stated that they would identify a potential need to pump out liquids from wells if wellhead monitoring showing no flow at maximum vacuum, which could then be confirmed by running a camera down the pipe. Some wells get pumped out once and resume regular operation, others have pumps installed with regular timers to remove liquids as needed.

Waste Connections stated that the flare is rarely utilized, with all gas typically routed to Finley Bioenergy. Waste Connections stated that if one engine is out of services for less than a day, they reduced vacuum and collection on the Landfill and "allows the gas to richen", stating that this improves generation performance. Waste Connections stated that the gas would be stored in the landfill rather than being emitted, but that this was not quantified. Waste Connections suggested that they could conduct SEM when this is occurring to show a lack of emissions, but that they never have. Each engine is taken offline for maintenance approximately every 6 weeks, which takes 2 hours to a full day. Full engine overhauls take 4 to 5 days and occur on a 3-to-4-year cycle.

Waste Connections conducts cover integrity monitoring on a weekly basis for the Landfill, but does not include any areas under daily cover. Waste Connections stated that they document and repair any erosion rills or exposed waste. The cover integrity logs provided showed that Waste Connections had identified and corrected two cover integrity issues over the previous six months.

The Landfill has gas migration monitoring probes approximately 50 feet in from the property line, and typically does not see any gas detected. The Landfill has not received any odor complaints.

Historically some wells were decommissioned due to elevated temperature landfill (ETLF) conditions. The ETLF conditions arose due to deposition of aluminum wastes, resulting in temperatures of up to 170 degrees Fahrenheit and gas composition of up to 70% hydrogen and less than 20% methane. Since then, additional waste has been placed on top of these areas with horizontal gas collection devices. No wells currently see temperatures above 145 degrees Fahrenheit.

During the on-site component of the inspection, Gerry Friesen stated that Waste Connections does not consider the collection or monitoring requirements to apply to any parts of the landfill where any waste has been placed in the past 5 years, regardless of if there is also waste at those locations or in those cells that has been in place for greater than 5 years. This statement was reiterated by Gerry Friesen during the virtual conference.

During the on-site component of the inspection while walking through the northwest portion of the Landfill that currently receives special wastes, Waste Connections personnel stated that they do not conduct SEM in this area because there is a thick layer of non-degradable waste but did clarify that there was MSW underneath the non-degradable wastes. At no point while walking through this area did any Waste Connections personnel raise any safety concerns about the monitoring.

During the virtual conference component, Gerry Friesen stated that Waste Connections does not monitor anywhere that there is daily cover in place, regardless of whether or not there is truck traffic or active waste placement that day. He additionally stated that this included the horizontal wells in this area that the EPA inspectors identified exceedances at. Gerry Friesen both stated that the area under daily cover had waste too young to generate gas and thus there was no reason to monitor there and that the daily cover was too thin and difficult to avoid having methane exceedances in. Jeffrey Leadford stated that the exclusions was based on considering the area to be "dangerous" based on truck traffic.

Waste Connections stated that the northwest portion is not monitored for safety reasons and because of the presence of asbestos waste, though it is not a segregated area of asbestos/nondegradable waste as Waste Connections stated that the area is underlain by MSW. The safety reason cited was truck traffic.

Waste Connections does the serpentine path for the SEM and then separately does a path to monitor penetrations. Waste Connections stated that they have not been conducting monitoring off the path at points of exposed waste or other visual indicators of elevated emissions.

**Requested documents:**

The following documents were requested and supplied ahead of the inspection:

- Two most recent semi-annual NSPS reports
- Results of any cover integrity reports and quarterly SEM monitoring events that have been occurred since the most recent semi-annual
- GCCS map
- Map of cover by type in place (final vs intermediate vs daily cover)=

The following documents were request during the conference and confirmed via subsequent email:

- Current GCCS Design Plan (and any previous versions operated under over the past 5 years, if applicable)
- Most recent LandGEM report run used for estimating gas generation at the facility, if separate from Design Plan
- GCCS map with extent of active horizontals depicted
- Landfill cell map and year of first waste placement for each cell
- RD&D plans active over the past 5 years and associated RD&D reports
  - If not covered in the RD&D reports, the past 5 years for # of gallons of leachate collected and recirculated
- Annual waste deposited tonnages by type from 2016 to present
  - Outline of what wastes (if any) are classified as non-degradable for LandGEM maximum expected gas generation (Design Plan) along with the basis for this classification
  - Outline of what wastes are classified as “inert” for Part 98 reporting along with the basis for this classification
- 2021 Part 98 Greenhouse Gas report
- Rest of the past 5 years of Annual/Semi-Annual Reports
  - All NSPS/NESHAP/EG reports, SSM reports, and air permit reports as applicable, as well as the full SEM and cover integrity reports if not incorporated into the broader reports
- Any versions of the SSM plan that have been in place in the past 5 years
- Any H<sub>2</sub>S or sulfur gas testing results from the past 5 years
- Past 5 years of wellhead parameter monitoring
- Past 5 years of flare parameter monitoring
- Flare/blower design specifications and any performance tests
- Past 5 years of gas flow to the gas to energy plant
- Summary of individual engine downtime periods and reason over the past 5 years
- Past 5 years of boundary probe monitoring results, along with a map or table summarizing gas probe locations

**Concerns:**

Daniel Heins expressed concerns regarding the SEM and cover integrity monitoring procedures at the Landfill, specifically noting:

- The EPA inspectors detected 15 exceedances, including at multiple penetration points, while Waste Connections failed to identify any exceedances the week prior to the EPA inspection and has never identified an exceedance.
- Waste Connections was inappropriate excluding from monitoring areas subject to GCCS/monitoring requirements
- Waste Connections was not monitoring off path, particularly at points of exposed waste that serve as conduits for gas leakage and are visual indicators of potentially elevated gas concentrations
- The cover integrity monitoring program appeared to be failing to identify and correct locations of exposed waste, including in areas of intermediate cover.

**DIGITAL SIGNATURES**

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Daniel Heins, Report Author

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Derrick Terada, Acting Section Chief

## **APPENDICES AND ATTACHMENTS**

Appendix A: Digital Image Log

Appendix B: Field Measurement

### **APPENDIX A: DIGITAL IMAGE LOG**

**Inspector Name:** Daniel Heins & Alyson Skeens

**Archival Record Location:** US EPA SharePoint

#### **2022-06-29 Images**

Image #	File Name	Time (PDT)	Description	Flag #
1	P6280041.JPG	10:16	H73	1
2	P6280042.JPG	10:28	H40S pipe junction	2
3	P6280043.JPG	11:01	Tire protruding through intermediate cover	3
4	P6280044.JPG	11:01	Tire protruding through intermediate cover	3
5	P6280045.JPG	11:10	H20	4
6	P6280046.JPG	11:10	H20	4
7	P6280047.JPG	11:17	Loose and exposed waste on north slope	-
8	P6280048.JPG	11:17	Loose and exposed waste on north slope	-
9	P6280049.JPG	11:17	Loose and exposed waste on north slope	-
10	P6280050.JPG	11:18	Loose and exposed waste on north slope	-
11	P6280051.JPG	11:18	Loose and exposed waste on north slope	-
12	P6280052.JPG	11:22	H88N, nearby loose and exposed waste	5
13	P6280053.JPG	11:34	Turbine waste pile	-
14	P6280054.JPG	11:34	Exposed waste in daily cover area	-
15	P6280055.JPG	11:36	Exposed waste in daily cover area	-
16	P6280056.JPG	11:40	H93	6
17	P6280057.JPG	11:41	H92	7
18	P6290058.JPG	13:06	Exposed waste in daily cover area	8
19	P6290059.JPG	13:06	Exposed waste in daily cover area	8
20	P6290060.JPG	13:11	Exposed waste in daily cover area	9
21	P6290061.JPG	13:13	Exposed waste in daily cover area	9
22	P6290062.JPG	13:17	Turbine waste pile	10
23	P6290063.JPG	13:17	Turbine waste pile	10
24	P6290064.JPG	13:18	Turbine waste pile	10
25	P6290065.JPG	13:24	Turbine waste pile	11
26	P6290066.JPG	13:24	Turbine waste pile	11
27	P6290067.JPG	13:42	H77	12
28	P6290068.JPG	14:01	Tire protruding through intermediate cover	13
29	P6290069.JPG	14:14	North road crossing pipe sleeve around 12" header	14
30	P6290070.JPG	14:14	North road crossing pipe sleeve around 12" header	14
31	P6290071.JPG	14:29	Exposed waste in daily cover area	15



## **APPENDIX B: FIELD MEASUREMENT DATA**

### **Measured Exceedances**

Flag #	EPA Reading	Waste Connections Reading	Description	Latitude	Longitude
1	700 / FO	600 / 800	H73, lapcock. Second measurements after attempted correction	45.68624379	-119.587502
2	530	Unconfirmed	H40S pipe junction	45.68614472	-119.5867305
3	650	630	Tire protruding through cover near H53N	45.68797109	-119.5849218
4	1100	1000	H20 horizontal penetration	45.68814933	-119.5867503
5	1000	550	H88N horizontal penetration	45.68781699	-119.5894792
6	665	920	H93 horizontal penetration	45.68532027	-119.5890519
7	700	760	H92 horizontal penetration	45.6852622	-119.5895134
8	700	1500	Protruding waste in Cell 8B	45.68552484	-119.5905146
9	2400	3000	Area of exposed waste on Cell 8B including protruding tire, multiple exceedances	45.68606098	-119.5906104
10	2000	880	West side of windmill blade pile	45.68618144	-119.5897496
11	620	490	East side of windmill blade pile	45.68629909	-119.5897817
12	550	480	H77 discharge pipe	45.68809683	-119.5905894
13	550	930	Tire protruding through cover uphill of H13/14	45.68861842	-119.5864703
14	800	900	North road crossing horizontal pipe sleeve around 12" header	45.68738913	-119.5855941
15	1300	2000	Exposed waste protruding through cover on Cell 8B	45.68540168	-119.590016

All readings are given as methane parts per million, “FO” indicates reading greater 5% methane, maxing out the instrument.

### **Calibration and Instrument Information**

Daniel Heins used a ThermoFisher Toxic Vapor Analyzers 2020 (TVA2020), designated as TVA A95732. The EPA TVA2020 response time is approximately 4.5 seconds.

	Calibration gas ppm	A95732 ppm
8:30 calibration check	500	498
8:30 calibration check	10000	9978
12:30 drift check	500	457
16:00 drift check	500	452

#### EPA calibration gases

Composition	Lot #	Expiration
Air zero grade THC <1 ppm	DBJ-1-24	March 2023
Methane in air 500 ppm	1-167-64	June 2024
Methane in air 10,000 ppm	228894	February 2023

#### Background readings:

Upwind: -0.8 ppm

Downwind: 1 ppm

#### Map of Detected Exceedances



SEM exceedance locations plotted over Google Maps satellite imagery dated to April 2021. Approximate monitoring paths included, derived from GPS data. Morning path shown in blue, afternoon in green.