



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE

DATE: See date of Section Chief signature

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Republic Services McCarty Road Landfill, Houston, TX

FROM: Daniel Heins, Environmental Scientist
Stationary Source Enforcement Branch, EPA OECA

THRU: Gregory Fried, Branch Chief
Stationary Source Enforcement Branch, EPA OECA

TO: File

BASIC INFORMATION

Facility Name: Republic Services McCarty Road Landfill

Facility Location: 5757 Oates Road, Houston, TX 77078

Date of Inspection: On Site Inspection: March 14, 2023
Virtual Conference: May 2, 2023

EPA Inspector(s):

1. Daniel Heins, Environmental Scientist, EPA OECA ^{a,b}
2. Daniel Hoyt, Environmental Engineer, EPA OECA ^{a,b}
3. Colleen McCarthy, Life Scientist, EPA Region 6 ^b
4. Kenneth McPherson, Life Scientist, EPA Region 6 ^b
5. Benjamin Rosenthal, Air Inspector, EPA Region 6 ^{a,b}

Other Attendees:

1. Nathaniel Wells, Environmental Manager for McCarty Road, Republic Services ^{a,b}
2. Scott Trebus, Area Environmental Manager for the State of Texas, Republic Services ^a
3. Nikki Wuestenberg, Senior Manager Air Compliance, Republic Services ^a
4. Angie Vandergriff, Project Director, Weaver ^a
5. Matt Stutz, Senior Engineer, Weaver ^a
6. Joe Mosier, Landfill Manager for McCarty Road, Republic Services ^b
7. Tyler Tandy, Environmental Specialist for McCarty Road, Republic Services ^b
8. Kevin Vasquez, Operation Manager for McCarty Road, Republic Services ^b

^a Attended conference

^b Attended surface emissions monitoring (SEM)

Contact Email Address: nwells2@republicservices.com

Purpose of Inspection: Surface monitoring and partial compliance evaluation for the Clean Air Act

Facility Type: Municipal solid waste (MSW) landfill

Regulations Central to Inspection: 40 C.F.R. Part 60, Subpart WWW; 40 C.F.R. Part 62, Subpart OOO; 40 C.F.R. Part 63, Subpart AAAA; 40 C.F.R. Part 98, Subpart HH

On Site (3/14) Arrival Time: 11:00 Central

On Site (3/14) Departure Time: 16:30 Central

Virtual Conference (5/2) Start Time: 14:00 Central

Virtual Conference (5/2) End Time: 16:00 Central

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

SITE OVERVIEW

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

Company Ownership:

The McCarty Road Landfill (“the Landfill”) is operated as McCarty Road Landfill TX, LP, which ultimately is owned by Republic Services. The Landfill previously was operated under BFI and then Allied Waste prior to their eventual merger with Republic.

Operations Overview:

The Landfill began operations around 1970, and currently has approximately 388 acres with waste in place, fully utilizing the permitted footprint. There is no further capacity for expansion and there is approximately 15 years remaining in capacity, pending market conditions. The Landfill accepts approximately 6,000 tons per day of waste. Waste includes MSW, construction and demolition (C&D) waste, class 2 non-hazardous industrial waste (plant trash), and contaminated soils. C&D waste from storms affects the year-to-year tonnage. The site does accept asbestos waste. The Landfill does deposit solidified liquids.

Of the 388 acres, approximately 50 acres are post RCRA Subtitle D in the southeast of the site. Overliner has been installed on top of older pre-RCRA sections. Leachate in lined portions of the landfill goes from sumps to holding tanks. Disposal from the tanks is both trucked off site or directly sent to the Houston Publicly Owned Treatment Works, pending volumes.

There is approximately 117 acres of final cover on some of the side slopes. Intermediate cover is 12” of soil, required to be put in place if not filling for 6 months in an area by their Solid Waste

Permit. Daily cover requires soils if in place for more than 24 hours. Alternative daily cover includes tarps, petroleum contaminated soils, and a half auto shredder fluff half soil blend.

The gas collection and control system (GCCS) contains approximately 500 wells. These are primarily vertical wells. The entire landfill is subject to gas collection requirements. In active areas, Republic may add horizontals as they are filling and then add vertical wells when the area is done being filled for that period. Horizontals vary from 75 to 125' vertical spacing, and pending fill sequence 30-50'. Vertical wells are typically spaced 200' apart though this is variable. Wellhead spacing is decided by the design engineers, typically consultants from Weaver and SCS. Leachate risers can have vacuum pulled on them for gas collection, this is done on an "as needed" basis. All collected gas goes to a common header, and all gas collection is active. Typical collection is in the range of approximately 9000 to 9500 standard cubic feet per minute (scfm) normalized to 50% methane.

Collected gas goes to a blower/flare system. Connections from the blower can discharge to two separate renewable natural gas (RNG) plants, and gas volumes beyond what the plants accept is flared off. There is typically an amount of gas being flared. The exact same gas is routed to the flares as two each of the plants. Ameresco operates one of the plants, and typically takes approximately 4500 scfm of gas. Montauk/GSF operates the other plant, and can take up to approximately 5500 scfm but more typically takes around 4500 scfm. There are two enclosed flares with 6000 scfm capacity each, and one candlestick with a 3000 scfm capacity. When the plants are operating, the candlestick usually handles the excess gas to accommodate so that the lower flows can still be adequately handled minding the turndown ratio for each flare.

SITE TOUR — MARCH 14, 2023

- ☒ 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
- ☒ Asked the facility representatives to identify any confidential business information (CBI) that was provided, observed, or discussed during the inspection. No CBI was identified.

Data Collected and Observations:

EPA conducted an abbreviated SEM survey of the facility. EPA used three ThermoFisher Toxic Vapor Analyzers 2020 (TVA2020) to perform EPA Reference Method 21 for the SEM. EPA monitored in two teams, with the third instrument moving between the two teams to provide confirmation readings for each exceedance point. GPS tracks were recorded for the confirmation instrument. Ben Rosenthal and Daniel Hoyt took primary readings, with Dan Heins providing confirmations.

EPA monitoring focused on part of the northern area of the Landfill, an area that had not seen any recent construction or waste deposition activity, covering an area of less than 40 acres. See Appendix C for maps. EPA inspectors identified 55 total points above 500 ppm methane. Only two points were not able to be confirmed.

While driving around the landfill to take upwind and downwind measurements, EPA noted an elevated area of methane. This was a widespread area of exceedance by ES-2, with exceedances at gaskets and from the base and top of nearby survey posts.

In the main area of SEM survey on the northern portion of the Landfill, exceedances were found primarily at penetrations and areas of erosion/exposed waste.

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

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

INSPECTION CONFERENCE — MAY 2, 2023

- ☒ Provided U.S. EPA point of contact to the facility
- ☒ Asked the facility representatives to identify any CBI provided, observed, or discussed during the inspection. No CBI was identified.

EPA showed facility representatives a map of the path walked during the on-site SEM survey and the exceedances detected.

Staff Interview:

The Landfill was previously operating under NSPS Subpart WWW until the Federal Plan Subpart OOO came into effect. The Landfill has a Design Capacity of greater than 2.5 million Mg and cubic meters, has an uncontrolled emission rate of NMOC of greater than 50 Mg, and has been subject to GCCS requirements for greater than five years.

The Landfill checks perimeter probes quarterly for gas migration. There is an active soil vapor extraction system tied into the GCCS to control migration, primarily located on the north and east side of the landfill. Probes are located outside these extractors.

Some gas wells have dewatering pumps, with the operations and maintenance contractors deciding when to add or remove the pumps. Liquid levels are checked quarterly. There are no defined action levels, pumps are added based on design engineer recommendations.

The wellfield is manually tuned, with wells checked twice a month. All adjustments are logged.

There are not specific contract limits on gas quality for the RNG plants. If either plant sees rising oxygen/nitrogen levels, they will call the landfill and the operations/maintenance contractors will try to find the source of the issue, which may be from weather, construction, or a need for re-balancing.

Wells designated as “odor control wells” are the soil vapor extractors and gas collection on the leachate system; Republic was uncertain if any interior wells were labeled as such. Wells designated as “nonproducing” are from older areas with low gas production that Republic does not want to remove. They are still monitored monthly, but there is no synthetic liner or geomembrane.

Tetra Tech performs the SEM for the site, currently using an IRwin. Republic stated that they have the calibration information and should have the map of where the technicians walk. There is no list of all penetration points for monitoring, the technicians identify them while walking. Active operations and construction areas (including GCCS construction) are excluded as dangerous areas. Republic has not recently identified slopes as being too steep to monitor and has not excluded areas based on high vegetation. Corrective actions are typically done by the operations team but may be contracted. There is no formal log of corrective actions.

Monthly cover integrity monitoring is performed in coordination with the wellfield operations/maintenance team. There are formal logs for this monitoring and corrective actions.

The landfill does not currently have elevated temperature areas. There was a subsurface oxidation event from a localized airline break that was resolved approximately a year and a half ago.

Collection shutdowns identified as “General Alarm” in their semiannual reports could be a pressure drop, electric issue, or high or low temperature alert from the flare. That is the general output from the monitoring program Republic uses.

EPA asked if Republic was aware of Carbon Mapper flyover data for the facility. They stated that Carbon Mapper had flown the site recently and that Republic believed the plumes measured came from the active area. Republic stated that the delay in receiving data from the June 2022 flyover made it hard to identify potential cause and respond.

Reviewed documents:

Prior to inspection (available publicly online):

- October 2022 Semi-Annual Report, including 2022 Q2 & Q3 SEM results
 - Q2 SEM
 - 68 exceedances total
 - Fewer than 20 in the approximate area of EPA survey
 - Q3 SEM
 - 60 exceedances total
 - Fewer than 10 in the approximate area of EPA survey
- February 2022 Subpart OOO Initial Report, including 2021 Q3 SEM results
 - 2021 Q3 SEM
 - 45 exceedances total
 - Fewer than 5 in the approximate area of EPA survey

Requested documents:

After discussing preference between a Section 114 Request For Information Letter and an emailed list of documents associated with the inspection, Republic expressed a preference for the latter.

Concerns:

- EPA noted the disparity between the number of exceedances they had found compared with the reviewed recent SEM surveys, indicating possible concerns with the quality of the SEM surveys
- EPA noted that erosion and exposed waste was seen across the survey area
- EPA noted that some of the pneumatic pump outlets were venting landfill gas (and condensate), and that the carbon canisters being utilized did not effectively control the emissions

DIGITAL SIGNATURES

Daniel Heins
Daniel Heins, Lead Inspector

Gregory Fried, Supervisor

APPENDICES AND ATTACHMENTS

Appendix A: Digital Image Log

Appendix B: Field Measurement

Appendix C: Maps

APPENDIX A: DIGITAL IMAGE LOG

Inspector Name: Colleen McCarthy

Archival Record Location: US EPA SharePoint

Images (1 of 2)

Image #	File Name	Description	Date/time (Central)	Latitude	Longitude
1	IMG_4004.JPG	A3 erosion gulley with exposed waste	2023:03:14 12:34:58	29.83149	-95.235336
2	IMG_4006.JPG	A2 penetration	2023:03:14 12:35:26	29.83153	-95.235139
3	IMG_4007.JPG	A4 EW295A	2023:03:14 12:38:23	29.83471	-95.235611
4	IMG_4008.JPG	A5 EW501	2023:03:14 12:43:50	29.83106	-95.235594
5	IMG_4009.JPG	A6 Erosion with exposed waste	2023:03:14 12:45:44	29.83122	-95.235961
6	IMG_4010.JPG	A7 EW500	2023:03:14 12:48:50	29.83088	-95.236075
7	IMG_4011.JPG	A8 Erosion gullies with exposed waste	2023:03:14 12:51:19	29.83083	-95.236336
8	IMG_4012.JPG	A9 EW427A	2023:03:14 12:53:28	29.83091	-95.236581
9	IMG_4013.JPG	A9 EW427A closeup on pneumatic leaking gas & condensate	2023:03:14 12:53:35	29.83089	-95.23655
10	IMG_4014.JPG	A10 Erosion/exposed waste	2023:03:14 12:59:07	29.83098	-95.236856
11	IMG_4015.JPG	A11 EW423	2023:03:14 13:01:02	29.83095	-95.237014
12	IMG_4016.JPG	A12 LI423	2023:03:14 13:03:03	29.83094	-95.237022
13	IMG_4017.JPG	Leachate breakout/distressed vegetation	2023:03:14 13:05:37	29.83114	-95.237672
14	IMG_4018.JPG	A13 Well	2023:03:14 13:14:04	29.83052	-95.238031
15	IMG_4021.JPG	A14 Erosion gullies with exposed waste	2023:03:14 13:16:41	29.8305	-95.238183
16	IMG_4022.JPG	A15 Erosion gullies with exposed waste	2023:03:14 13:18:48	29.83054	-95.238425
17	IMG_4023.JPG	A16 EW407	2023:03:14 13:28:20	GPS Error	GPS Error
18	IMG_4024.JPG	A17 LI378	2023:03:14 13:53:51	29.83151	-95.240662
19	IMG_4025.JPG	A18 EW375A	2023:03:14 13:57:12	29.8311	-95.240953
20	IMG_4026.JPG	A19 Erosion with exposed waste	2023:03:14 14:02:30	29.83142	-95.240914
21	IMG_4027.JPG	A20 Erosion with exposed waste	2023:03:14 14:06:50	29.8312	-95.241212
22	IMG_4028.JPG	A21 EW374	2023:03:14 14:11:48	29.83107	-95.2415
23	IMG_4029.JPG	A22 Bare earth/discolored soils	2023:03:14 14:18:42	29.83086	-95.241775
24	IMG_4030.JPG	A23 EW385	2023:03:14 14:24:35	29.83062	-95.241714
25	IMG_4031.JPG	A24 EW383	2023:03:14 14:36:24	29.83024	-95.24105
26	IMG_4032.JPG	A25 EW404	2023:03:14 14:39:58	29.83024	-95.240334
27	IMG_4033.JPG	A26 EW410	2023:03:14 14:47:34	29.83017	-95.239731

Images (2 of 2)

Image #	File Name	Description	Date/time (Central)	Latitude	Longitude
28	IMG_4034.JPG	A27 EW419A	2023:03:14 14:57:55	29.8301	-95.238487
29	IMG_4035.JPG	A28 EW424A with carbon can on pneumatic outlet	2023:03:14 15:08:00	29.83041	-95.23735
30	IMG_4037.JPG	A29 Erosion gulley	2023:03:14 15:21:40	29.8317	-95.236131
31	IMG_4038.JPG	5cm spacer on instrument	2023:03:14 17:57:47	NA	NA

APPENDIX B: FIELD MEASUREMENT DATA**Measured Exceedances (1 of 2)**

Flag	EPA Reading (ppm / %)	EPA Confirmation (ppm / %)	Description/notes	Latitude	Longitude
A1	894	2100	Multiple points throughout mound and well	29.831450	-95.234580
A2	910	1900	at penetration of riser	29.831516	-95.235137
A3	1100	640	erosion/exposed waste	29.831462	-95.235343
A4	903	1300	EW 295A at pipe	29.831358	-95.235387
A5	650	670	EW-501 at leaking ball valve	29.831007	-95.235600
A6	1622	2000	exposed waste in erosion gulley	29.831185	-95.236006
A7	1138	1400	EW-500, base of well	29.830878	-95.236069
A8	4600	2500	erosion/exposed waste	29.830801	-95.236365
A9	4838	2500	EW-427A, pump pneumatic outlet leaking gas/condensate	29.830874	-95.236563
A10	827	760	erosion/exposed waste	29.830907	-95.236880
A11	857	960	EW 423 at base	29.830983	-95.237058
A12	2900	2.5% / Flame out	LI 423 uncapped	29.830977	-95.237086
A13	870	2200	at seal on wellhead	29.830507	-95.238071
A14	6900	2800	erosion/exposed waste	29.830517	-95.238188
A15	2900	6900	erosion/exposed waste	29.830544	-95.238424
A16	1100	900	EW-407	29.830955	-95.238371
A17	4200	3200	LI-378 at top of wellhead and at ground level. 1% & flame out at top.	29.831501	-95.240688
A18	5900	6200	EW 375A	29.831100	-95.240992
A19	790	900	erosion/exposed waste	29.831161	-95.241118
A20	1000	1050	erosion/exposed waste	29.831174	-95.241228
A21	2500	1100	EW 374 at pipe	29.831178	-95.241641
A22	819	730	erosion	29.830867	-95.241731
A23	3790	2900	EW385 (no flag)	29.830613	-95.241738
A24	1000	1100	EW 383 (at base of mount and on top)	29.830253	-95.241018
A25	1200	1300	EW 404 at base of well	29.830261	-95.240268
A26	1240	540	EW410 at penetration above cover, south side of well	29.830178	-95.239706
A27	2600	3500	EW419A both at wellhead and lateral line	29.830099	-95.238462
A28	2300	750	EW424A base and pneumatic outlet (2.5% & flameout at outlet, still read over 1% at outlet of replaced carbon can)	29.830431	-95.237328

Measured Exceedances (2 of 2)

Flag	EPA Reading (ppm / %)	EPA Confirmation (ppm / %)	Description/notes	Latitude	Longitude
A29	1600	2600	Erosion gulley	29.831664	-95.236212
B1	600	Unconfirmed	EW212A	29.831796	-95.234953
B2	Flameout (>5%)	NA	(Confirmation not attempted to avoid flame out)	29.831742	-95.235135
B3	700	1100	Already flagged “22”	29.831736	-95.235231
B4	1020	1100	EW211A	29.831803	-95.235594
B5	1150	3400	EW421 Already flagged “33”	29.831369	-95.235976
B6	1090	571		29.831380	-95.236636
B7	615	610	Bare soil	29.831366	-95.237161
B8	655	700	Already flagged “38”	29.831290	-95.238161
B9	585	Unconfirmed	Ground penetration	29.831431	-95.238618
B10	905	1200	Ground penetration	29.831433	-95.238964
B11	985	1100	Ground penetration	29.831468	-95.239502
B12	770	880	Ground penetration	29.831338	-95.239663
B13	720	1400	Ground penetration	29.831154	-95.239913
B14	610	822	Ground penetration	29.831467	-95.240520
B15	650	959	Ground penetration	29.831448	-95.241400
B16	1100	875	EW338A	29.831377	-95.242170
B17	1139	800	Ground penetration	29.831075	-95.242254
B18	6100	6600	EW373	29.830958	-95.242168
B19	900	1300	EW436	29.830590	-95.242091
B20	850	1500	EW372A	29.830482	-95.242304
B21	1350	970	EW384	29.830671	-95.241206
B22	4800	5000	EW438	29.830461	-95.241112
B23	650	850	EW382	29.830619	-95.240640
B24	560	720	Ground penetration	29.830416	-95.240218
B25	600	1700	EW413	29.830214	-95.239095
C1	5000	NA	ES-2 (by gaskets) and at bases and tops of nearby survey posts. (No confirmation reading attempted)	29.822670	-95.235720

Calibration and Instrument Information

EPA used three ThermoFisher Toxic Vapor Analyzers 2020 (TVA2020), numbered 202017092712, 202023016408, and 202016081525 (and designated as TVAs “Green”, “Red” and “Black”). The EPA TVA2020 response times are approximately 4.5 seconds. EPA calibrated with 500 ppm methane in air, 10,000 ppm methane in air, and zero gas at the TCEQ Houston office prior to arrival on site.

Morning Calibration Bump Checks

TVA	500 ppm cal gas	10,000 ppm cal gas
Black	485 ppm	9,620 ppm
Red	481 ppm	10,500 ppm
Green	493 ppm	9,900 ppm

Upwind and downwind readings were less than 10 ppm.

APPENDIX C: MAPS

Site Overview Map



Blue line shows main EPA survey coverage, tracing the confirmation reading instrument. C1 marks the additional exceedance separately from main survey. Active area in central eastern portion of landfill at time of survey. Satellite imagery dated to April 2022 as shown on Google Earth.

Map of Detected Exceedances



Blue line roughly shows EPA survey coverage, tracing the confirmation reading instrument. Exceedance locations labeled with their flag numbers. Yellow line is 100m, north is up. Satellite imagery dated to April 2022 as shown on Google Earth. Survey area covered less than 40 acres.