



IE Enforcement and Control
Environmental Protection Agency
Inniscarra
Co. Cork
P31 VX59
IRELAND

Irving Oil Whitegate Refinery (IOW)
Whitegate
Midleton
County Cork
P25 HD93
IRELAND

28 October 2022

RE: IE Licence P0266-03 Quarterly Report – Q3

Dear Mr Copage,

Please find attached the Quarterly Report on environmental performance for **01 July 2022 to 31 Oct 2022 (Q3)**

IE licence P0266-03 Performance Summary	
Number of non-compliances in the Quarter	1
Number of incidents in the Quarter	1
Number of attributable complaints received in the Quarter	1

VOC Permit V0001-08 Performance Summary	
Number of non-compliances in the Quarter	0

GHG Permit IE-GHG013-10343 Performance Summary	
Number of non-compliances in the Quarter	0

In Q3, IOW had the following EPA site visits.

- There were 0 EPA Site visits in Q3, 2022

In Q3, 2022 the following air emission points were sampled as per Schedule B of the IE license:

- A2-4, A2-5, A2-6, A2-7, A2-8, A2-12 & A2-13.
- Emissions monitoring for Q3 was also completed at the site's road-loading facility's vapour recovery unit (VRU) as per Schedule B.1.4.b of P0266-03.

Part 1 of this report contains the following:

- 1.1** Non-Compliances
- 1.2** Environmental Incidents
- 1.3** Environmental Complaints Register
- 1.4** Emissions to Atmosphere
 - 1.4.1** Sulphur Dioxide emissions
 - 1.4.2** Oxides of Nitrogen emissions
 - 1.4.3** Ambient Air Monitoring
 - 1.4.4** Flare Operation
 - 1.4.5** Releases to Atmosphere from Potential Emission Points
- 1.5** Amine Sulphuric Acid Plant Operation
Note: SO₂ emissions from ASA plant are included in the SO₂ summary pag

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Part 2 of the report contains:

- 2.1** Emissions to Water:
 - 2.1.1** Refinery Effluent monitoring
 - 2.1.2** Surface Water monitoring

Prepared By: *Kieran Murphy*

Date: 28th Oct 2022

Environmental Lead,
Irving Oil Whitegate Refinery

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Part 1

1.1 Non-Compliances

There were 1 non-compliances received on IE licence P0266-03 in Q3, 2022. Details of the non-compliances are as follows;

- 1.1.1 **NC024980** *Failure to provide/install infrastructure*
Incident Date (s): 03rd May 2022
Date NC issued by EPA: 06th Sep 2022

NC Agency Description:

The ASA plant was shutdown on site for the period 18/04/2022 - 26/05/2022 inclusive. This is non-compliant with Condition 5.6 of the licence.

IOW Investigation Summary

The ASA plant comprises multiple individual components and elements, many of which are classified as pressure systems / pressure equipment under Part 10 of the Safety, Health and Welfare at Work (General Application) Regulations (as amended by SI 445 of 2012). The Regulations place an obligation on an employer (IOW) to inspect and maintain pressure systems and pressure equipment, and for the ASA plant (and other pressure systems and equipment at the refinery) IOW implement API 510 Pressure Vessel Inspection Code: In-service inspection, rating, repair and alteration to fulfil its statutory obligations. Clause 9.3.5.3 of API 510 sets out the inspection intervals for different classifications of pressure vessel; for equipment designated as 'high risk', API 510 requires an inspection frequency of at least every 10-years. The IOW inspection and maintenance plan for the ASA plant identified each of the items of pressure equipment requiring inspection, including reactor vessels, drums, condensers, and heat exchangers. It had been anticipated that the ASA plant would be off-line for 5 weeks to allow these inspections to take place. The ASA Unit was taken off-line on the 18th April 2022 and returned to operation on the 26th May 2022 a total of 39 days. This is just 4 days beyond the original 5-week schedule which was attributable to emergent work that arose as a result of the inspection.

The ASA Statutory Inspection was a significant achievement by the refinery whereby the unit was safely shutdown, cleaned/decontaminated, inspected, repaired (as required) and brought back on-line without a safety or environmental incident. In addition, significant preventative maintenance was performed which will assure the safe and reliable operation of the unit going forward.

Condition 5.6 of the licence states that the scheduled downtime for the ASA plant shall not exceed two weeks duration in any two-year calendar period. At the time of the licence review in 2011 to accommodate the installation of the ASA plant to replace the (former) sulphur recovery unit (SRU), the refinery advised the EPA that, as with any item of plant and equipment, the ASA plant would require inspection and maintenance and that the typical frequency of this inspection and maintenance programme was two weeks every two years.

While Condition 5.6 of the licence places a specific downtime constraint on the ASA plant, IOW considers that this part of the condition is inconsistent with other conditions in the licence particularly the obligations to maintain safe work equipment and a safe workplace. For instance, Condition 2.2.2.14 of the licence sets out the requirements regarding maintenance of the refinery, specifically that IOW shall maintain and implement a programme for maintenance of all plant and equipment based on the instruction issued by the manufacturer / supplier or installer of the equipment. In addition, Condition 1.5 requires that IOW control, operate, and maintain the installation, and Condition 2.2.2.5 requires us to maintain and implement standard operating procedures.

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Having completed the current inspection programme, IOW may address the constraints as currently imposed by the current licence. This would consist of applying to the EPA for a licence amendment to regularise Condition 5.6. Alternatively IOW may align the statutory inspection of the ASA plant with the 5 yearly turnaround cycle.

Status

Final ASA Outage Report closed by the Agency on the 02 August 2022

1.2 Environmental Incidents

There were 1 incident reported in Q3:

1.2.1 **INCI023795** *Odour*
Incident Date (s): 25th Aug 2022

Details

At 18:15 on Thursday the 25th August 2022, a resident of Whitegate Village reported an unpleasant odour at his residence. The complainant requested to know whether the refinery was engaged in any activity that could cause this issue. The Shift Manager (SM) informed the complainant that he would immediately investigate. The shift Manager immediately performed an odour survey at various locations within the site and offsite and in the vicinity of Whitegate School and Village. The SM did not note any odour at the time of the survey (approx 18:30 to 19:00). The SM contacted the complainant to inform him of same. The complainant who was not at home at the time of this follow up call indicated that he would check for himself once home. He indicated that he would call the refinery if there still was an odour. No call was received by the refinery indicating that any odour that had been present had dissipated.

Root Cause

On Friday morning 26th August 2022, a review of activities at the refinery was conducted by both the environmental and process teams.

- It was noted as part of the review that there was a trip of the ASA combustor unit at approximately 17:15 on the 25th August. This was resolved approximately 32 minutes later at which point the unit returned to normal operation.
- During the short outage while the ASA combustor unit was not in operation, increased gases were diverted to flare.
- This material was not accompanied by the required volume of 'purge gas' to ensure full combustion at the flare thus creating the potential for an unpleasant odour.
- The investigation revealed that there was a light south-westerly wind at the time of the combustor trip which is in the direction of the Village relative to the refinery.
- It was therefore concluded that, while there were no odours detected during the SM survey, it is likely that there was a short window during and immediately after the combustor trip, that the odour at Whitegate Village was attributable to the unit trip and subsequent incomplete combustion at the flare.
- The OEE were informed on the incident and details subsequently entered on EDEN.

The investigation then focussed on why the ASA combustor unit tripped

- A key component of the ASA combustor unit are the burners which enable the combustion of the gases coming from the process plant. To ensure correct operation of the burners the unit has a flame detector (flame eye) the function of which is to detect a flame in the unit burners. If the

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detector fails to detect a flame it results in a unit trip and ASA gasses are automatically diverted to flare.

- It is suspected that the unit tripped as a result of a slight misalignment of the burner and flame detector (flame eye).
- Acting on instruction from a suitably qualified external consultant the burner and flame detector alignment has been adjusted and the unit has not tripped since performing this action.

Corrective & Preventative Actions

- At 18:15 on Thursday the 25st August 2022, a resident of Whitegate Village reported an unpleasant odour at his residence. The Shift Manager (SM) immediately performed an investigation by performing an odour survey at various locations within the site and Whitegate School and offsite in the vicinity of the Village. The SM did not note any odour at the time of the survey (approx 18:30 to 19:00) indicating that any odour that had been present had dissipated. The SM contacted the complainant to inform him of same.
- Irving Oil implemented the following mitigations against a repeat odour while investigating the incident;
 - Increased process checks of the burner flame and flame detector during routine shifts.
 - Increased volume of 'purge gas' to the flare ensuring full combustion at the flare in the event of a trip and thus preventing an odour.

Weather Conditions

There was a light south-westerly wind at the time of the combustor trip which is in the direction of the Village relative to the refinery

Close out comments

'Details of the nature and quantity of any atypical emissions related to the incident'

There were no atypical emissions related to the incident, only the incomplete combustion of the material.

'Clarification on whether the flare was activated on site during the incident, and if so, An estimation of emissions for the flare event as required by Schedule B.1.5 of the License'

No excessive flaring was required during this incident

The unit has been monitored over the last number of weeks and given that it has not tripped since the burner realignment, IOW considers the matter closed.

Status

Item closed by the Agency on the 10th Oct 2022

1.3 Environmental Complaints Register

There was 1 complaint incident in Q3, 2022. For details refer to INCI023795 above.

1.4 Releases to Atmosphere

1.4.1 Sulphur Dioxide emissions

Refer to Appendix 1

1.4.2 Oxides of Nitrogen emissions

Refer to Appendix 2

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1.4.3 Ambient Air Monitoring

For the duration of Q3 the highest 1-hour SO_x measurement recorded was 3 µg/m³ and 51 µg/m³ for NO_x. Reviewing the results against the EPA Air Quality Index for Health (AQIH) as indicated on Table 2 below, ambient air as measured at the south-eastern boundary of the IOW site remained within Index 1 for both SO_x and NO_x for the duration of Q3.

Table 1: IOW Q3 Ambient Air Monitoring Summary

	SO _x (µg/m ³)		NO _x (µg/m ³)	
	1 Hour Mean	1 Day Mean	1 Hour Mean	1 Day Mean
Maximum	3	1	51	29
Average	1	2	2	2

Table 2: EPA Air Quality Index for Health (AQIH)

Band	Index	SO _x (µg/m ³)	NO _x (µg/m ³)
		1 HOUR MEAN	1 HOUR MEAN
Good	1	0 - 29	0 - 67
	2	30 - 59	68 - 134
	3	60 - 89	135 - 200
Fair	4	90 - 119	201 - 267
	5	120 - 149	268 - 334
	6	150 - 179	335 - 400
Poor	7	180 - 236	401 - 467
	8	237 - 295	468 - 534
	9	296 - 354	535 - 600
Very Poor	10	355 or more	601 or more

1.4.4 Flare Operation

Table 3: Monthly Total Flaring

Month	Tonnes Flared	% of Refinery Throughput
July	190	0.010%
August	256	0.013%
September	109	0.005%
Total Q3	556	0.009%

There was no significant event in Q3 2022 that lead to increased flaring.

1.4.5 Releases to Atmosphere from Potential Emission Points

There was no significant event in Q3 2022 that lead to releases to Atmosphere from Potential Emission Points

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1.5 Amine and Sulphuric Acid Unit Operation

IE license condition 6.16 calls for a summary of ASA downtime and associated site SO₂ emissions to show compliance with condition 5.5.

SO₂ figures for the site and for the ASA (A2-18) are available on the SO₂ kg/hr table (Appendix 1).

NO_x measurements from the ASA (A2-18) are taken from the annual sampling and analysis of this flue gas.

Please see Appendices for emissions to air data tables.

2.1 Emissions to Water

Please refer to Part 2 for emissions to water data tables.

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Appendix 1. Sulphur Dioxide Emissions

Schedule B.1 Emissions to Air – SO₂ (mg/m³)

Emission Point	Limit mg/m ³	01-Jul-22	08-Jul-22	15-Jul-22	22-Jul-22	29-Jul-22	05-Aug-22	12-Aug-22	19-Aug-22	26-Aug-22	02-Sep-22	09-Sep-22	16-Sep-22	23-Sep-22	Average	Max	Compliance
A1-1 SG4 SO2	35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100%
A1-2 SG5 SO2	35 (Nat Gas) 170 (Gasoil)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100%
A1-2 SG5 (CHP) SO2	35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100%
A1-3 SG6 SO2	35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100%
A2-1 F401 SO2 RFG	35	26.2	27.0	27.4	26.1	24.3	28.7	32.8	30.2	30.1	30.7	31.1	29.8	26.5	28.5	32.8	100%
A2-2 F402 SO2 RFG	35	23.9	24.7	25.2	24.2	22.0	24.9	28.3	25.7	24.5	25.4	26.4	25.5	20.9	24.7	28.3	100%
A2-3 F501 SO2 RFG	35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100%
A2-4 F204 SO2 RFG	35	17.5	19.0	18.3	17.2	17.7	18.1	20.8	19.0	19.5	18.8	19.1	17.0	15.2	18.2	20.8	100%
A2-5 F201X SO2 RFG	35	16.0	17.1	17.5	16.5	17.5	17.2	20.1	18.1	17.6	18.3	18.6	17.0	13.9	17.3	20.1	100%
A2-6 F202BX/CX SO2 RFG	35	16.3	17.7	17.5	16.5	17.7	17.3	20.3	18.4	17.7	18.5	18.5	17.2	14.1	17.5	20.3	100%
A2-7 F202AN SO2 RFG	35	16.1	17.1	17.5	16.5	17.6	17.2	20.1	18.2	17.7	18.4	18.6	17.1	13.9	17.4	20.1	100%
A2-8 F206/207 SO2 RFG	35	16.1	17.1	17.5	16.5	17.5	17.2	20.1	18.1	17.7	18.3	18.6	17.1	13.9	17.4	20.1	100%
A2-9 F203N SO2 RFG	35	14.8	10.6	0.0	0.0	14.1	17.9	8.7	0.0	0.0	0.0	0.0	0.0	0.0	5.1	17.9	100%
A2-10 F801/802 SO2 RFG	35	16.4	17.4	17.8	16.8	17.9	17.6	20.5	18.5	18.0	18.7	18.9	17.4	14.2	17.7	20.5	100%
A2-11 F901 SO2 RFG	35	16.4	17.4	17.9	16.8	17.9	17.6	20.5	18.5	18.0	18.7	19.0	17.4	14.2	17.7	20.5	100%
A2-18 ASA SO2	260	7.8	7.6	8.4	10.4	11.2	9.5	7.4	17.6	23.5	20.3	20.7	23.6	24.8	14.8	24.8	100%

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Condition 6.16 Emissions to Air - SO₂ (kg/hr)

Emission Point	Limit (kg/hr)	01-Jul-22	08-Jul-22	15-Jul-22	22-Jul-22	29-Jul-22	05-Aug-22	12-Aug-22	19-Aug-22	26-Aug-22	02-Sep-22	09-Sep-22	16-Sep-22	23-Sep-22	Average	Max	Compliance
A1-1 SG4 SO2	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
A1-2 SG5 SO2	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
A1-2 SG5 (CHP) SO2	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
A1-3 SG6 SO2	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
A2-1 F401 SO2 RFG	N/A	1.16	1.18	1.19	1.22	1.07	1.26	1.35	1.30	1.30	1.35	1.29	1.25	1.23	1.24	1.35	N/A
A2-2 F402 SO2 RFG	N/A	0.61	0.61	0.61	0.61	0.52	0.59	0.64	0.64	0.63	0.62	0.62	0.61	0.63	0.61	0.64	N/A
A2-3 F501 SO2 RFG	N/A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
A2-4 F204 SO2 RFG	N/A	0.13	0.15	0.14	0.14	0.14	0.13	0.15	0.13	0.13	0.13	0.12	0.10	0.09	0.13	0.15	N/A
A2-5 F201X SO2 RFG	N/A	0.20	0.22	0.23	0.22	0.22	0.23	0.26	0.23	0.23	0.24	0.24	0.22	0.19	0.23	0.26	N/A
A2-6 F202BX/CX SO2 RFG	N/A	0.24	0.23	0.26	0.21	0.23	0.24	0.27	0.25	0.23	0.24	0.23	0.19	0.15	0.23	0.27	N/A
A2-7 F202AN SO2 RFG	N/A	0.17	0.18	0.17	0.17	0.17	0.16	0.20	0.18	0.18	0.18	0.18	0.16	0.13	0.17	0.20	N/A
A2-8 F206/207 SO2 RFG	N/A	0.19	0.20	0.20	0.20	0.20	0.21	0.24	0.22	0.22	0.22	0.22	0.20	0.18	0.21	0.24	N/A
A2-9 F203N SO2 RFG	N/A	0.02	0.01	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	N/A
A2-10 F801/802 SO2 RFG	N/A	0.34	0.34	0.33	0.32	0.32	0.33	0.37	0.35	0.35	0.36	0.36	0.32	0.28	0.33	0.37	N/A
A2-11 F901 SO2 RFG	N/A	0.18	0.19	0.19	0.18	0.20	0.19	0.22	0.19	0.24	0.20	0.21	0.18	0.13	0.19	0.24	N/A
A2-18 ASA SO2	N/A	0.94	0.91	1.00	1.24	1.34	1.14	0.88	2.11	2.81	2.43	2.48	2.83	2.96	1.77	2.96	N/A
Site Total SO2	150 kg/hr	4.19	4.23	4.33	4.49	4.42	4.50	4.58	5.60	6.31	5.96	5.93	6.04	5.96	5.12	6.31	100%

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Monthly Average SO₂ Emission; All Emission Points Combined

Month	Limit	Average	TPM	Compliance
	kg/hr	kg/hr	ton/month	
Jul-2021	150	4.34	3.23	100%
Aug-2021	150	5.10	3.79	100%
Sep-2021	150	6.00	4.32	100%
		Q3 Total	11.33	

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Appendix 2. Oxides of Nitrogen emissions

Schedule B.1 Emissions to Air – NO₂ (mg/m³)

Emission Point	Limit mg/m ³	01-Jul-22	08-Jul-22	15-Jul-22	22-Jul-22	29-Jul-22	05-Aug-22	12-Aug-22	19-Aug-22	26-Aug-22	02-Sep-22	09-Sep-22	16-Sep-22	23-Sep-22	Average	Max	Compliance
A1-1 SG4 NOx	450	302	286	288	288	288	302	84	0	0	289	287	289	292	230	302	100%
A1-2 SG5 NOx	450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100%
A1-2 SG5 (CHP) NOx	450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100%
A1-3 SG6 NOx	450	290	289	124	0	0	0	289	209	289	290	289	290	293	204	293	100%
A2-1 F401 NOx RFG	450	260	256	265	264	265	268	267	266	266	265	266	262	259	264	268	100%
A2-2 F402 NOx RFG	450	262	257	266	265	267	271	270	269	269	269	270	265	262	266	271	100%
A2-3 F501 NOx RFG	450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100%
A2-4 F204 NOx RFG	450	187	187	186	186	187	191	190	191	190	191	189	187	188	188	191	100%
A2-5 F201X NOx RFG	450	368	361	376	373	373	382	383	380	379	380	381	374	368	375	383	100%
A2-6 F202BX/CX NOx RFG	450	187	187	186	186	187	191	190	191	190	191	189	187	187	188	191	100%
A2-7 F202AN NOx RFG	450	266	260	271	269	269	276	275	274	273	274	274	270	266	271	276	100%
A2-8 F206/207 NOx RFG	450	194	190	197	197	197	201	200	199	199	200	200	197	196	198	201	100%
A2-9 F203N NOx RFG	450	184	194	212	212	185	183	200	212	212	212	212	212	212	203	212	100%
A2-10 F801/802 NOx RFG	450	268	262	273	272	272	278	278	276	276	276	277	273	269	273	278	100%
A2-11 F901 NOx RFG	450	194	190	197	197	196	201	200	199	199	199	200	197	195	197	201	100%

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Condition 5.7 Emissions to Air - NO₂ (kg/hr)

Emission Point	Limit (kg/hr)	01-Jul-21	08-Jul-21	15-Jul-21	22-Jul-21	29-Jul-21	05-Aug-21	12-Aug-21	19-Aug-21	26-Aug-21	02-Sep-21	09-Sep-21	16-Sep-21	23-Sep-21	Average	Max	Compliance
A1-1 SG4 NOx	N/A	1.6	1.6	1.8	1.7	1.8	1.6	1.7	1.8	1.7	1.8	1.7	1.0	1.0	1.6	1.8	N/A
A1-2 SG5 NOx	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
A1-2 SG5 (CHP) NOx	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
A1-3 SG6 NOx	N/A	2.7	2.4	2.6	2.5	2.6	2.6	2.6	2.7	2.6	2.6	2.5	2.7	2.7	2.6	2.7	N/A
A2-1 F401 NOx RFG	N/A	11.6	11.2	11.5	12.3	11.7	11.8	11.0	11.5	11.5	11.7	11.1	11.0	12.0	11.5	12.3	N/A
A2-2 F402 NOx RFG	N/A	6.7	6.3	6.5	6.6	6.3	6.5	6.1	6.7	6.9	6.6	6.3	6.4	7.8	6.6	7.8	N/A
A2-3 F501 NOx RFG	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
A2-4 F204 NOx RFG	N/A	1.4	1.4	1.5	1.5	1.4	1.4	1.3	1.4	1.3	1.3	1.2	1.1	1.1	1.3	1.5	N/A
A2-5 F201X NOx RFG	N/A	4.7	4.7	4.8	4.9	4.8	5.2	5.0	4.9	5.0	5.0	4.9	4.8	4.9	4.9	5.2	N/A
A2-6 F202BX/CX NOx RFG	N/A	2.7	2.5	2.8	2.4	2.4	2.6	2.5	2.6	2.5	2.4	2.3	2.0	2.0	2.4	2.8	N/A
A2-7 F202AN NOx RFG	N/A	2.8	2.7	2.6	2.7	2.7	2.6	2.8	2.7	2.7	2.7	2.7	2.5	2.5	2.7	2.8	N/A
A2-8 F206/207 NOx RFG	N/A	2.3	2.2	2.3	2.3	2.2	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.5	2.4	2.5	N/A
A2-9 F203N NOx RFG	N/A	0.2	0.1	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	N/A
A2-10 F801/802 NOx RFG	N/A	5.6	5.1	5.0	5.1	4.9	5.2	5.0	5.2	5.3	5.3	5.2	4.9	5.4	5.2	5.6	N/A
A2-11 F901 NOx RFG	N/A	2.2	2.0	2.2	2.1	2.1	2.2	2.2	2.1	2.6	2.1	2.2	2.0	1.8	2.1	2.6	N/A
Emission Point	Limit (kg/hr)	01-Jul-22	08-Jul-22	15-Jul-22	22-Jul-22	29-Jul-22	05-Aug-22	12-Aug-22	19-Aug-22	26-Aug-22	02-Sep-22	09-Sep-22	16-Sep-22	23-Sep-22	Average	Max	Compliance
A2-12 C201A NOx kg/hr	N/A	5.6	5.7	5.3	5.3	6.0	5.9	5.9	5.3	5.4	5.4	5.4	5.5	4.7	5.5	6.0	N/A
A2-13 C201B NOx kg/hr	N/A	5.6	5.7	5.3	5.3	6.0	5.9	5.9	5.3	5.4	5.4	5.4	5.5	4.7	5.5	6.0	N/A
A2-14 C202 NOx kg/hr	N/A	2.5	1.3	0.0	0.0	2.1	3.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.0	N/A
Total Engine NOx	27kg/hr	13.8	12.7	10.6	10.7	14.1	14.8	12.7	10.7	10.7	10.8	10.8	10.9	9.4	11.7	14.8	100%

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Monthly Average NO₂ Emission; All Emission Points Combined

Condition 5.2: Monthly Average NO_x Emission, Sum of all emission points (Kg/hr)				
Month	Limit	Average	TPM	Compliance
	(mg/m³)	kg/hr	ton/month	
Jul-2020	450	55.76	41.49	100%
Aug-2020	450	56.28	39.17	100%
Sep-2020	450	53.74	38.69	100%
		Q3 Total	119.35	

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