DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

P102856558

FACILITY: Corteva LLC		**SRN / ID:** P1028
LOCATION: 701 Washington Street, MIDLAND		**DISTRICT:** Bay City
CITY: MIDLAND		**COUNTY:** MIDLAND
CONTACT: Patty Worden , Senior Environmental Specialist		**ACTIVITY DATE:** 12/15/2020
STAFF: Kathy Brewer	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MEGASITE
SUBJECT: EU03 records review and on site inspection		
RESOLVED COMPLAINTS:		

Corteva inspection EU03 December 15, 2020

Corteva Contact: Patty Worden,

EU03 is the 2,4-D (2,4-dichlorophenoxyacetic acid) salt herbicide process. Manufacturing equipment is located in the 959 building. Process vents are exhausted to the 963 THROX and a backup carbon control system in EU12b. Production began in May 2019. At the time of the inspection the most recent PTI for EU03 was PTI-84-14. PTI 147-20 was issued on February 5, 2021

EU03 is subject to 40 CFR 63 Subpart MMM (PAI MACT) and leak provisions of the hazardous organic NESHAP (HON).

A pre inspection overview on December 10, 2020 covered the process flow diagram, vent locations, control devices and review of emission calculations. During the December 15, 2020 on site visit the ROP required emission control and metering devices, vents, and real time process screens were viewed. On site records were provided for process vents status and Carbon bed and 963 THROX operating parameters.

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<u>On Site Records Review</u>

963 THROX

- Vent status
- Vent Status to carbon beds
- Temperature
- pH

Carbon bed adsorber

- 12 month rolling 2019 and 2020 venting hours
- Individual carbon bed usage

<u>AQD File Review</u>

MAERS 2019 emissions

CAM reports September 2019, March 2020, September 2020, March 2020

ROP Semi annual Deviation reports September 2019, March 2020, September 2020, March 2021

MACT Reports Subpart PAI Sept 2019, March 2020, Sept 2020.

Permit EVAL forms for PTI 84-14 and 147-20

PTI application 147-20

Description

EU03 produces a 2,4-dichlorophenoxyacetic acid salt (2,4 D Salt). The facility also uses a tank farm and rail car station to support production at the 959 Building facility and at the existing 489 Building facility (EU9).

EU03 ties into the same vent header as the 948 building EU12b facility which has a bypass to a carbon bed system used as back up for emission control when the 963 TTU is not available.

Emissions

The ROP does not list any specified emission limits. The MAERS submitted by Corteva contains an explanation of how emission are calculated. The emission estimates include vents to 963 THROX, the carbon beds, and miscellaneous operations. The facility provided basis for emissions from production activities and emissions from thermal expansion, filling, breathing and purge losses.

The main demonstration of compliance with anticipated emission levels is the proper venting to control devices.

Material limits

The ROP does not list any specified material limits.

Process/Operational limits

SC III.2 limits the EU03 exhaust time for venting to the carbon bed system to 480 hours per 12 month rolling time period. The carbon beds were used in May 2020 for an unanticipated 5 days due to historical flooding that required other process control systems to be shut down. This resulted in a carbon bed usage in excess of the permitted 20 days. In November 2020, AQD received a PTI application to increase the permitted time that EU03 is allowed to vent to the carbon adsorption system from 480 hours to 744 hours per year. Language was also added to SC IV.1 to specify 99.9% destruction efficiency for the 963THROX and 98% destruction efficiency for the carbon adsorption system to match the conditions for EU12b

The 2,4-D salt product storage tank vents and rail station loading emissions are not included in the hours limitation for carbon bed usage.

SC. III.3 requires choline hydroxide storage tank exhaust gas from depressurization to be sent to the 963 THROX or the carbon system. A review of the 963 THORX and carbon bed vent status records from 2019 and 2020 indicate the facility has been in compliance with this requirement.

Design and Equipment Parameters

The 963 TROX are required to be installed, maintained and operated in a satisfactory manner. Satisfactory operation of 963 THROX is determined in FG963THROX (SRN P1027) and FGPESTICIDES.

Each carbon bed is changed out individually depending on the time used. There is a maximum of 24 hours/carbon bed. Total time of carbon bed use is based on the time any vents are exhausted to any carbon bed. The carbon beds must also meet the requirements in FGPESTICIDES.

Operating parameters were reviewed to evaluate compliance with required design and equipment parameter. Screen shots from historical operating records and from the day of the on site inspection are attached.

Parameter	Time	Date	Record at 7 AM
963 THROX vent status DO(001)A	5 AM to 9AM	11/4/2019 2/11/2020 6/2/2020	open
963 THROX temp (provided by DDP SRN P1027)	5 AM to 9AM	11/5/2019	793 C
		2/11/2020	813 C
		6/2/2020	783 C
963 THROX pH (provided by DDP SRN P1027)	5 AM to 9AM	11/5/2019	8.9
		2/11/2020	9.2
		6/2/2020	9.5
948 Carbon vent status Automated DO(002)B	5 AM to 9AM	11/4/2019 2/3/2020 6/1/2020	closed
948 Carbon vent V-1020 status Manual DI(644)B, DI (668)B	5 AM to 9AM	11/4/2019	644 open, 668 open
		2/3/2020	644 open, 668 open
		6/1/2020	644 closed, 669 open
948 Carbon vent V-1021 status Manual DI(645)B, DI (669)B	5 AM to 9AM	11/4/2019	645 closed, 669 open
		2/3/2020	645 closed, 669 open
		6/1/2020	645 closed, 669 open

948 Carbon vent V-1022 status Manual DI(646)B, DI (670)B	5 AM to 9AM	11/4/2019	646 closed, 670 open
		2/3/2020	646 closed, 670 open
		6/1/2020	646 open, 670 open
963 THROX minutes vent directed to carbon daily AC(920)A	5 AM to 9AM	11/4/2019	zero
		2/3/2020	
		6/1/2020	
V-1020 in service (minutes)	5 AM to 9AM	11/4/2019	259
		2/3/2020	502
		6/1/2020	zero
V-1021 in service (minutes)	5 AM to 9AM	11/4/2019	zero
		2/3/2020	zero
		6/1/2020	zero
V-1022 in service (minutes)	5 AM to 9AM	11/4/2019	zero
		2/3/2020	zero
		6/1/2020	181

Testing/Sampling

The ROP does not list any specified testing or sampling.

Monitoring and Recordkeeping

SC VI.1 requires 12 month rolling records for periods when EU03 exhausts to the carbon beds. The following records were reviewed and are attached.

Date	Carbon bed bypass minutes	12 month rolling bypass days (20 day limit)

November 2019	194	11.6
February 2020	0	11.5
June 2020	13416	15.4
Dec 15, 2020	0	20.1

SC VI.2 requires 12 month rolling records for the 2,4-D salt product storage tank vents and rail station loading emissions.

Date	Exempt vents 12 month rolling operating hours
November 2019	278
February 2020	276
June 2020	369

Reporting

Except for exceeding carbon bed usage time due to the May 2020 flooding event, no ROP or PAI MACT deviations were reported.

Stack/Vent Restrictions

The following vent information was confirmed during the inspection.

Stack # / Vent ID	Description	Min height (Ft)	Max Diameter (inches)
SV969Throx (SRN P1027)	963 TTU	80	18
SV12005	EU12b carbon system atmospheric vent	4	20
SV03001 [A]	2,4-D Choline storage tank	20	30

	V-8070A atmospheric vent		
SV03002 [A]	2,4-D Choline storage tank V-8070B atmospheric vent	20	30
SV03003	2,4-D Choline rail car atmospheric vent	15	30
SV03004	2,4-D Choline rail car atmospheric vent	15	30
SV03005	2,4-D Choline rail car atmospheric vent	15	30
SV03006	2,4-D Choline rail car atmospheric vent	15	30
SVEG9A52[A]	Product storage. Shared vent with EU9.	20	11

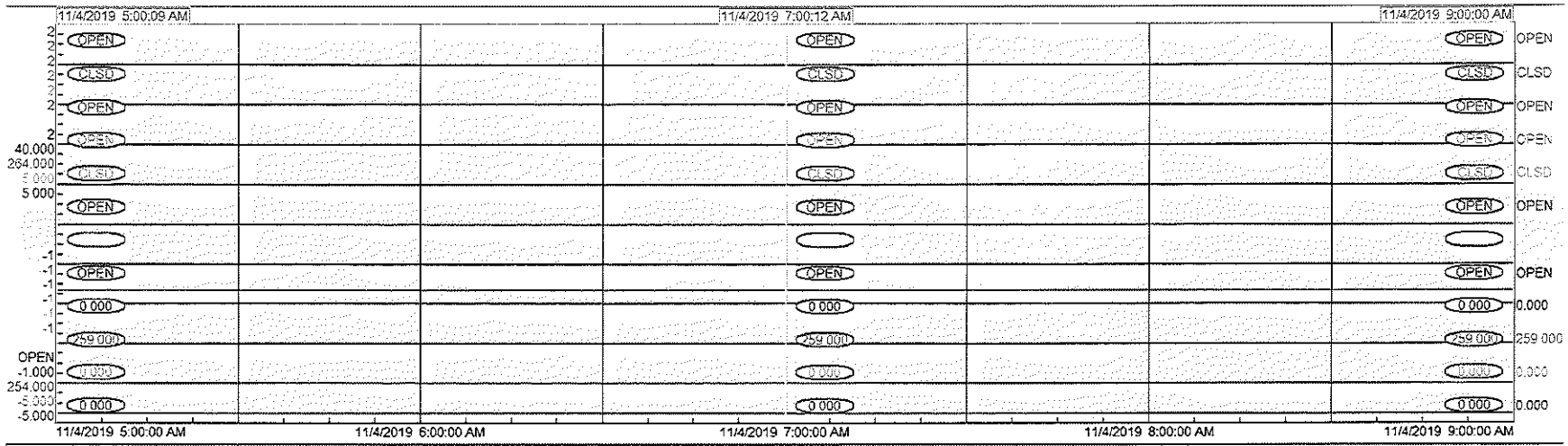
[A]This vent is permitted to discharge downward.

The intermediate product storage tank vent SVEG9A52 is owned and operated by EU9 but EU03 also utilizes it. EU9 and EU03 account for their individual contributions to the tank emissions separately. Of note is EU9's unconventional stack requirements. An internal AQD discussion was held between Bay City District office and Permit section staff to determine how stacks shared by multiple emissions units should be permitted. It was decided that the process should follow a similar procedure to how shared control devices are handled at the facility. A footnote is included in PTI 147-20 for SVEG9A52 stating "This stacks requirements also appear in the conditions for EU9 (SRN P1028).

NAME Kathy Brewer DATE 6/16/2021 SUPERVISOR Chris Hare

12/15/2020 KD
from P. Worden

11/4/19 5 AM to 9 AM



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D056_DI_0644	USMDLVME:	IP_DIMAP	V1010 V1020 inlet valve	OPEN	Good	Good		-1	2		0	0:00:0(	Eastern [	Best Fit	1 Hour		
D056_DI_0668	USMDLVME:	IP_DIMAP	V1010 V1020 outlet valve	OPEN	Good	Good		-1	2		0	0:00:0(	Eastern [	Best Fit	1 Hour		
D056_DI_0645	USMDLVME:	IP_DIMAP	V1010 V1021 inlet valve	CLSD	Good	Good		-1	2		0	0:00:0(	Eastern [	Best Fit	1 Hour		
D056_DI_0669	USMDLVME:	IP_DIMAP	V1010 V1021 outlet valve	OPEN	Good	Good		-1	2		0	0:00:0(	Eastern [	Best Fit	1 Hour		
D056_DI_0646	USMDLVME:	IP_DIMAP	V1010 V1022 inlet valve	CLSD	Good	Good		-1	2		0	0:00:0(	Eastern [	Best Fit	1 Hour		
D056_DI_0670	USMDLVME:	IP_DIMAP	V1010 V1022 outlet valve	OPEN	Good	Good		OPEN	2		0	0:00:0(	Eastern [	Best Fit	1 Hour		
A026_AC_0920	USMDLVME:	IP_AIMAP	VENT Minutes 2,4D process has vented to Atmosphere Yesterday	0.000	Good	Good		-1.000	40.000	min	0	0:00:0(	Eastern [	Best Fit	1 Hour		
D056_AC_0186	USMDLVME:	IP_AIMAP	TITLEV V1010 V1020 Time in Service [minutes]	259.000	Good	Good		254.000	264.000	MINUTE:	0	0:00:0(	Eastern [	Best Fit	1 Hour		
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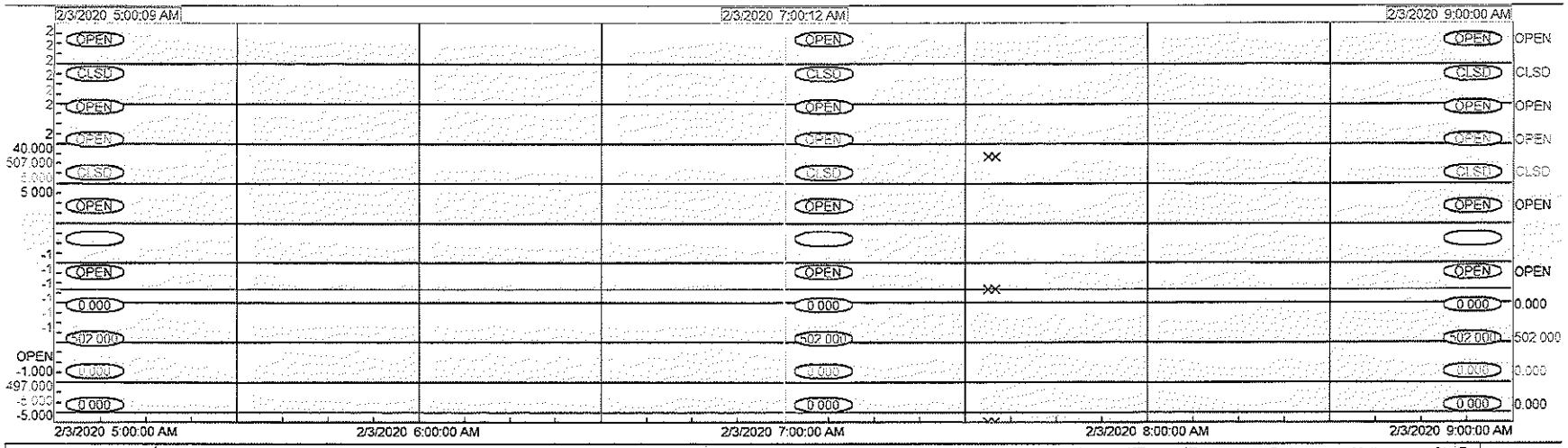
12/15/2020
KS
from P. Worden

2/3/20 5 AM to 9 AM



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from R. Wardlaw

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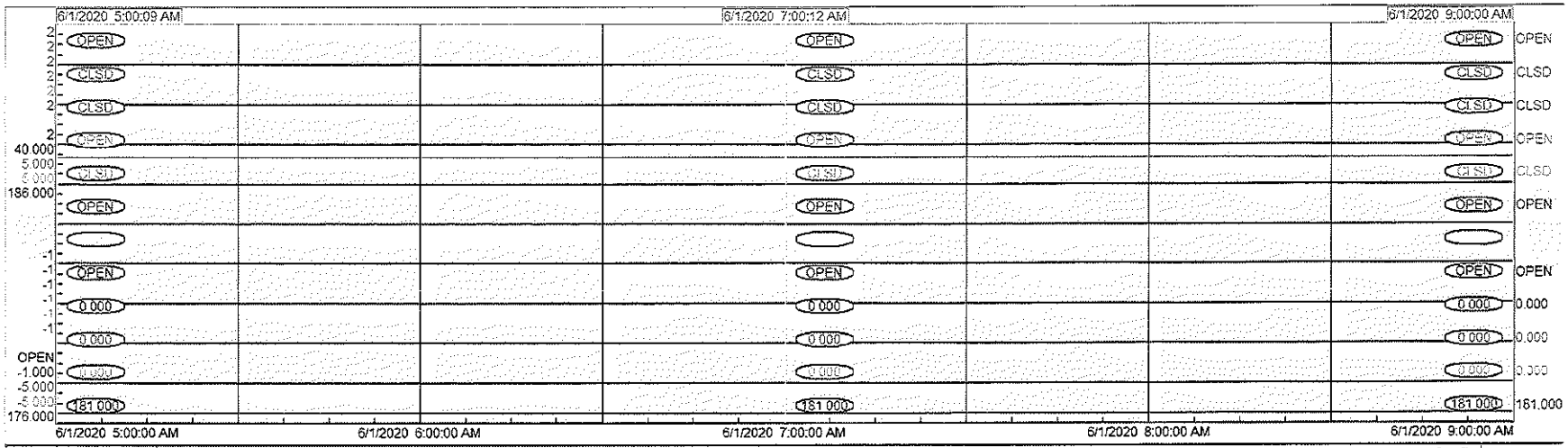

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12/15/2020
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from P. Wickersham

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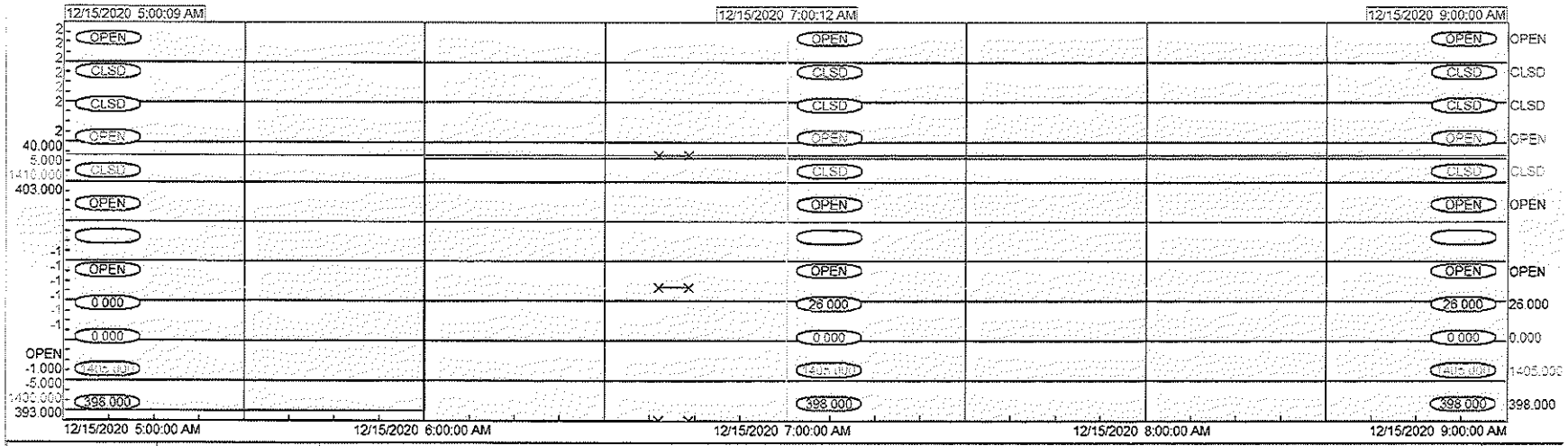

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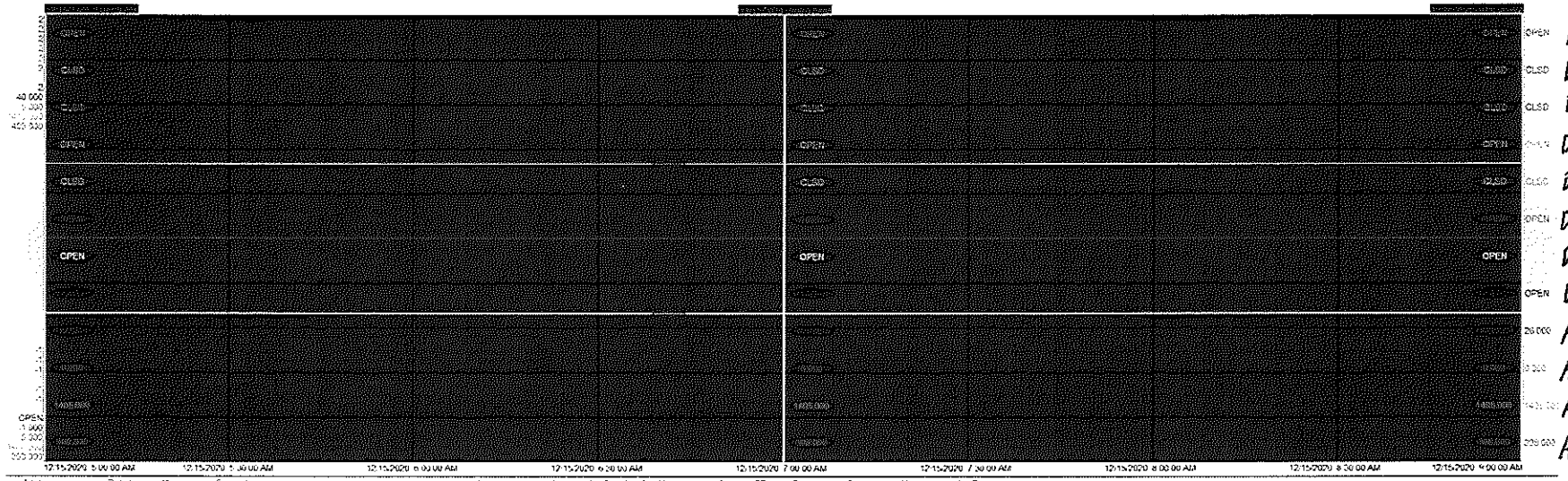
12/15/2020
KB
from P. Worden

12/15/20 5 AM to 9 AM



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D056_DI_0668	USMDLVME	IP_DIMAP	V1010 V1020 outlet valve	OPEN	Good	Good		-1	2		0	0:00:0	Eastern I	Best Fit	1 Hour		
D056_DI_0645	USMDLVME	IP_DIMAP	V1010 V1021 inlet valve	CLSD	Good	Good		-1	2		0	0:00:0	Eastern I	Best Fit	1 Hour		
D056_DI_0669	USMDLVME	IP_DIMAP	V1010 V1021 outlet valve	OPEN	Good	Good		-1	2		0	0:00:0	Eastern I	Best Fit	1 Hour		
D056_DI_0646	USMDLVME	IP_DIMAP	V1010 V1022 inlet valve	OPEN	Good	Good		-1	2		0	0:00:0	Eastern I	Best Fit	1 Hour		
D056_DI_0670	USMDLVME	IP_DIMAP	V1010 V1022 outlet valve	OPEN	Good	Good		OPEN	2		0	0:00:0	Eastern I	Best Fit	1 Hour		
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See Record Report for description

Carbon Adsorber - RTM hour usage

Year	Month	Bypass minutes	Bypass Days	RTM < 20 days
2019	1	29	0.02	0.0
2019	2	0	0.00	0.0
2019	3	0	0.00	0.0
2019	4	5395	3.75	3.8
2019	5	10498	7.29	11.1
2019	6	210	0.15	11.2
2019	7	205	0.14	11.3
2019	8	74	0.05	11.4
2019	9	43	0.03	11.4
2019	10	0	0.00	11.4
2019	11	194	0.13	11.6
2019	12	0	0.00	11.6
2020	1	5	0.00	11.5
2020	2	0	0.00	11.5
2020	3	0	0.00	11.5
2020	4	0	0.00	7.8
2020	5	8282	5.75	6.3
2020	6	13416	9.32	15.4
2020	7	47	0.03	15.3
2020	8	0	0.00	15.3
2020	9	1522	1.06	16.30
2020	10	5600	3.89	20.2
2020	11	0	0.00	20.1
2020	12	0	0.00	20.1

3.23 hours month
278 hours RTM

0 hour month
276 hours RTM

223 hours month
369 hour RTM

No Group 1 40 CFR 63 Subpart HHHHH emissions

963 ThrOX
Shutdown
- MAY 2020 - Flood
- MAINTENANCE - June 2020
- COMPUTER / SOFTWARE SWITCH ~~June 2020~~ Sept/Oct 2020

EU12b SC 111.3 Limits to 480 hours

12/15/2020
KB

Records request

SC IV.1, IV.2

963THROX

Date	Device Instrument tag	Screen shot 5 AM – 9M (Y/N)	IP21 data 7AM
1st week Nov 2019 11/5/2019	Vent valve to 963throx DO(001)A ✓		
2nd week Feb 2020 2/11/2020			
1st week June 2020 6/2/2020			
1st week Nov 2019 11/15/2019	963 Throx temp DDP tracks ✓		
2nd week Feb 2020 2/11/2020			
1st week June 2020 6/2/2020			
1st week Nov 2019	963Throx pH ✓		
2nd week Feb 2020			
1st week June 2020	DDP tracks		

948 Carbon adsorber

Date	Device Instrument tag	Screen shot 5 AM – 9M	IP21 data 7AM
1st week Nov 2019	Vent valve to 948 Carbon automated DO(002)B		
2nd week Feb 2020			
1st week June 2020			
1st week Nov 2019	Vent status to 948 carbon manual 1. V-1020: DI(644)B, DI(668)B 2. V-1021: DI(645)B, DI(669)B 3. V-1022: DI(646)B, DI(670)B	1. 2. 3.	
2nd week Feb 2020		1. 2. 3.	
1st week June 2020		1.	

DDP owns DO 348 to Throx
Corteva owns up to DO 348

EU03 Records request, on site observations

<u>On site inspection Dec 15, 2020</u>

View venting to EU12b, 963THROX

View choline hydroxide storage tanks V-8070A & V-8070B

View product rail loading station(s) ✓ *Vent to [illegible] ~~[illegible]~~ / view + to atm (Rail car Present today)*

Records from Dec 15, 2020 Approx 5 AM to 9AM *All on one Screen Shot.*

Device	Instrument tag	Screen shot 5AM -9AM	IP21 data 7AM
Vent valve to 963throx	DO(001)A ✓		
Vent valve to 948 Carbon automated	DO(002)B ✓		
Vent status to 948 carbon manual	V-1020: DI(644)B, ✓ DI(668)B ✓ V-1021: DI(645)B, ✓ DI(669)B ✓ V-1022: DI(646)B, ✓ DI(670)B ✓		
963 Throx temp	DDP tracks ✓		
963Throx pH	DDP tracks		
TTU bypass to Carbon bed - minutes to date	AC(920)A daily counter ✓ Data saved in Env calc spreadsheet to do the RTM running total.		
V-1020 carbon bed time in service (minutes)	AC(186)D ✓		
V-1021 carbon bed time in service (minutes)	AC(187)D ✓	*1405 minutes*	
V-1022 carbon bed time in service (minutes)	AC(188)D ✓	*398 minutes*	

963THROX – Operator screen values vent status, Temp, pH from DDP

		2.	
		3.	
1st week Nov 2019 2nd week Feb 2020 1st week June 2020	TTU bypass to Carbon bed - minutes to date AC(920)A daily counter Data saved in Env calc spreadsheet to do the RTM running total.		
1st week Nov 2019 2nd week Feb 2020 1st week June 2020	V-1020 carbon bed time in service (minutes) AC(186)D		
1st week Nov 2019 2nd week Feb 2020 1st week June 2020	V-1021 carbon bed time in service (minutes) AC(187)D		
1st week Nov 2019 2nd week Feb 2020 1st week June 2020	V-1022 carbon bed time in service (minutes)AC(188)D		

SC III.2, VI.1 Hours Carbon adsorber used

Month	12 Month Rolling	Comment
Nov 2019		
Feb 2020		
June 2020		

EU12b limited to 2,480 hours (Sc III.3)

SC VI.2 (SC IV.1 exempt EU03 storage vessels operating hours)

Date	12 Month Rolling	Comment
Nov 2019	278	N/A
Feb 2020	276	
June 2020	369	

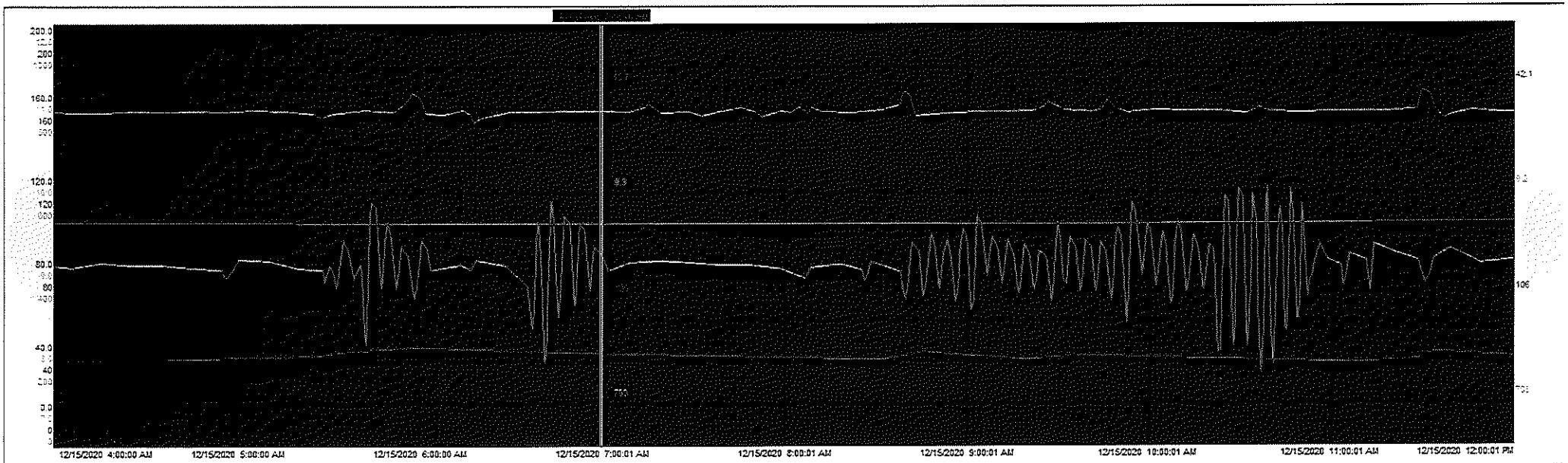
Each Carbon bed is changed out individually depending on time used. MAX of 24 hours/Carbon bed.

The time tracked to Carbon beds is for time tracked to any of the three Carbon beds

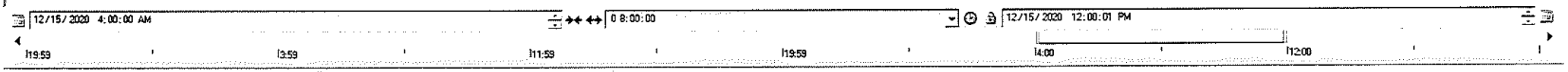
963 TTU

EU03
Inspection

12/15/2020
via email
from P. Warden



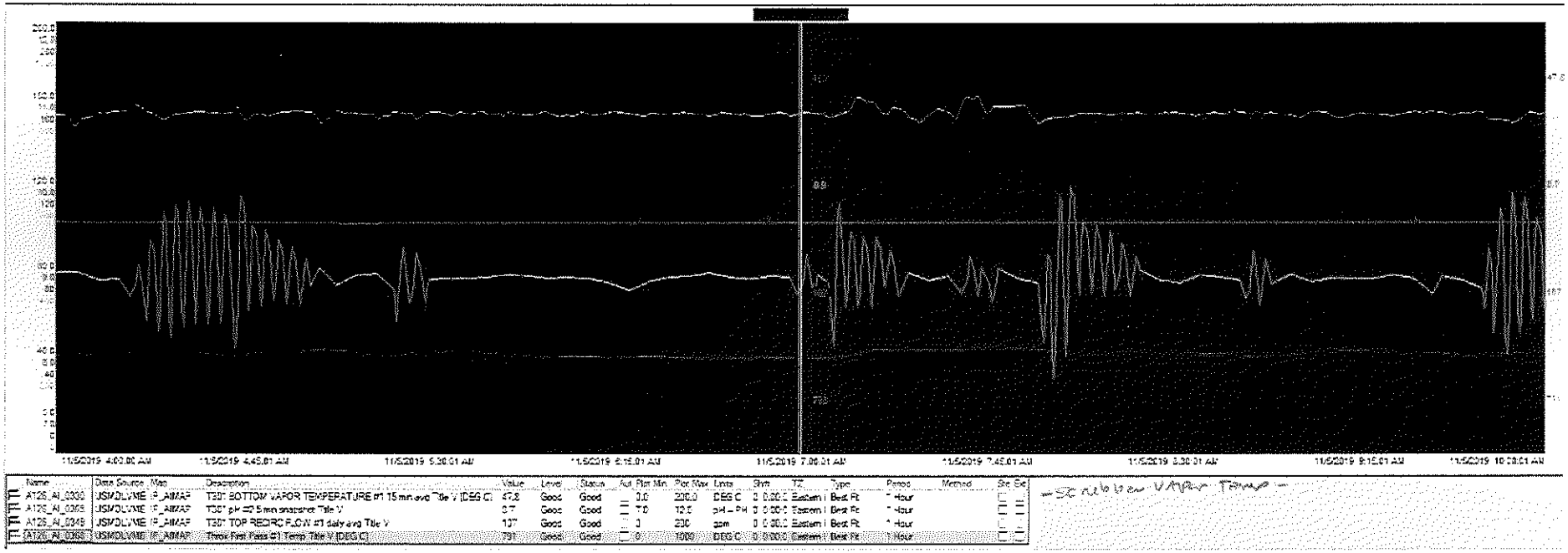
Name	Data Source	Map	Description	Value	Level	Status	Aut	Plot Min	Plot Max	Units	Shift	TZ	Type	Period	Method	Ste	Evt
A12S_AI_0330	USMDLVME	IP_AIMAP	T301 BOTTOM VAPOR TEMPERATURE #1 15 min avg Title V [DEG C]	42.1	Good	Good	☐	0.0	200.0	DEG C	0	0:00:0	Eastern I	Best Fit	1 Hour	☐	☐
A12S_AI_0365	USMDLVME	IP_AIMAP	T301 pH #2 5 min snapshot Title V	9.2	Good	Good	☐	7.0	12.0	pH = PH	0	0:00:0	Eastern I	Best Fit	1 Hour	☐	☐
A12S_AI_0345	USMDLVME	IP_AIMAP	T301 TOP RECIRC FLOW #1 daily avg Title V	106	Good	Good	☐	0	200	gpm	0	0:00:0	Eastern I	Best Fit	1 Hour	☐	☐
A12S_AI_0368	USMDLVME	IP_AIMAP	Throx First Pass #1 Temp Title V [DEG C]	788	Good	Good	☐	0	1000	DEG C	0	0:00:0	Eastern I	Best Fit	1 Hour	☐	☐



12/15/20
KB
from P. Worden

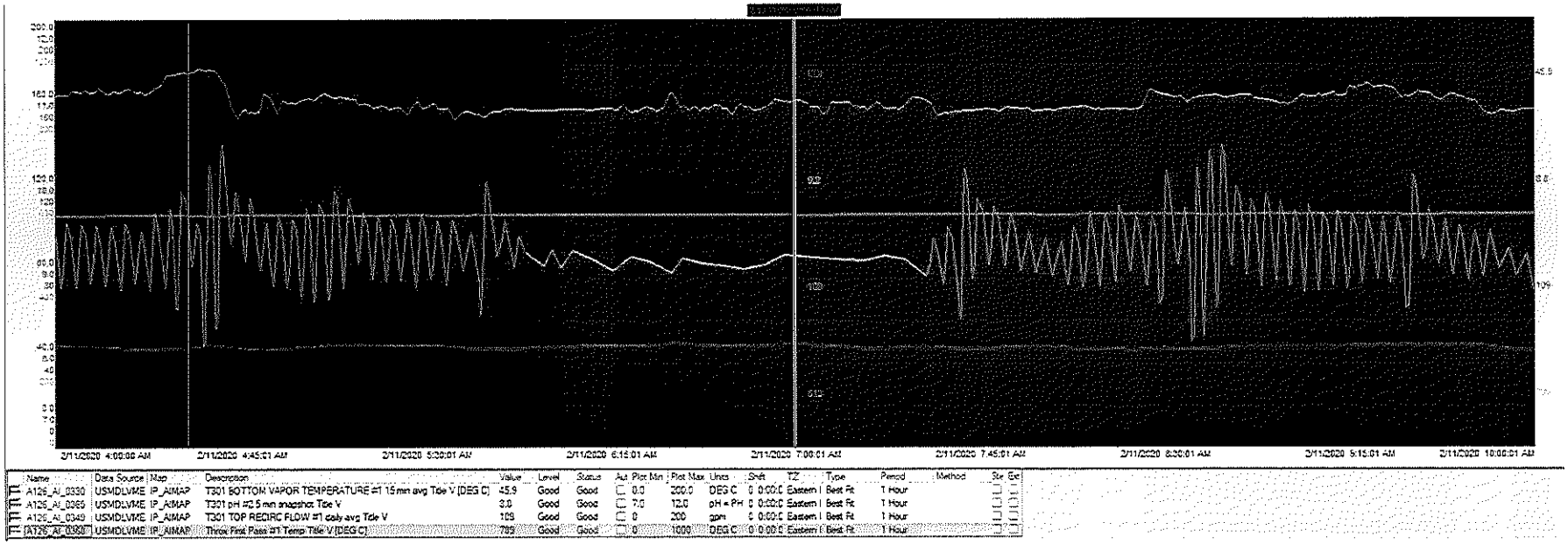
963 TTU data

11/5/19
7 am Temperature (tan – top): 793 C; Scrubber pH (green): 8.9; Scrubber flow (purple): 107



2/11/20

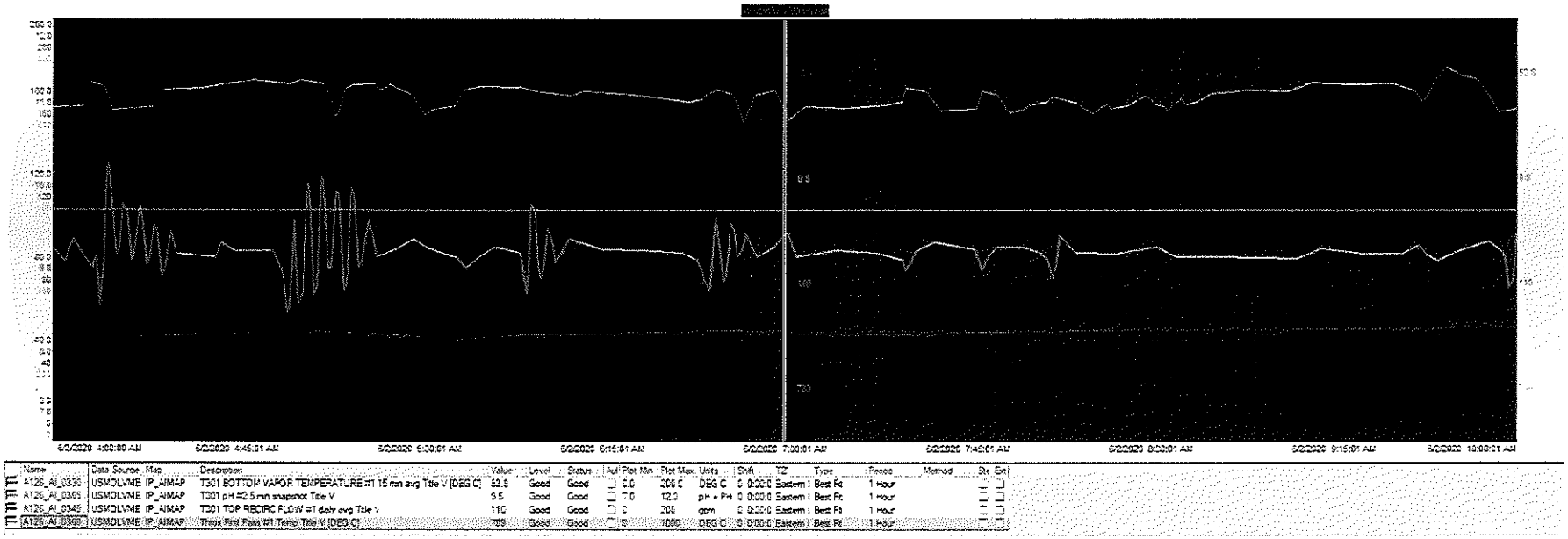
7 am Temperature (tan – top): 813 C; Scrubber pH (green): 9.2; Scrubber flow (purple): 109



Name	Data Source	Map	Description	Value	Level	Status	Aut	Plot Min	Plot Max	Units	Shift	TZ	Type	Period	Method	Ste	Ext
A126_AI_0330	USMDLVME	IP_AIMAP	T301 BOTTOM VAPOR TEMPERATURE #1 15 mn avg Tide V [DEG C]	45.9	Good	Good		0.0	200.0	DEG C	0	0:00:0	Eastern I	Best Fit	1 Hour			
A126_AI_0369	USMDLVME	IP_AIMAP	T301 pH #2 5 mn snapshot Tide V	9.0	Good	Good		7.0	12.0	pH = PH	0	0:00:0	Eastern I	Best Fit	1 Hour			
A126_AI_0349	USMDLVME	IP_AIMAP	T301 TOP RECIRC FLOW #1 daily avg Tide V	109	Good	Good		0	200	gpm	0	0:00:0	Eastern I	Best Fit	1 Hour			
A126_AI_0308	USMDLVME	IP_AIMAP	Throx First Pass #1 Temp Tide V [DEG C]	793	Good	Good		0	1000	DEG C	0	0:00:0	Eastern I	Best Fit	1 Hour			

6/2/20

7 am Temperature (tan – top): 783 C; Scrubber pH (green): 9.5; Scrubber flow (purple): 110



Name	Data Source_Map	Description	Value	Level	Status	Aut	Plot Min	Plot Max	Units	Shift	TZ	Type	Period	Method	Str	Ext
A126_AI_0336	USMDLVME IP_AIMAP	T301 BOTTOM VAPOR TEMPERATURE #1 15 min avg Title V [DEG C]	93.8	Good	Good		0.0	200.0	DEG C	0	0:00:0	Eastern I	Best Fit	1 Hour		
A126_AI_0365	USMDLVME IP_AIMAP	T301 pH #2 5 min snapshot Title V	9.5	Good	Good		7.0	12.0	pH = PH	0	0:00:0	Eastern I	Best Fit	1 Hour		
A126_AI_0345	USMDLVME IP_AIMAP	T301 TOP RECIRC FLOW #1 daily avg Title V	110	Good	Good		0	200	gpm	0	0:00:0	Eastern I	Best Fit	1 Hour		
A126_AI_0369	USMDLVME IP_AIMAP	Throx Fint Fxxx #1 Temp Title V [DEG C]	783	Good	Good		0	1000	DEG C	0	0:00:0	Eastern I	Best Fit	1 Hour		