VALERO

April 30, 2018

CERTIFIED: 7008 2810 0002 1315 1036

Department of Environmental Quality
Office of Environmental Compliance
Enforcement Division
P.O. Box 4312
Baton Rouge, LA 70821-4312

Re: NSPS Excess Emissions & CEM Performance Report – 1st Quarter 2018
Valero Refining - Meraux LLC, Agency Interest # 1238
22235 Jacob Drive., St. Bernard Parish, Meraux, LA
Title V Permit Numbers: 2500-00001-V16

Gentlemen,

Valero Refining, Meraux LLC is submitting this Excess Emissions and Monitoring Systems Reports, per LAC 33:III, Chapter 30, 40 CFR 60.7(c), 40 CFR 60.108a(d) and 40 CFR 63.1575 for the First Quarter 2018.

For this reporting period, the #2 SRU (EPN 1-93, EQT 0019) and the #3 SRU (EPN 5-00, EQT 0079) had excess emissions greater than 1% of the total operating time and no CEMS had downtime greater than 5% of the total operating time.

Enclosed are the Data Assessment Reports for the appropriate CEMs and information required by NSPS Subpart Ja, 40 CFR 60.108a(d). Subpart Ja root cause and corrective action analysis reports are included with this submittal. Updates to previously submitted Subpart Ja root cause and corrective action analysis reports are also included if corrective actions were completed in this reporting period.

Should you have any questions regarding this submission, please contact Mr. Justin Stubbe at (504) 271-4141.

*I certify, based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.*

Regards,

for Jack Merrill

Mike Dehart
Director Refinery Operations
Valero Refining – Meraux LLC

Enclosures
cc: Mr. Brian Tusa, LDEQ SE Regional Office, New Orleans, LA

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **$SO_2$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: $SO_2$ corrected to 0% $O_2$ shall not exceed 250 ppm on a 12-hour rolling average

Monitor Manufacturer and Model No.: Brimstone SGX-231($SO_2$)/Rosemount Oxymitter 4000($O_2$)

Date of Latest CMS Certification or Audit: CGA on 1/16/18

Process Unit(s) Description: #2 SRU Incinerator (EPN 1-93, EQT 0019)

Total source operating time in reporting period: 2,046 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 66 |
| b. Control equipment problems | 0 |
| c. Process problems | 12 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 78 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 3.8 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 1 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 1 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.0 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **$SO_2$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: $SO_2$ corrected to 0% $O_2$ shall not exceed 250 ppm on a 12-hour rolling average.

Monitor Manufacturer and Model No.: ABB AO2000 Uras 26($SO_2$)/ Magnos 206 ($O_2$)

Date of Latest CMS Certification or Audit: CGA on 1/10/18

Process Unit(s) Description: #3 SRU Incinerator (EPN 5-00, EQT 0079)

Total source operating time in reporting period: 2,080 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 42 |
| b. Control equipment problems | 0 |
| c. Process problems | 45 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 87 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 4.2 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 1 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 1 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.0 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: J

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average

Monitor Manufacturer and Model No.: Ametek, #4661

Date of Latest CMS Certification or Audit: CGA on 1/12/18

Process Unit(s) Description: Area 1 Fuel Drum for Boiler TB-01 (EPN 1-06, EQT 0010), Boiler B-7 (EPN 1-07, EQT 0011), MDH Product and Fractionator Heaters (EPN 2-92, EQT 0033)

Total source operating time in reporting period: EQT 0010- 2,038 hours, EQT 0011- 1,583 hours, EQT 0033- 1,886 hours

| **Emissions Data Summary[1]** | | | |
|---|---|---|---|
| 1. Duration of excess emissions in reporting period due to: | *EQT 0010 (hours)* | *EQT 0011 (hours)* | *EQT 0033 (hours)* |
| a. Startup/shutdown | 0 | 0 | 0 |
| b. Control equipment problems | 0 | 0 | 0 |
| c. Process problems | 0 | 0 | 0 |
| d. Other known causes | 0 | 0 | 0 |
| e. Unknown causes | 0 | 0 | 0 |
| 2. Total duration of excess emission | 0 | 0 | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % | 0.0 % | 0.0 % |

| **CMS Performance Summary[1]** | | | |
|---|---|---|---|
| 1. CMS downtime in reporting period due to: | *EQT 0010 (hours)* | *EQT 0011 (hours)* | *EQT 0033 (hours)* |
| a. Monitor equipment malfunctions | 0 | 0 | 0 |
| b. Non-Monitor equipment malfunctions | 0 | 0 | 0 |
| c. Quality assurance calibration | 0 | 0 | 0 |
| d. Other known causes | 0 | 0 | 0 |
| e. Unknown causes | 0 | 0 | 0 |
| 2. Total CMS Downtime | 0 | 0 | 0 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.0 % | 0.0 % | 0.0 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted. (Percentage based on the lowest operating time.)

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: J

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Subpart J: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 4661

Date of Latest CMS Certification or Audit: CGA on 1/26/18

Process Unit(s) Description: Area 2 Fuel Drum for: Vacuum Heater (EPN 1-76, EQT 0013); No.1 Crude Heater (EPN 12-72A, EQT 0022); NHT Charge Heater (EPN 14-72, EQT 0023); NHT Debut Reboiler (EPN 15-72, EQT 0024); NHT Depent Reboiler (EPN 16-72 EQT 0027); Platformer Charge Heater (EPN 17-72 a,b,c , EQT 0028); Platformer Debut Reboiler (EPN 19-72, EQT 0029); DHT Charge Heater (EPN 5-73, EQT 0058); ROSE Heater (EPN 1-80, EQT 0014)

Total source operating time in reporting period: EQT 0013-1,870 hours; EQT 0022-1,907 hours; EQT 0023-1,771 hours; EQT 0024-1,761 hours; EQT 0027-1,757 hours; EQT 0028-1,769 hours; EQT 0029-1,659 hours; EQT 0058-766 hours; EQT 0014 - 2,084 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *All EQT's (hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 2 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 2 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.1 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *All EQT's (hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 0 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.0 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Subpart Ja: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average and 60 ppm on a 365 day rolling average.

Monitor Manufacturer and Model No.: Ametek 4661

Date of Latest CMS Certification or Audit: CGA on 1/26/18

Process Unit(s) Description: Area 2 Fuel Drum for Benzene Recovery Unit Reboiler (EPN 1-09, EQT 0127)

Total source operating time in reporting period: 1,704 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 2 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 2 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.1 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 0 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.0 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: J

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 4661

Date of Latest CMS Certification or Audit: CGA on 1/26/18

Process Unit(s) Description: Area 4 Fuel Drum for Merox Disulfide Separator to Platformer Charge Heater

Total source operating time in reporting period: 1,727 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 2 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 2 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.1 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 0 |
| d. Other known causes | 15 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 15 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.9 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: J

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 4661

Date of Latest CMS Certification or Audit: CGA on 1/12/18

Process Unit(s) Description: Area 6 Fuel Drum for Hydrocracker & Hydrotreater Charge Heaters (EPN 1-00, EQT 0009)

Total source operating time in reporting period: 1,936 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 2 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 2 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.1 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 1 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 1 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.1 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: J

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 4661

Date of Latest CMS Certification or Audit: CGA on 1/26/18

Process Unit(s) Description: Area 6 Fuel Drum for Boiler B-5 (EPN 2-00, EQT 0030) and Boiler B-6 (EPN 3-00, EQT 0048)

Total source operating time in reporting period: EQT 0030-2,054 hours; EQT 0048-0 hours[3]

| **Emissions Data Summary[1]** | | |
|---|---|---|
| 1. Duration of excess emissions in reporting period due to: | *EQT 0030 (hours)* | *EQT 0048 (hours)* |
| a. Startup/shutdown | 0 | 0 |
| b. Control equipment problems | 0 | 0 |
| c. Process problems | 3 | 0 |
| d. Other known causes | 0 | 0 |
| e. Unknown causes | 0 | 0 |
| 2. Total duration of excess emission | 3 | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.1 % | 0.0 % |

| **CMS Performance Summary[1]** | | |
|---|---|---|
| 1. CMS downtime in reporting period due to: | *EQT 0030 (hours)* | *EQT 0048 (hours)* |
| a. Monitor equipment malfunctions | 0 | 0 |
| b. Non-Monitor equipment malfunctions | 0 | 0 |
| c. Quality assurance calibration | 1 | 0 |
| d. Other known causes | 0 | 0 |
| e. Unknown causes | 0 | 0 |
| 2. Total CMS Downtime | 1 | 0 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.0 % | 0.0 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.
[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.
[3] Boiler B-6 ran on purchased natural gas for the entire Quarter.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d))*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: Db

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Nitrogen Oxide shall not exceed 0.1 pound/MMBtu on a 30-day rolling average.

Monitor Manufacturer and Model No.: ABB Limas11( NOx), Magnos27 ($O_2$)

Date of Latest CMS Certification or Audit: CGA on 1/23/18

Process Unit(s) Description: Boiler B-5 (EPN 2-00, EQT 0030)

Total source operating time in reporting period: 2,052 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 4 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 4 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.2 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d))*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: Db

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Nitrogen Oxide shall not exceed 0.1 pound/MMBtu on a 30-day rolling average.

Monitor Manufacturer and Model No.: ABB Limas11( NOx), Magnos27 ($O_2$)

Date of Latest CMS Certification or Audit: CGA on 1/23/18

Process Unit(s) Description: Boiler B-6 (EPN 3-00, EQT 0048)

Total source operating time in reporting period: 2,066 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 0 |
| d. Other known causes | 4 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 4 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.2 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d))*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: Db

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Nitrogen Oxide shall not exceed 0.1 pound/MMBtu on a 30-day rolling average.

Monitor Manufacturer and Model No.: Thermo Environmental 42i (NOx)/($O_2$)

Date of Latest CMS Certification or Audit: CGA on 1/25/18

Process Unit(s) Description: Boiler TB-01 (EPN 1-06, EQT 0010)

Total source operating time in reporting period: 2,038 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 3 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 3 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.1 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Nitrogen Oxide corrected to 0% $O_2$ shall not exceed 40 ppm on a 30-day rolling average

Monitor Manufacturer and Model No.: Thermo Environmental 42i (NOx)/($O_2$)

Date of Latest CMS Certification or Audit: CGA on 1/14/18

Process Unit(s) Description: Benzene Recovery Unit Reboiler (EPN 1-09, EQT 0127)

Total source operating time in reporting period: 1,704 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 1 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 1 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.1 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: N/A (Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 36.a)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: ABB Limas11( NOx), Magnos27 ($O_2$)

Date of Latest CMS Certification or Audit: CGA on 1/28/18

Process Unit(s) Description: No.1 Crude Heater (EPN 12-72A, EQT 0022)

Total source operating time in reporting period: 1,907 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 1 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 1 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.1 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Date of Latest CMS Certification or Audit: CGA on 1/11/18

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), North Flare Header

Total source operating time in reporting period: 2,159 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 17 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 17 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.8 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 0 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.0 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Date of Latest CMS Certification or Audit: CGA on 1/10/18

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), Hydrocracker Flare Header

Total source operating time in reporting period: 2,159 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 17 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 17 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 1.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 0 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.0 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Date of Latest CMS Certification or Audit: CGA on 1/12/18

Process Unit(s) Description: South Flare Stack (EPN 3-77, EQT 0049)

Total source operating time in reporting period: 2,159 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 12 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 12 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 0 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.0 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **Total Sulfur**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II

Date of Latest CMS Certification or Audit: CGA on 1/12/18

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), North Flare Header

Total source operating time in reporting period: 2,159 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 5 |
| d. Other known causes | 20 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 25 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 1.2 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **Total Sulfur**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II

Date of Latest CMS Certification or Audit: CGA on 1/12/18

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), Hydrocracker Flare Header

Total source operating time in reporting period: 2,159 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 2 |
| d. Other known causes | 19 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 21 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 1.0 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **Total Sulfur**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II

Date of Latest CMS Certification or Audit: CGA on 1/27/18

Process Unit(s) Description: South Flare Stack (EPN 3-77, EQT 0049)

Total source operating time in reporting period: 2,159 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 5 |
| d. Other known causes | 18 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 23 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 1.1 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **Flow**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: GE Panametrics GF 868

Date of Latest CMS Certification or Audit: N/A

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), North Flare Header

Total source operating time in reporting period: 2,159 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 0 |
| d. Other known causes | 20 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 20 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.9 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **Flow**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: GE Panametrics GF 868

Date of Latest CMS Certification or Audit: N/A

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), Hydrocracker Flare Header

Total source operating time in reporting period: 2,159 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 0 |
| d. Other known causes | 11 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 11 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.5 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(d) and 60.108a(d))*

Pollutant: **Flow**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: GE Panametrics GF 868

Date of Latest CMS Certification or Audit: N/A

Process Unit(s) Description: South Flare Stack (EPN 3-77, EQT 0049)

Total source operating time in reporting period: 2,159 hours

| **Emissions Data Summary[1]** | |
|---|---|
| 1. Duration of excess emissions in reporting period due to: | *(hours)* |
| a. Startup/shutdown | 0 |
| b. Control equipment problems | 0 |
| c. Process problems | 0 |
| d. Other known causes | 0 |
| e. Unknown causes | 0 |
| 2. Total duration of excess emission | 0 |
| 3. Total duration of excess emissions x (100) [Total source operating time][2] | 0.0 % |

| **CMS Performance Summary[1]** | |
|---|---|
| 1. CMS downtime in reporting period due to: | *(hours)* |
| a. Monitor equipment malfunctions | 0 |
| b. Non-Monitor equipment malfunctions | 0 |
| c. Quality assurance calibration | 0 |
| d. Other known causes | 20 |
| e. Unknown causes | 0 |
| 2. Total CMS Downtime | 20 |
| 3. Total duration of CMS Downtime x (100) [Total source operating time][2] | 0.9 % |

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in §60.7(c) shall be submitted.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **$SO_2$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: $SO_2$ corrected to 0% $O_2$ shall not exceed 250 ppm on a 12-hour rolling average

Monitor Manufacturer and Model No.: Brimstone SGX-231($SO_2$)/Rosemount Oxymitter 4000($O_2$)

Date of Latest CMS Certification or Audit: CGA on 1/16/18

Process Unit(s) Description: #2 SRU Incinerator (EPN 1-93, EQT 0019)

Total source operating time in reporting period: 2,046 hours

| Ja EXCESS EMISSIONS | | | | | | |
|---|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Max 12-HRA (ppm) | Cause | Corrective Action |
| 1/21/18 | 14:00 | | 66 | 786 | $SO_2$ at 0% $O_2$ greater than 250 ppm, 12-HRA, with $SO_2$ emissions greater than 500 lbs/day above the allowable limit while operating in hot standby following the total power failure on 1/16/18. For causes and corrective actions, see the root cause and corrective action analysis dated 1/16/18 in Appendix B of this report. | |
| 1/24/18 | | 08:00 | | | | |
| 1/27/18 | 03:00 | 15:00 | 12 | 371 | $SO_2$ at 0% $O_2$ greater than 250 ppm, 12-HRA, with $SO_2$ emissions less than 500 lbs/day above the allowable limit following the introduction of acid gas feed following the total power failure on 1/16/18. For causes and corrective actions, see the root cause and corrective action analysis dated 1/16/18 in Appendix B of this report. | |
| TOTAL | | | 12 | | | |

| Ja CMS PERFORMANCE[1] | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| 3/6/18 | 13:00 | 14:00 | 1 | Offline for preventative maintenance. | Calibrated and returned to service. |
| TOTAL | | | 1 | | |

[1]In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **$SO_2$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: $SO_2$ corrected to 0% $O_2$ shall not exceed 250 ppm on a 12-hour rolling average.

Monitor Manufacturer and Model No.: ABB AO2000 Uras 26(SO2)/ Magnos 206 (O2)

Date of Latest CMS Certification or Audit: CGA on 1/10/18

Process Unit(s) Description: #3 SRU Incinerator (EPN 5-00, EQT 0079)

Total source operating time in reporting period: 2,080 hours

| **Ja EXCESS EMISSIONS** | | | | | | |
|---|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Max 12-HRA (ppm) | Cause | Corrective Action |
| 1/2/18 | 12:00 | | 30 | 685 | $SO_2$ at 0% $O_2$ greater than 250 ppm, 12-HRA, with $SO_2$ emissions greater than 500 lbs/day above the allowable limit due to an upset of the refinery steam system. For causes and corrective actions, see the root cause and corrective action analysis dated 1/12/18 in Appendix B of this report. |
| 1/3/18 | | 18:00 | | | | |
| 1/20/18 | 17:00 | | 42 | 939 | $SO_2$ at 0% $O_2$ greater than 250 ppm, 12-HRA, with $SO_2$ emissions greater than 500 lbs/day above the allowable limit while operating in hot standby following the total power failure on 1/16/18. For causes and corrective actions, see the root cause and corrective action analysis dated 1/16/18 in Appendix B of this report. |
| 1/22/18 | | 11:00 | | | | |
| 3/22/18 | 14:00 | | 15 | 517 | $SO_2$ at 0% $O_2$ greater than 250 ppm, 12-HRA, with $SO_2$ emissions greater than 500 lbs/day above the allowable limit following the introduction of acid gas feed following the Hydrocracker upset on 3/21/18. For causes and corrective actions, see the root cause and corrective action analysis dated 3/21/18 in Appendix B of this report. |
| 3/23/18 | | 05:00 | | | | |
| TOTAL | | | 87 | | | |

| **Ja CMS PERFORMANCE[1]** | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | **Cause** | Corrective Action |
| 1/10/18 | 10:00 | 11:00 | 1 | $SO_2$ and O2 Cylinder Gas Audit. | N/A |
| TOTAL | | | 1 | | |

[1]In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average and 60 ppm on a 365 day rolling average

Monitor Manufacturer and Model No.: Ametek 4661

Date of Latest CMS Certification or Audit: CGA on 1/26/18

Process Unit(s) Description: Area 2 Fuel Drum for Benzene Recovery Unit Reboiler (EPN 1-09, EQT 0127)

Total source operating time in reporting period: 1,704 hours

| **Ja EXCESS EMISSIONS** | | | | | | |
|---|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Max 3-HRA (ppm) | Cause | Corrective Action |
| 3/5/18 | 10:00 | 12:00 | 2 | 204 | $H_2S$ greater than 162 ppm, 3-HRA, with $SO_2$ emissions less than 500 lbs/day above the allowable limit from the Benzene Recovery Unit Reboiler due to a trip of the Main Burner in the #3 SRU. The Main Burner tripped on low air flow after the steam driven blower was hit with a slug of water that reduced its speed. | Valero determined that the slug of water came from a deadleg of steam piping in the #3 SRU due to several steam traps being isolated or not functioning. Valero has repaired and/or placed these steam traps in service. |
| TOTAL | | | 2 | | | |

| **Ja CMS PERFORMANCE[1]** | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| None | | | | | |
| TOTAL | | | 0 | | |

[1]In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

## GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Nitrogen Oxide corrected to 0% $O_2$ shall not exceed 40 ppm on a 30-day rolling average

Monitor Manufacturer and Model No.: Thermo Environmental 42i $(NOx)/(O_2)$

Date of Latest CMS Certification or Audit: CGA on 1/14/18

Process Unit(s) Description: Benzene Recovery Unit Reboiler (EPN 1-09, EQT 0127)

Total source operating time in reporting period: 1,704 hours

| Ja EXCESS EMISSIONS | | | | | | |
|---|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Max 30-DRA (ppm) | Cause | Corrective Action |
| None | | | | | | |
| TOTAL | | | 0 | | | |

| Ja CMS PERFORMANCE[1] | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| 1/14/18 | 11:00 | 12:00 | 1 | $NO_x$ and $O_2$ Cylinder Gas Audit | N/A |
| TOTAL | | | 1 | | |

[1] In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Date of Latest CMS Certification or Audit: CGA on 1/11/18

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), North Flare Header

Total source operating time in reporting period: 2,159 hours

| **Ja EXCESS EMISSIONS** | | | | | | |
|---|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Max 3-HRA (ppm) | Cause | Corrective Action |
| 1/2/18 | 08:00 | 12:00 | 4 | 292 | $H_2S$ greater than 162 ppm, 3-HRA due to the loss of the Flare Gas Recovery Compressor due to unusually cold conditions. For causes and corrective actions, see the root cause and corrective action analysis dated 1/2/18 attached at the end of this report. | |
| 1/11/18 | 11:00 | 12:00 | 1 | 167 | $H_2S$ greater than 162 ppm, 3-HRA due to the Flare Gas Recovery Compressor trip during start up/swapping operations. | Valero re-started a Flare Gas Compressor. |
| 1/15/18 | 18:00 | 05:00 | 11 | 281 | $H_2S$ greater than 162 ppm, 3-HRA due to the loss of the Flare Gas Recovery Compressor due to inlet strainer plugging. For causes and corrective actions, see the root cause and corrective action analysis dated 1/15/18 attached at the end of this report. | |
| 2/6/18 | 15:00 | 16:00 | 1 | 189 | $H_2S$ greater than 162 ppm, 3-HRA due to the Flare Gas Recovery Compressor trip during start up/swapping operations due to a cooling fan breaking. | Valero re-started a Flare Gas Compressor and replaced the cooling fan belt. |
| TOTAL | | | 17 | | | |

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Date of Latest CMS Certification or Audit: CGA on 1/11/18

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), North Flare Header

Total source operating time in reporting period: 2,159 hours

| **Ja CMS PERFORMANCE[2]** | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| None | | | | | |
| TOTAL | | | 0 | | |

[1]Due to the physical arrangement of the headers supplying the North Flare Stack (EPN 20-72, EQT 0035), two analyzers are required to measure $H_2S$ concentration of the gas combusted in the North Flare. Conservatively, excess emission on either of these analyzers will be considered excess emissions at the North Flare. However, the CEMS performance will be tracked separately.

[2]In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Date of Latest CMS Certification or Audit: CGA on 1/10/18

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), Hydrocracker Flare Header

Total source operating time in reporting period: 2,159 hours

| **Ja EXCESS EMISSIONS** | | | | | | |
|---|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Max 3-HRA (ppm) | Cause | Corrective Action |
| 1/2/18 | 08:00 | 12:00 | 4 | 292 | $H_2S$ greater than 162 ppm, 3-HRA due to the loss of the Flare Gas Recovery Compressor due to unusually cold conditions. For causes and corrective actions, see the root cause and corrective action analysis dated 1/2/18 attached at the end of this report. | |
| 1/11/18 | 11:00 | 12:00 | 1 | 167 | $H_2S$ greater than 162 ppm, 3-HRA due to the Flare Gas Recovery Compressor trip during start up/swapping operations. | Valero re-started a Flare Gas Compressor. |
| 1/15/18 | 18:00 | 05:00 | 11 | 281 | $H_2S$ greater than 162 ppm, 3-HRA due to the loss of the Flare Gas Recovery Compressor due to inlet strainer plugging. For causes and corrective actions, see the root cause and corrective action analysis dated 1/15/18 attached at the end of this report. | |
| 2/6/18 | 15:00 | 16:00 | 1 | 189 | $H_2S$ greater than 162 ppm, 3-HRA due to the Flare Gas Recovery Compressor trip during start up/swapping operations due to a cooling fan breaking. | Valero re-started a Flare Gas Compressor and replaced the cooling fan belt. |
| TOTAL | | | 17 | | | |

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Date of Latest CMS Certification or Audit: CGA on 1/10/18

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), Hydrocracker Flare Header

Total source operating time in reporting period: 2,159 hours

| **Ja CMS PERFORMANCE[2]** | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| 1/10/18 | 14:00 | 15:00 | 1 | Cylinder Gas Audit | N/A |
| 1/29/18 | 07:00 | 09:00 | 2 | Analyzer malfunctioned during daily calibration check and did not return to sample. | Valero reset and calibrated the analyzer and returned it to service. |
| TOTAL | | | 3 | | |

[1]Due to the physical arrangement of the headers supplying the North Flare Stack (EPN 20-72, EQT 0035), two analyzers are required to measure $H_2S$ concentration of the gas combusted in the North Flare. Conservatively, excess emission on either of these analyzers will be considered excess emissions at the North Flare. However, the CEMS performance will be tracked separately.

**[2]** In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Date of Latest CMS Certification or Audit: CGA on 1/12/18

Process Unit(s) Description: South Flare Stack (EPN 3-77, EQT 0049)

Total source operating time in reporting period: 2,159 hours

| Ja EXCESS EMISSIONS | | | | | | |
|---|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Max 3-HRA (ppm) | Cause | Corrective Action |
| 1/11/18 | 11:00 | 12:00 | 1 | 167 | $H_2S$ greater than 162 ppm, 3-HRA due to the Flare Gas Recovery Compressor trip during start up/swapping operations. | Valero re-started a Flare Gas Compressor. |
| 1/15/18 | 18:00 | 05:00 | 11 | 281 | $H_2S$ greater than 162 ppm, 3-HRA due to the loss of the Flare Gas Recovery Compressor due to inlet strainer plugging. For causes and corrective actions, see the root cause and corrective action analysis dated 1/15/18 attached at the end of this report. | |
| TOTAL | | | 12 | | | |

| Ja CMS PERFORMANCE[1] | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| None | | | | | |
| TOTAL | | | 0 | | |

[1] In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **Total Sulfur**

Applicable NSPS Subpart: Ja (Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II

Date of Latest CMS Certification or Audit: CGA on 1/12/18

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), North Flare Header

Total source operating time in reporting period: 2,159 hours

| **Ja CMS PERFORMANCE[1]** | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| 1/12/18 | 10:00 | 11:00 | 1 | Cylinder Gas Audit. | N/A |
| 1/16/18 | 21:00 | | 20 | Analyzer shutdown due to a total power failure. | Valero started up, calibrated, and returned the analyzer to service. |
| 1/17/18 | | 17:00 | | | |
| 3/8/18 | 09:00 | 10:00 | 1 | Analyzer adjusted for calibration drift. | Calibrated and returned to service. |
| 3/14/18 | 08:00 | 09:00 | 1 | Analyzer adjusted for calibration drift. | Calibrated and returned to service. |
| 3/14/18 | 13:00 | 14:00 | 1 | Analyzer adjusted for calibration drift. | Calibrated and returned to service. |
| 3/26/18 | 10:00 | 11:00 | 1 | Analyzer adjusted for calibration drift. | Calibrated and returned to service. |
| TOTAL | | | 25 | | |

[1] In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **Total Sulfur**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II

Date of Latest CMS Certification or Audit: CGA on 1/12/18

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), Hydrocracker Flare Header

Total source operating time in reporting period: 2,159 hours

| **Ja CMS PERFORMANCE[1]** | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| 1/16/18 | 21:00 | | 19 | Analyzer shutdown due to a total power failure. | Valero started up, calibrated, and returned the analyzer to service. |
| 1/17/18 | | 16:00 | | | |
| 3/14/18 | 09:00 | 11:00 | 2 | Analyzer adjusted for calibration drift. | Calibrated and returned to service. |
| TOTAL | | | 21 | | |

[1] In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **Total Sulfur**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II

Date of Latest CMS Certification or Audit: CGA on 1/27/18

Process Unit(s) Description: South Flare Stack (EPN 3-77, EQT 0049)

Total source operating time in reporting period: 2,159 hours

| **Ja CMS PERFORMANCE[1]** | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| 1/16/18 | 21:00 | | 18 | Analyzer shutdown due to a total power failure. | Valero started up, calibrated, and returned the analyzer to service. |
| 1/17/18 | | 15:00 | | | |
| 1/27/18 | 09:00 | 10:00 | 1 | Cylinder Gas Audit. | N/A |
| 2/12/18 | 10:00 | 11:00 | 1 | Analyzer adjusted for calibration drift. | Calibrated and returned to service. |
| 3/11/18 | 12:00 | 13:00 | 1 | Analyzer adjusted for calibration drift. | Calibrated and returned to service. |
| 3/12/18 | 10:00 | 11:00 | 1 | Analyzer adjusted for calibration drift. | Calibrated and returned to service. |
| 3/15/18 | 11:00 | 12:00 | 1 | Analyzer adjusted for calibration drift. | Calibrated and returned to service. |
| TOTAL | | | 23 | | |

[1] In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **Flow**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: GE Panametrics GF 868

Date of Latest CMS Certification or Audit: N/A

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), North Flare Header

Total source operating time in reporting period: 2,159 hours

| **Ja CMS PERFORMANCE[1]** | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| 1/16/18 | 21:00 | | 13 | Flowmeter shutdown or data unavailable due to a total power failure. | Returned to service. |
| 1/17/18 | | 10:00 | | | |
| 2/23/18 | 08:00 | 15:00 | 7 | Flowmeter shutdown for annual preventative maintenance. | Returned to service. |
| TOTAL | | | 20 | | |

[1] In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

## GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **Flow**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: GE Panametrics GF 868

Date of Latest CMS Certification or Audit: N/A

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), Hydrocracker Flare Header

Total source operating time in reporting period: 2,159 hours

| **Ja CMS PERFORMANCE[1]** | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| 1/16/18 | 21:00 | | 5 | Flowmeter shutdown or data unavailable due to a total power failure. | Returned to service. |
| 1/17/18 | | 02:00 | | | |
| 1/17/18 | 03:00 | 06:00 | 3 | | |
| 1/17/18 | 07:00 | 10:00 | 3 | | |
| TOTAL | | | 11 | | |

**1** In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# GASEOUS AND OPACITY EXCESS EMISSIONS AND MONITORING SYSTEMS PERFORMANCE

*(per 40 CFR 60.7(c) and 60.108a(d))*

Pollutant: **Flow**

Applicable NSPS Subpart: Ja (Also Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: GE Panametrics GF 868

Date of Latest CMS Certification or Audit: N/A

Process Unit(s) Description: South Flare Stack (EPN 3-77, EQT 0049)

Total source operating time in reporting period: 2,159 hours

| **Ja CMS PERFORMANCE[1]** | | | | | |
|---|---|---|---|---|---|
| Date | Start | End | Duration (hours) | Cause | Corrective Action |
| 1/16/18 | 21:00 | | 5 | Flowmeter shutdown or data unavailable due to a total power failure. | Returned to service. |
| 1/17/18 | | 02:00 | | | |
| 1/17/18 | 07:00 | 10:00 | 3 | | |
| 2/21/18 | 14:00 | 20:00 | 6 | Flowmeter shutdown for annual preventative maintenance. | Returned to service. |
| 2/22/18 | 09:00 | 12:00 | 3 | | |
| 2/23/18 | 12:00 | 15:00 | 3 | | |
| TOTAL | | | 20 | | |

[1] In accordance with 40 CFR 60.108a(d)(6), changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit have been compared with operation of the control system and affected facility before and following the period of data unavailability to ensure that any changes made in operation of the emission control system during the period of data unavailability did not affect the ability of the system to meet the applicable emission limit.

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$SO_2$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: $SO_2$ corrected to 0% $O_2$ shall not exceed 250 ppm on a 12-hour rolling average.

Monitor Manufacturer and Model No.: Brimstone SGX-231($SO_2$)/Rosemount Oxymitter 4000($O_2$)

Source unit: #2 SRU Incinerator (EPN 1-93, EQT 0019)

CEM Sampling Location: #2 SRU Incinerator (#1-93)

CEM Span Value: Sulfur Dioxide 500 ppm; Oxygen 25%

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $SO_2$ #1 (low scale) | $SO_2$ #2 (high scale) | $O_2$ #1 (low scale) | $O_2$ #2 (high scale) |
|---|---|---|---|---|
| Date of Audit | 1/16/18 | 1/16/18 | 1/16/18 | 1/16/18 |
| Audit Gas Cylinder No. | SG9150051BAL | CC125741 | CC483689 | SG9152263BAL |
| Date of Audit Gas Cert. | 5/27/16 | 5/27/16 | 5/23/16 | 5/23/16 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value | 124.9 ppmv | 274.5 ppmv | 5.99 vol % | 10.05 vol % |
| CEM Response Value | 129.7 ppmv | 276.3 ppmv | 6.20 vol % | 10.17 vol % |
| Accuracy | 3.8% | 0.7% | 3.5% | 1.2% |
| Standard | <15% | <15% | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$SO_2$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: $SO_2$ corrected to 0% $O_2$ shall not exceed 250 ppm on a 12-hour rolling average.

Monitor Manufacturer and Model No.: ABB AO2000 Uras 26(SO2)/ Magnos 206 (O2)

Source unit: #3 SRU Incinerator (EPN 5-00, EQT 0079)

CEM Sampling Location: #3 SRU Incinerator (#5-00)

CEM Span Value: Sulfur Dioxide 500 ppm; Oxygen 25%

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $SO_2$ #1 (low scale) | $SO_2$ #2 (high scale) | $O_2$ #1 (low scale) | $O_2$ #2 (high scale) |
|---|---|---|---|---|
| Date of Audit | 1/10/18 | 1/10/18 | 1/10/18 | 1/10/18 |
| Audit Gas Cylinder No. | XC022957B | CC94008 | CC483694 | EB0063979 |
| Date of Audit Gas Cert. | 5/27/16 | 5/27/16 | 5/23/16 | 5/23/16 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value | 125.3 ppmv | 275.3 ppmv | 5.99 vol % | 9.98 vol % |
| CEM Response Value | 129.3 ppmv | 281.6 ppmv | 6.12 vol % | 10.14 vol % |
| Accuracy | 3.2% | 2.3% | 2.2% | 1.6% |
| Standard | <15% | <15% | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: J

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 4661

Source Unit: Area 1 Fuel Drum for Boiler TB-01 (EPN 1-06, EQT 0010)

CEM Sampling Location: Area 1 Fuel Drum

CEM Span Value: Hydrogen Sulfide, 300 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/12/18 | 1/12/18 |
| Audit Gas Cylinder No. | XC034939B | CC26703 |
| Date of Audit Gas Cert. | 5/23/16 | 5/27/16 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value (ppmv) | 76.0 | 175.3 |
| CEM Response Value (ppmv) | 79.7 | 181.3 |
| Accuracy | 4.9% | 3.4% |
| Standard | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: J and Ja (Benzene Recovery Unit Reboiler Subject to Ja)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average(J and Ja) and 60 ppm on a 365 day rolling average (Ja only)

Monitor Manufacturer and Model No.: Ametek 4661

Source Unit: Area 2 Fuel Drum for: MDH Product and Fractionator Heaters (EPN 2-92, EQT 0033); No.1 Crude Heater (EPN 12-72A, EQT 022); ROSE Heater (EPN 1-80, EQT 0014); Vacuum Heater (EPN 1-76, EQT 0013); Platformer Charge Heater (EPN 17-72 a,b,c , EQT 0028); Platformer Debut Reboiler (EPN 19-72, EQT 0029); NHT Charge Heater (EPN 14-72, EQT 0023); NHT Debut Reboiler (EPA 15-72, EQT 0024); NHT Depent Reboiler (EPA 16-72, EQT 0027); DHT Charge Heater (EPN 5-73, EQT 0058); Benzene Recovery Unit Reboiler (EPN 1-09, EQT 0127)

CEM Sampling Location: Area 2 Fuel Drum

CEM Span Value: Hydrogen Sulfide, 300 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/26/18 | 1/26/18 |
| Audit Gas Cylinder No. | EB0062585 | CC41503 |
| Date of Audit Gas Cert. | 5/23/16 | 5/27/16 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value (ppmv) | 76.7 | 176.4 |
| CEM Response Value (ppmv) | 74.0 | 171.0 |
| Accuracy | 3.5% | 3.1% |
| Standard | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: J

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 4661

Process Unit(s) Description: Area 4 Fuel Drum for Merox Disulfide Separator to Platformer Charge Heater

CEM Sampling Location: Area 4 Fuel Drum

CEM Span Value: Hydrogen Sulfide, 300 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/26/18 | 1/26/18 |
| Audit Gas Cylinder No. | CC467104 | CC91595 |
| Date of Audit Gas Cert. | 5/23/16 | 5/27/16 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value (ppmv) | 78.0 | 169.9 |
| CEM Response Value (ppmv) | 76.7 | 167.3 |
| Accuracy | 1.7% | 1.5% |
| Standard | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: J

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 4661

Process Unit(s) Description: Area 6 Fuel Drum for Hydrocracker & Hydrotreater Charge Heaters (EPN 1-00, EQT 0009)

CEM Sampling Location: Area 6 Fuel Drum

CEM Span Value: Hydrogen Sulfide, 300 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/12/18 | 1/12/18 |
| Audit Gas Cylinder No. | CC182529 | CC52088 |
| Date of Audit Gas Cert. | 5/23/16 | 5/27/16 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value (ppmv) | 78.4 | 166.7 |
| CEM Response Value (ppmv) | 79.7 | 166.0 |
| Accuracy | 1.7% | 0.4% |
| Standard | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: J

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 4661

Process Unit(s) Description: Area 6 Fuel Drum for Boilers B-5 (EPN 2-00, EQT 0030) and B-6 (EPN 3-00, EQT 0048)

CEM Sampling Location: Area 6 Fuel Drum

CEM Span Value: Hydrogen Sulfide, 300 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/26/18 | 1/26/18 |
| Audit Gas Cylinder No. | CC421903 | CC111958 |
| Date of Audit Gas Cert. | 5/23/16 | 5/27/16 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value (ppmv) | 78.1 | 171.5 |
| CEM Response Value (ppmv) | 72.5 | 163.0 |
| Accuracy | 7.2% | 5.0% |
| Standard | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: Db

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Nitrogen Oxide shall not exceed 0.1 pound/MMBtu on a 30-day rolling average.

Monitor Manufacturer and Model No.: ABB Limas11( $NO_x$), Magnos27 ($O_2$)

Process Unit(s) Description: Boiler B-5 (EPN 2-00, EQT 0030)

CEM Sampling Location: Boiler B-5

CEM Span Value: Nitrogen Oxide 100 ppm, Oxygen 25 %

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $NO_x$ #1 (low scale) | $NO_x$ #2 (high scale) | $O_2$ #1 (low scale) | $O_2$ #2 (high scale) |
|---|---|---|---|---|
| Date of Audit | 1/23/18 | 1/23/18 | 1/23/18 | 1/23/18 |
| Audit Gas Cylinder No. | CC330464 | LL64747 | LL53418 | LL167062 |
| Date of Audit Gas Cert. | 6/2/16 | 5/3/16 | 1/28/14 | 1/28/14 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value | 25.2 ppmv | 54.5 ppmv | 6.01 vol % | 10.01 vol % |
| CEM Response Value | 25.5 ppmv | 54.5 ppmv | 5.92 vol % | 9.93 vol % |
| Accuracy | 1.2% | 0.0% | 1.5% | 0.8% |
| Standard | <15% | <15% | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: Db

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Nitrogen Oxide shall not exceed 0.1 pound/MMBtu on a 30-day rolling average.

Monitor Manufacturer and Model No.: ABB Limas11 ($NO_x$), Magnos27 ($O_2$)

Process Unit(s) Description: Boiler B-6 (EPN 3-00, EQT 0048)

CEM Sampling Location: Boiler B-6

CEM Span Value: Nitrogen Oxide 100 ppm, Oxygen 25 %

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $NO_x$ #1 (low scale) | $NO_x$ #2 (high scale) | $O_2$ #1 (low scale) | $O_2$ #2 (high scale) |
|---|---|---|---|---|
| Date of Audit | 1/23/18 | 1/23/18 | 1/23/18 | 1/23/18 |
| Audit Gas Cylinder No. | CC330464 | LL64747 | LL53418 | LL167062 |
| Date of Audit Gas Cert. | 6/2/16 | 5/3/16 | 1/28/14 | 1/28/14 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value | 25.2 ppmv | 54.5 ppmv | 6.01 vol % | 10.01 vol % |
| CEM Response Value | 24.6 ppmv | 52.7 ppmv | 5.90 vol % | 9.92 vol % |
| Accuracy | 2.4% | 3.3% | 1.8% | 0.9% |
| Standard | <15% | <15% | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: Db

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Nitrogen Oxide shall not exceed 0.1 pound/MMBtu on a 30-day rolling average.

Monitor Manufacturer and Model No.: Thermo Environmental Model 42i ($NO_x$)/($O_2$)

Process Unit(s) Description: Boiler TB-01 (EPN 1-06, EQT 0010)

CEM Sampling Location: Boiler TB-01

CEM Span Value: Nitrogen Oxide 500 ppm, Oxygen 25 %

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $NO_x$ #1 (low scale) | $NO_x$ #2 (high scale) | $O_2$ #1 (low scale) | $O_2$ #2 (high scale) |
|---|---|---|---|---|
| Date of Audit | 1/25/18 | 1/25/18 | 1/25/18 | 1/25/18 |
| Audit Gas Cylinder No. | SG9167966 | CC89303 | LL269 | LL168197 |
| Date of Audit Gas Cert. | 5/31/16 | 5/31/16 | 4/26/16 | 4/25/16 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value | 126.9 ppmv | 270.5 ppmv | 6.03 vol % | 10.10 vol % |
| CEM Response Value | 132.7 ppmv | 282.0 ppmv | 6.00 vol % | 10.10 vol % |
| Accuracy | 4.6% | 4.3% | 0.5% | 0.0% |
| Standard | <15% | <15% | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Nitrogen Oxide corrected to 0% $O_2$ shall not exceed 40 ppm on a 30-day rolling average

Monitor Manufacturer and Model No.: Thermo Environmental Model 42i ($NO_x$)/($O_2$)

Process Unit(s) Description: Benzene Recovery Unit Reboiler (EPN 1-09, EQT 0127)

CEM Sampling Location: Benzene Recovery Unit Reboiler

CEM Span Value: Nitrogen Oxide 100 ppm, Oxygen 25 %

I. ACCURACY ASSESSMENT RESULTS (CGA):

| CGA | $NO_x$ #1 (low scale) | $NO_x$ #2 (high scale) | $O_2$ #1 (low scale) | $O_2$ #2 (high scale) |
|---|---|---|---|---|
| Date of Audit | 1/14/18 | 1/14/18 | 1/14/18 | 1/14/18 |
| Audit Gas Cylinder No. | CC430476 | CC307733 | CC483658 | CC87078 |
| Date of Audit Gas Cert. | 6/2/16 | 6/2/16 | 5/23/16 | 5/23/16 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value | 25.0 ppmv | 55.8 ppmv | 5.96 vol % | 9.94 vol % |
| CEM Response Value | 24.3 ppmv | 53.0 ppmv | 5.60 vol % | 9.43 vol % |
| Accuracy | 2.8% | 5.0% | 6.0% | 5.1% |
| Standard | <15% | <15% | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$NO_x$**

Applicable NSPS Subpart: N/A (Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 36.a)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Nitrogen Oxide corrected to 0% $O_2$ shall not exceed 40 ppm on a 30-day rolling average

Monitor Manufacturer and Model No.: Thermo Environmental Model 42i ($NO_x$)/($O_2$)

Process Unit(s) Description: No.1 Crude Heater (EPN 12-72A, EQT 0022)

CEM Sampling Location: No.1 Crude Heater

CEM Span Value: Nitrogen Oxide 100 ppm, Oxygen 25 %

I. ACCURACY ASSESSMENT RESULTS (CGA):

| CGA | $NO_x$ #1 (low scale) | $NO_x$ #2 (high scale) | $O_2$ #1 (low scale) | $O_2$ #2 (high scale) |
|---|---|---|---|---|
| Date of Audit | 1/28/18 | 1/28/18 | 1/28/18 | 1/28/18 |
| Audit Gas Cylinder No. | LL178685 | CC319153 | CC483638 | CC222165 |
| Date of Audit Gas Cert. | 5/2/16 | 6/2/16 | 5/23/16 | 5/23/16 |
| Type of Certification | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 | EPA Protocol 1 |
| Certified Audit Value | 24.7 ppmv | 55.4 ppmv | 5.99 vol % | 9.96 vol % |
| CEM Response Value | 25.7 ppmv | 58.9 ppmv | 5.22 vol % | 9.40 vol % |
| Accuracy | 4.1% | 6.3% | 12.9% | 5.6% |
| Standard | <15% | <15% | <15% | <15% |

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), North Flare Header

CEM Sampling Location: North Flare Stack, North Flare Header (Y-AT-801)

CEM Span Value: Hydrogen Sulfide, 300 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/11/18 | 1/11/18 |
| Audit Gas Cylinder No. | CC441826 | CC288207 |
| Date of Audit Gas Cert. | 10/3/16 | 10/4/16 |
| Type of Certification | Certified Gas[1] | Certified Gas[1] |
| Certified Audit Value | 79.1 ppmv | 177.3 ppmv |
| CEM Response Value | 79.3 ppmv | 171.7 ppmv |
| Accuracy | 0.3% | 3.2% |
| Standard | <15% | <15% |

[1] Valero unable to obtain EPA Protocol 1 certified gases for the Methane balanced audit gas required by this analyzer.

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), Hydrocracker Flare Header

CEM Sampling Location: North Flare Stack, Hydrocracker Flare Header (Y-AT-800)

CEM Span Value: Hydrogen Sulfide, 300 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/10/18 | 1/10/18 |
| Audit Gas Cylinder No. | CC416820 | CC407913 |
| Date of Audit Gas Cert. | 10/3/16 | 10/4/16 |
| Type of Certification | Certified Gas[1] | Certified Gas[1] |
| Certified Audit Value (ppmv) | 81.5 ppmv | 175.6 ppmv |
| CEM Response Value (ppmv) | 75.0 ppmv | 171.0 ppmv |
| Accuracy | 8.0% | 2.6% |
| Standard | <15% | <15% |

[1] Valero unable to obtain EPA Protocol 1 certified gases for the Methane balanced audit gas required by this analyzer.

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **$H_2S$**

Applicable NSPS Subpart: Ja

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: Hydrogen Sulfide shall not exceed 162 ppm on a 3-hour rolling average.

Monitor Manufacturer and Model No.: Ametek 5100

Process Unit(s) Description: South Flare Stack (EPN 3-77, EQT 0049)

CEM Sampling Location: South Flare Stack (Y-AT-802)

CEM Span Value: Hydrogen Sulfide, 300 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/12/18 | 1/12/18 |
| Audit Gas Cylinder No. | CC416820 | CC407913 |
| Date of Audit Gas Cert. | 10/3/16 | 10/4/16 |
| Type of Certification | Certified Gas[1] | Certified Gas[1] |
| Certified Audit Value | 81.5 ppmv | 175.6 ppmv |
| CEM Response Value | 81.0 ppmv | 176.0 ppmv |
| Accuracy | 0.6% | 0.2% |
| Standard | <15% | <15% |

[1] Valero unable to obtain EPA Protocol 1 certified gases for the Methane balanced audit gas required by this analyzer.

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **Total Sulfur**

Applicable NSPS Subpart: Ja (Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), North Flare Header

CEM Sampling Location: North Flare Stack, North Flare Header (Y-AT-303)

CEM Span Value: Total Sulfur, Dual Range: 0-10,000 ppm, 10,000-1,000,000 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/12/18 | 1/12/18 |
| Audit Gas Cylinder No. | CC305316 | SG9152747BAL |
| Date of Audit Gas Cert. | 5/27/16 | 7/27/17 |
| Type of Certification | EPA Protocol 1 | Primary Standard1 |
| Certified Audit Value (ppmv) | 1013.0 ppmv | 9992.0 ppmv |
| CEM Response Value (ppmv) | 1026.0 ppmv | 10020.3 ppmv |
| Accuracy | 1.3% | 0.3% |
| Standard | <15% | <15% |

[1] Valero unable to obtain EPA Protocol 1 certified gases greater than 1000 ppm.

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **Total Sulfur**

Applicable NSPS Subpart: Ja (Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II

Process Unit(s) Description: North Flare Stack (EPN 20-72, EQT 0035), Hydrocracker Flare Header

CEM Sampling Location: North Flare Stack, Hydrocracker Flare Header (Y-AT-302)

CEM Span Value: Total Sulfur, Dual Range: 0-10,000 ppm, 10,000-1,000,000 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/12/18 | 1/12/18 |
| Audit Gas Cylinder No. | CC305316 | SG9152747BAL |
| Date of Audit Gas Cert. | 5/27/16 | 7/27/17 |
| Type of Certification | EPA Protocol 1 | Primary Standard[1] |
| Certified Audit Value (ppmv) | 1013.0 ppmv | 9992.0 ppmv |
| CEM Response Value (ppmv) | 979.7 ppmv | 9728.3 ppmv |
| Accuracy | 3.3% | 2.6% |
| Standard | <15% | <15% |

[1] Valero unable to obtain EPA Protocol 1 certified gases greater than 1000 ppm.

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# DATA ASSESSMENT REPORT

*(per 40 CFR 60, Appendix F, Section 7)*

Pollutant: **Total Sulfur**

Applicable NSPS Subpart: Ja (Required by Consent Decree: 3:10-cv-00563-bbc, Paragraph 49.a.ii)

Reporting period dates: From 1/1/18 to 3/31/18

Date submitted: 4/30/18

Company: Valero Refining - Meraux LLC

Address: 2500 East St. Bernard Highway, Meraux, LA 70075

Emission Limitation: None

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II

Process Unit(s) Description: South Flare Stack (EPN 3-77, EQT 0049)

CEM Sampling Location: South Flare Stack (Y-AT-304)

CEM Span Value: Total Sulfur, Dual Range: 0-10,000 ppm, 10,000-1,000,000 ppm

I. ACCURACY ASSESSMENT RESULTS (CGA):

| | $H_2S$ #1 (low scale) | $H_2S$ #2 (high scale) |
|---|---|---|
| Date of Audit | 1/27/18 | 1/27/18 |
| Audit Gas Cylinder No. | CC305316 | SG9152747BAL |
| Date of Audit Gas Cert. | 5/27/16 | 7/27/17 |
| Type of Certification | EPA Protocol 1 | Primary Standard1 |
| Certified Audit Value | 1013.0 ppmv | 9992.0 ppmv |
| CEM Response Value | 1065.7 ppmv | 10223.3 ppmv |
| Accuracy | 5.2% | 2.3% |
| Standard | <15% | <15% |

[1] Valero unable to obtain EPA Protocol 1 certified gases greater than 1000 ppm.

II. CALIBRATION DRIFT ASSESSMENT

A. Out of Control Periods:

1. Dates: N/A

2. Number of Days N/A

B. Corrective Actions: N/A

# Appendix A

# Ja Root Cause and Corrective Action Analysis

## Subpart Ja Root Cause / Corrective Action Analysis

**Incident Number: 186191/186237**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Update** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow and SO2), SRU (SO2)** | Date of Event: | **10/12/17** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **11/20/17** |
| | **South Flare (EPN 3-77, EQT 0049)** | | |
| | **#3 SRU Incinerator (EPN 5-00, EQT 0079)** | | |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*At approximately 23:15 on 10/12/17, the Meraux Refinery experienced a partial loss of electrical power. Although the power was interruption was brief, multiple Refinery unit upsets and shutdowns were triggered. These upsets and shutdowns resulted in flaring and SO2 emissions from the North and South Flares > 500,000 SCF above baseline and > 500 lbs SO2 in a 24 hour period and SO2 emissions from the #3 SRU > 500 lbs above allowable in a 24 hour period.*

*After assessing the condition of the electrical power supply, Valero began the process of restarting the affected units late on 10/12/17. This continued until 10/15/17. Additionally, while loading a Hydrogen Make-Up Gas Compressor in the Middle Distillate Hydrogen Unit (MDH) at 20:12 on 10/14/17, the discharge PSV lifted and began passing pipeline Hydrogen to the North Flare, increasing the volume flared but having no effect on SO2 emissions. Valero was delayed in locating this source of flaring due to the MDH being connected to the South Flare and normally flaring on the South Flare, and this gas passing to the North Flare due to a low Flare Gas Recovery (FGR) Liquid Seal on the North Flare.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | **Flaring** | **#3 SRU** | |
|---|---|---|---|
| Date and Time the discharge was first identified | **10/12/17 23:15** | **10/12/17 23:15** | |
| Date/Time the discharge had ceased | **10/15/17 7:15** | **10/13/17 8:40** | |
| Duration of Discharge (Calculated) | **56.0** | **9.4** | hrs |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero initiated it's refinery sulfur shedding procedure and followed its Flare Minimization Plan and Operations Procedures to minimize the volume and SO2 emissions of this discharge.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **No** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **No** | (Yes/No) |

**- If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*The root cause of the power interruption was a flashover on a failed insulator on one of the electrical transmission lines powering the refinery and surrounding area. As this event occurred on 3rd-party equipment located several miles from the refinery, there are no corrective actions available to refinery personnel.*

*The root causes of the additional flaring from the MDH Make-Up Gas Compressor were:*

*1) Refinery personnel were searching for sources on the North Flare and not the South Flare. Both flares are connected at the suction of the FGR unit, but normally flaring has occurred on the flare that the source is most directly connected to. However, in this case the low FGR Liquid Seal presented the path of least resistance and a source on the South Flare passed to the North Flare. Refinery personnel were not generally aware that this crossflow was possible and this was the first time that this has been observed.*

*2) FGR unit inlet flowmeters were not reading properly. This would have assisted operations in locating the source of flaring.*

*3) MDH Make-Up Compressor discharge PSV lifted during loading and did not re-seat when pressure returned to normal.*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not**

**Is corrective action required?** **Yes** (Yes/No)

*1) Develop Operation Learning Bulletin on locating sources of flaring and review with Operations.*

*2) Evaluate the suitability of the FGR inlet flow meters.*

*3) Review the MDH Unit Start-Up procedure for appropriate time for loading compressor.*

*4) Pull and Inspect the Compressor discharge PSV at next opportunity and evaluate test frequency.*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*1) Develop Operation Learning Bulletin on locating sources of flaring and review with Operations.*
*Commencement Date: 11/20/17*
*Completed Date: 2/19/18*

*2) Evaluate the suitability of the FGR inlet flow meters.*
*Commencement Date: 11/20/17*
*Completed Date: 2/14/18*

*3) Review the MDH Unit Start-Up procedure for appropriate time for loading compressor.*
*Commencement Date: 11/20/17*
*Completed Date: 1/30/18*

*4) Pull and Inspect the Compressor discharge PSV at next opportunity and evaluate test frequency.*
*Commencement Date: 11/20/17*
*Estimated Completion Date: 10/2/18*

**(8.) North and South Flares**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 10/11/17 23:00 | 10/12/17 22:00 | 79,804 | 2,181 | 28 | 0 |
| 10/12/17 0:00 | 10/12/17 23:00 | 556,987 | 2213 | 713.0 | 3.8 |
| 10/12/17 1:00 | 10/13/17 0:00 | 1,370,333 | 2426 | 1575.6 | 8.5 |
| 10/12/17 2:00 | 10/13/17 1:00 | 2,030,227 | 2496 | 2157.3 | 11.6 |
| 10/12/17 3:00 | 10/13/17 2:00 | 2,569,527 | 2615 | 2497.9 | 13.4 |
| 10/12/17 4:00 | 10/13/17 3:00 | 3,044,471 | 2745 | 2763.7 | 14.9 |
| 10/12/17 5:00 | 10/13/17 4:00 | 3,357,929 | 2804 | 2847.1 | 15.3 |
| 10/12/17 6:00 | 10/13/17 5:00 | 3,713,991 | 2904 | 3006.0 | 16.2 |
| 10/12/17 7:00 | 10/13/17 6:00 | 3,962,626 | 2642 | 3051.3 | 16.4 |
| 10/12/17 8:00 | 10/13/17 7:00 | 4,126,690 | 2504 | 3093.6 | 16.6 |
| 10/12/17 9:00 | 10/13/17 8:00 | 4,279,062 | 2507 | 3107.1 | 16.7 |
| 10/12/17 10:00 | 10/13/17 9:00 | 4,431,763 | 2517 | 3123.1 | 16.8 |
| 10/12/17 11:00 | 10/13/17 10:00 | 4,655,723 | 2530 | 3148.2 | 16.9 |
| 10/12/17 12:00 | 10/13/17 11:00 | 4,761,204 | 2541 | 3159.2 | 17.0 |
| 10/12/17 13:00 | 10/13/17 12:00 | 4,822,724 | 2556 | 3166.8 | 17.0 |
| 10/12/17 14:00 | 10/13/17 13:00 | 4,887,499 | 2568 | 3176.4 | 17.1 |
| 10/12/17 15:00 | 10/13/17 14:00 | 4,929,459 | 2578 | 3181.5 | 17.1 |
| 10/12/17 16:00 | 10/13/17 15:00 | 4,935,909 | 2580 | 3182.0 | 17.1 |
| 10/12/17 17:00 | 10/13/17 16:00 | 4,942,066 | 2586 | 3182.6 | 17.1 |
| 10/12/17 18:00 | 10/13/17 17:00 | 5,005,683 | 2593 | 3187.8 | 17.1 |
| 10/12/17 19:00 | 10/13/17 18:00 | 5,018,620 | 2564 | 3187.8 | 17.1 |
| 10/12/17 20:00 | 10/13/17 19:00 | 5,020,739 | 2387 | 3184.6 | 17.1 |
| 10/12/17 21:00 | 10/13/17 20:00 | 5,022,906 | 2235 | 3182.8 | 17.1 |
| 10/12/17 22:00 | 10/13/17 21:00 | 5,023,978 | 1985 | 3180.7 | 17.1 |
| 10/12/17 23:00 | 10/13/17 22:00 | 5,013,053 | 1918 | 3177.3 | 17.1 |
| 10/13/17 0:00 | 10/13/17 23:00 | 4,538,493 | 1555 | 2490.1 | 13.4 |
| 10/13/17 1:00 | 10/14/17 0:00 | 3,727,819 | 1293 | 1627.3 | 8.7 |
| 10/13/17 2:00 | 10/14/17 1:00 | 3,076,264 | 1077 | 1043.9 | 5.6 |
| 10/13/17 3:00 | 10/14/17 2:00 | 2,641,487 | 933 | 708.6 | 3.8 |
| 10/13/17 4:00 | 10/14/17 3:00 | 2,257,652 | 804 | 447.1 | 2.4 |
| 10/13/17 5:00 | 10/14/17 4:00 | 1,950,902 | 821 | 365.9 | 2.0 |
| 10/13/17 6:00 | 10/14/17 5:00 | 1,590,761 | 796 | 207.1 | 1.1 |
| 10/13/17 7:00 | 10/14/17 6:00 | 1,341,159 | 809 | 159.4 | 0.9 |
| 10/13/17 8:00 | 10/14/17 7:00 | 1,179,119 | 755 | 115.8 | 0.6 |
| 10/13/17 9:00 | 10/14/17 8:00 | 1,023,963 | 819 | 102.5 | 0.6 |
| 10/13/17 10:00 | 10/14/17 9:00 | 870,258 | 797 | 86.5 | 0.5 |
| 10/13/17 11:00 | 10/14/17 10:00 | 644,711 | 1004 | 61.6 | 0.3 |
| 10/13/17 12:00 | 10/14/17 11:00 | 538,414 | 987 | 50.5 | 0.3 |
| 10/13/17 13:00 | 10/14/17 12:00 | 479,508 | 965 | 42.9 | 0.2 |
| 10/13/17 14:00 | 10/14/17 13:00 | 416,143 | 936 | 33.2 | 0.2 |
| 10/13/17 15:00 | 10/14/17 14:00 | 372,832 | 917 | 27.9 | 0.1 |
| 10/13/17 16:00 | 10/14/17 15:00 | 370,041 | 905 | 27.4 | 0.1 |
| 10/13/17 17:00 | 10/14/17 16:00 | 369,642 | 893 | 27.0 | 0.1 |
| 10/13/17 18:00 | 10/14/17 17:00 | 306,458 | 882 | 21.7 | 0.1 |
| 10/13/17 19:00 | 10/14/17 18:00 | 289,707 | 880 | 21.0 | 0.1 |
| 10/13/17 20:00 | 10/14/17 19:00 | 287,065 | 886 | 21.1 | 0.1 |
| 10/13/17 21:00 | 10/14/17 20:00 | 382,596 | 756 | 22.0 | 0.1 |
| 10/13/17 22:00 | 10/14/17 21:00 | 523,446 | 716 | 27.9 | 0.1 |

**(8.) North and South Flares cont.**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 10/13/17 23:00 | 10/14/17 22:00 | 666,165 | 729 | 35.1 | 0.2 |
| 10/14/17 0:00 | 10/14/17 23:00 | 746,398 | 743 | 39.9 | 0.2 |
| 10/14/17 1:00 | 10/15/17 0:00 | 793,002 | 751 | 42.8 | 0.2 |
| 10/14/17 2:00 | 10/15/17 1:00 | 837,473 | 775 | 49.1 | 0.3 |
| 10/14/17 3:00 | 10/15/17 2:00 | 729,010 | 772 | 43.0 | 0.2 |
| 10/14/17 4:00 | 10/15/17 3:00 | 638,115 | 761 | 38.6 | 0.2 |
| 10/14/17 5:00 | 10/15/17 4:00 | 632,643 | 679 | 36.3 | 0.2 |
| 10/14/17 6:00 | 10/15/17 5:00 | 671,569 | 593 | 36.2 | 0.2 |
| 10/14/17 7:00 | 10/15/17 6:00 | 729,056 | 539 | 37.6 | 0.2 |
| 10/14/17 8:00 | 10/15/17 7:00 | 735,319 | 540 | 37.9 | 0.2 |
| 10/14/17 9:00 | 10/15/17 8:00 | 733,951 | 464 | 37.3 | 0.2 |
| 10/14/17 10:00 | 10/15/17 9:00 | 740,787 | 470 | 37.5 | 0.2 |
| 10/14/17 11:00 | 10/15/17 10:00 | 751,739 | 245 | 37.7 | 0.2 |
| 10/14/17 12:00 | 10/15/17 11:00 | 752,383 | 246 | 37.7 | 0.2 |
| 10/14/17 13:00 | 10/15/17 12:00 | 750,985 | 246 | 37.7 | 0.2 |
| 10/14/17 14:00 | 10/15/17 13:00 | 754,828 | 247 | 37.8 | 0.2 |
| 10/14/17 15:00 | 10/15/17 14:00 | 752,406 | 246 | 37.7 | 0.2 |
| 10/14/17 16:00 | 10/15/17 15:00 | 748,801 | 245 | 37.6 | 0.2 |
| 10/14/17 17:00 | 10/15/17 16:00 | 743,389 | 244 | 37.4 | 0.2 |
| 10/14/17 18:00 | 10/15/17 17:00 | 742,007 | 241 | 37.3 | 0.2 |
| 10/14/17 19:00 | 10/15/17 18:00 | 744,422 | 235 | 37.3 | 0.2 |
| 10/14/17 20:00 | 10/15/17 19:00 | 745,108 | 227 | 37.2 | 0.2 |
| 10/14/17 21:00 | 10/15/17 20:00 | 646,907 | 219 | 32.4 | 0.2 |
| 10/14/17 22:00 | 10/15/17 21:00 | 506,614 | 212 | 25.8 | 0.1 |
| 10/14/17 23:00 | 10/15/17 22:00 | 363,791 | 206 | 18.7 | 0.1 |

**(9.) #3 SRU**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(vi)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume** | **$SO_2$ ppm (24-hr average, flow-weighted)[1]** | **24-hr cumulative $SO_2$[2]** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 10/11/17 23:00 | 10/12/17 22:00 | 26,160,801 | 61 | 265.7 | 1.4 |
| 10/12/17 0:00 | 10/12/17 23:00 | 25,713,844 | 78 | 309.4 | 1.7 |
| 10/12/17 1:00 | 10/13/17 0:00 | 25,016,353 | 110 | 349.0 | 1.9 |
| 10/12/17 2:00 | 10/13/17 1:00 | 24,388,653 | 148 | 408.7 | 2.2 |
| 10/12/17 3:00 | 10/13/17 2:00 | 23,756,876 | 188 | 470.0 | 2.5 |
| 10/12/17 4:00 | 10/13/17 3:00 | 23,103,815 | 217 | 512.7 | 2.8 |
| 10/12/17 5:00 | 10/13/17 4:00 | 22,489,649 | 220 | 512.0 | 2.8 |
| 10/12/17 6:00 | 10/13/17 5:00 | 22,399,688 | 245 | 609.2 | 3.3 |
| 10/12/17 7:00 | 10/13/17 6:00 | 22,464,459 | 284 | 786.0 | 4.2 |
| 10/12/17 8:00 | 10/13/17 7:00 | 22,404,515 | 300 | 850.0 | 4.6 |
| 10/12/17 9:00 | 10/13/17 8:00 | 22,384,394 | 304 | 864.6 | 4.6 |
| 10/12/17 10:00 | 10/13/17 9:00 | 21,985,042 | 306 | 865.2 | 4.7 |
| 10/12/17 11:00 | 10/13/17 10:00 | 21,503,107 | 307 | 862.8 | 4.6 |

**(9.) #3 SRU cont.**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(vi)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume** | **$SO_2$ ppm (24-hr average, flow-weighted)[1]** | **24-hr cumulative $SO_2$[2]** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 10/12/17 12:00 | 10/13/17 11:00 | 20,965,577 | 308 | 859.3 | 4.6 |
| 10/12/17 13:00 | 10/13/17 12:00 | 20,375,776 | 309 | 854.7 | 4.6 |
| 10/12/17 14:00 | 10/13/17 13:00 | 19,826,919 | 309 | 850.8 | 4.6 |
| 10/12/17 15:00 | 10/13/17 14:00 | 19,395,604 | 311 | 851.0 | 4.6 |
| 10/12/17 16:00 | 10/13/17 15:00 | 19,004,978 | 313 | 853.5 | 4.6 |
| 10/12/17 17:00 | 10/13/17 16:00 | 18,684,168 | 315 | 857.2 | 4.6 |
| 10/12/17 18:00 | 10/13/17 17:00 | 18,422,720 | 319 | 865.3 | 4.7 |
| 10/12/17 19:00 | 10/13/17 18:00 | 18,163,433 | 320 | 867.3 | 4.7 |
| 10/12/17 20:00 | 10/13/17 19:00 | 17,879,891 | 321 | 867.6 | 4.7 |
| 10/12/17 21:00 | 10/13/17 20:00 | 17,617,428 | 322 | 868.5 | 4.7 |
| 10/12/17 22:00 | 10/13/17 21:00 | 17,310,203 | 324 | 872.4 | 4.7 |
| 10/12/17 23:00 | 10/13/17 22:00 | 16,922,143 | 327 | 875.9 | 4.7 |
| 10/13/17 0:00 | 10/13/17 23:00 | 17,018,368 | 313 | 836.7 | 4.5 |
| 10/13/17 1:00 | 10/14/17 0:00 | 17,360,271 | 283 | 801.4 | 4.3 |
| 10/13/17 2:00 | 10/14/17 1:00 | 17,637,067 | 248 | 746.5 | 4.0 |
| 10/13/17 3:00 | 10/14/17 2:00 | 17,938,692 | 212 | 690.8 | 3.7 |
| 10/13/17 4:00 | 10/14/17 3:00 | 18,269,294 | 186 | 656.0 | 3.5 |
| 10/13/17 5:00 | 10/14/17 4:00 | 18,552,968 | 186 | 661.8 | 3.6 |
| 10/13/17 6:00 | 10/14/17 5:00 | 18,346,251 | 164 | 570.2 | 3.1 |
| 10/13/17 7:00 | 10/14/17 6:00 | 17,990,768 | 128 | 399.4 | 2.1 |

[1] SRU SO2 CEMS are spanned to 500 ppm. For emissions calculations, Valero assumes 2 times the span, 1000 ppm, for CEMS readings >= 500 ppm.

[2] Tail Gas Treater bypass emissions are calculated using a mass balance method, not using the flow and concentration values listed here.

## Subpart Ja Root Cause / Corrective Action Analysis

**Impact Incident Number:** **344894**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Final** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow)** | Date of Event: | **12/13/17** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **1/25/18** |

(1.) (60.108a(c)(6)(i))

**A description of the Discharge:**

*On 12/13/17 at 09:23, the Reformer Net Gas Compressor (NGC) tripped due to high seal gas vent pressure. The seal gas is supplied from an on-site Nitrogen facility that is owned and operated by a 3rd party. This Nitrogen facility was in a turnaround and the Nitrogen generator that is normally in service was not running, leaving the refinery completely dependent on liquid Nitrogen delivered by truck. A scheduled truck delivery was missed and the liquid Nitrogen tank level became low and the Nitrogen pressure was reduced. A few hours before the trip, manual valves for the NGC seal gas were throttled open further then normal after receiving a low flow alarm. When the truck arrived and began filling the Nitrogen tank, the pressure returned and caused the seal gas to trip on high pressure.*

*The compressor itself was quickly restarted at 09:25, but Valero had difficulty loading the compressor and stopping the flaring. The gas flared from this event caused flaring at the North Flare to exceed 500,000 SCF in a 24 hour period. This gas was pipeline quality Hydrogen, free of H2S or other Sulfur compounds.*

(2.) (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | | |
|---|---|---|
| Date and Time the discharge was first identified | **12/13/17 9:23** | |
| Date/Time the discharge had ceased | **12/13/17 10:59** | |
| Duration of Discharge (Calculated) | **1.6** | hrs |

(3.) (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero followed its Flare Minimization Plan and Operations Procedures to minimize the volume of this discharge.*

(4.) (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **No** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **No** | (Yes/No) |

**- If yes, skip section 5-7.**

(5.) (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*Root Cause(s):*

*1) Low level in the refinery liquid Nitrogen tank. This was a manpower issue with the 3rd-party Nitrogen supplier and cannot be resolved by corrective actions by Valero personnel.*

*2) The delay in loading the NGC was due to not operating the anti-surge system as designed. Operations believed that the anti-surge system did not work and were attempting to load the compressor in partial-manual mode where anti-surge functions were overriding manual controls.*

*3) The procedure does not address the proper modes for the suction and spillback valves for loading the compressor.*

(6.) (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not**

**Is corrective action required?** **Yes** (Yes/No)

*1) Conduct a test run to identify issues with full automatic operation of the anti-surge system and correct any deficiencies noted.*

*2) Based on the resolution of the anti-surge control scheme, revise the operating procedure to include the loading of the compressor.*

(7.) (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*1) Conduct a test run to identify issues with full automatic operation of the anti-surge system and correct any deficiencies noted.*
*Commencement Date: 1/25/18*
*Completed Date: 1/31/18*

*2) Based on the resolution of the anti-surge control scheme, revise the operating procedure to include the loading of the compressor.*
*Commencement Date: 1/25/18*
*Completed Date: 3/13/18*

(8.)

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 12/12/17 9:00 | 12/13/17 8:00 | 12,850 | 27 | 1.4 | 0.0 |
| 12/12/17 10:00 | 12/13/17 9:00 | 457,548 | 37 | 17.7 | 0.1 |
| 12/12/17 11:00 | 12/13/17 10:00 | 664,661 | 49 | 28.2 | 0.2 |
| 12/12/17 12:00 | 12/13/17 11:00 | 664,661 | 49 | 28.2 | 0.2 |
| 12/12/17 13:00 | 12/13/17 12:00 | 664,661 | 49 | 28.2 | 0.2 |
| 12/12/17 14:00 | 12/13/17 13:00 | 664,661 | 49 | 28.2 | 0.2 |
| 12/12/17 15:00 | 12/13/17 14:00 | 664,661 | 49 | 28.2 | 0.2 |
| 12/12/17 16:00 | 12/13/17 15:00 | 664,661 | 49 | 28.2 | 0.2 |
| 12/12/17 17:00 | 12/13/17 16:00 | 664,661 | 49 | 28.2 | 0.2 |
| 12/12/17 18:00 | 12/13/17 17:00 | 664,661 | 49 | 28.2 | 0.2 |
| 12/12/17 19:00 | 12/13/17 18:00 | 664,661 | 49 | 28.2 | 0.2 |
| 12/12/17 20:00 | 12/13/17 19:00 | 664,661 | 49 | 28.2 | 0.2 |
| 12/12/17 21:00 | 12/13/17 20:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/12/17 22:00 | 12/13/17 21:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/12/17 23:00 | 12/13/17 22:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 0:00 | 12/13/17 23:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 1:00 | 12/14/17 0:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 2:00 | 12/14/17 1:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 3:00 | 12/14/17 2:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 4:00 | 12/14/17 3:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 5:00 | 12/14/17 4:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 6:00 | 12/14/17 5:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 7:00 | 12/14/17 6:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 8:00 | 12/14/17 7:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 9:00 | 12/14/17 8:00 | 651,811 | 22 | 26.8 | 0.1 |
| 12/13/17 10:00 | 12/14/17 9:00 | 207,113 | 13 | 10.5 | 0.1 |
| 12/13/17 11:00 | 12/14/17 10:00 | 0 | 0 | 0.0 | 0.0 |

## Subpart Ja Root Cause / Corrective Action Analysis

**Incident Number: 345189/345193**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Initial** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow and SO2), SRU (SO2)** | Date of Event: | **1/2/18** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **2/15/18** |
| | **South Flare (EPN 3-77, EQT 0049)** | | |
| | **#3 SRU Incinerator (EPN 5-00, EQT 0079)** | | |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*Beginning at approximately 07:00 on January 1, 2018, the Meraux Refinery began experiencing SO2 emissions caused by multiple instrumentation failures throughout the refinery due to exceptionally cold air temperatures (approximately 24 F). Intermittent SO2 emissions began on January 1 due to instability of the #3 Sulfur Recovery Unit (SCU) followed by the loss of the Flare Gas Recovery Unit compressor on January 2nd from 06:20-08:35. One of the refinery's two main boilers, Boiler B-5, tripped offline at 04:33 on January 2nd and could not be restarted. Later at 08:11 the remaining main boiler, Boiler B-6, tripped offline and caused a shortage of steam and reduced steam header pressures across the entire refinery. At 09:02, the Hydrocracker Unit (HCU) tripped offline and performed an automatic depressurization due to reduced flow from its steam driven Recycle Gas Compressor. The bulk of the SO2 emissions from flaring occurred during this depressurization event, and the resultant trip of the #3 SRU, which takes it's feed from the HCU. The restart of the #3 SRU was also delayed by instrumentation failures, causing additional SO2 emissions.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | Flares | #3 SRU | |
|---|---|---|---|
| Date and Time the discharge was first identified | **1/2/18 6:20** | **1/1/18 7:00** | |
| Date/Time the discharge had ceased | **1/2/18 16:20** | **1/3/18 10:00** | |
| Duration of Discharge (Calculated) | **10.0** | **51.0** | hrs |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero initiated it's refinery sulfur shedding procedure and followed its Flare Minimization Plan and Operations Procedures to minimize the volume and SO2 emissions of this discharge.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **No** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **No** | (Yes/No) |

**- If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*The root cause(s) of this incident were the cold weather or other instrumentation failures on Boiler B-5, Boiler B-6, and the #3 SRU as described below:*

*1) Boiler B-5*

*a) B-5 tripped on low fuel gas pressure. The fuel gas pressure regulator pilot filter is not free draining and its tubing is not protected from freezing. Liquids accumulated and froze and clogged the pilot filter.*

*b) B-5 could not be restarted due to slack in the linkages for switch feedback causing false position indications on the Flue Gas Recirculation Damper, Stack Damper, and Fresh Air Damper. The false position indications prevented start up permissives from being satisfied. These feedback switches were newly installed in 2017.*

*2) Boiler B-6*

*a) B-6 tripped on a false high steam pressure indication. This trip is provided by a single pressure instrument. The impulse lines for this instrument were not properly insulated and froze.*

*3) #3 SRU*

*a) The temperature of the analyzer probe for the Air Demand Analyzer got too low and caused the Air Demand Analyzer to indicate a fault. This fault prevents automatic operation of the SRU Main Burner combustion air and led to several trips of the Main Burner.*

*b) Several other critical instruments were not working properly due to frozen impulse lines.*

*c) Some purge gas rotameters on critical instruments were cracked during the freeze causing the loss of that instrument.*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary.**

**Is corrective action required?** **Yes** (Yes/No)

*1) Re-pipe B-5 and B-6 fuel gas regulator pilot filters to eliminate the low point, add insulation and tracing, and install pressure gauges across pilot filters.*

*2) Add checking the fuel gas regulator pilot filter differential pressure to operator rounds.*

*3) Remove the newly installed feedback switches and replace them with the original ones that had better reliability.*

*4) Install additional steam pressure instruments to provide 2 out of 3 logic for the high steam pressure trip.*

*5) Add insulation and heat tracing to B-5 and B-6 steam pressure instruments.*

*6) Pull and inspect the #3 SRU Air Demand Analyzer probe and verify that it is installed correctly.*

*7) Develop a preventative maintenance schedule for the periodic replacement of purge gas rotameters in the SRUs.*

*8) Evaluate moving the #3 SRU Air Flowmeter to Tail Gas Burner transmitters above taps*

*9) Provide winterization protection for the affected instruments in the #3 SRU.*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*1) Re-pipe B-5 and B-6 fuel gas regulator pilot filters to eliminate the low point, add insulation and tracing, and install pressure gauges across pilot filters.*
*Commencement Date: 2/15/18*
*Estimated Completion Date: 10/30/18*

*2) Add checking the fuel gas regulator pilot filter differential pressure to operator rounds.*
*Commencement Date: 2/15/18*
*Estimated Completion Date: 11/13/18*

*3) Remove the newly installed feedback switches and replace them with the original ones that had better reliability.*
*Commencement Date: 2/15/18*
*Estimated Completion Date: 10/30/18*

*4) Install additional steam pressure instruments to provide 2 out of 3 logic for the high steam pressure trip.*
*Commencement Date: 2/15/18*
*Estimated Completion Date: 10/30/18*

*5) Add insulation and heat tracing to B-5 and B-6 steam pressure instruments.*
*Commencement Date: 2/15/18*
*Estimated Completion Date: 10/30/18*

*6) Pull and inspect the #3 SRU Air Demand Analyzer probe and verify that it is installed correctly.*
*Commencement Date: 2/15/18*
*Estimated Completion Date: 10/30/18*

*7) Develop a preventative maintenance schedule for the periodic replacement of purge gas rotameters in the SRUs.*
*Commencement Date: 2/15/18*
*Completed Date: 4/3/18*

*8) Evaluate moving the #3 SRU Air Flowmeter to Tail Gas Burner transmitters above taps*
*Commencement Date: 2/15/18*
*Completed Date: 4/17/18*

*9) Provide winterization protection for the affected instruments in the #3 SRU.*
*Commencement Date: 2/15/18*
*Completion Date: 9/25/18*

**(8.) North and South Flares**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 1/1/18 9:00 | 1/2/18 8:00 | 385,450 | 27 | 12.4 | 0.1 |
| 1/1/18 10:00 | 1/2/18 9:00 | 759,797 | 65 | 67.3 | 0.4 |
| 1/1/18 11:00 | 1/2/18 10:00 | 962,465 | 390 | 327.7 | 1.8 |
| 1/1/18 12:00 | 1/2/18 11:00 | 1,174,431 | 490 | 411.4 | 2.2 |
| 1/1/18 13:00 | 1/2/18 12:00 | 1,174,431 | 490 | 411.4 | 2.2 |
| 1/1/18 14:00 | 1/2/18 13:00 | 1,174,431 | 490 | 411.4 | 2.2 |
| 1/1/18 15:00 | 1/2/18 14:00 | 1,174,431 | 490 | 411.4 | 2.2 |
| 1/1/18 16:00 | 1/2/18 15:00 | 1,186,246 | 527 | 413.2 | 2.2 |
| 1/1/18 17:00 | 1/2/18 16:00 | 1,187,174 | 555 | 413.3 | 2.2 |
| 1/1/18 18:00 | 1/2/18 17:00 | 1,187,174 | 555 | 413.3 | 2.2 |
| 1/1/18 19:00 | 1/2/18 18:00 | 1,187,174 | 555 | 413.3 | 2.2 |
| 1/1/18 20:00 | 1/2/18 19:00 | 1,187,174 | 555 | 413.3 | 2.2 |
| 1/1/18 21:00 | 1/2/18 20:00 | 1,187,174 | 555 | 413.3 | 2.2 |
| 1/1/18 22:00 | 1/2/18 21:00 | 1,187,174 | 555 | 413.3 | 2.2 |
| 1/1/18 23:00 | 1/2/18 22:00 | 1,191,686 | 559 | 413.4 | 2.2 |
| 1/2/18 0:00 | 1/2/18 23:00 | 1,192,796 | 570 | 413.4 | 2.2 |
| 1/2/18 1:00 | 1/3/18 0:00 | 1,192,796 | 570 | 413.4 | 2.2 |
| 1/2/18 2:00 | 1/3/18 1:00 | 1,192,796 | 570 | 413.4 | 2.2 |
| 1/2/18 3:00 | 1/3/18 2:00 | 1,192,796 | 570 | 413.4 | 2.2 |
| 1/2/18 4:00 | 1/3/18 3:00 | 1,192,796 | 570 | 413.4 | 2.2 |
| 1/2/18 5:00 | 1/3/18 4:00 | 1,192,796 | 570 | 413.4 | 2.2 |
| 1/2/18 6:00 | 1/3/18 5:00 | 1,192,796 | 570 | 413.4 | 2.2 |
| 1/2/18 7:00 | 1/3/18 6:00 | 1,134,034 | 557 | 410.3 | 2.2 |
| 1/2/18 8:00 | 1/3/18 7:00 | 984,955 | 551 | 406.9 | 2.2 |
| 1/2/18 9:00 | 1/3/18 8:00 | 807,346 | 543 | 401.0 | 2.2 |
| 1/2/18 10:00 | 1/3/18 9:00 | 432,999 | 505 | 346.1 | 1.9 |
| 1/2/18 11:00 | 1/3/18 10:00 | 230,330 | 180 | 85.7 | 0.5 |

**(9.) #3 SRU**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(vi)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume** | **$SO_2$ ppm (24-hr average, flow-weighted)[1]** | **24-hr cumulative $SO_2$ above allowable[2]** | **24-hr cumulative reduced sulfur above allowable** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 1/2/18 7:00 | 1/3/18 6:00 | 559,815 | 964 | 485.4 | 2.6 |
| 1/2/18 8:00 | 1/3/18 7:00 | 561,818 | 1000 | 554.8 | 3.0 |
| 1/2/18 9:00 | 1/3/18 8:00 | 576,345 | 1000 | 620.8 | 3.3 |
| 1/2/18 10:00 | 1/3/18 9:00 | 569,923 | 817 | 604.5 | 3.2 |
| 1/2/18 11:00 | 1/3/18 10:00 | 506,300 | 158 | 573.9 | 3.1 |
| 1/2/18 12:00 | 1/3/18 11:00 | 491,990 | 57 | 547.9 | 2.9 |
| 1/2/18 13:00 | 1/3/18 12:00 | 521,233 | 39 | 521.0 | 2.8 |
| 1/2/18 14:00 | 1/3/18 13:00 | 596,520 | 40 | 496.4 | 2.7 |
| 1/2/18 15:00 | 1/3/18 14:00 | 570,301 | 32 | 477.0 | 2.6 |

[1] SRU SO2 CEMS are spanned to 500 ppm. For emissions calculations, Valero assumes 2 times the span, 1000 ppm, for CEMS readings >= 500 ppm.

[2] Tail Gas Treater bypass emissions are calculated using a mass balance method, not using the flow and concentration values listed here.

## Subpart Ja Root Cause / Corrective Action Analysis

**Incident Number:** **345418**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Initial** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow)** | Date of Event: | **1/15/18** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **3/1/18** |
| | **South Flare (EPN 3-77, EQT 0049)** | | |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*On 1/15/18 at 16:52 the running Flare Gas Recovery (FGR) Compressor shutdown on low suction pressure due to plugging of its inlet cone strainer. The FGR Unit at the Meraux Refinery has two compressors, however the other compressor had been recently shutdown because of high differential pressure (dP) across its own inlet cone strainer. Valero was unable to quickly restart either compressor because of the plugged inlet strainers. Removing and cleaning the inlet cone strainers is a time consuming and complicated maintenance job involving the erection of scaffolding, purging of equipment, breaking flanges, and safety precautions to prevent worker exposure to hazardous gases. The inlet cone strainer was cleaned and the originally running FGR Compressor was started on 1/16/18 at 04:07.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | **Flares** |
|---|---|
| Date and Time the discharge was first identified | **1/15/18 16:52** |
| Date/Time the discharge had ceased | **1/16/18 4:18** |
| Duration of Discharge (Calculated) | **11.4** |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero expedited the removal and cleaning of the inlet cone strainer and followed its Flare Minimization Plan and Operations Procedures to minimize the volume and SO2 emissions of this discharge.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **No** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **No** | (Yes/No) |

**- If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*When the FGR Unit was in the design phase, Valero predicted the difficulties of cleaning these inlet cone strainers and installed a duplex strainer upstream of the inlet cone strainers for both machines. The duplex strainer is capable of being swapped and cleaned online and is easily accessible. A finer mesh filter material was also installed in the duplex strainer in the theory that it would make the need to clean the inlet cone strainers an infrequent event. Consequently, the instrumentation and alarms were implemented primarily on the duplex strainer and not the inlet cone strainers. However, due to the duplex strainer being significantly larger in surface area than the inlet cone strainers, and in spite of the duplex having a finer mesh, the inlet cone strainers were plugging more frequently than the duplex.*

*The investigation identified the root causes of this event to be:*

*1) There were no alarms for high inlet cone strainer dP.*

*2) There was no procedural guidance as to what inlet cone dP the compressor should be shutdown and cleaned.*

*3) The inlet cone strainer may not have been cleaned effectively the prior to the incident.*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not**

**Is corrective action required?** **Yes** (Yes/No)

*1) Evaluate the need for the both the duplex and the inlet cone strainers at the FGR compressors with the manufacturer. If not needed, eliminate the inlet cone strainers.*

*2) Implement alarms on the dP across inlet cone strainer. Evaluate a rate of change alarm on the dP.*

*3) Evaluate a dP value where the compressor should be shutdown and the intel cone strainer cleaned.*

*4) Outline the cleaning steps for the FGR strainers, both duplex and inlet cone.*

*5) Purchase a spare inlet cone strainer basket to reduce compressor downtime due to cleaning.*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*1) Evaluate the need for the both the duplex and the inlet cone strainers at the FGR compressors with the manufacturer. If not needed, eliminate the inlet cone strainers.*
*Commencement Date: 3/1/18*
*Estimated Completion Date: 5/1/18*

*2) Implement alarms on the dP across inlet cone strainer. Evaluate a rate of change alarm on the dP.*
*Commencement Date: 3/1/18*
*Estimated Completion Date: 6/5/18*

*3) Evaluate a dP value where the compressor should be shutdown and the inlet cone strainer cleaned.*
*Commencement Date: 3/1/18*
*Estimated Completion Date: 6/5/18*

*4) Outline the cleaning steps for the FGR strainers, both duplex and inlet cone.*
*Commencement Date: 3/1/18*
*Estimated Completion Date: 7/3/18*

*5) Purchase a spare inlet cone strainer basket to reduce compressor downtime due to cleaning.*
*Commencement Date: 3/1/18*
*Estimated Completion Date: 7/3/18*

**(8.) North and South Flares**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 1/14/18 17:00 | 1/15/18 16:00 | 14,921 | 22 | 1 | 0 |
| 1/14/18 18:00 | 1/15/18 17:00 | 116,062 | 22 | 1.4 | 0.0 |
| 1/14/18 19:00 | 1/15/18 18:00 | 224,454 | 23 | 1.6 | 0.0 |
| 1/14/18 20:00 | 1/15/18 19:00 | 309,418 | 23 | 1.7 | 0.0 |
| 1/14/18 21:00 | 1/15/18 20:00 | 433,722 | 24 | 1.8 | 0.0 |
| 1/14/18 22:00 | 1/15/18 21:00 | 549,223 | 24 | 2.2 | 0.0 |
| 1/14/18 23:00 | 1/15/18 22:00 | 647,830 | 24 | 2.2 | 0.0 |
| 1/15/18 0:00 | 1/15/18 23:00 | 756,912 | 25 | 2.7 | 0.0 |
| 1/15/18 1:00 | 1/16/18 0:00 | 842,771 | 26 | 2.7 | 0.0 |
| 1/15/18 2:00 | 1/16/18 1:00 | 945,866 | 26 | 2.9 | 0.0 |
| 1/15/18 3:00 | 1/16/18 2:00 | 1,045,482 | 27 | 3.1 | 0.0 |
| 1/15/18 4:00 | 1/16/18 3:00 | 1,137,318 | 27 | 3.4 | 0.0 |
| 1/15/18 5:00 | 1/16/18 4:00 | 1,165,626 | 28 | 3.5 | 0.0 |
| 1/15/18 6:00 | 1/16/18 5:00 | 1,165,626 | 28 | 3.5 | 0.0 |
| 1/15/18 7:00 | 1/16/18 6:00 | 1,165,626 | 28 | 3.5 | 0.0 |
| 1/15/18 8:00 | 1/16/18 7:00 | 1,165,626 | 28 | 3.5 | 0.0 |
| 1/15/18 9:00 | 1/16/18 8:00 | 1,165,626 | 28 | 3.5 | 0.0 |
| 1/15/18 10:00 | 1/16/18 9:00 | 1,165,626 | 28 | 3.5 | 0.0 |
| 1/15/18 11:00 | 1/16/18 10:00 | 1,165,626 | 28 | 3.5 | 0.0 |
| 1/15/18 12:00 | 1/16/18 11:00 | 1,165,588 | 28 | 3.5 | 0.0 |
| 1/15/18 13:00 | 1/16/18 12:00 | 1,165,588 | 28 | 3.5 | 0.0 |
| 1/15/18 14:00 | 1/16/18 13:00 | 1,165,588 | 28 | 3.5 | 0.0 |
| 1/15/18 15:00 | 1/16/18 14:00 | 1,165,588 | 28 | 3.5 | 0.0 |
| 1/15/18 16:00 | 1/16/18 15:00 | 1,165,588 | 28 | 3.5 | 0.0 |
| 1/15/18 17:00 | 1/16/18 16:00 | 1,150,705 | 6 | 2.2 | 0.0 |
| 1/15/18 18:00 | 1/16/18 17:00 | 1,049,564 | 5 | 2.1 | 0.0 |
| 1/15/18 19:00 | 1/16/18 18:00 | 941,172 | 5 | 1.9 | 0.0 |
| 1/15/18 20:00 | 1/16/18 19:00 | 856,208 | 5 | 1.8 | 0.0 |
| 1/15/18 21:00 | 1/16/18 20:00 | 731,904 | 4 | 1.6 | 0.0 |
| 1/15/18 22:00 | 1/16/18 21:00 | 622,901 | 315 | 9.3 | 0.0 |

**Note:** Another event requiring a Root Cause and Corrective Action Analysis began on 1/16/18 at 21:14.

## Subpart Ja Root Cause / Corrective Action Analysis

**Incident Number:** **350366**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | |
|---|---|
| Report: | **Initial** |
| Refinery: | **Valero (Meraux)** |
| Incident Type: | **Flaring (Flow and SO2), SRU (SO2)** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** |
| | **South Flare (EPN 3-77, EQT 0049)** |
| | **#2 SRU Incinerator (EPN 1-93, EQT 0019)** |
| | **#3 SRU Incinerator (EPN 5-00, EQT 0079)** |

Date of Event: **1/16/18**

Date Analysis Completed: **3/1/18**

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*On January 16, 2018 at 21:15, the Meraux Refinery (Valero) and much of the surrounding area lost all electrical power. On the evening of January 16, 2018 a winter weather front moved into SE Louisiana that was unusual for the region, with 15-20 mph winds and freezing rain. Several 230kv power lines developed ice on the lines. The ice on the lines, combined with the wind, created ideal conditions for a phenomenon known as power line "galloping". At 21:05, the first of the two 230kV power lines feeding the refinery and surrounding area tripped and locked out. At 21:15, the second one tripped and locked out, resulting in a total loss of power to the Meraux Refinery. Power was not restored to the Meraux Refinery until the next morning at 09:20.*

*The loss of the electrical power also shutdown many of the instruments used to quantify emissions from the flares and Sulfur Recovery Units (SRU's). Even after the power was restored many of these instruments were damaged by the freezing conditions or required manual start ups by instrument technicians. The flare flowmeters were restored as soon as the power was restored (09:20), but the Total Sulfur analyzers were not online until approximately 17:00. In the period that the instruments were not available, Valero estimates that approximately 11,725 lbs of SO2 and 56.6 pounds of H2S were released from the combustion of >10,000,0000 SCF of process upset gas in the flares. The estimates are based on similar upsets where the instruments were available. The SRU's were shutdown completely by the power loss and did not produce quantifiable emissions until late when the burners were re-lit and flow was re-established in the units. The data presented below starts after power was restored and the required instruments were back in service. By 17:00 on 1/17/18, the flaring from the power failure had subsided but flaring continued for several days at essentially baseline rates until the Flare Gas Recovery Unit could be placed in service. Valero used an alternate baseline during this period.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | North Flare | #2 SRU | #3 SRU | |
|---|---|---|---|---|
| Date/Time discharge was first identified | **1/17/18 9:00** | **1/19/18 3:15** | **1/19/18 1:35** | |
| Date/Time discharge had ceased | **1/23/18 7:00** | **1/24/18 0:00** | **1/22/18 3:06** | |
| Duration of Discharge (Calculated) | **142.0** | **116.8** | **73.5** | hrs |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero followed its Flare Minimization Plan and Operations Procedures to the maximum extent possible, given that no electrical power was available, to minimize the volume and SO2 emissions of this discharge*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **No** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **No** | (Yes/No) |

- **If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*The root cause of this event was the loss of both main electrical feeds to the area due to "galloping" lines. As this event occurred on 3rd-party equipment located several miles from the refinery, there are no corrective actions available to refinery personnel. However, Valero has decided to research options for providing staged temporary power generators during inclement winter weather conditions for boilers and critical instrumentation and controls. This will not prevent a sudden loss of all power from causing an emissions release, but it will help prevent the freeze damage that Valero experienced from causing later releases during unit start ups.*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary.**

**Is corrective action required?** **Yes** (Yes/No)

*1) Evaluate temporary power generators staged for Boilers and the Control Room during winter conditions.*

*2) Establish periodic meeting with the electrical power provider to review power reliability.*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*1) Evaluate temporary power generators staged for Boilers and the Control Room during winter conditions.*
*Commencement Date: 3/1/18*
*Estimated Completion Date: 10/30/18*

*2) Establish periodic meeting with the electrical power provider to review power reliability.*
*Commencement Date: 2/15/18*
*Completed Date: 3/21/18*

**(8.) North and South Flares**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 1/17/18 9:00 | 1/18/18 8:00 | 5,194,145 | | | |
| 1/17/18 10:00 | 1/18/18 9:00 | 5,314,303 | | | |
| 1/17/18 11:00 | 1/18/18 10:00 | 4,737,700 | | | |
| 1/17/18 12:00 | 1/18/18 11:00 | 4,046,831 | | | |
| 1/17/18 13:00 | 1/18/18 12:00 | 3,542,960 | Total Sulfur Analyzers Offline | | |
| 1/17/18 14:00 | 1/18/18 13:00 | 3,054,971 | | | |
| 1/17/18 15:00 | 1/18/18 14:00 | 2,569,841 | | | |
| 1/17/18 16:00 | 1/18/18 15:00 | 2,050,583 | | | |
| 1/17/18 17:00 | 1/18/18 16:00 | 1,912,227 | 399 | 110.2 | 0.6 |
| 1/17/18 18:00 | 1/18/18 17:00 | 1,955,420 | 370 | 115.6 | 0.6 |
| 1/17/18 19:00 | 1/18/18 18:00 | 1,976,443 | 398 | 127.2 | 0.7 |
| 1/17/18 20:00 | 1/18/18 19:00 | 1,973,506 | 440 | 138.3 | 0.7 |
| 1/17/18 21:00 | 1/18/18 20:00 | 1,967,743 | 512 | 158.4 | 0.9 |
| 1/17/18 22:00 | 1/18/18 21:00 | 1,960,167 | 548 | 167.9 | 0.9 |
| 1/17/18 23:00 | 1/18/18 22:00 | 1,953,153 | 573 | 174.3 | 0.9 |
| 1/18/18 0:00 | 1/18/18 23:00 | 1,945,496 | 592 | 179.0 | 1.0 |
| 1/18/18 1:00 | 1/19/18 0:00 | 1,940,830 | 610 | 183.9 | 1.0 |
| 1/18/18 2:00 | 1/19/18 1:00 | 1,936,208 | 629 | 188.9 | 1.0 |
| 1/18/18 3:00 | 1/19/18 2:00 | 1,929,341 | 653 | 195.7 | 1.1 |
| 1/18/18 4:00 | 1/19/18 3:00 | 1,923,388 | 677 | 202.7 | 1.1 |
| 1/18/18 5:00 | 1/19/18 4:00 | 1,920,131 | 699 | 209.1 | 1.1 |
| 1/18/18 6:00 | 1/19/18 5:00 | 1,918,789 | 729 | 217.5 | 1.2 |
| 1/18/18 7:00 | 1/19/18 6:00 | 1,907,767 | 753 | 224.1 | 1.2 |
| 1/18/18 8:00 | 1/19/18 7:00 | 1,900,551 | 776 | 230.3 | 1.2 |
| 1/18/18 9:00 | 1/19/18 8:00 | 1,907,054 | 845 | 253.3 | 1.4 |
| 1/18/18 10:00 | 1/19/18 9:00 | 1,848,026 | 904 | 270.5 | 1.5 |
| 1/18/18 11:00 | 1/19/18 10:00 | 1,823,686 | 929 | 276.5 | 1.5 |
| 1/18/18 12:00 | 1/19/18 11:00 | 1,826,859 | 936 | 278.9 | 1.5 |
| 1/18/18 13:00 | 1/19/18 12:00 | 1,822,655 | 951 | 282.8 | 1.5 |
| 1/18/18 14:00 | 1/19/18 13:00 | 1,813,481 | 951 | 282.1 | 1.5 |
| 1/18/18 15:00 | 1/19/18 14:00 | 1,797,976 | 961 | 284.1 | 1.5 |
| 1/18/18 16:00 | 1/19/18 15:00 | 1,760,799 | 969 | 285.2 | 1.5 |
| 1/18/18 17:00[1] | 1/19/18 16:00 | 67,089 | 607 | 174.6 | 0.9 |
| 1/18/18 18:00 | 1/19/18 17:00 | 45,966 | 570 | 161.3 | 0.9 |
| 1/18/18 19:00 | 1/19/18 18:00 | 43,147 | 521 | 146.3 | 0.8 |
| 1/18/18 20:00 | 1/19/18 19:00 | 42,585 | 472 | 132.8 | 0.7 |
| 1/18/18 21:00 | 1/19/18 20:00 | 42,180 | 436 | 122.1 | 0.7 |
| 1/18/18 22:00 | 1/19/18 21:00 | 41,780 | 416 | 115.9 | 0.6 |
| 1/18/18 23:00 | 1/19/18 22:00 | 42,498 | 397 | 110.5 | 0.6 |
| 1/19/18 0:00 | 1/19/18 23:00 | 83,648 | 382 | 107.7 | 0.6 |
| 1/19/18 1:00 | 1/20/18 0:00 | 112,317 | 371 | 105.6 | 0.6 |
| 1/19/18 2:00 | 1/20/18 1:00 | 121,062 | 363 | 103.6 | 0.6 |
| 1/19/18 3:00 | 1/20/18 2:00 | 140,302 | 354 | 101.2 | 0.5 |
| 1/19/18 4:00 | 1/20/18 3:00 | 165,243 | 345 | 99.0 | 0.5 |
| 1/19/18 5:00 | 1/20/18 4:00 | 181,802 | 340 | 97.8 | 0.5 |
| 1/19/18 6:00 | 1/20/18 5:00 | 190,925 | 335 | 96.0 | 0.5 |

[1] Alternate Baseline established.

**(9.) #2 SRU**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(vi)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume** | **$SO_2$ ppm (24-hr average, flow-weighted)[1]** | **24-hr cumulative $SO_2$ above allowable[2]** | **24-hr cumulative reduced sulfur above allowable** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 1/22/18 12:00 | 1/23/18 11:00 | 133,309 | 1000 | 495.4 | 2.7 |
| 1/22/18 13:00 | 1/23/18 12:00 | 133,948 | 1000 | 505.0 | 2.7 |
| 1/22/18 14:00 | 1/23/18 13:00 | 133,558 | 1000 | 514.6 | 2.8 |
| 1/22/18 15:00 | 1/23/18 14:00 | 132,713 | 1000 | 520.3 | 2.8 |
| 1/22/18 16:00 | 1/23/18 15:00 | 131,226 | 1000 | 521.7 | 2.8 |
| 1/22/18 17:00 | 1/23/18 16:00 | 132,689 | 1000 | 521.5 | 2.8 |
| 1/22/18 18:00 | 1/23/18 17:00 | 132,549 | 1000 | 520.8 | 2.8 |
| 1/22/18 19:00 | 1/23/18 18:00 | 132,627 | 1000 | 520.2 | 2.8 |
| 1/22/18 20:00 | 1/23/18 19:00 | 133,228 | 1000 | 519.7 | 2.8 |
| 1/22/18 21:00 | 1/23/18 20:00 | 129,856 | 1000 | 519.0 | 2.8 |
| 1/22/18 22:00 | 1/23/18 21:00 | 129,034 | 1000 | 518.5 | 2.8 |
| 1/22/18 23:00 | 1/23/18 22:00 | 128,937 | 1000 | 517.9 | 2.8 |
| 1/23/18 0:00 | 1/23/18 23:00 | 129,798 | 978 | 516.5 | 2.8 |
| 1/23/18 1:00 | 1/24/18 0:00 | 120,020 | 99 | 494.8 | 2.7 |
| 1/23/18 2:00 | 1/24/18 1:00 | 120,997 | 70 | 473.0 | 2.5 |

[1] SRU SO2 CEMS are spanned to 500 ppm. For emissions calculations, Valero assumes 2 times the span, 1000 ppm, for CEMS readings >= 500 ppm.

[2] Tail Gas Treater bypass emissions are calculated using a mass balance method, not using the flow and concentration values listed here.

**(10.) #3 SRU**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(vi)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume** | **SO2 ppm (24-hr average, flow-weighted)[1]** | **24-hr cumulative SO2 above allowable[2]** | **24-hr cumulative reduced sulfur above allowable** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 1/20/18 12:00 | 1/21/18 11:00 | 228,007 | 1000 | 494.2 | 2.7 |
| 1/20/18 13:00 | 1/21/18 12:00 | 228,441 | 1000 | 522.4 | 2.8 |
| 1/20/18 14:00 | 1/21/18 13:00 | 227,456 | 1000 | 550.5 | 3.0 |
| 1/20/18 15:00 | 1/21/18 14:00 | 252,617 | 1000 | 581.6 | 3.1 |
| 1/20/18 16:00 | 1/21/18 15:00 | 248,237 | 1000 | 612.3 | 3.3 |
| 1/20/18 17:00 | 1/21/18 16:00 | 237,833 | 1000 | 641.6 | 3.4 |
| 1/20/18 18:00 | 1/21/18 17:00 | 251,359 | 1000 | 672.0 | 3.6 |
| 1/20/18 19:00 | 1/21/18 18:00 | 250,865 | 1000 | 698.8 | 3.8 |
| 1/20/18 20:00 | 1/21/18 19:00 | 252,252 | 1000 | 702.4 | 3.8 |
| 1/20/18 21:00 | 1/21/18 20:00 | 252,051 | 1000 | 705.3 | 3.8 |
| 1/20/18 22:00 | 1/21/18 21:00 | 252,014 | 1000 | 708.0 | 3.8 |
| 1/20/18 23:00 | 1/21/18 22:00 | 252,955 | 1000 | 710.6 | 3.8 |
| 1/21/18 0:00 | 1/21/18 23:00 | 253,985 | 1000 | 713.2 | 3.8 |
| 1/21/18 1:00 | 1/22/18 0:00 | 253,629 | 1000 | 715.7 | 3.8 |
| 1/21/18 2:00 | 1/22/18 1:00 | 252,259 | 976 | 716.7 | 3.9 |
| 1/21/18 3:00 | 1/22/18 2:00 | 233,935 | 452 | 696.2 | 3.7 |
| 1/21/18 4:00 | 1/22/18 3:00 | 238,776 | 100 | 665.6 | 3.6 |
| 1/21/18 5:00 | 1/22/18 4:00 | 242,787 | 59 | 635.6 | 3.4 |
| 1/21/18 6:00 | 1/22/18 5:00 | 224,976 | 47 | 606.7 | 3.3 |
| 1/21/18 7:00 | 1/22/18 6:00 | 224,838 | 33 | 577.7 | 3.1 |
| 1/21/18 8:00 | 1/22/18 7:00 | 224,366 | 33 | 548.7 | 2.9 |
| 1/21/18 9:00 | 1/22/18 8:00 | 227,553 | 28 | 519.9 | 2.8 |
| 1/21/18 10:00 | 1/22/18 9:00 | 231,970 | 25 | 491.4 | 2.6 |
| 1/21/18 11:00 | 1/22/18 10:00 | 230,615 | 26 | 463.1 | 2.5 |

[1] SRU SO2 CEMS are spanned to 500 ppm. For emissions calculations, Valero assumes 2 times the span, 1000 ppm, for CEMS readings >= 500 ppm.

[2] Tail Gas Treater bypass emissions are calculated using a mass balance method, not using the flow and concentration values listed here.

## Subpart Ja Root Cause / Corrective Action Analysis

**Incident Number:** **N/A**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Final** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow)** | Date of Event: | **1/24/18** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **N/A** |
| | **South Flare (EPN 3-77, EQT 0049)** | | |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*Flaring due to multiple unit start ups after the total power failure on 1/16/18.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | |
|---|---|
| Date and Time the discharge was first identified | **1/24/18 11:26** |
| Date/Time the discharge had ceased | **1/26/18 18:00** |
| Duration of Discharge (Calculated) | **54.6** hrs |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero followed its Flare Minimization Plan and Operations Procedures to minimize the volume of this discharge.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **Yes** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **Yes** | (Yes/No) |

**- If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*N/A*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not**

**Is corrective action required?** **No** (Yes/No)

*N/A*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*N/A*

**(8.)**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 1/23/18 11:00 | 1/24/18 10:00 | 212,892 | 164 | 20.2 | 0.1 |
| 1/23/18 12:00 | 1/24/18 11:00 | 267,561 | 174 | 22.2 | 0.1 |
| 1/23/18 13:00 | 1/24/18 12:00 | 358,595 | 179 | 24.0 | 0.1 |
| 1/23/18 14:00 | 1/24/18 13:00 | 463,907 | 183 | 25.8 | 0.1 |
| 1/23/18 15:00 | 1/24/18 14:00 | 524,492 | 186 | 26.5 | 0.1 |
| 1/23/18 16:00 | 1/24/18 15:00 | 548,828 | 178 | 26.5 | 0.1 |
| 1/23/18 17:00 | 1/24/18 16:00 | 546,841 | 157 | 26.1 | 0.1 |
| 1/23/18 18:00 | 1/24/18 17:00 | 510,504 | 147 | 24.7 | 0.1 |
| 1/23/18 19:00 | 1/24/18 18:00 | 475,960 | 133 | 22.8 | 0.1 |
| 1/23/18 20:00 | 1/24/18 19:00 | 454,704 | 120 | 21.7 | 0.1 |
| 1/23/18 21:00 | 1/24/18 20:00 | 435,251 | 65 | 17.5 | 0.1 |
| 1/23/18 22:00 | 1/24/18 21:00 | 354,612 | 31 | 6.6 | 0.0 |
| 1/23/18 23:00 | 1/24/18 22:00 | 354,601 | 28 | 6.6 | 0.0 |
| 1/24/18 0:00 | 1/24/18 23:00 | 354,421 | 28 | 6.6 | 0.0 |
| 1/24/18 1:00 | 1/25/18 0:00 | 354,421 | 28 | 6.6 | 0.0 |
| 1/24/18 2:00 | 1/25/18 1:00 | 354,421 | 28 | 6.6 | 0.0 |
| 1/24/18 3:00 | 1/25/18 2:00 | 354,421 | 28 | 6.6 | 0.0 |
| 1/24/18 4:00 | 1/25/18 3:00 | 356,298 | 32 | 6.7 | 0.0 |
| 1/24/18 5:00 | 1/25/18 4:00 | 348,838 | 32 | 6.7 | 0.0 |
| 1/24/18 6:00 | 1/25/18 5:00 | 348,296 | 32 | 6.7 | 0.0 |
| 1/24/18 7:00 | 1/25/18 6:00 | 348,296 | 32 | 6.7 | 0.0 |
| 1/24/18 8:00 | 1/25/18 7:00 | 348,296 | 32 | 6.7 | 0.0 |
| 1/24/18 9:00 | 1/25/18 8:00 | 348,296 | 32 | 6.7 | 0.0 |
| 1/24/18 10:00 | 1/25/18 9:00 | 348,296 | 32 | 6.7 | 0.0 |
| 1/24/18 11:00 | 1/25/18 10:00 | 348,264 | 32 | 6.7 | 0.0 |
| 1/24/18 12:00 | 1/25/18 11:00 | 293,595 | 22 | 4.6 | 0.0 |
| 1/24/18 13:00 | 1/25/18 12:00 | 202,561 | 18 | 2.8 | 0.0 |
| 1/24/18 14:00 | 1/25/18 13:00 | 97,250 | 13 | 1.1 | 0.0 |
| 1/24/18 15:00 | 1/25/18 14:00 | 120,680 | 20 | 3.6 | 0.0 |
| 1/24/18 16:00 | 1/25/18 15:00 | 225,482 | 22 | 5.6 | 0.0 |
| 1/24/18 17:00 | 1/25/18 16:00 | 301,571 | 21 | 6.1 | 0.0 |
| 1/24/18 18:00 | 1/25/18 17:00 | 384,182 | 23 | 6.8 | 0.0 |
| 1/24/18 19:00 | 1/25/18 18:00 | 384,182 | 23 | 6.8 | 0.0 |
| 1/24/18 20:00 | 1/25/18 19:00 | 384,141 | 23 | 6.8 | 0.0 |
| 1/24/18 21:00 | 1/25/18 20:00 | 384,141 | 23 | 6.8 | 0.0 |
| 1/24/18 22:00 | 1/25/18 21:00 | 386,460 | 25 | 6.9 | 0.0 |
| 1/24/18 23:00 | 1/25/18 22:00 | 386,460 | 25 | 6.9 | 0.0 |
| 1/25/18 0:00 | 1/25/18 23:00 | 386,460 | 25 | 6.9 | 0.0 |
| 1/25/18 1:00 | 1/26/18 0:00 | 386,460 | 25 | 6.9 | 0.0 |
| 1/25/18 2:00 | 1/26/18 1:00 | 386,460 | 25 | 6.9 | 0.0 |
| 1/25/18 3:00 | 1/26/18 2:00 | 386,460 | 25 | 6.9 | 0.0 |
| 1/25/18 4:00 | 1/26/18 3:00 | 384,582 | 20 | 6.8 | 0.0 |
| 1/25/18 5:00 | 1/26/18 4:00 | 384,582 | 20 | 6.8 | 0.0 |
| 1/25/18 6:00 | 1/26/18 5:00 | 384,582 | 20 | 6.8 | 0.0 |
| 1/25/18 7:00 | 1/26/18 6:00 | 392,350 | 20 | 6.8 | 0.0 |
| 1/25/18 8:00 | 1/26/18 7:00 | 449,694 | 33 | 9.7 | 0.1 |
| 1/25/18 9:00 | 1/26/18 8:00 | 454,367 | 53 | 10.1 | 0.1 |
| 1/25/18 10:00 | 1/26/18 9:00 | 454,399 | 58 | 10.1 | 0.1 |

**(8.)**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 1/25/18 11:00 | 1/26/18 10:00 | 470,971 | 137 | 15.2 | 0.1 |
| 1/25/18 12:00 | 1/26/18 11:00 | 499,157 | 183 | 20.3 | 0.1 |
| 1/25/18 13:00 | 1/26/18 12:00 | 517,915 | 274 | 27.1 | 0.1 |
| 1/25/18 14:00 | 1/26/18 13:00 | 543,913 | 302 | 30.0 | 0.2 |
| 1/25/18 15:00 | 1/26/18 14:00 | 487,115 | 416 | 40.1 | 0.2 |

## Subpart Ja Root Cause / Corrective Action Analysis

**Incident Number:** **350609/350639**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Initial** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow)** | Date of Event: | **1/28/18** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **3/8/18** |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*On January 28, 2018 at 12:53. Valero began flaring clean Hydrogen from the Reformer as part of a normal unit start up. The refinery was restarting units after the power failure and complete refinery shutdown on 1/16/18. The Reformer is a Hydrogen producing unit, but it does not produce Hydrogen at a high enough pressure to be used by most units in the refinery. This requires the Reformers' Net Gas Compressor to be running. The Net Gas Compressor sends this Hydrogen to the Pressure Swing Absorption (PSA) Unit. The PSA also has a Tail Gas Compressor to compress the offgas from the Hydrogen purification process and send it to fuel gas. Excess Hydrogen is also sent to the fuel gas system with this tail gas. Consequentially, the Tail Gas Compressor must running before the Net Gas Compressor is started or else the Hydrogen being flared just ends up back in the flare.*

*Valero was unable to start a PSA Tail Gas Compressor when it was required to minimize the volume of Hydrogen flared.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | **North Flare** |
|---|---|
| Date and Time the discharge was first identified | **1/28/18 12:53** |
| Date/Time the discharge had ceased | **1/29/18 2:27** |
| Duration of Discharge (Calculated) | **13.6** |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero halted the start up of the Reformer Unit and minimized the amount of Hydrogen produced and began troubleshooting the PSA Tail Gas Compressors.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **No** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **No** | (Yes/No) |

- **If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*Valero determined the root cause(s) of this incident to be not ensuring that the PSA Tail Gas Compressor was available prior to beginning the Reformer Unit start up. The Net Gas Compressor needs the PSA Tail Gas Compressor to stay out of the flare, but the PSA Tail Gas Compressor does not need the Net Gas Compressor to be running. Also, neither of the PSA Tail Gas Compressors could be started due to operation of the lube oil system for extended periods with non running compressors with their discharge valves open. The PSA Tail Gas Compressors are wetted-screw compressors where the lube oil and process gas are mixed in the suction of the machine. After compression, this oil gas mixture goes to an Oil Separator to drop out the oil, which is then reused. The Oil Separator is also the reservoir where excess oil is stored. If the lube oil system is operated for a long time without the discharge valve shut on a non running compressor the oil migrates from the Oil Separator back to the screw case and fills it with oil. The compressor will not start until enough of this oil is removed from the case, either by manual draining, or successive start attempts pumping it out.*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary.**

**Is corrective action required?** **Yes** (Yes/No)

*1) Add a warning to the Reformer Startup Procedure(s) saying that a PSA Tail Gas Compressor should be running prior to beginning Reformer Start Up to minimize flaring, or plan for an alternative location for the Hydrogen.*

*2) Evaluate the possibility of installing a means of determining the oil level in the compressor case and, if feasible, add a step to the Tail Gas Compressor startup procedure to check this level.*

*3) Revise PSA Tail Gas Compressor Operating Procedures, as necessary, to minimize the potential for excessive oil migration into the case of a non-running machine and preventing the compressor from starting.*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*1) Add a warning to the Reformer Startup Procedure(s) saying that a PSA Tail Gas Compressor should be running prior to beginning Reformer Start Up to minimize flaring, or plan for an alternative location for the Hydrogen.*
*Commencement Date: 3/8/18*
*Estimated Completion Date: 6/5/18*

*2) Evaluate the possibility of installing a means of determining the oil level in the compressor case and, if feasible, add a step to the Tail Gas Compressor startup procedure to check this level.*
*Commencement Date: 3/8/18*
*Estimated Completion Date: 6/5/18*

*3) Revise PSA Tail Gas Compressor Operating Procedures, as necessary, to minimize the potential for excessive oil migration into the case of a non-running machine and preventing the compressor from starting.*
*Commencement Date: 3/8/18*
*Estimated Completion Date: 6/5/18*

**(8.) North and South Flares**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 1/27/18 12:00 | 1/28/18 11:00 | 173,399 | 235 | 19 | 0 |
| 1/27/18 13:00 | 1/28/18 12:00 | 175,262 | 250 | 19.1 | 0.1 |
| 1/27/18 14:00 | 1/28/18 13:00 | 335,045 | 261 | 26.4 | 0.1 |
| 1/27/18 15:00 | 1/28/18 14:00 | 748,772 | 265 | 31.8 | 0.2 |
| 1/27/18 16:00 | 1/28/18 15:00 | 1,139,097 | 267 | 35.6 | 0.2 |
| 1/27/18 17:00 | 1/28/18 16:00 | 1,535,650 | 270 | 39.2 | 0.2 |
| 1/27/18 18:00 | 1/28/18 17:00 | 1,757,480 | 273 | 42.5 | 0.2 |
| 1/27/18 19:00 | 1/28/18 18:00 | 1,885,523 | 279 | 45.4 | 0.2 |
| 1/27/18 20:00 | 1/28/18 19:00 | 1,996,272 | 286 | 48.3 | 0.3 |
| 1/27/18 21:00 | 1/28/18 20:00 | 2,102,207 | 292 | 51.0 | 0.3 |
| 1/27/18 22:00 | 1/28/18 21:00 | 2,190,206 | 299 | 53.3 | 0.3 |
| 1/27/18 23:00 | 1/28/18 22:00 | 2,206,080 | 309 | 55.4 | 0.3 |
| 1/28/18 0:00 | 1/28/18 23:00 | 2,183,993 | 306 | 53.7 | 0.3 |
| 1/28/18 1:00 | 1/29/18 0:00 | 2,215,627 | 226 | 51.8 | 0.3 |
| 1/28/18 2:00 | 1/29/18 1:00 | 2,242,031 | 235 | 52.8 | 0.3 |
| 1/28/18 3:00 | 1/29/18 2:00 | 2,246,873 | 245 | 52.9 | 0.3 |
| 1/28/18 4:00 | 1/29/18 3:00 | 2,247,148 | 247 | 52.9 | 0.3 |
| 1/28/18 5:00 | 1/29/18 4:00 | 2,247,148 | 247 | 52.9 | 0.3 |
| 1/28/18 6:00 | 1/29/18 5:00 | 2,247,148 | 247 | 52.9 | 0.3 |
| 1/28/18 7:00 | 1/29/18 6:00 | 2,247,148 | 247 | 52.9 | 0.3 |
| 1/28/18 8:00 | 1/29/18 7:00 | 2,247,358 | 248 | 52.9 | 0.3 |
| 1/28/18 9:00 | 1/29/18 8:00 | 2,247,358 | 248 | 52.9 | 0.3 |
| 1/28/18 10:00 | 1/29/18 9:00 | 2,235,595 | 176 | 49.1 | 0.3 |
| 1/28/18 11:00 | 1/29/18 10:00 | 2,211,140 | 120 | 41.0 | 0.2 |
| 1/28/18 12:00 | 1/29/18 11:00 | 2,215,819 | 126 | 41.1 | 0.2 |
| 1/28/18 13:00 | 1/29/18 12:00 | 2,215,784 | 114 | 41.0 | 0.2 |
| 1/28/18 14:00 | 1/29/18 13:00 | 2,062,181 | 107 | 33.8 | 0.2 |
| 1/28/18 15:00 | 1/29/18 14:00 | 1,669,453 | 119 | 29.6 | 0.2 |
| 1/28/18 16:00 | 1/29/18 15:00 | 1,279,437 | 122 | 25.9 | 0.1 |
| 1/28/18 17:00 | 1/29/18 16:00 | 882,884 | 119 | 22.2 | 0.1 |
| 1/28/18 18:00 | 1/29/18 17:00 | 661,054 | 116 | 18.9 | 0.1 |
| 1/28/18 19:00 | 1/29/18 18:00 | 533,011 | 110 | 16.0 | 0.1 |
| 1/28/18 20:00 | 1/29/18 19:00 | 422,262 | 103 | 13.2 | 0.1 |

## Subpart Ja Root Cause / Corrective Action Analysis

**Incident Number:** **350695**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Final** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow)** | Date of Event: | **1/31/18** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **3/1/18** |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*On January 31, 2018 at 11:18, the running Hydrocracker Unit (HCU) Charge Pump was inadvertently shut down due to physical contact with the local start/stop switch at the pump. The HCU automatically shutdown due to low flow conditions, but an emergency depressurization was not required. Flaring was primarily excess Hydrogen with a very low H2S concentration.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | **North Flare** |
|---|---|
| Date and Time the discharge was first identified | **1/31/18 11:32** |
| Date/Time the discharge had ceased | **1/31/18 18:30** |
| Duration of Discharge (Calculated) | **7.0** |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero initiated it's refinery sulfur shedding procedure and followed its Flare Minimization Plan and Operations Procedures to minimize the volume and SO2 emissions of this discharge.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **No** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **No** | (Yes/No) |

- **If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*The root cause of this incident was contact with the local start/stop switch by a scaffolding crew that was dismantling a scaffold above the other, non-running, HCU Charge Pump. The protective switch cover was also missing from the switch.*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary.**

**Is corrective action required?** **Yes** (Yes/No)

*1) Install a new protective cover.*

*3) Implement a sensitive equipment checklist to be reviewed in pre-job walkdowns and review it with the scaffolding contractor.*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*1) Install a new protective cover.*
*Completed*

*2) Implement a sensitive equipment checklist to be reviewed in pre-job walkdowns and review it with the scaffolding contractor.*
*Commencement Date: 3/11/18*
*Completed Date: 4/2/18*

**(8.) North and South Flares**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 1/30/18 11:00 | 1/31/18 10:00 | 13,811 | 352 | 14 | 0 |
| 1/30/18 12:00 | 1/31/18 11:00 | 114,920 | 354 | 16.0 | 0.1 |
| 1/30/18 13:00 | 1/31/18 12:00 | 325,101 | 355 | 19.1 | 0.1 |
| 1/30/18 14:00 | 1/31/18 13:00 | 537,021 | 358 | 21.5 | 0.1 |
| 1/30/18 15:00 | 1/31/18 14:00 | 902,413 | 12 | 8.0 | 0.0 |
| 1/30/18 16:00 | 1/31/18 15:00 | 1,258,663 | 12 | 8.4 | 0.0 |
| 1/30/18 17:00 | 1/31/18 16:00 | 1,513,831 | 13 | 9.5 | 0.1 |
| 1/30/18 18:00 | 1/31/18 17:00 | 1,757,729 | 25 | 21.0 | 0.1 |
| 1/30/18 19:00 | 1/31/18 18:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/30/18 20:00 | 1/31/18 19:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/30/18 21:00 | 1/31/18 20:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/30/18 22:00 | 1/31/18 21:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/30/18 23:00 | 1/31/18 22:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/31/18 0:00 | 1/31/18 23:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/31/18 1:00 | 2/1/18 0:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/31/18 2:00 | 2/1/18 1:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/31/18 3:00 | 2/1/18 2:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/31/18 4:00 | 2/1/18 3:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/31/18 5:00 | 2/1/18 4:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/31/18 6:00 | 2/1/18 5:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/31/18 7:00 | 2/1/18 6:00 | 1,803,080 | 51 | 25.6 | 0.1 |
| 1/31/18 8:00 | 2/1/18 7:00 | 1,805,236 | 55 | 25.7 | 0.1 |
| 1/31/18 9:00 | 2/1/18 8:00 | 1,805,236 | 55 | 25.7 | 0.1 |
| 1/31/18 10:00 | 2/1/18 9:00 | 1,805,236 | 55 | 25.7 | 0.1 |
| 1/31/18 11:00 | 2/1/18 10:00 | 1,805,236 | 55 | 25.7 | 0.1 |
| 1/31/18 12:00 | 2/1/18 11:00 | 1,702,609 | 51 | 23.8 | 0.1 |
| 1/31/18 13:00 | 2/1/18 12:00 | 1,490,403 | 47 | 20.6 | 0.1 |
| 1/31/18 14:00 | 2/1/18 13:00 | 1,278,483 | 44 | 18.2 | 0.1 |
| 1/31/18 15:00 | 2/1/18 14:00 | 902,823 | 44 | 17.7 | 0.1 |
| 1/31/18 16:00 | 2/1/18 15:00 | 546,573 | 43 | 17.2 | 0.1 |
| 1/31/18 17:00 | 2/1/18 16:00 | 291,406 | 42 | 16.2 | 0.1 |
| 1/31/18 18:00 | 2/1/18 17:00 | 47,507 | 30 | 4.7 | 0.0 |

## Subpart Ja Root Cause / Corrective Action Analysis

**Incident Number:** **N/A**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Final** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow)** | Date of Event: | **2/10/18** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **N/A** |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*Flaring during a Reformer Unit shutdown following a small fire on the Crude Unit. The fire damaged some level instrumentation and Valero made the decision to shutdown the Crude Unit for repairs. This required the Reformer Unit and other downstream units to be shut down as well.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | |
|---|---|
| Date and Time the discharge was first identified | **2/10/18 21:46** |
| Date/Time the discharge had ceased | **2/11/18 2:48** |
| Duration of Discharge (Calculated) | **5.0** hrs |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero followed its Flare Minimization Plan and Operations Procedures to minimize the volume of this discharge.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **Yes** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **Yes** | (Yes/No) |

**- If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*N/A*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary.**

**Is corrective action required?** **No** (Yes/No)

*N/A*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*N/A*

**(8.)**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 2/9/18 21:00 | 2/10/18 20:00 | 0 | 0 | 0.0 | 0.0 |
| 2/9/18 22:00 | 2/10/18 21:00 | 29,184 | 1 | 0.1 | 0.0 |
| 2/9/18 23:00 | 2/10/18 22:00 | 100,690 | 6 | 1.6 | 0.0 |
| 2/10/18 0:00 | 2/10/18 23:00 | 307,059 | 12 | 6.0 | 0.0 |
| 2/10/18 1:00 | 2/11/18 0:00 | 468,805 | 16 | 8.6 | 0.0 |
| 2/10/18 2:00 | 2/11/18 1:00 | 642,226 | 18 | 9.8 | 0.1 |
| 2/10/18 3:00 | 2/11/18 2:00 | 736,618 | 19 | 10.4 | 0.1 |
| 2/10/18 4:00 | 2/11/18 3:00 | 779,173 | 19 | 10.4 | 0.1 |
| 2/10/18 5:00 | 2/11/18 4:00 | 795,208 | 19 | 10.4 | 0.1 |
| 2/10/18 6:00 | 2/11/18 5:00 | 800,664 | 19 | 10.4 | 0.1 |
| 2/10/18 7:00 | 2/11/18 6:00 | 829,984 | 19 | 10.4 | 0.1 |
| 2/10/18 8:00 | 2/11/18 7:00 | 844,849 | 19 | 10.4 | 0.1 |
| 2/10/18 9:00 | 2/11/18 8:00 | 844,849 | 19 | 10.4 | 0.1 |
| 2/10/18 10:00 | 2/11/18 9:00 | 844,849 | 19 | 10.4 | 0.1 |
| 2/10/18 11:00 | 2/11/18 10:00 | 844,849 | 19 | 10.4 | 0.1 |
| 2/10/18 12:00 | 2/11/18 11:00 | 844,849 | 19 | 10.4 | 0.1 |
| 2/10/18 13:00 | 2/11/18 12:00 | 844,849 | 19 | 10.4 | 0.1 |
| 2/10/18 14:00 | 2/11/18 13:00 | 844,849 | 19 | 10.4 | 0.1 |
| 2/10/18 15:00 | 2/11/18 14:00 | 844,945 | 19 | 10.4 | 0.1 |
| 2/10/18 16:00 | 2/11/18 15:00 | 845,273 | 19 | 10.4 | 0.1 |
| 2/10/18 17:00 | 2/11/18 16:00 | 845,273 | 19 | 10.4 | 0.1 |
| 2/10/18 18:00 | 2/11/18 17:00 | 845,273 | 19 | 10.4 | 0.1 |
| 2/10/18 19:00 | 2/11/18 18:00 | 845,273 | 19 | 10.4 | 0.1 |
| 2/10/18 20:00 | 2/11/18 19:00 | 845,273 | 19 | 10.4 | 0.1 |
| 2/10/18 21:00 | 2/11/18 20:00 | 845,273 | 19 | 10.4 | 0.1 |
| 2/10/18 22:00 | 2/11/18 21:00 | 816,089 | 18 | 10.3 | 0.1 |
| 2/10/18 23:00 | 2/11/18 22:00 | 744,583 | 13 | 8.8 | 0.0 |
| 2/11/18 0:00 | 2/11/18 23:00 | 538,396 | 8 | 4.4 | 0.0 |
| 2/11/18 1:00 | 2/12/18 0:00 | 379,518 | 4 | 1.8 | 0.0 |

## Subpart Ja Root Cause / Corrective Action Analysis

**Incident Number:** **N/A**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Final** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow)** | Date of Event: | **2/15/18** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **N/A** |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*Flaring during Reformer Unit start up.*

(2.) (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | |
|---|---|
| Date and Time the discharge was first identified | **2/15/18 6:57** |
| Date/Time the discharge had ceased | **2/15/18 8:58** |
| Duration of Discharge (Calculated) | **2.0** hrs |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero followed its Flare Minimization Plan and Operations Procedures to minimize the volume of this discharge.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **Yes** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **Yes** | (Yes/No) |

**- If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*N/A*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary.**

**Is corrective action required?** **No** (Yes/No)

*N/A*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*N/A*

**(8.)**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 2/14/18 6:00 | 2/15/18 5:00 | 66,159 | 75 | 5.8 | 0.0 |
| 2/14/18 7:00 | 2/15/18 6:00 | 78,282 | 78 | 5.9 | 0.0 |
| 2/14/18 8:00 | 2/15/18 7:00 | 259,274 | 83 | 9.6 | 0.1 |
| 2/14/18 9:00 | 2/15/18 8:00 | 693,352 | 83 | 9.8 | 0.1 |
| 2/14/18 10:00 | 2/15/18 9:00 | 693,352 | 83 | 9.8 | 0.1 |
| 2/14/18 11:00 | 2/15/18 10:00 | 689,821 | 82 | 9.8 | 0.1 |
| 2/14/18 12:00 | 2/15/18 11:00 | 695,337 | 86 | 9.8 | 0.1 |
| 2/14/18 13:00 | 2/15/18 12:00 | 695,337 | 86 | 9.8 | 0.1 |
| 2/14/18 14:00 | 2/15/18 13:00 | 697,735 | 174 | 10.7 | 0.1 |
| 2/14/18 15:00 | 2/15/18 14:00 | 697,735 | 174 | 10.7 | 0.1 |
| 2/14/18 16:00 | 2/15/18 15:00 | 681,225 | 173 | 10.6 | 0.1 |
| 2/14/18 17:00 | 2/15/18 16:00 | 666,695 | 171 | 10.5 | 0.1 |
| 2/14/18 18:00 | 2/15/18 17:00 | 665,835 | 170 | 10.5 | 0.1 |
| 2/14/18 19:00 | 2/15/18 18:00 | 665,835 | 170 | 10.5 | 0.1 |
| 2/14/18 20:00 | 2/15/18 19:00 | 665,835 | 170 | 10.5 | 0.1 |
| 2/14/18 21:00 | 2/15/18 20:00 | 665,835 | 170 | 10.5 | 0.1 |
| 2/14/18 22:00 | 2/15/18 21:00 | 665,835 | 170 | 10.5 | 0.1 |
| 2/14/18 23:00 | 2/15/18 22:00 | 665,835 | 170 | 10.5 | 0.1 |
| 2/15/18 0:00 | 2/15/18 23:00 | 661,509 | 150 | 10.1 | 0.1 |
| 2/15/18 1:00 | 2/16/18 0:00 | 661,509 | 150 | 10.1 | 0.1 |
| 2/15/18 2:00 | 2/16/18 1:00 | 661,509 | 150 | 10.1 | 0.1 |
| 2/15/18 3:00 | 2/16/18 2:00 | 661,509 | 150 | 10.1 | 0.1 |
| 2/15/18 4:00 | 2/16/18 3:00 | 661,509 | 150 | 10.1 | 0.1 |
| 2/15/18 5:00 | 2/16/18 4:00 | 635,131 | 99 | 4.9 | 0.0 |
| 2/15/18 6:00 | 2/16/18 5:00 | 635,106 | 99 | 4.9 | 0.0 |
| 2/15/18 7:00 | 2/16/18 6:00 | 622,983 | 97 | 4.8 | 0.0 |
| 2/15/18 8:00 | 2/16/18 7:00 | 441,991 | 92 | 1.1 | 0.0 |
| 2/15/18 9:00 | 2/16/18 8:00 | 7,913 | 92 | 0.9 | 0.0 |

## Subpart Ja Root Cause / Corrective Action Analysis

**Impact Incident Number:** **N/A**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Final** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow)** | Date of Event: | **2/16/18** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **N/A** |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*Flaring during Kerosene Hydrotreater Unit shutdown for turnaround.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | |
|---|---|
| Date and Time the discharge was first identified | **2/16/18 19:07** |
| Date/Time the discharge had ceased | **2/17/18 16:12** |
| Duration of Discharge (Calculated) | **21.1** hrs |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero followed its Flare Minimization Plan and Operations Procedures to minimize the volume of this discharge.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **Yes** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **Yes** | (Yes/No) |

**- If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*N/A*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not necessary.**

**Is corrective action required?** **No** (Yes/No)

*N/A*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*N/A*

**(8.)**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 2/15/18 19:00 | 2/16/18 18:00 | 66,933 | 13 | 0.1 | 0.0 |
| 2/15/18 20:00 | 2/16/18 19:00 | 66,694 | 13 | 0.1 | 0.0 |
| 2/15/18 21:00 | 2/16/18 20:00 | 72,690 | 417 | 14.2 | 0.1 |
| 2/15/18 22:00 | 2/16/18 21:00 | 157,167 | 513 | 47.3 | 0.3 |
| 2/15/18 23:00 | 2/16/18 22:00 | 250,166 | 536 | 56.4 | 0.3 |
| 2/16/18 0:00 | 2/16/18 23:00 | 344,794 | 560 | 65.7 | 0.4 |
| 2/16/18 1:00 | 2/17/18 0:00 | 439,624 | 581 | 74.2 | 0.4 |
| 2/16/18 2:00 | 2/17/18 1:00 | 533,633 | 598 | 80.9 | 0.4 |
| 2/16/18 3:00 | 2/17/18 2:00 | 624,333 | 616 | 87.7 | 0.5 |
| 2/16/18 4:00 | 2/17/18 3:00 | 718,776 | 638 | 96.3 | 0.5 |
| 2/16/18 5:00 | 2/17/18 4:00 | 812,697 | 665 | 106.9 | 0.6 |
| 2/16/18 6:00 | 2/17/18 5:00 | 905,119 | 677 | 111.6 | 0.6 |
| 2/16/18 7:00 | 2/17/18 6:00 | 996,539 | 696 | 119.0 | 0.6 |
| 2/16/18 8:00 | 2/17/18 7:00 | 1,085,036 | 725 | 129.7 | 0.7 |
| 2/16/18 9:00 | 2/17/18 8:00 | 1,171,221 | 751 | 138.8 | 0.7 |
| 2/16/18 10:00 | 2/17/18 9:00 | 1,191,605 | 791 | 142.5 | 0.8 |
| 2/16/18 11:00 | 2/17/18 10:00 | 1,200,328 | 885 | 146.8 | 0.8 |
| 2/16/18 12:00 | 2/17/18 11:00 | 1,201,194 | 930 | 147.4 | 0.8 |
| 2/16/18 13:00 | 2/17/18 12:00 | 1,201,194 | 933 | 147.5 | 0.8 |
| 2/16/18 14:00 | 2/17/18 13:00 | 1,201,194 | 935 | 147.5 | 0.8 |
| 2/16/18 15:00 | 2/17/18 14:00 | 1,205,605 | 1123 | 152.9 | 0.8 |
| 2/16/18 16:00 | 2/17/18 15:00 | 1,224,146 | 1414 | 177.5 | 1.0 |
| 2/16/18 17:00 | 2/17/18 16:00 | 1,224,611 | 1451 | 177.9 | 1.0 |
| 2/16/18 18:00 | 2/17/18 17:00 | 1,224,611 | 1455 | 178.0 | 1.0 |
| 2/16/18 19:00 | 2/17/18 18:00 | 1,224,611 | 1460 | 178.0 | 1.0 |
| 2/16/18 20:00 | 2/17/18 19:00 | 1,224,851 | 1464 | 178.1 | 1.0 |
| 2/16/18 21:00 | 2/17/18 20:00 | 1,218,854 | 1063 | 164.1 | 0.9 |
| 2/16/18 22:00 | 2/17/18 21:00 | 1,134,377 | 971 | 131.0 | 0.7 |
| 2/16/18 23:00 | 2/17/18 22:00 | 1,041,378 | 950 | 121.9 | 0.7 |
| 2/17/18 0:00 | 2/17/18 23:00 | 946,750 | 929 | 112.6 | 0.6 |
| 2/17/18 1:00 | 2/18/18 0:00 | 851,920 | 910 | 104.2 | 0.6 |
| 2/17/18 2:00 | 2/18/18 1:00 | 757,912 | 895 | 97.5 | 0.5 |
| 2/17/18 3:00 | 2/18/18 2:00 | 667,211 | 879 | 90.7 | 0.5 |
| 2/17/18 4:00 | 2/18/18 3:00 | 572,768 | 859 | 82.2 | 0.4 |
| 2/17/18 5:00 | 2/18/18 4:00 | 478,847 | 833 | 71.5 | 0.4 |
| 2/17/18 6:00 | 2/18/18 5:00 | 386,425 | 823 | 66.9 | 0.4 |

## Subpart Ja Root Cause / Corrective Action Analysis

**Incident Number:** **N/A**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Final** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow)** | Date of Event: | **3/17/18** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **N/A** |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*Flaring during Naphtha Hydrotreater Unit shutdown for turnaround.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | |
|---|---|
| Date and Time the discharge was first identified | **3/17/18 22:20** |
| Date/Time the discharge had ceased | **3/19/18 4:05** |
| Duration of Discharge (Calculated) | **29.8** hrs |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero followed its Flare Minimization Plan and Operations Procedures to minimize the volume of this discharge.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **Yes** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **Yes** | (Yes/No) |

**- If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*N/A*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not**

**Is corrective action required?** **No** (Yes/No)

*N/A*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*N/A*

**(8.)**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 3/16/18 22:00 | 3/17/18 21:00 | 97,480 | 23 | 2.3 | 0.0 |
| 3/16/18 23:00 | 3/17/18 22:00 | 104,918 | 26 | 2.4 | 0.0 |
| 3/17/18 0:00 | 3/17/18 23:00 | 120,108 | 78 | 6.1 | 0.0 |
| 3/17/18 1:00 | 3/18/18 0:00 | 128,191 | 171 | 10.1 | 0.1 |
| 3/17/18 2:00 | 3/18/18 1:00 | 129,760 | 175 | 10.2 | 0.1 |
| 3/17/18 3:00 | 3/18/18 2:00 | 142,829 | 199 | 11.7 | 0.1 |
| 3/17/18 4:00 | 3/18/18 3:00 | 156,198 | 205 | 12.1 | 0.1 |
| 3/17/18 5:00 | 3/18/18 4:00 | 169,333 | 205 | 12.1 | 0.1 |
| 3/17/18 6:00 | 3/18/18 5:00 | 183,989 | 212 | 12.6 | 0.1 |
| 3/17/18 7:00 | 3/18/18 6:00 | 192,833 | 221 | 13.0 | 0.1 |
| 3/17/18 8:00 | 3/18/18 7:00 | 213,750 | 221 | 13.0 | 0.1 |
| 3/17/18 9:00 | 3/18/18 8:00 | 238,503 | 222 | 13.2 | 0.1 |
| 3/17/18 10:00 | 3/18/18 9:00 | 258,437 | 226 | 13.6 | 0.1 |
| 3/17/18 11:00 | 3/18/18 10:00 | 281,905 | 227 | 13.7 | 0.1 |
| 3/17/18 12:00 | 3/18/18 11:00 | 323,024 | 229 | 14.1 | 0.1 |
| 3/17/18 13:00 | 3/18/18 12:00 | 404,345 | 230 | 14.2 | 0.1 |
| 3/17/18 14:00 | 3/18/18 13:00 | 508,149 | 229 | 14.3 | 0.1 |
| 3/17/18 15:00 | 3/18/18 14:00 | 629,213 | 229 | 14.3 | 0.1 |
| 3/17/18 16:00 | 3/18/18 15:00 | 729,949 | 229 | 14.4 | 0.1 |
| 3/17/18 17:00 | 3/18/18 16:00 | 815,866 | 229 | 14.5 | 0.1 |
| 3/17/18 18:00 | 3/18/18 17:00 | 904,913 | 230 | 14.7 | 0.1 |
| 3/17/18 19:00 | 3/18/18 18:00 | 1,014,427 | 230 | 14.9 | 0.1 |
| 3/17/18 20:00 | 3/18/18 19:00 | 1,120,372 | 213 | 12.7 | 0.1 |
| 3/17/18 21:00 | 3/18/18 20:00 | 1,262,234 | 212 | 12.7 | 0.1 |
| 3/17/18 22:00 | 3/18/18 21:00 | 1,409,939 | 211 | 12.7 | 0.1 |
| 3/17/18 23:00 | 3/18/18 22:00 | 1,498,983 | 208 | 12.7 | 0.1 |
| 3/18/18 0:00 | 3/18/18 23:00 | 1,603,725 | 156 | 9.0 | 0.0 |
| 3/18/18 1:00 | 3/19/18 0:00 | 1,719,841 | 63 | 5.1 | 0.0 |
| 3/18/18 2:00 | 3/19/18 1:00 | 1,838,544 | 59 | 5.2 | 0.0 |
| 3/18/18 3:00 | 3/19/18 2:00 | 1,970,984 | 35 | 4.2 | 0.0 |
| 3/18/18 4:00 | 3/19/18 3:00 | 2,029,711 | 31 | 4.2 | 0.0 |
| 3/18/18 5:00 | 3/19/18 4:00 | 2,016,576 | 35 | 4.2 | 0.0 |
| 3/18/18 6:00 | 3/19/18 5:00 | 2,001,920 | 31 | 3.7 | 0.0 |
| 3/18/18 7:00 | 3/19/18 6:00 | 1,993,076 | 26 | 3.4 | 0.0 |
| 3/18/18 8:00 | 3/19/18 7:00 | 1,972,159 | 28 | 3.4 | 0.0 |
| 3/18/18 9:00 | 3/19/18 8:00 | 1,947,406 | 28 | 3.2 | 0.0 |
| 3/18/18 10:00 | 3/19/18 9:00 | 1,927,471 | 25 | 2.8 | 0.0 |
| 3/18/18 11:00 | 3/19/18 10:00 | 1,904,003 | 26 | 2.8 | 0.0 |
| 3/18/18 12:00 | 3/19/18 11:00 | 1,862,884 | 25 | 2.4 | 0.0 |
| 3/18/18 13:00 | 3/19/18 12:00 | 1,781,564 | 26 | 2.3 | 0.0 |
| 3/18/18 14:00 | 3/19/18 13:00 | 1,677,760 | 27 | 2.2 | 0.0 |
| 3/18/18 15:00 | 3/19/18 14:00 | 1,556,695 | 28 | 2.2 | 0.0 |
| 3/18/18 16:00 | 3/19/18 15:00 | 1,455,959 | 29 | 2.1 | 0.0 |
| 3/18/18 17:00 | 3/19/18 16:00 | 1,370,042 | 30 | 2.0 | 0.0 |
| 3/18/18 18:00 | 3/19/18 17:00 | 1,280,995 | 31 | 1.8 | 0.0 |
| 3/18/18 19:00 | 3/19/18 18:00 | 1,171,482 | 32 | 1.7 | 0.0 |
| 3/18/18 20:00 | 3/19/18 19:00 | 1,034,989 | 33 | 1.7 | 0.0 |
| 3/18/18 21:00 | 3/19/18 20:00 | 893,127 | 34 | 1.6 | 0.0 |

**(8.)**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 3/18/18 22:00 | 3/19/18 21:00 | 745,422 | 36 | 1.6 | 0.0 |
| 3/18/18 23:00 | 3/19/18 22:00 | 648,941 | 37 | 1.5 | 0.0 |
| 3/19/18 0:00 | 3/19/18 23:00 | 529,008 | 38 | 1.5 | 0.0 |
| 3/19/18 1:00 | 3/20/18 0:00 | 404,810 | 39 | 1.5 | 0.0 |

## Subpart Ja Root Cause / Corrective Action Analysis

**Impact Incident Number:** **359746**

***The information contained below satisfies the requirements of the NSPS Subpart Ja 60.108a(c)(6).***

| | | | |
|---|---|---|---|
| Report: | **Initial** | | |
| Refinery: | **Valero (Meraux)** | | |
| Incident Type: | **Flaring (Flow and SO2)** | Date of Event: | **3/21/18** |
| Emissions Source(s): | **North Flare (EPN 20-72, EQT 0035)** | Date Analysis Completed: | **4/5/18** |

**(1.)** (60.108a(c)(6)(i))

**A description of the Discharge:**

*On 3/21/18 at 09:06, while a maintenance technician was replacing 1 of 2 redundant field power supplies for the Hydrocracker (HCU) Safety Instrumented System (SIS) lost power and initiated a complete shutdown of the HCU including an emergency depressurization to the flare. Additional flaring continued until the HCU could be returned to normal operation due to Hydrogen system imbalance. Additional SO2 emissions also occured at the #3 Sulfur Recovery Unit on the following day during start up.*

**(2.)** (60.108a(c)(6)(ii)) and (60.108a(c)(6)(ix))

| | North Flare | #3 SRU | |
|---|---|---|---|
| Date and Time the discharge was first identified | **3/21/18 9:06** | **3/22/18 7:25** | |
| Date/Time the discharge had ceased | **3/21/18 22:36** | **3/22/18 21:00** | |
| Duration of Discharge (Calculated) | **13.5** | **13.6** | hrs |

**(3.)** (60.108a(c)(6)(viii))

**The steps taken to limit the emissions during the discharge:**

*Valero initiated it's refinery sulfur shedding procedure and followed its Flare Minimization Plan and Operations Procedures to minimize the volume and SO2 emissions of this discharge. Valero repaired the damaged chassis and replaced the redundant power supplies.*

**(4.)** (60.108a(c)(6)(xi))

**Necessity of RC/CAA: Determine and state whether a RC/CAA is necessary:**

*Note: If the discharge was a result of a planned startup or shutdown, a RC/CAA analysis is not required if the flare management plan was followed.*

| | | |
|---|---|---|
| **Did the discharge result from a planned startup or shutdown?** | **No** | (Yes/No) |
| **Was the flare management plan followed?** | **Yes** | (Yes/No/N/A) |
| **Is the event exempt from a RC/CCA based on the answers above?** | **No** | (Yes/No) |

**- If yes, skip section 5-7.**

**(5.)** (60.108a(c)(6)(ix))

**Root Cause Analysis: Describe in detail the Root Cause(s) of the Incident, to the extent determinable:**

**Did this discharge result from root causes identified in a previous analysis?** **No** (Yes/No)

*The root cause of this incident was a damaged 37 pin connector on the chassis where the power power supplies are connected to the system. The power supplies are completely redundant, but they do communicate with each other using this connection to coordinate the duration each one is provideing power to even out service life.*

*Valero has determined that this connection design (37 pin) is not robust enough for the way the power supplies are loaded into the chassis. The power supplies are heavy and the main AC and DC connections are tight fitting, so the power supply needs to be slid into the chassis with force. This force is enough to easily bend the pins or damage the connector if the chassis isn't perfectly aligned.*

**(6.)** (60.108a(c)(6)(ix))

**Corrective Action Analysis: Include a description of the recommended corrective action(s) or an explanation of why corrective action is not**

**Is corrective action required?** **Yes** (Yes/No)

*1) Conduct a survey of all Kepco power supplies in the plant and develop a plan to replace with Phoenix-type power supplies in upcoming outages.*

**(7.)** (60.108a(c)(6)(x))

**Corrective Action Schedule: Include corrective actions already completed within the first 45 days following the discharge. For those not completed, provide a schedule for implementation, including proposed commencement and completion dates.**

*1) Conduct a survey of all Kepco power supplies in the plant and develop a plan to replace with Phoenix-type power supplies in upcoming outages.*

*Commencement Date: 4/5/18*

*Estimated Completion Date: 6/5/18*

**(8.) North and South Flares**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(iv)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume of flared gas above Baseline** | **TRS or H2S ppm (24-hr average, flow-weighted)** | **24-hr cumulative SO2** | **24-hr cumulative reduced sulfur** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 3/20/18 9:00 | 3/21/18 8:00 | 0 | 0 | 0 | 0 |
| 3/20/18 10:00 | 3/21/18 9:00 | 1,760,142 | 313 | 2176.7 | 11.7 |
| 3/20/18 11:00 | 3/21/18 10:00 | 3,086,350 | 463 | 2964.9 | 15.9 |
| 3/20/18 12:00 | 3/21/18 11:00 | 3,909,813 | 488 | 3044.1 | 16.4 |
| 3/20/18 13:00 | 3/21/18 12:00 | 5,320,567 | 586 | 3593.7 | 19.3 |
| 3/20/18 14:00 | 3/21/18 13:00 | 6,671,527 | 653 | 3952.9 | 21.2 |
| 3/20/18 15:00 | 3/21/18 14:00 | 7,965,280 | 732 | 4356.5 | 23.4 |
| 3/20/18 16:00 | 3/21/18 15:00 | 8,734,870 | 734 | 4360.7 | 23.4 |
| 3/20/18 17:00 | 3/21/18 16:00 | 9,496,971 | 735 | 4363.3 | 23.4 |
| 3/20/18 18:00 | 3/21/18 17:00 | 10,266,462 | 735 | 4365.1 | 23.5 |
| 3/20/18 19:00 | 3/21/18 18:00 | 11,185,479 | 737 | 4370.3 | 23.5 |
| 3/20/18 20:00 | 3/21/18 19:00 | 11,999,827 | 737 | 4373.3 | 23.5 |
| 3/20/18 21:00 | 3/21/18 20:00 | 12,799,897 | 739 | 4378.0 | 23.5 |
| 3/20/18 22:00 | 3/21/18 21:00 | 13,328,089 | 741 | 4381.8 | 23.5 |
| 3/20/18 23:00 | 3/21/18 22:00 | 13,410,146 | 745 | 4383.2 | 23.6 |
| 3/21/18 0:00 | 3/21/18 23:00 | 13,410,146 | 745 | 4383.2 | 23.6 |
| 3/21/18 1:00 | 3/22/18 0:00 | 13,410,146 | 745 | 4383.2 | 23.6 |
| 3/21/18 2:00 | 3/22/18 1:00 | 13,410,146 | 745 | 4383.2 | 23.6 |
| 3/21/18 3:00 | 3/22/18 2:00 | 13,410,146 | 745 | 4383.2 | 23.6 |
| 3/21/18 4:00 | 3/22/18 3:00 | 13,410,146 | 745 | 4383.2 | 23.6 |
| 3/21/18 5:00 | 3/22/18 4:00 | 13,410,146 | 745 | 4383.2 | 23.6 |
| 3/21/18 6:00 | 3/22/18 5:00 | 13,446,303 | 763 | 4385.7 | 23.6 |
| 3/21/18 7:00 | 3/22/18 6:00 | 13,675,917 | 773 | 4395.4 | 23.6 |
| 3/21/18 8:00 | 3/22/18 7:00 | 13,884,286 | 784 | 4404.2 | 23.7 |
| 3/21/18 9:00 | 3/22/18 8:00 | 13,884,286 | 784 | 4404.2 | 23.7 |
| 3/21/18 10:00 | 3/22/18 9:00 | 12,124,144 | 471 | 2227.5 | 12.0 |
| 3/21/18 11:00 | 3/22/18 10:00 | 10,797,936 | 321 | 1439.3 | 7.7 |
| 3/21/18 12:00 | 3/22/18 11:00 | 9,975,944 | 300 | 1360.1 | 7.3 |
| 3/21/18 13:00 | 3/22/18 12:00 | 8,565,190 | 202 | 810.5 | 4.4 |
| 3/21/18 14:00 | 3/22/18 13:00 | 7,214,230 | 135 | 451.3 | 2.4 |
| 3/21/18 15:00 | 3/22/18 14:00 | 5,921,761 | 71 | 47.7 | 0.3 |
| 3/21/18 16:00 | 3/22/18 15:00 | 5,152,171 | 69 | 43.6 | 0.2 |
| 3/21/18 17:00 | 3/22/18 16:00 | 4,390,070 | 69 | 41.0 | 0.2 |
| 3/21/18 18:00 | 3/22/18 17:00 | 3,620,579 | 68 | 39.2 | 0.2 |
| 3/21/18 19:00 | 3/22/18 18:00 | 2,701,562 | 67 | 34.0 | 0.2 |
| 3/21/18 20:00 | 3/22/18 19:00 | 1,887,229 | 67 | 31.0 | 0.2 |
| 3/21/18 21:00 | 3/22/18 20:00 | 1,087,158 | 66 | 26.3 | 0.1 |
| 3/21/18 22:00 | 3/22/18 21:00 | 560,196 | 75 | 22.6 | 0.1 |
| 3/21/18 23:00 | 3/22/18 22:00 | 478,139 | 71 | 21.2 | 0.1 |
| 3/22/18 0:00 | 1/0/00 0:00 | 478,139 | 71 | 21.2 | 0.1 |

**(9.) #3 SRU**

**The measured or calculated cumulative quantity of gas discharged over the discharge duration.**

*Note: Measured sulfur concentrations are shown as flow-weighted averages if multiple measurement devices were used.*

| | | (60.108a(c)(6)(iii)) | (60.108a(c)(6)(vi)) | (60.108a(c)(6)(vii)) | (60.108a(c)(6)(vii)) |
|---|---|---|---|---|---|
| **First hour of 24-hr Period** | **Last hour of 24-hr Period** | **24-hr cumulative volume** | **$SO_2$ ppm (24-hr average, flow-weighted)[1]** | **24-hr cumulative $SO_2$ above allowable[2]** | **24-hr cumulative reduced sulfur above allowable** |
| | | SCF | ppmv | lbs | lbs as H2S |
| 3/21/18 20:00 | 3/22/18 19:00 | 480,648 | 1000 | 479.0 | 2.6 |
| 3/21/18 21:00 | 3/22/18 20:00 | 469,086 | 880 | 527.5 | 2.8 |
| 3/21/18 22:00 | 3/22/18 21:00 | 391,374 | 105 | 527.5 | 2.8 |
| 3/21/18 23:00 | 3/22/18 22:00 | 371,836 | 65 | 527.5 | 2.8 |
| 3/22/18 0:00 | 3/22/18 23:00 | 342,994 | 66 | 527.5 | 2.8 |
| 3/22/18 1:00 | 3/23/18 0:00 | 357,600 | 60 | 527.5 | 2.8 |
| 3/22/18 2:00 | 3/23/18 1:00 | 350,381 | 56 | 527.5 | 2.8 |
| 3/22/18 3:00 | 3/23/18 2:00 | 364,928 | 53 | 527.5 | 2.8 |
| 3/22/18 4:00 | 3/23/18 3:00 | 374,980 | 48 | 527.5 | 2.8 |
| 3/22/18 5:00 | 3/23/18 4:00 | 400,348 | 46 | 527.5 | 2.8 |
| 3/22/18 6:00 | 3/23/18 5:00 | 431,683 | 48 | 527.5 | 2.8 |
| 3/22/18 7:00 | 3/23/18 6:00 | 436,076 | 46 | 527.5 | 2.8 |
| 3/22/18 8:00 | 3/23/18 7:00 | 449,882 | 30 | 518.4 | 2.8 |
| 3/22/18 9:00 | 3/23/18 8:00 | 466,155 | 21 | 475.4 | 2.6 |
| 3/22/18 10:00 | 3/23/18 9:00 | 515,287 | 25 | 475.4 | 2.6 |
| 3/22/18 11:00 | 3/23/18 10:00 | 522,525 | 25 | 472.2 | 2.5 |

[1] SRU SO2 CEMS are spanned to 500 ppm. For emissions calculations, Valero assumes 2 times the span, 1000 ppm, for CEMS readings >= 500 ppm.

[2] Tail Gas Treater bypass emissions are calculated using a mass balance method, not using the flow and concentration values listed here.