



## REGION 5

CHICAGO, IL 60604

### **MEMORANDUM**

**SUBJECT:** CLEAN AIR ACT INSPECTION REPORT  
Exxon Mobil Corporation, Baytown, Texas

**FROM:** Constantinos Loukeris, Environmental Engineer  
AECAB (MI/WI)

**THRU:** Sarah Marshall, Section Supervisor  
AECAB (MI/WI)

**TO:** File

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### **BASIC INFORMATION**

**Facility Name:** Exxon Mobil Corporation (XOM)

**Facility Location:** 5000 Bayway Drive, Baytown, Texas 77520

**Date of Inspection:** May 6, 2024 – May 10, 2024

#### **EPA Inspector(s):**

1. Constantinos Loukeris, Environmental Engineer
2. James Haynes, Physical Scientist
3. Sophia Ong, Physical Scientist
4. Benjamin Rosenthal, Physical Scientist
5. Sydney Knodl, Physical Scientist
6. Colleen McCarthy, Life Scientist

#### **Other Attendees:**

1. Kara Moore, Exxon, Environmental Advisor
2. Barbara Kellum, Exxon, Multimedia Supervisor
3. Adeniyi Adetayo, Exxon, Environmental
4. Kristin Henningson, Environmental Advisor
5. Joshua Kinnnger, Exxon, Air Section Supervisor
6. MaryCarmen Perales, Exxon, Wastewater Contact
7. Madison Kettler, Exxon, Environmental Advisor
8. Ty Hastriter, Exxon, GO&S Sustainability Advisor

**Facility Name:** Exxon Mobil Corporation  
**Facility Location:** 5000 Bayway Drive, Baytown, Texas 77520  
**Date of Inspection:** May 6-10, 2024

9. Colt Schmidtke, Exxon, Counsel
10. Clinton Elliott, TRC, Senior Project Manager
11. George Rizzo, Exxon, Counsel
12. Stephen Codolato, Exxon, State Advisor
13. Amanda Wolsiefer, Exxon, Environmental Advisor
14. Cole Billeaux, Exxon, Environmental Advisor
15. Abraham Valdes, Exxon
16. Bo Anderson, Exxon, Unit Supervisor
17. Kayla Thorsteinson, Exxon, Sulfur Complex Engineer
18. Davina Peterson, Exxon, Chemical Plant
19. Chris Laskoskie, Exxon, CLEU#2
20. Lillian Sandeval, Exxon, Chem Plant Utilities Contract Engineer
21. Jim Kitchens, Exxon, DCU Operator
22. Sadir Shah, Exxon, Technician
23. Tom McClurg, Exxon, Dock Operator
24. Tim Bales, Exxon
25. Rodney Putt, Exxon, ECC Shift Team Leader
26. Juan Rodriguez, HPC Field Supervisor
27. Anthony Ardoin, HPC Utility Technician
28. John Dadurian, HPC Supervisor
29. Peter McKenzie, HPC, Camera Technician
30. John Godbee, Exxon, Supervisor
31. Ignacio Cruz Sanchez, Exxon, Process Technician
32. Lee Trader, Exxon, Shift Team leader
33. Molcom Goudeaux, Exxon Business Team Lead
34. Carl Cramer, Exxon, Shift Team Lead Fuels
35. Jack Dunn, Exxon, Process Mechanical Coordinator

**Contact Email Address:** kara.moore@exxonmobil.com

**Purpose of Inspection:** Inspect the benzene waste operations and volatile organic compounds (VOC) emissions from wastewater systems

**Facility Type:** Petroleum Refinery, Chemical Plant, and Olefins Plant

**Regulations Central to Inspection:** Refinery wastewater subject to the Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems, at 40 C.F.R. Part 60, Subpart QQQ (Subpart QQQ), and the National Emissions Standards for Hazardous Air Pollutants for Benzene Waste Operations, at 40 C.F.R. Part 61, Subpart FF (Subpart FF or BWON)

**Arrival Time:** May 6, 2024, 2:30 pm

**Departure Time:** May 10, 2024, 12:39 pm

**Facility Name:** Exxon Mobil Corporation  
**Facility Location:** 5000 Bayway Drive, Baytown, Texas 77520  
**Date of Inspection:** May 6-10, 2024

**Inspection Type:**

- ☒ Unannounced Inspection
- ☐ Announced Inspection

**OPENING CONFERENCE**

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☐ Provided Small Business Resource Information Sheet
- ☒ Small Business Resource Information Sheet not provided. Reason: Not a Small Business
- ☒ Provided CBI warning to facility

The following information was obtained verbally from Exxon personnel unless otherwise noted.

**Process Description:**

The Baytown Refinery began operations in 1920 and became an Exxon Corporation refinery in 1972. The Baytown Refinery includes a refinery, chemical plant, and an olefins plant.

XOM has split the refinery (BTRF), chemical plant (BTCP), and olefins units (BOP) into three sources for purposes of compliance with Subpart FF. The refinery has chosen the 6 Megagram per year (6 MG) option, while the chemical plant and the olefins unit each have chosen the 2 Megagram per year (2 MG) option. XOM indicated that BTRF, BOP, and BTCP operate under different Title V permits and different organizational structure, except that shared environmental services, and thus each part of the Baytown complex can have a separate Subpart FF compliance strategy and total annual benzene report. In addition, controlled wastewater streams and controlled slop oil streams from the BOP and the BTCP are managed at the BTRF.

At XOM, stormwater is fully integrated into the BTRF, partially integrated for the BOP, and segregated for the BTCP. At the BTRF's wastewater treatment plant, XOM stated that Subpart FF and Subpart QQQ do not apply.

XOM indicated that generally Method 21 monitoring is performed using a flame ionization detector, and Method 21 breakthrough monitoring at carbon canisters is performed with a benzene-select photoionization detector. XOM reported that Method 21 monitoring is conducted by Clean Harbors, which recently acquired HydroChem PSC, and visual inspections are conducted by XOM operators.

**Staff Interviews:** EPA requested interviews from XOM to better understand how wastewater is managed or treated across the refinery, chemical plant, and olefins unit. XOM provided the following individuals:

- A. May 7, 2024 at 12:30 pm: Kayla Thorsteinson, Exxon, Sulfur Complex Engineer

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The olefins plant, chemical plant, and the refinery all send wastewater streams to the stripper feed tanks, 1032 and 1033. Each of these tanks has an external floating roof (EFR) and an oil skimming system. Typically, any oil skimmed is sent over once a week but no less frequent than once per month to the refinery's slop system. XOM uses two benzene steam strippers, T071 and T081, that vent vapors to the sulfur recovery unit and wastewater effluent continues to the east sewer line. Both strippers are designed with an identical capacity of 50,000 barrels per day. The effluent wastewater from each of the strippers is about 100-120 degrees Fahrenheit.

For the sour water system, XOM operates two trains, each with two feed drums that route material to one of the stripper feed tanks, 1026 and 2000, then to another feed drum and finally onto one of three strippers, T051, T061, or T853. T051 and T061 are identical in capacity, and T853 has a smaller capacity. XOM uses the sour water exemption in Subpart FF for the wastewater streams that meet the qualifications.

**B. May 7, 2024 at 1 pm: Davina Peterson, Exxon, Chemical Plant**

EPA asked Ms. Peterson a few questions regarding the flow and location of wastewater generated from specific equipment at XOM's chemical plant. Ms. Peterson stated that she is not familiar with any wastewater or oil movements, where the wastewater or oil is generated within the chemical plant, or how wastewater or oil is sent from specific equipment to other parts of the refinery.

**C. May 8, 2024 at 1:15 pm: Lillian Sandeval, Exxon, Chemical Plant, Utilities, Contract Engineer**

XOM operates a benzene steam stripper, T150, that routes vapors to a flare through D-152 and sends effluent wastewater to the west sewer trunk. If T150 is down, the wastewater stream is not immediately sent over to the refinery. XOM operations manages which and when wastewater streams are sent over. Some wastewater streams are continuous and feed tanks, 1032 and 1033. XOM's chemical plant also sends over slop oil through tanks, 905 and 907, which are slop oil tanks used by the refinery, olefins plant, and chemicals unit.

**TOUR INFORMATION**

**EPA Toured the Facility:** Yes

**Data Collected and Observations:**

1. Wash Slab: XOM indicated that the wash slab area is subject to Subpart QQQ. EPA observed that two ground level drains (Drains 1 and 2) had oily water pooled over them. In addition, EPA was unable to walk to the frac tank without water boots in this area since the walkway to the frac tank had an oily water level of 2-3 inches for at least a 25-foot length by 10 feet wide distance. The wastewater from the frac tank was discharged to an uncovered manhole. XOM indicated that the stream is not subject to Subpart QQQ at the manhole.

2. EPA requested that XOM show EPA inspectors how operators conduct visual inspections for Subpart FF in the CLEU #2 unit by walking the inspectors through XOM's visual inspection route. XOM personnel were in possession of the document used by operations for identifying the route to be used in conducting visual inspections. After observing approximately 7 pieces of equipment subject to Subpart FF visual inspections, XOM personnel stated that EPA inspectors had seen everything subject to Subpart FF in this unit. However, in response to EPA's onsite document request, the visual inspection document provided by XOM identified an additional 5 pieces of equipment that XOM operators did not show EPA inspectors during the visual inspection of CLEU #2. EPA inspectors advised XOM that for the remaining portion of the inspection, EPA expected XOM to provide complete and accurate information.
3. During the Method 21 monitoring at lift station, LS076, Ms. Madison Kettler, XOM's leak detection and repair coordinator, asked Clean Harbors what an instrument flameout was after EPA detected a flameout in the field.
4. Some of XOM personnel, including Mr. Adetayo, provided feedback to the FLIR optical gas imaging noting differences; however, the XOM personnel were not certified to use the FLIR camera.
5. All Subpart FF or other NESHAP lines from the docks are routed to Tank 38.
6. XOM indicated that several floating roof tanks subject to Subpart FF, including monitoring for breakthrough on the carbon canister by the docks, required a fresh breathing air apparatus ("fresh air"). XOM does not have a specific written procedure or policy requiring fresh air on the floating roof tanks or any signage at the stairwell of the tank for operators who are going up to the platform on top of the tank. Two EPA inspectors (Colleen McCarthy and Constantinos Loukeris) were provided fresh air by XOM to monitor the following tanks from the platform at the top of the tank's stairwell: TK 1001, TK 905, TK 907, TK 1071, TK 1499, and TK 2000.
7. XOM operates a vacuum truck unloading station at the ECC unit, which receives waste and wastewater from the BTRF, BOP and BTCP. The vacuum trucks unload to Pit 1, which XOM operates as an uncontrolled waste management unit for purposes of Subpart FF compliance. On May 10, 2024, EPA observed a vacuum truck with carbon canisters that was unloading waste to Pit 1. XOM personnel had previously stated that the vacuum trucks with carbon canisters are used for waste or wastewater streams requiring control under Subpart FF.
8. During the tank cleaning of Tank 1032, XOM utilized an air mover to pull solids into vacuum boxes. These solids are sent off-site for removal, and the empty vacuum boxes return to XOM. EPA observed detectable emissions on several vacuum boxes collecting solids from Tank 1032. Additionally, the discharge from the air mover was connected to ductwork that vented to the atmosphere from the top of the platform at Tank 1032 while it was in operation.

**Photos and/or Videos:** were taken during the inspection and are listed in Appendix A.

EPA imaged hydrocarbon emissions using a FLIR® optical gas imaging camera, Models GF-320 and GFx-320. In addition, this FLIR® camera was also used to take digital pictures and videos. See Appendix A for a summary of the videos and pictures taken.

**Field Measurements:** were taken during this inspection and are listed in Appendix B.

EPA conducted Method 21 monitoring and testing using Thermo Scientific's Toxic Vapor Analyzers, Model 2020, equipped with a flame ionization detector. See Appendix B for the summary of the monitoring and testing. EPA also collected six summa canisters that are being analyzed per Method TO-15. The results of the summa canisters are pending.

Summa Canister Location Summary:

1. LS204
2. LS239
3. LS265
4. LS204
5. ECC P3 Hatch
6. 3053 TWD Pump# 91B

**CLOSING CONFERENCE**

- ☒ Provided U.S. EPA point of contact to the facility

**Requested documents:**

1. Wastewater flow diagrams, including a description or color-coding indicating compliance points for Benzene Waste NESHAP (BWON) and NSPS Subpart QQQ
2. Total Annual Benzene Reports – most recent 5 years, including supporting calculations and/or sampling
3. Quarterly BWON Reports – most recent 5 years
4. Visual Inspection records for BWON – most recent 5 years
5. Detectable Emission Testing Results for BWON and NSPS Subpart QQQ (Method 21)– most recent 5 years
6. Repair Records for detectable emissions and visual inspection deficiencies, including information required by 40 C.F.R. § 61.356(h)
7. Database of Detectable Emission testing and visual inspection results, including calibration and repair records
8. Engineering Design Documentation for each waste management unit and treatment process required by 40 C.F.R. § 61.356(d)
9. Carbon Canister Design Evaluations for Each Carbon System (BWON and NSPS Subpart QQQ)
10. Carbon Canister Breakthrough Monitoring results for Each System (BWON and NSPS Subpart QQQ) – most recent 5 years
11. Individual Drain Systems (IDS) for BWON and NSPS Subpart QQQ – identification of all components and respective compliance strategy
12. Semi-Annual NSPS Subpart QQQ Reports – most recent 5 years
13. Database and/or records of NSPS Subpart QQQ visual inspection results – most recent 5 years
14. Parametric Monitoring Data for Treatment Processes – most recent 5 years
15. Process units and/or IDS grandfathered under NSPS Subpart QQQ
16. Floating Roof Tanks Complying with NSPS Kb (For either BWON or QQQ) - Most recent API 653 and primary seal/secondary seal inspection report

17. End of Line Sampling Results for past 2 years
18. BWON Manual
19. NSPS QQQ Manual
20. Exxon's Corporate Policy for BWON and QQQ
21. Vacuum Truck Log – past 5 years: Include destination of each vacuum truck, operated with a control device or counted against the BWON compliance option for the respective site
22. When did Exxon begin operation of the temporary system regarding Lift Station 243. Provide MOC and/or other documentation as to demonstrating compliance under BWON and QQQ
23. List of all the BWON (e.g. NESHAP tagged in the field) sampling points, description, which line item in the TAB each location correlates to, location and most recent 5 years of sampling results. (including separator 13,14, 15, and 17)
24. MOC or other documentation of why access was not allowed to conduct visual inspection in the DCU on May 9, 2024
25. Status of document request from EPA email on May 6, 2024.
26. CBT training for the environmental stewards. I think we wanted to see if there is any wastewater info within the training modules
27. Blank QQQ form for CDU
28. Crosswalk of sample data points (from the process flow diagrams) and how that corresponds to the TAB
29. HU9 (subject to QQQ) sewer diagram noting drains and all access points

**Concerns:** At the closing conference, EPA identified the follow areas of concern:

1. XOM has improperly split up its refinery, olefins, and chemical plant into three total annual benzene reports with separate compliance strategies for Subpart FF. EPA pointed to the regulatory definitions of "petroleum refinery," defined as "a facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through the distillation of petroleum, or through the redistillation, cracking, or reforming of unfinished petroleum derivatives and to "Facility," defined as "all process units and product tanks that generate waste within a stationary source, and all waste management units that are used for waste treatment, storage, or disposal within a stationary source."
2. As one facility under Subpart FF, XOM would not be able to comply with any of the three compliance options in Subpart FF (6 MG, 2 MG, and 1 MG)
3. XOM did not identify all of its points of generation in the annual TAB reports as required by Subpart FF for at least the past 5 years.
4. In its TAB reports, XOM does not account for all benzene emissions in the TAB that have been volatilized to atmosphere based on its sampling locations. See for example, separators 13, 14, 15, 17, and 19.
5. XOM's lift station, LS 265, which supports the benzene loading dock, is not designed or operated to no detectable emissions and also had significant visible defects.
6. Based on the number of visible defects EPA found including an opening to atmosphere in a manhole, XOM's visual inspections are not identifying defects as required by Subpart FF and Subpart QQQ.

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7. XOM is sending vacuum trucks that require control with Subpart FF standards to Pit 1, which is operated as an uncontrolled waste management unit.
8. XOM did not design or operate the barscreen with no detectable emissions as required 0020 under Subpart FF after EPA detected greater than 500 ppm from the door accessing the barscreen area.
9. Based on the number of detectable emissions and design issues with waste management units across the Baytown complex, XOM may not be complying with the 6 MG or 2 MG compliance options in Subpart FF.
10. During the inspection, XOM was operating a temporary sewer line due to extended maintenance being performed at lift station, LS 243. XOM did not evaluate any applicability and compliance with Subpart QQQ for the new individual drain system that had been used for multiple months.

**DIGITAL SIGNATURES**

Report Author: CONSTANTIN OS LOUKERIS  
Digitally signed by  
CONSTANTINOS LOUKERIS  
Date: 2024.07.09 15:07:50  
-05'00'

Section Supervisor: SARAH MARSHALL  
Digitally signed by  
SARAH MARSHALL  
Date: 2024.07.09  
15:30:18 -05'00'

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**APPENDICES**

1. Appendix A: Digital Image Log and Digital Video Log
2. Appendix B: Field Measurement Data
3. Appendix C: Method 21 Calibration Data
4. Appendix D: Subpart QQQ Observations

**Facility Name:** Exxon Mobil Corporation  
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**APPENDIX A: DIGITAL IMAGE LOG AND DIGITAL VIDEO LOG**

**Inspector Name:** Constantinos Loukeris      **Archival Record Location:** [May 2024 Inspection - Pictures and Videos](#)

| Image Number | File Name    | Camera  | Date     | Time  | Inspector | Image description                                                                  | Notes                                                                                     |
|--------------|--------------|---------|----------|-------|-----------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 1            | FLIR0037.jpg | C027003 | 5/7/2024 | 10:18 | McCarthy  | Dewatering Pump 186-10 historic leak                                               | -                                                                                         |
| 2            | FLIR0038.jpg | C027003 | 5/7/2024 | 10:19 | McCarthy  | Overview of Dewatering Pump 186-10 including drain                                 | -                                                                                         |
| 3            | FLIR0039.jpg | C027003 | 5/7/2024 | 10:44 | McCarthy  | Conservation Vent at P-6 and P259-5 pump area                                      | -                                                                                         |
| 4            | FLIR0040.jpg | C027003 | 5/7/2024 | 10:48 | McCarthy  | Liquid leak at valve. LDAR Tag NETF 11 0066                                        | -                                                                                         |
| 5            | FLIR0041.jpg | C027003 | 5/7/2024 | 10:50 | McCarthy  | Liquid leak at V09028 fill to Tk 1070.                                             | Kosta TVA: 2900ppm                                                                        |
| 6            | FLIR0042.jpg | C027003 | 5/7/2024 | 10:52 | McCarthy  | Back of liquid leak at V09028 fill to Tk 1070.                                     | -                                                                                         |
| 7            | FLIR0043.jpg | C027003 | 5/7/2024 | 10:52 | McCarthy  | Back of liquid leak at V09028 fill to Tk 1070.                                     | -                                                                                         |
| 8            | FLIR0044.mp4 | C027003 | 5/7/2024 | 11:23 | McCarthy  | Hydrocarbon (HC) emissions from open-ended line plug on P194-10. Oil ring observed | -                                                                                         |
| 9            | FLIR0045.mp4 | C027003 | 5/7/2024 | 14:50 | Loukeris  | Incidental video                                                                   | -                                                                                         |
| 10           | FLIR0046.mp4 | C027003 | 5/7/2024 | 14:51 | Loukeris  | HC emissions from east vacuum breaker on Tank 1033                                 | -                                                                                         |
| 11           | FLIR0047.mp4 | C027003 | 5/7/2024 | 14:55 | Loukeris  | HC emissions from seal and east vacuum breaker on Tank 1033                        | -                                                                                         |
| 12           | FLIR0048.jpg | C027003 | 5/7/2024 | 15:21 | McCarthy  | Flange on vacuum box                                                               | Haynes has box number. Haynes TVA: 1600 confirmed by HPC at bottom of flange along gasket |
| 13           | FLIR0049.jpg | C027003 | 5/7/2024 | 15:30 | McCarthy  | Drain clogged at slop pump PS258 P-5                                               | -                                                                                         |
| 14           | FLIR0050.jpg | C027003 | 5/7/2024 | 16:37 | McCarthy  | Wash Slab near drain 1                                                             | -                                                                                         |
| 15           | FLIR0051.jpg | C027003 | 5/7/2024 | 16:38 | McCarthy  | Wash Slab near drain 2                                                             | -                                                                                         |
| 16           | FLIR0052.jpg | C027003 | 5/7/2024 | 16:52 | McCarthy  | Frac Tank at Wash Slab                                                             | -                                                                                         |

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|    |              |         |          |       |          |                                                                                          |                                                                    |
|----|--------------|---------|----------|-------|----------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
|    |              |         |          |       |          | Hazardous Waste Satellite Accumulation with no accumulation start date near D-8 in CLEU. | -                                                                  |
| 17 | FLIR0053.jpg | C027003 | 5/8/2024 | 10:19 | McCarthy |                                                                                          |                                                                    |
| 18 | FLIR0054.jpg | C027003 | 5/8/2024 | 15:10 | McCarthy | Lift Station 076 hatch                                                                   | -                                                                  |
| 19 | FLIR0055.jpg | C027003 | 5/8/2024 | 15:15 | McCarthy | Lift Station 076 hatch                                                                   | No gasket. Retrofitted plate. Kosta TVA 400 then flameout on hinge |
| 20 | FLIR0056.jpg | C027003 | 5/8/2024 | 15:19 | McCarthy | Lift Station 076. Cracks and gaps.                                                       | -                                                                  |
| 21 | FLIR0057.jpg | C027003 | 5/8/2024 | 15:32 | McCarthy | Lift Station 076. Cracks and gaps.                                                       | -                                                                  |
| 22 | FLIR0058.jpg | C027003 | 5/8/2024 | 15:55 | McCarthy | 4 Spot 1 Dock overview of catch basin                                                    | -                                                                  |
| 23 | FLIR0059.mp4 | C027003 | 5/8/2024 | 16:36 | McCarthy | HC emissions from unbolted cover on Lift Station 239                                     | -                                                                  |
| 24 | FLIR0060.mp4 | C027003 | 5/8/2024 | 16:40 | McCarthy | HC emissions from visible crack in sealant on Lift Station 265                           | -                                                                  |
| 25 | FLIR0061.mp4 | C027003 | 5/8/2024 | 16:52 | McCarthy | HC emissions from pump cover observed with gaps on Lift Station 265                      | -                                                                  |
| 26 | FLIR0062.jpg | C027003 | 5/8/2024 | 16:55 | McCarthy | Overview of Lift Stations 265 and 239                                                    | -                                                                  |
| 27 | FLIR0063.jpg | C027003 | 5/8/2024 | 16:59 | McCarthy | Visible gap in sealant/caulk on Lift Station 265                                         | Area of Video 24                                                   |
| 28 | FLIR0064.jpg | C027003 | 5/8/2024 | 16:59 | McCarthy | Overview of Lift Station 265                                                             | -                                                                  |
| 29 | FLIR0065.jpg | C027003 | 5/8/2024 | 17:00 | McCarthy | Side of Lift Station 265                                                                 | -                                                                  |
| 30 | FLIR0066.jpg | C027003 | 5/8/2024 | 17:00 | McCarthy | Rusted piping on Lift Station 239                                                        | -                                                                  |
| 31 | FLIR0067.jpg | C027003 | 5/8/2024 | 17:01 | McCarthy | Unbolted cover and debris on Lift Station 239                                            | -                                                                  |
| 32 | FLIR0068.jpg | C027003 | 5/8/2024 | 17:01 | McCarthy | Lift station 239                                                                         | -                                                                  |
| 33 | FLIR0069.jpg | C027003 | 5/9/2024 | 9:45  | McCarthy | Solid drain behind P610A                                                                 | DCU                                                                |
| 34 | FLIR0070.jpg | C027003 | 5/9/2024 | 9:52  | McCarthy | Manhole cover near E-617                                                                 | -                                                                  |
| 35 | FLIR0071.jpg | C027003 | 5/9/2024 | 10:09 | McCarthy | Dry drain at P-619A                                                                      | -                                                                  |
| 36 | FLIR0072.jpg | C027003 | 5/9/2024 | 10:13 | McCarthy | Incidental photo                                                                         | -                                                                  |
| 37 | FLIR0073.jpg | C027003 | 5/9/2024 | 10:15 | McCarthy | Manhole cover in DCU                                                                     | -                                                                  |
| 38 | FLIR0074.jpg | C027003 | 5/9/2024 | 10:16 | McCarthy | DHX3P18 dry drain                                                                        | -                                                                  |
| 39 | FLIR0075.jpg | C027003 | 5/9/2024 | 10:17 | McCarthy | MH3P27 Manhole cover                                                                     | -                                                                  |
| 40 | FLIR0076.jpg | C027003 | 5/9/2024 | 10:23 | McCarthy | MHCB3P25 Manhole cover missing caulking                                                  | -                                                                  |

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|----|--------------|---------|----------|-------|----------|-------------------------------------------------------------------------------|------------------------------|
| 41 | FLIR0077.jpg | C027003 | 5/9/2024 | 10:24 | McCarthy | MHCB3P17 Catch basin                                                          | -                            |
| 42 | FLIR0078.jpg | C027003 | 5/9/2024 | 10:25 | McCarthy | MHCB316 Catch basin                                                           | -                            |
| 43 | FLIR0079.jpg | C027003 | 5/9/2024 | 10:26 | McCarthy | Manhole in DCU                                                                | -                            |
| 44 | FLIR0080.jpg | C027003 | 5/9/2024 | 10:28 | McCarthy | MHCB3N05 Manhole cover with sand                                              | -                            |
| 45 | FLIR0081.jpg | C027003 | 5/9/2024 | 10:38 | McCarthy | Manhole cover rusted and covered in liquid.                                   | -                            |
| 46 | FLIR0082.mp4 | C027003 | 5/9/2024 | 10:44 | McCarthy | HPC monitoring manhole cover                                                  | near tank 601                |
| 47 | FLIR0083.jpg | C027003 | 5/9/2024 | 10:47 | McCarthy | Manhole cover open with cone in center                                        | near tank 601                |
| 48 | FLIR0084.jpg | C027003 | 5/9/2024 | 10:47 | McCarthy | Manhole cover open with cone in center                                        | near tank 601                |
| 49 | FLIR0085.jpg | C027003 | 5/9/2024 | 11:52 | McCarthy | MH7 Manhole cover                                                             | SCU                          |
| 50 | FLIR0086.mp4 | C027003 | 5/9/2024 | 11:53 | McCarthy | MH7 Manhole cover opened to check for water seal. HC emissions                | -                            |
| 51 | FLIR0087.mp4 | C027003 | 5/9/2024 | 11:58 | McCarthy | MH1 Manhole cover opened to check for water seal. HC emissions                | -                            |
| 52 | FLIR0088.mp4 | C027003 | 5/9/2024 | 14:41 | Loukeris | HC emissions at preseparator 14                                               | -                            |
| 52 | FLIR0089.mp4 | C027003 | 5/9/2024 | 14:44 | Loukeris | HC emissions at preseparator 13                                               | -                            |
| 53 | FLIR0090.jpg | C027003 | 5/9/2024 | 14:51 | McCarthy | NESHAP FF sample point between pumps 2 and 3 at preseparators 13 and 14       | -                            |
| 54 | FLIR0091.mp4 | C027003 | 5/9/2024 | 14:52 | McCarthy | HC emissions from NESHAP FF sample point at preseparators                     | EPA 15,000ppm; HPC 18,000ppm |
| 55 | FLIR0092.mp4 | C027003 | 5/9/2024 | 14:55 | McCarthy | HC emissions from sump cover between pumps 3 and 4 at preseparators 13 and 14 | -                            |
| 56 | FLIR0093.jpg | C027003 | 5/9/2024 | 14:56 | McCarthy | Sump cover between pumps 3 and 4 at preseparators 13 and 14                   | EPA 20,000ppm; HPC 20,000ppm |
| 57 | FLIR0094.jpg | C027003 | 5/9/2024 | 14:57 | McCarthy | Unbolted sump covers with holes and no seal at preseparators                  | -                            |
| 58 | FLIR0095.jpg | C027003 | 5/9/2024 | 15:02 | McCarthy | Gap in preseparator 13                                                        | EPA 7500ppm, HPC 7500ppm     |

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|    |              |         |           |       |          |                                                                            |                                 |
|----|--------------|---------|-----------|-------|----------|----------------------------------------------------------------------------|---------------------------------|
| 59 | FLIR0096.jpg | C027003 | 5/9/2024  | 15:07 | McCarthy | Gap and missing concrete at<br>preseparator 13                             | -                               |
| 60 | FLIR0097.jpg | C027003 | 5/9/2024  | 15:18 | McCarthy | Preseparator 15                                                            | -                               |
| 61 | FLIR0098.jpg | C027003 | 5/9/2024  | 15:19 | McCarthy | Preseparator 15                                                            | -                               |
| 62 | FLIR0099.jpg | C027003 | 5/9/2024  | 15:19 | McCarthy | Preseparator 15                                                            | -                               |
| 63 | FLIR0100.jpg | C027003 | 5/9/2024  | 15:20 | McCarthy | Preseparator 15                                                            | -                               |
| 64 | FLIR0101.mp4 | C027003 | 5/9/2024  | 15:22 | McCarthy | Incidental video                                                           | -                               |
| 65 | FLIR0102.jpg | C027003 | 5/9/2024  | 15:22 | McCarthy | Preseparator 15. Liquid leak.                                              | -                               |
| 66 | FLIR0103.mp4 | C027003 | 5/9/2024  | 15:23 | McCarthy | HC emissions at preseparator<br>15                                         | -                               |
| 67 | FLIR0104.mp4 | C027003 | 5/9/2024  | 15:26 | Loukeris | HC emissions at Temporary Lift<br>Station Assembly                         | EPA 1,100<br>ppm                |
| 68 | FLIR0105.mp4 | C027003 | 5/9/2024  | 15:42 | McCarthy | HC emissions at hole in Pit 1 oil<br>sump.                                 | EPA 15,000<br>ppm               |
| 69 | FLIR0106.jpg | C027003 | 5/9/2024  | 15:44 | McCarthy | Open inlet to Pit 1                                                        | -                               |
| 70 | FLIR0107.jpg | C027003 | 5/9/2024  | 15:46 | McCarthy | Holes throughout Pit 1                                                     | -                               |
| 71 | FLIR0108.jpg | C027003 | 5/9/2024  | 15:51 | McCarthy | Incidental photo                                                           | -                               |
| 72 | FLIR0109.mp4 | C027003 | 5/9/2024  | 15:51 | McCarthy | HC emissions from cracked<br>concrete on corner of Pit 1                   | EPA 2400<br>ppm, HPC<br>2700ppm |
| 73 | FLIR0110.mp4 | C027003 | 5/9/2024  | 16:13 | McCarthy | HC emissions from inlet of Pit 1<br>while active vacuum truck<br>unloading | -                               |
| 74 | FLIR0111.mp4 | C027003 | 5/9/2024  | 16:14 | McCarthy | HC emissions from inlet of Pit 1<br>while active vacuum truck<br>unloading | -                               |
| 75 | FLIR0112.jpg | C027003 | 5/9/2024  | 16:26 | McCarthy | Labeled piping to tanks from<br>Slab 112                                   | -                               |
| 76 | FLIR0113.jpg | C027003 | 5/10/2024 | 9:04  | McCarthy | Tank 1001 roof                                                             | -                               |
| 77 | FLIR0114.jpg | C027003 | 5/10/2024 | 9:22  | Loukeris | Incidental photo                                                           | -                               |
| 78 | FLIR0115.mp4 | C027003 | 5/10/2024 | 9:23  | Loukeris | HC emissions from seal on<br>Tank 907                                      | -                               |
| 79 | FLIR0116.mp4 | C027003 | 5/10/2024 | 10:32 | McCarthy | HC emissions from Tank 1499                                                | -                               |
| 80 | FLIR0117.mp4 | C027003 | 5/10/2024 | 11:26 | Loukeris | HC emissions from Tank 2000                                                | -                               |
| 81 | FLIR0160.jpg | C027001 | 5/7/2024  | 16:00 |          | Roll off boxes at Wash Lab                                                 | -                               |
| 82 | FLIR0161.mp4 | C027001 | 5/8/2024  | 10:18 | Haynes   | Digital video at connector leak                                            | -                               |
| 83 | FLIR0162.jpg | C027001 | 5/8/2024  | 9:19  | Haynes   | Photo of connector leak in<br>CLEU 2                                       | -                               |
| 84 | FLIR0163.jpg | C027001 | 5/8/2024  | 9:43  | Haynes   | Photo of LV204, D-22 sour<br>water to sour water unit                      | -                               |
| 85 | FLIR0165.jpg | C027001 | 5/8/2024  | 14:54 | Haynes   | Photo of crack in cement<br>around drain line at Dock 1                    | -                               |
| 86 | FLIR0166.jpg | C027001 | 5/8/2024  | 15:56 | Haynes   | Photo at LS204                                                             | -                               |
| 87 | FLIR0167.mp4 | C027001 | 5/8/2024  | 16:58 | Haynes   | HC emissions at hole in LS204                                              | EPA<br>15,000ppm                |

**Facility Name:** Exxon Mobil Corporation  
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|    |              |         |          |       |        |                                                                      |                              |
|----|--------------|---------|----------|-------|--------|----------------------------------------------------------------------|------------------------------|
| 88 | FLIR0168.jpg | C027001 | 5/8/2024 | 16:01 | Haynes | Photo at LS203                                                       | -                            |
| 89 | FLIR0169.jpg | C027001 | 5/8/2024 | 16:02 | Haynes | Photo of vapor line on pressure side of PVRV at LS204                | -                            |
| 90 | FLIR0170.jpg | C027001 | 5/8/2024 | 16:03 | Haynes | Photo of PVRV at LS204                                               | -                            |
| 91 | FLIR0171.jpg | C027001 | 5/9/2024 | 9:11  | Haynes | Photo of leaking bolt at vacuum box V250496 from T1032               | EPA 760ppm, HPC 1668ppm      |
| 92 | FLIR0172.jpg | C027001 | 5/9/2024 | 9:32  | Haynes | Photo of air mover used to fill vacuum box                           | -                            |
| 93 | FLIR0173.jpg | C027001 | 5/9/2024 | 9:32  | Haynes | Photo of vapor discharge line from air mover used to fill vacuum box | -                            |
| 94 | FLIR0174.mp4 | C027001 | 5/9/2024 | 14:48 | Haynes | Incidental Video                                                     | -                            |
| 95 | FLIR0175.jpg | C027001 | 5/9/2024 | 14:51 | Haynes | Photo of separator 17 lid for HCU                                    | EPA 30,000ppm, HPC 30,000ppm |
| 96 | FLIR0176.mp4 | C027001 | 5/9/2024 | 16:25 | Haynes | HC emissions from HC sink in lab                                     | EPA 10,000ppm                |
| 97 | FLIR0177.mp4 | C027001 | 5/9/2024 | 16:33 | Haynes | HC emissions from acid station in lab                                | -                            |
| 98 | FLIR0178.jpg | C027001 | 5/9/2024 | 15:56 | Haynes | Incidental Photo                                                     | -                            |
| 99 | FLIR0179.mp4 | C027002 | 5/9/2024 | 16:56 | Haynes | HC emissions from sump lid behind lab                                | EPA 5,000ppm, HPC 5,000ppm   |

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**APPENDIX B: FIELD MEASUREMENT DATA**

| Date     | Area                 | Component                                              | EPA Reading (ppm) | XOM Reading (ppm) | Notes                                      |
|----------|----------------------|--------------------------------------------------------|-------------------|-------------------|--------------------------------------------|
| 5/7/2024 | Near Tank 1032/1033  | Container (V250596) – Bottom of gasket                 | 1,600             | 1,600             | -                                          |
| 5/7/2024 | -                    | Tag: NETF 11 0066                                      | -                 | -                 | Visible liquid (not actively dripping)     |
| 5/7/2024 | -                    | Tag: OM1-4571 (V09028)                                 | 2,900             | 6,392             | Visible liquid                             |
| 5/7/2024 | Gasoline Water Draws | Open-ended closure device on valve behind pump 194-P10 | 14,000            | 37,908            | Oily ring on plug                          |
| 5/7/2024 | Wash Slab            | Rolloff Container (RT-251825)                          | 760               | 580               | Not sealed, contains sludge/oily waste     |
| 5/7/2024 | Wash Slab            | Rolloff Container (RT-251205)                          | 205               | -                 | Tear in tarp cover, exchanger sludge       |
| 5/8/2024 | CLEU#2               | Flare Knock Out Drum – Sample Line                     | -                 | -                 | Stain and liquid droplet on bottom of line |
| 5/8/2024 | LS239                | Access Hatch                                           | 9,000             | >500              | Not bolted                                 |
| 5/8/2024 | LS 265               | North side of cover                                    | 3,400             | >500              | -                                          |
| 5/8/2024 | LS 265               | East side of cover                                     | 750               | >500              | -                                          |
| 5/8/2024 | LS 265               | South side of cover                                    | 3,600             | >500              | 1.5 foot of detectable emission interface  |
| 5/8/2024 | LS 265               | Manhole on top of cover                                | 2,900             | >500              | -                                          |
| 5/8/2024 | LS 265               | South side of cover (Different location than above)    | 1,600             | >500              | -                                          |

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|          |        |                                      |                                |          |                                                               |
|----------|--------|--------------------------------------|--------------------------------|----------|---------------------------------------------------------------|
| 5/8/2024 | LS 265 | West side of cover                   | 2,800                          | >500     | 1.5 foot of detectable emission interface                     |
| 5/8/2024 | CLEU#2 | Tag # 975.1                          | 1,000                          | 1,044    | XOM indicated component is on delay of repair                 |
| 5/8/2024 | LEFU   | Drain under Flare #3 Knockout, D-016 | 47                             | -        | -                                                             |
| 5/8/2024 | LS097  | Hatch                                | 1,700                          | >500     | Hinge to hatch had missing caulk                              |
| 5/8/2024 | LS097  | Drain west of hatch                  | 635                            | >500     | -                                                             |
| 5/8/2024 | LS204  | Sump                                 | 15,100                         | 13,000   | Hole in sump corner                                           |
| 5/8/2024 | LS204  | Hatch (1 side) -                     | 6,000                          | 2,156    | Hole in caulk                                                 |
| 5/8/2024 | LS204  | Hatch (other side)                   | 4,000                          | 3,572    | Hole in caulk                                                 |
| 5/8/2024 | LS076  | Hatch                                | >10,000 (flameout)             | Flameout | At hinge                                                      |
| 5/8/2024 | LS076  | Elevated concrete hatch              | 350                            | -        | Visible cracks in the concrete surrounding the square opening |
| 5/8/2024 | Dock   | 4-spot pit                           | 275<br>1 inch from water level | -        | Wastewater level in pit, open to atmosphere                   |
| 5/9/2024 | LS204  | Cover                                | 15,000                         | >500     | Hole in cover                                                 |
| 5/9/2024 | LS204  | Hatch                                | 6,000                          | >500     | Gap                                                           |
| 5/9/2024 | FCCU3  | Sump 19                              | 550                            | -        | Latch                                                         |
| 5/9/2024 | FCCU3  | P-17, vacuum Breaker                 | 3,400                          | 1,900    | -                                                             |
| 5/9/2024 | FCCU3  | P-17, manhole                        | 1,100                          | 2,403    | Hole in caulk around manhole adjacent to pump                 |

**Facility Name:** Exxon Mobil Corporation  
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|           |              |                              |        |        |                                                         |
|-----------|--------------|------------------------------|--------|--------|---------------------------------------------------------|
| 5/9/2024  | FCCU3        | P-17, manhole                | 22,000 | 11,982 | Different hole in caulk around manhole adjacent to pump |
| 5/9/2024  | FCCU3        | P-17, kick hatch             | 720    | 270    |                                                         |
| 5/9/2024  | Lab          | Post 4                       | 10,100 |        | Hydrocarbon 4                                           |
| 5/9/2024  | Lab          | Distillation Post            | 90,100 | -      | -                                                       |
| 5/9/2024  | Lab          | Manual                       | 2,700  | -      | -                                                       |
| 5/9/2024  | Lab          | Ash Post                     | 7,700  | -      | -                                                       |
| 5/9/2024  | Lab          | Acid Post                    | 19,000 | -      | -                                                       |
| 5/9/2024  | Lab          | Sump                         | 5,000  | 6,200  | Lid                                                     |
| 5/9/2024  | ECC          | Between P2 and P3            | 15,000 | 18,000 | Separator 13/14                                         |
| 5/9/2024  | ECC          | Between P3 and P4            | 20,000 | 20,000 | Separator 13/14                                         |
| 5/9/2024  | ECC          | Separator 13                 | 7,500  | 7,500  | Gap/opening to atmosphere                               |
| 5/9/2024  | ECC          | Separator 15                 | 1,700  | 1,500  | Gap/opening to atmosphere                               |
| 5/9/2024  | ECC          | Separator 14                 | 3,000  | >500   | Gap/opening to atmosphere                               |
| 5/9/2024  | ECC          | Pit 1                        | 15,000 | -      | Hole in sump cover on slab                              |
| 5/9/2024  | ECC          | Pit 1                        | 8,500  | -      | Grated opening hole                                     |
| 5/9/2024  | ECC          | Pit 1                        | 2,400  | 2,700  | Crack in concrete                                       |
| 5/9/2024  | ECC          | Pit 1                        | 1,400  | -      | Side Wall                                               |
| 5/9/2024  | ECC          | Pit 1, fill hose (N)         | 1,100  | -      | -                                                       |
| 5/9/2024  | ECC          | Pit 1, fill hose (S)         | 1,050  | -      | -                                                       |
| 5/9/2024  | Hydrocracker | Separator 17 Cover           | 30,000 | 30,000 | -                                                       |
| 5/10/2024 | ECC          | Door to Barscreen House # 14 | 1,700  | 1,850  | -                                                       |
| 5/10/2024 | BTCP         | 12167                        | 11,000 | 8,000  | Suction line from 3053 TWD Pump# 91B                    |

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**Date of Inspection:** May 6-10, 2024

**APPENDIX C: METHOD 21 CALIBRATION DATA**

**Cylinder Information:**

Zero Air: Green Light Safety  
Lot# 269794  
Expiration Date: 09/2025

500 ppm Methane: Green Light Safety  
Lot# 304-402311271-1  
Expiration Date: 12/23/2025

2,000 ppm Methane: Gasco  
Lot# 304-402415357-1  
Expiration Date: 04/20/2026

10,000 ppm Methane: Green Light Safety  
Lot# 304-402244727-1  
Expiration Date: 10/04/2025

**Daily Calibration:**

|                       |            |            |        |
|-----------------------|------------|------------|--------|
| May 7, 2025, 8:25 am  | B39303     | B39302     | -      |
| 500 ppm               | 476        |            | -      |
| 2,000 ppm             | 1,931      | 1,990      | -      |
| 10,000 ppm            | 9,844      | 10,100     | -      |
| May 8, 2025, 9:05 am  | B39303     | B39302     | -      |
| 500 ppm               | 477        | 513        | -      |
| 2,000 ppm             | 1,908      | 2,020      | -      |
| 10,000 ppm            | 10,100     | 10,300     | -      |
| May 9, 2025, 8:55 am  | B39303     | B39302     | E04884 |
| 500 ppm               | 502        | 497        | 505    |
| 2,000 ppm             | 1,942      | 2,012      | 1,997  |
| 10,000 ppm            | 9,932      | 10,000     | 10,000 |
| May 9, 2025, 6:40 pm  | Bump Check | For B39303 |        |
| 500 ppm               | 570        | -          | -      |
| 2,000 ppm             | 2,200      | -          | -      |
| 10,000 ppm            | 11,300     | -          | -      |
| May 10, 2025, 8:00 am | B39303     | E04884     | -      |
| 500 ppm               | 499        | 504        | -      |
| 2,000 ppm             | 1,975      | 1,987      | -      |
| 10,000 ppm            | 9,804      | 10,400     | -      |

**Facility Name:** Exxon Mobil Corporation  
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**Date of Inspection:** May 6-10, 2024

**APPENDIX D: SUBPART QQQ OBSERVATIONS**

| Date     | Unit  | Component                                             | Observation                                                  |
|----------|-------|-------------------------------------------------------|--------------------------------------------------------------|
| 5/9/2024 | DCU   | 619 A                                                 | No water seal                                                |
| 5/9/2024 | DCU   | 618A                                                  | Oily water                                                   |
| 5/9/2024 | DCU   | Drain by IP008 circuit breaker                        | No water seal                                                |
| 5/9/2024 | DCU   | Manhole (MH 3P27)                                     | Over half covered in black tarry material                    |
| 5/9/2024 | DCU   | Manhole (MHCB 3P25)                                   | Missing caulk                                                |
| 5/9/2024 | DCU   | SC962                                                 | Solidified material in drain                                 |
| 5/9/2024 | DCU   | SC 961                                                | No water seal                                                |
| 5/9/2024 | DCU   | Manhole left of E617                                  | Partially covered by rocks                                   |
| 5/9/2024 | DCU   | Manhole right of E617                                 | Partially covered by rocks                                   |
| 5/9/2024 | DCU   | Manhole located at north side of unit, east of deluge | Debris covering good portion of manhole                      |
| 5/9/2024 | DCU   | Southwest of manhole (MHCB 3P17)                      | Tarry material covering manhole                              |
| 5/9/2024 | DCU   | Manhole (MHCB 3P16)                                   | Missing caulk                                                |
| 5/9/2024 | DCU   | Manhole (MHCB 3P15)                                   | Missing caulk                                                |
| 5/9/2024 | DCU   | Manhole (MHCB 3P05)                                   | Debris covering good portion of manhole                      |
| 5/9/2024 | DCU   | Manhole by 644B                                       | Partially under water                                        |
| 5/9/2024 | DCU   | Manhole by crane/outer road                           | Cone in manhole sample opening, open to atmosphere (250 ppm) |
| 5/9/2024 | SCU-2 | OWS 2                                                 | No water seal                                                |
| 5/9/2024 | SCU-2 | OWS 10                                                | No water seal (10 inches)                                    |