



Environmental Protection Commission

HILLSBOROUGH COUNTY

EPA Level 4 Investigation

of

**Gopher Resource
Tampa Plant**

June 30, 2021

**Prepared By:
EPC Air Division Staff**

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SECTION 1 INTRODUCTION

1.1 Objective & Scope of Work

From April 13 – June 30, 2021, EPC AD Staff conducted a Level 4 Inspection/Investigation of the Gopher Resource Plant, aka EnviroFocus Technologies, LLC, which is located at 6505 East Jewel Avenue, Tampa, FL 33619 as part of a complaint investigation. Most inspections conducted by the United States Environmental Protection Agency (EPA), the Florida Department of Environmental Protection (FDEP) and the EPC, including the Gopher Resource inspections, are EPA Level 2 or INS2, which is a walk-through evaluation of the plant's various air pollution emission sources and their pollution control devices at the time utilizing the facilities own permanent monitoring equipment. An EPA Level 2 Inspection also includes a review of the records required by the permit to determine the facility's compliance status. However, an EPA Level 4 Inspection/Investigation's scope is a more detailed and narrowed inspection targeting particular emission units (EUs) that is performed by senior managers, preferably, a Professional Engineer (P.E.). Unlike the EPA Level 2 Inspection, the EPA Level 4 Inspection/Investigation includes elements of the EPA Level 3, which includes the elements of an EPA Level 2, but also includes the use of portable instruments to verify that the permanent on-site environmental monitors and sensors are performing properly. The EPA Level 4 Inspection/Investigation also includes a review of off-permit internal documents like capital project approvals and environmental audits and engineering reports.

EPC has been delegated most permitting, compliance and enforcement of air pollution sources in Hillsborough County, including the Gopher Resource Tampa Plant, from the FDEP and EPA through Specific Operating Agreements, as well as other grants and contracts. Under these agreements, EPC

issues permits and conducts inspection, audits compliance emissions testing reports conducted by facilities, responds to inquiries and complaints from citizens, media, and elected officials. Under our compliance and enforcement delegation, EPC reviews other periodic monitoring reports, and, takes appropriate enforcement action when the permit and regulations are violated. EPC's enabling act, Chapter 84-446, Laws of Florida, restricts EPC's authority to regulating pollution in the outside ambient air – not indoor air. EPC maintains a network of ambient air monitors throughout Hillsborough County to measure air pollutants in order to ensure compliance with the federal and State air quality standards. While EPC, FDEP, and EPA are not responsible for regulating the air inside the Gopher Resource Tampa Plant, the air pollution source permits issued to Gopher Resource do regulate the proper operation and maintenance of the various air pollution sources, such as the Reverberatory Furnaces and Refining Kettles, and their associated air pollution controls.

In early April 2021, EPC received inquiries from federal and local elected officials, as well as inquiries from FDEP and EPA regarding alleged air pollution source violations occurring at the Gopher Resource Tampa Plant as published in the Tampa Bay Times (TBT) articles on March 26, 2021 through May 28, 2021. Therefore, in accordance with our delegation agreements and contracts with FDEP and EPA, EPC initiated a complaint investigation of the allegations. The objective is to investigate the complaints (allegations) of poor operation and maintenance of the various air pollution sources to determine if there were violations of the regulations and the air pollution source permits that were in effect at the time. The TBT allegations are listed in Table 1-3.

1.2 Facility Description & Overview

The Gopher Resource Tampa Plant is a Secondary Lead Smelter that recycles up to 13 million batteries per year and is permitted to produce up to 200,000 tons of lead per year (tpy) under Title V Air Operation

Renewal Permit No. 0570057-038-AV. Batteries are recycled in an enclosed building maintained under slight negative pressure by a series of Donaldson Torit Cartridge Filters. Torits A, B, and C (EU No. 035) are rated at 195,000 actual cubic feet per minute (ACFM) in total and Torits D and E are rated at 160,000 ACFM (EU No. 038) and operate in parallel. In addition, the Torit D & E System has a high efficiency particulate air (HEPA) filter downstream of their respective cartridge filter that further control particulate matter (PM) and lead (Pb) emissions before being vented to the atmosphere through separate stacks.

Batteries arrive at the facility in covered trucks or by rail and are belt conveyed to the Battery Breaking Area (EU No. 026) where they are belt conveyed to a Hammer Mill and crushed. The Hammer Mill is permitted to process up to 1,440 tons per day (tpd) of batteries with PM, Sulfuric Acid Mist (SAM), and Pb emissions controlled by a ~25,700 ACFM Tri-Mer Whirl Wet Model 280-H Wet Impingement Scrubber before being vented to the atmosphere through a ~130 ft Raw Material Processing Center (RMPC) stack. The sulfuric acid that drains from the crushed batteries is pumped to a Wastewater Treatment Plant (WWTP) inside the building where it is neutralized, while the lead and lead salts are processed in a series of Desulfurization Tanks and stored in the containment building for intermediate storage before being belt conveyed to the ~10 Million British thermal units per hour (MMBtu/hr) natural gas fired Rotary Feed Dryer (EU No. 030) that can process up to 40 tons per hour (tph) of lead and lead salts. PM and Pb emissions from the Rotary Feed Dryer are controlled by an ~18,000 ACFM Foster Wheeler Shaker-type Baghouse before being vented to the atmosphere through the ~130 ft Process Stack.

Dried lead is then belt conveyed from the Rotary Feed Dryer and charged to an ~30 MMBtu/hr natural gas fired Reverberatory Furnace (with Propane Back-up Fuel) that can process up to 960 tpd or 338,400

typy of lead and lead salts (EU No. 031). Molten soft lead from the Reverberatory Furnace is tapped and conveyed through open trough channels called launders (L1 - L3) to Refining Kettle Nos. 9 and/or 10 before being pumped to one of the other 8 Refining Kettles. Refining Kettle No. 9 feeds Refining Kettle Nos. 1 - 4, while Refining Kettle No. 10 feeds Refining Kettle Nos. 5 - 8. Other non-lead bearing fluxes and associated materials like coke breeze is also added to the Reverberatory Furnace as needed. Lead slag from the Reverberatory Furnace is tapped and poured into molds to be processed with other lead bearing scrap, coke, cast iron, silica, limerock, and shredded steel in the Blast Furnace (EU No. 032) to produce hard lead. The Blast Furnace is charged via an enclosed Skip Hoist and has a maximum charge rate of 180 tpd or 65,700 tpy of lead. Hard lead, as well as slag, is tapped (EU No. 033) and poured into molds with PM and Pb emissions being captured by hoods and vented to an ~ 72,000 ACFM Hygiene Shaker-type Baghouse System before being vented to the atmosphere through the ~130 ft Hygiene Stack. PM and Pb charging emissions from the Skip Hoist are vented to the same ~72,000 acfm Hygiene Shaker-type Baghouse before discharge to the ~130 ft Hygiene Stack. The West Hygiene Baghouse controls Reverberatory and Blast Furnace Tapping and Charging, while the Hygiene Middle and East Baghouses control the Refining and Dressing Operations.

Direct emissions from the Collocated Reverberatory and Blast Furnace are vented to an ~54,000 ACFM 10 MMBtu/hr Afterburner to control Volatile Organic Compounds (VOCs), Carbon Monoxide (CO), and Dioxin and Furans (D/F), emissions then to a ~ 54,000 ACFM Shaker-type Baghouse System to control PM and Pb emissions before being vented to a Wet Scrubber. The Wet Scrubber design flow is ~42,800 ACFM at 125 Deg F and uses ~ 264 gallons per hour (gph) of caustic (NaOH) to control Sulfur Dioxide (SO₂). Emissions from the scrubber are vented to the atmosphere through the ~130 ft Process Stack that is equipped with CO, SO₂, and Oxides of Nitrogen (NO_x) Continuous Emission Monitors (CEMS). When the Reverberatory Furnace is not in production, the Blast Furnace emissions are directed

to a smaller ~8 MMBTU/hr Afterburner (that only operates when the Reverberatory Furnace is not operating) before being directed to the baghouse and scrubber. The Reverberatory Furnace will be in a “Banked Mode” where it is operating and providing additional heat to, but not producing lead or charging any lead bearing material.

The maximum production rate of the ten (10) ~40 MMBtu/hr natural gas fired (Propane Backup) Refining Kettles is 66 tph or 1,584 tpd with the combustion exhaust emissions (that do not make direct contact with the refining process) being vented to the atmosphere through 10 separate stacks (EU No. 034). Alloying fluxing agents such as sulfur and niter (sodium nitrate) are mixed in to produce lead alloys. PM and Pb emissions are captured by hoods and vented to an ~ 72,000 ACFM Hygiene Shaker-type Baghouse System before being vented to the atmosphere through the ~130 ft Hygiene Stack. The Hygiene Stack ~~has an~~ is equipped with SO₂ and NO_x CEMS. Lead from the Refining Kettles is then pumped to the casting machines before storage and shipping.

The NO_x and CO CEMS are required to demonstrate compliance with a 42.2 pounds of NO_x emitted per hour (lb/hr) and a 204.7 pounds of CO emitted per hour (lb/hr) 30-day rolling average permit emission limit on the Process Stack that vents direct emissions from the Rotary Feed Dryer, Reverberatory and Blast Furnaces. The SO₂ CEMS are required to demonstrate compliance with the 202.24 lb/hr 30-day rolling average limit on the Process and Hygiene Stacks. As stated previously, the Hygiene Stack vents emissions from Reverberatory and Blast Furnace Charging and Tapping, as well as Refining and Drossing Operations. The NO_x CEMS on the Hygiene Stack is required to demonstrate compliance with a 5.0 lb/hr NO_x limit.

Alkaline reagents used in the Desulfurization System are pneumatically loaded at a maximum rate of 50

tph into a ~85 ft Storage Silo, with PM emissions controlled by a Modu-Kleen Bin Vent Filter (EU No. 028) on top of the silo.

The facility utilizes a 1,000 KW diesel-fired Emergency Generator (EU No. 037) when power is not available from the local utility.

ID No.	Air Pollution Emission Unit (EU	Air Pollution Control System
026	1,440 tpd Battery Breaking Area	25,700 ACFM Tri-Mer Whirl Wet Model 280-H Wet Impingement Scrubber
028	Alkaline Reagent Silo	Modu-Kleen Bin Vent Filter
030	10 MMBtu/hr 40 tpd Rotary Feed Dryer	18,000 ACFM Foster Wheeler Shaker-type Baghouse
031	30 MMBtu/hr 960 tpd Collocated Reverberatory Furnace	54,000 ACFM 10 MMBtu/hr natural gas fired Afterburner; 54,000 ACFM Shaker-type Baghouse System; 42,800 ACFM
032	180 tpd Collocated Blast Furnace	54,000 ACFM 10 MMBtu/hr natural gas fired Afterburner; 54,000 ACFM Shaker-type Baghouse System; 42,800 ACFM (Blast Furnace Mode Controlled by 8 MMBtu/hr Afterburner)
033	Reverberatory and Blast Furnace Charging, Tapping, and Refining	72,000 ACFM Hygiene Shaker-type Baghouse System
034	Combustion Gases from 1,584 tpd 40 MMBtu/hr (Combined) Refining Kettles	Combustion Practices

035	Building Ventilation	195,000 ACFM Torit A, B, and C Filters with Secondary HEPA Filters
036	Facility Grounds & Roadways	Wet Suppression, Vacuum Sweeping, & Wheel Wash
037	1,000 KW Emergency Generator	Combustion Practices
038	Additional Building Ventilation	160,000 ACFM Torit D, E Filters

Table 1-2 Air Pollution Emission Units (EUs)

1.3 Tampa Bay Times Allegations

The following table is a listing of the TBT allegations and the dates they appeared in print or on-line:

TBT Allegation No.	TBT Allegation	Date	Tampa Bay Times Issue
1	Manual shaking of bags when automated shaker system was routinely down	2014	Sunday, March 28, 2021
2	Lead dust from other parts of plant leaking into furnace area, and inadequate furnace exhaust hoods	Spring 2012	Sunday, April 4, 2021
3	Corrosion of Furnace Process and Hygiene Baghouse Shaker Mechanisms made operation unsafe. Needed consultants help. According to article, these problems persisted until carbon steel replaced with stainless steel in 2016.	May 2013; February 2014	Sunday, April 4, 2021
4	Jammed baghouse hopper screw conveyors requiring manual hopper loading and causing fugitive dust when the automated system was down.	2014 - 2015	Sunday, April 4, 2021
5	SO ₂ emissions from the water treatment department computer room in March 2012 due to mechanical problems that allowed the gas to build up over months. SO ₂ emissions due to plant running without sulfur dioxide control system down for repair in May 2016.	March 2012; 2013; May 2016	Sunday, April 4, 2021
6	April 2017 consultant's report stated that exhaust hoods on the Blast Furnace Pb Tapping and Reverberatory Furnace Launder ducts had been removed since installation in 2009. The removal had made the exhaust hoods less effective and degraded the airflow balance through the ductwork. Other hoods were too small.	April 2017	Sunday, April 4, 2021
7	In June 2017, life-threatening levels of SO ₂ in the water treatment department in computer room over 3 hours. Levels reached 4 times the OSHA limit. An ongoing repeated mechanical malfunction was to blame.	June 2017; November 2017	Sunday, April 4, 2021
8	In March 2019, SO ₂ and CO reached life-threatening levels in the furnace department.	March 2019	Sunday, April 4, 2021
9	Lead-laced dust blanketing floor in furnace department (photo) and fumes surging from furnace and around a loader truck driver (video).	2019	Sunday, April 4, 2021
10	Dust collecting atop pipes in furnace department (photo).	2019	Sunday, April 4, 2021
11	Lead-laced dust clogging a ventilation pipe (photo).	Early 2021	Sunday, April 4,

			2021
12	Dust explosion in furnace area damaged equipment and piping. Battery breaker had been leaking sludge for 8 months that was inches deep in some spots.	Late March - Early April 2021	Sunday, April 11, 2021
13	Oxidation Reactors, which is key in controlling SO ₂ , had malfunctioned and was leaking hazardous liquids in the water treatment department.	Late March 2021	Sunday, April 11, 2021
14	"Dust Drops" from afterburner causing dust explosions in the Furnace Area (video).	October 2019	Friday, April 9, 2021
15	Fumes from Refining Kettle as worker removes impurities (video)	2014	Friday, April 9, 2021
16	Fumes from Reverberatory Slag Tapping (video)	July 2020; May 2021	Friday, May 28, 2021

Table 1-3

SECTION 2

On Site Inspections & Opening Conference

2.1 April 13 – 15, 2021 On-Site Inspection & Records Requests

On April 13, 2021, EPC Air Division Staff, Felipe Ascano (Engineering Specialist II), Alan Rodriguez (Engineering Specialist II), and Sterlin Woodard, P.E. (Air Division Director), arrived at the Gopher Resource Tampa Plant and met with the following employees: Environmental Manager Maytal Manhin, Regulatory Compliance Specialist Bob Soich, and Environmental Director (by teleconference) Angela Fogarty. We informed them that we were there to investigate the air pollution related allegations from the news articles and determine if there were any violations of the permit and regulations. During our pre-inspection meeting, we requested a copy of a 2017 consultant's report cited in the TBT article, and also copies of any internal reports, work orders or capital requests and approvals associated with the Hygiene Ventilation System Upgrades. Ms. Manhin and Ms. Fogarty agreed to provide the requested information. Following the office meeting, we conducted a walk-through of the various Emission Units (EUs). EPC staff utilized an Extech Model 407123 Thermo-Anemometer and a RKI Eagle 2 Gas Detector to measure hood velocities and CO concentrations. EPC Staff also utilized an Escorcon Industrial Pro Personal CO Monitor, while Gopher personnel used a Ventis Pro 5 Industrial Scientific Personal Monitor to measure CO and SO₂ concentrations.

We began our inspection with a walkthrough of the Refining Area where we noted the 10 Refining Kettles. Each appeared to have a direct evacuation to a ventilation system but included an additional hood pickup point for Manual Drossing. We didn't observe any active refining for Refining Kettles Nos. 1-8. So, we took several hood velocity readings on Refining Kettle No. 4. The duct velocity of the Main Duct ranged from 132 - 141 fpm near the middle of the duct. The face velocity of the Manual

Drossing Hood was ~ 43 fpm near the middle of the hood. The face velocity of the access door of the kettle ranged from 43 – 62 fpm across the opening. Refining Kettle No. 8 enclosure appeared partially disassembled.

As we walked over to the Reverberatory Furnace Lead Tapping Area, we noted that there were no Launder duct hoods, and each slide gate for the ducts were in the closed position, which appeared to partially confirm TBT Allegation No. 6. We then proceeded to the Reverberatory Furnace Lead Tapping and noted a hood enclosure ventilating the Lead Tapping. The furnace was operating, and there didn't appear to be any visible fugitive emissions escaping from the hood. We didn't detect any CO or SO₂ concentrations. Launder No. 1 was directing lead from the Reverberatory Furnace to Launder Nos. 2 and 3. Launder No. 2 was directing lead to Refining Kettle Nos. 10 with Launder No. 3 directing lead to Refining Kettle No. 9.

We then walked over to the Blast Furnace and noted a partial enclosure hood over the Lead Tapping Spout, as well as an enclosure hood over the pour mold. As we proceeded to the Reverberatory Furnace Slag Tapping, we noted a large enclosure hood covering the pour mold and the previous pour mold. As stated previously, the Reverberatory Furnace was operating, and we noted visible emissions around the Slag Tapping. We measured CO concentrations of ~16 ppm using the Escorcon Monitor and SO₂ concentrations of ~0.2 ppm using the Ventis Pro 5 Monitor near the hood enclosure.

We then observed visible emissions emanating from around the Skip Hoist enclosure on the upper floors. We took CO and SO₂ readings a few feet from the door of the chute doors using the Eagle 2 CO Monitor and the Ventis Pro 5. Within a few seconds, the alarms sounded and, after about a minute, the CO readings peaked over 100 ppm and the SO₂ readings peaked at ~9.2 ppm. This appeared to confirm the

TBT Allegation No. 8 may have existed prior to the Hygiene Ventilation Baghouse System Upgrades in 2020 – 2021.

We then proceeded over to the Hygiene Shaker Baghouse System Hoppers. We noted a number of patches on the bottom of the screw conveyors and at least one discharge chute from the conveyor to a 55-gallon drum. We took CO, NH₃, and SO₂ readings with the RKI Eagle 2 measuring 0 ppm for CO and 3.5 ppm for NH₃, with the Ventis Pro 5 measuring ~0.5 ppm for SO₂. The SO₂ and CO readings appear to confirm TBT Allegation No. 9, when considered in the context of the Hygiene Baghouse Ventilation System changes we observed. However, the NH₃ should be investigated further as an air pollutant. Gopher Resource has an Industrial Wastewater Facility Permit (FL0687138 MI) from FDEP for stormwater, which requires monitoring for NH₃. According to the files, from 48,000 to 170,000 gallons per day (gpd) of stormwater can be used in the manufacturing process.

Before leaving the facility, Ms. Manhin provided a printed copy of the 2017 Consultant's Report, which was conducted by AMEC Foster Wheeler on April 17, 2017. Later that day, we received an email from Ms. Manhin, which included the Foster Wheeler Initial and Final Evaluation Report, along with the Initial and Final Scope of Work, and Gopher Capital Request and Capital Closures.

We returned on April 14, 2021 and discussed several of the TBT Allegations, specifically, an allegation received verbally from TBT that the furnaces operate when the Desulfurization System is down. We discussed how the Desulfurization System operated with Ms. Manhin and Ms. Fogarty explaining that the 3 desulfurization tanks work independently of each other. They said the desulfurization tanks operate as a batch operation and takes 2-3 hours, but the lead storage area has about 3 days of lead material feed if the Desulfurization System is down. We then requested information on equipment breakdowns

and malfunctions for the system, as well as the WWTP. We also requested SO₂ CEMS data, which Gopher Staff said they would provide.

Ms. Manhin and Mr. Soich accompanied us on another walk-through of the Battery Breaking, Desulfurization System, and WWTP. There are 3 Desulfurization Tanks, which feed the Lead Storage Area and WWTP. As we proceeded to the WWTP, we observed 4 SO₂ Monitors located in each corner of the WWTP. We utilized Gopher's Ventis Pro 5 SO₂ Monitor, which didn't detect any SO₂ in any of the areas.

Leaving the WWTP, we walked over to the Blast Furnace Area and observed the Lead Tapping. A Gopher employee was tapping. The only pollutant detected was NH₃ at 3.5 ppm utilizing the RKI Eagle 2 Monitor.

On April 15, 2021, EPC received the Furnace Downtime information since 2020, as well as the stationary gas monitor (ATI GasSens SO₂ Gas Monitor) information from 2 WWTP incidents in October 2020 and January 2021.

EPC Staff also returned on April 15, 2021 and spoke with Maytal Manhin, Bob Soich, and Angela Fogarty (via teleconference). We requested to speak with a manager responsible for the baghouses to discuss another TBT Allegation. We were directed to speak with the Pollution Control Manager Tony Stivers and asked if Gopher was manually shaking bags. Mr. Stivers stated they no longer manually shake bags. According to Mr. Stivers, the problem was fixed back in 2013 and 2014 when they completed the upgrades to the Process Stack Baghouse System followed by the Hygiene Stack Baghouse System in early 2016. I asked if Gopher had obtained approval from FDEP or EPC prior to the upgrades

and, if so, we were requesting the information, along with any engineering design report, or internal reports, maintenance work order, or capital approval requests. Ms. Fogarty asked that we provide them with an official written request for some of the material. We agreed to do so. This appears to be a probable confirmation of TBT Allegation Nos. 1, 3, and 4.

2.2 April 21, 2021 On-Site Inspection & Records Request

EPC Staff returned to the Gopher facility on April 21, 2021 and spoke with Maytal Manhin, Bob Soich, and Angela Fogarty (via teleconference) who stated that they had never received the April 19, 2021 request. After several failed attempts to email the request again, it was agreed that EPC Staff would provide a hardcopy to Ms. Manhin the following day. We then discussed the results of the WWTP SO₂ Incidents with EPC requesting copies of any reports and SO₂ CEMS data for any incidents in May 2016, June 2017, and November 2017 (TBT Allegation Nos. 5, 7). EPC Staff also requested copies of any reports that were generated on the findings, and/or any corrective actions.

Sterlin Woodard also made a site visit to the facility on April 22, 2021 to provide a hardcopy of the April 19, 2021 request to Maytal Manhin.

2.3 May 25, 2021 On-Site Inspection & Records Requests

On May 25, 2021, EPC Staff, Alan Rodriguez, Felipe Ascano, and Diana Lee, P.E., arrived at the facility and met with Environmental Manager Maytal Manhin, Bob Soich, and Environmental Director Angela Fogarty (via teleconference). EPC Staff conducted face velocity, temperature, and hood cross sectional area measurements on Refining Kettle Nos. 1-9 using a REED Instruments Anemometer (Model # SD-4214). Reading were not taken on Refining Kettle No. 10 because it didn't have a Manual Drossing Operation. Gopher Resource Staff also conducted static pressure measurements in the ducts. The EPC

Staff measurements are in the Table 2-3. EPC Staff took face velocity measurements at 3 locations along the centerline of the dressing hoods at distances ~1/3 from right end, center, and 1/3 from the left end. However, EPC Staff was unable to obtain duct velocity readings in the center of the Main Refining Kettle ducts due to turbulent flow. So, as a substitute, EPC Staff took face velocity readings of the access door to the duct, which are not reported:

Refining Kettle Manual Dressing Air Flows

Kettle No.	Operating Mode	Panel Area Sqft	Manual Dress Hood				Hood Face Velocity (AVG) fpm	Hood L X W inches	Hood Area Sqft	Hood (ctr Pt) Flowrate cuft/min	Hood (Avg all pts) Flowrate cuft/min
			Temp. °F	L pt fpm	ctr pt fpm	R pt fpm					
#1	On	0.75	125		165		165	42 X 41	11.96	1,973	1,973
#2	Off	0.75	120	94	192	62	116	42 X 31	9.04	1,736	1,049
#3	On	0.75	134	0	248	130	126	42 X 32	9.33	2,315	1,176
#4	On	0.75	119	285	163	84	177	42 X 32	9.33	1,521	1,655
#5	On	0.75	114	256	230	249	245	42 X 32	9.33	2,147	2,287
#6	On	0.75	117	118	248	98	155	42 X 32	9.33	2,315	1,444
#7	On	0.75	113	135	238	132	168	42 X 32	9.33	2,221	1,571
#8	On	0.75	113	253	438	192	294	42 X 32	9.33	4,088	2,747
#9	On	1.17	110	31	51	57	46	42 X 32	9.33	476	432
#10	On	0.77									

Table 2-3

Photographs taken during the On-Site Inspections are listed in Appendix A.

SECTION 3

REVIEW OF FACILITY RECORDS

3.1 AMEC Foster Wheeler April 17, 2017 Report Review

A review of the April 17, 2017 AMEC Foster Wheeler Report (Report) and internal Gopher documents received on April 13, 2021 verified that the Blast Furnace Lead Tapping Spout hood and Reverberatory Furnace Lead Tapping Lauder hoods had been removed, as well as documenting emissions of hot gases and emissions escaping from the Blast Furnace Lead Tapping hood and the Reverberatory Furnace Slag Tapping hood. The Report also outlined how the ventilation system was ineffective and of a poor design and led to reduced visibility, dust accumulation on surfaces, and increased risk of elevated lead blood levels in workers. The Capital Approval Request stated that the Hygiene Ventilation System had lost ~ 25-30% of its capacity due to tramp air. These items were addressed by improving and replacing baghouse doors, access hatches, and dust screws. The Report stated that a significant amount of air is short-circuiting into the baghouse through the baghouse hopper chutes, which were installed without airlocks. This leakage of air is severely degrading the airflow draw available to the exhaust hoods. Test measurements from the Report showed leakage was causing airflow at the exhaust hoods and baghouses to be ~ 40 - 60% less than the rated design flow. It recommended adding airlocks on the hopper discharge chutes, enlarging the Reverberatory Slag Tapping Enclosure to enclose the previously poured mold, as well as creating larger enclosure hoods for the Blast Furnace Lead & Slag Tapping.

The Report also recommended an enclosure hood over the Blast Furnace Lead Tapping Spout where the previous hood had been removed. For the Blast Furnace Lead Tapping, the Report recommended an enclosure hood over the mold that's being poured, as well as the previously poured mold. The Report also stated that the Refining Kettle Auto-drossing exhaust vents had been removed, capped and

dismantled. It has been replaced by a Manual Drossing Operation where hot dross from the kettles are removed by shovel and deposited into holding bins. This operation is not vented to the Hygiene Baghouse System as was the Auto-drossing Operation and a source of fugitive dust emissions around the kettles. According to the Report, the Auto-drossing and Main Refining Kettle exhaust were connected to the same ductwork, which reduced the effectiveness of the exhaust systems. The Report recommended totally dismantling the Reverberatory Furnace Lead Tapping Launder and Refining Kettle Auto-drossing Ventilation Systems. The Report recommended using the additional air flow to add Manual Drossing Ventilation to the Refining Kettles and separating the Manual Drossing and Main Refining Kettle Ventilation Systems. Hood capture velocities and duct transport velocities were recommended to be designed at a minimum of 300 fpm 4,000 to 4,500 fpm to properly capture and ventilate emissions. However, major improvements to the Blast Furnace Skip Hoist Ventilation were not included in the recommendations. Project design and engineering began in February 2018. However, due to delays related to the COVID-19 pandemic, project construction was delayed to December 1, 2020 and completed on March 9, 2021. This appears to confirm TBT Allegation Nos. 2, 6, 9, 10, 15, 16, and 11 due to the lower than recommended hood capture and duct transport velocities.

3.2 Wastewater Treatment Plant (WWTP) SO₂ Records & Baghouse Shaker Replacement Records Review

On April 19, EPC Staff followed up the verbal requests with a written email request for information and documents in the AMEC Foster Wheeler 2017 Report, as well as calibration information on the WWTP and Hygiene and Process Stack SO₂ CEMS. A review of the April 15, 2021 WWTP SO₂ stationary gas monitor data revealed 2 incidents where the Oxidation Skills malfunctioned: (1) October 7, 2020 and (2) January 7 – 13, 2021. SO₂ concentrations for both events peaked at ~100 ppm with the January 2021 event extending out over several days. This confirms TBT Allegation No. 13. EPC later obtained

information from Gopher Resource staff confirming a June 14, 2017 incident where the SO₂ concentrations peaked at 150 ppm. This appears to be a confirmation of TBT Allegation No. 7 and a probable confirmation of TBT Allegation No. 5 due to the nature of the historical problems with the oxidation skids.

On April 19, 2021, EPC Staff received an email from Maytal Manhin with the October 2020 and January 2021 WWTP Work Orders for the SO₂ Incidents, all 2020 Desulfurization System Work Orders, as well as a copy of a November 24, 2015 email from David Read (FDEP-DARM) approving the Hygiene Shaker Baghouse System Upgrades. The letter approved the upgrades to the Hygiene Shaker Baghouse System, which started on December 15, 2015 and was completed on February 22, 2016. The email also acknowledged that Gopher had been manually shaking the bags due to problems with the current automatic shaker system and the fact that it was no longer operating. The authorization further acknowledged that Gopher had already installed an identical automatic shaker system in the Process Stack Shaker Baghouse System. In a April 11, 2014 letter to EPC regarding a May 29, 2013 Hygiene Baghouse System VOC compliance test failure and their problems with corrosion due to the introduction of tramp air into the Hygiene Baghouse System, which results in an inability to control draft in the furnaces and refining kettles. Gopher eventually replaced the baghouse modules with stainless steel and the fans, ductwork and stack with higher quality steel. And while the shaker system was replaced in February 2016, according to the AMEC Foster Wheeler Report, the problems with “tramp air” and, therefore, corrosion, more than likely continued with the hopper and screw conveyor transport system, which wasn’t replaced until March 2021. This was a probable confirmation of TBT Allegation Nos. 1, 3 and 4.

A review of Gopher’s 2014 – 2015 Semi-Annual Monitoring (SAM) and Annual Statement of

Compliance (ASOC) Report submittals did not show where the facility had reported the breakdown, malfunction, or failure to properly operate the shaker mechanisms of the Process Stack and Hygiene Baghouse Systems. The only reference with respect to the baghouse shaker system was under the NESHAP Certification Summary Statement of the records maintained as part of the practices described in the standard operating procedures manual for baghouses under 40 CFR 63.550(e)(6): “Shake Events – Monitored and tracked by PLC. Shake events and baghouse operation is monitored both by the baghouse employees and the shift supervisor”. There is no mention that the automatic shaker systems for the Process and Hygiene Baghouse Systems were not operating properly or had malfunctioned.

On April 21, 2021, EPC Staff received an email from Maytal Manhin with the WWTP SO₂ Sensor and Furnace Process Stack SO₂ CEMS calibration information for 2021, along with the pertinent calibration sections from the owner’s manual. A review of the data shows several dates with multiple daily zero and spans, which will be followed up with Gopher Resource Tampa Plant Staff.

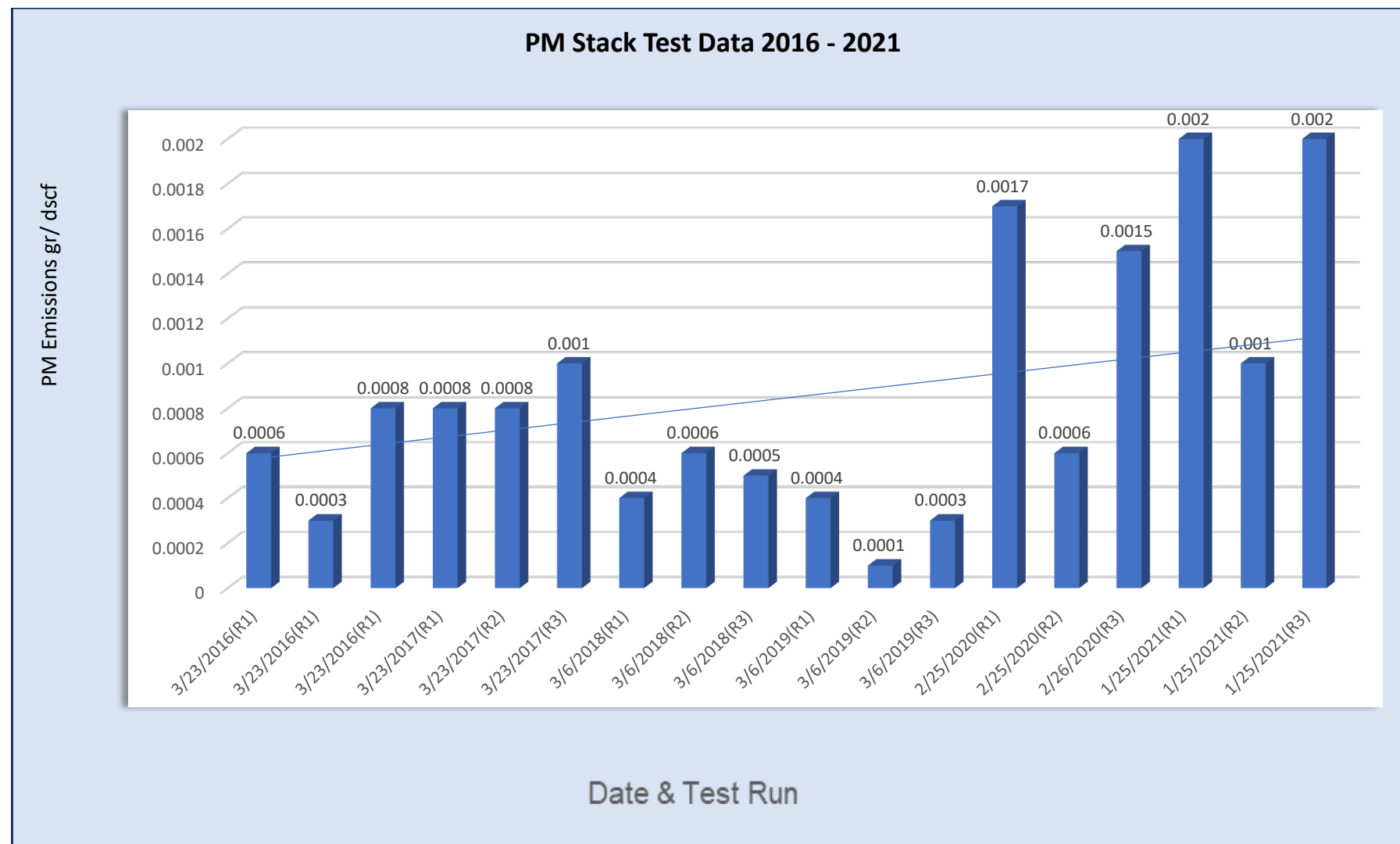
On June 11, 2021, EPC Staff received an email from Maytal Manhin, which include Project Closure Reviews for the Process and Hygiene Baghouse Shaker Replacements, as well as a confirmation of 2 SO₂ incidents in February and March 2021 in the WWTP. The February 2021 incident was caused by a drop in the pH of the surge tank that feeds the Oxidation Skids caused by fluctuations in sulfate loading with the March 2021 incident caused by a valve failure in the Oxidation Skids. According to the email and documents, the Process Stack Baghouse Shaker replacement commenced in September 2013, and was completed by July 2014.

3.3 Hygiene Baghouse Compliance Test Records Review

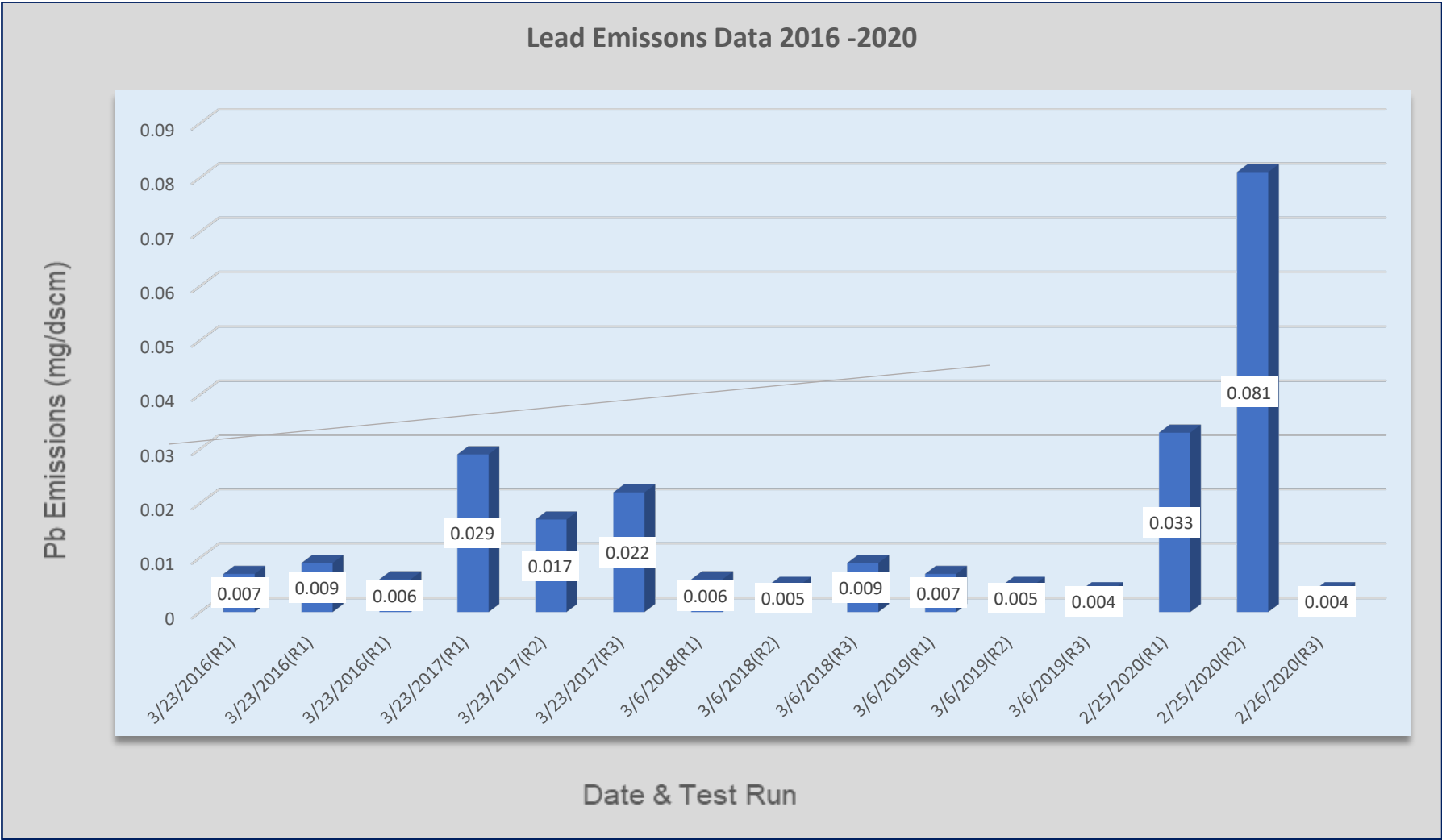
In response to the recent upgrades to the Hygiene Baghouse Ventilation System, EPC Staff conducted a review of the past 6 years of compliance tests on the Hygiene Baghouse System, which controls fugitive tapping PM and Pb emissions from the Reverberatory and Blast Furnaces, as well as PM and Pb emissions from the 10 Refining Kettles. The PM emission limit for Permit No. 0570057-038-AV is 0.005 gr/DSCF or 2.68 lb/hr (SC No C5), while the Pb emission limit is 0.2 mg/DSCM or 0.05 lb/hr (SC No. C6).

While emissions testing results were well below the permitted limits, from 2016 to 2021, average PM emissions grain loading (gr/DSCF) for each test has increased ~194%. The most recent Pb test was on 2/25/20. A review of the data from 2016 to 2020 shows average Pb emission grain loading (mg/DSCM) for each test has increased ~436%. Overall average airflow throughout the system has remained unchanged. The graphs are below (Graph Nos. 1, 2, and 3) and show how the individual runs of PM increased from 0.0003 gr/DSCF on March 23, 2016 to 0.002 gr/DSCF on January 25, 2021. There was no Pb test in 2021, but the increase in Pb was from 0.006 mg/DSCM on March 23, 2016 to 0.081 mg/DSCM on February 25, 2020.

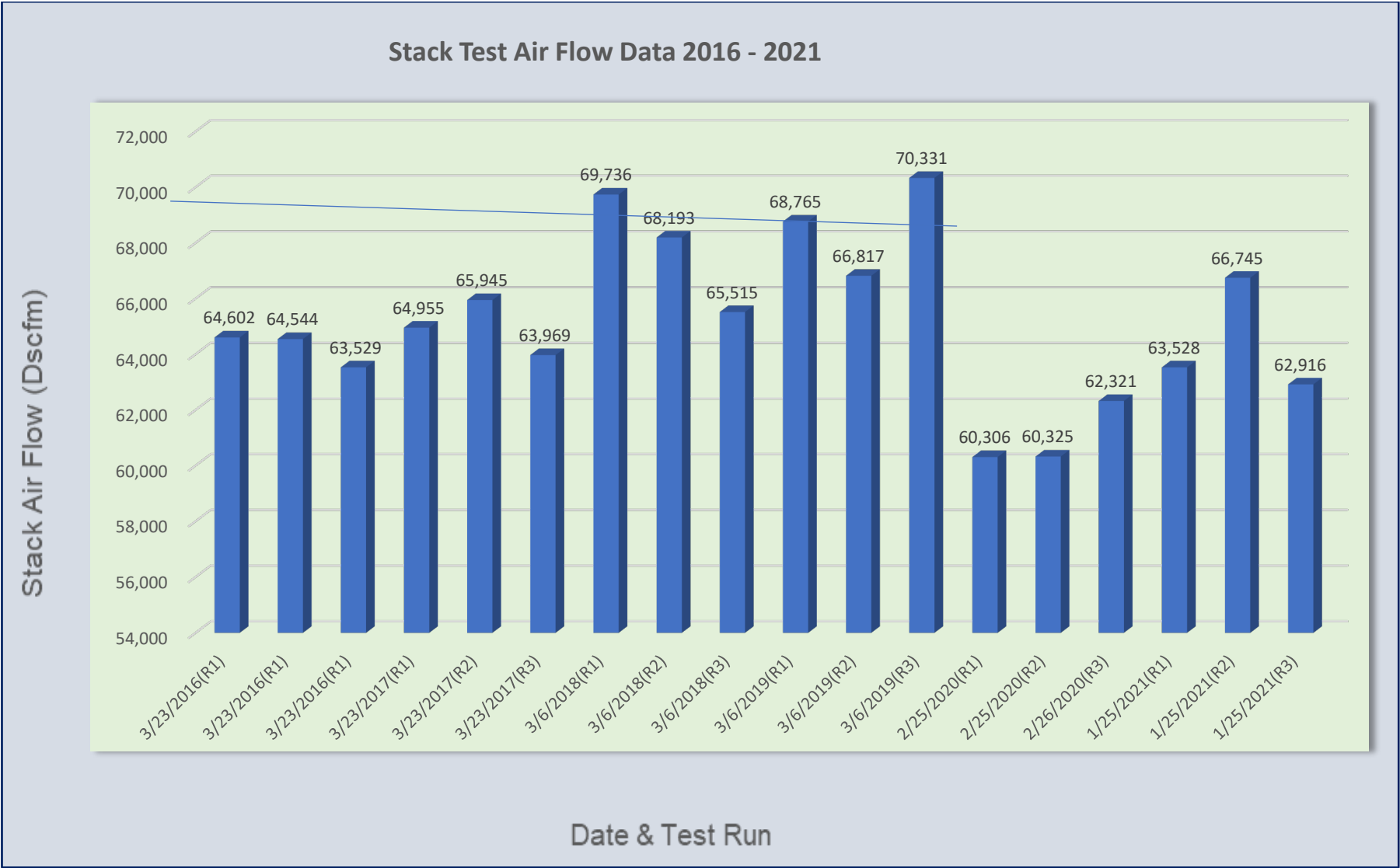
Graph No. 1



Graph No. 2



Graph No. 3



According to the Final Gopher Resource Capital Approval Request, the Hygiene Efficiency Improvement Project was to be completed in 3 phases: Phase 1 was the Furnace ducting and hooding demolition and new installation; Phase 2 was the Refinery ductwork demolition and new installation; and Phase 3 was the Refinery Dross hooding installation and finalize ductwork demolition. According to the document, the startup and completion dates were pushed back because of the pandemic and problems with the design. However, the project startup was on December 1, 2020 with a completion date of March 9, 2021, which means the January 25, 2021 PM Compliance Test may have been affected by the changes to the Hygiene Ventilation and Baghouse System that were still under construction. The permit at the time included the venting of the Auto-drossing Operation, as well as the previously non-upgraded furnace tapping and charging emissions. Due to the fact that Gopher was in the process of adding the capture and venting of Manual Drossing ventilation to the Refining Kettles and making significant changes to the capture and ventilation system, the PM test for the Hygiene Baghouse System may not, therefore, be representative of operation of the EUs and should be rescheduled in conjunction with Pb emissions testing in order to provide reasonable assurance of compliance with the emission standards.

EPC Staff performed a review of the May 25, 2021 Refining Kettle Manual Drossing Hood and Main Refining Kettle Duct flow calculations. The calculated average actual ft^3/min (ACFM) for the Manual Drossing hoods range from 476 – 4,088 ACFM with 8 of the kettle flows > 1,000 ACFM.

Except for Refining Kettle No. 1, these flows are significantly greater than the Foster Wheeler AMEC recommendations of 925 ACFM for Refining Kettle Nos. 1 - 8 and 980 ACFM for Refining Kettle Nos. 9 and 10. However, the average face velocities measured are < 300 fpm, which is not in accordance with the recommendations of AMEC Foster Wheeler or the 200 to 500 fpm recommendation in Table

3-1 of the American Conference of Government Industrial Hygienists (ACGIH) Industrial Ventilation Design Manual (23rd Edition). Moreover, the hoods were not the same design as the Gopher Resource Eagan Plant enclosure hood design recommended by AMEC Foster Wheeler in their Report.

However, the velocity measurements from the Refining Kettle Main Duct access hatch opening were not used in this analysis because they are not an accurate estimate of the true duct velocity.

SECTION 4

REGULATORY COMPLIANCE

4.1 Process Stack and Hygiene Stack Baghouse Shakers (EU Nos. 031, 032, 033)

Of the 16 allegations in the TBT articles, 3 are related to the poor operation and maintenance of the baghouses (Nos. 1, 3, and 4); 8 associated with fugitive PM, Pb, and combustion gas emissions escaping from the Reverberatory/ Blast Furnace and Refining Kettle Ventilation Systems (Nos. 2, 6, 8, 9, 10, 11, 15, and 16); 3 are related to SO₂ emissions from the Wastewater Treatment Plant (WWTP), which treats wastewater from the Wet Scrubbers, and control SO₂ emissions from the Furnaces and Dryer (Nos. 5, 7, and 13); and 2 related to so-called “dust explosions” from the afterburner and furnaces (Nos. 12, and 14).

According to interviews with Gopher Resource Staff, the shakers for the Furnace/Dryer Process Baghouse and the Fugitive Furnace and Refining Kettle Hygiene Baghouses were repaired with a new automatic shaker system in 2014 and 2016. An approval letter from FDEP-DARM on November 24, 2015 authorized Gopher Resources to implement upgrades and repairs on Hygiene Baghouses, while acknowledging Process Stack Shaker Baghouse repairs. According to a June 11, 2021 email from Gopher Staff, the Process Stack Baghouse Shaker replacement commenced in September 2013 and was completed in July 2014. However, the Gopher Resource Project Closure Review document states that the completion date was January 4, 2015.

The various permits, as well as the state, local, and federal regulations require that the air pollution

sources, and pollution control equipment be properly operated, kept in service, maintained in good repair (Section 1-1.06, Rules of the EPC; Rule 62-4.160(6)), F.A.C.), as well as being operated in accordance with good air pollution control practices to minimize emissions with records being maintained of all startups, shutdowns, malfunctions (40 CFR 60.11(d); 40 CFR 63.6(e)(1)(i)). The automatic shaker system is an integral part of shaker baghouses and is designed to remove the collected dust from the filter bags to ensure the control device is in good operating condition. Bypassing the automatic shaking system and manually shaking the bags is a violation of good air pollution control practices. The regulatory agencies never contemplated that the permittee would send employees into a baghouse to clean the filter bags when the automated system malfunctions. Moreover, by having the employees routinely enter the baghouse to manually shake the bags while the EUs continued to operate, the facility was not operating in accordance with 40 CFR 63.544(c), which requires the facility to put in place measures to prevent the tracking of lead bearing material out of the unit by personnel or by equipment used in handling the material.

Any startup, shutdown, or malfunction that causes excess emissions and the actions taken to correct the event are consistent with the approved Startup, Shutdown, and Malfunction (SSM) Plan, then the owner or operator is to confirm the actions taken during the reporting period were consistent with the SSM Plan as submitted in the Semi-Annual Report (40 CFR 63.6(e)(3)(iii)). If the actions taken during a startup, shutdown or malfunction cause excess emissions and the actions taken are not consistent with the SSM Plan, then the permit and regulations require that the owner or operator report the actions within 2 working days of commencement of the actions, followed by a written report within 7 working days after the end of the event (40 CFR 63.6(e)(3)(iv)). The SSM Plan is designed to reduce the reporting burden for each event and allow the facility the opportunity to report events with pre-approved and reviewed actions semi-annually. The permits reference the regulations and require that the malfunctions be

corrected as soon as practicable after their occurrence in order to minimize the emission and Hazardous Air Pollutants (40 CFR 63.6(e)(1)(ii)).

As stated in Section 3.2, the 2014 – 2015 Semi-Annual Reports had the NESHAP Confirmation Summary Statement required under 40 CFR 63.550(e)(6). However, the only reference with respect to the baghouse shaker systems is “Shake Events – Monitored and tracked by PLC. Shake events and baghouse operation is monitored both by the baghouse employees and the shift supervisor”. There is no mention that the automatic shaker systems for the Process Stack and Hygiene Stack Baghouse Systems were not operating properly and/or had malfunctioned. Upon discovery of an abnormal event or malfunction, the facility should have “promptly” (within 24 hours) or immediately (same day or next business day after a weekend or holiday) notified the compliance and permitting authorities in accordance with Section 1-1.05, Rules of the EPC Rule 62-4.160(8), F.A. C. and revised the SSM Plan to include these types of malfunctions and associated details/corrective actions within 45 days of their occurrence (40 CFR 63.6(e)(3)(viii)). While Gopher Resources cannot determine the exact dates when both systems began to malfunction, based upon the June 11, 2021 email from Gopher Resource Staff, the malfunctions were occurring before September 2013 when the Process Stack Baghouse Shaker Replacement Project began. It should be noted that the facility failed to notify the compliance and permitting authorities to obtain proper authorization to replace the Process Stack Baghouse Shaker System. Moreover, the actions were not completed as soon as practicable and were not covered or consistent with the SSM Plan, due to that the fact the manual shaking continued for a prolonged period of time and is not considered in accordance with good air pollution control practices to minimize emissions. The facility had a documented history of problems with corrosion in the Process and Hygiene Stack Baghouse Systems dating back to the May 29, 2013 Hygiene Baghouse VOC compliance test failure. Therefore, EPC Staff has credible evidence that TBT Allegation Nos. 1, and 3 occurred, and

are considered violations of the permit and regulations. The April 11, 2014 Gopher Resources letter to EPC regarding the May 29, 2013 Hygiene Baghouse System VOC compliance test failure highlighted their problems with corrosion due to the introduction of tramp air into the Hygiene Baghouse System, which resulted in an inability to control draft in the furnaces and refining kettles. Gopher Resources eventually replaced the baghouse modules with stainless steel and the fans, ductwork, and stack with higher quality steel. And while the shaker system was replaced in February 2016, according to the AMEC Foster Wheeler Report, the problems with “tramp air” and, therefore, corrosion, more than likely continued with the hopper and screw conveyor transport system, which wasn’t replaced until March 2021. Therefore, EPC has probable confirmation of TBT Allegation No. 4 and credible evidence of a violation of the proper operation and maintenance requirements of the permit and regulations.

4.2 Process Stack and Hygiene Stack Baghouse – Fugitives Emissions (EU Nos. 031, 032, 033)

Several changes to the Fugitive Furnace and Refining Kettle operations were alleged in the TBT articles, namely that the Reverberatory and Blast Furnace Lead and Slag Tapping Capture and Ventilation Systems were ineffective and poorly designed to capture emissions from these processes. S.C. No. 1.a. of Section 3.B. of the original Prevention of Deterioration (PSD) Permit No. 0570057-020-AC (PSD-FL-404) issued on August 7, 2009 authorizing the expansion and enclosure of the operations, required that the applicant fully enclose and ventilate the Rotary Feed Dryer and collocated Blast and Reverberatory Furnaces before operation of these EUs could begin. The condition further states that emissions from the Rotary Feed Dryer are controlled by a baghouse, while emissions from the furnaces will be controlled by an afterburner, baghouse and scrubber. In addition, S.C. No. 1.a. also states that fugitive PM and Pb from the dryer and furnaces due to upsets and other sources within the enclosed facility will be vented to the Torit filter of the enclosed facility's ventilation system.

Moreover, the Process Description of Section 3.C. of PSD-FL-404 states that Furnace Tapping, Charging, and Lead Refining generate emissions that are termed as process fugitive emissions in the lead recycling process. The Process Description further states that this EU includes the operations related to Furnace Charging and Tapping, the collocated Reverberatory and Blast Furnaces, as well as the direct exhaust from the 10 Refining Kettles that receive and process lead from the furnaces. It also states that the emissions are captured by hooding, routed to a 72,000 ACFM Process Fugitive Emissions (Hygiene) Baghouse and exhausted via a ~130 foot Hygiene Stack.

S.C. No 1.a. of Section 3.C. has the same language that states that fugitive emissions of PM and Pb due to process upsets and from other fugitive sources within the enclosed facility will be vented to the Torit filter of the enclosed facility ventilation system.

It is clear from the language that the design of the facility was to vent the fugitive emissions from the Furnace Tapping Charging and the Refining Kettles to the Hygiene Baghouse through a capture and ventilation system of hoods, ducts, and fans. In addition, from the language of the S.C.s process upsets of the equipment was expected and the building's Torit ventilation and control system was designed to control those emissions.

The April 17, 2017 AMEC Foster Wheeler Report (Report) and internal Capital Approval Requests verified that the Blast Furnace Lead Tapping Spout Hood (B1) and Reverberatory Furnace Lead Tapping Launder Hoods had been removed (L1 – L3), as well as documenting emissions of hot gases and emissions escaping from the Blast Furnace Lead Tapping hood and the Reverberatory Furnace Slag Tapping hood. The Report also outlined how the ventilation system was ineffective and of a poor design and led to

reduced visibility, dust accumulation on surfaces, and the increased risk of elevated blood lead levels in workers. The Capital Approval Request stated that the Hygiene Ventilation System had lost ~ 25 - 30% of its capacity due to tramp air, and recommended improving and replacing baghouse doors, access hatches, and dust screws. The Report stated that a significant amount of air is short-circuiting into the baghouse through the baghouse hopper chutes, which were installed without airlocks. According to the Report, this leakage of air was severely degrading the airflow draw available to the exhaust hoods. Test measurements from the Report showed leakage was causing airflow at the exhaust hoods and baghouses to be ~ 40 - 60% less than the rated design flow. The Report recommended adding airlocks to the hooper discharge chutes, enlarging the Reverberatory Slag Tapping Enclosure (R1) to enclose the previously poured mold, as well as creating larger enclosure hoods for the Blast Furnace Lead (B3) & Slag Tapping (B1). The Report also recommended an enclosure hood over the Blast Furnace Lead Tapping Spout where the previous hood had been removed. For the Blast Furnace Lead Tapping, the Report recommended an enclosure hood over the mold that is being poured, as well as the previously poured mold. The Report also stated that the Refining Kettle Auto-drossing exhaust vents had been removed and capped for all the Refining Kettles (K1 – K10) and disconnected from the Hygiene Baghouse System. The Auto-drossing Refining Kettle Operation had been replaced by a Manual Drossing Operation, which was not vented to the Hygiene Baghouse System. The Report recommended the total dismantling the Reverberatory Furnace Lead Tapping Launder and Refining Kettle Auto-drossing Ventilation System,s and using the additional airflow from these operations to vent the Refining Kettle Manual Drossing and Reverberatory/Blast Furnace Tapping Hood upgrades. Hood capture velocities and duct transport velocities were also recommended to be designed at a minimum of 300 fpm and 4,000 - 4,500 fpm to properly capture and ventilate PM and Pb emissions.

Interviews with Gopher Resource Staff, as well as the On-Site Inspections confirmed the changes.

Furthermore, the Report, and well as Gopher Staff interviews and On-Site Inspections confirmed that the Hood over the Reverberatory Furnace (R3) is no longer being use and is not connected to the Hygiene Baghouse Ventilation System.

Furthermore, Furnace Tapping SO₂ emissions escaping into the building circumvents the Hygiene Baghouse Stack SO₂ CEMS, which is used to demonstrate compliance with the 202.24 lb/hr combined 30-day SO₂ rolling average emissions limit on both the Process and Hygiene Stacks (SC Nos. B.12, and C.8 of Permit No. 0570057-038-AV; SC Nos. B.14. and C.7. of Permit 0570057-031-AV) . The changes to add, remove, and dismantle capture and ventilation equipment was never authorized or approved by EPC, FDEP, and/or US-EPA. And while the implementation of most of the AMEC Foster Wheeler recommended changes were completed in March of 2021, the operation of the poorly designed equipment prior to the upgrades is credible evidence of poor operation and maintenance (Section 1-1.06, Rules of the EPC; Rule 62-4.160(6)), F.A.C.) and was not in accordance with good air pollution control practices to minimize emissions (40 CFR 60.11(d); 40 CFR 63.6(e)(1)(i)). Also, Gopher failed to correct the poor operation of the air pollution sources and their air pollution controls as soon as practicable after their occurrence in order to minimize the emission and Hazardous Air Pollutants (40 CFR 63.6(e)(1)(ii)).

The operation of the EUs and their air pollution controls prior to the upgrades is also considered credible evidence of poor operation and maintenance, as well as a violation of the requirements of the PSD permit because emissions were being emitted without the air pollution control equipment operating properly. This is probable confirmation of TBT Allegation Nos. 2, 6, 8, 15, and 16 likely occurred and are considered violations of the permit and regulations. TBT Allegation Nos. 9, 10, and 11 are confirmed because of the fact that the poor ventilation and capture of fugitive furnace and refining operations, as

well as the removal and disconnecting of EU's ducting to the Hygiene Baghouse Ventilation System, caused the increased dust levels within the building and increased dust accumulation on surfaces, which should have been promptly cleaned up in accordance with SC Nos. 3 and 7 of Appendix NESHAP Subpart X of Permit No. 0570057-031-AV and 40 CFR 63.545(c).

Gopher Resource Staff stated in interviews and emails that the multiple SO₂, CO, and NO_x CEM daily calibrations are part of Gopher Resources quality assurance procedures and was implemented to reduce data loss. This procedure is not inconsistent with the requirements of the permit or regulations.

4.3. Wastewater Treatment Plant (WWTP) – SO₂

The WWTP is designed to treat the wastewater from the wet scrubbers and, therefore, is part of the scrubber pollution control system. The SO₂ emissions from the WWPT are monitored by a dedicated SO₂ CEMS. As stated in Section 3.2, a review of the April 15, 2021 WWTP SO₂ CEMS data revealed there were 2 incidents (October 7, 2020 and January 7-10, 2021) where the SO₂ concentrations around the Oxidation Skids peaked at ~100 ppm with the malfunction on January 7th extending out over several days. In addition, the June 11, 2021 email from Gopher Resource Staff, confirms 2 additional SO₂ incidents in February and March 2021 caused by increased sulfate loading to the Oxidation Skids and a broken valve. These incidents, as well as another malfunction on June 14, 2017 where SO readings peaked at 150 ppm, confirm TBT Allegation Nos. 7 and 13 and is a probable confirmation of TBT's Allegations No. 5, which is alleged to have occurred as early as March 2012.

Through interviews with Gopher Resource Staff, it was revealed that the Oxidation Skids were totally rebuilt in 2018, but the October 2020 through March 2021 incidents confirm that the problems persist.

Gopher Resource Staff stated that the problems arise when there is a high SO₂ loading to the Process Stack Wet Scrubber, which strains the capacity of the Oxidation Skids to remove sulfates, and releases SO₂ during a process upset or malfunction. Gopher Resource Staff said the company is planning to install a Hydrogen Peroxide System to replace the Oxidation Skids in the next 6-8 months to correct the problem. The excess SO₂ released in the WWTP due to Oxidation Skid malfunctions are not controlled by the Hygiene System, and therefore, constitute a violation since they could interfere with the ability of the facility to determine compliance with the 202.24 lb/hr 24 hr SO₂ limit on the facility.

However, the various permits, as well as the state, local, and federal regulations require that the air pollution sources, and pollution control equipment be properly operated and kept in service and maintained in good repair (Section 1-1.06, Rules of the EPC; Rule 62-4.160(6)), F.A.C.). Upon discovery of an abnormal event or malfunction, the facility should have “promptly” (within 24 hours) or immediately (same day or next business day after a weekend or holiday) notified the compliance and permitting authorities in accordance with Section 1-1.05, Rules of the EPC Rule 62-4.160(8), F.A. C.

The prolonged and on-going malfunctions with the Oxidation Skids and Gopher Resource’s failure to correct the problem is considered credible evidence of poor operation and maintenance (Section 1-1.06, Rules of the EPC; Rule 62-4.160(6)), F.A.C.) and the incidents should have been reported in the Semi-Annual Reports (40 CFR 63.6(e)(3)(iii)), which was not done.

4.4. Furnace Explosions (EU Nos. 031 and 032)

A review of the Furnace Downtime records for 2020 – May 2021 did not reveal any evidence of explosions. However, during the Closing Conference, Gopher Staff stated that “Dust Drops” occur when

material builds up in the afterburner exit duct due to moisture and it dislodges and falls down towards the Reverberatory Furnace. Gopher Resource Staff said the seal, which helps to prevent dust emissions from spilling back into the furnace area has been upgraded, and a “Drag Drop Box” has been installed to help prevent the material from reaching the seal. This is a probable confirmation of TBT Allegation No. 14, but not a confirmation of TBT Allegation No. 12. There is no evidence that the furnace equipment malfunctioned or caused an equipment breakdown requiring reporting or notification. “Dust Drops” escaping from the seal into the Furnace Area would be captured and controlled by the building Torits, and should not result in excess emissions to the atmosphere. So, while there’s a confirmation that these types of events occur, it doesn’t appear to be a violation of the permits or the regulations.

A full listing of all the TBT Allegations and the potential violations of the air permits (Potential Air Violations) in effect at the time, as well as the various regulations, are listed in Appendix B.

SECTION 5 CLOSING CONFERENCE

On June 7, 2021, EPC Staff Sterlin Woodard, PE, Felipe Ascano, and Alan Rodriguez participated in a MS Teams Virtual Meeting with Gopher Resource Staff Angela Fogarty (Environmental Director), Maytal Manhin (Environmental Manager), Tony Stivers (Pollution Control Manager), Bryan Dhue (Maintenance Manager), and Bob Soich (Regulatory Compliance Specialist) on June 7. We explained that EPC was wrapping up the investigation and had a few outstanding questions, which are highlighted below:

1. Gopher was still unable to determine when the Furnace Dryer Process Baghouse and Furnace Refining Kettle Hygiene Baghouse Shaker Mechanisms began to fail and when they began manual shaking of the bags.
2. Gopher explained that a “Dust Drop” occurs when material builds up in the afterburner exit duct due to moisture and periodically falls into the Reverberatory Furnace causing dust to blow back into the Furnace Area. Gopher said they had recently upgraded the seal at the button of the chute and installed a drag bar box and slide gate for maintenance to remove material during outages.
3. Gopher explained that they had made improvements to the Oxidation Skid/Reactors that are used to treat the scrubber water. They explained that the SO₂ problems arise when the scrubber that controls the Furnace operations has high sulfate loading and overwhelms the Oxidation Reactors, which, in turn, releases SO₂. Gopher Staff said the Oxidation Skids had been totally rebuilt in 2018, but they are planning a new hydrogen peroxide system in the next 6 - 8 months to correct the problem.
4. Gopher still didn’t know when the Reverberatory Furnace Launderers, Refining Kettle Auto-

Drossing, and Reverberatory Furnace Hood's and ducting were removed or disconnected. However, all have been removed from the Hygiene Baghouse Ventilation System.

5. Gopher Staff explained that they have been doing multiple calibrations, usually twice a day, to reduce data loss when the drift is out of specification since 2012.
6. Gopher Staff provided an explanation of what "Blast Air Dump" means. It is used internally to refer to when the combustion air and excess oxygen that is used by the Blast Furnace for smelting is turned down or off and all lead bearing materials being charged to the furnace is halted. They stated that the Process and Hygiene ventilation system continues to operate normally when the Blast Furnace is in this mode.

We then discussed some of our preliminary findings and stated that we would be discussing them with FDEP and US-EPA before finalizing our report. Of the 16 TBT Allegations, EPC Staff was able to confirm the probability that 15 had likely occurred. Of these, 14 are considered potential air violations. The 14 allegations that are considered violations of the air pollution permits and regulations were, essentially, classified as follows:

- 8 dealing with poor operation, maintenance and design of the fugitive capture and ventilation systems.
- 3 were associated with poor operation and maintenances of the Process and Hygiene Baghouse Shaker Systems.
- 3 associated with SO₂ emissions from the Wastewater Treatment Plant (WWTP).

However, of the 2 allegations associated with dust explosions in the Furnace Area, only 1 was confirmed, but were not considered violations.

We discussed the fact that if the events and corrective actions were identified and consistent with the Startup, Shutdown, and Malfunction (SSM) Plan, then they should have been reported and addressed in the Semi-Annual Monitoring (SAM) and Annual Statement of Compliance (ASOC) Reports.

We also discussed the January 2021 Hygiene Baghouse PM Compliance Test, which was, apparently, conducted when the Hygiene Ventilation System was being modified. We asked for the dates when the upgrades were completed and the fact that the test may not be representative of normal operations. Gopher Staff agreed to provide us the information.

EPC staff asked Gopher Resource Staff for a legal interpretation of our ability to reference information in the documents they supplied in the report that are labeled “Business Confidential”. Gopher Resource Staff said they would get back with us, and we agreed to provide them with a draft copy of the report to review for factual content before finalizing it.

APPENDIX A

On-Site Inspection Photos

Photo #1 - Battery Breaking Area



Photo #2 - Rotary Feed Dryer



Photo #3 - Rotary Feed Dryer Outlet Belt Conveyor to Reverberatory Furnace



Photo #4 - Refining Kettle



Photo #5 - Refining Kettle No.4 Hood Face Velocity Measurements



Photo #6 - Refining Kettle No.4 Door Velocity Measurements



Photo #7 - Reverberatory Furnace Lead Tapping Launders

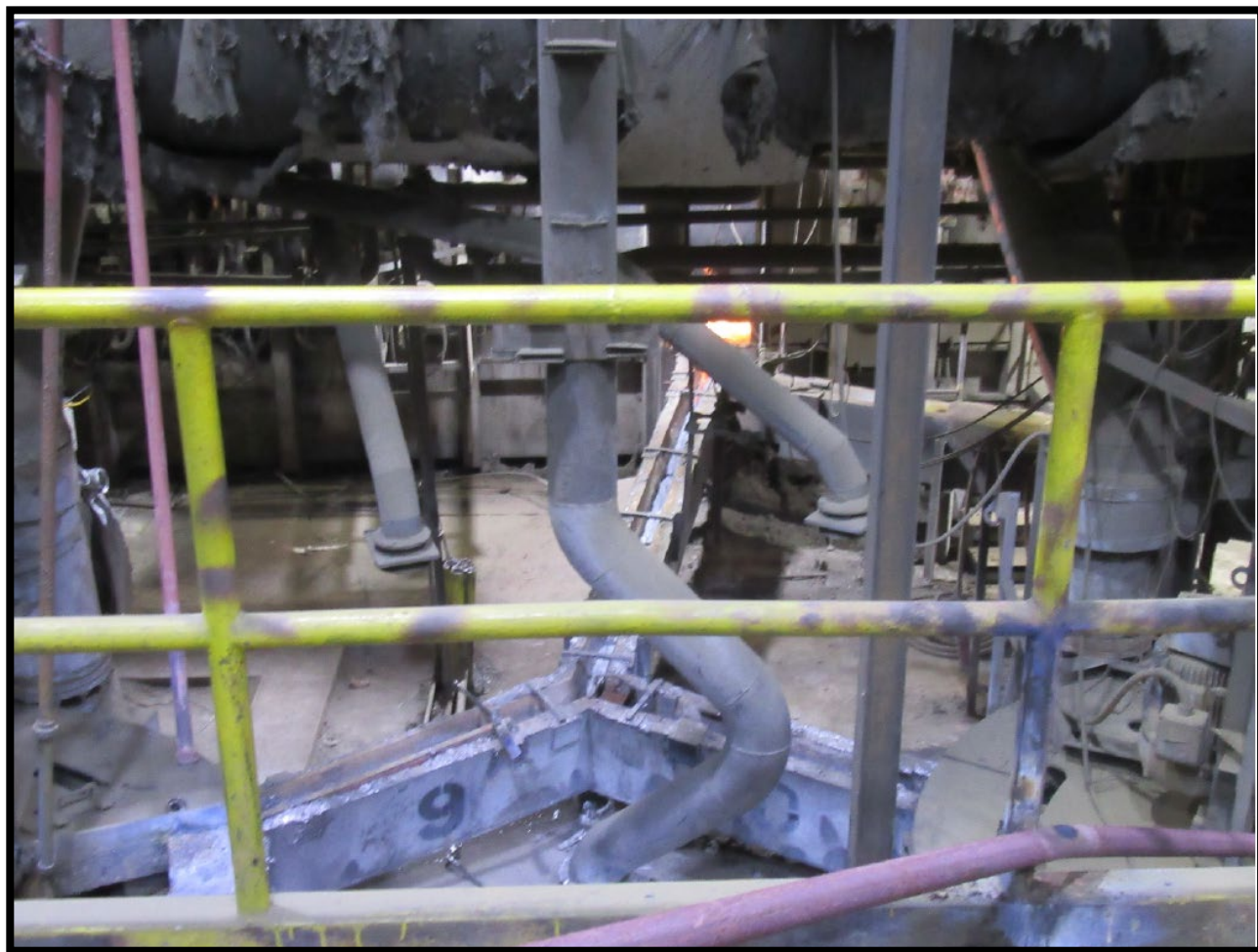


Photo #8 - Reverberatory Furnace Lead Tapping

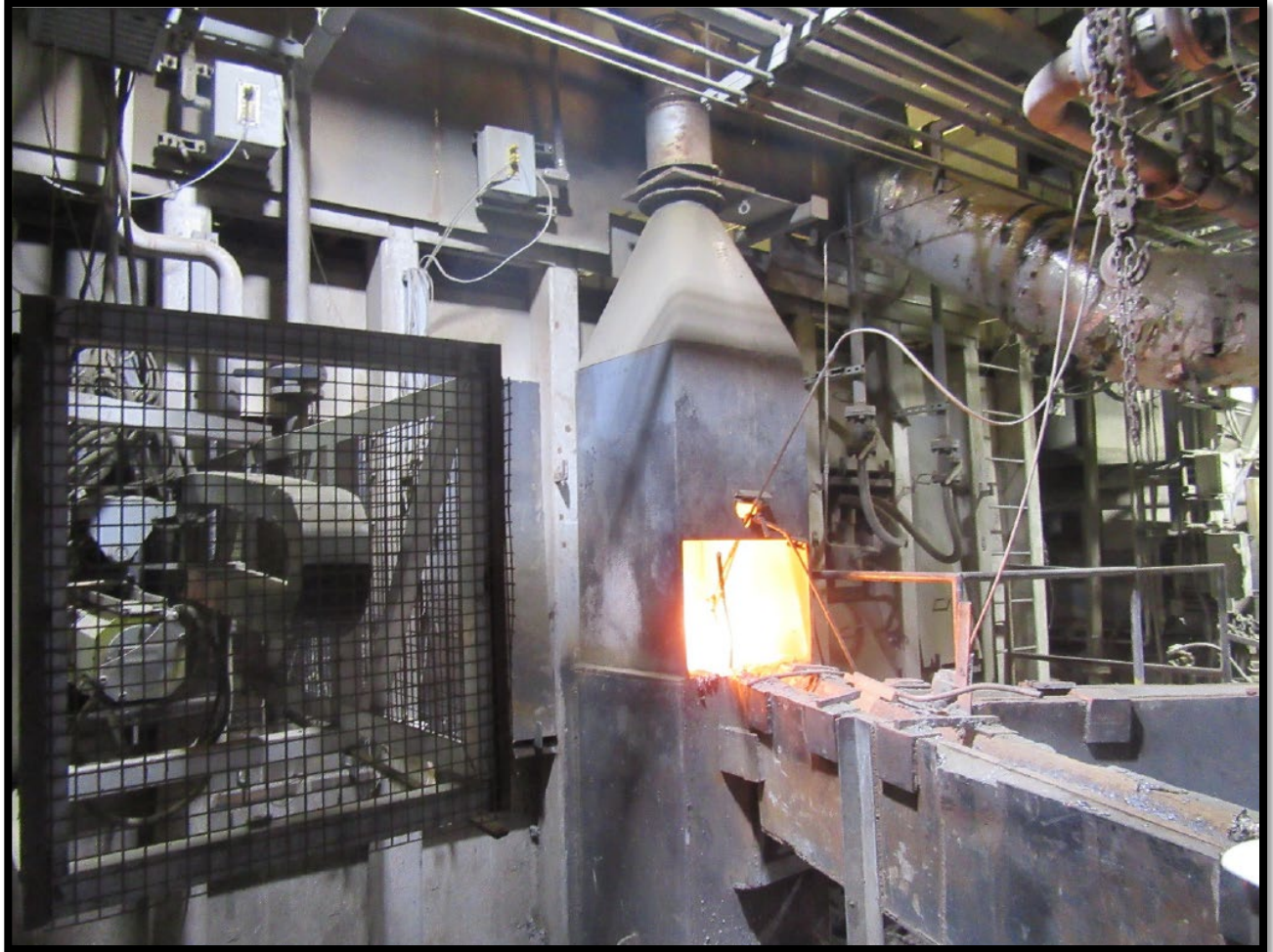


Photo #9 - Blast Furnace Lead Tapping

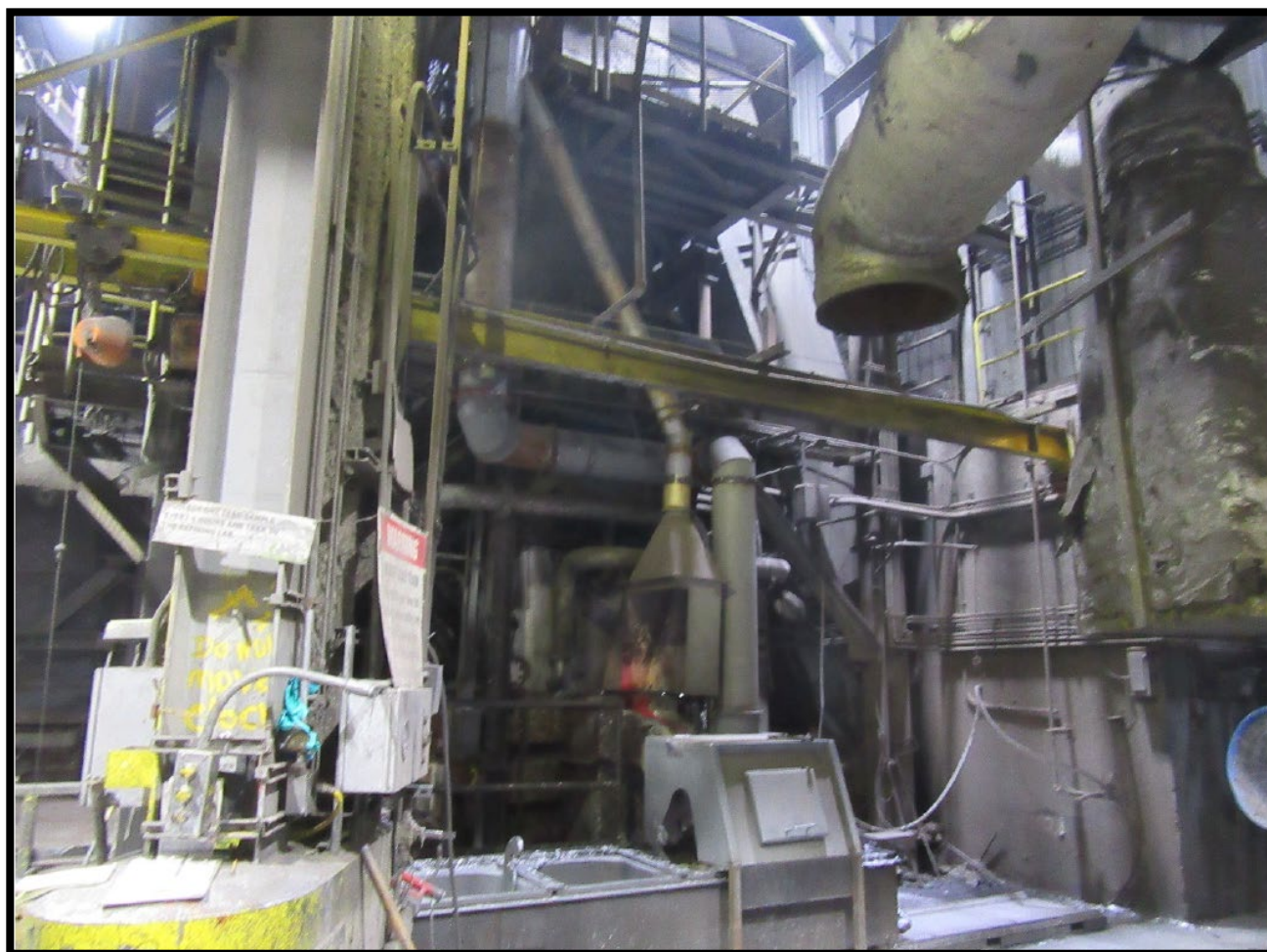


Photo #10 - Blast Furnace Slag Tapping



Photo #11 - Blast Furnace Skip Hoist Visible Emissions



Photo #12 - SO₂ and CO Emissions From Blast Furnace Skip Hoist



Photo #13 - Dust on Hoods Above Reverberatory Furnace Area



Photo #14 - Dust on Floor Above Reverberatory Furnace Area



Photo #15 - Hoppers for Hygiene Shaker Baghouses



Photo #16 - Oxidation & Reactor Tanks in WWTP



Photo #17 - WWTP SO₂ Sampling



APPENDIX B - POTENTIAL AIR VIOLATIONS

	EPA Level 4 Investigation of Gopher Resource			EU Nos.	Potential Air Violations
Allegation No.	Allegation	Date	Tampa Bay Times Issue	EU Nos.	Permit Conditions & Rules
1	Manual shaking of bags when automated shaker system was routinely down (Possible Process and Hygiene Systems).	2014	Sunday, March 28, 2021	031, 032, and 033	<p>1. Poor Operation & Maintenance - GC No. 6, Appendix GC, Section IV, Permit No. 0570057-020-AC; 40 CFR 60.11(d); 40 CFR63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC</p> <p>2. Failure to Properly Notify, Minimize & Correct - CC No. 1, Section IV, Appendix CC; GC No. 8, Section IV Appendix GC, Permit No. 0570057-020-AC; 40 CFR 63.6(e)(1)(ii); Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC</p> <p>Permit No. 0570057-020-AC (Issued:9/22/2009, Expired: 6/30/2014) Permit No. 0570057-027-AC (Issued:12/14/2012, Expired: 12/31/2014)</p>
2	Lead dust from other parts of plant leaking into furnace area, and inadequate furnace exhaust hoods).	Spring 2012	Sunday, April 4, 2021	031, 032, and 033	<p>1. Poor Operation & Maintenance - GC No. 6, Appendix GC, Section IV, Permit No. 0570057-020-AC; 40 CFR 60.11(d); 40 CFR63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC</p> <p>2. Failure to Properly Notify, Minimize & Correct - CC No. 1, Section IV, Appendix CC; GC No. 8, Section IV Appendix GC, Permit No. 0570057-020-AC; Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC</p> <p>Permit No. 0570057-020-AC (Issued:9/22/2009, Expired: 6/30/2014) Permit No. 0570057-</p>

					027-AC (Issued:12/14/2012, Expired: 12/31/2014)
3	Corrosion of Furnace Process and Hygiene Baghouse Shaker Mechanisms made operation unsafe. Needed consultants help. According to article, these problems persisted until carbon steel replaced with stainless steel in 2016.	May 2013; February 2014	Sunday, April 4, 2021	031, 032, and 033	1. Poor Operation & Maintenance - GC No. 6, Appendix GC, Section IV, Permit No. 0570057-020-AC; 40 CFR 60.11(d); 40 CFR63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC 2. Failure to Properly Notify, Minimize & Correct - CC No. 1, Section IV, Appendix CC; GC No. 8, Section IV Appendix GC, Permit No. 0570057-020-AC; Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC Permit No. 0570057-020-AC (Issued:9/22/2009, Expired: 6/30/2014) Permit No. 0570057-027-AC (Issued:12/14/2012, Expired: 12/31/2014)
4	Jammed baghouse hopper screw conveyors requiring manual hopper loading and fugitive dust.	2014 - 2015	Sunday, April 4, 2021	031, 032, and 033	1. Poor Operation & Maintenance - GC No. 6, Appendix GC, Section IV, Permit No. 0570057-020-AC; 40 CFR 60.11(d); 40 CFR63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC 2. Failure to Properly Notify, Minimize & Correct - CC No. 1, Section IV, Appendix CC; GC No. 8, Section IV Appendix GC, Permit No. 0570057-020-AC; Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC Permit No. 0570057-020-AC (Issued:9/22/2009, Expired: 6/30/2014) Permit No. 0570057-027-AC (Issued:12/14/2012, Expired: 12/31/2014)

5	SO ₂ emissions from the water treatment department computer room in March 2012 due to mechanical problems that allowed the gas to build up over months. SO ₂ emissions due to plant running without sulfur dioxide control system down for repair (Either Scrubber or Desulfurization System) in May 2016.	March 2012; 2013; May 2016	Sunday, April 4, 2021		1. Poor Operation & Maintenance - Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC 2. Failure to Properly Notify, Minimize & Correct - Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC
6	April 2017 consultant's report stated that exhaust hoods on the Blast Furnace Pb Tapping and Reverberatory Furnace Launder ducts had been removed since installation in 2009. The removal had made the exhaust hoods less effective and degraded the airflow balance through the ductwork. Other hoods were too small.	April 2017	Sunday, April 4, 2021	031, 032, 033	1. Poor Operation & Maintenance - Section II, FW No. 10, and Section IV, Appendix TV, TV3 of Permit No. 0570057-031-AV; 40 CFR 60.11(d); 40 CFR 63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC 2. Failure to Properly Notify, Minimize & Correct - Section IV, Appendix RR, RR2 & RR3, Permit No. 0570057-031-AV; 40 CFR 63.6(e)(1)(ii); Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC Permit No. 0570057-031-AV (Issued: 11/24/2015, Expired: 4/13/2020)
7	In June 2017, life-threatening levels of SO ₂ in the water treatment department in computer room over 3 hours. Levels reached 4 times the OSHA limit. An ongoing	June 2017; November 2017	Sunday, April 4, 2021		1. Poor Operation & Maintenance - Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC 2. Failure to Properly Notify, Minimize & Correct - Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC

	repeated mechanical malfunction was to blame.				
8	In March 2019, SO ₂ and CO reached life-threatening levels in the furnace department.	March 2019	Sunday, April 4, 2021	031, 032, and 033	<p>1. Poor Operation & Maintenance - Section II, FW No. 10, and Section IV, Appendix TV, TV3 of Permit No. 0570057-031-AV; 40 CFR 60.11(d); 40 CFR63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC</p> <p>2. Failure to Properly Notify, Minimize & Correct - Section IV, Appendix RR, RR2 & RR3, Permit No. 0570057-031-AV; 40 CFR 63.6(e)(1)(ii); Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC</p> <p>Permit No. 0570057-031-AV (Issued:11/24/2015, Expired: 4/13/2020)</p>
9	Lead-laced dust blanketing floor in furnace department (photo) and fumes surging from furnace and around a loader truck driver (video).	2019	Sunday, April 4, 2021	031, 032, and 033	<p>1. Poor Operation & Maintenance - Section II, FW No. 10, and Section IV, Appendix TV, TV3 of Permit No. 0570057-031-AV; 40 CFR 60.11(d); 40 CFR63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC</p> <p>2. Failure to Properly Notify, Minimize & Correct - Section IV, Appendix RR, RR2 & RR3, Permit No. 0570057-031-AV; SC Nos. 3 and 7 of Appendix NESHAP Subpart X of Permit No. 0570057-031-AV; 40 CFR 63.6(e)(1)(ii); Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC</p> <p>Permit No. 0570057-031-AV (Issued:11/24/2015, Expired: 4/13/2020)</p>

10	Dust collecting atop pipes in furnace department (photo).	2019	Sunday, April 4, 2021	031, 032, and 033	<p>1. Poor Operation & Maintenance - Section II, FW No. 10, and Section IV, Appendix TV, TV3 of Permit No. 0570057-031-AV; 40 CFR 60.11(d); 40 CFR63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC</p> <p>2. Failure to Properly Notify, Minimize & Correct - Section IV, Appendix RR, RR2 & RR3, Permit No. 0570057-031-AV; SC Nos. 3 and 7 of Appendix NESHAP Subpart X of Permit No. 0570057-031-AV; 40 CFR 63.6(e)(1)(ii); Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC</p> <p>Permit No. 0570057-031-AV (Issued:11/24/2015, Expired: 4/13/2020)</p>
11	Lead-laced dust clogging a ventilation pipe (photo).	Early 2021	Sunday, April 4, 2021	031, 032, and 033	<p>1. Poor Operation & Maintenance - Section II, FW No. 10, and Section IV, Appendix TV, TV3 of Permit No. 0570057-038-AV; 40 CFR 60.11(d); 40 CFR63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC</p> <p>Permit No. 0570057-031-AV (Issued:11/24/2015, Expired: 4/13/2020)</p> <p>Permit No. 0570057-038-AV (Issued:3/9/2021, Expires:3/9/2026)</p>
12	Dust explosion in furnace area damaged equipment and piping. Battery breaker had been leaking sludge for 8 months that was inches deep in some spots (video).	Late March - Early April 2021	Sunday, April 11, 2021	031, 032, 033, and 026	No Violation
13	Oxidation Reactors, which is key in controlling SO ₂ , had malfunctioned and was leaking hazardous liquids in the water treatment	February 2021; Late March 2021	Sunday, April 11, 2021		<p>1. Poor Operation & Maintenance - Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC</p> <p>2. Failure to Properly Notify, Minimize & Correct - Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC</p>

	department (photo).				
14	"Dust Drops" from afterburner causing dust explosions in the Furnace Area (video).	October 2019	Friday, April 9, 2021	031, 032	No Violation
15	Fumes from Refining Kettle as worker removes impurities (video)	2014	Friday, April 9, 2021	033	<p>1. Poor Operation & Maintenance - GC No. 6, Appendix GC, Section IV, Permit No. 0570057-020-AC; 40 CFR 60.11(d); 40 CFR63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC</p> <p>2. Failure to Properly Notify, Minimize & Correct - CC No. 1, Section IV, Appendix CC; GC No. 8, Section IV Appendix GC, Permit No. 0570057-020-AC; Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC</p> <p>Permit No. 0570057-020-AC (Issued:9/22/2009, Expired: 6/30/2014) Permit No. 0570057-027-AC (Issued:12/14/2012, Expired: 12/31/2014)</p>

16	Fumes from Reverberatory Slag Tapping (video)	July 2020; May 2021	Friday, May 28, 2021	033	<p>1. Poor Operation & Maintenance - Section II, FW No. 10, and Section IV, Appendix TV, TV3 of Permit No. 0570057-031 and 038-AV; 40 CFR 60.11(d); 40 CFR63.6(e)(1)(i); Rule 62-4.160(6), FAC; Section 1-1.06, Rules of the EPC</p> <p>2. Failure to Properly Notify, Minimize & Correct - Section IV, Appendix RR, RR2 & RR3, Permit No. 0570057-031-AV; 40 CFR 63.6(e)(1)(ii); Rule 62-4.130, FAC; Rule 62-4.160(8), FAC; Section 1-1.05, Rules of the EPC</p> <p>Permit No. 0570057-031-AV (Issued:11/24/2015, Expired: 4/13/2020) Permit No. 0570057-038-AV (Issued:3/9/2021, Expires:3/9/2026)</p>
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