



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Shell Oil Products and Shell Chemical, Norco, Louisiana

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

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

TO: File

BASIC INFORMATION

Facility Name: Shell Oil Products US Norco Refinery (Shell or Shell Refinery)
Shell Chemical LP Norco West Plant (Shell or Shell Chemical)
Shell Chemical LP Norco East Plant (Shell or Shell Chemical)

Facility Location: 15536 River Rd, Norco, LA 70079

Date of Inspection: March 27-31, 2023

EPA Inspector(s):

1. Constantinos Loukeris, Environmental Engineer
2. Jason Schenandoah, Environmental Engineer
3. James Haynes, Physical Scientist
4. Ben Rosenthal, Physical Scientist
5. Bailey Brown, Physical Scientist
6. Prince Nfodzo, Environmental Engineer

Other Attendees:

1. Patrick Foley, EPA HQ
2. Jodi Holewka, Inspector, Louisiana DEQ
3. Renee Toups, Shell
4. Laura Sabolyk, Shell
5. Janaa Bourier, Shell
6. Martin Padilla, Shell
7. Jacob Foy, Shell
8. Rusty Bayham, Shell
9. Paul Rome, Shell

10. Daniel Nelson, Shell
11. Ryan Hymel, Shell
12. John Hurst, Shell
13. Steve Dominguez, Shell
14. Brandon Michel, Shell
15. Shannon Richardson, Shell
16. Drew Landry, Shell
17. Derrick Adams, Shell
18. Marybel Loya, Shell
19. Shelita Williams, Shell
20. Fred King, Shell
21. Roy Kliebert, Shell
22. Jason Lowry, Shell
23. Danny Blak, Shell
24. Steven Dune, Shell

Contact Email Address: Laura.Sabolyk@shell.com

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

Facility Type: Petroleum Refinery and Chemical Plant

Regulations Central to Inspection: Refinery wastewater subject to the New Source Performance Standards 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)

Arrival Time: March 27, 2023, 8:45 am

Departure Time: March 31, 2023, 10:40 am

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☒ Provided CBI warning to facility

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

Process Description:

Shell stated that the site operates under 3 separate permits (identified as "AIs" by the Louisiana Department of Environmental Quality). The facility is split into two areas referred to as the East and West plants. The East Plant is where the refinery and chemical plant, which are interconnected, are located. The West Plant is primarily the wastewater treatment plant. The chemical plant consists of three olefins units that process ethylene, propylene, and butadiene, respectively. The refinery has a crude capacity of 250,000 barrels per day. The entire facility has a total of nine flares, consisting of seven elevated flares and two ground flares. Shell provided an overview of the East Plant sour water flow and a Subpart FF compliance diagram. Shell does not control any of its American Petroleum Institute oil-water separators (APIs) or corrugate plate interceptors (CPIs) under Subpart FF. The CPIs located at the olefins process units are controlled under Subpart FF. Any oil that is collected from the APIs, CPIs, or any dissolved nitrogen flotation tanks is sent to the slop oil system. Recently, Shell constructed temporary benzene strippers downstream of tank, XC-7005, which had been put into service a week prior to EPA's inspection but were not operating at the time of the inspection due to operational issues. Shell also manages waste streams that contains benzene from a few of the neighboring facilities, Dow Chemical and W.R. Grace.

Staff Interview: On March 28, 2023, EPA had a brief interview with Ms. Janaa Bourier regarding her oversight of Shell's Subpart QQQ program. Ms. Bourier has been responsible for Shell's Subpart QQQ program for approximately three years. Shell indicated that operators conduct the visual inspection of the Subpart QQQ program through a software named Intelatrac. Ms. Bourier indicated that Shell has initiated a process to complete a waste stream re-inventory. From Ms. Bourier's knowledge, Shell has only maintained two years of records for Subpart QQQ, as the previous records did not get transferred from the individual who moved on from this role. EPA requested Subpart QQQ sewer diagrams and Ms. Bourier indicated that she did not have access to them and was unaware if they existed. Finally, Ms. Bourier indicated that Richard Hagland was the previous Shell personnel to maintain the Subpart QQQ program.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

- Shell indicated to EPA that it considers some vacuum trucks uncontrolled and some controlled for the purposes of Subpart FF compliance.
- Shell operates an equipment cleaning operation (VAT), that removes any residual material and has several washing stages. Shell continuously runs firewater into the initial sump of the VAT and also uses vacuum trucks to skim off any oil that remains in the sump. Shell does not account for any residual process material that exists on the equipment brought over for cleanout on its total annual benzene report (TAB).
- Shell indicated that prior to 2021, the three inlet pipes into the bio treaters were not submerged fill and were filling at least two inches above the surface. As of 2021, Shell modified the lines to submerge fill at three feet below the surface of the bio treaters.
- EPA measured Method 21 emissions from the breather vents of internal floating roof tank T-251, ranging from 155-220 ppm from five of the breather vents.

- EPA measured Method 21 emissions from the breather vents of external floating roof tank XC-429, ranging from 95-445 ppm from ten spots spread out across the openings of the roof.
- Shell indicated fixed roof tank T-409 has been in a “bypass mode” since June 2022 and material remains in the tank. EPA observed severe pitting across the entire fixed roof, as well as areas of cracks/openings with detectable emissions above 500 ppm. Shell operators indicated that the fixed roof of the tank is not inspected visually.
- At the Gasoline Blending area, Shell personnel indicated that there is not a water flush used after samples are drained into the waste sink for the area. In addition, EPA observed cracks/gaps on the sump cover as well as on the concrete portion of the surface impoundment.
- The uncovered API located in G01 South had water nozzles above the tank, and visible steam was evaporating from the liquid surface of the open API. For purposes of end-of-line sampling, Shell only measured the benzene in the wastewater split stream that comes out of the API effluent.
- Shell operate tank, XC-7000 as open to atmosphere and receives oily-water from the sump in the RCCU. Drains, DP7907 and DP7134, send waste to the oily-water sump and operate without a water seal.
- Shell indicated that tank, XC 7006, was worked on and redone in calendar year 2020.
- Shell operators indicated that they drain the slop header, cold and hot service, 1-2 times per day from PV1620 and PV1621 using a pump.
- EPA made the following Subpart QQQ observations:
 - The DEA and Drip and Drab Sumps were not caulked/sealed;
 - At the spent sulfide sump, the cover was warped, caulk was missing, and there were cracks in the existing caulk;
 - The spent cresylic caustic sump had nine bolts missing as well as caulk missing on the sump cover;
 - In the RCCU process unit, the lab sump had caulk that was peeled off and the inner seal was worn and missing in some places;
 - In the HCU unit, EPA identified six drains with oil and no water seal, one dry drain, and seven drain hubs that were not capped or were without a water seal; and
 - In the S3-sulfur unit, Shell has hard piped streams through tanks to manage the refinery wastewater. However, all of the pump drain hubs in the S3 sulfur-unit, as well as all of the pump drain hubs in the RCCU unit, which receive pump seal leaks and maintenance refinery wastewater are not designed with a water seal and are sent to an uncovered oil-water separator in the RCCU process unit.

Photos and/or Videos: were taken during the inspection.

EPA imaged hydrocarbon emissions using a FLIR optical gas imaging camera, Model GF-320. In addition, this camera was also used to take digital pictures and videos. See Appendix 1 for the summary of the videos and pictures taken.

Field Measurements: were taken during this inspection.

EPA conducted Method 21 monitoring and testing using Thermo Scientific’s Toxic Vapor Analyzers, Model 2020, equipped with a flame ionization detector. See Appendix

2 for the summary of the monitoring and testing. EPA also collected six summa canisters that were analyzed per Method TO-15.

CLOSING CONFERENCE

- ☒ Provided EPA point of contact to the facility

Requested documents:

1. 2018-2022 Subpart FF quarterly reports
2. 2018 – 2022 TAB reports
3. NESHAP FF visual inspections
4. 2018-2022 Subpart QQQ quarterly reports
5. Subpart QQQ visual inspections
6. LeakDAS backup files
7. SOPs for all control equipment
8. Documentation of training on SOPs
9. Engineering design documents for all waste management units
10. Waste stream inventory annual changes
11. 2018-2022 quarterly end of line sampling
12. End of line Drawing and sampling plan
13. Last API inspection and seal gap measurements for all BWON IFR and EFR tanks
14. Last 5 years incoming Benzene reports from Dow Chemical? and W.R. Grace
15. 1 month log of vacuum trucks for January 2023
16. Shell's BWON Manual
17. Shell's QQQ Applicability Manual
18. Last two years of QQQ leak spreadsheet analysis
19. Training for QQQ – Frequency and training content
20. Title V permit
21. 3/27/2023 Vac Truck log including entries for approximately 1 pm
22. Crude intake properties from 2015 through present
23. Fresh Air Policy and list of tanks currently under this policy
24. 5 years of QQQ - Tracking Spreadsheet
25. QQQ Sewer Drawings that identify each individual drain system, drain, junction box, and oil-water separator that is subject to QQQ
26. Complete vacuum truck example for the VAT displayed during discussion
27. Environmental contact at the NORF
28. All schematics referenced in the Section 5 of the Shell Refinery BWON manual

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

Subpart QQQ

1. Shell has not maintained records clearly identifying equipment subject to Subpart QQQ.

2. Shell has not properly conducted visual inspection of all equipment in each individual drain system. The visual inspection forms that have been used do not specifically identify which equipment is to be inspected and/or what they are to be inspected for.
3. Shell has improperly classified drain hubs and oil-water separators exempt from the individual drain system requirements of Subpart QQQ for not receiving refinery wastewater; however, Shell sends refinery maintenance wastewater, in-process pump seal leaks, and other similar drips and drabs to the drain hubs without covers or water seals, as well as to uncovered oil-water separators.
4. Shell does not maintain the covers without visual defects (e.g., EPA observed cracks/gaps and peeled off caulk and in some instances missing seals/bolts).
5. Shell had several missing covers, dry drains, and oil in various drain hubs in its newest affected unit, HCU.
6. Shell may have issues with the design of its underground individual drain system based on EPA's observation of emissions from cracks in the concrete that convey the hard pipes to tanks.
7. Shell owns open top tank, T-252, that receives benzene wastewater from Dow and W.R. Grace, and is then routed to the bio treaters.

Subpart FF

8. Shell has not maintained its Subpart FF manual updated to the current implementation strategy.
9. Shell has not designed and operated all of its waste management units controlled for Subpart FF, including the following units: GO1 South API; XC-7005; XC-429; XC-7006; XC-409; T-251; T-252; and Gasoline Blending lab sink and sump.
10. Shell has not conducted no detectable emissions (NDE) testing on any waste management unit subject to Subpart FF for at least the past two years.
11. Shell may not be meeting the 6 Megagram (6 BQ) compliance option based on several of the waste management units identified as controlled by Shell that were not controlled and had not been designed to be controlled. In addition, by not conducting NDE monitoring on all Subpart FF waste management unit, Shell should have included these waste streams as uncontrolled as they enter into each of the waste management units.
12. Shell has not identified all points of generation.
13. Shell has not designed and operated the hatch on W-415 to NDE.
14. Shell should not be using the enhanced biodegradation unit exception of less than 10 ppm benzene that is allowed under the 6 BQ compliance option, since all waste management units upstream were not tested, designed and operated to NDE (e.g., the lack of submerged fill for the individual drain system into the bio treater prior to 2021).

DIGITAL SIGNATURES

Report Author: _____

Section Supervisor: _____

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APPENDIX A: DIGITAL IMAGE/VIDEO LOG

1. Inspector Names: James Haynes and Ben Rosenthal	2. Archival Record Location: <i>C:\Users\cloukeri\OneDrive - Environmental Protection Agency (EPA)\Shell Norco Refining (R5 Lead)</i>
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Image Number	File Name	Date	Image Description
1	R0010065.JPG	03/27/2023	Overview of VAT sump
2	R0010066.JPG	03/27/2023	Vacuum truck removing liquids from VAT sump (going to NORF)
3	R0010067.JPG	03/27/2023	Vacuum truck removing liquids from VAT sump (going to NORF)
4	R0010068.JPG	03/27/2023	Oil layer at uncovered PPI in DU-5
5	R0010069.JPG	03/27/2023	Inlet at uncovered PPI in DU-5
6	R0010070.JPG	03/27/2023	Overview of uncovered PPI in DU-5
7	R0010071.JPG	03/27/2023	Drain hub at crude sample line in DU-5
8	R0010072.JPG	03/27/2023	Drain hub at desalter sample line in DU-5
9	R0010073.JPG	03/27/2023	Desalter sump in DU-5
10	R0010074.JPG	03/27/2023	Back of Tag # BWN 1168 in Berth 1
11	R0010075.JPG	03/27/2023	Dock sump in Berth 1
12	R0010076.JPG	03/27/2023	Overview of dock sump in Berth 1
13	R0010077.JPG	03/27/2023	Drain line near 1B loading arm in Berth 1
14	R0010078.JPG	03/27/2023	Overview of drain line near 1B loading arm in Berth 1
15	R0010079.JPG	03/27/2023	Main manifold drain in Berth 1
16	R0010080.JPG	03/27/2023	Main manifold drain in Berth 1
17	R0010081.JPG	03/27/2023	Front angle of W428 sump in Berth 2
18	R0010082.JPG	03/27/2023	Front angle of W428 sump in Berth 2
19	R0010083.JPG	03/27/2023	Back of W428 sump in Berth 2
20	R0010084.JPG	03/27/2023	Drain line near F loading arm in Berth 2

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21	R0010085.JPG	03/28/2023	Storm hub/catch basin in GO-1 North/OP-1
22	R0010086.JPG	03/28/2023	Open hatch at sump in caustic area in GO-1 North/OP-1
23	R0010087.JPG	03/28/2023	Pump (DP-5761) in caustic area in GO-1 North/OP-1
24	R0010088.JPG	03/28/2023	Drain behind DP-5761
25	R0010089.JPG	03/28/2023	Incidental Photo
26	R0010090.JPG	03/28/2023	Pump (DP-5765A) in caustic area in GO-1 North/OP-1
27	R0010091.JPG	03/28/2023	Drain behind DP-5765A
28	R0010092.JPG	03/28/2023	Pump (DP-5765B) in caustic area in GO-1 North/OP-1
29	R0010093.JPG	03/28/2023	Drain behind DP-5765B
30	R0010094.JPG	03/28/2023	BFW Pump (P3365) to E1816 from PV1563
31	R0010095.JPG	03/28/2023	Drain and sample system behind P3365
32	R0010096.JPG	03/29/2023	Inlet to API basin in West Plant
33	R0010097.JPG	03/29/2023	Overview of API basin in West Plant
34	R0010098.JPG	03/29/2023	Far-side of inlet to biotreatment tank T352 in West Plant
35	R0010099.JPG	03/29/2023	Near-side of weir system to biotreatment tank T352 in West Plant
36	R0010100.JPG	03/29/2023	Tank vent and canister grab at tank T-251 in West Plant
37	R0010101.JPG	03/29/2023	Hatch (Tag # BWN 0039) on XC409
38	R0010102.JPG	03/29/2023	Level gauge (Tag # BWN 0035) on XC409
39	R0010103.JPG	03/29/2023	Rust and pitting on XC409
40	R0010104.JPG	03/29/2023	Rust and pitting on XC409
41	R0010105.JPG	03/29/2023	Rust and pitting on XC409
42	R0010106.JPG	03/29/2023	Rust and pitting on XC409
43	R0010107.JPG	03/29/2023	Overview of closed vent system piping on XC409

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44	R0010108.JPG	03/29/2023	Pressure gauge on piping of closed vent system on XC409
45	R0010109.JPG	03/29/2023	Holes in fixed roof of XC7005
46	R0010110.JPG	03/29/2023	Vapor combustion system controlling vent stream for new air strippers
47	R0010111.JPG	03/29/2023	Front of new air stripper unit
48	R0010112.JPG	03/29/2023	Back of new air stripper unit
49	R0010113.JPG	03/29/2023	Tank vent and canister grab at tank XC429
50	R0010114.JPG	03/30/2023	Drain hub and canister sample at desalter sample line in DU-5
51	R0010115.JPG	03/30/2023	Drain hub and canister sample at crude/naphtha sample line in DU-5; shows naphtha signage.
52	R0010116.JPG	03/30/2023	Drain hub and canister sample at crude/naphtha sample line in DU-5; shows crude signage.
53	R0010117.JPG	03/30/2023	Hydrocarbon sump behind building at motor lab
54	R0010118.JPG	03/30/2023	Hydrocarbon sump behind building at motor lab
55	R0010119.JPG	03/30/2023	Hydrocarbon sump behind building at motor lab
56	R0010120.JPG	03/30/2023	Hydrocarbon sump behind building at motor lab
57	R0010121.JPG	03/30/2023	Drain line of N19-2 going below concrete surface in S3
58	R0010122.JPG	03/30/2023	Cracked sealant material over buried sewer lines in S3
59	R0010123.JPG	03/30/2023	Access plate over buried sewer lines in S3
60	R0010124.JPG	03/30/2023	Cracked hatch at P7300 DEA sump
61	R0010125.JPG	03/30/2023	Warped cover, rust, and gaps at P7404 sulfidic sump
62	R0010126.JPG	03/30/2023	Additional view of P7404 sulfidic sump
63	R0010127.JPG	03/30/2023	Additional view of P7404 sulfidic sump
64	R0010128.JPG	03/30/2023	Additional view of P7404 sulfidic sump
65	R0010129.JPG	03/30/2023	Additional view of P7300 DEA sump
66	R0010130.JPG	03/30/2023	Additional view of P7300 DEA sump

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67	R0010131.JPG	03/30/2023	Additional view of P7300 DEA sump
68	R0010132.JPG	03/30/2023	View of spent cresylic caustic sump
69	R0010133.JPG	03/30/2023	Cracked hatch on spent cresylic caustic sump
70	R0010134.JPG	03/30/2023	Additional view of spent cresylic caustic sump
71	R0010135.JPG	03/30/2023	Additional view of spent cresylic caustic sump
72	R0010136.JPG	03/30/2023	LT5911 lab pit sump
73	R0010137.JPG	03/30/2023	Additional view of LT5911 sump
74	R0010138.JPG	03/30/2023	View of P4255 chemical lift station in HCU
75	R0010139.JPG	03/30/2023	Additional view of P4255 chemical lift station in HCU
76	R0010140.JPG	03/30/2023	Drain behind pump (P4264) in HCU
77	R0010141.JPG	03/30/2023	Additional view of drain behind P4264 in HCU
78	R0010142.JPG	03/30/2023	Drain behind pump (P4265) in HCU
79	R0010143.JPG	03/30/2023	Drain behind pump (P4266) in HCU
80	R0010144.JPG	03/30/2023	Drain behind pump (P4267) in HCU
81	R0010145.JPG	03/30/2023	Drain behind pump (P4259) in HCU
82	R0010146.JPG	03/30/2023	Drain behind pump (P4258) in HCU
83	R0010147.JPG	03/30/2023	Drain behind pump (P4261) in HCU
84	R0010148.JPG	03/30/2023	Drain behind pump (P4260) in HCU
85	R0010149.JPG	03/30/2023	Drain near exchanger (X4260) in HCU
86	R0010150.JPG	03/30/2023	Canister grab at P4255 chemical lift station in HCU
87	MOV_0202	3/27/2023	HC emissions from open Drain Funnel located in DU-5 adjacent to FCV-226.
88	MOV_0203	3/27/2023	HC emissions from P-2801 and P-2802 sump
89	MOV_0204	3/27/2023	HC emissions from P-2801 and P-2802 sump
90	MOV_0207	3/27/2023	HC emissions from uncapped line in piping manifold associated to components W-427 and RN-61444.
91	MOV_0209	3/27/2023	HC emissions from uncapped line in piping manifold associated to components W-427 and RN-61444.
92	MOV_0210	3/27/2023	HC emissions from open drain on deck of dock.

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93	MOV_0211	3/29/2023	HC emissions from vent on NW side of IFR tank 409.
94	MOV_0212	3/29/2023	HC emissions from vent on N side of IFR tank 409.
95	MOV_0213	3/29/2023	HC emissions from vent on N side of IFR tank 409. Opposite angle of MOV 0212.
96	MOV_0215	3/29/2023	HC emissions from gauge hatch on tank XC-409.
97	MOV_0216	3/29/2023	HC emissions from gauge hatch on tank XC-409.
98	MOV_0217	3/29/2023	HC emissions from gooseneck on tank XC-409
99	MOV_0219	3/29/2023	HC emissions from gauge hatch on tank XC-409.
100	MOV_0220	3/29/2023	HC emissions from foam line and vents on F-427.
101	MOV_0221	3/29/2023	HC emissions from foam line and vents on F-427.
102	MOV_0222	3/29/2023	HC emissions from triple vent on tank F-427. Opposite angle of MOV 220 & MOV 221.
103	MOV_0225	3/29/2023	Discolored patch on roof surface of tank F-427. TVA reading 730.
104	MOV_0227	3/29/2023	HC emissions from conservation vent/vacuum breaker vent on tank, XC-430.
105	MOV_0228	3/29/2023	HC emissions and significant odor from 'guide pole' on tank XC-7006 (EFR).
106	MOV_0229	3/29/2023	HC emissions from roof vent on tank XC-439.
107	MOV_0230	3/29/2023	HC emissions from roof vent on tank XC-439.
108	MOV_0231	3/29/2023	HC emissions from roof vent on tank XC-439.
109	MOV_0232	3/29/2023	HC emissions from gooseneck on tank F-425. Kerosene tank.
110	MOV_0233	3/30/2023	Hatch on the roof of tank W-415. TVA reading above 9,700 ppm.
111	MOV_0234	3/30/2023	HC emissions from open Drain Funnel located in DU-5 adjacent to FCV-226.
112	MOV_0235	3/30/2023	HC emissions from drain in sink at the motor lab labeled "Hydrocarbon and Sour Water".
113	MOV_0236	3/30/2023	HC emissions from gasoline sump or surface impoundment by the motor lab. Tags on associated equipment: BWN 1178, BWN 1179, BWN 1180.

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APPENDIX B: FIELD MEASUREMENT DATA

The table below summarizes the field measurements by EPA conducting Method 21 with a Thermo Scientific Toxic Vapor Analyzer, Model 2020, and when available confirmed by Shell. *Where Shell did not have an instrument available to confirm, EPA confirmed with a 2nd instrument.*

Component ID	Equipment Type	EPA's Reading (ppm)	Shell's Reading (ppm)*	Additional Notes
VAT	Open grated walkway – about 3-4 feet above liquid surface	78	-	-
VAT - Vacuum truck (Plate# LAC380574)	Carbon outlet	265	421	-
DU-5 CPI	Open oil sump to W-415	2,961	170	-
DU-5 PP1	Drain Hub	7,600	6,542	Oil/debris present
DU-5 Trilines	Drain Hub	16,000	11,000	Oil present
DU-5	Cleanout Funnel	850	760	Liquid present
DU-5 Desalter	Sump	905	760	6-inch opening in sump, no seal
W-427 (Berth 1)	RM124688	11,000	6,068	Vent to atmosphere
Berth 1/1A	Manifold Drain	70,000		5 drains in total open to atmosphere
Berth 1/1A	Left of RM 124688	98,000	72,000	-
W-428	Cover	2,000	1,389	-
D419	Hatch	812	796	-
GO1 South (P3365)	Drain Hub	545	558	-
GO1 South (P3366)	Drain Hub	495	-	-
T-409 (BWN 0039)	Fixed Roof	>10,000	5,763	Severe pitting, cracks/gaps
T-409 (BWN 0035)	Fixed Roof	1,200		6-inch flare line
T-409 (near BWN 0033)	Fixed Roof	>50,000 (flameout)	>50,000 (flameout)	Severe pitting, cracks/gaps

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XC7005	Fixed Roof portion of IFR tank	1,000	-	3 feet by 2-inch opening on fixed roof
XC7005	Hatches – 2 of them	750	-	Hatches not seated properly
W-415 (DU5)	Hatch	9,700	19,092	Left of ladder
DU-5 Desalter Oil	Drain Hub	3,000		
DU-5 Naptha Funnel	Drain Hub	12,000	12,156	-
Gasoline Blending	Waste Sink	80,000 (flameout)	70,000 (flameout)	-
Gasoline Blending	Sump Cover	10,100	7,188	-
Gasoline Blending	Sump PV/VB	7,000	7,663 (flameout)	-
Gasoline Blending	Concrete portion of Sump	120	-	From cracks in the concrete
RCCU	Lab sump cover	760	-	
P4255 (HCU)	Sump cover	895	-	Not sealed