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Sent: Wednesday, December 22, 2021 8:27 AM
To: Susan Blalock
Subject: Fwd: FW: EMO - 21 1215 - Hall (EPA) - Bristol (Reg# 11184) - 12/15/2021 Status Report
Attachments: Bristol - Construction Bid Drawings 2.5_11-15-21 - Sht 3 wdk annotated.pdf

From: Don Marickovich <dmarickovich@daa.com>
Sent: Wednesday, December 15, 2021 9:23 AM
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Subject: EMO - 21 1215 - Hall (EPA) - Bristol (Reg# 11184) - 12/15/2021 Status Report

Ms. Hall and Ms. Bazyk,

In accordance with EPA’s letter, “Approval of Higher Operating Temperature Values of Landfill Gas Wells and Submission of Gas Treatment Alternatives at the Bristol Virginia Integrated Solid Waste Facility” from August 2021, I am providing the December 15, 2021 status report on the existing wells, well drilling operations, and the expansion of the gas collection system.

Existing/New Well Temperatures

During August to November 2021, existing wells 39, 40, 46, and 47 were monitored periodically for temperature. Starting on October 21st the staff also began monitoring gas well 37 and gas well 35 on November 19th. Monitoring results are provided in the tables below. Temperatures marked as “ok” were below the 145-degree threshold. Since the last report at the end of November, the temperatures of wells 37, 39, 40, 46 and 47 have remained relatively consistent. Gas well 35 has decreased from 135-dgrees on November 30th down to 101-degrees on December 13th. Gas wells 46 and 47 remain well above 145-degrees. The staff began monitoring the new wells for temperature on December 1st. Only wells 60 and 64 were found to be at or above 145-degrees; so I have added those two wells to the table. Both wells now have temperatures around 150-degrees.

Temperature Data (Fahrenheit)																									
Gas Well	August Monitoring Dates																								
	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	19	21	23	24	25	27	28	30	31
39	104.4	100.1	99.5	100.8	107.8	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
37																									

40	156.5	165.8	165.7	170.5	172.6	171.5	172.5	176.3	173.1	175.2	183.8	178	175.5	177.6	176.5	163.8	162.9	94.8	84.6	69.1	72.1	70.4	72.2	96.5	86.3
46	183.2	184.7	181.3	182.3	183.4	184	184.9	170.3	168.6	179.8	186.7	178.6	172.6	170.1	183.8	183.4	181.5	183	167.1	178.2	181.7	148.6	168.1	172.6	170.8
47	194.3	196.5	196.9	197.3	196.4	194.8	195.6	195.9	195.1	195.7	195.9	197.5	197.2	196.5	194.2	194.7	194.3	194.8	193.3	193.1	193.4	190.5	178.7	178.6	180.3

Temperature Data (Fahrenheit)																									
Gas Well	September Monitoring Dates																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
39	ok	ok	ok	ok			ok	ok	ok	ok	ok		ok	ok	ok	ok				ok	ok	ok	ok	ok	
37																									
40	94.8	117.5	118.2	121.4			135.5	142.6	157.3	162.5	174.7		178.8	178.6	175.3	173.7				110.4	112.8	145.5	147.9	146.3	
46	145.9	175.3	176.9	177.5			187.7	188.6	187.5	187.2	184.8		183.6	181.3	178.3	180.7				181.2	181.7	182.3	181.9	182.4	
47	179.4	180.2	180.7	179.3			190.2	194.5	192.6	188.2	182.5		178.2	183.5	187.2	184.8				184.5	185.3	186.4	187.3	185.2	

Temperature Data (Fahrenheit)																									
Gas Well	September/October Monitoring Dates																								
	26	27	28	29	30	10/1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
39		ok	ok	ok	ok	ok			ok	ok	ok		ok			ok		ok	ok	ok	ok		ok	ok	120.5
37																									
40		152.5	154.7	151.5	157.2	162.4			161.4	158.9	159.4		158.1			160.2		159.9	161.6	161.1	161		160.8	158.8	157.7
46		182.7	180.3	179.5	180.2	184.3			184.9	183.2	183.7		180.2			182.5		181.4	182.1	183.4	181.4		175.2	171.3	161.1
47		189.4	188.3	187.2	186.9	187.2			187.3	188.5	188.7		186.9			187.3		186.8	188.4	187.1	186.9		186.9	187.1	186.3

Temperature Data (Fahrenheit)																									
Gas Well	October/November Monitoring Dates																								
	21	22	23	24	25	26	27	28	29	30	31	11/1	2	3	4	5	6	7	8	9	10	11	12	13	14
39	121.6	119.6	120.6		121.1	119.4	117.7	116.6	118.3	116		116	115	112	110	109	108		107	105	104	104	103	103	
37	147	144.6	145.8		146.3	146.8	146.3	145.9	144.8	146		146	145	145	144	146	146		147	145	146	146	145	146	
40	147.1	148.4	147.2		145.7	144.5	141.8	139.9	140.7	137		136	135	131	127	125	122		120	117	117	114	112	109	
46	166.8	182.1	182.7		183.4	184.9	184.4	184.7	183.4	183		183	180	180	182	183	183		183	182	182	179	178	177	
47	185.8	185.3	186.5		187.1	187.4	185.7	185.5	184.7	184		184	184	184	184	184	183		183	183	182	182	182	184	

Temperature Data (Fahrenheit)																									
Gas Well	November/December Monitoring Dates																								

	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	12/1	2	3	4	5	6	7	8	9
35					112	110	110	121	117	111	132	128	128	121	123	135	127	125	124	134	120	130	121	124	132
39	102	102	100	100	103	90	93	98	98	99	115	113	112	110	110	111	108	109	112	113	110	111	109	104	108
37	145	144	144	143	141	145	144	141	140	139	154	141	144	149	148	145	140	143	144	152	150	145	151	151	144
40	104	96	94	89	89	79	74	78	90	108	120	119	123	121	120	93	119	108	89	82	78	88	119	124	125
46	177	179	180		181	182	189	190	188	190	186	187	183	181	180	179	191	189	182	190	160	173	183	179	180
47	184	186	186		189	189	188	189	189	189	185	183	185	183	183	189	190	187	180	184	183	182	182	179	174
60																	162	158		145	170	162	161	162	163
64				153	150	149	152	150	145	158						145	144.6	144.8		148	148	148	149	144	150

Temperature Data (Fahrenheit)																									
Gas Well	December/January Monitoring Dates																								
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	01/1	2	3
35	131	130	98	101																					
39	110	118	103	109																					
37	144	151	150	150																					
40	119	130	125	117																					
46	193	170	182	180																					
47	160	178	163	171																					
60	157	158	153	150																					
64	148	151	146	150																					

New Gas Well Installation

Aptim was contracted to install new wells. Well drilling began September 10, 2021. Approximately one well per day was drilled and installed; with stoppages due to mechanical issues. A total of 17 wells had initially been planned to be installed. However, as the drilling proceeded, the City decided to install 4 additional wells; 66, 67, 68, and 32R for a total of 21. The as-built locations of all 21 wells are shown on the attached drawing.

Below is the summary of the gas wells Installed (gas well layout is attached to this email):

Summary of Gas Well Installation

Gas Well	September/October 2021						
	Date Installed	Design Depth (ft)	Actual Depth (ft)	Max. Waste Temp. (°F)	Decomposition	Water Content	Comments
49	10/4/2021	120	110	162	High	Wet	Hit Refusal
50	9/24/2021	120	96	151	High	Wet	Hit Refusal
51	9/21/2021	120	114	150	High	Wet	Hit Refusal
52	9/22/2021	120	108.7	149	High	Wet	Hit Refusal
53	9/15/2021	120	91	148	High	Wet	Hit Refusal
54	9/16/2021	120	91	169	High	Wet	Hit Refusal
55	9/29/2021	120	104	151	High	wet	Hit Refusal
56	9/25/2021	120	109	150	High	Wet	Hit Refusal
57	9/20/2021	120	103	148	High	Wet	Hit Refusal
58	9/27/2021	120	92	146	High	Wet	Hit Refusal
59	9/17/2021	120	72	147	High	Wet	Hit Refusal
60	9/30/2021	120	120	152	High	Wet	Design Depth
61	10/1/2021	120	105	175	High	Wet	Hit Refusal
62	10/13/2021	120	120	168	High	Wet	Design Depth
63	10/12/2021	117	110	141	High	Wet	Hit Refusal
64	10/2/2021	120	120	158	High	Wet	Design Depth
65	10/11/2021	120	100	142	High	Wet	Hit Refusal
66	10/7/2021	120	102	142	High	Wet	Hit Refusal
67	10/8/2021	120	100	156	High	Wet	Hit Refusal
68	10/15/2021	120	75	133	High	Wet	Hit Refusal
32R	10/14/2021	120	120	168	High	Dry	Design Depth

Drilling operations were completed on October 15th.

Gas Collection System Expansion

The City of Bristol VA has contracted with SCS Field Services to expand the gas collection system (GCS) to connect the 21 new gas wells. Construction began November 6th. As of December 10th, construction is essentially complete. All 21 new gas wells have been connected to the GCS. The wellheads on these new wells have been opened slightly pending proper tuning in the coming months, and associated air pressure and water discharge lines have been extended to them. Gas well pumps have been installed in 14 of these new wells and are operational; the remaining 7 gas wells do not have any significant water in them

The next bi-weekly status report will be provided by December 31, 2021. If you have any questions on the information provided, please, contact either me or Mr. Ernest Hoch at (540) 537-0404 or via email at ehoch@daa.com.

Thank you,

Don Marickovich

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