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To

Date:

DATE: 29.11.2024

The Regional Officer,
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office, Guwahati,
4th Floor, Housefed Building, GS Road, Rukminigaon Guwahati-781022

Ref. No: NRL/ENV/MOEFCC/24-25/05

Sub: Submission of Half Yearly Compliance status on Environment Stipulation during the period
April'24 to September'24.

Dear Sir,

Kindly find enclosed herewith the point wise Half Yearly EC Compliance Status pertaining to the conditions of following ECs granted to Numaligarh Refinery.

SN	Project Name	MoEF&CC File No.	EC issued Date
1	Petroleum Refinery at Numaligarh (3 MMTPA)	J-11011/16/90-IA. II	May 31,1991 (EA)
2	BS-III Motor Spirit Project at NRL	J-11011/92/2003-IA II (I)	February 13, 2004
3	Coke-Calcination Unit (0.1 MMTPA)	J-11011/203/2003-IA II (I)	March 22, 2004
4	Diesel Quality Up-gradation Project (DQUP) at NRL	J-11011/272/2008-IA-II (I)	November 10, 2008
5	Paraffin Wax	J-11011/113/2009-IA-II (I)	September 5, 2012
6	Naphtha Splitter Unit	J-11011/534/2009-IA-II (I)	September 12, 2012
7	Installation of new LPG mounded bullet & up-gradation of existing LPG bottling plant and BS-IV HSD project at NRL	J-11011/150/2015-IA-II (I)	December 9, 2016
8	Expansion of the refinery from 3 MMTPA to 9 MMTPA	J-11011/274/2015-IA-II (I)	July 27, 2020
9	Proposed Polypropylene Project (PPU) of Capacity 360 KTPA	J-11011/274/2015-IA-II(I)	August 1 st , 2024

Hope, the above will meet the requirement.

Yours faithfully,

(Alok Nayan Nath)

Deputy General Manager (Tech Service-Environment)

Enclosures: 1. Noise monitoring (Annexure-I), 2. Stack Emission, Ambient & Effluent data (Annexure-II/III/IV), 3. Fugitive monitoring report (Annexure V), 4. CER Report (Annexure-C), 5. Env Expenditure (Annexure-D), 6. Form-4 (Annexure-E) 7. Form-V (Annexure-F) 8. CREP Compliance report (Annexure-G)

Cc: Member Secretary, PCBA, Assam

1. Project Name: Petroleum Refinery at Numaligarh (3 MMTPA)

MoEF&CC File No.: J-11011/16/90-IA. II

EC Issued Date: May 31st, 1991

Sl. No.	A. Specific Condition	Remarks
1	The layout of the refinery should be so planned within the proposed site so as to ensure that it is situated as far to the eastern side of the site as possible, to ensure that there is the maximum possible distance from the eastern boundary of the Kaziranga National Park. The layout of the site of refinery may be finalised in consultation with this Ministry.	The layout of the refinery was finalised in consultation with MoE&F. Longitude 93° 43' 30" E & Latitude 26° 37' 30" N. Latest plot plan submitted to IRO, GHY.
2	The residential site as proposed should not be to the west of the refinery as it is only 19.5 kms from the boundary of Kaziranga National Park. It should be shifted further away, but keeping in view the distance from the Garampani Sanctuary, which is only 24 kms south of the proposed refinery site. The newly proposed site of the residential colony should be settled to the satisfaction of this Ministry.	The NOC for the residential site has been issued by MoE&F vide No.J-11014/2/91 IA.II dated 18 th January 1994 with six conditions. Details on the present status of compliance on these conditions are enclosed as Annexure A .
3	The National Highway-37 should be diverted away from the Kaziranga National Park and that portion of this road through and along the National Park (From Jakhalabandha to Bokakhat) to be denotified from all highway records and handed over to the National Park Authorities for regulating traffic. No movement of personnel, material or equipment for the project shall take place on the existing National Highway-37. The realignment of the National Highway-37 would be finalised in consultation with the Ministry of Environment and Forests, so that the wildlife habitat in the nearby Mikir Hills and areas rich in biological diversity therein are protected. Work on the diversion of NH-37 will start before construction of the refinery begins and the Ministry of Petroleum should ensure that the road is completed before the commissioning of the project.	The original NGT application no.174 of 2013 in this matter was disposed of in July'18. The same has been sent to IRO, GHY earlier.
4	A No Development Zone must be notified before the project construction starts within a radius of 15 kms all around the refinery site, except towards	The Govt. of Assam has already notified the "No Development Zone" on 19.01.95. The MoEF circular for the same is as on 5 th July'1996.

	the northwest where the no development zone would extend into the Eastern boundary of the Kaziranga National Park.	
5	No pipeline will be laid through the Kaziranga National Park and adjacent wildlife habitats in the Mikir Hills. Pipeline alignment shall be finalized in consultation with the Ministry of Environment and Forests to minimize impact on environment and forests.	NRL has not laid any pipeline through KNP.
6	The project authority must strictly adhere to the stipulations made by the SPCB and the State Government.	The stipulations laid down by SPCB, Assam and the State Govt. are adhered to. The status on the compliance report has been regularly sent to PCBA, Regional Office, Golaghat. A copy is enclosed as Annexure B.
7	Any expansion of the plant either with the existing product mix or new products can be taken up only with the prior approval of this Ministry.	This is complied with as and when a change or expansion is contemplated. Any expansion of the plant either with the existing product mix or new products will be taken up with prior approval of the Ministry.
8	The gaseous emissions from various process units should conform to the standard prescribed by the concerned authorities, from time to time. At no time, the level should go beyond the stipulated standards. In the event of failure of any pollution control system adopted by the unit, the respective unit should be put out of operation immediately and should not be restarted until the control measures are rectified to achieve the desired efficiency.	All the emissions parameters are monitored on continuous basis and are well within the prescribed limits. Automatic online stack analyzers have been provided in all the major stacks for continuous monitoring of SO ₂ , NO _x , CO & SPM. Further manual stack monitoring is being carried out bi-monthly as per latest MOEF notification. Monitoring reports of stack emissions are regularly submitted to the PCBA Regional Office, Golaghat, CPCB Regional Office alongwith Half yearly EC compliance report. Real-time emission data has been transmitted to CPCB server on continuous basis. Monitoring data attached as Annexure-II/III
9	A minimum of five air quality monitoring stations should be set up in the downwind direction as well as where maximum ground level conc. is anticipated. Furthermore, stack emission should be monitored by setting up of automatic stack monitoring units. The data on stack emission should be submitted to the SPCB once in three months and to this Ministry once in six months, along with the statistical analysis. The air quality monitoring stations should be selected on the basis of modelling exercise to represent the short-term ground level conc.	As an action of compliance, five (5) nos. of ambient air quality monitoring stations have been set up at the following locations: SS 1: Inside the refinery (Near WT No.5). SS 2: At the Eco-Park in NRL Township. SS 3: At the Raw Water Intake. SS 4: Near the NH-39 bypass. SS 5: Near the Kaziranga Wildlife Sanctuary at Agoratoli. -Ambient Air Quality monitoring at the above locations is being carried out in line with NAAQS-2009 in totality.

		Automatic online stack analysers have been provided in all the major Stacks for continuous monitoring of SO₂, NO_x, CO & SPM. The monitoring reports of emissions are regularly submitted to the PCBA Regional Office, Golaghat and CPCB Regional Office, Shillong and to the MoEFCC Regional Office, Shillong alongwith Half yearly EC compliance report. NRL has installed one Continuous Ambient Air Monitoring System inside the refinery premises and realtime emission data has been transmitted to CPCB server on continuous basis. One additional Continuous Ambient Air Monitoring System inside the refinery premises as recommended by MoEFCC based on occurrence of maximum ground level concentration and down-wind direction of wind installed. Monitoring reports for the period is enclosed as Annexure –II/III
10	There should be no change in the stack design without the approval of SPCB. Alternate Pollution control system and proper design (Steam Injection System) in the stack should be provided to take care of excess emissions due to failure in any system of the plant.	Prior approval of SPCB will be taken for any change in the stacks design. Pollution control measures like – Low NO_x burners, Steam Injection System, Low excess air firing, ID and FD fan, Stack dampers have been provided.
11	Only natural gas after de-sulphurization has to be used as fuel with low NO _x burners.	Permission has been obtained from MoE&F, New Delhi vide No. J-11011/16/90-IA.II(I) dated 22 May,1996 to use Naphtha, which is produced in the refinery itself. Low NO_x burners have been installed in all the refinery furnaces. Internal Fuel Oil with very low sulphur and Sweet Fuel Gas (with <10 ppm H₂S) that is produced as a part of process by processing low sulphur Assam Crude also used in Mixed fuel furnaces as most of the furnaces of process units are operated with dual fuel firing. Refinery operation cannot be dependent on single fuel and alternate fuel is required for reliable and smooth operation of the refinery.
12	Fugitive emissions should be monitored continuously.	Regular monitoring of fugitive emission has been carried out using GMI since May, 2005 onwards. The GMI survey has been carried on all gas/vapour valves, light liquid valves, hydrogen valves, light liquid pump seals, hydrocarbon compressor seals, hydrogen compressor seals, safety relief valves, flanges, connections, open-ended lines, drains, tankages, furnaces etc in

		line with the MoEF notification 2008. Fugitive emission report attached as per Annexure V.
13	All gaseous emissions in the system shall be taken to the flare system and the flare should be smoke-less and non-luminous.	All gaseous emissions have been taken to the flare system. A non-luminous ground flare has been installed as regular flare. However, additionally, an elevated flare has been also installed for using during emergencies.
14	A sulphur recovery plant should be commissioned along with the refinery.	The Sulphur Recovery Block (SRB) has been commissioned along with the refinery and has been under continuous operation since September'2000.
15	Zero discharge of effluents should be ensured and built into the system. In case the effluent has to be discharged due to process disturbances etc. the contributing unit shall be immediately stopped from operation and will not be re-started without bringing the system to normalcy. To meet the emergency needs adequate number of effluent quality monitoring stations must be set up in consultation with the SPCB	Treated water discharge to outside environment directly from ETP via a dedicated pipeline has been discontinued since October'2006 and since April, 2007 township effluent also is being routed to the refinery ETP. Presently there is no dedicated facility for discharging Treated effluent from ETP directly to outside environment. About 60-70% treated effluent is being reused/recycled in miscellaneous refinery activities and as Fire water makeup and rest quantity is system/operational losses in ETP due to various constraints. Treated effluent quality is enclosed as Annexure-IV.
16	Guard ponds of sufficient holding capacity to take care of monsoon rains should be provided.	Guard ponds (of capacity: 5329 m3) and Surge tank (of capacity: 5760 m3) for oily water sewer (OWS) and contaminated rainwater system (CRWS) have been provided in the Effluent Treatment Plant.
17	The solid waste from the ETP and waxy sludge should be incinerated.	The Chemical & Oily Sludge generated from ETP operations is disposed in the Secured Landfill. Tank Bottom Oily Sludge generated is disposed off through Bioremediation and is also sold through auction to CPCB approved recyclers. NRL has installed an Incinerator for disposal of non-hazardous incinerable wastes and the same is being operated on a continuous basis for which NRL has received the consent to operate from SPCB.

18	The solid waste (other than waxy sludge) dumping area should be made impervious so that the ground water, is not affected due to leaching and seepage of associated water containing pollutants. The solid waste disposal plan should be submitted to the Ministry once the process design and technological package is finalized.	As per the recommendation of NEERI's report on Solid Waste Management, scheme for disposal of solid waste through Secured Landfill had been prepared. NRL has a Secured Land Fill facility of capacity around 6000 m ³ as per the latest CPCB guidelines. Also, NRL has constructed Bio-remediation facility in line with the requirement by applying "Oilzapper" for disposal of oily sludge generated during cleaning of tanks. Alternately, some quantity of oily sludge being disposed by selling to authorized recyclers. Solid waste disposal plan prepared by NEERI in July 1999 submitted to IRO, GHY.
19	The project authorities should recycle the waste to the maximum extent and the recycling plan should be submitted along with a comprehensive EIA.	All types of wastes generated from the refinery are recycled to the maximum extent possible. -The recycling plan for all types of wastes have been submitted to the MoE&F, Shillong vide letter no. NRL/NG/ENV/2.1/2 dated May'23, 2002
20	A detailed risk-analysis based on Maximum Credible Accident analysis should be submitted once the process design and the layout are frozen. Based on this a disaster management plan has to be prepared and after approval by the concerned nodal agency, should be submitted to this Ministry.	NEERI was engaged for Quantitative Risk Assessment including Maximum Credible Accident (MCA)analysis, Hazard Assessment and Evaluation, Disaster Management Plan (DMP) and Emergency Preparedness Plan (EPP). The report was submitted to the MoE&F on 03.02.97. Quantitative Risk Assessment is carried out every 5 years. The Emergency Response and Disaster Management Plan was certified on 28.12.2022 and the certification is valid till 27.12.2025.
21	A comprehensive EIA report covering one year (4 seasons) data should be submitted once the process design and technology package and layout are frozen. The Ministry or any other competent authority may stipulate any further conditions after reviewing the comprehensive impact assessment report	CEIA report prepared by NEERI has been submitted to MoE&F on 22.04.96.
22	A comprehensive study of the ecological status and likely impact of development should be initiated in consultation with the Ministry of Environment and Forests. The proposal should be submitted to this Ministry within three months	This is included in the CEIA report and submitted.
23	A green belt with a minimum width of 500 mts should be provided and the green belt development plan taking into account various aspects including	Initially, as per EC granted for the Numaligarh Refinery Project, MoEF had stipulated a 500m wide green belt all around the refinery based on the EIA of NRL carried out by NEERI.

	attenuation of noise and air pollution should be submitted to this Ministry within six months.	On request from NRL, the width of the Green Belt was later reduced from the suggested width of 500m to 100m because of the reason that almost all the surrounding areas are having tea garden with shade trees. A wide natural green belt already existed all around the refinery. Accordingly, a Green Belt covering a total area of around 56 hectares of land and around 100m width around the refinery and around 25m width around the NRMT has been developed as per the Green Belt Development Plan. (The Green Belt Development Plan has been submitted to MoEF along with the Half Yearly Report to MOEF on the 15th October, 2001). Periodically, massive plantation is carried out in the Green Belt so as to provide a natural barrier for attenuation of noise and air pollution. Nos. of local variety have been planted including some fruit-bearing samplings in & all-around Green Belt. Phase-wise replantation is in progress in various locations in Green Belt, inside the refinery, and in and around the township to increase the density. Initiatives for plantation under the Compensatory Afforestation drive in degraded areas has been taken up at Nakkati Chapori, Golaghat (40 Ha), Kandoli Reserve Forest, Nagaon (35 Ha) and Abhoypur village, Dibrugarh (28 Ha.)
24	The rehabilitation plan for the persons to be displaced from the project site including township should be prepared and submitted to the Ministry for approval within 3 months. Plan should inter-alia contain rehabilitation site details, the facilities and compensation package to be provided.	Rehabilitation of the displaced persons from the refinery site has been done by the State Govt. NRL has paid the compensation as fixed by Collector. Similar action has also been taken in case of those displaced from the Township site for which land acquired. Amenities like drinking water facility, building primary school, constructing roads in the villages etc. have been contributed by NRL.
25	The project authority must set up a laboratory facility for the collection and analysis of samples under the supervision of a competent technical person, who will directly report to the Chief Executive.	The laboratory facility had been set up for collection and analysis of samples under the supervision of competent personnel, reporting to the Chief Manager (QC) and who reports to the Chief General Manager (Technical). The QC lab is a NABL accredited Laboratory.
26	A separate environment management cell with suitably qualified people to carry out various functions should be set up under the control of a senior executive who will report directly to the head of the organization.	A fully functional, dedicated environment management cell manned by qualified engineers/officers and headed by Chief General Manager (Technical) has been continuously working for constant improvement, monitoring, safeguarding and reporting of environmental activities of the refinery. Also, as advised by MoEFCC, 18 Nodal officers from various

		sections of the refinery have been appointed in May'2024 for compliances of Environment related issues. Moreover, a multidisciplinary Apex-level Committee on Environment which includes senior level officers from various departments as members under the chairmanship of Director (Technical) constantly guides the Environment Cell regarding all the environmental issues in the refinery. The Apex Committee that convenes quarterly discusses the unresolved issues if any and monitors the regular environmental activities.
	a). The Ministry may revoke clearance if implementation of the conditions is not satisfactory.	Noted
	b). The above conditions will be enforced inter-alia under the provisions of the Water (Prevention & Pollution) Act, 1981, and Environment (Protection) Act, 1985 along with their amendments.	Noted
Sl. No.	Condition	Remarks
I	The hill slopes should not be used for civil construction purposes	Noted.
Ii	Land use planning of the colony and the land around it should be finalized in construction with the State Town Planning Department.	Noted.
Iii	More open space should be left and the building construction may be done by acquiring minimum land and the houses should be constructed on ground plus two floors basis.	Noted. Open space left within the township is around 82% of the total area.
Iv	Township site should not involve any forest area.	Township is constructed only in the permitted area
V	The existing forest cover towards the west and north of the proposed colony site should not be disturbed.	It is not disturbed.
Vi	No organized human settlement or private colonies should be allowed in the hill or the areas adjoining the hill. (Atleast in a radius of 10 kms).	The Govt. of Assam has already notified the "No Development Zone" on 19.01.95.

2. Project Name: BS III Motor Spirit Project at NRL

MoEF&CC File No.: J-11011/92/2003-IA. II (I)

EC Issued Date: February 13, 2004

Sl. No.	A. Specific Condition	Remarks
1	The company shall ensure strict implementation/compliance of the terms and conditions mentioned vide Ministry's letter No. J-11011/16/90-IA.II dated 31.05.1991.	Complied.
2	The company shall ensure that the total sulphur emission from the Assam refinery (including MS Quality Improvement Project) shall not exceed 128 kg/hr as sulphur (256 kg/hr as SO ₂). M/s NRL should maintain regular record of sulphur balance in the refinery. Off gases from the proposed unit should be treated in amine absorption and regeneration unit meant for H ₂ S removal for desulphurization of off gases. Performance evaluation of sulphur recovery block should be done regularly. Data on VOC should be monitored and submitted to the Ministry. The continuous emission monitoring systems for SO _x and NO _x in the major stacks with proper calibration facilities should be installed. The low NO _x burners should be installed in all the furnaces.	The total sulphur emission from the refinery including Motor Spirit Project being maintained below 128 kg/hr as Sulphur (256 kg/hr as SO₂). -Regular sulphur balance of the refinery is maintained and the average SO₂ emission from the refinery during this period is 58.6 kg/hr which is well below the limit. -Off gases from the proposed unit has been treated in the amine absorption and regeneration unit. -Performance evaluation of Sulphur Recovery Block is done on a regular basis. -Fugitive emission/VOC data for MS is provided in Annexure V. -Continuous emission monitoring for SO₂, CO, PM and NO_x have been provided in all the stacks. -Ultra low NO_x burners have been provided in all the furnaces.
3	Additional water requirement shall not exceed 1200 m ³ /hr. The total quantity of effluent generation should not exceed 3830 m ³ /day as indicated in the EMP of which (3530 m ³ /d from the existing and 300 m ³ /d from the proposed unit). Treated effluent should be recycled and rest should be discharged after primary, secondary and tertiary treatment into the Dhansiri river through 11 km long pipeline. The treated effluent should comply with the prescribed standards.	The additional water requirement due to this project is very minimal as compared to the present requirement and is maintained within the limits. Treated water discharge to outside environment directly from ETP via dedicated pipeline has been discontinued since October'2006 and since April 2007 township effluent also is being routed to the refinery ETP. Presently there is no dedicated facility for discharging Treated effluent from ETP directly to outside environment. About 60-70% treated

		effluent is being reused/recycled in miscellaneous refinery activities and as Fire water makeup and rest quantity is system/operational losses in ETP due to various constraints. Treated effluent quality is enclosed as Annexure-IV .
4	As reflected in the EIA/EMP, the spent catalyst (0.33 TPM) along with small quantity of oily and chemical sludge should be disposed off in secured landfill site within the plant premises. The leachate from the landfill site should be sent back to the effluent treatment plant. The ground water quality around the secured landfill site should be monitored regularly and data submitted to the Ministry/CPCB/SPCB. The biological sludge generated from the ETP should be used as manure/fertilizer for the green belt.	Spent catalyst is disposed off through authorized recyclers as per Hazardous Waste Management Handling and Transboundary Movement Rules 2016. The oily/chemical and Bio sludge generated in ETP is disposed off in the Secured Land Fill Facility (SLF) after recovering the oil by centrifuging. As per the requirement, leachate generated is routed back to the IRS of ETP for further processing. The ground water quality around the Secured Landfill site is monitored on a regular basis. Ground water monitoring report has been attached as Annexure VI .
5	Oil spill response facilities should be in place, in accordance with OISD guidelines with regard to the likely risks associated with transportation of finished products. All recommendations made in the risk analysis report should be complied with during design, construction and operation stages to contain the risk within the plant boundary.	Oily wastewater & contaminated rainwater from various units is routed through OWS (Oily Water Sewer) & CRWS (Contaminated Rain Water Sewer) to ETP for necessary oil removal and treatment in various sections. The slop oil is recovered in ETP and sent to OM&S for needful reprocessing in process units. The Storm Water Channel from various units are connected and channel through Oil Catchers and also Hay Filters& Oil absorbent booms are installed at various locations. The final outlet of storm water channel is closed immediately in case of any accidental oil carryover and is trapped in the oil catcher for necessary removal. The accumulated oil from the oil catchers is lifted with the help of MOSRU (Mobile Oil Spill Recovery Unit). Recommendations as per Risk Analysis report have been adhered to. Quantitative Risk Assessment is carried out every 5 years.
6	Green Belt of adequate width and density as per the CPCB guidelines should be provided to mitigate the effects of fugitive emissions all around the plant in consultation with the local DFO. The bio sludge should be used as manure in the Green Belt development.	A Green Belt of width around 100 m surrounding the refinery and around 25 m around the NRMT covering a total area of about 56 hectares has been provided with adequate trees and proper density. Massive plantations have been carried out in the Green Belt so that it can provide a natural barrier for attenuation of noise and air pollution. Nos of local variety have been planted including some fruit-bearing samplings in & all around Greenbelt. Further, to increase the density in

		the Green Belt, fresh plantation is carried out at regular intervals. Within the NRL premises, a few gardens have been developed near various units including one in ETP with varieties of flowering plants. Also, different varieties of saplings are planted in the roadside areas and through-out the refinery. Initiatives for plantation under Compensatory Afforestation drive in degraded areas has been taken up at Nakkati Chapori, Golaghat (40 Ha), Kandoli Reserve Forest, Nagaon (35 Ha) and Abhoypur village, Dibrugarh (28 Ha.)
7	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act and the West Bengal Factories Rules.	Health check-up is conducted and the records are maintained accordingly.
Sl. No.	General Condition	Remarks
1	The project authorities must strictly adhere to the stipulations made by the Assam Pollution Control Board and the State Government.	The stipulations made by the Assam Pollution Control Board and the State Government are strictly adhered to.
2	No further expansion or modernization in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	Any expansion or modernization in the plant will be taken up only with prior approval of the Ministry of Environment & Forests.
3	The Company shall implement all recommendations made in the EMP and Risk Analysis reports.	Complied.
4	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the units, the respective unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved.	All the emissions parameters are monitored on continuous basis and are well within the prescribed limits. Adequate stack heights are provided in all the furnaces. Automatic online stack analysers have been provided in all the major stacks for continuous monitoring of SO ₂ NO _x , CO & SPM with Real-time emission data transmitted to CPCB server on continuous basis. Further manual stack monitoring is being carried out bi-monthly as per latest MoEF notification. Monitoring reports of stack emissions are regularly submitted to the PCBA Regional Office, Golaghat and CPCB Regional Office along with Half Yearly Compliance Report. Monitoring data attached as Annexure-II/III.
5	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation.	The equipments are monitored regularly at a distance of 01 mtr from the source and corrective measures are taken to maintain the noise level below 85 dBA. Control measures like silencer to vent, low noise Rotary equipment have been provided. PPE use is mandatory in high noise

	The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	areas and the same is ensured. The ambient noise levels all around the refinery are monitored regularly so as to maintain the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time). Noise monitoring report conducted during the period is enclosed as Annexure-I
6	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in 1994 and 2000. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained.	The rules and regulations under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and as amended in 1994 and 2000 are adhered to. Approvals from Chief Inspectorate of Factories, Chief Controller of Explosives etc as applicable for the proposed unit have been obtained.
7	The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization from the State Pollution Control Board must be obtained for collection/treatment/storage/disposal of hazardous wastes.	The rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management, handling & Transboundary Movement) Rules, 2016 are adhered to. Annual return statements for Hazardous waste are also regularly sent to PCBA and attached as Annexure-E. In regard to the same, the authorization for Hazardous Waste has been obtained alongwith the Consolidated Consent and Authorization (CCA) from PCBA which is valid upto 2029.
8	The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment & Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	Adequate fund has been provided for implementing the conditions stipulated by the MOEFCC and the State Govt and not diverted for any other purpose. Environmental expenditure for the period is attached as Annexure-D
9	The stipulated conditions will be monitored by the Regional Office of this Ministry at Shillong / Central Pollution Control Board/The State Pollution Control Board. A six-monthly compliance report and the monitored data should be submitted to them regularly.	A six-monthly compliance report on the Environmental Clearance conditions along with the monitored data is being submitted regularly to the MoEF Regional Office, CPCB, Shillong and the SPCB, Regional Office, Golaghat, Assam. The same is being displayed in the company's website also.
10	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board / Committee and may also be seen at Website of the Ministry of Environment & Forests at	Advertisement regarding the environmental clearance for the Euro III MS Project was published in two local newspapers, The Assam Tribune (in English) and The Pratidin (in Assamese) on 18 th Feb'04 and copies

	http://envfor.nic.in. This should be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office.	of both were forwarded to the MoE&F Regional Office, Shillong vide letter no NRL/NG/ENV/2.1/11 dated 20th Feb'04
11	The Project Authorities should inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	The same has been complied. Project commissioned on June 2006.
12	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted
13	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner will implement these conditions	Noted
14	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.	Noted

3. Project Name: Coke Calcination Unit (0.1 MTPA)

MoEF&CC File No.: J-11011/203/2003-IA. II (I)

EC Issued Date: March 22, 2004

Sl. No.	A. Specific Condition	Remarks
1	The company shall ensure strict implementation / compliance of the terms and conditions mentioned vide Ministry's letter No.J-11011/16/90-IA.II dated 31.05.1991 and letter no. J-11011/92/2003- IA.II (I) dated 13th February 2004.	Complied
2	The company shall ensure that the total sulphur emission from the Assam refinery (including Coke Calcination Unit) shall not exceed the existing level of 128 kg/hr as sulphur (256 kg/hr as SO ₂).	The average SO ₂ emission during the period is 58.6 kg/hr which is well below the limit of 256 kg/hr.
3	The company should take adequate measures for control of fugitive emissions from the Coke handling system by installation of Bin vent filters and coke handling through closed conveyor system. Multiple cyclone separators should be installed for recovering coke particles from the Rotary Cooler Exhausts and bag filters to control suspended particulate matter from the waste heat recovery boiler exhaust gas.	To control the fugitive emission from the Coke Calcination Unit, the following measures have been taken – a) Bin vent filters provided to control even minor fugitive emissions from coke handling system. b) The major portion of coke handling is done through closed conveyor system. c) Cyclone separator provided for recovering coke particles from rotary cooler exhaust. d) Bag filters with automatic pneumatic back flushing system to control SPM from waste heat boiler at exhaust gas has been provided. e) The finished product of CPC has been packed in an automatic bagging machines, thus controls the fugitive emissions. f) Permanent fixed type water sprinkling arrangement have been made for control of coke dust. g) Initiative has also been taken for procurement of 2 mist cannons to be installed in CCU.

		f) A 100 m wide green belt all along refinery boundary wall and 25m around NRMT has been developed.
4	Water requirement of 15 m ³ /hr should be met from the recycling of coke cutting water from Delayed Coker Unit. There should be no additional drawl of water for the CCU from the river Dhansiri	Coke cutting water from DCU is regularly used for quenching in CCU. There is no additional drawl of water beyond the permissible limit from the river Dhansiri for CCU.
5	The Company should install continuous stack monitoring system for online measurement for SPM, SO ₂ and NO _x .	Continuous stack monitoring systems for online measurement of SPM, SO ₂ NO _x and CO have been provided in the CCU stack with real time data transmission to CPCB.
6	The solid waste generated should be disposed off in the secured landfill site within the plant premises. The ground water quality around the secured landfill site should be monitored regularly and data submitted to the Ministry /CPCB/SPCB	Normally the solid waste generated in the CCU (CPC dust) is recycled/sold. Ground water around the Secured landfill is monitored regularly and monitoring report has been attached as Annexure VI.
Sl. No.	General Condition	Remarks
1	The project authorities must strictly adhere to the stipulations made by the Assam Pollution Control Board and the State Government	The stipulations made by the Pollution Control Board of Assam and the State Government are strictly adhered to.
2	No further expansion or modernization in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	Any expansion or modernization in the plant will be taken up only with prior approval of the Ministry of Environment & Forests.
3	The Company shall implement all recommendations made in the EMP and Risk Analysis reports.	The recommendations made in the EMP of the Comprehensive Environmental Impact Assessment and the Risk Assessment reports have been implemented for the Numaligarh Refinery, which includes CCU also as an integral part of the refinery. Also, Quantitative Risk Assessment for NRL is carried out every 5 years.
4	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the units, the respective unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved	All the emissions parameters are monitored on continuous basis and are well within the prescribed limits. Adequate stack heights are provided in all the furnaces. Automatic online stack analysers have been provided in all the major stacks for continuous monitoring of SO ₂ , NO _x , CO & SPM with Real-time emission data transmission to CPCB server on continuous basis. Further manual stack monitoring is being carried out bi-monthly as per latest MOEF notification. Monitoring reports of stack emissions are regularly submitted to the PCBA Regional Office, Golaghat and CPCB Regional Office alongwith Half Yearly Compliance Report. Monitoring data attached as Annexure-II/III/IV.

5	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day-time) and 70 dBA (night time).	The major sources of noise generation in the CCU are the BFW pumps and the Air Blowers, having low duty. Strong foundations have been provided to mitigate the noise generation further. The equipments are monitored regularly at a distance of 01 mtr from the source and corrective measures are taken to maintain the noise level below 85 dBA. PPE use is mandatory in high noise areas and the same is ensured. The ambient noise levels all around the refinery are monitored regularly so as to maintain within the standards, prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time). Noise monitoring result carried out in the Refinery during the period is enclosed as Annexure I.
6	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in 1994 and 2000. Prior approvals from the Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained.	The rules and regulations under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and as amended in 1994, and 2000 are adhered to. Approvals from Chief Inspectorate of Factories, Chief Controller of Explosives etc as applicable for the Numaligarh Refinery have been obtained.
7	The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization from the State Pollution Control Board must be obtained for collection/treatment/storage/disposal of hazardous wastes.	The rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management, handling & Transboundary Movement) Rules, 2016 are adhered to. Annual return statements for Hazardous waste are also regularly sent to PCBA and attached as Annexure-E. In regard to the same, the authorization for Hazardous Waste has been obtained along with the Consolidated Consent and Authorization (CCA) from PCBA which is valid upto 2029.
8	The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment & Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	Adequate funds have been provided for implementing the conditions stipulated by MoEF and the State Govt. and not diverted for any other purpose. Environmental expenditure for the period is attached as Annexure-D
9	The stipulated conditions will be monitored by the Regional of this Ministry at Shillong /Central Pollution Control Board/State Pollution Control Board. A six-monthly compliance report and the monitored data should be submitted to them regularly.	A six-monthly compliance report on the Environmental Clearance conditions of NRL along with the monitored data has been submitted regularly to the MoE&F Regional Office, Shillong.

10	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board / Committee and may also be seen at Website of the Ministry of Environment & Forests at http://envfor.nic.in . This should be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office.	The same has been complied. Advertisement regarding the environmental clearance for the Coke Calcination Unit was published in two local newspapers namely, The Assam Tribune (in English) and The Pratidin (Assamese) on the 26th March'04 and copies of both advertisements were forwarded to the MoEF Regional Office, Shillong vide letter no. NRL/TS/ENV/2.1/14 dated 27.03.04.
11	The Project Authorities should inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	The same has been complied.
12	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted
13	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner will implement these conditions	Noted
14	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.	Noted

4. Project Name: Diesel Quality Upgradation Project (DQUP) at NRL

MoEF&CC File No.: J-11011/272/2008-IA. II (I)

EC Issued Date: Nov' 10, 2008

Sl. No.	A. Specific Condition	Remarks
1	The company shall comply with new standards/norms Notified by the Ministry for Oil Refineries vide G.S.R. 186(E) dated 18 th March 2008.	NRL is complying with the new standards/norms as per the MoEF notification 2008. The monitoring reports for gaseous emissions and liquid effluent are attached as per Annexure-II/III/IV Fugitive emission data is attached as per Annexure V. The compliance status of a few other points are as follows: Secondary seals in IFRT and EFRT tanks -installation of double seals in EFRT, IFRT completed. LDAR-programme has been implemented. VOC recovery system in ETP has been implemented.
2	The company shall comply with all the stipulations of environmental clearances issued vide letter No. J-11011/92/2003-IA.II(I) dated 13 th February 2004 and J-11011/203/2003-IA.II(I) dated 22 nd March, 2004.	Complied.
3	The process emissions (SO ₂ , NO _x , HC, VOCs, and Benzene) from various units shall conform to the standards prescribed by the Assam State Pollution Control Board from time to time. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	All the emissions parameters are monitored on continuous basis and are well within the prescribed limits. Adequate stack heights are provided in all the furnaces. Automatic online stack analysers have been provided in all the major stacks for continuous monitoring of SO ₂ , NO _x , CO & SPM with real-time emission data transmission to CPCB server on continuous basis. Further manual stack monitoring is being carried out bi-monthly as per latest MOEF notification. 5 manual ambient air quality monitoring stations and 2 continuous monitoring stations have been installed. Monitoring reports of emissions are regularly submitted to the PCBA Regional Office, Golaghat, and CPCB Regional Office. Monitoring data submitted in Annexure-II/III

4	The Diesel Quality Up-gradation Project (DQUP) shall be through Hydrocracker from 1.1 to 1.45 MMTPA, Hydrogen Unit from 38,000 to 48150 TPA, CDU/VDU modification of CDU without any feed change to take out additional 0.35 MMTPA diesel for Hydrocracker, Sulphur unit 14.7 to 19.5 TPD and associated modifications for the utilities, offsite and flare facilities.	Complied.
5	Quarterly monitoring of fugitive emissions shall be carried out as per the guidelines of CPCB by fugitive emission detectors (GMI Leak Surveyor) and reports shall be submitted to the Ministry's regional office at Shillong.	Presently being practiced and complied. Fugitive emission data has been provided as per Annexure V
6	For control of fugitive emission, all unsaturated hydrocarbon will be routed to the flare system and the flare system shall be designed for smoke less burning.	Complied.
7	The company shall strictly follow all the recommendation mentioned in the charter on corporate responsibility for environmental protection (CREP).	Complied. CREP compliance status has been provided in Annexure-G .
8	Occupational health surveillance of worker shall be done on a regular basis and records maintained as per the Factory Act.	Presently being practiced and complied.
9	Greenbelt shall be developed to mitigate the effect of fugitive emission all around the plant in a minimum 30% plant area in consultation with DFO as per CPCB guidelines.	A Green Belt covering a total area of around 56 hectares of land and around 100 m width around the refinery and around 25 m width around the NRMT has been developed as per the Green Belt Development Plan. (The Green Belt Development Plan has been submitted to MoEF along with the Half Yearly Report to MOEF on the 15 th October, 2001). Massive Plantation have been carried out in the Green Belt so that it can provide a natural barrier for attenuation of noise and air pollution. No. of local variety have been planted including some fruit bearing samplings in & all around Green Belt. Further, it has been planned to increase the density by planting more saplings in the Green Belt in the days ahead. Initiatives for plantation under Compensatory Afforestation drive in degraded areas has been taken up at Nakkati Chapori, Golaghat (40 Ha), Kandoli Reserve Forest, Nagaon (35 Ha) and Abhoypur village, Dibrugarh (28 Ha.)
10	The Company shall make the suitable arrangement for disposal of catalyst waste and other wastes. The report of waste disposal shall be submitted to Ministry's Regional Office at Shillong.	Spent catalysts are disposed off through CPCB-approved recyclers. Other wastes are being disposed off as per Hazardous Waste Management, Handling, Disposal (Trans Boundary Movement), 2016 and the reports are being sent to Pollution Control Board. Form IV (Annual return for

		Hazardous waste management) is being regularly submitted to PCBA and attached as Annexure E.
11	The Company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during flaring.	Adequate measures taken up by NRL for prevention of fire hazards. Knockout drums are installed in both the flare systems.
12	To prevent fire and explosion at Oil and Gas facility, potential ignition sources should be kept to a minimum and adequate separation distance between potential ignition sources and flammable material shall be in place	Complied.
13	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied.
Sl. No.	General Condition	Remarks
1	The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government and any other statutory body.	The stipulations made by the Pollution Control Board of Assam and the State Government are strictly adhered to.
2	No further expansion or modification in the project shall be carried without prior approval of the Ministry of Environment and Forests. In case of deviations or alternations in the project proposal from those submitted to the Ministry for clearance, a fresh reference shall be made to the Ministry.	Any expansion or modernization in the plant will be taken up only with prior approval of the Ministry of Environment & Forests.
3	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system, the respective well site should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved. Provision of adequate height of stack attached to DG sets & flare is to be done.	All the emissions parameters are monitored on continuous basis and are well within the prescribed limits. Adequate stack heights are provided in all the furnaces. Automatic online stack analysers have been provided in all the major stacks for continuous monitoring of SO ₂ , NO _x , CO & SPM with Real-time emission data transmission to CPCB server on continuous basis. Further manual stack monitoring is being carried out bi-monthly as per latest MOEF notification. Monitoring reports of stack emissions are regularly submitted to the PCBA Regional Office, Golaghat and CPCB Regional Office. Monitoring data attached as Annexure-II/III

4	Wastewater shall be properly collected and treated so as to conform to the standards prescribed under EP Act & Rules and mentioned in the Consents provided by the relevant SPCB.	Wastewater generated is routed through the existing ETP for proper treatment. Treated effluent quality is enclosed as Annexure-IV .
5	The overall noise levels in and around the premises shall be limited within the prescribed standards (75 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Few noise generation sources in the project are the BFW pumps and the Air Blowers. Strong foundations are provided to mitigate the noise generation and the equipment are monitored regularly at a distance of 01 mtr from the source. PPE use is mandatory in high noise areas and the same is ensured. The noise levels all around the refinery is being monitored regularly so as to maintain within the standards, prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time) Noise monitoring report for the period is enclosed in Annexure-I
6	The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in 2000 for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commission of the expansion project, if required. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.	The rules and regulations under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and as amended in 2000 are adhered to. Approvals from Chief Inspectorate of Factories, Chief Controller of Explosives etc as applicable for the Numaligarh Refinery have been obtained.
7	Disposal of hazardous wastes shall be as per the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization from the State Pollution Control Board must be obtained for collections/treatment/storage/disposal of hazardous wastes.	The rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management, Handling & Trans Boundary Movement) Rules, 2016 are adhered to. In regard to the same, the authorization for Hazardous Waste has been obtained alongwith the Consolidated Consent and Authorization (CCA) from PCBA which is valid upto 2029.
8	The project authorities will provide adequate funds as non-recurring and recurring expenditure to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	Adequate funds have been provided for implementing the conditions stipulated by MoEF and the State Govt. and not diverted for any other purpose. Environmental expenditure for the period is attached as Annexure-D
9	The company shall develop rainwater harvesting structures to harvest the runoff water for recharge of ground water.	Rooftop rainwater harvesting systems of capacity 20 KL/Day at LPG bottling plant implemented. Roof top rainwater harvesting from a major building having huge potential is being planned and action has been initiated for the same.

10	The stipulated conditions will be monitored by the concerned Regional Office of this Ministry /Central Pollution Control Board/State Pollution Control Board. A six-monthly compliance report and the monitored data should be submitted to them regularly. It will also be displayed on the Website of the Company.	A six-monthly compliance report on the Environmental Clearance conditions of the Numaligarh Refinery along with the monitored data is being submitted regularly to the MoE&F Regional Office. The same is being displayed in the company's website also.
11	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at http://www.envfor.nic.in . This should be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the concerned Regional office of this Ministry.	Advertisement regarding the environmental clearance for the Diesel Quality Upgradation Project (DQUP) was published in two local newspapers namely, The North East Times (in English) and The Amar Asom (Assamese) on the 16th November'08 and copies of both advertisements were forwarded to the MoE&F Regional Office, Shillong vide letter no. NRL/TS/ENV/2.3/07 dated 17.11.08.
12	A separate environment management cell with full-fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.	A fully functional, dedicated environment management cell manned by qualified engineers/officers and headed by a Chief General Manager (Technical) has been continuously working for constant improvement, monitoring, safeguarding and reporting of environmental activities of the refinery. Also, as advised by MoEFCC, 18 Nodal officers from various sections of the refinery have been appointed in May'2024 for compliances of Environment related issues. Also, a multidisciplinary Apex-level Committee on Environment which includes senior level officers from various departments as members under the chairmanship of Director (Technical) constantly guides the Environment Cell regarding all the environmental issues in the refinery. The Apex Committee that convenes quarterly discusses the unresolved issues if any and monitors the regular environmental activities. The laboratory facility had been set up for collection and analysis of samples under the supervision of competent personnel, reporting to the Chief Manager (QC) and who reports to the Chief General Manager (Technical). The QC lab is a NABL accredited Laboratory.
13	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	The same has been complied.

5. Project Name: Paraffin Wax Type (43,300 TPA) and Semi-Microcrystalline Wax Type A (4500 TPA) within the existing premises of 3MMTPA NRL

MoEF&CC File No.: J-110011/113/2009-IA. II (I)

EC Issued Date: Sept' 5th, 2012

Sl. No.	A. Specific Condition	Remarks
1	Compliance to all the environmental conditions stipulated in the environmental clearance letter nos. J011011/16/90-1A.II dated 31 st May, 1991, J011011/92/2003-1A.II (I) dated 13 th February, 2004, J011011/203/2003-IA. II (I) dated 22 nd March, 2004, J011011/272/2008-IA. II (I) dated 10 nd November, 2008 shall be satisfactorily implemented and monitoring reports submitted to the Ministry's Regional Office at Shillong.	Complied. Half yearly compliance report of all ECs regularly being sent to MoEF, RO along with the monitoring reports and displayed on NRL's website.
2	M/s Numaligarh Refinery Limited shall comply with new standards/norms for oil Refinery Industry and petrochemical industry notified under the Environment (protection)-Rules 1986.	The same is being complied as per the requirement.
3	Environmental clearance is subject to their obtaining prior clearance from wildlife angle due to nearby location of Kaziranga National Park (KNP) and clearance from the Standing Committee of the National Board for Wildlife as applicable.	The matter has been discussed with Chief Wildlife Warden of Assam and Director, Kaziranga National Park. As the proposed project has been constructed within the existing refinery premises, it does not require any additional land. As such, the requirement of approval from wild-life angle is not envisaged. Moreover, Approval from SC-NBWL is required for projects falling within 10 km radius from the boundary of PAs in compliance to Supreme Court's order dated 4 th December, 2006 against Writ Petition (Civil) no.460/2004. Numaligarh Refinery is located at a distance more than 10 km radius (22.5 km) from the boundary of Kaziranga National Park- Hence no approval from SC-NBWL is required.

4	No heavy equipments shall be routed through Kaziranga National Park, for which only the route identified earlier shall be used.	Complied.
5	Adequate stack height shall be provided to fuel gas fired heaters as per CPCB/Assam pollution Control Board (APCB) guidelines to disperse waste heat into atmosphere. Low NOx burners shall be installed with on-line analyzers. Low sulfur fuels shall be used in boiler.	All the stacks are provided with adequate stack heights (min. 60 & 77 meters against the requirement of 30 meters). Low NOX burners are installed in all the stacks. Online SO ₂ , NO _x , CO, SPM analysers are installed in all the stacks with realtime data transmission to CPCB server. NRL is using low sulfur fuels in the boilers.
6	Continuous on-line stack monitoring equipment shall be installed for the measurement of particulate matter, VOCs, SO ₂ , NOX, non-methanated Hydrocarbons (Benzene, Xylene and Toluene).	SO ₂ , NO _x , CO, PM analysers are installed in all the stacks with online monitoring and real time data transmission to CPCB server. For continuous monitoring of VOCs, Non-methanated hydrocarbon (Benzene, Xylene and Toluene), online analysers are available with the existing CAAQMS. Data attached as Annexure-II/III
7	Fugitive emissions from HVGO, MVGO and MIBK shall be recovered and controlled. Fugitive emissions in the work environment from product raw material storage area etc. shall be regularly monitored. The emissions shall conform to the limits imposed by Assam Pollution Control Board.	Fugitive emission survey is being carried out with the help of GMI Gaskoseeker as a part of monitoring and control of fugitive emission. The GMI survey has been carried in all gas/vapour valves, light liquid valves, hydrogen valves, light liquid pump seals, hydrocarbon compressor seals, hydrogen compressor seals, safety relief valves, flanges, connections, open-ended lines, drains, tankages, furnaces etc. In case of any leak observed, the same is attended immediately in line with the requirement. Work environment monitoring is also conducted. Fugitive emission data attached as per Annexure V.
8	The process emissions [SO ₂ , NO _x , HC (Methane& Non-methane)] VOCs and Benzene from various units shall conform to the standards prescribed under the Environment Protection Act. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control systems adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	All the emissions parameters are monitored on continuous basis and are well within the prescribed limits. Adequate stack heights are provided in all the furnaces. Automatic online stack analysers have been provided in all the major stacks for continuous monitoring of SO ₂ , NO _x , CO & SPM with real-time emission data transmitted to CPCB server on continuous basis. Further manual stack monitoring is being carried out bi-monthly as per latest MOEF notification. 5 manual ambient air quality monitoring stations and 2 continuous monitoring stations have been installed. Monitoring reports of emissions are regularly submitted to the PCBA Regional Office, Golaghat and CPCB Regional Office along with Half Yearly Compliance report. Monitoring data submitted in Annexure-II/III

9	Ambient air quality monitoring stations [SPM, SO₂, NO_x, H₂S, mercaptan, non-methane-HC, and Benzene shall be set up in the complex in consultation with Assam Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modelling exercise to represent short term GLCS. Ambient air quality shall also be carried in one location at Kaziranga National Park for SO₂, NO₂, SPM, CO and HC.	As an action of compliance, five (5) nos. of ambient air quality monitoring stations have been set up at the following locations: SS 1 : Inside the refinery (Near WT No.5). SS 2 : At the Eco-Park in NRL Township. SS 3 : At the Raw Water Intake. SS 4 : Near the NH-39 bypass. SS 5 : Near the Kaziranga Wildlife Sanctuary at Agartoli. Ambient Air Quality monitoring at the above locations is being carried out in line with NAAQS-2009 in totality. NRL has installed one Continuous Ambient Air Monitoring System inside the refinery premises and real time emission data has been transmitted to CPCB server on continuous basis. One additional continuous Ambient Air Monitoring System inside the refinery premises as recommended by MoEFCC based on occurrence of maximum ground level concentration and down-wind direction of wind installed. Ambient air quality for the period is enclosed as Annexure-III.
10	Ambient air quality data shall be collected as per NAAQMS standard notified by the Ministry on 16th September, 2009 and trend analysis w.r.t past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.	Ambient air quality data is monitored in line with NAAQS, 2009 in totality. 3 nos. mist cannons, wheel washing system have been installed in NRL and regular water sprinkling along roads within and outside the refinery premises are also carried out to improve ambient air quality.
11	Monitoring of fugitive emission shall be carried out as per the guidelines of CPCB by fugitive emission detectors and reports shall be submitted to the Ministry's regional office at Shillong. For control of fugitive emissions all unsaturated hydrocarbon will be routed to the flare system and the flares system shall be designed for smoke less burning.	Presently being practiced as per the requirement. Regular monitoring of fugitive emission has been carried out using GMI. The GMI survey has been carried on all gas/vapour valves, light liquid valves, hydrogen valves, light liquid pump seals, hydrocarbon compressor seals, hydrogen compressor seals, safety relief valves, flanges, connections, open-ended lines, drains, tankages, and furnaces etc. as per the guidelines. In case of any leak observed, the same is attended immediately in line with the requirement. Hydrocarbons are routed to the flare system and the flare system has been designed for smoke less burning.

		Fugitive emission data attached as per Annexure V.
12	A proper Leak Detection and Repair (LDAR) Program shall be prepared and implemented. Focus shall be given for prevention of fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to.	Presently being practiced in line with MoEF notification, 2008.
13	Methyl Iso Butyl Ketone (MIBK) solvent should be handled as per the standard procedure and guidelines issued time to time. MIBK solvents should be stored in cool and dry place, recovered from process through solvent recovery unit and reused in the system.	The system is designed to strictly follow standard procedure & statutory guidelines for handling & storage of MIBK solvent, and is adequate. Also, a highly efficient solvent recovery unit has been implemented to recover and re-use MIBK solvent from foots oil & wax.
14	Total freshwater requirement from River Dhansiri for the proposed unit shall not exceed 60 m ³ /hr. and prior permission shall be obtained from the competent authority. The industrial effluent generation shall not exceed 5 m ³ /hr. The industrial effluents shall be treated in the ETP and the treated effluent shall meet the prescribed standards. Treated effluents shall be recycled/reused within the factory premises. Domestic sewages shall be treated in sewage treatment plant (STP).	NRL has already obtained consent from State Government for drawl of max. 1200 m ³ /hr of water. Additional water requirement and treated effluent discharged is maintained within the limits. The treated effluent quality is maintained within the prescribed standards and about 60-70% treated effluent is being reused/recycled in miscellaneous refinery activities and as Fire water makeup. Domestic sewages are treated in STP and the effluent is routed to refinery ETP.
15	No effluent shall be discharged outside the factory premises and Zero Water Concept shall be adopted.	Treated effluent discharge to outside environment directly from ETP via dedicated pipeline has been discontinued since October'2006 and since April, 2007 township effluent also is being routed to the refinery ETP. Presently there is no dedicated facility for discharging Treated effluent from ETP directly to outside environment. About 60-70% treated effluent is being reused/recycled in miscellaneous refinery activities and as Fire water makeup and rest quantity is system/operational losses in ETP due to various constraints. Treated effluent quality is enclosed as Annexure-IV.
16	Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.	Oil catchers/oil traps are installed in various locations in the storm water channel to avoid any oil carry over to the open channel. Construction of 6 nos additional oil catcher completed. Additionally, NRL has installed a series of hay filers in the storm water channel and oil absorbent booms are used as precautionary measures. Insignificant quantities of emulsified

		oil generated if any is recovered with the help of MOSRU (Mobile Oil Spill Recovery Unit).
17	Methyl-Iso-Butyl Ketone (MIBK) shall not be allowed to mix with the effluents as well as with storm water and ground water.	Due consideration has been taken in the unit design to avoid MIBK carryover along with effluent. Moreover, a dedicated MIBK close blow-down facility along with recovery system has been incorporated to avoid intermixing of MIBK with streams of storm water and ground water thereby preventing contamination.
18	Oily sludge shall be disposed off into coker. Annual oily sludge generation and shall be submitted to the Ministry's Regional Office and CPCB.	NRL produces Anode grade coke which is further processed in Coke Calcination Unit (CCU) to get high value Calcined Petroleum coke (CPC). Trial run for processing of sludge in Delayed Coker Unit (DCU) was carried out on an experimental basis. However, the process led to the deterioration of the CPC quality to a great extent and the experiment had to be called off. Instead, NRL follows a robust sludge handling process for disposal wherein oily sludge is suitably disposed in Secured Landfill and also through bioremediation or is being sold to CPCB authorized recyclers. To waive this condition NRL submitted one application to MoEF, Delhi on 29.01.19. Form-IV Annual return on hazardous waste is being submitted to PCBA regularly and attached as Annexure-E.
19	The Company should strictly comply with the rules and guidelines under Manufacture, and import of Hazardous storage chemical Rules, 1989 as amended in october,1994 and January 2000. Hazardous waste should be disposed of as per Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2008 and amended time to time.	The rules and regulations under MSIHC1989 as amended in 2000 and Hazardous waste management rules 2016 are strictly adhered to.
20	The membership of common TSDF should be obtained for the disposal of hazardous waste. Otherwise, secured land fill should be created at the site as per the guidelines of CPCB and obtain authorization from the SPCB. Copy of authorization or membership of TSDF should be submitted to Ministry's Regional office at Shillong.	No such common TSDF Facilities are available in NER. NRL has installed an SLF of capacity 6000 m3 as per CPCB guidelines.
21	Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products of and ensure regular monitoring.	The Storm Water Channel from various units are connected and channel through Oil Catchers and also Hay Filters& Oil absorbent booms are installed at various locations. The final outlet of storm water channel is closed immediately in case of any accidental oil carryover and is trapped

		in the oil catcher for necessary removal. The accumulated oil from the oil catchers is lifted with the help of MOSRU (Mobile Oil Spill Recovery Unit). Oily wastewater & contaminated rainwater from various units is routed through OWS (Oily Water Sewer) & CRWS (Contaminated Rain Water Sewer) to ETP for necessary oil removal and treatment in various sections. The slop oil is recovered in ETP and sent to OM&S for needful reprocessing in process units.
22	The company shall strictly follow all the recommendation mentioned in the charter of Corporate Responsibility for Environmental Protection (CREP).	The same is being complied. CREP compliance status has been provided in Annexure-G .
23	The company shall take necessary measures to prevent fire hazards containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during flaring.	Adequate measures taken up by NRL for prevention of fire hazards. Knockout drums are installed in both the flare systems.
24	To prevent fire and explosion at oil and gas facility, potential ignition sources shall be minimum and kept to a adequate separation distance between potential ignition sources and flammable material shall be in place.	Complied.
25	Green belt shall be developed at least in 33% of the total plant area in and around the plant premises to mitigate the effects of fugitive emissions all around the plant as per CPCB guidelines in consultation with DFO. Thick greenbelt with suitable plant species shall be developed around units. Selection of plant species as per the CPCB guidelines	Initially, as per Environmental Clearance granted for the Numaligarh Refinery Project, Ministry of Environment & Forest had stipulated a 500 mtrs wide green belt all around the refinery based on the EIA of Numaligarh Refinery carried out by NEERI. On request from Numaligarh Refinery, the width of the Green Belt was later reduced from the suggested width of 500 mtrs to 100 mtrs because of the reason that almost all the surrounding areas are having tea garden with shade trees (Sirish trees). A wide natural green belt already existed all around the refinery. Accordingly, a Green Belt covering a total area of around 56 hectares of land and around 100 mtrs width around the refinery and around 25 mtrs width around the NRMT has been developed as per the Green Belt Development Plan. (The Green Belt Development Plan has been submitted to MoEF along with the Half Yearly Report to MOEF on the 15th October, 2001).

		Massive Plantation have been carried out in the Green Belt so that it can provide a natural barrier for attenuation of noise and air pollution. No. of local variety have been planted including some fruit bearing samplings in & all around Green Belt. Again it has been planned to increase the density by planting more saplings in the Green Belt in the days ahead. Initiatives for plantation under Compensatory Afforestation drive in degraded areas has been taken up at Nakkati Chapori, Golaghat (40 Ha), Kandoli Reserve Forest, Nagaon (35 Ha) and Abhoypur village, Dibrugarh (28 Ha.)
26	Company shall prepare project specific environmental manual and a copy should be made available at the project site for the compliance.	Project specific environmental manual prepared and also Submitted to IRO,GHY.
27	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	All recommendations have been implemented. Moreover, Quantitative risk assessment is carried out every 5 years. The Emergency Response and Disaster Management Plan was certified on 28.12.2022 and the certification is valid till 27.12.2025.
28	All the issues raised and committed made during the public hearing/consultation meeting held on 14 th July, 2011 shall be satisfactorily implemented. Accordingly, provision of budget to be kept.	Complied.
29	Company shall adopt Corporate Environment policy as per the Ministry's O M. No. J- 11013/41/2006-IA(I) dated 26 th April, 2011and implemented.	NRL has already adopted a Env. policy as per the requirement of Environment Management ISO 14001.
30	Provision shall be made for the housing of construction labour within the site with infrastructure and all necessary facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied.
Sl. No.	General Condition	Remarks
1	The project authorities must strictly adhere to the stipulations made by the State pollution Control Board (SPCB) Stale Government and any other statutory authority.	The stipulations made by the Pollution Control Board of Assam and the State Government are strictly adhered to.
2	No further expansion or modification in the project shall be carried out without prior approval from the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to	Any expansion or modernization in the plant will be taken up only with prior approval of the Ministry of Environment & Forests.

	this Ministry for clearance a, fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environment protection measures required if any.	
3	The project authorities to strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2008 as amended subsequently. Prior approvals from Chief Inspector of Factories Chief Controller of Explosives Fire Safety Inspector must be obtained wherever applicable.	The rules and regulations under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and as amended in 2000 are adhered to. Approvals from Chief Inspectorate of Factories, Chief Controller of Explosives etc as applicable for the Numaligarh Refinery have been obtained.
4	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under PAR ules,1 989v iz.75 dBA (daytime) and 70 dBA (nighttime).	The major sources of noise generation in the proposed project are the pumps and the blowers. Strong foundations provided to mitigate the noise generation further. The equipment being monitored regularly at a distance of 01 mtr from the source and corrective measure being taken to maintain the noise level below 85 dBA. The ambient noise levels all around the refinery is being monitored regularly so as to maintain within the standards, prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time). Noise report for the period has been enclosed as per Annexure I.
5	A separate Environmental Management Cell equipped with full-fledged laboratory facilities must be set up to carry out the environmental management on monitoring functions.	A fully functional, dedicated environment management cell manned by qualified engineers/officers and headed by a Chief General Manager (Technical) has been continuously working for constant improvement, monitoring, safeguarding and reporting of environmental activities of the refinery. Also, as advised by MoEFCC, 18 Nodal officers from various sections of the refinery have been appointed in May'2024 for compliances of Environment related issues. Also, a multidisciplinary Apex-level Committee on Environment which includes senior level officers from various departments as members under the chairmanship of Director (Technical) constantly guides the Environment Cell regarding all the environmental issues in the refinery. The Apex Committee that convenes quarterly discusses the unresolved issues if any and monitors the regular environmental activities. The laboratory facility had been set up for collection and analysis of samples under the supervision of competent personnel, reporting to the

		Chief Manager (QC) and who reports to the Chief General Manager (Technical). The QC lab is a NABL accredited Laboratory.
6	Adequate funds shall be earmarked towards capital cost and recurring cost/ annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.	Adequate funds have been provided for implementing the conditions stipulated by MoEF and the State Govt. and not diverted for any other purpose. Environmental expenditure Submitted as Annexure-D for the period.
7	The Regional office of this Ministry/Central Pollution Control Board//State Pollution Control Board will monitor the stipulated conditions. A six-monthly compliance report and the monitored data along with statistical interpretations shall be submitted to them regularly.	Six monthly compliance report is being sent to the Regional Office of this Ministry/Central Pollution Control board/State Pollution Control Board as per the requirement.
8	A copy of clearance letter shall be sent by the proponent to concerned Panchayat/ Zila Parishad/ Municipal Corporation/ Urban Local Body and the local NGO if any, from whom suggestion/representation if, any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	Copy of the clearance letter sent to concerned Panchayat/ Zila Parishad/ Circle Office.
9	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely SPM, RSPM, SO ₂ , NO _x , HC (Methane& Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Complied.
10	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The Regional office of this Ministry/ CPCB/ SPCB shall monitor the stipulated conditions	Six monthly report on the status of compliance of environmental conditions along with monitored data is submitted regularly. The same is being displayed in the company's website also.
11	The environmental statement for each financial year ending 31 st March, in form-IV as is mandated to be submitted by the project proponent to the	Environmental Statement for each financial year ending 31st March, in form-V is being sent to SPCB every year as per the requirements.

	concerned state pollution control board as prescribed under the Environment (Protection) Rules 1986 as mended subsequently shall also be put in the website of the company alongwith the status of compliance of environmental conditions and shall also be sent to the respective Regional offices of the MoEF by e-mail.	The same is being displayed in the company's website also. The environmental statement for financial year, 23-24 as per Form-V submitted and attached as Annexure- F.
12	The Project Proponent shall inform the public that the project has been accorded environmental clearance by Ministry and copies of the clearance letter area available with the SPCB and may also be seen at website of the Ministry of Environment & Forests at http:// envfor.nic.in . this shall be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locally concerned and a copy of the same shall be forwarded to the Regional Office.	The same has been complied. Advertisement regarding the environmental clearance was published in two local newspapers namely, The Assam Tribune (in English) dated 13.09.2012 and The Amar Axom (Assamese) dated 12.09.2012. Copies of both advertisements were forwarded to the MoEF Regional Office.
13	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Complied.
14	The Ministry may revoke or suspend the clearance, if implementation of any of the above Conditions is not satisfactory	The same has been noted.
15	The Ministry reserves the right to stipulate additional conditions if found necessary. Company in a time bound manner shall implement these conditions.	The same has been noted.
16	The above conditions will be enforced inter-alia under the provisions of Water (Prevention & Control of pollution) Act 1974, Air (Prevention & control of Pollution) Act' 1981' the Environment (Protection) Act 1986, Hazardous Waste (Management Handling and Transboundary Movement) Rules 2008 and the Public Liability Insurance Act 1991 alonwith their amendments and rules	The same has been noted.

6. Project Name : Naphtha Splitter Unit (160,000 TPA) within the existing 3 MMTPA Refinery

MoEF&CC File No.: J-11011/534/2009-IA. II (I)

EC Issued Date: Sept 12, 2012

Sl. No.	A. Specific Condition	Remarks
1	Compliance to all the environmental conditions stipulated in the environmental clearance letter nos J011011/16/90-IA.II dated 31 st May, 1991, J011011/92/2003-IA.II dated 13 th February, 2004, J011011/272/2008-IA.II (I) dated 10 th November, 2008 shall be satisfactorily implemented and monitoring reports submitted to the Ministry's Regional Office at Shillong.	Half yearly compliance report of all ECs along with monitoring reports are regularly being sent to MoEF.
2	Environmental clearance is subject to their obtaining prior clearance from Wildlife angle due to location of Kaziranga National Park (KNP) nearby including clearance from the Standing Committee of the National Board for Wildlife as applicable.	The matter has been discussed with Chief Wildlife Warden of Assam and Director, Kaziranga National Park. As the proposed project has been constructed within the existing refinery premises, it does not require any additional land. As such, the requirement of approval from wild-life angle is not envisaged. Moreover, Approval from SC-NBWL is required for projects falling within 10 km radius from the boundary of PAs in compliance to Supreme Court's order dated 4 th December, 2006 against Writ Petition (Civil) no.460/2004 .Numaligarh Refinery is located at distance more than 10 km radius (22.5 km) from the boundary of Kaziranga National Park- Hence no approval from SC-NBWL is required.
3	No heavy equipments shall be routed through Kaziranga National Park, for which only the route identified earlier shall be used.	Complied.
4	M/s Numaligarh Refinery Limited shall comply with new standards/norms for oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide GSR 186 (E) dated 18 th March, 2008.	NRL is complying with the new standards/norms as per the MoEF notification 2008. The monitoring reports for gaseous emissions and liquid effluent are attached as per Annexure II/III/IV Fugitive emission report is also enclosed as Annexure V Compliance status of few other points are as follows:

		Secondary seals in IFRT and EFRT tanks -installation of double seals in EFRT, IFRT completed. LDAR-programme is implemented. VOC recovery system in ETP has been implemented.
5	Continuous online stack monitoring for SO ₂ and SPM of all the stacks shall be carried out. SO ₂ on-line analysers shall be installed in all the furnace stacks. Low NO _x burners shall be installed with online analysers to monitor NO _x emissions shall be provided.	Low NO_x burners have been provided in all the furnaces. Online stack analysers have been provided in all the major stacks for continuous monitoring of SO₂, NO_x, CO and SPM with real time data transmission to CPCB.
6	The process emissions [SO ₂ , NO _x , HC (Methane & Non-methane)], VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act, 2008. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control systems(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	All the emissions parameters are monitored on continuous basis and are well within the prescribed limits. Adequate stack heights are provided in all the furnaces. Automatic online stack analysers have been provided in all the major stacks for continuous monitoring of SO₂, NO_x, CO & SPM with Real-time emission data has been transmitted to CPCB server on continuous basis. Further, manual stack monitoring is being carried out bi-monthly as per latest MOEF notification. 5 manual ambient air quality monitoring stations and 2 continuous monitoring stations have been installed. Monitoring reports of emissions are regularly submitted to the PCBA Regional Office, Golaghat and CPCB Regional Office. Monitoring data submitted in Annexure-II/III.
7	Ambient air quality monitoring stations [SPM, SO ₂ , NO _x , H ₂ S, Mercaptan, non-methane-HC, and benzene] shall be set up in the complex in consultation with Assam State Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs. Ambient air quality shall also be carried out in one location at Kaziranga National Park for SO _x , NO _x , SPM, CO & HC.	As an action of compliance, five (5) nos. of ambient air quality monitoring stations have been set up at the following locations: SS 1: Inside the refinery (Near WT No.5). SS 2: At the Eco-Park in NRL Township. SS 3: At the Raw Water Intake. SS 4: Near the NH-39 bypass. SS 5: Near the Kaziranga Wildlife Sanctuary at Agartoli. -Ambient Air Quality monitoring at the above locations is being carried out in line with NAAQS-2009 in totality. Automatic online stack analysers have been provided in all the major Stacks for continuous monitoring of SO₂, NO_x, CO & SPM. The monitoring reports of emissions are regularly submitted to the PCBA Regional Office, Golaghat and CPCB Regional Office, Shillong and to the MoEFCC Regional Office, Shillong.

		NRL has installed one Continuous Ambient Air Monitoring System inside the refinery premises and real-time emission data has been transmitted to the CPCB server continuously. One additional continuous Ambient Air Monitoring System inside the refinery premises as recommended by MoEFCC based on the occurrence of maximum ground level concentration and down-wind direction of wind installed. Monitoring reports for the period is enclosed as Annexure –III
8	Ambient air quality data shall be collected as per NAAQMS notified by the Ministry on 16 th September, 2009 and trend analysis wrt. past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.	Ambient air quality data is monitored in line with NAAQS, 2009 in totality. 3 nos. mist cannons, wheel washing system have in installed in NRL and regular water sprinkling along roads within and outside the refinery premises are also carried out to improve ambient air quality.
9	Monitoring of fugitive emissions shall be carried out as per the guidelines of CPCB by fugitive emission detectors and reports shall be submitted to the Ministry's Regional Office at Shillong. For control of fugitive emissions, all unsaturated hydrocarbon will be routed to the flare system and the flare system shall be designed for smoke less burning.	Presently being practiced as per the requirement. Regular monitoring of fugitive emission has been carried out using GMI. The GMI survey has been carried on all gas/vapour valves, light liquid valves, hydrogen valves, light liquid pump seals, hydrocarbon compressor seals, hydrogen compressor seals, safety relief valves, flanges, connections, open-ended lines, drains, tankages, and furnaces etc. as per the guidelines. In case of any leak observed, the same is attended immediately in line with the requirement. Hydrocarbon are routed to the flare system and the flare system has been designed for smoke less burning. Fugitive emission data attached as per Annexure V.
10	Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall also be provided at strategic locations. The company shall use low Sulphur fuel to minimize SO ₂ emissions. Sulphur recovery units shall be installed for control of H ₂ S emissions. Leak detection and Repair programme shall be implemented to control HC/VOC emissions. Work zone monitoring shall be carried out near the storage tanks besides monitoring of HCs/VOCs in the work zone.	Regular fugitive emission survey is being carried out with the help of GMI as a part of monitoring and control of fugitive emission. The GMI survey is being practiced in all the Process Units, Tankage areas, Marketing Terminal, and other important locations. Gas detectors are also installed at strategic locations. Low sulphur fuels is being used in all the furnaces to minimize SO₂ emissions. SRU is already installed during the commissioning of the refinery. LDAR programme is implemented. Work environment monitoring in all major areas is carried out.
11	As proposed, record of sulphur balance shall be maintained at the Refinery as a part of the environmental data on regular basis. The basis component of sulphur balance includes sulphur input through feed (sulphur content in	The total sulphur emission from the refinery is maintained below 128 kg/hr as Sulphur (256 kg/hr as SO₂). SO₂ emission from the refinery is 58.6 kg/hr avg for the period. Regular sulphur balance of the refinery is maintained.

	crude oil), sulphur output from Refinery through products, byproduct (elemental sulphur), and atmospheric emissions. etc.	
12	The total water requirement shall not exceed 11907 m3/day and prior permission shall be obtained from the competent authority. The wastewater shall be treated in the waste water treatment plant and the treated effluent shall meet the prescribed standards. Treated effluent shall be recycled/reused within the factory premises. Domestic sewage shall be treated in sewage treatment plant (STP).	NRL has already obtained consent from State Government for drawl of max. 1200 m3/hr of water. Additional water requirement and treated effluent discharged is maintained within the limits. The treated effluent quality is maintained within the prescribed standards and about 60-70% treated effluent is being reused/recycled in miscellaneous refinery activities and as Fire water makeup. Domestic sewages are treated in STP, and the effluent is routed to refinery ETP.
13	No effluent shall be discharged outside the factory premises and “zero water concept” shall be adopted.	Treated effluent discharge to the outside environment directly from ETP via a dedicated pipeline has been discontinued since October’2006 and since April, 2007 township effluent also is being routed to the refinery ETP. Presently there is no dedicated facility for discharging Treated effluent from ETP directly to outside environment. About 60-70% treated effluent is being reused/recycled in miscellaneous refinery activities and as Fire water makeup and rest quantity is system/operational losses in ETP due to various constraints. Treated effluent quality is enclosed as Annexure-IV.
14	Oil catchers/oil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.	Oil catchers/oil traps are installed in various locations in the stormwater channel to avoid any oil carryover to the open channel. Construction of 6 nos additional oil catcher completed. Additionally, NRL has installed a series of hay filers in the stormwater channel, and oil-absorbent booms are used as precautionary measures. Insignificant quantities of emulsified oil generated if any are recovered with the help of MOSRU (Mobile Oil Spill Recovery Unit).
15	Oily sludge shall be disposed off into Coker. Annual Oily Sludge generation and disposal data shall be submitted to the Ministry’s Regional Office and CPCB.	NRL produces Anode grade coke which is further processed in Coke Calcination Unit (CCU) to get high value Calcined Petroleum coke (CPC). Trial run for processing of sludge in Delayed Coker Unit (DCU) was carried out on an experimental basis. However, the process led to the deterioration of the CPC quality to a great extent and the experiment had to be called off. Instead, NRL follows a robust sludge handling process for disposal wherein oily sludge is suitably disposed in Secured Landfill

		and through bioremediation or is being sold to CPCB authorized recyclers. To waive this condition NRL submitted one application to MoEF, Delhi on 29.01.19. Form-IV Annual return on hazardous waste is being submitted regularly to PCBA and attached as Annexure-E.
16	The project authorities must strictly comply with the rules and regulation with regard to handling and disposal of Hazardous Waste (Management, Handling and Tran boundary Movement) Rules, 2008 wherever applicable. Authorization from the State Pollution Control Board must be obtained for collection/treatment/storage/disposal of hazardous wastes	The rules and regulations under the Hazardous Waste (Management, handling and Trans-boundary Movement) Rules, 2016 are adhered to. Approvals from State Pollution Control Board for authorization (management, handling & disposal) of hazardous waste as per the requirement) has been obtained. In regard to the same, the authorization for Hazardous Waste has been obtained alongwith the Consolidated Consent and Authorization (CCA) from PCBA which is valid upto 2029.
17	Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.	The Storm Water Channel from various units are connected and channel through Oil Catchers and also Hay Filters& Oil absorbent booms are installed at various locations. The final outlet of storm water channel is closed immediately in case of any accidental oil carryover and is trapped in the oil catcher for necessary removal. The accumulated oil from the oil catchers is lifted with the help of MOSRU (Mobile Oil Spill Recovery Unit). Oily wastewater & contaminated rainwater from various units is routed through OWS (Oily Water Sewer) & CRWS (Contaminated Rain Water Sewer) to ETP for necessary oil removal and treatment in various sections. The slop oil is recovered in ETP and sent to OM&S for needful reprocessing in process units.
18	The company shall strictly follow all the recommendation mentioned on the Charter on corporate Responsibility for Environmental protection (CREP).	Complied. CREP compliance status has been provided in Annexure-G.
19	The Company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during flaring.	Adequate measures taken up by NRL for prevention of fire hazards. Knockout drums are installed in both the flare systems.

20	To prevent fire and explosion at oil and gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable material shall be in place.	Complied.
21	Green belt shall be developed at least in 33% of the plant area in and around plant premises to mitigate the effects of fugitive emissions all around the plant as per the CPCB guidelines in consultation with DFO. Thick greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.	Initially, as per Environmental Clearance granted for the Numaligarh Refinery Project, Ministry of Environment & Forest had stipulated a 500 mtrs wide green belt all around the refinery based on the EIA of Numaligarh Refinery carried out by NEERI. On request from Numaligarh Refinery, the width of the Green Belt was later reduced from the suggested width of 500 mtrs to 100 mtrs because of the reason that almost all the surrounding areas are having tea garden with shade trees (Sirish trees). A wide natural green belt already existed all around the refinery. Accordingly, a Green Belt covering a total area of around 56 hectares of land and around 100 mtrs width around the refinery and around 25 mtrs width around the NRMT has been developed as per the Green Belt Development Plan. (The Green Belt Development Plan has been submitted to MoEF along with the Half Yearly Report to MOEF on the 15th October, 2001). Massive Plantation have been carried out in the Green Belt so that it can provide a natural barrier for attenuation of noise and air pollution. No. of local variety have been planted including some fruit bearing samplings in & all around Green Belt. Again it has been planned to increase the density by planting more saplings in the Green Belt in the days ahead. Initiatives for plantation under Compensatory Afforestation drive in degraded areas has been taken up at Nakkati Chapori, Golaghat (40 Ha), Kandoli Reserve Forest, Nagaon (35 Ha) and Abhoypur village, Golaghat (28 Ha.)
22	Company shall prepare project specific environmental manual and a copy shall be made available at the project site for the compliance.	Project specific environmental manual prepared and also submitted to IRO,GHY
23	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	All recommendations have been implemented. Moreover, Quantitative risk assessment is carried out every 5 years. The Emergency Response and Disaster Management Plan was certified on 28.12.2022 and the certification is valid till 27.12.2025.

24	All the issue raised in the public hearing/consultation meeting held on 14 th July, 2011 shall be satisfactorily implemented.	Complied.
25	Company shall adopt Corporate Environment Policy as per the Ministry's O.M No. J-11013/41/2006-IA.II (I) dated 26 th April, 2011 and implemented.	NRL has already adopted a Env. policy as per the requirement of Environment Management ISO 14001.
26	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after completion of the project.	Complied.
Sl. No.	General Condition	Remarks
1	The project authorities must strictly adhere to the stipulations by the State Pollution Control Board (SPCB), State Government and any other statutory authority	The stipulations made by the Pollution Control Board of Assam and the State Government are strictly adhered to
2	No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Any expansion or modernization in the plant will be taken up only with prior approval of the Ministry of Environment & Forests.
3	The project authorities must strictly comply with the rules and regulations under Manufacturer, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspector of Factories, Chief Controller of Explosives, Fire Safety Inspectors etc. must be obtained, whenever applicable	The rules and regulations under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and as amended in 2000 are adhered to. Approvals from Chief Inspectorate of Factories, Chief Controller of Explosives etc as applicable for the Numaligarh Refinery have been obtained.
4	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustics hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).	The major sources of noise generation in the proposed project are the pumps and the Air coolers. Strong foundations have been provided to mitigate the noise generation further. PPE use is mandatory in high noise areas and the same is ensured. The equipment are monitored regularly and the ambient noise levels all around the refinery is being monitored

		regularly so as to maintain within the standards, prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time). Noise monitoring report for the period enclosed as Annexure-I
5	A separate Environmental Management Cell equipped with full-fledged laboratory facilities must be set up to carry out the environment management and monitoring functions.	A fully functional, dedicated environment management cell manned by qualified engineers/officers and headed by a Chief General Manager (Technical) has been continuously working for constant improvement, monitoring, safeguarding and reporting of environmental activities of the refinery. Also, as advised by MoEFCC, 18 Nodal officers from various sections of the refinery have been appointed in May'2024 for compliances of Environment related issues. Also, a multidisciplinary Apex-level Committee on Environment which includes senior level officers from various departments as members under the chairmanship of Director (Technical) constantly guides the Environment Cell regarding all the environmental issues in the refinery. The Apex Committee that convenes quarterly discusses the unresolved issues if any and monitors the regular environmental activities. The laboratory facility had been set up for collection and analysis of samples under the supervision of competent personnel, reporting to the Chief Manager (QC) and who reports to the Chief General Manager (Technical). The QC lab is a NABL accredited Laboratory.
6	Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment protection control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.	Adequate funds have been provided for implementing the conditions stipulated by MoEF and the State Govt. and shall not be diverted for any other purpose. Environmental expenditure submitted as Annexure-D for the period.
7	The Regional Office of this Ministry/Central Pollution Control board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	Six monthly compliance report along with monitoring reports is being sent to the Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board as per the requirement.
8	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestion/ representation, if any, were	Copy of the clearance letter sent to concerned Panchayat/ Zila Parishad/ Circle Office and also available in NRL website.

	received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	
9	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO ₂ , NO _x , HC (Methane & Non-methane), VOCs (ambient levels as well as stack emission) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	The same is complied.
10	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry/ CPCB/ SPCB/ shall monitor the stipulated conditions.	A six-monthly compliance report on the Environmental Clearance conditions of the Numaligarh Refinery along with the monitoring data is being submitted regularly to the MoE&F Regional Office. The same is being displayed in the company's website also.
11	The environmental statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986. As amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.	Environmental Statement for each financial year ending 31 st March, in form-V is being sent to SPCB every year as per the requirements. The same is being displayed in the company's website also. The environmental statement for financial year, 23-24 as per Form-V submitted and attached as Annexure- F.
12	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locally concerned and a copy of the same shall be forwarded to the Regional Office.	The same has been complied. Advertisement regarding the environmental clearance for the Naphtha Splitter Unit (NSU) was published in two local newspapers namely, The Assam Tribune (in English) and The Dainik Janambhumi (in Assamese (on the 21 st of September'12 and copies of both the advertisements were forwarded to the MOEF Regional Office, Shillong.

13	Project authorities shall inform the Regional Office as well as the Ministry , the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Complied.
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7. Project Name: Installation of new LPG Mounded Bullet and up-gradation of existing LPG Bottling Plant and BS-IV HSD project by adding DHT unit at NRL

MoEF&CC File No.: J-110011/150/2015-IA. II (I)

EC Issued Date: Dec' 9th, 2016

Sl. No.	A. Specific Condition	Remarks
1	NRL shall comply with new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18th March, 2008.	NRL is complying with the new standards/norms as per the MoEF notification 2008. The monitoring reports for gaseous emissions and liquid effluent are attached as per Annexure II/III/IV Fugitive emission report is also enclosed as Annexure V. Compliance status of few other points are as follows: Secondary seals in IFRT and EFRT tanks -installation of double seals in EFRT, IFRT completed. LDAR-programme is implemented. VOC recovery system in ETP has been implemented.
2	Compliance to all the environmental conditions stipulated in the environmental clearance letter nos. J011011/16/90-1A.II dated 31.05.1991, J011014/2/1991-1A (I) dated 18.01.1994, J011011/92/2003-1A.II (I) dated 13.02.2004, J011011/203/2003-IA. II (I) dated 22.03.2004, J011011/272/2008-IA. II (I) dated 10.11.2008, J011011/113/2009-IA. II (I) dated 05.09.2012, J011011/534/2009-IA. II (I) dated 12.09.2012 shall be satisfactorily implemented and monitoring reports submitted to the Ministry's Regional Office at Shillong.	Half yearly compliance report of all ECs and monitoring reports are regularly being submitted to MoEF, RO.

3	Continuous on-line stack monitoring for SO ₂ , NO _x and CO of all the stacks shall be carried out. Low NO _x burners shall be installed	Low NO _x burners installed in all the stacks. Online SO ₂ , NO _x , CO and SPM analyser installed in all the stacks with realtime data transmission to CPCB server.
4	The process emissions [SO ₂ , NO _x , HC (Methane & Non-methane)], VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act. In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency of the pollution control device has been achieved.	All the emissions parameters are monitored on continuous basis and are well within the prescribed limits. Adequate stack heights are provided in all the furnaces. Automatic online stack analysers have been provided in all the major stacks for continuous monitoring of SO ₂ , NO _x , CO & SPM with Real-time emission data has been transmitted to CPCB server on a continuous basis. Further manual stack monitoring is being carried out bi-monthly as per latest MOEF notification. 5 manual ambient air quality monitoring stations and 2 continuous monitoring stations have been installed. Monitoring reports of emissions are regularly submitted to the PCBA Regional Office, Golaghat and CPCB Regional Office. Monitoring data submitted in Annexure-II/III.
5	Leak Detection and Repair programme shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.	LDAR program implemented. Fugitive emissions survey is conducted in all major locations and monitoring report is also prepared and submitted. Fugitive emission data attached as per Annexure V. Gas detectors for detecting HC leakages have been installed at strategic locations of the refinery.
6	SO ₂ emissions after expansion from the plant shall not exceed 256 kg/hr and further efforts shall be made for reduction of SO ₂ load through use of low sulphur fuel. Sulphur recovery unit with tail gas treating facilities having 99.9% efficiency shall be provided.	SO ₂ emission for this period is 58.6 kg/hr avg. which is well below the allowable limit of 256 kg/hr. SRU with Tail Gas Treating Unit Facilities commissioned.
7	As proposed, record of sulphur balance shall be maintained at the Refinery as part of the environmental data on regular basis. The basic component of sulphur balance include sulphur input through feed (sulphur content in crude oil), sulphur output from Refinery through products, byproduct (elemental sulphur), atmospheric emissions etc.	Regular Sulphur balance for the refinery is carried out and record maintained. Also, overall sulphur balance post DHDT is prepared.
8	Ambient air quality monitoring stations, [PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , H ₂ S, mercaptan, non-methane-HC and Benzene] shall be set up in the complex	As an action of compliance, five (5) nos. of ambient air quality monitoring stations have been set up at the following locations:

	in consultation with Maharashtra Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind	SS 1: Inside the refinery (Near WT No.5). SS 2: At the Eco-Park in NRL Township. SS 3: At the Raw Water Intake. SS 4: Near the NH-39 bypass. SS 5: Near the Kaziranga Wildlife Sanctuary at Agoratoli. -Ambient Air Quality monitoring at the above locations is being carried out in line with NAAQS-2009 in totality. Automatic online stack analysers have been provided in all the major Stacks for continuous monitoring of SO₂, NO_x, CO & SPM. The monitoring reports of emissions are regularly submitted to the PCBA Regional Office, Golaghat and CPCB Regional Office, Shillong and to the MoEFCC Regional Office, Shillong. NRL has installed one Continuous Ambient Air Monitoring System inside the refinery premises and realtime emission data has been transmitted to CPCB server on continuous basis. One additional continuous Ambient Air Monitoring System inside the refinery premises as recommended by MoEFCC based on occurrence of maximum ground level concentration and down-wind direction of wind installed. Monitoring reports for the period is enclosed as Annexure –III
9	The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.	Complied as per CPCB standard.
10	Fresh water requirement from Dhansiri River shall not exceed 688 m ³ /hr after expansion and prior permission shall be obtained from the competent authority. Industrial effluent generation will be 130 m ³ /hr and treated in the Effluent Treatment Plant. Treated effluent shall be fully reused/recycled as make-up water for raw water cooling towers.	NRL has already obtained consent from State Government for drawl of max. 1200 m³/hr of water. Additional water requirement and treated effluent discharged is maintained within the limits. The treated effluent quality is maintained within the prescribed standards and about 60-70% treated effluent is being reused/recycled in miscellaneous refinery activities and as Fire water makeup. Permission letter submitted to IRO, GHY.
11	No effluent shall be discharged outside the plant premises and Zero effluent discharge concept shall be followed	Treated effluent discharge to outside environment directly from ETP via dedicated pipeline has been discontinued since October'2006 and since April, 2007 township effluent also is being routed to the refinery ETP. Presently there is no dedicated facility for discharging Treated effluent from ETP directly to outside environment. About 60-70% treated

		effluent is being reused/recycled in miscellaneous refinery activities and as Fire water makeup and rest quantity is system/operational losses in ETP due to various constraints. Treated effluent quality is enclosed as Annexure-IV.
12	Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MoEF&CC. Outcome from the report to be implemented for conservation scheme	Water audit completed. Audit report submitted to IRO, GHY
13	Automatic /online monitoring system (24 x 7 monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB, Regional Office of MoEFCC and in the Company's website.	Flowmeter in the treated effluent line installed in Nov'18. For pollutant level measurement pH & TOC (for measurement of COD & BOD) analyser already exist. TSS analyser installed in Nov'18.
14	Oil catchers/oil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.	Oil catchers/oil traps are installed in various locations in the storm water channel to avoid any oil carry over to the open channel. Additionally, NRL has installed a series of hay fliters in the storm water channel and used oil absorbent booms as precautionary measures. Insignificant quantities of emulsified oil generated if any has been recovered and reused with the help of MOSRU (Mobile Oil Spill Recovery Unit). Construction of 6 nos new oil catcher Near CDU, HCU, OMS north, near ETP, near PH-3, near storm water final O/L completed.
15	Oily sludge shall be disposed off into Coker. Annual Oily sludge generation and disposal data shall be submitted to the Ministry's Regional Office and CPCB.	NRL produces Anode grade coke which is further processed in Coke Calcination Unit (CCU) to get high value Calcined Petroleum coke (CPC). Trial run for processing of sludge in Delayed Coker Unit (DCU) was carried out on an experimental basis. However, the process led to the deterioration of the CPC quality to a great extent and the experiment had to be called off. Instead, NRL follows a robust sludge handling process for disposal wherein oily sludge is suitably disposed in Secured Landfill or is being sold to CPCB authorized recyclers. To waive this condition NRL submitted one application to MoEF, Delhi on 29.01.19. Form-IV Annual return on hazardous waste is being regularly submitted to PCBA and attached as Annexure -E
16	The Company should strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000. Hazardous waste should be	The rules and regulations under MSIHC1989 as amended in 2000 and Hazardous waste management rules 2016 are adhered to. The authorization for Hazardous Waste has been obtained along with the

	disposed of as per Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and amended time to time	Consolidated Consent and Authorization (CCA) from PCBA which is valid upto 2029.
17	The membership of common TSDF should be obtained for the disposal of hazardous waste. Copy of authorization or membership of TSDF should be submitted to Ministry's Regional Office at Shillong. Chemical/inorganic sludge shall be sent to treatment storage disposal facility (TSDF) for hazardous waste. Spent catalyst shall be sent to authorized recyclers/re-processors.	No common TSDF facility is available in the NER. NRL has its own SLF of capacity 6000 m3 for a safe and systematic disposal of hazardous materials as per CPCB recommendation. Spent catalyst generated is disposed of through authorized recyclers.
18	Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring	The Storm Water Channel from various units are connected and channel through Oil Catchers and also Hay Filters& Oil absorbent booms are installed at various locations. The final outlet of storm water channel is closed immediately in case of any accidental oil carryover and is trapped in the oil catcher for necessary removal. The accumulated oil from the oil catchers is lifted with the help of MOSRU (Mobile Oil Spill Recovery Unit). Oily wastewater & contaminated rainwater from various units is routed through OWS (Oily Water Sewer) & CRWS (Contaminated Rain Water Sewer) to ETP for necessary oil removal and treatment in various sections. The slop oil is recovered in ETP and sent to OM&S for needful reprocessing in process units.
19	Acoustic enclosure /silencer shall be installed wherever it is possible	Complied
20	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act	Health checkup of workers is carried out and records are maintained on a regular basis.
21	The company should make the arrangement for protection of possible fire and explosion hazards during construction and operation phase.	Complied.
22	The company shall strictly follow all the recommendation mentioned in the charter of Corporate Responsibility for Environmental Protection (CREP).	Complied.CREP compliance status has been provided in Annexure-G .
23	Thick greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines	Initially, as per Environmental Clearance granted for the Numaligarh Refinery Project, Ministry of Environment & Forest had stipulated a 500 mtrs wide green belt all around the refinery based on the EIA of Numaligarh Refinery carried out by NEERI. On request from Numaligarh Refinery, the width of the Green Belt was later reduced from the suggested width of 500 mtrs to 100 mtrs because

		of the reason that almost all the surrounding areas are having tea garden with shade trees (Sirish trees). A wide natural green belt already existed all around the refinery. Accordingly, a Green Belt covering a total area of around 56 hectares of land and around 100 mtrs width around the refinery and around 25 mtrs width around the NRMT has been developed as per the Green Belt Development Plan. (The Green Belt Development Plan has been submitted to MoEF along with the Half Yearly Report to MOEF on the 15th October, 2001). Massive Plantation have been carried out in the Green Belt so that it can provide a natural barrier for attenuation of noise and air pollution. No. of local variety have been planted including some fruit bearing samplings in & all around Green Belt. Again it has been planned to increase the density by planting more saplings in the Green Belt in the days ahead. Initiatives for plantation under Compensatory Afforestation drive in degraded areas has been taken up at Nakkati Chapori, Golaghat (40 Ha), Kandoli Reserve Forest, Nagaon (35 Ha) and Abhoypur village, Dibrugarh (28 Ha.)
24	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	The same has been noted & being implemented. Moreover, Quantitative Risk Assessment is being carried out every 5 years. The Emergency Response and Disaster Management Plan was certified on 28.12.2022 and the certification is valid till 27.12.2025.
25	At least 2.5 % of the total cost of the project shall be earmarked towards the Enterprise Social Commitment (ESC) based on local needs and an action plan with financial and physical breakup/details shall be prepared and submitted to the Ministry's Regional Office at Shillong. Implementation of such a program shall be ensured accordingly in a time-bound manner. Detailed action plan to be submitted to MOEFCC Regional Office, Shillong.	Comprehensive plan prepared. Action plan with financial and physical breakup/details with time line submitted to IRO, GHY.
Sl. No.	General Condition	Remarks
1	The project authorities must strictly adhere to the stipulations made by the State pollution Control Board (SPCB) State Government and any other statutory authority	The stipulations made by the Pollution Control Board of Assam and the State Government are strictly adhered to.

2	No further expansion or modification in the project shall be carried out without prior approval from the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance a, fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environment protection measures required if any.	Any expansion or modernization in the plant will be taken up only with prior approval of the Ministry of Environment & Forests.
3	The project authorities to strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2008 as amended subsequently. Prior approvals from Chief Inspector of Factories Chief Controller of Explosives Fire Safety Inspector must be obtained wherever applicable	The rules and regulations under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and as amended in 2000 are adhered to. Approvals from Chief Inspectorate of Factories, Chief Controller of Explosives etc as applicable for the Numaligarh Refinery have been obtained.
4	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under PAR ules,1 989v iz.75 dBA(day time) and 70 dBA (nighttime).	The major sources of noise generation in the proposed project are the pumps and the blowers. Strong foundations shall be provided to mitigate the noise generation further. The equipment shall be monitored regularly at a distance of 01 mtr from the source and corrective measure shall be taken to maintain the noise level below 85 dBA. The ambient noise levels all around the refinery is being monitored regularly so as to maintain within the standards, prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time). Noise report for the period attached as per Annexure I.
5	A separate Environmental Management Cell equipped with full fledged laboratory facilities must be setup to carry out the environmental management on monitoring functions	A fully functional, dedicated environment management cell manned by qualified engineers/officers and headed by a Chief General Manager (Technical) has been continuously working for constant improvement, monitoring, safeguarding and reporting of environmental activities of the refinery. Also, as advised by MoEFCC, 18 Nodal officers from various sections of the refinery have been appointed in May'2024 for compliances of Environment related issues. Also, a multidisciplinary Apex-level Committee on Environment which includes senior level officers from various departments as members under the chairmanship of Director (Technical) constantly guides the Environment Cell regarding all the environmental issues in the refinery.

		The Apex Committee that convenes quarterly discusses the unresolved issues if any and monitors the regular environmental activities. The laboratory facility had been set up for collection and analysis of samples under the supervision of competent personnel, reporting to the Chief Manager (QC) and who reports to the Chief General Manager (Technical). The QC lab is a NABL accredited Laboratory.
6	Adequate funds shall be earmarked towards capital cost and recurring cost/ annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.	Adequate funds have been provided for implementing the conditions stipulated by MoEF and the State Govt. and shall not be diverted for any other purpose. Environmental expenditure Submitted as Annexure-D for the period.
7	The Regional office of this Ministry/Central Pollution Control Board//State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretations shall be submitted to them regularly.	Six monthly compliance report along with monitored data is being sent to the Regional Office of this Ministry/Central Pollution Control board/State Pollution Control Board as per the requirement.
8	A copy of clearance letter shall be sent by the proponent to concerned Panchayat/ Zila Parishad/ Municipal Corporation/ Urban Local Body and the local NGO if any, from whom suggestion/representation if, any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	Copy of the clearance letter sent to concerned Panchayat/ Zila Parishad/ Circle Office.
9	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely SPM, RSPM, SO ₂ , NO _x , HC (Methane& Non- methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Six monthly compliance report along with monitored data is being sent regularly to the Regional Office of this Ministry/Central Pollution Control board/State Pollution Control Board as per the requirement. The same is also displayed in NRL website. The critical pollutant parameters are also displayed near the Refinery Main gate.
10	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The	A six-monthly compliance report on the Environmental Clearance conditions of the Numaligarh Refinery along with the monitored data is being submitted regularly to the MoEFCC Regional Office. The same is being displayed in the company's website also.

	Regional Office of this Ministry/ CPCB/ SPCB/ shall monitor the stipulated conditions	
11	The environmental statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986. As amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.	Environmental Statement for each financial year ending 31st March, in form-V is being sent to SPCB every year as per the requirements. The same is being displayed in the company's website also. The environmental statement for financial year, 23-24 as per Form-V submitted and attached as Annexure-F.
12	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locally concerned and a copy of the same shall be forwarded to the Regional Office.	Advertisement regarding the environmental clearance for the DHD T Unit was published in two local newspapers namely, The Assam Tribune (in English) and The Dainik Janambhumi (in Assamese (on the 26 th December, 2016 of both the advertisements were forwarded to the MOEF Regional Office, Shillong.
13	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Project commissioned in March,2018.
14	The Ministry may revoke or suspend the clearance, if implementation of any of the above Conditions is not satisfactory.	The same has been noted.
15	The Ministry reserves the right to stipulate additional conditions if found necessary. Company in a time bound manner shall implement these conditions.	The same has been noted.
16	The above conditions will be enforced inter-alia under the provisions of Water (Prevention & Control of pollution) Act 1974, Air (Prevention & control of Pollution) Act' 1981' the Environment (Protection) Act 1986, Hazardous Waste (Management Handling and Transboundary Movement) Rules 2008 and the Public Liability Insurance Act 1991 alongwith their amendments and rules.	The same has been noted.

8. Project Name : Expansion of the Refinery from 3 MMTPA to 9 MMTPA

MoEF&CC File No.: J-11011/274/2015 –IA II (I)

EC Issued Date: July 27th, 2020

Sl No	Conditions	Compliance status
13(i)	The EC granted to the project/ activity is strictly under the provisions of the EIA Notification 2006 and its amendments. It does not tantamount / construe to approvals/ consent/ permissions etc. required to be obtained or standards/ conditions to be followed under any other acts/ Rules/ Subordinate legislations, etc., as may be applicable to the project.	Noted.
13(ii)	The effluent shall be treated and recycled/ reused to meet the requirement of different industrial operations and Zero Liquid Discharge shall be achieved. The treated effluent of 300 cum/hr, if discharged to Dhansiri river through pipeline (to downstream only), shall conform to the standards prescribed under the Environment (protection) Rules, 1986. If Zero Liquid Discharge is not followed, the Project Proponent shall submit plan for achieving Zero Liquid Discharge with its techno-economic feasibility within 3 months before the EAC/Ministry.	A Zero Liquid Discharge techno-economic feasibility study has been carried out through M/s EIL. The feasibility report with recommendations submitted to MoEF, Delhi on 02.11.2020. Recommendation of feasibility report are- Although Zero Liquid Discharge is better option in terms of water recovery and no wastewater disposal to the Dhansiri River, however, disposal of RO-DM plant reject/ wastewater is proposed in view of the following considerations: • Insignificant impact on the river water quality (~0.3 ppm TDS during wet weather and ~12 ppm TDS during dry weather) due to disposal of RO-DM plant reject water. • Less consumption of input energy (steam, power, etc.) required for disposal of RO-DM plant reject water (as compared to ZLD plant option).

		• Less fuel requirement for additional power requirement (as compared to ZLD plant option wherein more fuel shall be required for generation of power and steam) and lesser emissions. • No requirement of secured landfill for disposal of significant quantity (30 TPD) of salt generation as in case of ZLD plant option. • No possibility of ground water contamination in the areas nearby secured landfill site as in case of ZLD plant option. • Lower CAPEX and OPEX involved in plant installation and operation (as compared to ZLD plant option). • Very little maintenance or operator's attention requirement (as compared to ZLD plants which are more prone to downtime). As advised by MoEF, NRL applied online for EC amendment on 04.03.2021. The proposal was appraised by EAC committee(I-2) in the ministry in its meeting held on 18 th March'2021. The EAC after deliberations, recommended the amendment in EC as proposed by NRL. Based on the recommendation MoEF accords approval to the proposed amendment on 06.05.2021 as stated below- The effluent shall be treated and recycled/reused to meet the requirement of different industrial operations. The RO-DM reject of 300 cum/hr to be discharged to Dhansiri River through pipeline (to downstream only), shall conform to the CPCB guidelines.
13(iii)	The project proponent shall finalize and submit the details of sites to be utilized for associated activities of the refinery in the NDZ area within six months. Preference shall be given to the sites which is adjoining / adjacent to the refinery area. The	Land documents submitted to MoEFCC on 28.06.2022.

	project proponent shall submit MoU/commitment from the stakeholders regarding transfer of the land.	
13(iv)	The National Emission Standards for Petroleum Oil refinery issued by the Ministry vide G.S.R. 186 (E) dated 18 th March, 2008 and G.S.R. 595(E) dated 21 st August, 2009 as amended from time to time, shall be followed.	Noted for compliance.
13(v)	Volatile organic compounds (VOCs)/ Fugitive emissions shall be controlled at 99.997% with effective chillers/ modern technology. For emission control and management, use of FG/NG in heater & boiler, continuous stack monitoring, Sulphur recovery plant, etc. shall be installed / ensured.	Noted for compliance.
13(vi)	Total fresh water requirement after expansion shall not exceed 2508 cum/hr to be met from Dhansiri river. Fresh water requirement shall be reduced by recycling/reuse of water. Necessary permission for freshwater procurement shall be obtained from the concerned regulatory authority.	Permission obtained from State Irrigation Dept. Approval letter for drawl of water from River Dhansiri on 21.07.1995 and 02.05.2019 submitted to IRO,GHY
13(vii)	Process effluent/ any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	Noted for compliance.
13(viii)	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arrested shall be provided on tank farm, and solvent transfer to be done through pumps.	Noted for compliance.
13(ix)	Process organic residue and spent carbon, if any, shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF.	Noted for compliance.
13(x)	Fly ash should be stored separately as per CPCB guidelines so that it should not adversely affect the air quality, becoming air borne by wind or water regime during rainy season by flowing along with the storm water. Direct exposure of workers to fly ash & dust should be avoided. The ash from boiler shall be sold to brick manufacturers / cement industry.	The refinery complex of NRL does not have solid fuel (coal, coke, biomass etc.) fired heaters or boilers. As such, there is no fly ash generation from the NRL refinery complex. Hence, selling back ash from boiler to brick manufacturer/cement industry does not arise.
13(xi)	The company shall undertake waste minimization measures as below:-	Noted for compliance.

	a) Metering and control of quantities of active ingredients to minimize waste. b) Reuse if by-products from the process as raw materials or as raw material substitutes in other processes. c) Use of automated filling to minimize spillage. d) Use of Close Feed system in to batch reactors. e) Venting equipment through vapour system f) Use of high pressure hoses for equipment cleaning to reduce waste water generation.	
13(xii)	The green belt of 5-10m width shall be developed in the total project area, mainly along the plant periphery, in downwards wind direction, and along road sides etc. The project proponent shall ensure 40% greenbelt area vis-à-vis the project area through afforestation in the degraded area. The selection of plant species shall be as per the CPCB guidelines in consultant with the State Forest Department.	Noted for compliance. An MoU was signed on 14.09.2020 between NRL and Golaghat Social Forestry Division, Govt. of Assam for compensatory afforestation of 40 Hectares of land in Nakkati Chapori, Khumtai Revenue Circle, Golaghat for plantation of 1 lakh tree saplings. Another MoU was signed between NRL and Nagaon Forest Division for Compensatory afforestation drive in 35 Ha land in Kandoli PRF on 23.08.2021 for plantation of 65000 saplings. MOU has been also signed with Dibrugarh Forest Division on 29.05.2024 for compensatory afforestation in 28 Ha. land area for plantation on 3,50,000 saplings.
13(xiii)	As proposed, at least Rs. 36.51 crore shall be allocated towards Corporate Environment Responsibility (CER). As proposed, the CER allocation shall be spent mainly for addressing the issue raised during public consultation/ hearing including assistance/ infrastructure for transport facility, drinking water, social/ environmental activities, education & skill development, etc.	CER model prepared. CER report for the period has been attached as per Annexure C.
13(xiv)	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.	Noted for compliance.

13(xv)	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the norms.	Noted for compliance.
13(xvi)	Continuous online (24X7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises. In case of the treated effluent to be utilized for irrigation/gardening, real time monitoring system shall be installed at the ETP outlet.	Monitoring data shall be submitted after project completion and commissioning of new 6 MMTPA refinery train. Existing data for 3 MMTPA being submitted regularly with half yearly EC compliance status. Monitoring reports attached as per Annexure II, III, IV.
13(xvii)	Process safety and risk assessment studies shall be further carried out using advanced models, and the mitigating measures shall be undertaken/implemented accordingly.	Quantitative Risk Assessment study is carried out every 5 years. Latest QRA for existing refinery and NREP has been conducted in 2021.
13(xviii)	The project proponent shall implement the Site-Specific Conservation Plan for conservation of Schedule I Species in the study area and obtain approval from the State Chief Wildlife Warden of the Department. The recommendations of the approved Site-Specific Conservation Plan shall be implemented in consultation with the State Wildlife Department. The implementation report shall be furnished along with the six-monthly compliance report.	Noted for compliance. Site specific conservation plan for Schedule I species as per EIA report for NREP, submitted to Principal Chief Conservator of Forests (PCCF), Assam for approval.
13(xix)	The PP should improve the efficiency of ETP Plant and the water discharge should be as per prescribed CPCB Norms. They should also install 24X7 hours monitoring system (of the discharge) and the same should be connected to the server of SPCB/CPCB.	Noted for compliance.
13(xx)	Fly Ash Brick making plant shall be installed for proper disposal of fly ash.	As clarified above (reply to 13x), as NRL does not generate fly ash. Hence, installing fly ash brick making plant does not arise.

General Conditions		
13.1(i)	No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Noted for compliance.
13.1 (ii)	The energy source for lighting purpose shall be preferably LED based, or advance having preference in energy conservation and environment betterment.	Noted for compliance.
13.1 (iii)	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board)SPCB) and it shall be ensured that at least one station each is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	Noted for compliance.
13.1 (iv)	The National Ambient Air Quality Emission Standards issued by the Ministry vide GSR No. 826(E) dated 16 th November, 2009 shall be followed.	Noted for compliance.
13.1 (v)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz 75dBA (day time) and 70 DBA (night time).	Noted for compliance.
13.1 (vi)	The company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and to utilize the same for process requirements.	Roof top rainwater harvesting from a major building having huge potential is being planned and action has been initiated for the same.

13.1 vii)	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre- employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.	Noted for compliance.
13.1(viii)	The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental managements, and risk mitigation measures relating to the project shall be implemented.	Noted for compliance.
13.1 (ix)	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CER activities shall be undertaken by involving local villages and administration and shall be implemented.	CER model prepared. CER activity report for the period enclosed as per Annexure C.
13.1 (x)	The company shall undertake eco-development measures including community welfare measures in the project area for the overall improvement of the environment.	Noted for compliance.
13.1 (xi)	A separate Environmental Management Cell having qualified person with Environmental Science/ Environmental Engineering / specialization in the project area) equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	A fully functional, dedicated environment management cell manned by qualified engineers/officers and headed by a Chief General Manager (Technical) has been continuously working for constant improvement, monitoring, safeguarding and reporting of environmental activities of the refinery. Also, as advised by MoEFCC, 18 Nodal officers from various sections of the refinery have been appointed in May'2024 for compliances of Environment related issues. Also, a multidisciplinary Apex-level Committee on Environment which includes senior level officers from various departments as members under the chairmanship of Director (Technical) constantly guides the Environment Cell regarding all the environmental issues in the refinery. The Apex Committee that convenes quarterly discusses the

		unresolved issues if any and monitors the regular environmental activities. The laboratory facility had been set up for collection and analysis of samples under the supervision of competent personnel, reporting to the Chief Manager (QC) and who reports to the Chief General Manager (Technical). The QC lab is a NABL accredited Laboratory.
13.1 (xii)	The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so diverted for any other purpose.	Noted for compliance.
13.1(xiii)	A copy of the clearance letter shall be sent by the project proponent to concern Panchayat, Zilla Parishad/ Municipal Corporation, urban local body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.	Copy of clearance letter submitted to Letekujan Gaon Panchayat, Rongbong Gaon Panchyat, Ponka Gaon Panchyat, Morongi Circle Office on 19.08.2020. Copy submitted to IRO,GHY
13.1(xiv)	The project proponent shall also submit six monthly report on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored date (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF & CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six Monthly compliance status report shall be posted on the website of the company.	-Noted for compliance. Half yearly EC conditions compliance status is being submitted regularly and also available in NRL website.
13.1 (xv)	The environmental statement for each financial year ending 31 st March in form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF & CC by e-mail.	-Noted for compliance. Environmental Statement for each financial year ending 31st March, in form-V is being sent to SPCB every year as per the requirements. The same is being displayed in the company's website also. The environmental statement for financial year, 23-24 as per Form-V submitted and attached as Annexure-F

13.1(xvi)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry and at https://parivesh.nic.in/ . this shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which on shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	The advertisement of granting of EC grant broadly published in widely circulated local newspapers - Amar Asom, Pratidin, Dainik Asom, Asomia Khobor, Dainik Agradoot, Dainik Janambhumi, Niyamia Barta (Assamese) and The Assam Tribune and The Sentinel (English) on 30 th July, 2020 for information to public. The copy of EC letter and paper advertisement sent to MoEF,RO on 06.08.2020
13.1(xvii)	The project authorities shall inform the Regional Office as well as the Ministry, the date of Financial closure and final approval of the project by the concerned authorities and the date of start of the project.	Noted for compliance
13.1(xviii)	This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India. Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.	Noted

9. Project Name: Proposed Polypropylene Project (PPU) of Capacity 360 KTPA

MoEF&CC File No.: J-11011/274/2015-IA-II(I)

EC Issued Date: August 1st, 2024

Sl. No.	Specific EC Conditions	
1.1	The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented (Annexure - 3).	Noted.
1.2	Total freshwater requirement shall not exceed 5040 KLD, proposed to be met from NREP Treated water header for which water is sourced from river Dhansiri. Necessary permission in this regard shall be obtained from the concerned regulatory authority.	Noted.
1.3	The entire wastewater generated by the PPU unit shall be treated in the ETP installed at NREP. The entire treated water shall be taken back and recycled and reused in the PPU, thereby reducing the freshwater requirement to that extent.	Noted.
1.4	The freshwater requirement shall be reduced after the installation of a rainwater harvesting system in the unit/project area. Comprehensive water audit to be conducted on an annual basis and report to the concerned Regional Office of MEF&CC. The outcome from the report to be implemented for conservation scheme.	Noted.
1.5	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond	Noted.
1.6	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer to be done through pumps.	Noted.
1.7	Process organic residue and spent carbon, if any, shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF. The ash from boiler shall be sold to brick manufacturers/cement industry.	Noted.
1.8	The unit shall install 03 continuous monitoring stations considering the wind rose (meteorological conditions) and in consultation with Assam SPCB for monitoring of PM10, PM2.5, SO2, NOx, O3, VOC's, THC and NMHC. Sensors shall be installed for monitoring of VOCs, THC's and NMHC's at all storage tanks, transfer and vulnerable points.	Noted.

1.9	The oily sludge shall be subjected to melting pit for oil recovery and the residue shall be bioremediated. The sludge shall be stored in HDPE lined pit with proper leachate collection system. The leachate collected shall be treated to meet the norms specified under E(P) Act, 1986.	Noted.
1.10	Oil catchers/oil traps shall be provided at all possible locations in the rain/stormwater drainage system inside the factory premises.	Noted.
1.11	The company shall undertake waste minimization measures as below: a) Metering and control of quantities of active ingredients to minimize waste. b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes. c) Use of automated filling to minimize spillage. d) Use of Close Feed system into batch reactors. e) Venting equipment through vapour recovery system. f) Use of high-pressure hoses for equipment cleaning etc. to reduce wastewater generation.	Noted.
1.12	Greenbelt of at least 10m width shall be developed in 11.52 hectares i.e., 33.1 % of total project area with tree density @ 2500 trees per hectare, all along the plant periphery. Indigenous aromatic plants species to control the odour shall only be planted for greenbelt development and and only native species shall be developed. Non-indigenous / alien species shall be replaced with native species. No invasive or alien or non-native tree species shall be selected for plantation. PP shall develop at least 20 varieties of species as a part of the greenbelt. Saplings 4-6 feet high shall be planted. Selection of plant species shall be as per the CPCB guidelines, in consultation with CBRI Lucknow and the State Forest Department. Records of tree canopy shall be monitored through remote sensing map. Greenbelt development shall be completed before the commissioning of the plant. Trees shall be planted in the Green Belt under the campaign #Plant4Mother #एक पेड़ माँ के नाम and uploaded on the MeriLiFE portal (https://merilife.nic.in/).	Noted.
1.13	PPU plant of NREP shall initiate the following measures to control fugitive emissions: (a) Install Trolley mounted Fog/Mist generators within the unit. (b) Install Automatic sensor-based Wheel washing system for vehicles exiting the refinery. (c) Sprinkling water along the haul roads within the refinery and also on the roads outside the plant premises.	Noted.

	(d) Develop green belt along the plant roads within the plant premises and on outside roads joining the plant at least up to 0.50 km to control fugitive dust emissions. (e) Procure Mechanised Industrial Vacuum cleaners for regular cleaning of plant roads.	
1.14	PP shall sign power purchase agreement with renewable energy producer(s) to meet 10% of its power requirement from renewable energy sources.	Noted.
1.15	PP proposed to allocate Rs. 15.00 Crores towards CER to address issues raised in the Public Hearing conducted on 04.12.2023 which shall be spent as submitted in the CER plan. The action plan shall be completed within the timeline proposed (Annexures - 4 & 5).	Noted.
1.16	A separate Environmental Management Cell (having qualified person with Environmental Science/Environmental Engineering/specialization in the project area) equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	Noted.
1.17	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms.	Noted.
1.18	Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. In case of the treated effluent to be utilized for irrigation/gardening, real time monitoring system shall be installed at the ETP outlet.	Noted.
1.19	PP to set up occupational health Centre for surveillance of the worker's health within and outside the plant on a regular basis. The health data shall be used in deploying the duties of the workers. All workers & employees shall be provided with required safety kits/mask for personal protection.	Noted.
1.20	The National Emission Standards for Petrochemical (Basic & Intermediates) issued by the Ministry vide G.S.R. 820 (E) dated 9th November 2012 as amended from time to time shall be followed.	Noted.
1.21	Recommendations of mitigation measures from possible accidents shall be implemented based on Risk Assessment studies conducted for worst-case scenarios using latest techniques.	Noted.
1.22	The project proponent shall develop R& D facilities to develop their own technologies for propylene and polypropylene processing.	Noted.
1.23	PP shall sensitize and create awareness among the people working within the project area as well as its surrounding area on the ban of Single Use Plastic in order to ensure the compliance of the Notification published by MOEFCC on 12th August 2021. A report along with	Noted.

	photographs on the measures taken shall also be included in the six-monthly compliance report being submitted to the concerned authority.	
1.24	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. The firefighting system shall be as per the norms. PESO certificate shall be obtained. Location of storage tanks of flammable substances shall be placed in such a way that in the event of any fire, accident, explosion or any unforeseen conditions the impact of such an event should not go beyond the boundary of the plant i.e. the risk should be tolerable (acceptable) at the boundary.	Noted.
1.25	Company shall maintain an Emergency Response Decision support system in such a way so that identification of the detector's network for the location of the leak source and the probable leaked quantity in real-time, followed by modelling of the dispersion of the plume and consequences as forecast is done in advance and thus, no leak accident may go unattended. Accordingly, a Risk Mitigation plan shall be in place and tested using the 3D CFD modelling.	Noted.
1.26	Company shall determine the distance of fire hydrant while finalizing its location from storage tanks of flammable substances or any other hazardous storage substance shall be based on the dispersion of Thermal Radiation so that during any unforeseen situation fire hydrant is always available to operate manually.	Noted.
1.27	Specific arrangements shall be made for the prevention of leakage of Hydrogen and its safety	Noted.
1.28	The permission is restricted to the proposed Poly Propylene Unit of 360 KTPA capacity located within the jurisdiction of Numaligarh "No Development Zone" only and any change in this require prior approval of the Ministry. Further, any other activities outside the scope of work of this proposal shall not be allowed.	Noted.
General Conditions		
Sl. No.	EC Conditions	Compliance status
2.1	No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change/SEIAA, as applicable. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry/SEIAA, as applicable, to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Noted.

2.2	The energy source for lighting purpose shall be preferably LED based, or advanced having preference in energy conservation and environment betterment.	Noted.
2.3	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Noted
2.4	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CER activities shall be undertaken by involving local villages and administration and shall be implemented. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	Noted
2.5	The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.	Noted
2.6	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.	Copy of clearance letter submitted to DC, Golaghat, DIC, Golaghat, Chief Zila Parishad, Golaghat, Divisional Forest Officer, Golaghat, Morongi Circle Office, Ponka Gaon Panchayat, on 12.08.2024.
2.7	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company	Noted.
2.8	The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the	Noted.

	website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.	
2.9	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry and at https://parivesh.nic.in/ . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	The advertisement of granting of EC has been broadly published in widely circulated local newspapers – Asomiya Pratidin (Assamese) and The Assam Tribune on 7 th August 2024 for information to the public. The copy of the EC letter and paper advertisement was sent to MoEFCC, IRO on 07.08.2024.
2.10	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	Noted.
2.11	This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.	Noted.

Annexure -A : NOC Compliance Status for Township

Annexure-A

COMPLIANCE STATUS OF THE SIX CONDITIONS GIVEN WITH THE DEVELOPMENT OF TOWNSHIP OBTAINED VIDE LETTER NO. J-11014/2/91-IA.II DATED 18TH JANUARY, 1994 FROM MOEF NEW DELHI.

CONDITIONS:

i) The hill slopes should not be used for civil construction purposes

- Noted.

ii) Land use planning of the colony and the land around it should be finalized in construction with the State Town Planning Department.

- Consultation was done, but minutes of the same are not available at present.

iii) More open space should be left and the building construction may be done by acquiring minimum land and the houses should be constructed on ground plus two floors basis.

- Noted.

Open space left within the township is around 82% of the total area.

iv) Township site should not involve any forest area.

- Township is constructed only in the permitted area.

v) The existing forest cover towards the west and north of the proposed colony site should not be disturbed.

- It is not disturbed.

vi) No organized human settlement or private colonies should be allowed in the hill or the areas adjoining the hill. (Atleast in a radius of 10 kms).

- The Govt. of Assam has already notified the “No Development Zone” on 19.01.95.

Annexure -B : NOC PCBA to Existing Refinery Compliance Status

**POINT-WISE STATUS OF CONDITIONS MENTIONED IN THE
“NO OBJECTION CERTIFICATE” VIDE NO. WB/T-843/89-90/154
DATED 01.09.1990
OF
POLLUTION CONTROL BOARD, ASSAM**

- 1. No Air, Water, Soil pollution shall be created by the industry beyond the permissible limits prescribed by this Board. The industry would incorporate adequate pollution control measures before they put the plant into operation.**

- This has been complied. For abatement of pollution, the following environment initiatives have been incorporated:

- Effluent Treatment Plant with tertiary treatment facilities. This is further enhanced by implantation of ETP modernization and VOC recovery system in ETP. .*
- Sulphur Recovery Block*
- Ambient Air Quality monitoring*
- Automatic online stack monitoring system*
- Green Belt around refinery and NRMT*
- Non-illuminating ground flare*
- Low NOx burners incorporated in design*
- Township sewage treatment plant and composting plant*
- Hazardous oily waste and other solid waste management by Secured Landfill Facility, Bio-remediation and selling to approved recyclers.*

- 2. To maintain the environmental and ecology in the area provision for planting selected species of these within the compound and approaches along with provisions for park, garden and fountain shall have to be made. Massive afforestation will have to be made by the industry in the factory and township.**

-Within the refinery premises, few gardens have been developed near various units like Hydrocracker(HCU), Captive Power Plant (CPP), Effluent Treatment Plant (ETP), QC lab, Central Control Room (CCR) etc. Plantation of different variety of saplings have been widely carried out mainly along the all roadside areas all throughout the refinery. Fountain has been made in front of the Administrative Building. Massive plantations have been also carried out on all along the road sides in the Township and plantation also have been done in wide scale in the Butterfly Valley, Herbal garden, public places and club premises and few other places in the Township.

3. **As per provisions of water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 any officer empowered, by this Board in its behalf shall without any interruption, the right at any time to enter the industry for inspection, to take samples for analysis and may call for any information etc. Violation of this right will be withdrawal of the “NO OBJECTION CERTIFICATE”.**

-This has been followed without any exception.

4. **As per provisions of the Acts, regular monitoring are to be done by the industry from the locations/points fixed by this Board and the reports to be submitted to the Board timely as prescribed.**

- Regular monitoring of air pollution and effluent quality has been carried out and results are submitted to the PCBA Regional office, Golaghat in every month.

5. **Effluent carrying drains must be segregated from storm water drains and effluent must be disposed in effluent pond. In no case, effluent will be discharged into nearby nullah / natural watercourse etc. without treatment and bringing it within ISI permissible limits or limits fixed by the Board.**

-Effluent collection and segregation philosophy was submitted to PCBA. Discharge of any effluent ex-refinery into the River Dhansiri has been stopped since October, 2006.

6. **Standard linings and flat embankment of effluent pond shall have to be provided in the pond to prevent and control of overflow, seepage and leakage of effluent to the nearby areas.**

-This was incorporated in the design of the storage ponds of the Effluent Treatment Plant and constructed accordingly.

7. **To regularise the subsequent process, the legal provisions of CONSENT LICENCE and RETURNS shall have to be timely adhered to.**

-Submission of application for revalidation of Consent from PCB, Assam for running of the various units and Returns are being timely adhered to.

8. **Gaseous pollutants due to the burning of the fuel to run engine, boiler, etc. should be controlled by adopting preventive measures.**

-Low NO_x burners have been installed in all the furnaces and also, low sulfur fuels are being used.

9. **Solid waste that arises during the operation should be properly graded and disposed off scientifically without causing nuisance.**

-Solid waste has been properly graded, hazardous oily waste and other solid waste disposed off through the Secured Land Fill facility and bio-remediation after taking due authorization from PCBA. Spent catalyst is disposed off through approved recyclers and few quantity of oily sludge has been sold to approve recyclers.

10. **For low-lying areas, special care is to be taken by the Industry to prevent any overflow, seepage and leakage of the effluent.**

-Does not arise.

Presently no effluent is discharged from the refinery and township into the River Dhansiri or any water Body.

11. **For warning systems (Alarm, Siren) is to be installed by the Industry to guard against accidental pollution/mishap together with fire fighting devices.**

-Sirens have been installed at the refinery site and Township to alert workers on emergency and a complete fire fighting network has been installed. Fire tenders are readily available at site and in operation.

12. **All pipes connections, joints, fittings etc in the factory and plant are to be frequently checked and leak proof all the time by the industry.**

-These are being physically checked on regular basis and in case of any leakage corrective action is taken at the earliest. However, for the detection of very minor gas/vapour leak - fugitive emission monitoring is done on regular basis by using Gas Measuring Instrument and rectified the leaking points on priority. In additions, acoustic survey is also carried out in various units in regular intervals.

13. **Proper house keeping and adequate maintenance has to be ensured/enforced as per provisions of the Acts.**

- This is complied.

14. **All unwanted/toxic chemicals/fluid/gases are to be neutralized and flared up as necessary.**

-The point is adhered to without any deviation.

15. **Production process is to be monitored and in the event of danger, immediate shutdown is to be ensured by the Industry.**

-Production process is continuously being monitored from the Control Room and applicable step is initiated as per requirement.

- 16. Provisional “NO OBJECTION CERTIFICATE” will be valid till the proposed date of commissioning of the plant.**

-Noted

- 17. The provisional “NO OBJECTION CERTIFICATE” has been issued being on the particulars furnished by the applicant and subject to imposition of further/more conditions if warranted by the subsequent development.**

-Noted

- 18. Healthy working environment for the workers must be maintained and there should not be health hazard to the workers for inadequate arrangements for ventilation, dust removal etc. Arrangements should be adequate and full proof for the health of the workers. Their health should be regularly monitored.**

- NRL follows OISD – GDN – 166 Guideline for Occupational Health Hazard monitoring to provide specific level of occupational health & hygiene services to the employees and necessary health care.

This includes:

- a) Work Environment monitoring – Occupational hygiene.*
- b) Pre-employment / Pre-placement medical examination.*
- c) Periodic health check-up / examination.*
- d) Infrastructure for occupational health monitoring.*

The Frequency for Periodic health check-up / examination of NRL has been decided as follows:

<i>Sl. No.</i>	<i>Area</i>	<i>Frequency</i>
<i>1.</i>	<i>Hazardous</i>	<i>Half- yearly</i>
<i>2.</i>	<i>Less hazardous</i>	<i>Annually</i>
<i>3.</i>	<i>Non- hazardous</i>	<i>• Annually the employees of age 50 yrs and above.</i> <i>• Once in 2 yrs for employees of age group 40 – 50 yrs.</i> <i>• Once in 3 yrs for employees of age group below 40 yrs.</i>

19. **The Industry must submit compliance report of action taken on the conditions given by the Board before commissioning of the Plant.**

-Complied.

20. **Adequate trees should be planted and maintained in the vacant spaces of the premises and all around the factory and township.**

Massive plantation of different variety has been carried out mainly along the roadside areas, vacant places, in ETP and in the gardens within the Refinery as well as Township also.

21. **The Board will be at liberty to withdraw the “NO OBJECTION CERTIFICATE” at any time without notice if necessary steps for prevention of pollution and preservation of environment is not taken by the Industry as per mentioned condition.**

-Noted.

22. **The issuance of this NOC does not convey any property right in either real or personal property or any exclusive privileges nor does it authorises any injury to private property nor any invasion right nor any infringement of Central, State or Local Laws or Regulations.**

-Noted.

23. **The NOC does not authorize or approve the construction of any physical structures of facilities or the undertaking of any work in any natural watercourse except of the works specially instructed herein.**

-Noted.

24. **Effluent treatment plant must be constructed before commissioning of the plant and the treated effluent must conform to the MINAS and IS: 2490 all the time.**

-The Effluent Treatment Plant equipped with tertiary treatment facilities constructed before the commissioning of the plant. Treated effluent quality is checked regularly as per new MOEF notifications before every discharge from ETP for reuse in the Laboratory and has been intimated regularly to PCB, Assam and CPCB, Shillong on monthly basis. It is worth-mentioning that since October, 2006 no effluent has been discharged outside the refinery. This is further enhanced by implantation of ETP modernization and VOC recovery system in ETP.

25. **Construction of Effluent Treatment Plant must be started before starting the construction of the Refinery itself.**

-That has been complied

26. **Treated effluent shall be discharged through a closed pipeline into the mid-stream of river Brahmaputra after confluence point of Dhansiri river and arrangement is to be made by the Refinery authority for proper mixing.**

-Permission has been obtained from PCB, Assam to discharge treated effluent at the downstream of jetty in the mid-stream of river Dhansiri through a closed pipeline.

However, no treated effluent has been discharged since October, 2006 into the River Dhansiri or any other natural water body as 100% reuse of treated effluent is sustained.

27. **The applicant shall provide sampling arrangement in the treated effluent carrying closed pipeline at two sites i.e. near NH crossing and before the final outfall point at Dhansiri mukh. Easy access for the sample collection at these two sites will have to be made by the Refinery Authority.**

-Provision for sampling has been made at various locations in the EDPL at the initial point of the pipeline, near Township and at the final discharge point. However, the requirement is not applicable at present as no treated effluent is discharged outside the refinery. 100% reuse of treated effluent is sustained.

28. **Regular monitoring is to be done for the parameters, TOC and others as mentioned in MINAS and reports are to be submitted fortnightly to the Board.**

- *The relevant parameters for treated effluent have been monitoring regularly as per the latest CPCB norms and the monitoring reports are being submitted regularly to the PCBA, Regional Office, Golaghat, CPCB Zonal Office, Shillong on monthly basis as per requirement stipulated in the Consent for the refinery.*

29. **The detailed design of the ETP will have to be submitted to the Board before starting construction of ETP.**

- The same has been submitted before starting the construction of ETP.

30. **The time schedule for construction and commissioning of the ETP should be submitted to the Board quarterly.**

- This has been complied.

31. Necessary arrangements for sample collection at the following points are to be provided by the industry before commissioning of the plant.

- a) Before entering ETP
- b) Before aerobic system of ETP
- c) After leaving ETP (on EDPL)
- d) At interim point of effluent carrying pipeline near NH crossing
- e) Ultimate point of effluent discharge

-Sampling points as required have been provided.

32. Samples will have to be collected and analyzed by the industry from the above points as per condition 31 above and as well as from the following points.

- a) Near each village situated on the bank of the Dhansiri River.
- b) Receiving water course (i.e. Brahmaputra) after it receives effluent from the refinery.

The applicant is to submit the monitoring results to the Board fortnightly.

-The discharge of treated effluent from the Refinery and from the STP, NRL Township has been stopped since October, 2006 and April, 2007 respectively, as such Monitoring of Dhanisiri water becomes irrelevant. Request has been placed to PCBA for discontinuation of the same.

33. Recording and monitoring activities and results:

- a) M/s. IBP Co. Ltd., are to monitor effluent everyday and maintain records of all information resulting from monitoring activities.
- b) The industry is to record for each measurement for samples to be taken to the requirement of this NOC with the following information.
 - i) The date, exact place and time of sampling
 - ii) The dates on which analysis performed
 - iii) Who perform the analysis
 - iv) Method used for the analysis
 - v) The results of all required analysis
- c) The industry is to retain for minimum of five years of all records of monitoring activities and results including all records. This period of retention shall be extended during course of any unresolved litigation regarding the discharge of Pollutants by the applicant or when required by the Board.

Regular monitoring of effluent quality has been carried out and records are kept properly.

- 34. Monitoring information shall be submitted and reported by submitting a discharge monitoring report form duly filled in and signed to the Boards Office.**

- This is complied.

- 35. The applicant will have to install automatic pH recorder, flow recorder and TOC analyzer on the effluent carrying line.**

-Flow recorder, TOC analyser and automatic pH recorder have been installed in ETP to monitor the effluent quality going through the Effluent Disposal Pipeline (EDPL). However, the discharge of treated effluent from the Refinery and from the STP, NRL Township has been stopped into River Dhansiri since October, 2006 & April, 2007 respectively.

- 36. The applicant shall not discharge effluents in excess defined as harmful in the NOC. In addition the refinery shall not discharge hazardous substances into watercourses in quantities defined as harmful in the NOC given by the Board.**

- There is no discharge of effluent from the refinery into River Dhansiri since October, 2006. No hazardous substances are discharged into any watercourses.

- 37. Nothing in this NOC shall be deemed to preclude than institution of any legal action nor receive from any responsibilities or penalties to which the industry is or may be liable.**

-Noted.

- 38. Applicant shall take adequate and efficient measures so that sulfur is recovered fully and there will not be any release of Sulfide in the effluent. Special monitoring arrangement is to be carried out by the applicant after the coagulation unit as well as at final outlet before disposal.**

-To minimize sulphur pollution, a Sulphur Recovery Block has been installed and is functioning continuously. Monitoring of sulphide in the effluent is done regularly before every reuse and sulphide level in the final treated effluent is maintained well within the standards.

- 39. The applicant must take special care to contain all the untreated effluent within their compound at the time of malfunctioning of ETP and must be treated to the prescribed limit before disposal.**

-Guard ponds and Surge Tanks of sufficient holding capacity have been provided in ETP to cater for emergency need. This is further enhanced by implantation of ETP modernization and VOC recovery system in ETP.

- 40. Refinery authority must take special care to keep the noise level within permissible limit all the time. As suggested by NEERI, Green belt development is to be taken up right from the time of construction.**

- A Green Belt covering a total area of around 60 hectares of land and around 100 mtrs width around the refinery and around 25 mtrs width around the NRMT has been developed as per the Green Belt Development Plan. (The Green Belt Development Plan has been submitted to MoEF along with the Half Yearly Report to MOEF on the 15th October, 2001).

Massive Plantation have been carried out in the Green Belt so as to it can provide a natural barrier for attenuation of noise and air pollution. Nos of local variety have been planted including some fruit bearing samplings in & all around Green Belt.

Phase wise replantation is in progress in various locations in Green Belt to increase the density.

-Noise monitoring inside the work zone has been carried out on a regular basis, and if required, corrective action is taken accordingly.

- 41. Authority shall take adequate care to keep the impact of noise within the limit at the time of loading/unloading and transportation etc.**

-Adequate care has been taken.

- 42. IBP Ltd. shall construct and commission the sewage treatment plant for their Township area and the treated effluent must confirm IS standards before discharging, special care must be taken to contain the pathogens and coliforms within count before discharge.**

-A separate Sewage Treatment Plant for Township area has been constructed and in operation. No effluent is discharged into River from STP, the same has been routed back to ETP at refinery.

- 43. Disposal of Sludge:**

a) Intake Water Treatment:

Solids, sludges, dust, silt or other pollutants separated from or water prior to use by IBP Ltd. shall be disposed off in such a manner as to prevent any pollutant from such materials from entering any such water. Any live fish or other animals

collected or trapped as a result of intake water screening or treatment may be returned to water body habitat.

-This has been complied.

b) Waste /Water Treatment:

For disposal of sludge from the treatment plant, IBP Ltd., shall have to take separate specific permission from this Board. IBP Ltd. shall apply for such permission giving three months time for detailed scrutiny of their proposal for disposal off should be intimated to the Board immediately. Detailed proposal for sludge disposal shall be submitted by IBP Ltd. immediately.

-Based on NEERI's report on Solid Waste Management, one Secured Land Fill was constructed for disposal of sludge from the treatment plant / solid waste. Proposal of the same was submitted to both i.e. MoE&F and PCB, Assam and due permission for disposal of sludge in the Secured Landfill was received from PCB, Assam. NRL has installed another SLF of capacity 6000 m3 as per CPCB recommendations.

c) Hazardous waste disposal:

For disposal of hazardous waste generated from the refinery, IBP Ltd. shall have to take specific permission from the Board separately.

-Hazardous waste disposal was incorporated in the above proposal and authorization has been granted for disposal of sludge in the Secured Landfill by PCB, Assam. Some quantity has been sold to authorised recyclers.

d) Spent Catalyst:

Spent Catalysts must be disposed off through sale only. No spent catalyst should be disposed at landfill site and must not be buried underground in concrete silo/bunker under any circumstances.

- Spent catalyst has been sold to the CPCB registered purchasers.

e) Sewage Treatment:

Solid waste generated in the sewage treatment plant should be disposed off in a proper scientific manner so that it will not create any health hazard in the environment.

-Sludge drying beds have been provided in the Sewage Treatment Plant at Township

44. **Before applying “Consent To Operate” after commissioning for discharge of treated effluent, the applicant must clarify to the Board that IBP Ltd. have installed an alternative electric power source sufficient to operate all the facilities utilized by the applicant to maintain compliance with terms and conditions of this NOC.**

- Complied.

45. **Arrangements are to be made for analysis of bottom sludge of their units particularly of the heavy metals.**

- Equipment for analysis of heavy metals in bottom sludges like Atomic Absorption Spectrophotometer, Flame Photometer and Spectrophotometer have been procured.

46. **The applicant shall analyze the solid waste and submit the report to the Board regularly.**

-Analysis of solid waste has been carried out regularly and submitted to Pollution Control Board.

47. **The applicant shall take adequate care to contain the raw materials, chemical products etc within the site itself and proper protection arrangements will have to be made around the raw material, product storage area. No seepage/leakage shall take place from this area.**

Raw materials and products are stored in their respective tanks with all the necessary precautions required for.

48. **Height of chimneys shall be such that it allows proper dilution of the emitted as and it shall not be less than 30 mtrs under any circumstances.**

-All the chimney heights are much more than 30 mtrs.

49. **Stack emissions from the industry must meet the standards prescribed by PCB and Dept. of Environment, Govt. of India all the time.**

-Monitoring of stack emission has been carried out regularly as per the latest MOEF notification and are well maintained within the standards. The monitoring results are submitted regularly to the PCBA Regional Office, Golaghat, Shillong as per the requirements.

50. **The applicant is to contain the total sulphur emission into the atmosphere as SO₂ within 256 kg/hr.**

-This is complied

51. Fugitive emissions from the refinery should not be more than 6.11 kg/hr.

- *Regular monitoring of fugitive emission has been carried out in various locations inside the refinery using GMI.*

The GMI survey has been carried on all gas/vapour valves, light liquid valves, hydrogen valves, light liquid pump seals, hydrocarbon compressor seals, hydrogen compressor seals, safety relief valves, flanges, connections, open-ended lines, drains, tankages, furnaces etc.

52. Ground Level conc. of SO₂ and NO_x at Kaziranga National Park, due to the release of gases from the refinery shall not exceed 2.25 and 3.51 microgram per cubicmetre resp. during highly unstable condition. Also, during stable condition, SO₂ and NO_x shall not exceed 25.0 and 39.0 microgram per cubicmetre resp.

-As a compliance of the above, an Air Quality Monitoring Station has been installed at Agratoli, near Kaziranga to monitor the required parameters on a regular basis. The same have been monitored regularly and the value found within limit. Action initiated to install another CAAQMS inside the refinery premises in the down wind direction.

53. The refinery authority must also contain the CO, HC within the specified limit and as per NEERI's report.

-CO and HC are monitored along with the parameters SO₂, NO_x and SPM in the ambient air quality monitoring. The same are found to be within standards as prescribed in the Consent for Numaligarh Refinery by PCB, Assam.

However, NRL has started monitoring of ambient air quality in line with NAAQS-2009 in totality since April' 2011. Further, real time emission data has been transmitted to CPCB server on continuous basis.

54. IBP Ltd. must install automatic SO₂ and flow measuring device at all the stacks. If at any stage SO₂ exceeds the permissible limits immediate shutdown of operations will have to be ensured.

-Automatic SO₂ online analysers have been installed in all the refinery unit stacks. The total SO₂ emission in terms of kg/hr from the stacks is done on the basis of fuel consumption in the furnaces and sulphur content in the fuel.

55. Systematic Green Belt development is to be made by the applicant in and around the refinery site as well as in Township area. Selected trees should be of fast growing with thick canopy cover, perennial and evergreen, with large leaf area, resistant to specific air pollutants.

-A Green Belt of around 100 mtrs width around the refinery and around 25 mtrs width around the NRMT covering a total area of land around 60 hectares has been developed. The Green Belt has been developed & maintain as per the Green Belt development plan.

56. **The applicant will have to take Socio-Economic Development of the area.**

-Various forms of Community Development Schemes have been carried out regularly.

57. **Ambient Air Quality Monitoring is to be done daily by the industry in and round factory as well as at Kaziranga National Park and results must be submitted monthly to the Board.**

- The ambient air quality monitoring is being carried out at 5 locations at a frequency of 8/9 samples per month, taken twice a week 24 hourly at uniform interval. (This is as per the statutory requirement of CPCB, where the minimum no. of samples to be analyzed for a station is 104 samples in a year). The monitoring results are submitted regularly to the PCBA Regional Office, Golaghat and CPCB Regional Office, Shillong in every month.

However, NRL has started monitoring of ambient air quality in line with NAAQS-2009 in totality since April' 2011. However, NRL has started monitoring of ambient air quality in line with NAAQS-2009 in totality since April' 2011. Further, real time emission data has been transmitted to CPCB server on continuous basis.

58. **Stack Monitoring is to be done daily and results must be submitted fortnightly to the Board.**

-This has been complied.

59. **The applicant is to submit the detailed Environmental Management Plan, Disaster Management Plan, and Project Report before commissioning the refinery**

-The reports have been submitted.

60. **The applicant will have to install water meters at all the water carrying pipelines before commissioning the refinery.**

-Water meters have been installed on all the water carrying pipelines.

61. **Automatic pH monitoring of effluent should be provided for by installing automatic pH indicator and recorder.**

-Automatic pH analyzer has been installed.

62. Suitable flow measuring arrangements with automatic measuring devices should be installed in the outlets to measure accurately the quantities of effluents discharged. No effluent shall remain unmeasured and records of daily flow should be maintained.

- Flow meter with totalizer has been installed on the effluent discharge pipeline and records are maintained daily. The treated effluent is reused in the Refinery premises only, there is no discharge into River Dhansiri.

63. The applicant is to take special care to raise the height of Electric Poles including towers so that animals can pass the area safely. If necessary, alternative arrangements is to be made for safe movement of animals.

-Steps have been taken accordingly.

64. The refinery authority will have to strictly adhere to the provisions of the Water (Prevention and Control of Pollution) Act, 1974; Water (Prevention and Control of Pollution) Amendment Acts, 1978 &1980; Air (Prevention and Control of Pollution) amendment Act, 1981; Environment (Protection) Act 1986.

- This is complied.

65. The Board will be at liberty to withdraw the “NO OBJECTION CERTIFICATE” at any time without notice if necessary steps for Prevention and Control of Pollution and preservation of environment is not taken by IBP Ltd. as per above mentioned conditions.

-Noted.

Annexure -C : CER Report



**HALF YEARLY
REPORT ON
CER ACTIVITY
FOR FY 2024-
25**

A. INTRODUCTION

Corporate Environment Responsibility (CER) refers to the responsibility of the corporations/companies to contribute towards economic, social and environmental development of the affected area around the project. On 1st May 2018, the Ministry of Environment, Forest & Climate change, Govt. of India, issued an Office Memorandum F. No. 22-65/2017-IA.III to suggest a common principal for affixing the corporate environmental responsibility for Greenfield as well as Brownfield projects.

On 27th July, 2020 the Expert Appraisal Committee (EAC) of MoEF has recommended granting of Environmental Clearance to prestigious 22,594 crore Numaligarh Refinery Expansion Project (NREP) through notification F. No. J-11011/274/2015-IAII(I). The notification proposed Rs. 36.51 crores towards Corporate Environment Responsibility (CER) of the NREP.

Competent authority of NRL approved modalities for implementations of CER vide approval dtd. 21.09.2020. Accordingly, to identify, access and recommend and monitor activities CER, a steering committee was constituted vide circular HR/CER/2020/01 dated. 10.11.2020. On the other hand, CER Approval system was implemented at NRL and portal become ready by the end of July'2021.

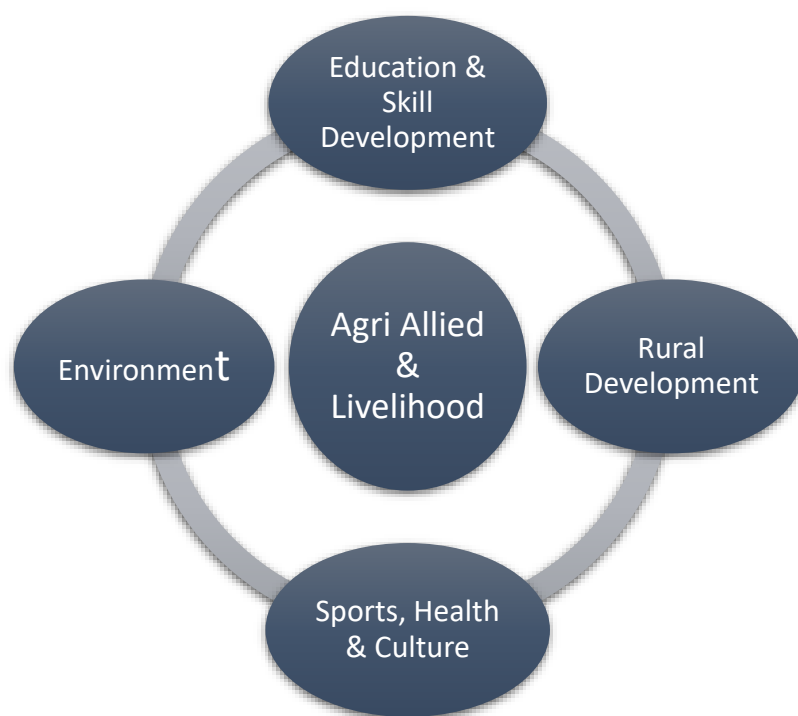
In the environment clearance (EC) of NREP F. No. J-11011/274/2015-IAII(I) stated that proposed fund (36.51 crores) shall be spent mainly for addressing the issues raised during public consultation/hearing including assistance/infrastructure for transport facility, drinking water, socio environmental activities, education and skill development, etc.

In line with the EC of NREP, several discussions were made with DC Golaghat, Officials Gaon Panchayat, Block Development Officer, Officials of Assam State Rural Livelihood Mission (ASRLM), local organizations, etc. to identify activities for socio-economic and environmental upliftment community around Numaligarh Refinery Limited. Suggestions were received for taking up various activities related to rural development, assistance to farmers for scientific cultivation and livestock farming, promotion of sports, education & skill development, health support and positive environmental impact. However, the focus of almost all discussion was to address adverse impact of Covid-19 pandemic by introducing various income generating schemes for unemployed youth/women and thereby improving their livelihood.

The first steering committee meeting was held on 25-06-2021. In that meeting based on above discussions following broad heads are identified

1. Agri-allied and Livelihood
2. Environment
3. Education and Skill development
4. Rural development
5. Sports, Health & Culture

In line with above planning, several activities were identified, discussed in steering committee meeting, and agreed proposals were sent for approval from competent authority. Approved proposals are being executed and reviewed in steering committee meeting. The process of identification of new activities and taking necessary approval is also in progress. Here is a head wise brief description of NREP CER jobs taken up in the financial year 2024-2025.



Summary of headwise expenditure from April'24 to September '24

Theme	FY 2024-25 (April to Sep.) in lakh
Agri-allied and Livelihood	20.31
Education and Skill development	10.71
Rural Development	4.79
Environment	400.8
Sports, health and culture	11.14
<u>Total (In lakh)</u>	<u>447.75</u>

B. Agri-allied and Livelihood

1.Enhancing Agricultural mechanization for farmers under Marangi Development Block

In India, agriculture remains the backbone of the economy, with a significant portion of the population engaged in farming. However, small, and marginal farmers face numerous challenges, including limited access to modern machinery and high operational costs. Recognizing these challenges, aims to establish and enhancing Agricultural mechanization for farmers under Marangi Development Block to facilitate the mechanization of agriculture and support the livelihoods of small-scale farmers.

Solar water Pump

The Marangi Farmers Club is addressing water scarcity issues faced by small and marginal farmers affiliated with various Custom Hiring Centres (CHCs) formed by NRL. To address this persistent problem, the project provides financial support to these CHCs for acquiring solar water pumps. This sustainable solution ensures consistent water access, aligns with eco-friendly practices, reduces reliance on fossil fuel-driven pumps, and supports environmental conservation. This strategy meets immediate water needs while fostering resilience and self-reliance within rural farming communities.

The project covers the following locations:

- Mithaam Chapori Jathipotia Halowagaon CHC
- Ponka Borchapori CHC
- Borgoria Letekuchapori CHC
- Rajabari Borgoria CHC



Solar water Pump

Solar Power Fencing

NRL aims to support the farmers of the Krishak Adhikar Sammittee, Marangi, by deploying solar power fencing units to enhance crop protection and reduce operational costs. Comprising over 180 farm families from 9 villages and covering more than 2000 Bighas of cropping fields, the Samittee faces significant challenges from wildlife, particularly elephants. Solar power fencing provides a humane and effective solution by delivering non-lethal shocks to create a psychological barrier, minimizing harm to wildlife while ensuring comprehensive crop protection. These units are sustainable, cost-effective, and environmentally friendly, making them an ideal alternative to traditional methods.



Solar Power fencing

2. Handloom Integrated Training and Product Development at 01 and 02 No Napather Village

Handloom weaving is an integral part of the cultural heritage and economy of rural communities. This proposal aims to conduct an integrated training program in handloom weaving and product development at 01 and 02 No Napather village. The program, supported by Numaligarh Refinery Limited, was implemented by Sualkochi Textile and Fashion Institute, Guwahati, to empower local women and enhance their skills in handloom weaving and product development.



Outcomes:

A total of 15 weavers from 01 and 02 No Napather have enhanced their skills in handloom textile manufacturing and design development. This training has enabled them to start their own ventures or pursue self-employment. The weavers are now producing a variety of products, including handwoven cotton sarees, men's formal and casual shirts, kids' wear, dupattas, salwars, and kurtas.



3. Joint Liability Groups and Others

A Joint Liability Group (JLG) consists of individuals, typically from similar socioeconomic backgrounds or communities, who collaborate to access small loans for entrepreneurial or income-generating activities. Each member is jointly liable for the repayment of loans taken by any member of the group. Numaligarh Refinery Limited (NRL) has supported JLGs in various livelihood activities.

Additionally, NRL has extended its support to local NGOs and Mahila Samities for their livelihood initiatives.

- Financial and technical support to the PANCHARATNA GROUP for establishing a small bakery industry in Joint Liability Group (JLG) mode at 01 No Ponka Grant.
- Financial Assistance to Women of Udgirani Mahila Samitee for Cultivation of Ginger, Turmeric & Colocasia at Doigrung.
- Support the establishment of a poultry farm at Thengal Gaon, Kamargaon, under the Joint Liability Group (JLG) model.
- Empower individuals by providing skills and opportunities in photography, enhancing their livelihood potential..
- Equipped the youth in the nearby areas of the Refinery with skills in videography, script writing, and video editing, opening new career opportunities.



Cultivation of Turmeric



Video graphic, Script Writing, Video editing



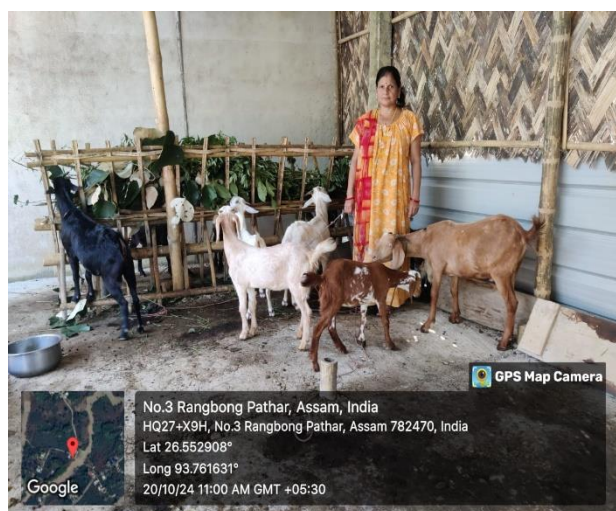
Photography training

4. **Livelihood support to Individual Beneficiaries:**

Since 2019, Numaligarh Refinery Limited (NRL) has been committed to fostering sustainable development and economic empowerment in local communities. As part of this income-generating scheme, NRL provides various forms of livelihood support to individual beneficiaries, aiming to enhance their skills, increase their income-generating capabilities, and improve their overall quality of life. NRL focuses on a range of projects, including livestock initiatives such as dairy farming, poultry farming, goat rearing, piggery, and fish farming. The Veterinary Department of Ponka has been collaborating on these livestock projects. Additionally, NRL supports ventures such as agro shade net houses, computer shops, grocery shops, and food stalls. The number of beneficiaries for each project is outlined below:

Name of the Project	Nos of Beneficiary
Dairy Farm	07
Goat rearing	36
Grocery shop	06
Piggery	22
Poultry	07
Fish farming	01
Agro shade net houses	01

Computer shop	01
Food stall	01
Food and beverage service	01



Goat rearing



Pig Farming



Fish farming

C. Education & Skill Development

- 1) Basic Robotics is an education and skill development project designed to improve knowledge, skills, and employability through structured educational and training programs. NRL conducted a basic introductory course in electronics and robotics for Class VII and IX students at three locations: Khumtai H.S. School, CNB Jr. Secondary School, and Pandit Hemchandra Goswami Vidyapith, Doigrung. The workshop aimed to introduce students to the fundamentals of robotics, including basic concepts, design, and programming. It provided an opportunity for students to engage in hands-on activities, fostering creativity, critical thinking, and teamwork. A total of 100 students participated in the workshop.
- 2) The State Science Festival, organized by CNB College, Bokakhat, and Bokakhat Jatiya Bidyalaya, aimed to transform these institutions into centers of excellence focused on advancing science and socio-economic development. This initiative will enable the organization to conduct orientation and awareness activities, fostering scientific curiosity and empowering communities with knowledge and resources for sustainable growth. A total of 396 students from 32 schools across 6 districts participated in the event, representing classes 6 to 8.

NRL also provided funding for the teachers' training program at Sankardev Sishu Niketon to ensure they have a strong foundation in current educational pedagogy.

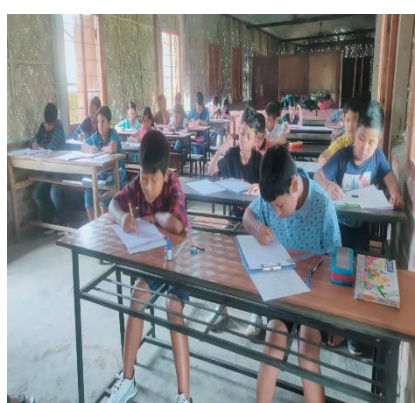
- 3) Education is a fundamental pillar of development, empowering individuals with the knowledge and skills essential for personal and professional growth. NRL has extended financial support to local NGOs and development communities to provide quality education and holistic development opportunities

for students who may lack access to supplementary learning resources. The primary beneficiaries of this initiative are children from the tea community and those living below the poverty line. Students from Class 6 to 10 in local areas have been involved.

In addition to this, NRL has initiated another coaching program for students in Classes 4 and 5 to help them qualify for the entrance examinations of Jawahar Navodaya Vidyalaya and Sainik School. The target beneficiaries of this program are the children of contract workers and students from the nearby areas of the refinery.



Basic Robotics workshop



Coaching Class

D. Environment:

Environmental projects encompass a wide range of initiatives aimed at conserving natural resources, mitigating climate change, promoting sustainability, and addressing various environmental challenges.

Plantation of 1,200 Saplings of Som Tree at Bogidhola Muga VGR

The Som tree, recognized as the primary host plant for the Muga silkworm, plays a pivotal role at the VGR. To enhance the availability of fodder for Muga silkworms and significantly boost the Muga rearing capacity at the VGR, a deliberate plantation of 1,200 Som tree saplings has been undertaken. This strategic initiative aims to achieve sustainability in Muga silk production by ensuring a consistent and ample supply of essential fodder for the silkworms. The plantation was carried out in two phases: 1,200 saplings were planted in June 2022.

Plantation of 10,000 Seedless Lemon Saplings at Bogidhola Muga VGR

In April 2022, 10,000 seedless lemon saplings were planted at the Bogidhola Muga VGR. It is traditionally believed that wild elephants avoid areas with lemon tree plantations. By leveraging this belief, the plantation aims to protect the area from wild elephants, ensuring the Muga silkworm rearing process remains undisturbed. Additionally, the project offers a dual benefit: the lemon trees will generate revenue for the Muga VGR through the sale of harvested lemons, thereby contributing to the financial sustainability of the initiative.

Additionally, Numaligarh Refinery Limited (NRL) has initiated the construction of a food waste disposal tank at Telgaram. This vital project aims to manage food waste sustainably and efficiently, focusing on creating an environmentally friendly solution to address the growing issue of food waste in the community.



Som Plantation



Lemon Plantation

E. Rural Development

Rural development encompasses a broad spectrum of initiatives aimed at improving the quality of life and economic opportunities for people living in rural areas. These initiatives typically focus on addressing the unique challenges faced by rural communities, including poverty, limited access to basic services, inadequate infrastructure, and lack of economic opportunities. NRL has initiated a rural development project executed by the State PWD, empanelled contractors, and government organizations under the same.

1. Road Construction and Development:

NRL has constructed the following roads through an empaneled contractor and Development Committee:

- Road from Letekuchapori Chariali to Bio Refinery, connecting road to CISF Maingate.
- Development of NH-39 to Seujipar Namghar, connecting road.
- Construction of interlocking concrete block pavement road from Jathipotiagaon to Mithaam Capori Gaon.

2. Road Improvements through Assam Public Works Department, Golaghat:

- Improvement of Bokial-Purabangla Road, L=5.50 KM, Sarupathar, Golaghat.
- Construction of road from Dabidubi to Sutakol Road, L=1.10 KM.
- Repair and maintenance of Old NH-39 Road from Telgaram Tiniali to Refinery main gate.

3. Power Supply Infrastructure:

- Construction of 3-phase 4-wire line and installation of a new 100 KVA DTR for providing power supply at No. 1 Ponkagrang through APDCL, Kamargaon.

4. Additional Support:

- NRL has provided financial help to Helem Revenue Circle for the procurement of stationery items.
- NRL has provided office equipment to ASRLM Office, Marangi.



Letekuchapori Chariali to Bio Refinery



Telgaram Tiniali to Refinery main gate



Jathipotigaon to Mithaam Capori Gaon



Doria to Karunating Road

F. Sports, Health, and Culture

Numaligarh Refinery Limited (NRL) has undertaken numerous initiatives under the broad categories of sports, health, and culture. These initiatives aim to enhance the well-being and cultural heritage of the communities in and around the no-development zone and other project sites of the refinery.

Promotion of Jhumur Dance

NRL has launched a project to promote Jhumur dance, a traditional dance form of the tea tribe community, which holds immense cultural significance. This proposal seeks financial support to promote Jhumur dance among the tea tribe youths of Golaghat district, ensuring the preservation and proliferation of this cultural heritage.

Swachhata Workshop and Competition

To promote awareness and action on cleanliness and environmental conservation, NRL has initiated a Swachhata workshop and competition focusing on one-act plays. This initiative aims to foster community engagement and action on environmental issues, encouraging creative expression and community involvement in promoting cleanliness.

Holistic Wellness Program

NRL has introduced a holistic wellness program combining Yoga, Aerobics, and Meditation for self-help group members in Marangi Block. The program focuses on physical, mental, and emotional well-being, aiming to improve the overall health of participants. This initiative aligns with the broader goal of enhancing community health and fostering a culture of wellness.

Bhortal Dance and Acting Workshop

The Birangana Cluster Level Federation is organizing a workshop on Bhortal dance and acting to celebrate and promote cultural arts in Marangi. This workshop aims to impart skills in traditional dance and acting to the local youth, enriching their cultural knowledge and artistic capabilities. It serves as a platform for youth to connect with their cultural roots and develop their artistic talents.

Ankia Naat Workshop

Aarohon Juva Sangha has organized a 20-day workshop on Ankia Naat, a traditional Assamese theatre form, in Marangi. This workshop aims to educate and train participants in the nuances of Ankia Naat, promoting cultural education and artistic skill development. By fostering an appreciation for traditional performing arts, the workshop helps preserve and perpetuate Assamese cultural heritage.

Dust Pollution Mitigation

Dust pollution is a significant environmental and health issue in the region from Numaligarh Tiniali to the NRL Jetty at Rowduwar Gaon. The constant movement of vehicles, especially heavy trucks carrying industrial materials, contributes to high levels of dust along this route. NRL has outlined effective measures to mitigate dust pollution and improve the quality of life for residents and workers in the affected areas. This initiative includes strategies for dust control and community health protection.

Padcare Initiative

Padcare is dedicated to empowering women by improving menstrual hygiene and maternal healthcare in nearby schools and tea tribe communities. The initiative involves the distribution of sanitary pads and conducting awareness campaigns on menstrual hygiene and maternal health. By providing essential sanitary products and educating women and girls on proper menstrual care, Padcare aims to break the stigma around menstruation and ensure that women have the knowledge and resources to maintain their health and well-being. The program was organized in the following locations:

Ponka Rupram HS School

Rongbong Srimanta ME School

Super-30 students

Naharjan Tea Estate

Rongbong villages (03, 04, and 05)

NRL's initiatives in sports, health, and culture reflect a holistic approach to community development, focusing on preserving cultural heritage, promoting wellness, and addressing environmental and health challenges. These efforts contribute significantly to the social and cultural fabric of the region, fostering a sense of community and well-being among its residents.

Photographs



Padcare Initiative



Dust Pollution Mitigation



Bhortal Dance



Jhumur Dance



Ankia naat



One act Play

Annexure -D : Environment Expenditure
Report
(Apr-Sep'24)

NUMALIGARH REFINERY LIMITED
DETAILS OF ENVIRONMENTAL EXPENDITURE

	<i>Total cost in Rs</i>		
Sl No	Name of the Facilities	Apr-Sep24	FY 2024-25
1	Effluent Treatment plant	30,520,311.84	30,520,311.84
2	Sulphur Recovery Unit	71,984,693.57	71,984,693.57
3	Pollution & Environmental Expenses	1,669,540.01	1,669,540.01
4	Environmental Cell	6,258,196.09	6,258,196.09
5	R & M Expenses	16,959,963.46	16,959,963.46
	Grand total	127,392,704.97	127,392,704.97

Annexure -E: Annual Return Statement for
Hazardous Waste
(FY-2023-24)



Ref:

Date:

Ref: NRL/ENV/PCBA/24-25/05

Date: 28 June 2024

To,
The Member Secretary,
Pollution Control Board, Assam,
Bamunimaidam,
Guwahati-781021

Sub: Submission of Annual Return on Hazardous Waste (Management & Handling) as per the provision of "Hazardous and other Waste (Management & Trans boundary Movement) Rules, 2016" in Form- 4 for the year 2023-24.

Dear Sir,

We are submitting herewith the Annual Return on Hazardous Waste (Management and Handling) as per the provision of Hazardous and Other Waste (Management and Transboundary Movement) Rules 2016 in Form-4 for the year 2023-2024.

White copies of Manifest (Form-10) for the Hazardous Waste dispatched during FY-23-24 have been enclosed as Annexure-I.

Hope the details provided shall meet the requirements.

Thanking you,

Yours faithfully,

(Alok Nayan Nath)
DGM (TS-Environment)
Numaligarh Refinery Limited

CC: RO, PCBA , Golaghat

FORM - 4

[See rules 6(5), 13(8), 16(6) and 20 (2)]

FORM FOR FILING ANNUAL RETURNS

[To be submitted to State Pollution Control Board by 30th day of June of every year for the preceding period **April'2023 to March'2024**

1. Name and address of facility : **Numaligarh Refinery Limited,**
P.O. NRP -785699
Golaghat, Assam.
2. Authorization No. and Date of issue: **NO: WB/OTWA/HW-353/20-21/191/01**
Date: 20th April, 2021(valid for five years)
3. Name of the authorized person and: **Mr. Bimlesh Kumar Gupta, CGM(TS)**
full address with telephone, fax **Technical Services Department.**
number and e-mail: **2nd Floor, Administrative Building,**
Numaligarh Refinery Limited
PO: NRP 785699, Golaghat, Assam
E mail: bimlesh.gupta@nrl.co.in
4. Production during the year (product wise), wherever applicable: **N/A**

Part A. To be filled by hazardous waste generators

1. Total quantity of waste **generated** category wise: Year: 2023-24

Sl.no.	Category of Hazardous Waste as per Schedule I / Category of other waste as per Schedule-III	Quantity Generated for the Year 2023-24
1.	Schedule-I, Category-4.1: Oil Sludge or emulsion (Tank Bottom Sludge)	34.540 MT
2.	Schedule-I, Category- 4.2: Spent Catalyst	189.94 MT
3.	Schedule-I, Category- 4.3: Slop oil (Slop oil of OM&S)	46572 MT
4.	Schedule-I, Category-5.1: Used or Spent Oil (Spent Lube Oil)	3.407 MT
5.	Schedule-I, Category- 33.1: Empty barrels/containers contaminated with hazardous chemicals/wastes	49.30 MT
6.	Schedule -I, Category- 35.1: Exhaust air or gas cleaning residue (CPC dust)	1099.94 MT
7.	Schedule-I, Category-35.3: Chemical Sludge from wastewater treatment	6.34 MT
8.	Schedule-I, Category-35.4: Oil and grease skimming (Slop Oil of ETP)	19915 MT

2. Quantity **dispatched**: Year: 2023-24

Sl.no.	Category of Hazardous Waste as per Schedule I/ Category of other waste as per Schedule-III	Quantity Dispatched for the Year 2023-24	Destination (a. Recyclers, (b. Coprocessing in cement plant (c. Actual User/Utilizer (d. Common TSDF)
1.	Schedule-I, Category-4.1: Oil Sludge or emulsion (Tank Bottom Sludge)	149.155 MT	a. <u>Dispatched to Recyclers</u> • M/s Falak Industrials Pvt. Ltd, Jharkhand
2.	Schedule-I, Category- 4.2: Spent Catalyst	189.24 MT	a. <u>Dispatched to Recyclers</u> Non-Precious Catalyst: • M/s Ashtadhatu Ferro Metals Pvt. Ltd, Chattisgarh • M/s Arham Industries, Bharatpur, Rajasthan • M/s Arth Metallurgical Pvt. Ltd, Chattisgarh
3.	Schedule-I, Category-5.1: Used or Spent Oil (Spent Lube Oil)	20.150 MT	a. <u>Dispatched to Recyclers</u> • M/s Satkar Oil Company, Punjab
4.	Schedule-I, Category-33.1: Empty barrels/containers contaminated with hazardous chemicals/wases	27.30 MT	• M/s SS Enterprise • M/s Rajib Enterprise
5.	Schedule-I, Category-35.4: Oil and grease skimming (Slop Oil of ETP)	797 MT	a. <u>Dispatched to Recyclers</u> • M/s Fine Refiners Pvt. Ltd, Gujarat

3. Quantity **utilized in-house**, if any): Year: 2023-24

Sl.no.	Category of Hazardous Waste Utilized as per Schedule I / Category of other waste as per Schedule-III	Quantity Utilized for the Year 2023-24	Process in which utilized
1.	Schedule-I , Category- 4.3: Slop oil from process units	31000 MT	Reprocessed in CDU/VDU
2.	Schedule-I, Category-33.1: Empty barrels/containers contaminated with hazardous chemicals/wases	1.15 MT	For internal reuse

3.	Schedule-I, Category-35.4: Oil and grease skimming (Slop Oil of ETP)	20174 MT	Internal Transfer from ETP to OMS for reuse
----	--	----------	---

4. Quantity in **storage** at end of the year (31.03.2024):

Sl.no.	Category of Hazardous Waste as per Schedule I / Category of other waste as per Schedule-III	Quantity Stored at the beginning of the year 23-24 (Opening Stock)	Quantity Stored at the end of the year 23-24 (Closing Stock)
1.	Schedule-I, Category-4.1: Oil Sludge or emulsion (Tank Bottom Sludge)	2000 MT	1885.385 MT
2.	Schedule-I, Category- 4.2: Spent Catalyst	2.52 MT	3.22 MT
3.	Schedule-I, Category- 4.3: Slop oil (Slop oil of OM&S)	61771 MT	77343 MT
4.	Schedule-I, Category-5.1: Used or Spent Oil (Spent Lube Oil)	23.141 MT	6.398 MT
5.	Schedule-I, Category- 33.1: Empty barrels/containers contaminated with hazardous chemicals/wastes	4.72 MT	25.57 MT
6.	Schedule -I, Category- 35.1: Exhaust air or gas cleaning residue (CCU dust)	652.14 MT	1752.08 MT
7.	Schedule-I, Category-35.3: Chemical Sludge from wastewater treatment (Chemical and Oily Sludge from ETP)	NIL	NIL
8.	Schedule-I, Category-35.4: Oil and grease skimming (Slop Oil of ETP)	8500 MT	7444 MT

Part B. To be filled by Treatment, storage and disposal facility operators

(Occupiers disposing Hazardous waste in Captive TSDF such as Secured Landfill Facility (SLF), through Bioremediation and secured landfilling and through captive Incineration)

1. Total quantity received during **2023-24** : As per Part -A

2. Quantity in stock at beginning of year (on **01.04.2023**) :

Sl.no.	Category of Hazardous Waste as per Schedule I / Category of other waste as per Schedule-III	Quantity Stored at the beginning of the year 23-24 (Opening Stock)
1.	Schedule-I, Category-4.1: Oil Sludge or emulsion (Tank Bottom Sludge)	2000 MT
2.	Schedule-I, Category-35.3: Chemical Sludge from wastewater treatment (Chemical and Oily Sludge from ETP)	NIL

3. Quantity treated – : Nil

4. Quantity disposed in **Landfills** as such and after treatment (**During 2023-24**):

Sl.No.	Category of Hazardous Waste as per Schedule I / Category of other waste as per Schedule-III	Quantity Disposed for the Year 2023-24 in Captive Secured landfill
1.	Schedule-I, Category-35.3: Chemical Sludge from wastewater treatment (Chemical and Oily Sludge from ETP)	6.34 MT

5. Quantity incinerated (if applicable) - : N / A

6. Quantity processed other than specified above - : -Disposal through Bioremediation

: - Disposed through authorized recyclers

Sl.no.	Category of Hazardous Waste as per Schedule I / Category of other waste as per Schedule-III	Quantity Disposed for the Year 2023-24 through Bioremediation
1.	Schedule-I, Category-4.1: Oil Sludge or emulsion (Tank Bottom Sludge)	NIL

Sl.no.	Category of Hazardous Waste as per Schedule I / Category of other waste as per Schedule-III	Quantity Disposed for the Year 2023-24 through CPCB approved recyclers
1.	Schedule-I, Category-4.1: Oil Sludge or emulsion (Tank Bottom Sludge)	149.155 MT

7. Quantity in **storage** at the end of the year (on 31.03.2024):

Sl.no.	Category of Hazardous Waste as per Schedule I / Category of other waste as per Schedule-III	Quantity in storage at the end of the year 2023-24
1.	Schedule-I, Category-4.1: Oil Sludge or emulsion (Tank Bottom Sludge)	1885.385 MT
2.	Schedule-I, Category-35.3: Chemical Sludge from wastewater treatment (Chemical and Oily Sludge from ETP)	Nil

Part C. To be filled by recyclers or co-processors or other users : N/A

1. Quantity of waste received during the year –
 - (i) domestic sources
 - (ii) imported (if applicable)
2. Quantity in stock at the beginning of the year -
3. Quantity recycled or co-processed or used –
4. Quantity of products dispatched (wherever applicable) –
5. Quantity of waste generated -
6. Quantity of waste disposed -
7. Quantity re-exported (wherever applicable)-
8. Quantity in storage at the end of the year –



Date : 28.06.2024
Place : NRL, Golaghat, Assam

Signature of the Occupier or
Operator of the disposal facility

Annexure -F : Form-5 – Environmental
Statement (23-24)

Ref:

Ref: NRL/ENV/PCBA/24-25/08

Date:

Date: 28 September 2024

To,
The Member Secretary,
Pollution Control Board, Assam,
Bamunimaidam,
Guwahati-781021

Sub: Submission of Environmental statement in Form- V for the year 2023-24

Dear Sir,

We are submitting herewith the duly filled in "Environmental Statement" in Form-V for the year 2023-24 for your kind perusal.

Hope, the same shall meet the requirement.

Thanking you.

Yours' faithfully,



(Alok Nayan Nath)

DGM (TS-ENV)

Numaligarh Refinery Limited

Cc: RO, PCBA, Golaghat

[FORM – V]

(See rule 14)

Environmental Statement of NUMALIGARH REFINERY LIMITED for the FY– 2023-2024

PART – A

- (i) Name and address of the owner/occupier:
of the industry operation or process. Numaligarh Refinery Limited
P.O. Numaligarh Refinery Project
Golaghat -785699, Assam
- Co-ordination Office: Tolstoy House, 6th Floor
15-17 Tolstoy Marg
New Delhi-110001
- Registered Office : 122A , G.S.Road
Christianbasti
Guwahati-781005
- (ii) Industry category Primary ----(STC code) : Primary
Secondary----- (SIC Code)
- (iii) Production capacity (Crude T'put) : 3.0 MMTPA
- (iv) Year of establishment : 22nd April ,1993
- (v) Date of the last environmental statement submitted: 29th Sept,2023

PART – B

Water and River Material Consumption

- (1) Water consumption m3/d:
- | | | |
|----------|---|------|
| Process | : | 2588 |
| Cooling | : | 4768 |
| Domestic | : | 3886 |

Name of Raw material: Crude Oil

Process water consumption in m3 per MT of raw material ***:

2022-2023	2023-2024
0.349	0.693

*****As all the products are obtained from the same raw material i.e Crude Oil, Process Water Consumption shown above has been indicated as M3 per MT of crude processed.**

- ii) Raw Material Consumption: Raw material: Crude Oil
- | | | |
|-------------------------------|-----------|--------------------------------------|
| | 2022-2023 | 2023-2024 |
| T'put during the year (in MT) | 3091364 | 2509675 (Design Capacity: 3.0 MMTPA) |

PART - C

Pollution discharged to environment/unit of output (Parameter as specified in the consent issued)

a) Treated Effluent Water: 2023-2024

Pollutants	CPCB Standard (mg/l)	Concen. of pollutants in discharges(av.) (mg/l)	Quantity of pollutants discharged/loss (kg/yr, exc. pH)	Qty of pollutants in kg/1000 MT of Crude		Percentage of variation from STD. with reasons
				Actual	Standard	
pH	6-8.5	7.48				All parameters are within prescribed limit/stds.
OIL & GREASE	5.0	1.86	2152.47	0.88	2.00	
BOD3	15.0	7.66	8877.26	3.64	6.00	
COD	125.0	43.04	49853.41	20.43	50.00	
TSS	20.0	10.55	12216.01	5.01	8.00	
Phenol	0.35	0.09	108.11	0.04	0.14	
Sulphides	0.5	<0.1	0.00	0.00	0.20	
CN	0.2	<0.02	0.00	0.00	0.08	
Ammonia as N	15.0	10.85	12567.36	5.15	6.0	
Cr (Hexavalent)	0.1	0.00000	0.00	0.0000	0.04	
Cr (Total)	2.0	0.00175	2.03	0.0008	0.8	
Pb	0.1	0.00000	0.0000	0.0000	0.04	
Zn	5.0	0.02233	25.8683	0.0106	2.0	
Ni	1.0	0.00217	2.5096	0.0010	0.4	
Cu	1.0	0.00192	2.2200	0.0009	0.4	
Benzene	0.1	<0.1	0.00	0.00	0.04	
Benzo (a)- Pyrene	0.2	<0.2	0.00	0.00	0.08	
Hg	0.01	<0.01	0.00	0.00	0.004	
V	0.2	<0.2	0.00	0.00	0.8	
TKN	40.0	18.09	20958.1424	8.5891	16.0	
P	3.0	1.35	1562.7151	0.6404	1.2	

Note: Quantity of pollutants in kg/1000MT of crude has been calculated considering cumulative Crude processed figures for Q-II,III and IV. Q-I has not been considered due to RTA-2023 and extended S/D till June'23.

(b) AIR

Average Sulphur Dioxide emission from the refinery during – 2023-24:

SO2 Emission, Kg/hr	During April, 2023 to Mar,2024
As per NOC of PCB, Assam max. allowable limit is 256 kg/hr as SO2	78.8 kg/hr

Note : The decrease has been observed this year because of RTA-2023 in April'23 and prolonged shutdown of process units till June 23

2023-24						
AMBIENT AIR QUALITY MONITORING						
STATION	PARAMETER	STD	Unit	OBSERVATIONS		
		NAAQS-2009		MAX	MIN	AVG.
REFINERY (WATCH-TOWER NO. 6)	SO2	80 (24 hr avg.)	µg/m3	18.0	4.26	9.2
	NO2	80 (24 hr avg.)	µg/m3	27.7	8.55	15.6
	O3	100(8 hr avg.)	µg/m3	35.9	0.00	8.7
	CO	2(8 hr.avg.)	mg/m3	1.1	0.00	0.7
	NH3	400(24 hr.avg.)	µg/m3	38.5	0.00	19.9
	PM 10	100(24 hr.avg.)	µg/m3	74.8	21.04	55.0
	PM 2.5	60(24 hr.avg.)	µg/m3	59.4	8.94	34.0
	Benzene	5.0(Annual)	µg/m3	3.2	0.00	0.2
	BaP	1.0(Annual)	ng/m3	0.00	0.00	0.00
	Pb	1.0(24 hr.avg.)	µg/m3	0.4	0.00	0.0
	As	6.0(Annual)	ng/m3	0.00	0.00	0.00
	Ni	20(Annual)	ng/m3	3.8	0.00	0.2
ECO-PARK IN NRL TOWNSHIP	SO2	80 (24 hr avg.)	µg/m3	14.8	5.63	10.8
	NO2	80 (24 hr avg.)	µg/m3	19.6	9.65	14.8
	O3	100(8 hr avg.)	µg/m3	28.6	0.00	13.1
	CO	2(8 hr.avg.)	mg/m3	1.1	0.53	0.7
	NH3	400(24 hr.avg.)	µg/m3	39.0	0.00	16.6
	PM 10	100(24 hr.avg.)	µg/m3	73.1	31.47	51.7
	PM 2.5	60(24 hr.avg.)	µg/m3	56.2	14.80	31.1
	Benzene	5.0(Annual)	µg/m3	3.1	0.00	0.4

	BaP	1.0(Annual)	ng/m3	0.00	0.00	0.00
	Pb	1.0(24 hr.avg.)	µg/m3	0.4	0.00	0.1
	As	6.0(.0Annual)	ng/m3	0.0	0.00	0.0
	Ni	20(Annual)	ng/m3	2.7	0.00	0.4
RAW WATER INTAKE	SO2	80 (24 hr avg.)	µg/m3	16.7	6.40	9.5
	NO2	80 (24 hr avg.)	µg/m3	24.3	7.00	14.9
	O3	100(8 hr avg.)	µg/m3	30.8	0.00	9.2
	CO	2(8 hr.avg.)	mg/m3	1.1	0.53	0.7
	NH3	400(24 hr.avg.)	µg/m3	39.9	0.00	17.0
	PM 10	100(24 hr.avg.)	µg/m3	72.6	32.90	51.3
	PM 2.5	60(24 hr.avg.)	µg/m3	58.0	14.00	31.3
	Benzene	5.0(Annual)	µg/m3	1.9	0.00	0.2
	BaP	1.0(Annual)	ng/m3	0.00	0.00	0.00
	Pb	1.0(24 hr.avg.)	µg/m3	0.4	0.00	0.0
	As	6.0(Annual)	ng/m3	0.00	0.00	0.00
	Ni	20(Annual)	ng/m3	3.6	0.00	0.4
KAZIRANGA WILDLIFE SANCTUARY AT AGARTOLI	SO2	80 (24 hr avg.)	µg/m3	18.0	5.30	9.0
	NO2	80 (24 hr avg.)	µg/m3	27.7	9.26	14.2
	O3	100(8 hr avg.)	µg/m3	27.2	0.00	8.7
	CO	2(8 hr.avg.)	mg/m3	1.1	0.00	0.6
	NH3	400(24 hr.avg.)	µg/m3	38.5	0.00	15.5
	PM 10	100(24 hr.avg.)	µg/m3	66.4	32.47	47.3

	PM 2.5	60(24 hr.avg.)	µg/m3	58.4	12.40	28.5
	Benzene	5.0(Annual)	µg/m3	2.8	0.00	0.3
	BaP	1.0(Annual)	ng/m3	0.00	0.00	0.00
	Pb	1.0(24 hr.avg.)	µg/m3	0.3	0.00	0.0
	As	6.0(Annual)	ng/m3	0.00	0.00	0.00
	Ni	20(Annual)	ng/m3	2.9	0.00	0.3
All the parameters are found to be within limit						

PART – D
Hazardous Wastes

(As specified under Hazardous Waste Management and Handling Rules, 1989 as amended up to date)

Hazardous Wastes(Generated/disposed)	Total Quantity (In MT)	
	During the previous Financial Year (2022-23)	During the current Financial year (2023-2024)
a) From Process		
i) Spent Catalyst (Schedule-1, Category-4.2)	Generation: Nil Disposed: 445.1436 MT (sold to recycler) Stock as on 31.03.23: 2.52MT	Generation: 189.94 MT Disposed: 189.24 MT (sold to recycler) Stock as on 31.03.23: 3.22 MT
ii) Spent Adsorbents	Generation: Nil	Generation: Nil
iii) Tank Bottom (oily Sludge/waste) (Schedule -1, Category -4.1)	Generation: 876 MT Disposed: 500 MT (via bioremediation) Stock as on 31.03.23: 2000 MT, kept in sealed drum for disposal	Generation: 34.540 MT Disposed: 149.155 MT (to authorized recycler) Stock as on 31.03.24: 1885.385 MT, kept in sealed drum for disposal

iv) Slop Oil from Process Units (Schedule-1, Category-4.3)	Generated: 24592 MT Disposed: 5993 MT (sold to recycler) Processed in CDU/VDU: 36593 MT Stock as on 31.03.23: 61771 MT	Generated: 46572 MT Processed in CDU/VDU: 31000 MT Stock as on 31.03.24: 77343 MT
v) Spent lube oil (Schedule-1, Category-5.1)	Generation: 12.998 MT Stock as on 31.03.23: 23.141 MT	Generation: 3.407 MT Disposal = 20.150 MT(to authorized recyclers) Stock as on 31.03.24: 6.398 MT
vi) Schedule-I, Category-33.1: Empty barrels/containers contaminated with hazardous chemicals/wastes	Generation: 3834 Nos Sold:5400 Nos Stock as on 31.03.23: 3396 Nos	Generation: 5018 Nos = 49.30 MT Sold: 1681 Nos= 27.30 MT Internal Reuse = 104 Nos= 1.15 MT Stock as on 31.03.24: 4404 Nos= 25.57 MT
b) From Pollution Control Facilities		
i) Chemical & Oily Sludge (Schedule -1, Category -35.3)	Generated:32.64 MT (disposed off in the SLF)	Generated:6.34 MT (disposed off in the SLF)
ii) Slop Oil from ETP operations (Schedule I, Category 35.4)	Generation: 10300 MT Disposed: 1800 MT (sold to recyclers) Stock as on 31.03.2023 : 8500 MT	Generation: 19915 MT Disposed: 797 MT (sold to recycler) Internal Reuse: 20174 MT Stock as on 31.03.2024 : 7444 MT
iii) Exhaust air or gas cleaning residue (CCU dust) (Schedule I, Category 35.1)	Generation: 652.14 MT Stock as on 31.03.23: 652.14 MT	Generation: 1099.94 MT Stock as on 31.03.24: 1752.08 MT

Part – E

Solid Wastes

Solid Wastes generated /disposed	Total Quantity (in m3)	
	During the previous financial Year (2022-23)	During the current financial year (2023-24)
(a) From Process		
Generation of Incinerable substances -	4365 m3	4370 m3= 920 MT

(b) From pollution control facilities		
Generation at ETP	299.86 MT	Nil
Bio sludge -		
(c)		
(1) Quantity recycled or reutilized within the unit	Nil	Nil
(2) Sold		
(3) Disposal -	Nil	Nil
Incinerable substances -	Entire quantity disposed through incineration	Entire quantity disposed through incineration
Bio sludge -	Entire Quantity disposed off into SLF	Entire Quantity disposed off into SLF

Part – F

Please specify the characteristics (in terms of concentration and quantum) of hazardous as well as solid waste and indicate disposal practice adopted for both these categories of wastes.

A typical laboratory analysis report of the Chemical & Oily Sludge is given hereunder:



NUMALIGARH REFINERY LIMITED
(Quality Control Department)

Analysis of Chemical and Oily sludge sample

Date	SAMPLE SOURCE	PARAMETERS	RESULTS %,wt
23-12-2023 11:30 hrs	ETP (Chemical & Oily sludge)	Moisture Content	85.71
		Oil Content	3.80
		Organic & Volatile Matter	8.89
		Iron	0.10
		Sodium	0.02
		Sulphide	0.22
		Phenol	0.002
		SiO ₂	0.054
		Chloride	0.75
		Calcium	0.04
		Magnesium	0.01
		Manganese	0.002
		Nickel	0.0012
		Sulphate	0.400
		Zinc	0.003
		Lead	0.000
		Copper	0.0002
		Cobalt	0.0001

Analysed By: Mr. Prabhash Kumar Thakur

Barhai

Certified by: Dr. Bedobrat Barhai
Officer (Quality Control)
Numaligarh Refinery Limited
Golaghat, Assam
Pin: 785699

बेदब्रत बर्है / BEDOBRAT BARHAI

वरिष्ठ अधिकारी (गुणवत्ता नियंत्रण) / Sr. Officer (Quality Control)
नुमालिगढ़ रिफ़िनरी लिमिटेड / Numaligarh Refinery Limited
गोलाघाट, असम - 785 699 / Golaghat, Assam - 785 699

Disposal practice adopted for both categories of wastes:

A proper solid waste management procedure is in place at Numaligarh Refinery to deal with the storage/disposal of solid wastes (hazardous /non-hazardous) generated due to refinery operations. As a part of the operation of the refinery, some amount of solid wastes are generated - to manage and deal with the same, an environment-friendly & proper solid waste management system has been prepared and as per the laid down procedure hazardous /non-hazardous solid waste is handled. Considering the activities

related to waste management, NRL Management has delineated a solid waste management plan with the following objectives:

1. To protect human health and the natural environment from the hazards posed by waste disposal.
2. To conserve energy and natural resources through waste recycling and recovery.
3. To reduce /eliminate, as far as possible, the generation of solid wastes including hazardous wastes.
4. To ensure proper management of solid wastes which protect human health and the environment.

In-built measures had been adopted to minimize, control pollution and the generation of waste in all the units with proper collection and disposal systems.

The disposal practice adopted for hazardous as well as solid waste has been indicated as given below:

Hazardous waste :

- **ETP Chemical and Oily Sludge:**

Adequate segregation, collection, and treatment facilities for wastewater for centralized treatment have been provided to meet the stringent standards laid down in the latest MoEFCC Notification. An environmentally compatible management system for disposal of the ETP hazardous wastes i.e. Chemical & Oily sludge through a Secured Landfill has been developed inside the refinery premises. Types of Hazardous solid waste like – Chemical & Oily sludge which is generated at different sections of the Effluent Treatment Plant (ETP) are collected in a sludge thickener through a sludge collection system. Floating oil with water from the thickener is recycled back to the Inlet Receiving Sump (IRS) of ETP for further processing and oil recovery. The thickened sludge from the bottom of the thickener is taken to the centrifuge feed sump for feeding to the specifically designed Chemical & Oily centrifuge for recovering the absorbed oil from it. By using the highly efficient centrifuge, almost total oil is recovered from the sludge and is recycled back to the slop oil system for reprocessing. The oil-free cake from the centrifuge was disposed of in the Secured Landfill (SLF). A Secured Landfill with a capacity of 6000m³ has been constructed inside the Refinery Premises.

- **Tank Bottom Oily Sludge**

Tank bottom sludge generally is sold to CPCB-recognized recyclers. The same is also disposed of through Bio-remediation more scientifically and efficiently in the Refinery premises itself. To cater to the requirement, two number Bioremediation facilities(1200 m³ each) are available for bioremediation of Crude Tank cleaning sludge.

- **Spent Catalyst**

Spent catalysts are generally generated after a gap of 3/4 years when the catalyst is required to be replaced in the various units of the Refinery. After generation, the spent catalyst is kept in sealed drums at the demarcated place for onward selling to CPCB-approved recyclers with due intimation to PCBA and following the stipulated guidelines/procedures. Spent catalysts are sold to CPCB-recognized recyclers by following proper guidelines with intimation to SPCB.

- **Slop oil**

Slop oil is generated from the process units in the refinery and is stored in the Slop oil tanks under the Oil Movement & Storage Unit. Slop oil is also generated in ETP during the wastewater treatment processes and the same is recovered and transferred to OMS for further treatment and processing. The slop oil generated is treated in a 3-phase decanter system for efficient slop management of the refinery and is reprocessed in the CDU. Slop oil is also sold to CPCB-authorized recyclers.

- **Spent Lube oil**

Spent lube oil is usually generated in the refinery during the maintenance activities of the various equipments and machinery operated in the process plants. The spent lube oil generated is kept in drums at demarcated locations and is sold off to CPCB-approved recyclers as per guidelines.

- **Empty Contaminated Barrels**

A lot of barrels/containers/drums are used in the refinery for the intermittent storage of hazardous waste/ chemicals/ oil and lubricants etc. The empty barrels that are generated post respective usages are kept in demarcated locations and are disposed of by selling the same to CPCB-authorized recyclers.

Non –hazardous solid waste

Non –hazardous solid waste generated in the Refinery are mainly - incinerable waste, non-incinerable but reusable waste and biodegradable waste, etc. After collecting the wastes from various sources viz. - process area, various units, admin office, and other locations, wastes are segregated and kept in demarcated locations in the Solid waste disposal yard. Non-hazardous solid waste like- paper, hard boards, packing materials/papers, and cartons are incinerated through an incineration process and non-hazardous bio-degradable wastes are disposed of by burying at isolated low-lying areas within the refinery premises itself.

Part –G

Impact of the pollution abatement measures taken on the conservation of natural resources and the cost of production:

NRL has determined the sources of pollution in various activities focusing on pollution load. Company's management is very careful and proactive regarding the environmental impacts of the new initiatives and products. NRL is conducting the Environmental Impact Assessment study of every project to understand the implications of setting up any new project or unit. Significant contribution made by NRL on the specific contribution on innovative clean technology, sustainability, broader user or target groups on the following fields:

- a) Environment-friendly technology adopted for highly polluting industries.
- b) Innovativeness/creativity of clean technology.
- c) Any significant contribution towards the manufacture of environmentally friendly products.
- d) Abatement including reduction reuse, recycling, or any beneficial use of waste generated.
- e) Substantial and steady reduction in the effluents and emissions in the year.
- f) Success in defining environmental pollution needs meeting pollution prevention goals and overall improvements to the quality of air, water, and land.
- g) Reduction of risk to the community living in the vicinity of units handling hazardous chemicals.
- h) Sustainability of the developed environment-friendly technology from financial, social, and ecological aspects.

As the higher fuel consumption directly contributes to the higher emission of greenhouse gases affecting natural ecological processes, energy conservation efforts have received continuous focus at NRL since the conceptualization of the refinery by applying optimum consumption of fuel in furnaces thereby reducing the rate of emission of Green House Gas. It has adopted state of the art energy efficient technology, high-efficiency furnaces with glass air pre-heaters, plate-type exchangers, installation of a captive co-generation power plant using a heat recovery system, maximization of waste heat recovery, installation and operation of power recovery turbine in the hydrocracker and other units, etc.

NRL has adopted very advanced and comprehensive steps towards controlling pollution. From the very onset, the selection process of technologies and equipment was done with special care for environmental protection.

Additionally, all the furnaces are provided with ultra-low NOx burners. Low-noise rotary equipment were considered during the time of equipment selection.

Minimum Generation of waste: In-built measures have been adopted to minimize and control pollution and the generation of waste in all the units with proper collection and disposal systems.

Adequate segregation and centralized treatment facilities: Adequate segregation, collection, and treatment facilities for wastewater for centralized treatment have been provided to meet the stringent standards laid down in the MoEFCC notification, 2008.

Details regarding the some of the pollution abatement measures of NRL are as follows:

1. Effluent Treatment Plant with the latest technology

A centralized modern Effluent Treatment Plant having tertiary treatment facilities has been installed. Also, the ETP includes a three-stage oil recovery system from the wastewater and a high-efficiency centrifuge for recovering oil from the oily sludge. To avoid hazardous solid waste generation, a more environmentally friendly hydrogen peroxide treatment process has been introduced. Discharge of Treated Effluent from ETP via dedicated pipeline has been discontinued since October 2000 and discharge of effluents from Sewage Treatment Plant has been discontinued since April 2007. The treated effluent from the Township is diverted to our ETP inside the Refinery by implementing suitable modifications in the disposal line in ETP, where the treated water from the township STP is received at the aeration tank. The outlet at Numaligarh Jetty in river Dhansiri has been blinded and the discharge from township STP also has been routed to ETP through the same line. About 50-60% of treated effluent is being reused/recycled in miscellaneous refinery activities and as Firewater makeup and the rest quantity is system/operational losses in ETP due to various constraints. As a part of ETP modernization VOC recovery system has been implemented.

2. Green Belt Development

An ambitious plan of green belt development has been adopted around the refinery to serve as a barrier for air pollutants and noise. A 100m wide green belt around the refinery and 25 m wide around the marketing terminal covering 56 Ha of land has been developed and thereby rendering a perfectly natural barrier to the industrial noise, minor air pollutants from reaching the immediate surroundings, both human population, rich flora & fauna and help in mitigating the effects of fugitive emission in all around Refinery. There are green covers of tea gardens (tea bushes and shed trees) in the northern and southern boundary of the refinery with approx. 260 hectares, contiguous to the refinery Green Belt. The township situated about 5 KM from the refinery is spread over 250 acres area. Although the township is full of natural green vegetation, large nos. of trees have been planted on both sides of roads and other parts of the township. Initially plantation of around 1,25,000 nos of saplings of various species was carried in the Green Belt around Refinery and

20,000 nos in the Green Belt around NRMT. Massive plantations are being carried out every year in the Green Belt to increase the density of trees. Around 55900 saplings have been planted in the Green Belt area during 2000-2018. Plantation activities inside the Refinery as well as outside the refinery have been carried out in a phased manner considering weather conditions. The meticulously planned and developed green belt all around the refinery has now grown into rich foliage, rendering a perfectly natural barrier to the industrial noise and minor air pollutants from reaching the immediate surroundings, both the human population and the rich flora and fauna. NRL is aggressively pursuing tree plantation in the refinery area with a plantation of around 7000 saplings during 2018-2021. Plantation drives in nearby areas of the refinery are taken from time to time under various schemes & programmes.

NRL has taken up two major flagship initiatives for plantation under Afforestation Drive in degraded areas. An MoU was signed on 14.09.2020 between NRL and Golaghat Social Forestry Division, Government of Assam, for the plantation of 1 lakh tree saplings (equivalent to 2200 Ton of CO₂ absorption per annum), towards compensatory afforestation of 40 Hectares of degraded land in Nak-Kati Chapori under Khumtai Revenue Circle of Golaghat.

In a significant development for plantation of approx. 68000 tree saplings (equivalent to 1496 Ton of CO₂ absorption per annum), an MoU was signed on 23rd August 2021 between NRL and Nagaon Forest Division, Govt. of Assam for compensatory afforestation of 35 Hectare land in Kandoli PRF under Nagaon Forest Division with a total budget of ₹1.97 Crore.

NRL has also further pursued the Forest Department, Govt. Assam for providing 28 Ha. land in Abhoypur Village, Dibrugarh District for compensatory afforestation. Accordingly, a proposal along with an estimate of about 2.2 crores has been submitted by the Additional Principal Chief Conservator of Forest & Chief Executive Officer(CAMPA), Assam for a plantation target of 3,50,000 saplings (equivalent to approx.7700 Tons of CO₂ absorption per annum).

Keeping the environment as a prime concern, NRL has envisaged an ambitious experimental project for the first time in the country. This unique project called “Butterfly Eco System” located in the Refinery Township is an effort to give a natural habitat for butterflies to come, stay, and breed in their natural way. Also, a unique herbal garden of rare medicinal plants called “Smritibon” has been developed in the township.

In addition, the plantation of various saplings has also been carried out on a wide scale all along the roadsides in the Township & the Butterfly Valley. More than 84% of green cover is maintained in the Township.

3. Unique Ground Flare System

To avoid any adverse impact of the flare on wild animals in the Kaziranga National Park, a non-illuminating ground flare has been incorporated which is the first of its kind in the country.

4. Sulfur Recovery Plant

Assam crude is sweet crude (only 0.26 % Sulfur content). Despite processing low-sulfur Assam crude, a Sulfur Recovery Unit (SRU) has been installed to remove sulfur from sour water and sour gas generated during the refining process. Subsequently, its capacity has been enhanced from 14.6 Tonnes Per Day to 19.3 Tonnes Per Day in the year 2010 commensurate with the Diesel Quality Upgradation Project.

Implementation of a new train of Sulphur Recovery Unit (SRU) has been taken up for parallel execution to meet future environmental requirements along with the implementation of Tail Gas Treating Unit (TGTU). As a remarkable achievement, NRL successfully commissioned the Tail Gas Treating Unit (TGTU) in Feb'24, and sulphur recovery efficiency increased from the existing 96% to 99 %.

5. High Stack Height & Strict Emissions Monitoring

To reduce the ground-level concentration of pollutants, the height of stacks at different plants in the refinery is kept at 60 meters. Further, the height of the stack at the Coke Calcination Unit is kept at 77 meters. Facilities for continuous monitoring of SO_x, NO_x, PM, and CO have been provided for all the furnace stacks and low NO_x burners have been used in all the furnaces. Real-time online emission data have been transmitted to the CPCB/SPCB server continuously with a remote alert facility. SO₂ emission from the refinery is 78.8 kg/hr for FY-23-24 as against the allowable limit of 256 kg/hr (The decrease has been observed this year because of RTA-2023 in April'23 and prolonged shutdown of process units till June 23).

6. Use of low sulfur fuel for the Refinery furnace

Only sweet fuel gas, after removing sulfur in the Amine Treatment Unit, is used in the refinery furnaces.

7. Waste Management System

NRL has taken up a lot of advanced & innovative initiatives in the management of Waste generated in the refinery.

NRL has also successfully registered in the National Hazardous Waste Tracking System (NHWTS) during an online portal developed by CPCB for tracking the generation, transformation, storage, recycling, utilization, and disposal of Hazardous Waste in the country. Management of various types of waste generated in the refinery is described below:

- **Chemical and Oily sludge**

Chemical and Oily sludge generated at different sections of Effluent Treatment plant are centrifuged in the highly efficient Centrifuge to further remove the oil content. After centrifuge, the oil-free cake is kept in sealed drums which are then disposed of in the Secured Landfill.

- **Tank Bottom Oily Sludge**

Tank bottom sludge generally is sold to CPCB recognized recyclers. The same is also disposed of through Bio-remediation more scientifically and efficiently in the Refinery premises itself. Cleaning of Tank bottom oily sludge has been done by adopting modern tank cleaning methods using a Tricanter centrifuge system for maximum recovery of hydrocarbon and reduced sludge generation. 500 MT of accumulated Oily sludge generated in the refinery has been sold to CPCB approved recycler out of which disposal has been completed for 149 MT.

- **Spent Catalyst**

Spent catalysts are generally generated after a gap of 3/4 years and are sold to CPCB-recognized recyclers by following proper guidelines with intimation to SPCB. About 189 MT spent catalyst generated during Refinery Turn Around (RTA-2023) was sold to CPCB-approved recyclers.

- **Slop oil**

The slop oil generated is treated in a three-phase decanter system for efficient slop management of the refinery and is reprocessed in the CDU. About 797 MT of slop oil from ETP has been sold to CPCB-approved recyclers.

- **Spent Lube oil**

The spent lube oil generated is sold off to CPCB-approved recyclers as per guidelines. 20 MT of spent lube oil has also been sold to CPCB-approved recyclers.

- **Empty Contaminated Barrels**

The empty barrels that are generated post respective usages are disposed of by selling the same to CPCB-authorized recyclers.

- **Plastics waste**

The plastic packaging waste like stretch films generated in the Wax slabbing unit is collected back by the respective vendors. NRL has received the Registration certificates for Brand Owners and Importer this year as per the Extended Producers Responsibility (EPR) regime under implementation in Plastic Waste Management Rules, 2016.

- **E-waste**

The defective components of repaired machines are taken back by the contractors after replacement. Laptops have a buy-back company policy. Desktops are mostly reused in low-priority areas and donated through CSR. The balance minimum nos. are handed over to the

warehouse for disposal through auction from time to time. 37 MT of E-Waste generated from the Electrical, Instrumentation, and Quality Control Laboratory departments of NRL were successfully disposed of to recyclers during this year.

- **Used Batteries**

Used batteries are disposed of through the manufacturers/ vendors as buy-back arrangements. 17.57 MT used batteries were sent as buyback to the dealers.

8. Implementation of Hydrogen Peroxide Treatment

In pursuance of the latest development, the H₂O₂ treatment process has been introduced for the chemical treatment of wastewater in the ETP by replacing the conventional FeCl₃ process. The introduction of this technique has reduced the solid waste generation drastically.

9. Installation of oil traps in the stormwater drains

Several numbers of oil traps have been installed and hay filters, and oil absorbent booms are placed in the refinery stormwater system as a preventive measure to eliminate any possibility of oil being carried over to the outside environment. The storm water recycle project is being implemented for reuse.

10. Estimation of Carbon Footprint and Green House Gas Emission

NRL is focusing on energy efficiency, building carbon sinks to minimize Green House Gas (GHG) emissions. NRL continues to monitor its GHG inventory and get it validated through an accredited agency. The company engaged TUV India Private Limited to conduct the independent assurance of the Refinery's GHG emission, which includes a "limited level of assurance" of NRL direct and other indirect (Scope 1 and 3, there are no Scope 2 emissions presently) GHG emission. This assurance engagement has been conducted against the methodology & standards of API compendium 2021, ISO 14064, GHG protocol ISAE 3000 (revised), and ISAE 3410 (GHGs) for the verification process under the operational control approach. GHG emission stands at 0.699 and 0.840 million tons CO₂ equivalent during FY 2023-24 & 2022-23 respectively against crude processed of 2.5097 MMTPA and 3.091 MMTPA respectively.

11. CDM Projects

NRL has installed a 12.0 MW Steam Turbine Generator (STG) to utilize and recover waste (thermal/pressure) energy of HP steam. This project has been registered as a CDM Project and NRL has earned Carbon Emission Reductions (CERs) from UNFCCC.

12. Fuel switch over

NRL has entered a JV with Oil India Ltd (OIL) and Assam Gas Company Ltd (AGCL) to form the Duliajan Numaligarh Pipeline (DNPL) who laid a 192 KM pipeline from Duliajan to Numaligarh to supply Natural Gas (NG) which is currently used at Captive Power Plant (CPP) and Hydrogen Unit of NRL instead of Naphtha. This has resulted in the reduction of carbon emissions.

PART – H

Additional measures/investment proposal for environmental protection including abatement of pollution, and prevention of pollution:

1. Secured Land Fill

As per CPCB recommendations with the latest technic/scientific design, a Secured Landfill with capacity of around 6000 m³ is in operation in the Refinery premises to cater the needs for disposal of Chemical & Oil Sludge.

2. Bioremediation facility

Two nos. of Bioremediation facilities (1200 m³) are available in the refinery for bioremediation of tank bottom oily sludge.

3. Decanter System

A three-phase decanter system has been commissioned for efficient slop management of the Refinery. About 50-70 KL of slop can be processed per day and the resultant processed slop can be directly transferred to the CDU unit for re-processing along with crude.

4. Installation of double mechanical seals in IFRT (Internal Floating Roof Tanks) and EFRT (External Floating Roof Tanks) in line with MoEFCC notification, 2008, relating to the Oil Refinery Industry, setting of double mechanical seals in all the IFRT and EFRT tanks have been completed.

5. Transmission of online real-time data

Transmission of online real-time data with remote alert facility for SO₂, NO_x, CO, PM, and Ambient Air quality to CPCB and SPCB Server has been implemented. As per directions of CPCB, online transmission of Treated effluent data for four parameters i.e. pH, TSS, BOD, COD, and flow have been implemented.

6. Installation of additional CAAQMS

As per the recommendation of MoEFCC and CPCB – the installation of another Continuous Ambient Air Quality Monitoring Station (CAAQMS) in the downwind direction has been completed and commissioned. Another CAAQMS is being planned to be installed as a part of NREP activities.

7. Dust mitigation activities

3 nos. of Mist Cannons are being utilized at project/construction sites as per requirement for control of dust pollution. Water sprinkling using tankers along major haul roads of the refinery is also being carried out. A wheel Washing system has been installed for vehicles exiting the Refinery Project gate for the control of dust pollution outside the refinery premises along with regular water sprinkling on the roads by tankers.

8. Flare Gas Recovery System

Numaligarh Refinery was originally designed with a twin flare system i.e., the ground flare and the elevated flare to avoid any adverse impact of the illumination of flare on animals and migratory birds in the surrounding wildlife sanctuaries and protected forest including Kaziranga National Park. In normal operation, the ground flare is in line and only the pilot burner is lit up in the elevated flare. The elevated flare caters to the load during plant emergencies when the flare load is very high or during maintenance of the ground flare system.

As a measure for the further protection of the environment & conservation of energy, the Flare Gas Recovery System has been implemented to recover and reuse the excess gas going to the flare.

The flare Gas Recovery System (FGRS) supplied by M/s Garo SPA, Italy was successfully commissioned in the year 2018-19. Implementation of the Flare Gas Recovery System has not only reduced specific energy consumption of the refinery but has also reduced Greenhouse gas emissions.

9. Despatch of Ethanol Blended Motor Spirit

NRL has commenced despatch of Ethanol Blended Motor Spirit (EBMS) from its Marketing Terminal in Numaligarh for supply to Retail Outlets located in North-East India. The first tank truck loaded with EBMS was despatched on 03-03-2022 from Numaligarh Refinery Marketing

Terminal to be sold through BPCL Retail Outlet. This augurs well with the Govt of India's target to achieve 20% blending of Ethanol with MS (Petrol) by 2025.

India imports 85% of its crude oil requirement. Ethanol, produced domestically, blending in Motor Spirit (Petrol) assumes significance at a time when the Govt. of India is focused on reducing import dependence, thereby saving on foreign exchange while promoting green energy. Also, ethanol is a less polluting fuel and offers equivalent efficiency at a lower cost as compared to MS (Petrol).

NRL has recently commissioned 2 above-ground tanks of capacity 860 KL each, through its subsidiary ABRPL, along with modification of existing truck loading gantry facilities to enable online blending of Ethanol in required proportion before it is dispatched to its customers. NRL's joint venture company, M/s Assam Bio-Refinery Pvt. Ltd. which is executing the first 2G biorefinery with bamboo mass as feedstock and bioethanol as one of the products is all set to be commissioned in the latter part of this year, which will substantially cater to the ethanol requirement in the Northeast region and beyond.

10. Maximum product evacuation through pipeline

About 80% of the product evacuation takes place via NSPL (Numaligarh Siliguri Pipeline) thereby contributing as an initiative towards reducing vehicular traffic for product despatch.

PART – I

Any other particulars for improving the quality of the environment:

As a part of continuous efforts towards reduction of emissions, Numaligarh Refinery produces ultra –low sulphur High Speed Diesel and motor spirit having less than 0.001% (10ppm) sulphur conforming to the Euro-VI Specifications. This contributes to reducing pollution from diesel and petrol vehicles due to the reduction in emission of Sulphur dioxide into the atmosphere.

Numaligarh Refinery Limited (NRL) has upgraded its refinery for production of BS-VI HSD to meet product quality requirements as per the Auto Fuel Policy of the Government of India by the implementation of the Diesel Hydro Treater Project (DHDT), which was commissioned in January 2018. NRL has also increased the capacity of its MS plant by 50% in 2019 and the entire quantity of MS produced meets BS VI standards.

As an advanced step towards environment protection, NRL has installed four mounded Bullets which are more environmentally friendly and safe for the storage of LPG replacing the existing LPG spheres.

Energy conservation measures:

NRL prioritizes maintaining energy conservation and enhancing its energy efficiency. Refinery closely monitors the key energy performance indicators viz Specific Energy Consumption and Energy Intensity Index (EII) out of several operational parameters. The Specific Energy Consumption (SEC) was 61.57 MBN and Energy Intensity Index (EII) was 81.36% against a target of 61.7 and 82% respectively for FY 2023-24.

Numaligarh Refinery has a portfolio of 1.05 MW of solar photovoltaic capacity, which is 0.4% of total captive power generation. The total generation from solar power is 820.9 MWh in 2023-24 which translates to reducing 6.3 lac lbs CO₂e. NRL continues to pursue the opportunity for further electricity production through solar resources in extended areas.

Details of energy conservation schemes implemented in FY-23-24 are given below:

- A condensate recovery system through steam traps routed to CPP was commissioned in the Sulphur Recovery unit.
- Reduction in NG as fuel and maximizing utilization of PSA off-gas after cleaning of APH system in hydrogen generation unit during planned RTA'23.
- Online digital twin model implemented in preheat circuit of CDU/VDU. The output of the simulation twin model enabled optimal use of energy in the heater.
- Ensuring Steam trap performance rate at >98% in working condition.
- Tail Gas treating unit commissioned in Feb'24 to improve the Sulphur recovery efficiency from 96.0% to 99% with additional production of sulphur of around 4% and reduce mass loss in terms of sulphur. Moreover, TGTU resulted in a significant reduction in SO₂ emission from 6000 ppm to 100-300 ppm.

Other Highlights:

- Perform Achieve Trade (PAT) cycle-VI verification by an Accredited energy auditor for the assessment year 2022-23 resulting in the issuance of 1863 nos. of Energy Saving certificates (ESCs). NRL traded ESCs in the PXIL trading platform by selling 771 ESCs at ₹1840 per ESCs during FY 2023-24 against 4289 ESCs earned in PAT cycle-II.
- NRL procured 20596 Renewable Energy Certificate (REC) in PXIL trading platform to comply to Renewable Purchase Obligation (RPO) for period FY 2022-23 and 2023-24 under CPP owner category.

The details relating to energy conservation measures implemented in FY-22-23 and FY-21-22 are as below:

Sl. No.	ENCON measures - 2022-23	SRFT saving	Sl. No.	Energy efficiency Improvement measures taken up during RTA'23
1	Condensate Recovery System commissioned in Hydrocracker Unit	150	1	Breech-lock exchanger cleaning in HCU; Hydro-jetting of all preheat train exchangers of CDUVDU, DCU, MSP, DHT, Wax unit; internal and external tube body cleaning of fin-fan coolers/EEs
2	Heat Integration of CDUVDU exchanger EE-51 A/B with DCU 03-EE-01A saving 0.5mmkcal/h	500	2	Regeneration of CRU catalyst; partial catalyst loading in HCU & SRU
3	Efficient utilization of enrich O2 stream of both N2 plants to improve performance in SRU	720	3	Cleaning of APH of Reformer HGU EE-204 A/B; EE-215; Tube & tube sheet replacement of WHB EE-206
4	HCU Feed Pre-heater steam reduced substantially	900	4	STG main surface condenser cleaning to improve vacuum
5	Steam trap performance rate at >98% in working condition	2200	5	Installation of high precision ultrasonic mass flowmeter for Fuel NG in GTG-1 & GTG-2
			6	Closed Gas sampling points in all process units
			7	DHDT Internal Fuel gas hook-up directly to its furnace for operational ease
			8	Stop steam loss due to frequent steam trap passing with Installation of control valve at condensate pot outlet of reheater-2&3 in SRU-I.
	Total	4470		

S.I.	Encon schemes in 2021-22	SRFT
1	Boiler blowdown recovery system commissioning in Hydrocracker Unit	65
2	Reduction in external fuel NG in Hydrogen generation unit and increasing internal off-gas in reformer by optimising steam carbon ratio at 2.45 instead of earlier 2.5 since later Oct'21	450
3	CDU Preheat temperature in heater increased at 288° C consistently after opportunity shutdown in Dec'21	1920
4	Plate type Diesel Product cooler installed in Hydrocracker Unit	2500
5	Waste Heat Recovery Boiler in Sulphur Recovery Unit for steam generation(@1.5Tph) after installation of NOx reduction furnace	900
6	Steam trap performance rate at 98% in working condition	950
7	Reduction in flue gas loss from Utility Boiler	274
8	Improving performance of condenser of steam turbine	110
9	Optimize Boiler Feed Water System of CCU WHRB Boiler	96
10	Bag filter and duct leakage in WHRB of CCU attended	135
	Total	7400

Energy conservation measures planned beyond FY-22-23:

1. Online Digital Twin Model development for CDU/VDU and integration with column model
2. Online predictive analysis tools with AI & ML to detect loss from steam traps, ultrasonic PSV, IP21 wireless sensors;
3. Condensate recovery scheme in balance units;
4. Replacement with energy efficient motor and pump in process units;

Other schemes adding to continual benefit:

1. Steam traps dynamic analysis and monitoring.

2. Regular monitoring of Hydrocarbon passing of all valves connected with flare system by Acoustic Leak Detector and Fugitive emissions from tanks, line flanges etc, throughout the year under LDAR program.
3. Continuous operation of APC in CDU, DCU, HCU and H2U.
4. Conventional light replacement with Energy efficient light
5. Steady operation of 12 MW STG for Captive Power generation by utilizing and recovering waste energy (thermal and pressure) of HP steam, Maximization of NG use for continual improvement in the energy consumption, Increased Reliability with installation of Prognostic Online monitoring system for Off-Gas and Make-up Gas Compressor of HCU. There has been increase in productivity, safety and reduction of unplanned outages & maintenance cost, Replacement of higher heat duty exchanger EE-01 in HCU, etc.

ENCON schemes implemented during 2020-21:

1. Feed effluent exchangers (Shell & Tube type) have been replaced by Plate Type Heat Exchangers in Sulphur Recovery Block. Equivalent annualized saving is 1600 SRFT.
2. Installation of electrical tracing in Solvent De-oiling Unit and offsite of Wax Plant replacing the steam tracing. Equivalent annualized saving is 615 SRFT.
3. Optimization of excess air in furnaces of Crude Distillation Unit, Vacuum Distillation Unit and Hydrocracker Unit. Equivalent annualized saving is 500 SRFT.
4. Condensate recovery scheme in Delayed Coker Unit and Captive Power Plant. Equivalent annualized saving is 450 SRFT.
5. Replacement of electrical motors and pumps with energy efficient motors and pumps. 590SRFT
6. Improvement in stream trap performance rate to 99% in working condition. Equivalent annualized saving is 150 SRFT.

ENCON schemes implemented during 2019-20:

1. Burners (216 Nos.) in the reformer of Hydrogen Unit were replaced by FPMR-5 burners to increase reformer outlet temperature and reduce methane slippage. Steam generation has increased by two-fold and equivalent annualized saving is 4000 SRFT (Standard Refinery Fuel Tonne).
2. A new plate and glass enameled carbon steel tube Air-Preheater (APH) installed in CDU/VDU replacing the old cast / glass APH. Equivalent annualized saving is 1060 SRFT.
3. Booster pumps (2 Nos.) in CDU/VDU have been replaced from API 6th edition to API 10th edition. Equivalent annualized saving is 350 SRFT.

4. Capacity of MS Plant has been augmented by 50% with modifications in NHT Pre Heat Train, new convection coil in CRU inter heater and waste heat utilization for generation of superheated steam in CRU. Equivalent annualized saving is 1300 SRFT.

ENCON schemes implemented during 2018-19:

1. CDU Pre-heat improvement by 15 deg C with introduction of new HGO CR loop. Net saving is 2500 MTOE (Metric Tonne Oil Equivalent).
2. FGRS commissioned in Flare area to recover refinery flared gas. Net saving is 1800 MTOE.
3. 1 MW rooftop Solar panel installed within the Refinery premise. Net saving is 220 MTOE.
4. Electric heat tracing in WHFU. Net saving is 500 MTOE.
5. Auto water decantation valve installed in all Crude and slop tanks to reduce oil carryover in ETP.
6. Sun-domes installed in Warehouse and Electrical Lab to reduce artificial lighting.
7. Trial online Antifouling chemical injection programme in preheat train of CDU/VDU has been found to be successful leading to energy conservation.
8. Application of new e-glass fibre insulation in DCU transfers line has resulted in reduction of heat loss.
9. Implementation of APC (Advanced Process Control) in MSP and Wax Unit and continued operation in CDU, DCU, H2U and HCU has helped in reduction in energy consumption.

ENCON schemes implemented during 2017-18:

1. Stoppage of Turbine driven Fuel oil pump and switched to motor. Saving of 3.5TPH MP steam in lieu of 45KW motor. Net saving is 1200 MTOE.
2. Reduction of reboiler steam in MSP-DIH with operational change. Net steam saving leading to saving of 300MTOE.
3. 10 KW rooftop Solar PV panel installed at the NRMT admin Bldg and Control room.
4. Achieved zero steam leak by attending leaky steam traps and i/l valve.
5. Stoppage of steam tracing in SDU feed line and the tank heating steam coils of Solvent de-oiling unit. Stoppage.
6. Trial installation of E-glass fiber insulation in DCU transfers line. Shell outside temp dropped by 15- 20degC.
7. Air Compressor 3rd stopped (400KW) with close monitoring, Isolating the plant air at battery limit.
8. Reuse of Storm water as CT make up at 300m³/h
9. PATII mandatory Energy audit by PCRA and Energy efficiency Improvement study by EIL done during the year. Recommendations taken up for implementation at various phase.
10. Overhauling of STG turbine and improvement in condenser vacuum done during the year lead to a saving of 1500 MTOE
11. GTG exhaust to HRSG SH inlet heat loss plugging done. This lead to saving of 3000 MTOE.

ENCON schemes implemented during 2016-17:

1. Maximizing reformat production with reduced energy by internal modification and increase in Isom plant load by conversion of available redundant equipment as DIH bottom pump. This has resulted in saving of around 1.5TPH LP steam and realization of 38KW of power.
2. Hook up of Hot VGO line with cold VGO line to maximize hot feed in HCU.
3. Incorporating heater bank coil for NG heater 34-HE-121 -01/02 up to 43 degC thereby stopping MP steam in NG heater.
4. Uprating of Gas Turbine by 4-5 MW has helped in single GT operation even with increase load of new units.
5. CDU VDU column internal replacement with structured packing has resulted in improved vacuum, less COT by 5 degC with same distillation yield profile. This has reduced energy consumption significantly
6. Chemical cleaning/foam cleaning of exchangers/columns/CR loops done which resulted in increase in preheat temp
7. Burner alignment checking done for all major furnaces for efficiency improvement
8. Significant saving potential in electrical energy has been identified through system drive audit carried out for all motors and pumps through PCRA (Petroleum Conservation Research Association)

ENCON schemes implemented during 2015-16:

1. CDU/VDU column internal modification for yield/energy optimization.
2. Installation of plate type heat exchanger (air pre-heater) in HGU flue gas duct.
3. Replacement of catalyst in RB-02 of Isomerization Unit.
4. Replacement of old trays with High Capacity Tray in HCU fractionators' kero zone.
5. Emissivity coating for controlled thermal radiative and convective heat transfer from the Furnace surface and tubes of Process units.
6. Up-rating of GTG-1 for augmentation of capacity (4-5MW).
7. Replacement of metallic blades with E-FRP blades in all the air fin fan coolers of the Process Units
8. Installation of Ultrasonic Activator in CDU/VDU in upstream of crude booster pump
9. Use of FO additive program post successful trial run with resulted fuel savings.
10. Modification in DCU by diversion of Slop as Quench instead of SRGO as quench. This has enabled reduction in slop generation.
11. HP steam header pressure reduction from 41kg/cm² to 39.0 kg/cm² resulting in savings of fuel.
12. Energy management system implementation in Electrical metering system. Online energy consumption is now available in desktop in micro level for any critical equipment.
13. Diversion of the Stabilizer off gas ex -CDU to DCU off -gas compressor to recover the LPG component from fuel gas.

Technology Absorption, Adaptation and Innovation measures:

1. Numaligarh Refinery Expansion Project (NREP)

NRL is in the process of augmenting its refining capacity from 3.0 MMTPA to 9.0 MMTPA, by setting up a new refinery train of 6.0 MMTPA in the existing premises.

The project is being executed using a mixed implementation model engaging a combination of PMC, EPC, EPCM, and other supporting consultants. The Hydrogen Generation Unit will be set up in "JOB WORK" mode. Delivery of Process Package, including engineering for all the units are completed and overall progress made as on 31st 2024 is 55.9%. Noteworthy technologies adopted are PFCC units for high yield of Propylene and Ebullated Bed Resid Hydrocracker (RPTU).

Capacity expansion of NRL from 3.0 MMTPA to 9.0 MMTPA will ensure additional availability of petroleum products primarily LPG, MS and HSD in the NE and Eastern region of India and meet the growing energy demand in the region. Additionally, during the year, 38 TMT of Gas Oil was exported to Bangladesh through the India-Bangladesh Friendship Pipeline (IBFPL) from NRL's terminal in Siliguri which was commissioned in March 2023.

2. Bio-Refinery Project

NRL is setting up a 49 TMTPA Bio Refinery project as a joint venture company promoted by NRL with 50% equity and a balance of 50% by Fortum 3. B.V Netherland and Chempolis Oy, Finland for producing ethanol from cellulosic feedstock 'Bamboo'. The process to produce bioethanol from bamboobiomass is based on the Formicobio Technology from M/s Chempolis. Overall progress of the project is 95% as of 21st June 2024.

Bio-Ethanol production from the Bio- Refinery shall be used in blending with Motor Spirit by North-East refineries. Bio Refinery project will help in meeting the 20% Ethanol Blended Petrol (EBP20) programme of GOI's National Biofuel Policy by 2023-24 which will in turn help to strengthen the country's energy security, enable local enterprises and farmers to participate in the energy economy and reduce vehicular emissions.

3. Wax Pastillation Unit

NRL has commissioned a new Wax Pastillation Unit (WPU) during March 2023 with a production capacity of 144TPD. M/s IPCO, Germany is the technology provider and process licensor of the WPU. The technology involves an efficient and cost- effective process, in which molten liquid wax is converted into pastille form (5 to 6mm size). Pallet Wax from Wax Pastillation Unit will cater to additional demand from customers and will enhance flexibility in marketing of Paraffin Wax. This plant will also improve capacity utilization of Wax block as

existing ASPU is sensitive to maintenance.

4. Aq. Ammonia Project

NRL is setting up an Aqueous Ammonia plant to meet 10 TPD Aq. Ammonia requirement in Bio-refinery to maintain pH for proper performance of enzymes. It is noteworthy that NRL is going to produce Aq. NH₃(25%) from a waste NH₃ rich stream of sour water stripper utilizing technology that is developed jointly by NRL & EIL. Its target completion is in March, 2026.

Aq. Ammonia 25% (NH₃) production will reduce NOX generation from refinery. Moreover, this project will convert waste to value added by product.

5. Tail Gas Treating Unit (TGTU)

TGTU was successfully commissioned on 15th February 2024. TGTU technology with the trade name Eng SulfTG® is developed by EIL to effectively remove sulfur by recycling the unreacted sulfur components like H₂S, SO₂, COS, & Sulphur by converting to H₂S in Hydrogenator & recovering as Sulphur in the Claus section in Sulphur Recovery Unit (SRU). Claus process integrated with Tail gas treating unit (TGTU) is designed based on EngSulfTG® technology and can result in 99.9% removal of sulfur from acid gas & sour gas coming from amine regeneration & Sour water stripper units in refinery. This technology is also adopted in the NREP SRU.

With the commissioning of TGTU, SO_x emission of SRU has significantly decreased from 6000 ppm without TGTU to 100-300 ppm with TGTU. Accordingly, the Sulphur recovery efficiency has improved from 96.0% to 99.9% with additional production of sulphur of around 4 % & it has added to NRL's continuous endeavor towards a safe and clean environment.

6. Green Hydrogen

NRL has been playing a pivotal role amongst the Indian PSU to meet the Green Hydrogen Consumption Obligation (GHCO) as per the Govt. of India mandate. Green Hydrogen offers a renewable energy-based alternative for meeting Hydrogen requirements in fertilizer production and petroleum refining. This has the potential to reduce the country's dependency on fossil fuels, energy security, and a step towards achieving the Net Zero goal. NRL is setting up a 2.4 KTPA (16 MW) Alkaline Electrolyzer (AEL) to produce 300 Kg per hour of Green Hydrogen. The project is awarded to M/s Greenko ZeroC for implementation with Electrolyzer to be supplied by M/s John Cockril, Belgium. NRL will meet 5% of GHCO by 2024-25 after commissioning of the project.

7. Proposed Polypropylene Unit (PPU)

A high-severity Petro-FCC unit is being set up under NREP to produce propylene as a petrochemical feedstock. The proposed Polypropylene unit will produce 360 KTPA of polypropylene homopolymer from petrochemical feedstock. NRL has engaged M/s Lummus Novolen GmbH, Germany, as process licensor for the proposed 360 KTPA Polypropylene unit. Basic Engineering Design Package for the unit is already completed. For execution of the project, lining up of EPCM/ EPC is under progress.

Considering the impressive growth of polypropylene in the domestic market, the 360 KTPA Polypropylene unit will help NRL to venture into the petrochemical market. This will also increase NRL's Petrochemical Intensity Index (PII).

8. Initiative for solar power

In its pursuit of tapping new and renewable energy sources, a slew of initiatives has been taken up to utilize solar energy in the refinery and the township premises. 1000KWp Solar PV panel installed in all non-critical building rooftops inside the refinery in 2017-18. Also installed 20KW solar rooftop PV panels adjacent to the NRL marketing terminal. NRL has replaced conventional streetlights with solar-powered lights in several places in its township. NRL is extending its solar power initiative for the benefit of the nearby community, solar panels have been installed in nos. of nearby schools. In its foray into renewable energy, NRL has taken the initiative to install a 50 KW Solar power plant on the rooftop of the Corporate Office Building in Guwahati.

9. Initiative for mitigation of climate change and environmental sustainability

As an initiative for mitigation of climate change and ensuring environmental sustainability, NRL has undertaken a project for the development and construction of three Bamboo Nurseries in Assam to generate 60 lakh saplings to be planted in 15,000 hectares of land area. This will create a carbon sink to fix 2.6 lakh tonnes of CO₂ per annum. MoU was signed between NRL and PCCF & HOFF, Assam on 23rd Jan'2023 for the establishment of the 3 nurseries of 5 ha. each at a project cost of 9 Crore for the macro proliferation and nurture of tissue cultured Bamboo saplings which will be made available to the farmers in Assam and other neighboring states. The primary hardened bamboo saplings for the nurseries shall be supplied by M/s Chroma Biotech, Dibrugarh, a Startup promoted by NRL.

NRL further desires to participate in the Green Credit Programme (GCP) by taking up afforestation projects as per the GCP notified on 13th October 2023 by MoEF&CC seeks 'Environmental positive actions' from PSUs, private industries, non-profits, and individuals.

Research and Development (R&D) Activities:

NRL took a few initiatives to strengthen the research and development capability of the organization through partnerships with academia and research organizations. R&D activities presently pursued by NRL are as follows:

1. Green Activated Carbon from Bamboo Dust

NRL has established the 'NRL Centre of Excellence for Sustainable Materials' (NRL-CoE SM) at IIT Guwahati to undertake R&D activities focused on developing environmentally sustainable materials from various refinery and bio-refinery streams. On August 30, 2023, a Memorandum of Agreement was signed with IIT Guwahati to develop technology for producing marketable grade green activated carbon from bamboo dust. This bamboo dust will be generated during the preparation of bamboo chips for the 2nd Generation Bio-Refinery being set up by NRL through its JV company, Assam Bio-Refinery Private Limited. As part of the project, a demonstration plant with a capacity of 5 MT per batch will be established to produce green activated carbon by pyrolyzing bamboo dust. This R&D project also aims to develop technology for producing very high-grade chemically activated carbon, which has applications in the pharmaceutical, electronics, and mining industries.

2. R&D Collaboration with CSIR: NEIST

NRL entered into a framework collaboration with CSIR: NEIST for the Identification of critical research areas pertinent to microbial remediation, soil chemistry, functionalization of low-grade/ weight hydrocarbons and subsequent upgradation, training of scientists, technologists, and officials in specialized areas. As part of this collaboration, a project "Removal of Phenol from sour & strip water, its re-use and value addition" has been taken up at an estimated cost of ₹1.27 Crore for a total project duration of 2 years to reduce water footprint and to produce value-added chemicals. Under this project, lab scale demonstration 50 Litre batch size for phenol removal is successfully completed by designing and developing a hollow fiber membrane module. The design and fabrication of a pilot demonstration facility of 1 m³/hr size is ready for demonstration at the NRL site.

In line with NRL's 10-year vision plan entailing a move to broader energy plays, Numaligarh Refinery Limited (NRL) inked a Memorandum of Agreement (MoA) on 27th December 2023, with Northeast Institute of Science and Technology, (NEIST) Jorhat, Assam, which is a constituent unit of the Council of Scientific and Industrial Research (CSIR). As per the MoA, NRL will engage with NEIST to set up an R&D Centre to be called "NRL-NEIST R&D Centre" (NRDC) at NEIST, Jorhat, aiming for a long-term collaboration to conduct research activities in emerging energy sectors. The objectives of the collaboration would be to create a state-of-the-art R&D, analytical, and testing platform for the petroleum industry to develop sustainable solutions to

the complex energy and environmental issues faced by the oil and petroleum industry through continuous and collaborative R&D and explore new frontiers in technology for tapping unconventional reserves of energy. It would also develop facilities for specialized testing of hydrocarbon, chemical samples, water samples as well as specialized testing for civil, mechanical, electrical, instrumentation and metallurgy tests. NRL and CSIR-NEIST jointly identified the following project proposals in first phase:

- Development of Sustainable Nanocomposite Membrane for CO₂-capture from PSA off gas.
- Development of Hybrid nano-catalyst for green Hydrogen Production for water electrolysis
- Production of high-quality graphene-like nanomaterials from petroleum waste of Northeastern Region and their functionalization
- Development of lignocellulolytic multienzyme production process for bamboo based biorefinery.

3. NRL Centre of Excellence for Sustainable Material at IIT Guwahati:

As a positive development, NRL has joined hands with Indian Institute of Guwahati (IITG) to develop Bio-degradable plastics from oil and bio refinery streams. An R&D project with a financial involvement of Rs. 4 Crore has been identified as the first project to be taken up. Earlier, an Memorandum of Understanding (MoU) was signed between NRL and IITG on 13th September 2019 for establishing 'NRL Centre of Excellence on Sustainable Materials (NCESM)' in Guwahati.

Presently the centre is carrying out research activities on "Development of Biodegradable Plastics from Oil and Bio-Refinery Streams". Development of indigenous technology for production of biodegradable plastic will help in replacing non-biodegradable polyethylene based packaging and contribute towards reduction of pollution from solid waste. Bio-degradable plastic will be a value added stream for the Bio Refinery. The aim of the project is to convert "Furfural", one of the by-products of the ABRPL, to biodegradable polymer "Polycaprolactone (PCL)".

Recently, a translational facility is set up at NRL CoE for housing a pilot plant on Bio-degradable polymer with a range of equipment related to downstream processing of bio-degradable plastics such as Blown Film Machine, Injection Moulding, Thermoforming, Cast Film Extruder etc. The pilot plant has the facility to manufacture a wide variety of items, including carry bags, toys, cutlery, decorative items etc. both from normal and biodegradable polymers.

4. Research Project at St. Edmund's College, Shillong

NRL has engaged St. Edmund's College, Shillong for research study on Utilization of cyanobacteria in the bioremediation of crude oil, hydrocarbon storage tank bottom sludge, and ETP hydrocarbon sludge and its environmental biotechnology implications at an estimated cost of ₹83 Lakh.

The aim of this project is Utilization of cyanobacteria in the bioremediation of crude oil, hydrocarbon storage tank bottom sludge, and ETP hydrocarbon sludge. Under this project,

significant development on the culture of cyanobacteria samples collected from NRL has been achieved and a bio-accumulation study with the cultured bacteria on hydrocarbon sludge is being investigated. The total petroleum hydrocarbon (TPH) profile of the treated cultures on the 28th day showed complete removal of the hydrocarbons from C11 to C48 which is the most remarkable achievement of the project.

5. R&D Collaboration with CSIR IIP Dehradun

A project titled “Studies for Efficient Utilization of UCO stream generated from upcoming Ebullated Bed (EB) Resid Hydrocracker under Numaligarh Refinery Expansion Project” has been taken up to carry out studies to convert un-converted oil (UCO) into value added products or specialty products like Bitumen.

6. Projects taken up in collaboration with BPCL Corporate R&D Centre (CRDC), Noida

NRL is currently collaborating with BPCL CRDC, Noida in two R&D projects:

- Production of Furfural Alcohol (FA) and Tetra Hydro Furan (THF) from Furfural: Furfural will be one of the by-products from bio-refinery. CRDC is currently developing technology for production of Furfural Alcohol and Tetra Hydro Furan from Furfural.
- Measuring efficacy of Enzymes of various suppliers for conversion of bamboo pulp into glucose by hydrolysis process.

7. Scientific and Technical Collaboration with Engineers India Limited

As per Govt. of India, guidelines on collaborative research and development (R&D) among PSUs, NRL and EIL have entered into a Memorandum of Understanding (“MOU”) dated 31.03.2022 to exchange scientific knowledge, encouraging joint research in the field of hydrocarbon, petrochemicals, energy technology, and commercialize such jointly developed technologies. Both parties have already identified a list of projects for joint development of its technology with a separate Memorandum of Agreement having defined objectives, scope of work, roles of parties, deliverables, cost and royalty sharing, etc.

NRL and EIL had entered into a Memorandum of Agreement (MoA) for the joint development and commercialization of technology for the Production of Aqueous Ammonia from ammonia-rich sour gases. NRL intends to recover the Ammonia from NREP- SRU Ammonia- Rich Sour Gases and produces Aqueous Ammonia as value added product. NRL has a readymade market for Aqueous Ammonia in ABRPL, situated adjacent to NRL, as around 10 -16 TPD of Aqueous Ammonia will be consumed in the Bio-Refinery process of ABRPL. In this regard, a basic engineering design package is being developed by EIL for the commercialization of EIL’s already developed patent through the setting up of a demonstration plant for the Production of aqueous ammonia from ammonia-rich sour gases in NRL refinery premises. It is envisaged that the Aqueous Ammonia project will significantly reduce NOX releases into the atmosphere. Moreover, this project will convert waste into value-added by-products.

Above Ground Sulphur Seal will be designed to handle 70 Kg per hour of liquid Sulfur flow to install at SRU of NRL using EIL's expertise on designing above Ground Sulphur Seal. Development and commercialization of Overground Sulphur Seal technology will help refineries to improve liquid–gas phase separation of liquid Sulphur in Sulphur Recovery Units. This will also lead to a reduction in SOX emissions.

8. Research Collaboration with Kaziranga University and Institute of Frontier Science and Application:

NRL has signed a Memorandum of Agreement (MoA) dated 16th June 2023 with Kaziranga University (KU) and the Institute of Frontier Science and Application (IFSA) for collaboration to carry out a research project titled 'Assessment of Wind Energy Potential in North-East India'. The collaboration is a first of its kind for the systematic exploration of wind energy potential in Northeast India. As per the MoA, Kaziranga University, in technical collaboration with the Institute of Frontier Science and Application (IFSA) and funding from NRL, will implement the project which aims to develop bankable wind energy assessment data over North-East India in riverine environment using mobile Lidar observations for a period of three years.

Assessment of Wind-Energy Potential using LIDAR technology through multi-level and multi-site high-frequency observation and Analysis in the Riverine Environment at the Turbine Level will provide a bankable wind-energy database for Assam relevant for viable wind energy installation. The results of the project can be used to catalyze commercial wind energy generation in Assam. The project thus has huge potential for significant socio-economic benefits for Assam. With the present project as a proof-of-concept, it can also be easily scaled up to cover wider areas of the North-East.

9. Indigenous Isomerization Catalyst:

The indigenous isomerization catalyst once developed would be manufactured by third-party manufacturers in India. Successful implementation of this R&D scheme will lead to an increase in indigenous capabilities for manufacturing such items that are presently procured from foreign manufacturers. Besides reducing dependency on foreign vendors, this initiative will give a fillip to the Make-In-India mission of the Government.

Projects of NRL:

On-going Projects

1. Numaligarh Refinery Expansion Project (NREP)

Numaligarh Refinery Expansion Project (NREP) is for the capacity expansion of the existing Refinery from the present 3 MMTPA to 9 MMTPA. The NREP consists of 02 major components, the Refinery Expansion with a new train of process units (6 MMTPA) and the Paradeep-Numaligarh Pipeline along with the Crude Oil Import Terminal (COIT) at Paradeep (1630 km, 9 MMTPA).

The Cabinet Committee on Economic Affairs (CCEA) of the Government of India accorded investment approval for the project on 16.01.2019. Environmental Clearance (EC) for setting up the new train of refinery of 6 million capacity was accorded by the MoEFCC on 27.07.2020. EC-CRZ clearance for COIT was received on 19th May 2021. Financial closure for the expansion project has been achieved on 30-12-2021.

The NREP project is being executed using a mixed implementation model comprising EPC, EPCM, PMC, and BOO contracts. Process units like CDUVDU, DHDT, MS Block, SRU, etc. are planned to be set up through EPC contracts. Few critical and complex units like RPTU and PFCC are planned to be set up in EPCM mode. The Hydrogen Generation Unit (HGU) will be set up in BOO mode. NRL will consider the green hydrogen option while sizing its hydrogen unit.

The overall progress of NREP as of 31st Mar 2024 is 60.45%. Progress for the refinery scope of jobs is 55.2% while progress for the pipeline scope of jobs is 69.04%. The project is expected to be completed by December 2025.

2. Petrochemical Project for NRL:

NRL is setting up a Petrochemical Complex to produce 360 KTPA of homopolymer grade polypropylene by leveraging on the capability to produce high-value petrochemical feedstock from NRL's 6 MMTPA new refinery (NREP) presently under implementation. The project will consist of a polypropylene production unit & dispatch facilities, along with associated utility systems. The investment approval for the project was obtained in March 2022. The polypropylene plant will utilize propylene as feedstock, which will be made available from high severity Petro-FCC of NREP. Once implemented, the integration of petrochemicals with the refinery will provide significant value addition to the complex. Considering the impressive growth of polypropylene in the domestic market, the 360 KTPA Polypropylene unit will help NRL to venture into petrochemical market. This will also increase NRL's Petrochemical Intensity Index (PII). NRL has engaged **M/s Lummus Novolen gmbh**, Germany, as process licensor for the proposed 360 KTPA Polypropylene unit. The Basic Engineering Design Package for the unit is already completed.

Joint Ventures and Associate Companies of NRL

NRL has three joint venture companies and one associate company:

1. Indradhanush Gas Grid Limited (IGGL)

IGGL is a joint venture company among Numaligarh Refinery Limited (NRL), M/s Oil India Limited (OIL), M/s Oil and Natural Gas Corporation Limited (ONGC), M/s Indian Oil Corporation Limited (IOCL) and M/s GAIL(India) Limited (GAIL) and was incorporated on 10th August 2018 to implement the North East Gas Grid project envisaged in the Hydrocarbon Vision 2030 for North East of Govt. of India. NRL is a partner with 20% stake in Indradhanush Gas Grid Limited (IGGL) which is executing Natural Gas Pipeline of 4.75 mmscmd capacity. The project will establish gas grid connectivity in the eight North-Eastern States, viz. Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Tripura and Sikkim with the National Gas Grid through the Barauni-Guwahati Gas Pipeline Overall physical progress of the project as on 31st March, 2024 was 80.4%.

2. Duliajan Numaligarh Pipeline Limited (DNPL)

DNP Limited is a Joint Venture Company between Assam Gas Company Limited (AGCL), Oil India Limited (OIL) and Numaligarh Refinery Limited (NRL) and was incorporated on 15th June 2007 with an authorized share capital of ₹170.00 Crore. The present shareholding of the Company as on 31st March 2024 stands at AGCL (51%), NRL (26%) and OIL (23%). The registered office of the Company is at Guwahati, Assam with its operational headquarters at AGCL, Duliajan. The company started transportation of natural gas from Oil India Limited's installation in Duliajan to Numaligarh Refinery from March, 2011 onwards. DNP Limited undertakes transportation of natural gas through a pipeline having a design capacity of 1.2 MMSCUM of natural gas per day from Madhuban at Duliajan to NRL Refinery. During the year 2023-24, the Company transported 2,89,155 TSCM of natural gas as against 3,08,767 TSCM of natural gas in 2022-23.

3. Assam Bio Refinery Private Limited (ABRPL)

Country's first 2G bamboo based bio refinery being executed through a JV with Finnish collaborators ***"Assam Bio Refinery Private Limited"*** has recorded adequate progress on ground.

Assam Bio Refinery Private Limited was incorporated on 4th June, 2018 as a joint venture company promoted by NRL with 50% equity and balance 50% by Fortum 3.B.V Netherland and Chempolis Oy, Finland for producing ethanol from cellulosic feedstock 'Bamboo' which is available in abundance in North-Eastern (NE) states of India. The Project envisages using 300 Kilo-Tones Per Annum (KTPA) of dry bamboo (500 KTPA of green bamboo) as raw material and shall produce Cellulosic Ethanol, Acetic Acid, Furfuryl/Furfuryl Alcohol, along with combustible residue in the form of Bio coal and Stillages. The technology being used is based on selective fractionation of biomass and coproduction of multiple products. It shall produce approx. 49,000 Tones Per Annum (TPA) of bio-ethanol, 11,000 TPA of acetic acid and 18,000 TPA of furfural alcohol. Bamboo residue shall be used as fuel to produce steam and electricity. The Project Construction activity at the site was started in late 2018 and is continuing with major civil and structural works going on. Engineers India Limited (EIL) has been appointed as the

Engineering, Procurement and Construction Management (EPCM) consultant on August 24, 2018. Civil & Structural works at the site is continuing in full swing and manufacturing works at vendors' locations are also progressing well. Overall physical progress of the project as on 31st March, 2024 was 94.0%. The Project schedule has been revised with commissioning by December, 2024.

4. Brahmaputra Cracker and Polymer Limited (BCPL):

BCPL is an associate company incorporated on 8th January, 2007 as a Central Public Sector Enterprise under the Department of Chemicals & Petrochemicals, Government of India with an authorized share capital of ₹2,000 Crore to implement the Assam Gas Cracker Project in the district of Dibrugarh, Assam. GAIL (India) Limited is the main promoter having 70% of equity participation while Numaligarh Refinery Limited (NRL), Oil India Ltd (OIL) and Government of Assam are holding 10% share each. The plant was commissioned on 2nd January, 2016 and dedicated to the nation by the Hon'ble Prime Minister, on 5th February, 2016. The principal end products of the Company are High Density Polyethylene (HDPE) and Linear Low Density Polyethylene (LLDPE). The other products include Hydrogenated Pyrolysis Gasoline and Pyrolysis Fuel Oil.

Annexure -G : CREP Compliance Status

Charter on Corporate Responsibility for Environmental Protection (CREP) for Oil Refineries

AIR POLLUTION MANAGEMENT		
1.	All the refineries located in the critically polluted areas, identified by CPCB, will submit an action plan (within 6 months) for phase-wise reduction of SO ₂ emission from the present level.	NRL is not located in the identified critically polluted areas (identified by CPCB). However, the following measures have been taken for the reduction of SO₂ emissions : ▪ Internal Fuel Oil with very low sulphur and Sweet Fuel Gas (with <10 ppm H₂S) that is produced as a part of processing low sulphur Assam Crude is used as fuel in the furnaces of the refinery. ▪ In continuation towards emission reduction. SRU was incorporated with an increased capacity enhanced from 14.7 TPD to 19.3 TPD during 2009-10 to treat the additional sulphur from ultra-low sulphur fuel yield. ▪ Avg. SO₂ emission from the refinery during FY-23-24 is 78.8 kg/hr which is well below the permissible limit (256 Kg/hr).
2.	Future refineries will have Sulphur Recovery Unit (SRU) with minimum 99% efficiency.	TGTU(Tail gas treating unit) has been commissioned in NRL in Feb'24 due to which the sulphur recovery has increased from 96 % to 99%.
3.	To enhance the efficiency of SRUs in the existing refineries, an expert committee will be constituted to look into various aspects and suggest a road map within 6 months.	As per MoEF notification dated 18th March'2008, the sulphur recovery efficiency for plant capacity of 5 to 20T/day should be 96% for the existing refinery. NRL SRU falls in the range of 5 to 20T/day plant capacity, efficiency has always remained above 96%. Now, with the commissioning of TGTU facilities, sulphur recovery efficiency has further increased to 99%.
4.	With regard to NO _x emission, the new refineries/process units will install low NO _x burners. For retrofitting of low NO _x burners in existing units, the expert committee will suggest the strategies and action plan within 6 months including NO _x standard.	Low NO _x burners have been provided in all the existing process furnaces at the time of installation itself so as to maintain the NO _x emission rate at minimum.

5.	The flare losses will be minimized and monitored regularly.	The flare losses are regularly monitored and optimized. Regarding the same, following steps have been taken- ▪ Checking of passing valves by acoustic leak detector is carried out on a regular basis and as per the requirement. In case of any passing/leak is observed the same is attended immediately to arrest the leakages. PSVs and Control valves are being checked on regular basis . ▪ Regular material balance is done for calculating losses. ▪ Stringent system for continuous monitoring of flare losses in every shift is in place. ▪ Flare gas recovery system has been commissioned in April, 2018 for recovery of flare gas and routing it through SRB and sweetening along with sour gas of SRB and diverted to the FG header(Fuel gas) for use in the furnaces.
6.	Refineries will install continuous emission monitoring systems for SO _x and NO _x in major stacks with proper calibration facilities. Action plan for this will be submitted within 6 months.	▪ Online stack analyzers for continuous monitoring of SO₂ ,NO_x, CO & PM have been provided in all the stacks of the refinery. All the analyzers are calibrated as per schedule. ▪ Realtime emission data is being transmitted to the CPCB server on continuous basis. ▪ An LED Display Board for display of online stack monitoring data, ambient air monitoring data, treated effluent quality has been installed for public display at the main gate of refinery.

7.	Refineries will also monitor total HC and Benzene in the premises (particularly at loading/un-loading operations and ETP). The status and action plan will be submitted within 6 months. The expert committee will also suggest an action plan, within 6 months, for control and monitoring of hydrocarbon loss & VOC emissions, leak detection and repair (LDAR) program and vapor recovery systems (for loading/un-loading operations within refineries only).	For monitoring and minimizing fugitive losses, the following measures have been taken : ▪ Installation of Double Seals in IFRT and EFRT tanks in line with MoEF Notification dated 18th March'08 has been carried out. ▪ VOC recovery system has been implemented in ETP. ▪ Detection of VOC emissions and LDAR program is in place in the refinery. ▪ Strengthening / Maintaining of existing Green Belt is in practice. Massive plantation is being carried out in regular intervals to increase the density of trees. ▪ Monitoring of HC in the ambient air is being carried out regularly in all 5 AAQM stations. <u>*Benzene monitoring :</u> There is no benzene unit in NRL. However monitoring of benzene in ambient air is carried out as per NAAQS2009.
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WASTEWATER MANAGEMENT

1.	Refineries will prepare action plan for conservation of water resources and maximizing reuse/recycling of treated effluent within 6 months. The treated effluent discharge quantity (excluding once through cooling water) will be limited to 0.4 m³/per tonne of crude processed (for 90% of time) except for the monsoon season.	For conservation of water resources, the following measures were taken at the design stage itself to reduce the water consumption : ▪ Using stripped sour water from SRU as coke cutting water and used in CCU for direct quenching of hot coke. ▪ Use of Crude & Vacuum column overhead sour water as desalter water. ▪ Use of Hydrocracker column overhead water in high pressure water injection system. ▪ Recovery of steam condensate to reduce the DM water intake. ▪ Provision of Air Cooling has been maximized. ▪ Extensive repairing of detected leakages in Firewater network is carried out as and when required. ▪ About 60-70% treated effluent is being reused/recycled in miscellaneous refinery activities and as Fire water makeup and rest quantity is system/operational losses in ETP due to various constraints. ▪ Rooftop rainwater harvesting systems of capacity 20 KL/Day at LPG bottling plant implemented. Roof top rainwater harvesting from a major building having
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		huge potential is being planned and action has been initiated for the same. Storm water recycling project is also being implemented in the refinery.
2.	Oil spill response facilities at coastal refineries will be in position within 2 years. To facilitate this, MOEF will co-ordinate with Coast Guards, Port Trust and other departments.	The same is not applicable, as the refinery is not located in coastal areas. However, Oil catchers/oil traps are installed in various locations in the stormwater channel to avoid any oil carryover to the open channel. Construction of 6 nos additional oil catcher completed. Additionally, NRL has installed a series of hay filers in the stormwater channel, and oil-absorbent booms are used as precautionary measures. Insignificant quantities of accidental oil spillage collected are recovered with the help of MOSRU (Mobile Oil Spill Recovery Unit).

SOLID WASTE MANAGEMENT

1.	Refineries will explore new technologies for reduction in the generation of oily sludge. Strategy and action plan for liquidation of existing sludge will be submitted within 6 months.	Sludge management system at NRL is as follows : - Modern Tank cleaning methods have been implemented to maximize recovery of oil from tank bottom sludge. Tank bottom oily sludge generated after oil recovery is disposed off either by bioremediation or selling to CPCB approved recycler. - Chemical & Oily sludge of ETP is disposed off in the Secured Landfill facility. NRL has installed an SLF as per CPCB recommendation, having a capacity of 6000 m³. - H₂O₂ treatment facility introduced to reduce the generation of sludge in ETP. NRL also installed nos of drum type groove skimmers in ETP for systematic removal of floating oil more efficiently and with better performance.
2.	The petroleum coke having high sulphur content will only be sold to/reused by organized industries (having consent from SPCBs), which have systems to control SO ₂ emissions. This will be ensured by June 2003.	As only sweet Assam crude is processed by NRL, sulphur in the petroleum coke is in the range of 1-1.2%. NRL produces anode grade coke which is further calcined in coke calcination unit to produce Calcined Petroleum Coke(CPC). Petroleum coke is sold to SPCB/CPCB-recognized industry those who have the valid Consent.

Annexure -I : Noise Monitoring Report (Sep'24)

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

Test Report

issued To **M/s Numaligarh Refinery Limited**
NRL Complex, Numaligarh
Distt. Golaghat, Assam-785 699

Test Report Date 05/10/2024
Customer Reference No.: 4600009200-SAR/14.08.2023

Sample Particulars

Nature of the Sample : **Ambient Noise**
Date of Sampling : 30/09/2024
Parameter Tested : Noise Level, Leq dB (A)*
Instrument Used : Sound Level Meter

Analysis Report

Sr. No.	URL No.	Area	Location	Observed Value dB(A)		Standard dB(A)
				Day	Night	
1	202409300110 to 202409300134	CDU/VDU	Field Cabin (Inside)	57.1	56.1	92 for 6 hrs
2			Crude Booster Pump Area (A)	87.2	86.2	
3			Crude Booster (B)	86.1	85.1	
4		DCU	DCU Filed Cabin	62.1	59.4	
5			LPG Compressor	87.4	85.5	
6		HCU	Field Cabin (Inside)	60.5	57.2	90 for 8 hrs
7			Near RGC Area	88.1	86.3	
8			Blast Proof Cabin	64.4	62.3	
9		H ₂ U	Field Cabin (Inside)	59.7	54.2	
10			PSA Area	93.5	90.5	
11		SRB	Field Cabin (Inside)	60.1	58.2	
12			Control Rooms	54.2	51.2	
13		OM&S	PH#1	77.2	75.1	
14			PH#2	65.4	63.5	
15			PH#3	55.3	52.1	
16			Field Cabin (Inside)	54.4	52.3	
17			Field Cabin (Inside)	61.1	60.2	
18			Field Cabin (Inside)	61.4	60.2	
19			Decanter (Equipment Area)	88.4	86.3	
20			Decanter (Field Cabin)	61.1	59.2	
21			FGRU	87.4	85.3	
22		CPP	Control Rooms	61.2	60.2	
23			Field Cabin (Inside)	55.5	54.2	
24			Instrumentation Room	63.3	62.3	
25			Air Compressor (Utility)	96.2	94.2	

Remark: *dB (A) Leq denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing.



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BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

Test Report

Issued To M/s Numaligarh Refinery Limited
NRL Complex, Numaligarh
Distt. Golaghat, Assam-785 699

Test Report Date 05/10/2024
Customer Reference No.: 4600009200-SAR/14.08.2023

Analysis Report

Sr. No.	URL No.	Area	Location	Observed Value dB(A)		Standard dB(A)
				Day	Night	
26	202409300135 to 202409300157	CPP	Cabin (2)	62.1	59.4	90 for 8 hrs
27			Sound Prone Zone	88.8	86.2	
28			Cooling Tower (North Side)	88.1	85.3	92 for 6 hrs
29			Cooling Tower (South Side)	89.3	87.2	
30		DM Plant	Field Cabin (Inside)	60.2	59.1	90 for 8 hrs
31		FWPH	Control Rooms (Inside)	59.2	56.2	
32		ETP	ETP Pump (House) 5	88.2	86.1	
33			ETP Pump (House) 6	86.2	85.2	
34			Control Rooms (Inside)	56.2	54.1	
35		CCU	Control Rooms (Inside)	58.8	54.2	
36			Near BFW	79.4	78.2	
37			Near Air Blower	84.2	89.1	
38		MSP	MSP Filed Cabin	63.2	57.2	
39			Near Compressor House	88.5	84.2	
40			Near Furnace Area	85.6	79.1	
41		N2 Plant /Compressor	Control Rooms (Inside)	64.6	62.3	
42			LP Compressor (27-KA0002A)	93.2	92.1	
43			LP Compressor (27-KA0002A)	93.2	91.2	
44			LP Compressor (27-KA0002B)	96.2	94.3	
45		Wax (ASPU)	Compressor (304- A)	83.2	81.2	
46			Compressor (304- B)	81.1	80.1	
47			Office Cabin (ASPU)	62.4	60.2	
48		Wax (SDU)	Field Cabin	58.2	56.2	

Remark:

*dB (A) Leq denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing.

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BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

Test Report

Issued To M/s Numaligarh Refinery Limited
NRL Complex, Numaligarh
Distt. Golaghat, Assam-785 699

Test Report Date 05/10/2024
Customer Reference No.: 4600009200-SAR/14.08.2023

Analysis Report

Sr. No.	URL No.	Area	Location	Observed Value dB(A)		Standard dB(A)
				Day	Night	
49	202409300158 to 202409300174	LPG Bottling Plant	Carousel	95.4	93.2	92 for 6 hrs
50			Unloading	94.7	91.3	
51			Sealing	95.2	94.2	
52			Loading	94.8	93.7	
53		DHDT	F. Cabin	62.2	61.2	90 for 8 hrs
54		WAX	F. Cabin(Plant Area-Hydro finishing)	62.5	60.3	
55		Wax Pastillation Unit	Wax Pastillation Unit	84.2	82.1	
56		Lab	Outside Lab Building	65.4	63.2	Day Time- 75
57			Near Laboratory	66.6	65.1	
58		IT Deptt.	Server Room	49.1	47.3	
59		ADM Building	Near AC Room	67.7	65.2	
60			Near ADM Building	68.7	66.2	
61		Watch Tower No.	Near W.T. No.1	62.3	60.1	Night Time- 70
62		Central Control Room	In front of CCR	65.2	64.1	
63		Flare Area	Near Flare Area	63.3	61.1	
64		VKNRL Hospital	Hospital Premises	67.2	64.1	
65		DPS	DPS Premises	63.3	60.0	

Remark:

*dB (A) Leq denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing.

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Annexure -II : Stack Monitoring Reports
(Apr-Sep'24)

QUARTERLY PERFORMANCE REPORT W.R.T ENVIRONMENTAL ASPECT.

DURING QUARTER I (APR-JUNE'24), 2024-25

Online Stack Analyser data

UNIT	FURNACE STACK	PARAMETER	OBSERVED VALUE in mg/Nm3			Limiting Concentration in mg/Nm3	Remarks
			MAX.	MIN.	AVG		
CDU/VDU	FF-01/02	SO2	425.40	6.84	192.74	763	Stack with dual firing (FG:FO=57:43)
		NOx	170.34	91.81	151.86	393	
		CO	5.09	2.35	3.68	172	
		PM	42.43	9.34	21.66	49	
DCU	FF-01	SO2	243.12	129.07	168.76	967	Stack with dual firing (FG:FO=44:56)
		NOx	164.23	135.21	149.93	406	
		CO	1.37	0.17	0.73	178	
		PM	20.41	5.15	7.57	60	
HCU	FF-01/02	SO2	8.09	7.02	7.52	50	Stack with Gas firing
		NOx	8.25	7.44	7.85	350	
		CO	9.13	8.31	8.76	150	
		PM	8.21	3.76	6.21	10	
HCU	FF-03	SO2	172.37	0.80	43.68	208	Stack with dual firing (FG:FO=90:10)
		NOx	71.70	2.12	40.13	360	
		CO	87.71	8.46	15.88	155	
		PM	7.17	5.06	6.36	19	
H2U	FF-01	SO2	49.54	17.44	26.59	50	Stack with Gas firing
		NOx	93.79	2.68	39.81	350	
		CO	18.86	2.11	7.56	150	
		PM	9.53	4.14	6.26	10	
CPP(HRSG)		SO2	49.72	22.77	34.62	50	Stack with Gas firing
		NOx	156.30	0.06	52.42	350	
		CO	53.52	1.80	13.64	150	
		PM	3.81	0.072	1.14	10	
CPP (UB)		SO2	48.76	12.33	24.37	50	Stack with dual firing
		NOx	93.62	0.89	66.27	350	

QUARTERLY PERFORMANCE REPORT W.R.T ENVIRONMENTAL ASPECT.

DURING QUARTER II (JULY-SEP'24), 2024-25

Online Stack Analyser data

UNIT	FURNACE STACK	PARAMETER	OBSERVED VALUE in mg/Nm3			Limiting Concentration in mg/Nm3	Remarks
			MAX.	MIN.	AVG		
CDU/VDU	FF-01/02	SO2	584.93	11.80	193.08	750	Stack with dual firing (FG:FO=58:42)
		NOx	174.74	72.11	135.99	392	
		CO	7.04	3.92	5.21	171	
		PM	16.76	11.79	14.13	48	
DCU	FF-01	SO2	210.71	11.55	121.19	918	Stack with dual firing (FG:FO=47:53)
		NOx	151.34	64.09	134.90	403	
		CO	1.10	0.72	0.87	176	
		PM	52.56	5.74	8.11	57	
HCU	FF-01/02	SO2	9.23	8.05	8.60	50	Stack with Gas firing
		NOx	9.62	8.14	8.89	350	
		CO	8.99	8.41	8.69	150	
		PM	8.96	2.15	5.45	10	
HCU	FF-03	SO2	177.41	3.42	30.60	209	Stack with dual firing (FG:FO=90:10)
		NOx	67.02	0.45	18.10	360	
		CO	87.67	16.90	28.68	155	
		PM	6.60	3.91	4.63	19	
H2U	FF-01	SO2	48.75	16.60	33.30	50	Stack with Gas firing
		NOx	46.15	12.96	33.49	350	
		CO	10.69	4.21	9.36	150	
		PM	6.62	4.17	4.50	10	
CPP(HRSG)		SO2	46.99	31.15	39.97	50	Stack with Gas firing
		NOx	164.30	12.92	71.19	350	
		CO	26.95	0.13	6.68	150	
		PM	2.51	0.004	0.07	10	
CPP (UB)		SO2	49.57	31.78	38.14	50	Stack with dual firing
		NOx	96.01	67.35	78.78	350	

	CO	7.52	0.21	2.03	150	
	PM	8.39	5.25	6.74	10	
MSP (CRU)	SO2	34.91	1.15	3.96	50	Stack with Gas firing
	NOx	54.44	9.67	42.30	350	
	CO	2.68	0.51	1.40	150	
	PM	8.95	6.03	7.20	10	
MSP (NHTU)	SO2	25.19	3.27	5.79	50	Stack with Gas firing
	NOx	43.44	3.96	33.66	350	
	CO	9.06	1.15	2.97	150	
	PM	8.95	6.03	7.20	10	
DHD T	SO2	34.50	0.17	10.71	50	Stack with Gas firing
	NOx	45.72	14.17	26.92	250	
	CO	22.24	0.005	4.25	100	
	PM	0.80	0.72	0.76	5	

Limiting concentration of emission calculated as per MOEF notification on standard vide GSR-186 (E) dated 18th March, 2008.

Annexure -III : Ambient Air Monitoring
Reports
(Apr-Sep'24)

NUMALIGARH REFINERY LIMITED						
QUARTERLY PERFORMANCE WITH RESPECT TO ENVIRONMENTAL ASPECTS DURING QUARTER I (APR-JUNE'24), 2024-25						
Ambient Air Quality Data						
STATION	PARAMETER	STD NAAQS-2009	Unit	OBSERVATIONS		
				MAX	MIN	AVG.
REFINERY (WATCH TOWER NO. 6)	SO2	80 (24 hr avg.)	µg/m3	14.39	5.36	9.08
	NO2	80 (24 hr avg.)	µg/m3	17.54	6.17	12.35
	O3	180 (1 hr avg.)	µg/m3	14.36	4.2	8.60
	CO	4.000 (1 hr.avg.)	mg/m3	0.00	0.0	0.00
	NH3	400 (24 hr.avg.)	µg/m3	30.46	18.28	24.25
	PM 10	100 (24 hr.avg.)	µg/m3	66.48	41.25	54.66
	PM 2.5	60 (24 hr.avg.)	µg/m3	41.14	22.51	28.02
	Benzene	05 (Annual)	µg/m3	0.00	0.00	0.00
	HC	-	mg/m3	0.97	0.59	26.85
	BaP	01 (Annual)	ng/m3	<0.5	<0.5	<0.5
	Pb	1.0 (24 hr.avg.)	µg/m3	0.00	0.00	0.00
	As	06 (Annual)	ng/m3	0.00	0.00	0.00
	Ni	20 (Annual)	ng/m3	0.00	0.00	0.00
ECO-PARK IN NRL TOWNSHIP	SO2	80 (24 hr avg.)	µg/m3	13.25	6.08	8.49
	NO2	80 (24 hr avg.)	µg/m3	16.77	7.12	11.50
	O3	180 (1 hr avg.)	µg/m3	12.15	4.62	7.58
	CO	4.000 (1 hr.avg.)	mg/m3	0.00	0.00	0.00
	NH3	400 (24 hr.avg.)	µg/m3	26.51	18.46	22.41
	PM 10	100 (24 hr.avg.)	µg/m3	66.82	39.25	52.31
	PM 2.5	60 (24 hr.avg.)	µg/m3	28.12	18.34	23.41
	Benzene	05 (Annual)	µg/m3	0.00	0.00	0.00
	HC		mg/m3	0.90	0.58	0.70
	BaP	1.0 (Annual)	ng/m3	0.00	0.00	0.00

		Pb	1.0 (24 hr.avg.)	µg/m3	0.00	0.00	0.00
		As	6.0 (Annual)	ng/m3	0.00	0.00	0.00
RAW WATER INTAKE		Ni	20 (Annual)	ng/m3	0.00	0.00	0.00
		SO2	80 (24 hr avg.)	µg/m3	12.39	5.10	8.79
		NO2	80 (24 hr avg.)	µg/m3	18.32	6.58	12.13
		O3	180 (1 hr avg.)	µg/m3	12.21	4.75	8.12
		CO	4.000 (1 hr.avg.)	mg/m3	0.00	0.00	0.00
		NH3	400 (24 hr.avg.)	µg/m3	28.66	17.48	21.81
		PM 10	100 (24 hr.avg.)	µg/m3	62.75	42.15	52.97
		PM 2.5	60 (24 hr.avg.)	µg/m3	43.26	22.47	22.27
		Benzene	05 (Annual)	µg/m3	0.00	0.00	0.00
		HC		mg/m3	0.90	0.51	0.67
		BaP	01 (Annual)	ng/m3	0.00	0.00	0.00
		Pb	1.0 (24 hr.avg.)	µg/m3	0.00	0.00	0.00
		As	06 (Annual)	ng/m3	0.00	0.00	0.00
		Ni	20 (Annual)	ng/m3	0.00	0.00	0.00
NH-39 BYPASS		SO2	80 (24 hr avg.)	µg/m3	18.34	5.78	10.33
		NO2	80 (24 hr avg.)	µg/m3	24.09	7.19	11.70
		O3	180 (1 hr avg.)	µg/m3	25.98	7.14	11.53
		CO	4.000 (1 hr.avg.)	mg/m3	0.87	0.68	0.81
		NH3	400 (24 hr.avg.)	µg/m3	34.58	17.58	24.28
		PM 10	100 (24 hr.avg.)	µg/m3	95.23	41.36	57.81
		PM 2.5	60 (24 hr.avg.)	µg/m3	56.00	20.14	29.67
		Benzene	05 (Annual)	µg/m3	0.00	0.00	0.00

KAZIRANGA WILDLIFE SANCTUARY AT AGARTOLI	HC	-	mg/m3	1.59	0.52	0.80
	BaP	1	ng/m3	0.00	0.00	0.00
	Pb	1.0 (24 hr.avg.)	µg/m3	0.00	0.00	0.00
	As	6	ng/m3	0.00	0.00	0.00
	Ni	20 (Annual)	ng/m3	0.00	0.00	0.00
	SO2	80 (24 hr avg.)	µg/m3	17.58	6.75	9.89
	NO2	80 (24 hr avg.)	µg/m3	20.00	6.78	10.37
	O3	180 (1 hr avg.)	µg/m3	14.58	4.37	7.99
	CO	4.000 (1 hr.avg.)	mg/m3	0.00	0.00	0.00
	NH3	400 (24 hr.avg.)	µg/m3	32.93	17.63	23.89
	PM 10	100 (24 hr.avg.)	µg/m3	69.78	40.26	1818.52
	PM 2.5	60 (24 hr.avg.)	µg/m3	33.47	19.37	24.75
	Benzene	05 (Annual)	µg/m3	0.00	0.00	0.00
	HC	-	mg/m3	0.91	0.51	0.65
	BaP	1.0	ng/m3	0.00	0.00	0.00
	Pb	1.0 (24 hr.avg.)	µg/m3	0.00	0.00	0.00
	As	6.0	ng/m3	0.00	0.00	0.00
	Ni	20 (Annual)	ng/m3	0.00	0.00	0.00

BDL:Below Detection Level, All the parameters are found to be within limit

NUMALIGARH REFINERY LIMITED						
QUARTERLY PERFORMANCE WITH RESPECT TO ENVIRONMENTAL ASPECTS DURING QUARTER II (JULY-SEP'24), 2024-25						
Ambient Air Quality Data						
STATION	PARAMETER	STD NAAQS-2009	Unit	OBSERVATIONS		
				MAX	MIN	AVG.
REFINERY (WATCH TOWER NO. 6)	SO2	80 (24 hr avg.)	µg/m3	15.75	6.47	10.58
	NO2	80 (24 hr avg.)	µg/m3	14.93	6.64	10.71
	O3	180 (1 hr avg.)	µg/m3	17.95	6.7	11.04
	CO	4.000 (1 hr.avg.)	mg/m3	0.00	0.00	0.00
	NH3	400 (24 hr.avg.)	µg/m3	35.74	19.68	26.80
	PM 10	100 (24 hr.avg.)	µg/m3	54.28	31.38	43.15
	PM 2.5	60 (24 hr.avg.)	µg/m3	30.71	18.62	23.76
	Benzene	05 (Annual)	µg/m3	0.00	0.00	0.00
	HC	-	mg/m3	0.95	0.51	0.73
	BaP	01 (Annual)	ng/m3	0.00	0.00	0.00
	Pb	1.0 (24 hr.avg.)	µg/m3	0.00	0.00	0.00
	As	06 (Annual)	ng/m3	0.00	0.00	0.00
	Ni	20 (Annual)	ng/m3	0.00	0.00	0.00
ECO-PARK IN NRL TOWNSHIP	SO2	80 (24 hr avg.)	µg/m3	13.43	6.69	9.86
	NO2	80 (24 hr avg.)	µg/m3	13.86	7.34	9.59
	O3	180 (1 hr avg.)	µg/m3	18.14	8.25	10.71
	CO	4.000 (1 hr.avg.)	mg/m3	0.00	0.00	0.00
	NH3	400 (24 hr.avg.)	µg/m3	29.57	16.15	21.98
	PM 10	100 (24 hr.avg.)	µg/m3	59.43	32.21	44.82
	PM 2.5	60 (24 hr.avg.)	µg/m3	31.43	16.16	24.22
	Benzene	05 (Annual)	µg/m3	0.00	0.00	0.00
	HC		mg/m3	0.94	0.51	0.72
	BaP	1.0 (Annual)	ng/m3	0.00	0.00	0.00

RAW WATER INTAKE	Pb	1.0 (24 hr.avg.)	µg/m3	0.00	0.00	0.00
	As	6.0 (Annual)	ng/m3	0.00	0.00	0.00
	Ni	20 (Annual)	ng/m3	0.00	0.00	0.00
	SO2	80 (24 hr avg.)	µg/m3	15.56	6.58	9.81
	NO2	80 (24 hr avg.)	µg/m3	14.75	7.23	10.17
	O3	180 (1 hr avg.)	µg/m3	16.61	7.41	11.10
	CO	4.000 (1 hr.avg.)	mg/m3	0.00	0.00	0.00
	NH3	400 (24 hr.avg.)	µg/m3	30.34	14.42	21.19
	PM 10	100 (24 hr.avg.)	µg/m3	61.81	32.63	43.79
	PM 2.5	60 (24 hr.avg.)	µg/m3	39.18	16.46	25.36
	Benzene	05 (Annual)	µg/m3	0.00	0.00	0.00
	HC		mg/m3	0.94	0.53	0.73
	BaP	01 (Annual)	ng/m3	0.00	0.00	0.00
	Pb	1.0 (24 hr.avg.)	µg/m3	0.00	0.00	0.00
	As	06 (Annual)	ng/m3	0.00	0.00	0.00
	Ni	20 (Annual)	ng/m3	0.00	0.00	0.00
NH-39 BYPASS	SO2	80 (24 hr avg.)	µg/m3	15.25	6.17	9.95
	NO2	80 (24 hr avg.)	µg/m3	15.21	7.14	10.62
	O3	180 (1 hr avg.)	µg/m3	17.43	7.18	10.72
	CO	4.000 (1 hr.avg.)	mg/m3	0.63	0.52	0.57
	NH3	400 (24 hr.avg.)	µg/m3	32.34	17.37	23.27
	PM 10	100 (24 hr.avg.)	µg/m3	58.23	32.78	43.63
	PM 2.5	60 (24 hr.avg.)	µg/m3	35.14	16.58	24.91
	Benzene	05 (Annual)	µg/m3	0.00	0.00	0.00

KAZIRANGA WILDLIFE SANCTUARY AT AGARTOLI	HC	-	mg/m3	0.95	0.49	0.72
	BaP	1	ng/m3	0.00	0.00	0.00
	Pb	1.0 (24 hr.avg.)	µg/m3	0.00	0.00	0.00
	As	6	ng/m3	0.00	0.00	0.00
	Ni	20 (Annual)	ng/m3	0.00	0.00	0.00
	SO2	80 (24 hr avg.)	µg/m3	15.42	6.47	10.31
	NO2	80 (24 hr avg.)	µg/m3	13.74	6.93	9.73
	O3	180 (1 hr avg.)	µg/m3	17.84	7.24	11.37
	CO	4.000 (1 hr.avg.)	mg/m3	0.00	0.00	0.00
	NH3	400 (24 hr.avg.)	µg/m3	33.71	13.62	24.11
	PM 10	100 (24 hr.avg.)	µg/m3	63.42	33.43	46.42
	PM 2.5	60 (24 hr.avg.)	µg/m3	35.36	17.23	25.83
	Benzene	05 (Annual)	µg/m3	0.00	0.00	0.00
	HC	-	mg/m3	0.96	0.48	0.70
	BaP	1.0	ng/m3	0.00	0.00	0.00
	Pb	1.0 (24 hr.avg.)	µg/m3	0.00	0.00	0.00
	As	6.0	ng/m3	0.00	0.00	0.00
	Ni	20 (Annual)	ng/m3	0.00	0.00	0.00

BDL:Below Detection Level, All the parameters are found to be within limit

Annexure -IV : Treated Effluent Monitoring
Reports
(Apr-Sep'24)

QUARTERLY PERFORMANCE REPORT W.R.T ENVIRONMENTAL ASPECT

DURING QR. I(APR-JUNE'24) 2024 -25

TABLE-1 LIQUID EFFLUENT POLLUTANT LEVEL -								
MONITORED VALUES in mg/lit.except pH						Limiting value for conc. (mg/l except for pH)	Quantum limit in Kg / 1000 MT of crude processed	
SL. NO	PARAMETERS	NO. OF OBS	MAX.	MIN.	AVG.		Actual	Standard
1	pH	92	8.4	6.7	7.4	6-8.5	-	-
2	OIL & GREASE	92	5.0	0.2	1.48	5	0.62	2.0
3	SULPHIDE	92	<0.1	<0.1	<0.1	0.5	<0.1	0.2
4	PHENOL	92	0.22	0.02	0.06	0.35	0.03	0.14
5	S. SOLID	92	20.0	0.2	9.10	20.0	3.82	8.0
6	COD	92	124.0	9.70	39.5	125.0	16.55	50.0
7	BOD3	92	15.0	3.0	7.12	15.0	2.99	6.0
8	CN	92	<0.02	<0.02	<0.02	0.2	<0.02	0.08
9	Ammonia as N	3	11.8	10.2	10.87	15.0	4.56	6.0
10	Cr (Hexavalent)	3	0	0	0.00	0.1	0.0000	0.04
11	Cr (Total)	3	0.001	0	0.000	2.0	0.0001	0.8
12	Pb	3	0	0	0.0000	0.1	0.0000	0.04
13	Zn	3	0.055	0.001	0.036	5.0	0.0151	2.0
14	Ni	3	0.002	0	0.001	1.0	0.0003	0.4
15	Cu	3	0.001	0.001	0.001	1.0	0.0004	0.4
16	Benzene	3	<0.1	<0.1	<0.1	0.1	<0.1	0.04
17	Benzo (a)- Pyrene	3	<0.2	<0.2	<0.2	0.2	<0.2	0.08
18	Hg	3	<0.01	<0.01	<0.01	0.01	<0.01	0.004
19	V	3	<0.2	<0.2	<0.2	0.2	<0.2	0.8
20	TKN	3	10.49	9.26	9.86	40.0	4.13	16.0
21	P	3	0.78	0.67	0.72	3.0	0.30	1.2

Limiting concentration of effluent is as per MoEF notification on standard vide GSR-186 (E)dated 18th March, 2008.

*** BDL- Detectable Limit : 0.1 microgram/Litre**

*** Parameters from 9 to 21 are monitored once in a month as per CPCB norms**

QUARTERLY PERFORMANCE REPORT W.R.T ENVIRONMENTAL ASPECT

DURING QR. II(JULY-SEP'24) 2024 -25

TABLE-1 LIQUID EFFLUENT POLLUTANT LEVEL -								
MONITORED VALUES in mg/lit.except pH						Limiting value for conc. (mg/l except for pH)	Quantum limit in Kg / 1000 MT of crude processed	
SL. NO	PARAMETERS	NO. OF OBS	MAX.	MIN.	AVG.		Actual	Standard
1	pH	92	8.3	6.8	7.4	6-8.5	-	-
2	OIL & GREASE	92	2.6	0.7	1.10	5	0.49	2.0
3	SULPHIDE	92	<0.1	<0.1	<0.1	0.5	<0.1	0.2
4	PHENOL	92	0.19	0.02	0.05	0.35	0.02	0.14
5	S. SOLID	92	18.0	1.2	7.62	20.0	3.42	8.0
6	COD	92	115.2	6.80	27.5	125.0	12.35	50.0
7	BOD3	92	14.9	2.0	7.67	15.0	3.45	6.0
8	CN	92	<0.02	<0.02	<0.02	0.2	<0.02	0.08
9	Ammonia as N	3	12.2	10.2	10.87	15.0	4.88	6.0
10	Cr (Hexavalent)	3	0	0	0.00	0.1	0.0000	0.04
11	Cr (Total)	3	0.001	0.001	0.001	2.0	0.0004	0.8
12	Pb	3	0	0	0.0000	0.1	0.0000	0.04
13	Zn	3	0.075	0.042	0.060	5.0	0.0268	2.0
14	Ni	3	0.002	0.001	0.002	1.0	0.0007	0.4
15	Cu	3	0.001	0	0.001	1.0	0.0003	0.4
16	Benzene	3	<0.1	<0.1	<0.1	0.1	<0.1	0.04
17	Benzo (a)- Pyrene	3	<0.2	<0.2	<0.2	0.2	<0.2	0.08
18	Hg	3	<0.01	<0.01	<0.01	0.01	<0.01	0.004
19	V	3	<0.2	<0.2	<0.2	0.2	<0.2	0.8
20	TKN	3	16.8	5.60	10.45	40.0	4.70	16.0
21	P	3	1.21	0.66	0.90	3.0	0.40	1.2

Limiting concentration of effluent is as per MoEF notification on standard vide GSR-186 (E)dated 18th March, 2008.

*** BDL- Detectable Limit : 0.1 microgram/Litre**

*** Parameters from 9 to 21 are monitored once in a month as per CPCB norms**

Annexure -V : Fugitive Emission Reports
(Apr-Sep'24)



Numaligarh Refinery Limited

(A Govt. of India Enterprises)

NRL Complex, Numaligarh, Distt. Golaghat, Assam, 785 699

Reports on Fugitive Emission Management (Leak Detection & Repair)



Study Period: June 2024

Prepared By



NITYA LABORATORIES

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LDAR (Fugitive Emission) Survey Report for Numaligarh Refinery Limited

Name of Client : M/s Numaligarh Refinery Limited

NRL Complex, Numaligarh,

Distt. Golaghat, Assam, 785 699, India

Name of Vendor : M/s Nitya Laboratories

Plot No.118, Church Road, Behind Kausik Vatika

Bhagat Singh Colony, Ballabgarh-121 004

Distt. Faridabad (Haryana) Delhi NCR, India

Nature of Job : Fugitive Emission Survey Report at Numaligarh Refinery Limited, NRL

Complex, Numaligarh, Distt. Golaghat, Assam, 785 699, India

Report Period : June 2024

FOR NITYA LABORATORIES

RAVINDER MITTAL
Head-Environmental Division



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Executive Summary

M/s Numaligarh Refinery Limited has intended to conduct the Fugitive Emission survey/Leak Detection and Repair (LDAR) program at its refinery Numaligarh Assam. As a part of this program M/s Numaligarh Refinery Limited has awarded the contract to M/s Nitya Laboratories for conducting the LDAR survey for the period 07/2023 to 07/2025.

The LDAR Program at site included the detection, tagging and measurement of VOC emission from these identified points which included valves, pump seal, compressor & pressure relieve valves for the measurement of the period June 2024.

Plant Wise Summary of VOC

Sr. No.	Date of Monitoring	Unit	Total Nos of Points Monitored	Total Nos of Leakage	Total Leak (kg/hr)	Total Leak (kg/day)
1	08-06-24	MSP	1127	0	0	0
	10-06-24					
2	18-06-24	CDU/VDU	572	0	0	0
	19-06-24					
3	24-06-24	WAX	233	0	0	0
4	25-06-24	NRMT TANK NO-001 A: Service: MTBE	137	0	0	0
5	25-06-24	NRMT TANK NO-001 B: Service: OB	137	0	0	0
6	25-06-24	NRMT TANK NO-001 C Service: PYGAS	137	0	0	0
7	26-06-24	NRMT TANK NO-004 B Service: MS	140	0	0	0
8	26-06-24	NRMT TANK NO-004 C Service: MS	140	0	0	0
		TOTAL	2763	0	0	0

Confirmatory Statement: The monitored values are within the limits as per CPCB Guidelines.

1.0 INTRODUCTION

The petroleum refinery industry has successfully reduced its emissions of non-methane volatile organic compounds (NMVOC), one of the precursors to surface level ozone formation, by focusing on reduced venting, vapour recovery and better storage controls. In order make further reductions, the industry is now focusing its efforts on the control of fugitive emissions (leaks)¹ which can contribute up to one third of the remaining site NMVOC emissions. Fugitive emissions are generated at plant components which are supposed to be leak-tight (like pump or compressor seals, valve packing, flanges, sample points, etc.). Whilst a typical site would have 50,000+ such components, only a few of these contribute to the bulk of fugitive emissions. Identifying these few leaks for repair is difficult and time consuming, as they are spread out over the entire site, including hard to access locations.

Methodologies are currently available to detect leaking equipment in so-called LDAR (Leak Detection and Repair) programs:

Method 21 uses a hydrocarbon ionisation detector; this methodology was developed by the US-EPA and was the first historically. It is a widely accepted method, key elements of which are adopted in the European Standard EN 15446:2008.

A fugitive emission monitoring project is typically conducted in following phases:

2.0 About LDAR: Leak Detection and Repair (LDAR) is a program implemented to comply with environmental regulations for reducing the fugitive emissions of targeted chemicals into the environment. Several standards such as *Maximum Achievable Control Technology* (MACT) standards, *New Source Performance Standards* (NSPS), *National Emissions Standards for Hazardous Air Pollutants* (NESHAP) and Central Pollution Control Board (CPCB) require the monitoring and reporting of these fugitive emissions from process equipment.

Process components of about 10000 points are monitored as LDAR and cover all the components in the process plant.

A typical chemical unit can emit some tons per year of VOCs from leaking equipment, such as valves, connectors, pumps, sampling connections, compressors, pressure relief devices and open-ended lines.

The environmental regulations are prescribed LDAR programs as a means of reducing emissions have very specific standards and applied to a monitoring and repair program. The LDAR study included the following protocols:

- Chemical streams that must be monitored
- Types of components (pumps, valves, connectors, etc.) to be monitored
- Measured concentration in PPM that indicates a leak
- Frequency of monitoring
- Method of monitoring
- Actions to be taken if a leak is discovered
- Length of time in which an initial attempt to repair the leak must be performed
- Length of time in which an effective repair of the leak must be made
- Actions that must be taken if a leak cannot be repaired within guidelines
- Record-keeping and reporting requirements

VOCs are contributed to the formation of ground level ozone. Many of the areas where Refineries are located do not meet the NAAQ standards for ozone. Ozone can be transported in the atmosphere and contribute to nonattainment in downwind areas.

Affected Sources: Each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, flange and connector that contains or contacts a fluid or gas. that is exceeding more than 5000 ppm of pump and compressor seals and 3000 ppm other components is an affected source.

Equipment Leak: A leak is defined as greater than or equal to 3,000 & 5000 ppmv as methane, for organic compounds, as determined by EPA Reference Method 21. Most of the emissions are from valves and connectors because these are most prevalent components and can number in the thousands. The major cause of emissions from valves and connectors is seal or gasket failure due to normal wear or improper maintenance. More than 90% of emissions from the leaking equipment with valves are being the most significant source. The open-ended lines and sampling connections account for as much as 5 – 10% of total VOC emissions from equipment leaks.

Minimum Requirements for an Acceptable Organic LDAR Program:

- Each affected source is screened initially using Method 21. Sources that are unsafe to monitor is not screened, but documentation is provided to substantiate the unsafe nature.
- Monthly visual inspections has to be performed by industry on each affected source for signs of leakage (e.g. dripping liquid, spraying, misting, clouding, ice formation, distinctive odors, etc.).
- Monitoring of each affected source is to be conducting quarterly using Method 21.

All potential leak points associated with a component must be identified and screened for leaks. The detected leaks by Method 21 test was tagged and repaired. The leak sources are measured after repair and the same is recorded.

3.0 METHODOLOGY OF THE STUDY:

Step 1: Preparation of LDAR project

- Information exchange meeting
- Project introduction
- Project scooping
- Coding & naming conventions
- Prepare technical information (medium, stream, drawings, ...)
- Stream composition
- YTD production time per stream
- Leak definition, repair definition and tag definition per stream
- Detection equipment to use

Step 2: Database preparation:

- Build site structure (unit - sections - drawings - streams)
- Prepare Basic data
- Prepare Customer data

Step 3: Source inventory:

- Project kick-off meeting
- Safety training
- Site visit
- Define monitoring routes
- Start inventory program
- Prepare monitoring phase

Step 4: Unit monitoring phase

- Prepare detection devices and gather relevant information
- Start monitoring program
- Regular status meetings
- Database update

Step 5: First repair attempt

- Prepare tightening lists (sources with leak-rate > repair definition)
- Guide mechanical/operator to leaking sources
- Perform on-line reparation
- Re-monitoring after repair attempt

Step 6: Reporting

- Consolidate all gathered data
- Prepare lessons learned
- Create LDAR report
- Detail list of all leaking sources
- Repair orders
- Equipment overview per EPA source
- Top leakers (in costs and losses)

- Sort on most leaking equipment (EPA sources)

Sampling Methodology:

Initial Screening: Screening tests must be conducted initially and include:

1. The type of affected source (e.g. pump, compressor, etc.).
2. Site specific ID of each affected source.
3. Date of the Method 21 test.
4. Type of Method 21 detector.
5. Calibration results of Method 21 detector.
6. Screening results in ppmv.

4.0 Volatile Organic Compounds (VOCs)

4.1. VOC Definition

To this study the term VOC is defined as “all products of which at least 20% m/m has a vapour pressure higher than 0.3 kPa at 20°C. For the petroleum industry this includes all light products and excludes kerosene and all higher (i.e., heavier) products”.

The streams concerned in these studies do not contain methane so strictly the study addresses non-methane volatile hydrocarbons (NMVOC).

4.1.1. Diffuse VOC Emissions

Diffuse VOC emission is defined by the Best Available Technique Reference Document for the Refining of Mineral Oil and Gas (REF BREF) to be:

“Non-channelled VOC emissions that are not released via specific emission points such as stacks. They can result from 'area' sources (e.g., tanks) or 'point' sources (e.g., pipe flanges)”

“Diffuse VOC emissions are emissions arising from direct contact of gaseous or liquid volatile organic compounds with the environment (atmosphere, under normal operating circumstances). These can result from:

- Inherent design of the equipment (e.g., uncovered oil/water separators);
- Operating conditions (e.g., non collected vent of a fixed roof tank during loading); or fugitive emission caused by an undesired gradual loss of tightness from a piece of equipment and a resulting leak. Fugitive emissions are a subset of diffuse emission.”

The focus of this report is on comparing two detection methods for fugitive emissions from point sources which typically make up between 20-50% of the overall refinery diffuse emissions. Emissions from point sources include leaks from components which are not fully sealed: pipe flanges, valve stems, pump and compressor seals, etc.

5.0 Leak Detection and Quantification Methods

5.1 Leak Detection and Leak Quantification

When discussing the monitoring and reporting of VOC emissions, three different purposes have to be taken into account: leak detection, identification and quantification. For the point sources considered in this report detection and identification are synonymous.

- ❖ Leak detection/identification: VOC instruments can be used for the VOC leak detection: e.g. flame ionisation detector. The number of leaks and a leak indication (e.g., measured concentration (screening) value) are recorded.
- ❖ Leak quantification is the estimate of the number of VOCs emitted (i.e., t/a) for reporting and tracking purposes.

Leak Detection and Repair (LDAR) programmes have been put in place across Indian/European refineries in order to detect and reduce the VOC fugitive emissions. Although the main purpose of an LDAR program is to decrease VOC emission, leak quantification was added for reporting purposes and for tracking the long term progress.

5.2 Leak Detection Methods

Methodology is currently available to detect the emissions from leaking equipment:

Methodologies Based on Sniffing: the detection is done by drawing an air sample past a hydrocarbon ionisation detector to detect the VOC concentration in the vicinity of the leak source (called screening value). This methodology was first developed by the US Environmental Protection Agency (EPA) and is referred to as “Method 21”.

The European LDAR Standard EN 15446:2008 is a modified version of Method 21 where the frequency of the surveys and the leak repair threshold are not fixed but can be adapted based on analysis of the previous survey.

5.2.1 Sniffing Detection Instruments

Many different types of Sniffing analysers can be used to detect fugitive VOC emissions. The most common types are photo-ionization detectors (PID).

5.2.2 Photo-Ionisation Detectors

Ionization detectors operate by ionizing the gas sample and then measuring the charge (number of ions) produced. PIDs use ultraviolet light. The response of a PID can vary significantly with double bonded compounds. Therefore the PID is most commonly used in refinery LDAR surveys. PID analysers have to be calibrated for a hydrocarbon concentration of 100 PPM.

The Nitya Laboratories using the Honeywell International PV Make and model no. Mini RAE 3000⁺ having the range between 0.1 PPM to 15000 PPM.

5.3 Leak Quantification/Estimation Methods

Leak Emission Estimation Based on the Sniffing Techniques

The Sniffing technique involves placing a detecting instrument probe close to the surface of a piece of process equipment where there is the potential for a leak (e.g., at flange seal). The VOC concentration of the leak is measured by moving the probe along the surface. The maximum instrument reading in ppm is recorded. This is referred to as

the “screening value”. A record is also made of the type of equipment device (valve, flange, pump seal etc.). A leak is considered to occur when the screening value measured is above a given concentration (e.g., 15,000 ppmv). The leak definition criterion can vary from one site to another and is usually set in the environmental permit. Above that given concentration threshold, the equipment is identified as leaking and must be repaired. Components which give screening values below the leak definition are considered as non-leakers and repairs are not required.

This detection method requires every potential leaking point included in the database (a listing of all sources) to be surveyed and therefore this procedure is very expensive and labour-intensive.

The equipment to be monitored by Sniffing is listed in a database and is restricted to:

- ❖ Accessible points (e.g., not under insulation, able to be reached without scaffolding).
- ❖ The lines containing a light hydrocarbon (20% of the fluid m/m has a vapour pressure higher than 0.3 kPa at 20°C).

Standards for Equipment Leaks

- (1) Approach: Approach for controlling fugitive emissions from equipment leaks shall have proper selection, installation and maintenance of non-leaking or leak-tight equipment. Following initial testing after commissioning, the monitoring for leak detection is to be carried out as a permanent on-going Leak Detection and Repair (LDAR) programme. Finally detected leaks are to be repaired within an allowable timeframe.
- (2) Components to be Covered: Components that shall be covered under LDAR programme include (i) Block valves; (ii) Control valves; (iii) Pump seals; (iv) Compressor seals; (v) Pressure relief valves; (vi) Flanges – Heat Exchangers; (vii) Flanges – Piping; (viii) Connectors – Piping; (ix) Open ended lines; and (x) Sampling connections, Equipment and line sizes more than 1.875 cm or ¾ inch are to be covered.
- (3) Applicability: LDAR programme would be applicable to components (given at 2 above) for following products/compounds: (i) hydrocarbon gases; (ii) Light liquid with vapour pressure @ 20°C > 1.0 kPa; and (iii) Heavy liquid with vapour pressure @ 20° C between 0.3 to 1.0 kPa.
- (4) While LDAR will not be applicable for heavy liquids with vapour pressure < 0.3 kPa, it will be desirable to check for liquid dripping as indication of leak.
- (5) Definition of leak: A leak is defined as the detection of VOC concentration more than the values (in ppm) specified below at the emission source using a hydrocarbon analyzer according to measurement protocol (US EPA – 453/R-95-017, 1995 Protocol for equipment leak emission estimates may be referred to:

Component	General Hydrocarbon (ppm)		Benzene (ppm)	
	Till 31 st Dec. 2008	w.e.f. January 01, 2009	Till 31 st Dec., 2008	w.e.f January 01, 2009
Pump/Compressor	10000	5000	3000	2000
Valves/Flanges	10000	3000	2000	1000
Other components	10000	3000	2000	1000

- (6) In addition, any component observed to be leaking by sight, sound, or smell, regardless of concentration (liquid dripping, visible vapor leak) or presence of bubbles using soap solution should be considered as leak.
- (7) Monitoring Requirements and Repair Schedule: Following frequency of monitoring of leaks and schedule for repair of leaks shall be followed:

- (8) The percentage leaking components should not be more than 2% for any group of components monitored excluding pumps/compressors. In the case of pumps/compressors it should be less than 10% of the total number of pumps/compressors or three pumps and compressors, whichever is greater.
- (9) Emission inventory: Refinery shall prepare an inventory of equipment components in the plant. After the instrumental measurement of leaks, emission from the components will be calculated using stratified emission factor (USEPA) or any other superior factors. The total fugitive emission will be established.

Component	Frequency of monitoring	Repair schedule
	Quarterly (semiannual after two consecutive periods with <2% leaks and annual after 5 periods with < 2% leaks)	Repair will be started within 5 working days and shall be completed within 15 working days after detection of leak for general hydrocarbons. In case of benzene, the leak shall be attended immediately for repair.
Pump seals	Quarterly	
Compressor seals	Quarterly	
Pressure relief devices	Quarterly	
Pressure relief devices (after venting)	Within 24 hours	
Heat Exchangers	Quarterly	
Process drains	Annually	
Components that are difficult to monitor	Annually	
Pump seals with visible liquid dripping	Immediately	Immediately
Any component with visible leaks	Immediately	Immediately
Any component after repair/ replacement	Within five days	-

- (10) Monitoring following types of monitoring methods may be judiciously employed for detection of leaks: (i) instrumental method of measurement of leaks; (ii) Audio, visual and olfactory (AVO) leak detection; and (iii) Soap bubble method.
- (11) Data on time of measurement and concentration value for leak detection; time of repair of leak; and time of measurement & concentration value after repair of leak should be documented for all the components.
- (12) Pressure relief and blow down systems should discharge to a vapour collection and recovery system or to flare.
- (13) Open-ended lines should be closed by a blind flange or plugged.
- (14) A totally closed loop should be used in all routine samples.
- (15) Low emission packing should be used for valves.
- (16) High integrity sealing materials should be used for flanges

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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MSP										
1	08-06-24	Fuel Gas Inlet line U/S I/V U/S Flange	1	Flange	0	0	0	0	0	0
2	08-06-24	Fuel Gas Inlet line U/S I/V Gland	2	Gland	0	0	0	0	0	0
3	08-06-24	Fuel Gas Inlet line U/S I/V D/S Flange	3	Flange	0	0	0	0	0	0
4	08-06-24	Fuel Gas Inlet line D/S I/V U/S Flange	4	Flange	0	0	0	0	0	0
5	08-06-24	Fuel Gas Inlet line D/S I/V Gland	5	Gland	0	0	0	0	0	0
6	08-06-24	Fuel Gas Inlet line D/S I/V D/S Flange	6	Flange	0	0	0	0	0	0
7	08-06-24	Sour Gas Outlet line U/S I/V U/S Flange	7	Flange	0	0	0	0	0	0
8	08-06-24	Sour Gas Outlet line U/S I/V Gland	8	Gland	0	0	0	0	0	0
9	08-06-24	Sour Gas Outlet line U/S I/V D/S Flange	9	Flange	0	0	0	0	0	0
10	08-06-24	Drain Line I/V Gland	10	Gland	0	0	0	0	0	0
11	08-06-24	Drain Line Safety Flange	11	Flange	0	0	0	0	0	0
12	08-06-24	Sour Gas Outlet line D/S I/V U/S Flange	12	Flange	0	0	0	0	0	0
13	08-06-24	Sour Gas Outlet line D/S I/V Gland	13	Gland	0	0	0	0	0	0
14	08-06-24	Sour Gas Outlet line D/S I/V D/S Flange	14	Flange	0	0	0	0	0	0
15	08-06-24	LPG R/D Outlet line U/S I/V U/S Flange	15	Flange	0	0	0	0	0	0
16	08-06-24	LPG R/D Outlet line U/S I/V Gland	16	Gland	0	0	0	0	0	0
17	08-06-24	LPG R/D Outlet line U/S I/V D/S Flange	17	Flange	0	0	0	0	0	0
18	08-06-24	Drain Line I/V Gland	18	Gland	0	0	0	0	0	0
19	08-06-24	LPG R/D First I/V Gland	19	Gland	0	0	0	0	0	0
20	08-06-24	LPG R/D Outlet line D/S I/V U/S Flange	20	Flange	0	0	0	0	0	0
21	08-06-24	LPG R/D Outlet line D/S I/V Gland	21	Gland	0	0	0	0	0	0
22	08-06-24	LPG R/D Outlet line D/S I/V D/S Flange	22	Flange	0	0	0	0	0	0
23	08-06-24	Hydrogen Rich Gas To PSA Outlet line U/S I/V	23	Flange	0	0	0	0	0	0
24	08-06-24	Hydrogen Rich Gas To PSA Outlet line U/S I/V	24	Flange	0	0	0	0	0	0
25	08-06-24	Hydrogen Rich Gas To PSA Outlet line U/S I/V	25	Flange	0	0	0	0	0	0
26	08-06-24	Drain Line I/V Gland	26	Gland	0	0	0	0	0	0
27	08-06-24	Drain Line Safety Flange	27	Flange	0	0	0	0	0	0
28	08-06-24	NRV U/S Flange	28	Flange	0	0	0	0	0	0
29	08-06-24	NRV Top Flange	29	Flange	0	0	0	0	0	0
30	08-06-24	NRV D/S Flange	30	Flange	0	0	0	0	0	0
31	08-06-24	Hydrogen Rich Gas To PSA Outlet line D/S I/V	31	Flange	0	0	0	0	0	0
32	08-06-24	Hydrogen Rich Gas To PSA Outlet line D/S I/V	32	Flange	0	0	0	0	0	0
33	08-06-24	Hydrogen Rich Gas To PSA Outlet line D/S I/V	33	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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34	08-06-24	Hydrogen From PSA Inlet line U/S I/V U/S Flange	34	Flange	0	0	0	0	0	0
35	08-06-24	Hydrogen From PSA Inlet line U/S I/V Gland	35	Gland	0	0	0	0	0	0
36	08-06-24	Hydrogen From PSA Inlet line U/S I/V D/S Flange	36	Flange	0	0	0	0	0	0
37	08-06-24	NRV U/S Flange	37	Flange	0	0	0	0	0	0
38	08-06-24	NRV Top Flange	38	Flange	0	0	0	0	0	0
39	08-06-24	NRV D/S Flange	39	Flange	0	0	0	0	0	0
40	08-06-24	Drain Line I/V Gland	40	Gland	0	0	0	0	0	0
41	08-06-24	Drain Line Safety Flange	41	Flange	0	0	0	0	0	0
42	08-06-24	Hydrogen From PSA Inlet line D/S I/V U/S Flange	42	Flange	0	0	0	0	0	0
43	08-06-24	Hydrogen From PSA Inlet line D/S I/V Gland	43	Gland	0	0	0	0	0	0
44	08-06-24	Hydrogen From PSA Inlet line D/S I/V D/S Flange	44	Flange	0	0	0	0	0	0
45	08-06-24	To 14-VV-01 S/U H. NAPTHA To 1st I/V U/S Flange	45	Flange	0	0	0	0	0	0
46	08-06-24	To 14-VV-01 S/U H. NAPTHA To 1st I/V Gland	46	Gland	0	0	0	0	0	0
47	08-06-24	To 14-VV-01 S/U H. NAPTHA To 1st I/V D/S Flange	47	Flange	0	0	0	0	0	0
48	08-06-24	NRV U/S Flange	48	Flange	0	0	0	0	0	0
49	08-06-24	NRV Top Flange	49	Flange	0	0	0	0	0	0
50	08-06-24	NRV D/S Flange	50	Flange	0	0	0	0	0	0
51	08-06-24	Drain Line I/V Gland	51	Gland	0	0	0	0	0	0
52	08-06-24	Drain Line Safety Flange	52	Flange	0	0	0	0	0	0
53	08-06-24	To 14-VV-01 S/U H. NAPTHA To 2nd I/V U/S Flange	53	Flange	0	0	0	0	0	0
54	08-06-24	To 14-VV-01 S/U H. NAPTHA To 2nd I/V Gland	54	Gland	0	0	0	0	0	0
55	08-06-24	To 14-VV-01 S/U H. NAPTHA To 2nd I/V D/S Flange	55	Flange	0	0	0	0	0	0
56	08-06-24	To 14-VV-01 S/U H. NAPTHA To Storage line 1	56	Flange	0	0	0	0	0	0
57	08-06-24	To 14-VV-01 S/U H. NAPTHA To Storage line 1	57	Flange	0	0	0	0	0	0
58	08-06-24	To 14-VV-01 S/U H. NAPTHA To Storage line 1	58	Flange	0	0	0	0	0	0
59	08-06-24	NRV U/S Flange	59	Flange	0	0	0	0	0	0
60	08-06-24	NRV Top Flange	60	Flange	0	0	0	0	0	0
61	08-06-24	NRV D/S Flange	61	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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62	08-06-24	Drain Line I/V Gland	62	Gland	0	0	0	0	0	0
63	08-06-24	Drain Line Safety Flange	63	Flange	0	0	0	0	0	0
64	08-06-24	To 14-VV-01 S/U H. NAPTHA To Storage line 2	64	Flange	0	0	0	0	0	0
65	08-06-24	To 14-VV-01 S/U H. NAPTHA To Storage line 2	65	Flange	0	0	0	0	0	0
66	08-06-24	To 14-VV-01 S/U H. NAPTHA To Storage line 2	66	Flange	0	0	0	0	0	0
67	08-06-24	14-LV-1701 U/S line I/V U/S Flange	67	Flange	0	0	0	0	0	0
68	08-06-24	14-LV-1701 U/S line I/V Gland	68	Gland	0	0	0	0	0	0
69	08-06-24	14-LV-1701 U/S line I/V D/S Flange	69	Flange	0	0	0	0	0	0
70	08-06-24	CDE line 1st I/V Gland	70	Gland	0	0	0	0	0	0
71	08-06-24	CDE line 2nd I/V Gland	71	Gland	0	0	0	0	0	0
72	08-06-24	Stainer Flange	72	Flange	0	0	0	0	0	0
73	08-06-24	CDE line 3rd I/V Gland	73	Gland	0	0	0	0	0	0
74	08-06-24	14-LV-1701 line C/V U/S Flange	74	Flange	0	0	0	0	0	0
75	08-06-24	14-LV-1701 line C/V Gland	75	Gland	0	0	0	0	0	0
76	08-06-24	14-LV-1701 line C/V D/S Flange	76	Flange	0	0	0	0	0	0
77	08-06-24	14-LV-1701 line D/S line U/S Flange	77	Flange	0	0	0	0	0	0
78	08-06-24	14-LV-1701 line D/S line Gland	78	Gland	0	0	0	0	0	0
79	08-06-24	14-LV-1701 line D/S line D/S Flange	79	Flange	0	0	0	0	0	0
80	08-06-24	Bypass line I/V U/S Flange	80	Flange	0	0	0	0	0	0
81	08-06-24	Bypass line I/V Gland	81	Gland	0	0	0	0	0	0
82	08-06-24	Bypass line I/V D/S Flange	82	Flange	0	0	0	0	0	0
83	08-06-24	15-FV-1401 U/S line I/V U/S Flange	83	Flange	0	0	0	0	0	0
84	08-06-24	15-FV-1401 U/S line I/V Gland	84	Gland	0	0	0	0	0	0
85	08-06-24	15-FV-1401 U/S line I/V D/S Flange	85	Flange	0	0	0	0	0	0
86	08-06-24	CDE line 1st I/V Gland	86	Gland	0	0	0	0	0	0
87	08-06-24	CDE line 2nd I/V Gland	87	Gland	0	0	0	0	0	0
88	08-06-24	Stainer Flange	88	Flange	0	0	0	0	0	0
89	08-06-24	CBD Drain line Top Flange	89	Flange	0	0	0	0	0	0
90	08-06-24	15-FV-1401 line C/V U/S Flange	90	Flange	0	0	0	0	0	0
91	08-06-24	15-FV-1401 line C/V Gland	91	Gland	0	0	0	0	0	0
92	08-06-24	15-FV-1401 line C/V D/S Flange	92	Flange	0	0	0	0	0	0
93	08-06-24	15-FV-1401 line D/S line U/S Flange	93	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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94	08-06-24	15-FV-1401 line D/S line Gland	94	Gland	0	0	0	0	0	0
95	08-06-24	15-FV-1401 line D/S line D/S Flange	95	Flange	0	0	0	0	0	0
96	08-06-24	Bypass line I/V U/S Flange	96	Flange	0	0	0	0	0	0
97	08-06-24	Bypass line I/V Gland	97	Gland	0	0	0	0	0	0
98	08-06-24	Bypass line I/V D/S Flange	98	Flange	0	0	0	0	0	0
99	08-06-24	15-PV-1401 U/S line I/V U/S Flange	99	Flange	0	0	0	0	0	0
100	08-06-24	15-PV-1401 U/S line I/V Gland	100	Gland	0	0	0	0	0	0
101	08-06-24	15-PV-1401 U/S line I/V D/S Flange	101	Flange	0	0	0	0	0	0
102	08-06-24	15-FV-1401 line C/V U/S Flange	102	Flange	0	0	0	0	0	0
103	08-06-24	15-FV-1401 line C/V Gland	103	Gland	0	0	0	0	0	0
104	08-06-24	15-FV-1401 line C/V D/S Flange	104	Flange	0	0	0	0	0	0
105	08-06-24	15-FV-1401 line D/S line U/S Flange	105	Flange	0	0	0	0	0	0
106	08-06-24	15-FV-1401 line D/S line Gland	106	Gland	0	0	0	0	0	0
107	08-06-24	15-FV-1401 line D/S line D/S Flange	107	Flange	0	0	0	0	0	0
108	08-06-24	To Flare line 1st I/V U/S Flange	108	Flange	0	0	0	0	0	0
109	08-06-24	To Flare line 1st I/V Gland	109	Gland	0	0	0	0	0	0
110	08-06-24	To Flare line 1st I/V D/S Flange	110	Flange	0	0	0	0	0	0
111	08-06-24	NRV U/S Flange	111	Flange	0	0	0	0	0	0
112	08-06-24	NRV Top Flange	112	Flange	0	0	0	0	0	0
113	08-06-24	NRV D/S Flange	113	Flange	0	0	0	0	0	0
114	08-06-24	Drain Line I/V Gland	114	Gland	0	0	0	0	0	0
115	08-06-24	Drain Line Safety Flange	115	Flange	0	0	0	0	0	0
116	08-06-24	To Flare line 2nd I/V U/S Flange	116	Flange	0	0	0	0	0	0
117	08-06-24	To Flare line 2nd I/V Gland	117	Gland	0	0	0	0	0	0
118	08-06-24	To Flare line 2nd I/V D/S Flange	118	Flange	0	0	0	0	0	0
119	08-06-24	To FG Header line 1st I/V U/S Flange	119	Flange	0	0	0	0	0	0
120	08-06-24	To FG Header line 1st I/V Gland	120	Gland	0	0	0	0	0	0
121	08-06-24	To FG Header line 1st I/V D/S Flange	121	Flange	0	0	0	0	0	0
122	08-06-24	NRV Top Flange	122	Flange	0	0	0	0	0	0
123	08-06-24	NRV D/S Flange	123	Flange	0	0	0	0	0	0
124	08-06-24	Drain Line I/V Gland	124	Gland	0	0	0	0	0	0
125	08-06-24	Drain Line Safety Flange	125	Flange	0	0	0	0	0	0
126	08-06-24	To FG Header line 2nd I/V U/S Flange	126	Flange	0	0	0	0	0	0
127	08-06-24	To FG Header line 2nd I/V Gland	127	Gland	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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128	08-06-24	To FG Header line 2nd I/V D/S Flange	128	Flange	0	0	0	0	0	0
129	08-06-24	15-PA-CF-001A	129	Flange	0	0	0	0	0	0
130	08-06-24	Suction line I/V U/S Flange	130	Flange	0	0	0	0	0	0
131	08-06-24	Suction line I/V Gland	131	Gland	0	0	0	0	0	0
132	08-06-24	Suction line I/V D/S Flange	132	Flange	0	0	0	0	0	0
133	08-06-24	Stainer Top Flange	133	Flange	0	0	0	0	0	0
134	08-06-24	P.G. Meter line I/V Gland	134	Gland	0	0	0	0	0	0
135	08-06-24	Suction Line Flange	135	Flange	0	0	0	0	0	0
136	08-06-24	Pump Seal	136	P.seal	0	0	0	0	0	0
137	08-06-24	CBD line 1st I/V Gland	137	Gland	0	0	0	0	0	0
138	08-06-24	Stainer Flange	138	Flange	0	0	0	0	0	0
139	08-06-24	CBD line 2nd I/V Gland	139	Flange	0	0	0	0	0	0
140	08-06-24	Drain Line I/V Gland	140	Flange	0	0	0	0	0	0
141	08-06-24	OWS Point	141	Flange	0	0	0	0	0	0
142	08-06-24	Discharge line U/S Flange	142	Flange	0	0	0	0	0	0
143	08-06-24	Meter line Flange	143	Flange	0	0	0	0	0	0
144	08-06-24	NRV U/S Flange	144	Flange	0	0	0	0	0	0
145	08-06-24	NRV Top Flange	145	Flange	0	0	0	0	0	0
146	08-06-24	NRV D/S Flange	146	Flange	0	0	0	0	0	0
147	08-06-24	Discharge line I/V U/S Flange	147	Flange	0	0	0	0	0	0
148	08-06-24	Discharge line I/V Gland	148	Gland	0	0	0	0	0	0
149	08-06-24	Discharge line I/V D/S Flange	149	Flange	0	0	0	0	0	0
150	08-06-24	15-PA-CF-001B	150	Flange	0	0	0	0	0	0
151	08-06-24	Suction line I/V U/S Flange	151	Flange	0	0	0	0	0	0
152	08-06-24	Suction Line I/V Gland	152	Gland	0	0	0	0	0	0
153	08-06-24	Suction line I/V D/S Flange	153	Flange	0	0	0	0	0	0
154	08-06-24	Stainer Top Flange	154	Flange	0	0	0	0	0	0
155	08-06-24	P.G. Meter line I/V Gland	155	Gland	0	0	0	0	0	0
156	08-06-24	Suction Line Flange	156	Flange	0	0	0	0	0	0
157	08-06-24	Pump Seal	157	P.seal	0	0	0	0	0	0
158	08-06-24	CBD line 1st I/V Gland	158	Gland	0	0	0	0	0	0
159	08-06-24	Stainer Flange	159	Flange	0	0	0	0	0	0
160	08-06-24	CBD line 2nd I/V Gland	160	Gland	0	0	0	0	0	0
161	08-06-24	Drain Line I/V Gland	161	Gland	0	0	0	0	0	0
162	08-06-24	OWS Point	162	Flange	0	0	0	0	0	0
163	08-06-24	Discharge line U/S Flange	163	Flange	0	0	0	0	0	0
164	08-06-24	Meter line Flange	164	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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165	08-06-24	NRV U/S Flange	165	Flange	0	0	0	0	0	0
166	08-06-24	NRV Top Flange	166	Flange	0	0	0	0	0	0
167	08-06-24	NRV D/S Flange	167	Flange	0	0	0	0	0	0
168	08-06-24	Discharge line I/V U/S Flange	168	Flange	0	0	0	0	0	0
169	08-06-24	Discharge line I/V Gland	169	Gland	0	0	0	0	0	0
170	08-06-24	Discharge line I/V D/S Flange	170	Flange	0	0	0	0	0	0
171	08-06-24	15-PV-1301A U/S I/V U/S Flange	171	Flange	0	0	0	0	0	0
172	08-06-24	15-PV-1301A U/S I/V Gland	172	Gland	0	0	0	0	0	0
173	08-06-24	15-PV-1301A U/S I/V D/S Flange	173	Flange	0	0	0	0	0	0
174	08-06-24	15-PV-1301A C/V U/S Flange	174	Flange	0	0	0	0	0	0
175	08-06-24	15-PV-1301A C/V Gland	175	Gland	0	0	0	0	0	0
176	08-06-24	15-PV-1301A C/V D/S Flange	176	Flange	0	0	0	0	0	0
177	08-06-24	15-PV-1301A D/S I/V U/S Flange	177	Flange	0	0	0	0	0	0
178	08-06-24	15-PV-1301A D/S I/V Gland	178	Gland	0	0	0	0	0	0
179	08-06-24	15-PV-1301A D/S I/V D/S Flange	179	Flange	0	0	0	0	0	0
180	08-06-24	Bypass line I/V U/S Flange	180	Flange	0	0	0	0	0	0
181	08-06-24	Bypass line I/V Gland	181	Gland	0	0	0	0	0	0
182	08-06-24	Bypass line I/V D/S Flange	182	Flange	0	0	0	0	0	0
183	08-06-24	15-PA-CF-002A	183	Flange	0	0	0	0	0	0
184	08-06-24	Suction line I/V U/S Flange	184	Flange	0	0	0	0	0	0
185	08-06-24	Suction line I/V Gland	185	Gland	0	0	0	0	0	0
186	08-06-24	Suction line I/V D/S Flange	186	Flange	0	0	0	0	0	0
187	08-06-24	Stainer Top Flange	187	Flange	0	0	0	0	0	0
188	08-06-24	P.G. Meter I/V Gland	188	Gland	0	0	0	0	0	0
189	08-06-24	Suction Line Flange	189	Flange	0	0	0	0	0	0
190	08-06-24	Pump Seal	190	P.seal	0	0	0	0	0	0
191	08-06-24	CBD line 1st I/V Gland	191	Gland	0	0	0	0	0	0
192	08-06-24	Stainer Flange	192	Flange	0	0	0	0	0	0
193	08-06-24	CBD line 2nd I/V Gland	193	Gland	0	0	0	0	0	0
194	08-06-24	Drain Line I/V Gland	194	Gland	0	0	0	0	0	0
195	08-06-24	OWS Point	195	Flange	0	0	0	0	0	0
196	08-06-24	Discharge Line Flange	196	Flange	0	0	0	0	0	0
197	08-06-24	Meter line I/V Gland	197	Gland	0	0	0	0	0	0
198	08-06-24	NRV U/S Flange	198	Flange	0	0	0	0	0	0
199	08-06-24	NRV Top Flange	199	Flange	0	0	0	0	0	0
200	08-06-24	Discharge line I/V U/S Flange	200	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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201	08-06-24	Discharge line I/V Gland	201	Gland	0	0	0	0	0	0
202	08-06-24	Discharge line I/V D/S Flange	202	Flange	0	0	0	0	0	0
203	08-06-24	15-PA-CF-002B	203	Flange	0	0	0	0	0	0
204	08-06-24	Suction line I/V U/S Flange	204	Flange	0	0	0	0	0	0
205	08-06-24	Suction Line I/V Gland	205	Gland	0	0	0	0	0	0
206	08-06-24	Suction line I/V D/S Flange	206	Flange	0	0	0	0	0	0
207	08-06-24	Stainer Top Flange	207	Flange	0	0	0	0	0	0
208	08-06-24	Meter line I/V Gland	208	Gland	0	0	0	0	0	0
209	08-06-24	Suction Line Flange	209	Flange	0	0	0	0	0	0
210	08-06-24	Pump Seal	210	P.seal	0	0	0	0	0	0
211	08-06-24	CBD line 1st I/V Gland	211	Gland	0	0	0	0	0	0
212	08-06-24	CBD line 2nd I/V Gland	212	Gland	0	0	0	0	0	0
213	08-06-24	Stainer Flange	213	Flange	0	0	0	0	0	0
214	08-06-24	Drain Line I/V Gland	214	Gland	0	0	0	0	0	0
215	08-06-24	OWS Point	215	Flange	0	0	0	0	0	0
216	08-06-24	Discharge Line Flange	216	Flange	0	0	0	0	0	0
217	08-06-24	Meter line I/V Gland	217	Gland	0	0	0	0	0	0
218	08-06-24	NRV Top Flange	218	Flange	0	0	0	0	0	0
219	08-06-24	NRV D/S Flange	219	Flange	0	0	0	0	0	0
220	08-06-24	Discharge line I/V U/S Flange	220	Flange	0	0	0	0	0	0
221	08-06-24	Discharge line I/V Gland	221	Gland	0	0	0	0	0	0
222	08-06-24	Discharge line I/V D/S Flange	222	Flange	0	0	0	0	0	0
223	08-06-24	15-FV-1503 U/S line I/V Gland	223	Gland	0	0	0	0	0	0
224	08-06-24	CBD line 1st I/V Gland	224	Gland	0	0	0	0	0	0
225	08-06-24	CBD line 2nd I/V Gland	225	Gland	0	0	0	0	0	0
226	08-06-24	Stainer Flange	226	Flange	0	0	0	0	0	0
227	08-06-24	CBD line 3rd I/V Gland	227	Gland	0	0	0	0	0	0
228	08-06-24	15-FV-1503 line C/V U/S Flange	228	Flange	0	0	0	0	0	0
229	08-06-24	15-FV-1503 line C/V Gland	229	Gland	0	0	0	0	0	0
230	08-06-24	15-FV-1503 line C/V D/S Flange	230	Flange	0	0	0	0	0	0
231	08-06-24	15-FV-1503 D/S line I/V Gland	231	Gland	0	0	0	0	0	0
232	08-06-24	Bypass line I/V Gland	232	Gland	0	0	0	0	0	0
233	08-06-24	14-PACF-004A	233	Flange	0	0	0	0	0	0
234	08-06-24	Suction line I/V U/S Flange	234	Flange	0	0	0	0	0	0
235	08-06-24	Suction Line I/V Gland	235	Gland	0	0	0	0	0	0
236	08-06-24	Suction line I/V D/S Flange	236	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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237	08-06-24	Stainer Top Flange	237	Flange	0	0	0	0	0	0
238	08-06-24	Suction Line Flange	238	Flange	0	0	0	0	0	0
239	08-06-24	Pump Seal	239	P.seal	0	0	0	0	0	0
240	08-06-24	Discharge Line Flange	240	Flange	0	0	0	0	0	0
241	08-06-24	Meter line I/V Gland	241	Gland	0	0	0	0	0	0
242	08-06-24	NRV U/S Flange	242	Flange	0	0	0	0	0	0
243	08-06-24	NRV Top Flange	243	Flange	0	0	0	0	0	0
244	08-06-24	NRV D/S Flange	244	Flange	0	0	0	0	0	0
245	08-06-24	Discharge line I/V U/S Flange	245	Flange	0	0	0	0	0	0
246	08-06-24	Discharge line I/V Gland	246	Gland	0	0	0	0	0	0
247	08-06-24	Discharge line I/V D/S Flange	247	Flange	0	0	0	0	0	0
248	08-06-24	CBD line 1st I/V Gland	248	Gland	0	0	0	0	0	0
249	08-06-24	CBD line 2nd I/V Gland	249	Gland	0	0	0	0	0	0
250	08-06-24	Drain Line I/V Gland	250	Gland	0	0	0	0	0	0
251	08-06-24	OWS Point	251	Flange	0	0	0	0	0	0
252	08-06-24	Stainer Flange	252	Flange	0	0	0	0	0	0
253	08-06-24	14-PACF-004B	253	Flange	0	0	0	0	0	0
254	08-06-24	Suction line I/V U/S Flange	254	Flange	0	0	0	0	0	0
255	08-06-24	Suction Line I/V Gland	255	Gland	0	0	0	0	0	0
256	08-06-24	Suction line I/V D/S Flange	256	Flange	0	0	0	0	0	0
257	08-06-24	Stainer Top Flange	257	Flange	0	0	0	0	0	0
258	08-06-24	Suction Line Flange	258	Flange	0	0	0	0	0	0
259	08-06-24	Pump Seal	259	P.seal	0	0	0	0	0	0
260	08-06-24	Discharge Line Flange	260	Flange	0	0	0	0	0	0
261	08-06-24	Meter line I/V Gland	261	Gland	0	0	0	0	0	0
262	08-06-24	NRV U/S Flange	262	Flange	0	0	0	0	0	0
263	08-06-24	NRV Top Flange	263	Flange	0	0	0	0	0	0
264	08-06-24	NRV D/S Flange	264	Flange	0	0	0	0	0	0
265	08-06-24	Discharge line I/V U/S Flange	265	Flange	0	0	0	0	0	0
266	08-06-24	Discharge line I/V Gland	266	Gland	0	0	0	0	0	0
267	08-06-24	Discharge line I/V D/S Flange	267	Flange	0	0	0	0	0	0
268	08-06-24	CBD line 1st I/V Gland	268	Gland	0	0	0	0	0	0
269	08-06-24	CBD line 2nd I/V Gland	269	Gland	0	0	0	0	0	0
270	08-06-24	Stainer Flange	270	Flange	0	0	0	0	0	0
271	08-06-24	CBD line 3rd I/V Gland	271	Gland	0	0	0	0	0	0
272	08-06-24	Drain Line I/V Gland	272	Gland	0	0	0	0	0	0
273	08-06-24	OWS Point	273	Flange	0	0	0	0	0	0
274	08-06-24	14-PACF-006A	274	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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275	08-06-24	Suction line I/V U/S Flange	275	Flange	0	0	0	0	0	0
276	08-06-24	Suction Line I/V Gland	276	Gland	0	0	0	0	0	0
277	08-06-24	Suction line I/V D/S Flange	277	Flange	0	0	0	0	0	0
278	08-06-24	Stainer Top Flange	278	Flange	0	0	0	0	0	0
279	08-06-24	Suction Line Flange	279	Flange	0	0	0	0	0	0
280	08-06-24	Pump Seal	280	P.seal	0	0	0	0	0	0
281	08-06-24	Discharge Line Flange	281	Flange	0	0	0	0	0	0
282	08-06-24	Meter line I/V Gland	282	Gland	0	0	0	0	0	0
283	08-06-24	NRV U/S Flange	283	Flange	0	0	0	0	0	0
284	08-06-24	NRV Top Flange	284	Flange	0	0	0	0	0	0
285	08-06-24	NRV D/S Flange	285	Flange	0	0	0	0	0	0
286	08-06-24	Drain Line I/V Gland	286	Gland	0	0	0	0	0	0
287	08-06-24	Drain Line Safety Flange	287	Flange	0	0	0	0	0	0
288	08-06-24	Discharge line I/V U/S Flange	288	Flange	0	0	0	0	0	0
289	08-06-24	Discharge line I/V Gland	289	Gland	0	0	0	0	0	0
290	08-06-24	Discharge line I/V D/S Flange	290	Flange	0	0	0	0	0	0
291	08-06-24	Pump To CBD line 1st I/V U/S Flange	291	Flange	0	0	0	0	0	0
292	08-06-24	Pump To CBD line 1st I/V Gland	292	Gland	0	0	0	0	0	0
293	08-06-24	Pump To CBD line 1st I/V D/S Flange	293	Flange	0	0	0	0	0	0
294	08-06-24	Pump To CBD line 2nd I/V Gland	294	Gland	0	0	0	0	0	0
295	08-06-24	Stainer Flange	295	Flange	0	0	0	0	0	0
296	08-06-24	Pump To CBD line 3rd I/V Gland	296	Gland	0	0	0	0	0	0
297	08-06-24	OWS Point	297	Flange	0	0	0	0	0	0
298	08-06-24	14-PACF-006B	298	Flange	0	0	0	0	0	0
299	08-06-24	Suction line I/V U/S Flange	299	Flange	0	0	0	0	0	0
300	08-06-24	Suction Line I/V Gland	300	Gland	0	0	0	0	0	0
301	08-06-24	Suction line I/V D/S Flange	301	Flange	0	0	0	0	0	0
302	08-06-24	Stainer Top Flange	302	Flange	0	0	0	0	0	0
303	08-06-24	Suction Line Flange	303	Flange	0	0	0	0	0	0
304	08-06-24	Pump Seal	304	P.seal	0	0	0	0	0	0
305	08-06-24	Discharge Line Flange	305	Flange	0	0	0	0	0	0
306	08-06-24	Meter line I/V Gland	306	Gland	0	0	0	0	0	0
307	08-06-24	NRV U/S Flange	307	Flange	0	0	0	0	0	0
308	08-06-24	NRV Top Flange	308	Flange	0	0	0	0	0	0
309	08-06-24	NRV D/S Flange	309	Flange	0	0	0	0	0	0
310	08-06-24	Drain Line I/V Gland	310	Gland	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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311	08-06-24	Drain Line Safety Flange	311	Flange	0	0	0	0	0	0
312	08-06-24	Discharge line I/V U/S Flange	312	Flange	0	0	0	0	0	0
313	08-06-24	Discharge line I/V Gland	313	Gland	0	0	0	0	0	0
314	08-06-24	Discharge line I/V D/S Flange	314	Flange	0	0	0	0	0	0
315	08-06-24	Pump To CBD line 1st I/V U/S Flange	315	Flange	0	0	0	0	0	0
316	08-06-24	Pump To CBD line 1st I/V Gland	316	Gland	0	0	0	0	0	0
317	08-06-24	Pump To CBD line 1st I/V D/S Flange	317	Flange	0	0	0	0	0	0
318	08-06-24	Pump To CBD line 2nd I/V Gland	318	Gland	0	0	0	0	0	0
319	08-06-24	Stainer Flange	319	Flange	0	0	0	0	0	0
320	08-06-24	Pump To CBD line 3rd I/V Gland	320	Gland	0	0	0	0	0	0
321	08-06-24	OVS Point	321	Flange	0	0	0	0	0	0
322	08-06-24	14-FV-1103 U/S line I/V U/S Flange	322	Flange	0	0	0	0	0	0
323	08-06-24	14-FV-1103 U/S line I/V Gland	323	Gland	0	0	0	0	0	0
324	08-06-24	14-FV-1103 U/S line I/V D/S Flange	324	Flange	0	0	0	0	0	0
325	08-06-24	Drain Line 1st I/V Gland	325	Gland	0	0	0	0	0	0
326	08-06-24	Drain Line 2nd I/V Gland	326	Gland	0	0	0	0	0	0
327	08-06-24	Stainer Flange	327	Flange	0	0	0	0	0	0
328	08-06-24	Drain Line 3rd I/V Gland	328	Gland	0	0	0	0	0	0
329	08-06-24	14-FV-1103 C/V U/S Flange	329	Flange	0	0	0	0	0	0
330	08-06-24	14-FV-1103 C/V Gland	330	Gland	0	0	0	0	0	0
331	08-06-24	14-FV-1103 C/V D/S Flange	331	Flange	0	0	0	0	0	0
332	08-06-24	14-FV-1103 D/S line I/V U/S Flange	332	Flange	0	0	0	0	0	0
333	08-06-24	14-FV-1103 D/S line I/V Gland	333	Gland	0	0	0	0	0	0
334	08-06-24	14-FV-1103 D/S line I/V D/S Flange	334	Flange	0	0	0	0	0	0
335	08-06-24	Bypass line I/V U/S Flange	335	Flange	0	0	0	0	0	0
336	08-06-24	Bypass line I/V Gland	336	Gland	0	0	0	0	0	0
337	08-06-24	Bypass line I/V D/S Flange	337	Flange	0	0	0	0	0	0
338	08-06-24	14-UV-1101 CV U/S Flange	338	Flange	0	0	0	0	0	0
339	08-06-24	14-UV-1101 CV Gland	339	Gland	0	0	0	0	0	0
340	08-06-24	14-UV-1101 CV D/S Flange	340	Flange	0	0	0	0	0	0
341	08-06-24	14-PA-CF-001A	341	Flange	0	0	0	0	0	0
342	08-06-24	Suction line I/V U/S Flange	342	Flange	0	0	0	0	0	0
343	08-06-24	Suction Line I/V Gland	343	Gland	0	0	0	0	0	0
344	08-06-24	Suction line I/V D/S Flange	344	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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345	08-06-24	Stainer Top Flange	345	Flange	0	0	0	0	0	0
346	08-06-24	Drain Line I/V Gland	346	Gland	0	0	0	0	0	0
347	08-06-24	Drain Line Stainer Flange	347	Flange	0	0	0	0	0	0
348	08-06-24	Suction Line Flange	348	Flange	0	0	0	0	0	0
349	08-06-24	Pump Seal	349	P.seal	0	0	0	0	0	0
350	08-06-24	Discharge Line Flange	350	Flange	0	0	0	0	0	0
351	08-06-24	Meter line I/V Gland	351	Gland	0	0	0	0	0	0
352	08-06-24	NRV U/S Flange	352	Flange	0	0	0	0	0	0
353	08-06-24	NRV Top Flange	353	Flange	0	0	0	0	0	0
354	08-06-24	NRV D/S Flange	354	Flange	0	0	0	0	0	0
355	08-06-24	Drain Line I/V Gland	355	Gland	0	0	0	0	0	0
356	08-06-24	Drain Line Stainer Flange	356	Flange	0	0	0	0	0	0
357	08-06-24	Discharge line I/V U/S Flange	357	Flange	0	0	0	0	0	0
358	08-06-24	Discharge line I/V Gland	358	Gland	0	0	0	0	0	0
359	08-06-24	Discharge line I/V D/S Flange	359	Flange	0	0	0	0	0	0
360	08-06-24	Pump To CBD line 1st I/V Gland	360	Gland	0	0	0	0	0	0
361	08-06-24	Pump To CBD line 2nd I/V Gland	361	Gland	0	0	0	0	0	0
362	08-06-24	Stainer Flange	362	Flange	0	0	0	0	0	0
363	08-06-24	Pump To CBD line 3rd I/V Gland	363	Gland	0	0	0	0	0	0
364	08-06-24	OWS Point	364	Flange	0	0	0	0	0	0
365	08-06-24	14-PA-CF-001B	365	Flange	0	0	0	0	0	0
366	08-06-24	Suction line I/V U/S Flange	366	Flange	0	0	0	0	0	0
367	08-06-24	Suction Line I/V Gland	367	Gland	0	0	0	0	0	0
368	08-06-24	Suction line I/V D/S Flange	368	Flange	0	0	0	0	0	0
369	08-06-24	Stainer Top Flange	369	Flange	0	0	0	0	0	0
370	08-06-24	Drain Line I/V Gland	370	Gland	0	0	0	0	0	0
371	08-06-24	Drain Line Stainer Flange	371	Flange	0	0	0	0	0	0
372	08-06-24	Suction Line Flange	372	Flange	0	0	0	0	0	0
373	08-06-24	Pump Seal	373	P.seal	0	0	0	0	0	0
374	08-06-24	Discharge Line Flange	374	Flange	0	0	0	0	0	0
375	08-06-24	Meter line I/V Gland	375	Gland	0	0	0	0	0	0
376	08-06-24	NRV U/S Flange	376	Flange	0	0	0	0	0	0
377	08-06-24	NRV Top Flange	377	Flange	0	0	0	0	0	0
378	08-06-24	NRV D/S Flange	378	Flange	0	0	0	0	0	0
379	08-06-24	Drain Line I/V Gland	379	Gland	0	0	0	0	0	0
380	08-06-24	Drain Line Stainer Flange	380	Flange	0	0	0	0	0	0
381	08-06-24	Discharge line I/V U/S Flange	381	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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382	08-06-24	Discharge line I/V Gland	382	Gland	0	0	0	0	0	0
383	08-06-24	Discharge line I/V D/S Flange	383	Flange	0	0	0	0	0	0
384	08-06-24	Pump To CBD line 1st I/V Gland	384	Gland	0	0	0	0	0	0
385	08-06-24	Pump To CBD line 2nd I/V Gland	385	Gland	0	0	0	0	0	0
386	08-06-24	Stainer Flange	386	Flange	0	0	0	0	0	0
387	08-06-24	Pump To CBD line 3rd I/V Gland	387	Gland	0	0	0	0	0	0
388	08-06-24	OWS Point	388	Flange	0	0	0	0	0	0
389	08-06-24	NAPTHA to SLOP U/S line I/V U/S Flange	389	Flange	0	0	0	0	0	0
390	08-06-24	NAPTHA to SLOP U/S line I/V Gland	390	Gland	0	0	0	0	0	0
391	08-06-24	NAPTHA to SLOP U/S line I/V D/S Flange	391	Flange	0	0	0	0	0	0
392	08-06-24	NRV U/S Flange	392	Flange	0	0	0	0	0	0
393	08-06-24	NRV Top Flange	393	Flange	0	0	0	0	0	0
394	08-06-24	NRV D/S Flange	394	Flange	0	0	0	0	0	0
395	08-06-24	Drain Line I/V Gland	395	Gland	0	0	0	0	0	0
396	08-06-24	Drain Line Safety Flange	396	Flange	0	0	0	0	0	0
397	08-06-24	NAPTHA to SLOP D/S line I/V U/S Flange	397	Flange	0	0	0	0	0	0
398	08-06-24	NAPTHA to SLOP D/S line I/V Gland	398	Gland	0	0	0	0	0	0
399	08-06-24	NAPTHA to SLOP D/S line I/V D/S Flange	399	Flange	0	0	0	0	0	0
400	08-06-24	Splitter Reflux To SLOP U/S line I/V U/S Flange	400	Flange	0	0	0	0	0	0
401	08-06-24	Splitter Reflux To SLOP U/S line I/V Gland	401	Gland	0	0	0	0	0	0
402	08-06-24	Splitter Reflux To SLOP U/S line I/V D/S Flange	402	Flange	0	0	0	0	0	0
403	08-06-24	NRV U/S Flange	403	Flange	0	0	0	0	0	0
404	08-06-24	NRV Top Flange	404	Flange	0	0	0	0	0	0
405	08-06-24	NRV D/S Flange	405	Flange	0	0	0	0	0	0
406	08-06-24	Drain Line I/V Gland	406	Gland	0	0	0	0	0	0
407	08-06-24	Drain Line Safety Flange	407	Flange	0	0	0	0	0	0
408	08-06-24	Splitter Reflux To SLOP D/S line I/V U/S Flange	408	Flange	0	0	0	0	0	0
409	08-06-24	Splitter Reflux To SLOP D/S line I/V Gland	409	Gland	0	0	0	0	0	0
410	08-06-24	Splitter Reflux To SLOP D/S line I/V D/S Flange	410	Flange	0	0	0	0	0	0
411	08-06-24	2nd I/V U/S Flange	411	Flange	0	0	0	0	0	0
412	08-06-24	2nd I/V Gland	412	Gland	0	0	0	0	0	0
413	08-06-24	2nd I/V D/S Flange	413	Flange	0	0	0	0	0	0
414	08-06-24	Stritter Reflux To SLOP U/S line 1st I/V U/S Flange	414	Flange	0	0	0	0	0	0
415	08-06-24	Stritter Reflux To SLOP U/S line 1st I/V Gland	415	Gland	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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416	08-06-24	Stritter Reflux To SLOP U/S line 1st I/V D/S Flange	416	Flange	0	0	0	0	0	0
417	08-06-24	Stritter Reflux To SLOP U/S line 2nd I/V U/S Flange	417	Flange	0	0	0	0	0	0
418	08-06-24	Stritter Reflux To SLOP U/S line 2nd I/V Gland	418	Gland	0	0	0	0	0	0
419	08-06-24	Stritter Reflux To SLOP U/S line 2nd I/V D/S Flange	419	Flange	0	0	0	0	0	0
420	08-06-24	NRV U/S Flange	420	Flange	0	0	0	0	0	0
421	08-06-24	NRV Top Flange	421	Flange	0	0	0	0	0	0
422	08-06-24	NRV D/S Flange	422	Flange	0	0	0	0	0	0
423	08-06-24	Drain Line I/V Gland	423	Gland	0	0	0	0	0	0
424	08-06-24	Drain Line Safety Flange	424	Flange	0	0	0	0	0	0
425	08-06-24	Stritter Reflux To SLOP D/S line I/V U/S Flange	425	Flange	0	0	0	0	0	0
426	08-06-24	Stritter Reflux To SLOP D/S line I/V Gland	426	Gland	0	0	0	0	0	0
427	08-06-24	Stritter Reflux To SLOP D/S line I/V D/S Flange	427	Flange	0	0	0	0	0	0
428	08-06-24	Hydrogen Rich Gas From Unit 15 U/S I/V U/S Flange	428	Flange	0	0	0	0	0	0
429	08-06-24	Hydrogen Rich Gas From Unit 15 U/S I/V Gland	429	Gland	0	0	0	0	0	0
430	08-06-24	Hydrogen Rich Gas From Unit 15 U/S I/V D/S Flange	430	Flange	0	0	0	0	0	0
431	08-06-24	NRV U/S Flange	431	Flange	0	0	0	0	0	0
432	08-06-24	NRV Top Flange	432	Flange	0	0	0	0	0	0
433	08-06-24	NRV D/S Flange	433	Flange	0	0	0	0	0	0
434	08-06-24	Drain Line I/V Gland	434	Gland	0	0	0	0	0	0
435	08-06-24	Drain Line Safety Flange	435	Flange	0	0	0	0	0	0
436	08-06-24	Hydrogen Rich Gas From Unit 15 D/S I/V U/S Flange	436	Flange	0	0	0	0	0	0
437	08-06-24	Hydrogen Rich Gas From Unit 15 D/S I/V Gland	437	Gland	0	0	0	0	0	0
438	08-06-24	Hydrogen Rich Gas From Unit 15 D/S I/V D/S Flange	438	Flange	0	0	0	0	0	0
439	08-06-24	Hydrogen From PSA To 16-VV-2 U/S I/V U/S Flange	439	Flange	0	0	0	0	0	0
440	08-06-24	Hydrogen From PSA To 16-VV-2 U/S I/V Gland	440	Gland	0	0	0	0	0	0
441	08-06-24	Hydrogen From PSA To 16-VV-2 U/S I/V D/S Flange	441	Flange	0	0	0	0	0	0
442	08-06-24	NRV U/S Flange	442	Flange	0	0	0	0	0	0
443	08-06-24	NRV Top Flange	443	Flange	0	0	0	0	0	0
444	08-06-24	NRV D/S Flange	444	Flange	0	0	0	0	0	0

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445	08-06-24	Drain Line I/V Gland	445	Gland	0	0	0	0	0	0
446	08-06-24	Drain Line Safety Flange	446	Flange	0	0	0	0	0	0
447	08-06-24	Hydrogen From PSA To 16-VV-2 D/S I/V U/S Flange	447	Flange	0	0	0	0	0	0
448	08-06-24	Hydrogen From PSA To 16-VV-2 D/S I/V Gland	448	Flange	0	0	0	0	0	0
449	08-06-24	Hydrogen From PSA To 16-VV-2 D/S I/V D/S Flange	449	Flange	0	0	0	0	0	0
450	08-06-24	14-FV-1501-CV U/S I/V U/S Flange	450	Flange	0	0	0	0	0	0
451	08-06-24	14-FV-1501-CV U/S I/V Gland	451	Gland	0	0	0	0	0	0
452	08-06-24	14-FV-1501-CV U/S I/V D/S Flange	452	Flange	0	0	0	0	0	0
453	08-06-24	CBD line 1st I/V Gland	453	Gland	0	0	0	0	0	0
454	08-06-24	CBD line 2nd I/V Gland	454	Gland	0	0	0	0	0	0
455	08-06-24	CBD line 3rd I/V Gland	455	Gland	0	0	0	0	0	0
456	08-06-24	Stainer Flange	456	Flange	0	0	0	0	0	0
457	08-06-24	14-FV-1501-CV U/S Flange	457	Flange	0	0	0	0	0	0
458	08-06-24	14-FV-1501-CV Gland	458	Gland	0	0	0	0	0	0
459	08-06-24	14-FV-1501-CV D/S Flange	459	Flange	0	0	0	0	0	0
460	08-06-24	14-FV-1501-CV D/S I/V U/S Flange	460	Flange	0	0	0	0	0	0
461	08-06-24	14-FV-1501-CV D/S I/V Gland	461	Gland	0	0	0	0	0	0
462	08-06-24	14-FV-1501-CV D/S I/V D/S Flange	462	Flange	0	0	0	0	0	0
463	08-06-24	Bypass line I/V U/S Flange	463	Flange	0	0	0	0	0	0
464	08-06-24	Bypass line I/V Gland	464	Gland	0	0	0	0	0	0
465	08-06-24	Bypass line I/V D/S Flange	465	Flange	0	0	0	0	0	0
466	08-06-24	From 14-PA-4 A/B to SLOP 1st I/V U/S Flange	466	Flange	0	0	0	0	0	0
467	08-06-24	From 14-PA-4 A/B to SLOP 1st I/V Gland	467	Gland	0	0	0	0	0	0
468	08-06-24	From 14-PA-4 A/B to SLOP 1st I/V D/S Flange	468	Flange	0	0	0	0	0	0
469	08-06-24	From 14-PA-4 A/B to SLOP 2nd I/V Gland	469	Gland	0	0	0	0	0	0
470	08-06-24	From 14-PA-4 A/B to SLOP 2nd I/V D/S Flange	470	Flange	0	0	0	0	0	0
471	08-06-24	14-FV-1701 U/S I/V U/S Flange	471	Flange	0	0	0	0	0	0
472	08-06-24	14-FV-1701 U/S I/V Gland	472	Gland	0	0	0	0	0	0
473	08-06-24	14-FV-1701 U/S I/V D/S Flange	473	Flange	0	0	0	0	0	0
474	08-06-24	CBD line 1st I/V Gland	474	Gland	0	0	0	0	0	0
475	08-06-24	CBD line 2nd I/V Gland	475	Gland	0	0	0	0	0	0
476	08-06-24	CBD line 3rd I/V Gland	476	Gland	0	0	0	0	0	0

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477	08-06-24	Stainer Flange	477	Flange	0	0	0	0	0	0
478	08-06-24	14-FV-1701 C/V U/S Flange	478	Flange	0	0	0	0	0	0
479	08-06-24	14-FV-1701 C/V Gland	479	Gland	0	0	0	0	0	0
480	08-06-24	14-FV-1701 C/V D/S Flange	480	Flange	0	0	0	0	0	0
481	08-06-24	14-FV-1701 D/S I/V U/S Flange	481	Flange	0	0	0	0	0	0
482	08-06-24	14-FV-1701 D/S I/V Gland	482	Gland	0	0	0	0	0	0
483	08-06-24	14-FV-1701 D/S I/V D/S Flange	483	Flange	0	0	0	0	0	0
484	08-06-24	Bypass line I/V U/S Flange	484	Flange	0	0	0	0	0	0
485	08-06-24	14-FV-1401 U/S I/V U/S Flange	485	Flange	0	0	0	0	0	0
486	08-06-24	14-FV-1401 U/S I/V Gland	486	Gland	0	0	0	0	0	0
487	08-06-24	14-FV-1401 U/S I/V D/S Flange	487	Flange	0	0	0	0	0	0
488	08-06-24	CBD line 1st I/V Gland	488	Gland	0	0	0	0	0	0
489	08-06-24	CBD line 2nd I/V Gland	489	Gland	0	0	0	0	0	0
490	08-06-24	CBD line 3rd I/V Gland	490	Gland	0	0	0	0	0	0
491	08-06-24	Stainer Flange	491	Flange	0	0	0	0	0	0
492	08-06-24	14-FV-1401 C/V U/S Flange	492	Flange	0	0	0	0	0	0
493	08-06-24	14-FV-1401 C/V Gland	493	Gland	0	0	0	0	0	0
494	08-06-24	14-FV-1401 C/V D/S Flange	494	Flange	0	0	0	0	0	0
495	08-06-24	14-FV-1401 D/S I/V U/S Flange	495	Flange	0	0	0	0	0	0
496	08-06-24	14-FV-1401 D/S I/V Gland	496	Gland	0	0	0	0	0	0
497	08-06-24	14-FV-1401 D/S I/V D/S Flange	497	Flange	0	0	0	0	0	0
498	08-06-24	Bypass line I/V U/S Flange	498	Flange	0	0	0	0	0	0
499	08-06-24	Bypass line I/V Gland	499	Gland	0	0	0	0	0	0
500	08-06-24	Bypass line I/V D/S Flange	500	Flange	0	0	0	0	0	0
501	08-06-24	From 14-PA-CF-001 Start Up line I/V U/S Flange	501	Flange	0	0	0	0	0	0
502	08-06-24	From 14-PA-CF-001 Start Up line I/V Gland	502	Flange	0	0	0	0	0	0
503	08-06-24	From 14-PA-CF-001 Start Up line I/V D/S Flange	503	Flange	0	0	0	0	0	0
504	08-06-24	Hydrogen From Unit 15 1st I/V Gland	504	Gland	0	0	0	0	0	0
505	08-06-24	Stainer Flange	505	Flange	0	0	0	0	0	0
506	08-06-24	Top Flange	506	Flange	0	0	0	0	0	0
507	08-06-24	Drain Line I/V Gland	507	Gland	0	0	0	0	0	0
508	08-06-24	Drain Line Safety Flange	508	Flange	0	0	0	0	0	0
509	08-06-24	Hydrogen From Unit 15 2nd I/V Gland	509	Gland	0	0	0	0	0	0

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510	08-06-24	14-FV-1402 U/S line I/V Gland	510	Gland	0	0	0	0	0	0
511	08-06-24	CBD line I/V Gland	511	Gland	0	0	0	0	0	0
512	08-06-24	14-FV-1402 C/V U/S Flange	512	Flange	0	0	0	0	0	0
513	08-06-24	14-FV-1402 C/V Gland	513	Gland	0	0	0	0	0	0
514	08-06-24	CBD line I/V Gland	514	Gland	0	0	0	0	0	0
515	08-06-24	14-FV-1402 D/S I/V Gland	515	Gland	0	0	0	0	0	0
516	08-06-24	Bypass line I/V Gland	516	Gland	0	0	0	0	0	0
517	08-06-24	Heavy Naptha From Unit-14 line 1st I/V U/S Flange	517	Flange	0	0	0	0	0	0
518	08-06-24	Heavy Naptha From Unit-14 line 1st I/V Gland	518	Gland	0	0	0	0	0	0
519	08-06-24	Heavy Naptha From Unit-14 line 1st I/V D/S Flange	519	Flange	0	0	0	0	0	0
520	08-06-24	Heavy Naptha From Unit-14 line 2nd I/V Gland	520	Gland	0	0	0	0	0	0
521	08-06-24	Heavy Naptha From Unit-14 line 2nd I/V D/S Flange	521	Flange	0	0	0	0	0	0
522	08-06-24	Feed Naptha To Unit-15 line U/S I/V U/S Flange	522	Flange	0	0	0	0	0	0
523	08-06-24	Feed Naptha To Unit-15 line U/S I/V Gland	523	Flange	0	0	0	0	0	0
524	08-06-24	Feed Naptha To Unit-15 line U/S I/V D/S Flange	524	Flange	0	0	0	0	0	0
525	08-06-24	NRV U/S Flange	525	Flange	0	0	0	0	0	0
526	08-06-24	NRV Top Flange	526	Flange	0	0	0	0	0	0
527	08-06-24	NRV D/S Flange	527	Flange	0	0	0	0	0	0
528	08-06-24	Drain Line I/V Gland	528	Gland	0	0	0	0	0	0
529	08-06-24	Drain Line Safety Flange	529	Flange	0	0	0	0	0	0
530	08-06-24	Feed Naptha To Unit-15 line D/S I/V U/S Flange	530	Flange	0	0	0	0	0	0
531	08-06-24	Feed Naptha To Unit-15 line D/S I/V Gland	531	Gland	0	0	0	0	0	0
532	08-06-24	Feed Naptha To Unit-15 line D/S I/V D/S Flange	532	Flange	0	0	0	0	0	0
533	08-06-24	S/U line (Reaction Section BP) line U/S I/V U/S Flange	533	Flange	0	0	0	0	0	0
534	08-06-24	S/U line (Reaction Section BP) line U/S I/V Gland	534	Gland	0	0	0	0	0	0
535	08-06-24	S/U line (Reaction Section BP) line U/S I/V D/S Flange	535	Flange	0	0	0	0	0	0
536	08-06-24	S/U line (Reaction Section BP) line D/S I/V U/S Flange	536	Flange	0	0	0	0	0	0

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537	08-06-24	S/U line (Reaction Section BP) line D/S I/V Gland	537	Gland	0	0	0	0	0	0
538	08-06-24	Hydrogen From PSA To 15-KA-001 Seal U/S line	538	Flange	0	0	0	0	0	0
539	08-06-24	Hydrogen From PSA To 15-KA-001 Seal U/S line	539	Flange	0	0	0	0	0	0
540	08-06-24	Hydrogen From PSA To 15-KA-001 Seal U/S line	540	Flange	0	0	0	0	0	0
541	08-06-24	NRV U/S Flange	541	Flange	0	0	0	0	0	0
542	08-06-24	NRV Top Flange	542	Flange	0	0	0	0	0	0
543	08-06-24	NRV D/S Flange	543	Flange	0	0	0	0	0	0
544	08-06-24	Drain Line I/V Gland	544	Gland	0	0	0	0	0	0
545	08-06-24	Drain Line Safety Flange	545	Flange	0	0	0	0	0	0
546	08-06-24	Hydrogen From PSA To 15-KA-001 Seal D/S line	546	Flange	0	0	0	0	0	0
547	08-06-24	Hydrogen From PSA To 15-KA-001 Seal D/S line	547	Flange	0	0	0	0	0	0
548	08-06-24	Hydrogen From PSA To 15-KA-001 Seal D/S line	548	Flange	0	0	0	0	0	0
549	08-06-24	From 16-KA-001 A/B To 15-KA-001 (Seal) line	549	Flange	0	0	0	0	0	0
550	08-06-24	From 16-KA-001 A/B To 15-KA-001 (Seal) line	550	Flange	0	0	0	0	0	0
551	08-06-24	From 16-KA-001 A/B To 15-KA-001 (Seal) line	551	Flange	0	0	0	0	0	0
552	08-06-24	NRV U/S Flange	552	Flange	0	0	0	0	0	0
553	08-06-24	NRV Top Flange	553	Flange	0	0	0	0	0	0
554	08-06-24	NRV D/S Flange	554	Flange	0	0	0	0	0	0
555	08-06-24	Vrain Line I/V Gland	555	Gland	0	0	0	0	0	0
556	08-06-24	Vrain Line Safety Flange	556	Flange	0	0	0	0	0	0
557	08-06-24	From 16-KA-001 A/B To 15-KA-001 (Seal) line	557	Flange	0	0	0	0	0	0
558	08-06-24	From 16-KA-001 A/B To 15-KA-001 (Seal) line	558	Flange	0	0	0	0	0	0
559	08-06-24	From 16-KA-001 A/B To 15-KA-001 (Seal) line	559	Flange	0	0	0	0	0	0
560	08-06-24	To-15-KA-001 Seal line U/S I/V U/S Flange	560	Flange	0	0	0	0	0	0
561	08-06-24	To-15-KA-001 Seal line U/S I/V Gland	561	Gland	0	0	0	0	0	0
562	08-06-24	To-15-KA-001 Seal line U/S I/V D/S Flange	562	Flange	0	0	0	0	0	0
563	08-06-24	NRV U/S Flange	563	Flange	0	0	0	0	0	0
564	08-06-24	NRV Top Flange	564	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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565	08-06-24	NRV D/S Flange	565	Flange	0	0	0	0	0	0
566	08-06-24	To-15-KA-001 Seal line D/S I/V U/S Flange	566	Flange	0	0	0	0	0	0
567	08-06-24	To-15-KA-001 Seal line D/S I/V Gland	567	Gland	0	0	0	0	0	0
568	08-06-24	To-15-KA-001 Seal line D/S I/V D/S Flange	568	Flange	0	0	0	0	0	0
569	08-06-24	16-PA-CF-0011A Suction line I/V U/S Flange	569	Flange	0	0	0	0	0	0
570	08-06-24	16-PA-CF-0011A Suction line I/V Gland	570	Gland	0	0	0	0	0	0
571	08-06-24	16-PA-CF-0011A Suction line I/V D/S Flange	571	Flange	0	0	0	0	0	0
572	08-06-24	Stainer Flange	572	Flange	0	0	0	0	0	0
573	08-06-24	Drain Line 1st I/V Gland	573	Gland	0	0	0	0	0	0
574	08-06-24	Stainer Flange	574	Flange	0	0	0	0	0	0
575	08-06-24	Drain Line 2nd I/V Gland	575	Gland	0	0	0	0	0	0
576	08-06-24	Suction Line Flange	576	Flange	0	0	0	0	0	0
577	08-06-24	Pump Seal	577	P.seal	0	0	0	0	0	0
578	08-06-24	Discharge Line Flange	578	Flange	0	0	0	0	0	0
579	08-06-24	Drain Line I/V Gland	579	Gland	0	0	0	0	0	0
580	08-06-24	Drain Line Safety Flange	580	Flange	0	0	0	0	0	0
581	08-06-24	Meter line I/V Gland	581	Gland	0	0	0	0	0	0
582	08-06-24	NRV U/S Flange	582	Flange	0	0	0	0	0	0
583	08-06-24	NRV Top Flange	583	Flange	0	0	0	0	0	0
584	08-06-24	NRV D/S Flange	584	Flange	0	0	0	0	0	0
585	08-06-24	Drain Line 1st I/V Gland	585	Gland	0	0	0	0	0	0
586	08-06-24	Drain Line 2nd I/V Gland	586	Gland	0	0	0	0	0	0
587	08-06-24	OWS Point	587	Flange	0	0	0	0	0	0
588	08-06-24	Suction line Outlet line to 1st I/V U/S Flange	588	Flange	0	0	0	0	0	0
589	08-06-24	Suction line Outlet line to 1st I/V Gland	589	Gland	0	0	0	0	0	0
590	08-06-24	Suction line Outlet line to 1st I/V D/S Flange	590	Flange	0	0	0	0	0	0
591	08-06-24	Drain Line I/V Gland	591	Gland	0	0	0	0	0	0
592	08-06-24	Drain Line Safety Flange	592	Flange	0	0	0	0	0	0
593	08-06-24	Suction line Outlet line to 2nd I/V U/S Flange	593	Flange	0	0	0	0	0	0
594	08-06-24	Suction line Outlet line to 2nd I/V Gland	594	Gland	0	0	0	0	0	0
595	08-06-24	Suction line Outlet line to 2nd I/V D/S Flange	595	Flange	0	0	0	0	0	0
596	08-06-24	16-PA-CF-0011B Suction line I/V U/S Flange	596	Flange	0	0	0	0	0	0
597	08-06-24	16-PA-CF-0011B Suction line I/V Gland	597	Gland	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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598	08-06-24	16-PA-CF-0011B Suction line I/V D/S Flange	598	Flange	0	0	0	0	0	0
599	08-06-24	Stainer Top Flange	599	Flange	0	0	0	0	0	0
600	10-06-24	Drain Line 1st I/V Gland	600	Gland	0	0	0	0	0	0
601	10-06-24	Stainer Flange	601	Flange	0	0	0	0	0	0
602	10-06-24	Drain Line 2nd I/V Gland	602	Gland	0	0	0	0	0	0
603	10-06-24	Suction Line Flange	603	Flange	0	0	0	0	0	0
604	10-06-24	Pump Seal	604	P.seal	0	0	0	0	0	0
605	10-06-24	Discharge Line Flange	605	Flange	0	0	0	0	0	0
606	10-06-24	Drain Line I/V Gland	606	Gland	0	0	0	0	0	0
607	10-06-24	Drain Line Safety Flange	607	Flange	0	0	0	0	0	0
608	10-06-24	P.G. Meter I/V Gland	608	Gland	0	0	0	0	0	0
609	10-06-24	NRV U/S Flange	609	Flange	0	0	0	0	0	0
610	10-06-24	NRV Top Flange	610	Flange	0	0	0	0	0	0
611	10-06-24	NRV D/S Flange	611	Flange	0	0	0	0	0	0
612	10-06-24	Drain Line 1st I/V Gland	612	Flange	0	0	0	0	0	0
613	10-06-24	Drain Line 2nd I/V Gland	613	Flange	0	0	0	0	0	0
614	10-06-24	OWS Point	614	Flange	0	0	0	0	0	0
615	10-06-24	Discharge line I/V U/S Flange	615	Flange	0	0	0	0	0	0
616	10-06-24	Discharge line I/V Gland	616	Gland	0	0	0	0	0	0
617	10-06-24	Discharge line I/V D/S Flange	617	Flange	0	0	0	0	0	0
618	10-06-24	Discharge line to Outlet line I/V Gland	618	Gland	0	0	0	0	0	0
619	10-06-24	Discharge line to Outlet line Top Flange	619	Flange	0	0	0	0	0	0
620	10-06-24	Drain Line I/V Gland	620	Gland	0	0	0	0	0	0
621	10-06-24	Drain Line Safety Flange	621	Flange	0	0	0	0	0	0
622	10-06-24	16-PA-CF-013A	622	Flange	0	0	0	0	0	0
623	10-06-24	Suction line I/V U/S Flange	623	Flange	0	0	0	0	0	0
624	10-06-24	Suction Line I/V Gland	624	Gland	0	0	0	0	0	0
625	10-06-24	Suction line I/V D/S Flange	625	Flange	0	0	0	0	0	0
626	10-06-24	Stainer Top Flange	626	Flange	0	0	0	0	0	0
627	10-06-24	Suction line to Outlet line 1st I/V U/S Flange	627	Flange	0	0	0	0	0	0
628	10-06-24	Suction line to Outlet line 1st I/V Gland	628	Gland	0	0	0	0	0	0
629	10-06-24	Suction line to Outlet line 1st I/V D/S Flange	629	Flange	0	0	0	0	0	0
630	10-06-24	Suction line to Outlet line 2nd I/V U/S Flange	630	Flange	0	0	0	0	0	0
631	10-06-24	Suction line to Outlet line 2nd I/V Gland	631	Gland	0	0	0	0	0	0
632	10-06-24	Suction line to Outlet line 2nd I/V D/S Flange	632	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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633	10-06-24	Suction line to Outlet line 3rd I/V U/S Flange	633	Flange	0	0	0	0	0	0
634	10-06-24	Suction line to Outlet line 3rd I/V Gland	634	Gland	0	0	0	0	0	0
635	10-06-24	Suction line to Outlet line 3rd I/V D/S Flange	635	Flange	0	0	0	0	0	0
636	10-06-24	OWS Point	636	Flange	0	0	0	0	0	0
637	10-06-24	Drain Line 1st I/V Gland	637	Gland	0	0	0	0	0	0
638	10-06-24	Steamer Flange	638	Flange	0	0	0	0	0	0
639	10-06-24	Drain Line 2nd I/V Gland	639	Gland	0	0	0	0	0	0
640	10-06-24	Suction Line Flange	640	Flange	0	0	0	0	0	0
641	10-06-24	Discharge Line Flange	641	Flange	0	0	0	0	0	0
642	10-06-24	P.G. Meter I/V Gland	642	Gland	0	0	0	0	0	0
643	10-06-24	NRV U/S Flange	643	Flange	0	0	0	0	0	0
644	10-06-24	NRV Top Flange	644	Flange	0	0	0	0	0	0
645	10-06-24	NRV D/S Flange	645	Flange	0	0	0	0	0	0
646	10-06-24	Drain Line 1st I/V Gland	646	Gland	0	0	0	0	0	0
647	10-06-24	Drain Line 2nd I/V Gland	647	Gland	0	0	0	0	0	0
648	10-06-24	OWS Point	648	Flange	0	0	0	0	0	0
649	10-06-24	Discharge line I/V U/S Flange	649	Flange	0	0	0	0	0	0
650	10-06-24	Discharge line I/V Gland	650	Gland	0	0	0	0	0	0
651	10-06-24	Discharge line I/V D/S Flange	651	Flange	0	0	0	0	0	0
652	10-06-24	16-PA-CF-013B	652	Flange	0	0	0	0	0	0
653	10-06-24	Suction line I/V U/S Flange	653	Flange	0	0	0	0	0	0
654	10-06-24	Suction Line I/V Gland	654	Gland	0	0	0	0	0	0
655	10-06-24	Suction line I/V D/S Flange	655	Flange	0	0	0	0	0	0
656	10-06-24	Stainer Top Flange	656	Flange	0	0	0	0	0	0
657	10-06-24	Drain Line 1st I/V Gland	657	Gland	0	0	0	0	0	0
658	10-06-24	Steamer Flange	658	Flange	0	0	0	0	0	0
659	10-06-24	Drain Line 2nd I/V Gland	659	Gland	0	0	0	0	0	0
660	10-06-24	Suction Line Flange	660	Flange	0	0	0	0	0	0
661	10-06-24	Discharge Line Flange	661	Flange	0	0	0	0	0	0
662	10-06-24	P.G. Meter I/V Gland	662	Gland	0	0	0	0	0	0
663	10-06-24	NRV U/S Flange	663	Flange	0	0	0	0	0	0
664	10-06-24	NRV Top Flange	664	Flange	0	0	0	0	0	0
665	10-06-24	NRV D/S Flange	665	Flange	0	0	0	0	0	0
666	10-06-24	Drain Line 1st I/V Gland	666	Gland	0	0	0	0	0	0
667	10-06-24	Drain Line 2nd I/V Gland	667	Gland	0	0	0	0	0	0
668	10-06-24	OWS Point	668	Flange	0	0	0	0	0	0
669	10-06-24	Discharge line I/V U/S Flange	669	Flange	0	0	0	0	0	0

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670	10-06-24	Discharge line I/V Gland	670	Gland	0	0	0	0	0	0
671	10-06-24	Discharge line I/V D/S Flange	671	Flange	0	0	0	0	0	0
672	10-06-24	16-FV-2201 U/S line I/V U/S Flange	672	Flange	0	0	0	0	0	0
673	10-06-24	16-FV-2201 U/S line I/V Gland	673	Gland	0	0	0	0	0	0
674	10-06-24	16-FV-2201 U/S line I/V D/S Flange	674	Flange	0	0	0	0	0	0
675	10-06-24	Drain Line I/V Gland	675	Gland	0	0	0	0	0	0
676	10-06-24	16-FV-2201 C/V U/S Flange	676	Flange	0	0	0	0	0	0
677	10-06-24	16-FV-2201 C/V Gland	677	Gland	0	0	0	0	0	0
678	10-06-24	16-FV-2201 C/V D/S Flange	678	Flange	0	0	0	0	0	0
679	10-06-24	Drain Line I/V Gland	679	Gland	0	0	0	0	0	0
680	10-06-24	16-FV-2201 D/S line I/V U/S Flange	680	Flange	0	0	0	0	0	0
681	10-06-24	16-FV-2201 D/S line I/V Gland	681	Gland	0	0	0	0	0	0
682	10-06-24	16-FV-2201 D/S line I/V D/S Flange	682	Flange	0	0	0	0	0	0
683	10-06-24	Bypass line I/V U/S Flange	683	Flange	0	0	0	0	0	0
684	10-06-24	Bypass line I/V Gland	684	Gland	0	0	0	0	0	0
685	10-06-24	Bypass line I/V D/S Flange	685	Flange	0	0	0	0	0	0
686	10-06-24	16-FV-2103 U/S line I/V U/S Flange	686	Flange	0	0	0	0	0	0
687	10-06-24	16-FV-2103 U/S line I/V Gland	687	Gland	0	0	0	0	0	0
688	10-06-24	16-FV-2103 U/S line I/V D/S Flange	688	Flange	0	0	0	0	0	0
689	10-06-24	Drain Line I/V Gland	689	Gland	0	0	0	0	0	0
690	10-06-24	16-FV-2103 line C/V U/S Flange	690	Flange	0	0	0	0	0	0
691	10-06-24	16-FV-2103 line C/V Gland	691	Gland	0	0	0	0	0	0
692	10-06-24	16-FV-2103 line C/V D/S Flange	692	Flange	0	0	0	0	0	0
693	10-06-24	Drain Line I/V Gland	693	Gland	0	0	0	0	0	0
694	10-06-24	15-FV-2103 D/S line I/V U/S Flange	694	Flange	0	0	0	0	0	0
695	10-06-24	15-FV-2103 D/S line I/V Gland	695	Gland	0	0	0	0	0	0
696	10-06-24	15-FV-2103 D/S line I/V D/S Flange	696	Flange	0	0	0	0	0	0
697	10-06-24	Bypass line I/V U/S Flange	697	Flange	0	0	0	0	0	0
698	10-06-24	Bypass line I/V Gland	698	Gland	0	0	0	0	0	0
699	10-06-24	Bypass line I/V D/S Flange	699	Flange	0	0	0	0	0	0
700	10-06-24	16-FV-2205 U/S line I/V U/S Flange	700	Flange	0	0	0	0	0	0
701	10-06-24	16-FV-2205 U/S line I/V Gland	701	Gland	0	0	0	0	0	0
702	10-06-24	16-FV-2205 U/S line I/V D/S Flange	702	Flange	0	0	0	0	0	0
703	10-06-24	Drain Line I/V Gland	703	Gland	0	0	0	0	0	0

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704	10-06-24	16-FV-2205 C/V U/S Flange	704	Flange	0	0	0	0	0	0
705	10-06-24	16-FV-2205 C/V Gland	705	Gland	0	0	0	0	0	0
706	10-06-24	16-FV-2205 C/V D/S Flange	706	Flange	0	0	0	0	0	0
707	10-06-24	Drain Line I/V Gland	707	Gland	0	0	0	0	0	0
708	10-06-24	16-FV-2205 D/S line I/V U/S Flange	708	Flange	0	0	0	0	0	0
709	10-06-24	16-FV-2205 D/S line I/V Gland	709	Gland	0	0	0	0	0	0
710	10-06-24	16-FV-2205 D/S line I/V D/S Flange	710	Flange	0	0	0	0	0	0
711	10-06-24	Bypass line I/V U/S Flange	711	Flange	0	0	0	0	0	0
712	10-06-24	Bypass line I/V Gland	712	Gland	0	0	0	0	0	0
713	10-06-24	Bypass line I/V D/S Flange	713	Flange	0	0	0	0	0	0
714	10-06-24	16-PA-CF-010A	714	Flange	0	0	0	0	0	0
715	10-06-24	Suction line I/V U/S Flange	715	Flange	0	0	0	0	0	0
716	10-06-24	Suction Line I/V Gland	716	Gland	0	0	0	0	0	0
717	10-06-24	Suction line I/V D/S Flange	717	Flange	0	0	0	0	0	0
718	10-06-24	Stainer Top Flange	718	Flange	0	0	0	0	0	0
719	10-06-24	Suction line to Outlet line 1st I/V U/S Flange	719	Flange	0	0	0	0	0	0
720	10-06-24	Suction line to Outlet line 1st I/V Gland	720	Gland	0	0	0	0	0	0
721	10-06-24	Suction line to Outlet line 1st I/V D/S Flange	721	Flange	0	0	0	0	0	0
722	10-06-24	Suction line to Outlet line 2nd I/V U/S Flange	722	Flange	0	0	0	0	0	0
723	10-06-24	Suction line to Outlet line 2nd I/V Gland	723	Gland	0	0	0	0	0	0
724	10-06-24	Suction line to Outlet line 2nd I/V D/S Flange	724	Flange	0	0	0	0	0	0
725	10-06-24	Suction line to Outlet line 3rd I/V U/S Flange	725	Flange	0	0	0	0	0	0
726	10-06-24	Suction line to Outlet line 3rd I/V Gland	726	Gland	0	0	0	0	0	0
727	10-06-24	Suction line to Outlet line 3rd I/V D/S Flange	727	Flange	0	0	0	0	0	0
728	10-06-24	OWS Point	728	Flange	0	0	0	0	0	0
729	10-06-24	Drain Line 1st I/V Gland	729	Gland	0	0	0	0	0	0
730	10-06-24	Steamer Flange	730	Flange	0	0	0	0	0	0
731	10-06-24	Drain Line 2nd I/V Gland	731	Gland	0	0	0	0	0	0
732	10-06-24	Suction Line Flange	732	Flange	0	0	0	0	0	0
733	10-06-24	Pump Seal	733	p.seal	0	0	0	0	0	0
734	10-06-24	Discharge Line Flange	734	Flange	0	0	0	0	0	0
735	10-06-24	P.G. Meter I/V Gland	735	Gland	0	0	0	0	0	0
736	10-06-24	NRV U/S Flange	736	Flange	0	0	0	0	0	0
737	10-06-24	NRV Top Flange	737	Flange	0	0	0	0	0	0
738	10-06-24	NRV D/S Flange	738	Flange	0	0	0	0	0	0

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739	10-06-24	Drain Line 1st I/V Gland	739	Gland	0	0	0	0	0	0
740	10-06-24	Drain Line 2nd I/V Gland	740	Gland	0	0	0	0	0	0
741	10-06-24	OWS Point	741	Flange	0	0	0	0	0	0
742	10-06-24	Discharge line I/V U/S Flange	742	Flange	0	0	0	0	0	0
743	10-06-24	Discharge line I/V Gland	743	Gland	0	0	0	0	0	0
744	10-06-24	Discharge line I/V D/S Flange	744	Flange	0	0	0	0	0	0
745	10-06-24	16-PA-CF-010B	745	Flange	0	0	0	0	0	0
746	10-06-24	Suction line I/V U/S Flange	746	Flange	0	0	0	0	0	0
747	10-06-24	Suction Line I/V Gland	747	Gland	0	0	0	0	0	0
748	10-06-24	Suction line I/V D/S Flange	748	Flange	0	0	0	0	0	0
749	10-06-24	Stainer Top Flange	749	Flange	0	0	0	0	0	0
750	10-06-24	Drain Line 1st I/V Gland	750	Gland	0	0	0	0	0	0
751	10-06-24	Steamer Flange	751	Flange	0	0	0	0	0	0
752	10-06-24	Drain Line 2nd I/V Gland	752	Gland	0	0	0	0	0	0
753	10-06-24	Suction Line Flange	753	Flange	0	0	0	0	0	0
754	10-06-24	Pump Seal	754	p.seal	0	0	0	0	0	0
755	10-06-24	Discharge Line Flange	755	Flange	0	0	0	0	0	0
756	10-06-24	P.G. Meter I/V Gland	756	Gland	0	0	0	0	0	0
757	10-06-24	NRV U/S Flange	757	Flange	0	0	0	0	0	0
758	10-06-24	NRV Top Flange	758	Flange	0	0	0	0	0	0
759	10-06-24	NRV D/S Flange	759	Flange	0	0	0	0	0	0
760	10-06-24	Drain Line 1st I/V Gland	760	Gland	0	0	0	0	0	0
761	10-06-24	Drain Line 2nd I/V Gland	761	Gland	0	0	0	0	0	0
762	10-06-24	OWS Point	762	Flange	0	0	0	0	0	0
763	10-06-24	Discharge line I/V U/S Flange	763	Flange	0	0	0	0	0	0
764	10-06-24	Discharge line I/V Gland	764	Gland	0	0	0	0	0	0
765	10-06-24	Discharge line I/V D/S Flange	765	Flange	0	0	0	0	0	0
766	10-06-24	16-PA-CF-012A	766	Flange	0	0	0	0	0	0
767	10-06-24	Suction line I/V U/S Flange	767	Flange	0	0	0	0	0	0
768	10-06-24	Suction Line I/V Gland	768	Gland	0	0	0	0	0	0
769	10-06-24	Suction line I/V D/S Flange	769	Flange	0	0	0	0	0	0
770	10-06-24	Stainer Top Flange	770	Flange	0	0	0	0	0	0
771	10-06-24	Drain Line 1st I/V Gland	771	Gland	0	0	0	0	0	0
772	10-06-24	Steamer Flange	772	Flange	0	0	0	0	0	0
773	10-06-24	Drain Line 2nd I/V Gland	773	Gland	0	0	0	0	0	0
774	10-06-24	Suction Line Flange	774	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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775	10-06-24	Discharge Line Flange	775	Flange	0	0	0	0	0	0
776	10-06-24	Meter line I/V Gland	776	Gland	0	0	0	0	0	0
777	10-06-24	Top Flange	777	Flange	0	0	0	0	0	0
778	10-06-24	Drain Line 1st I/V Gland	778	Gland	0	0	0	0	0	0
779	10-06-24	Drain Line 2nd I/V Gland	779	Gland	0	0	0	0	0	0
780	10-06-24	OWS Point	780	Flange	0	0	0	0	0	0
781	10-06-24	Discharge line I/V Gland	781	Gland	0	0	0	0	0	0
782	10-06-24	16-PA-CF-012B	782	Flange	0	0	0	0	0	0
783	10-06-24	Suction line I/V U/S Flange	783	Flange	0	0	0	0	0	0
784	10-06-24	Suction Line I/V Gland	784	Gland	0	0	0	0	0	0
785	10-06-24	Suction line I/V D/S Flange	785	Flange	0	0	0	0	0	0
786	10-06-24	Stainer Top Flange	786	Flange	0	0	0	0	0	0
787	10-06-24	Drain Line 1st I/V Gland	787	Gland	0	0	0	0	0	0
788	10-06-24	Steamer Flange	788	Flange	0	0	0	0	0	0
789	10-06-24	Drain Line 2nd I/V Gland	789	Gland	0	0	0	0	0	0
790	10-06-24	Suction Line Flange	790	Flange	0	0	0	0	0	0
791	10-06-24	Discharge Line Flange	791	Flange	0	0	0	0	0	0
792	10-06-24	Meter line I/V Gland	792	Gland	0	0	0	0	0	0
793	10-06-24	Top Flange	793	Flange	0	0	0	0	0	0
794	10-06-24	Drain Line 1st I/V Gland	794	Gland	0	0	0	0	0	0
795	10-06-24	Drain Line 2nd I/V Gland	795	Gland	0	0	0	0	0	0
796	10-06-24	OWS Point	796	Flange	0	0	0	0	0	0
797	10-06-24	Discharge line I/V Gland	797	Gland	0	0	0	0	0	0
798	10-06-24	16-FV-2204 D/S line I/V Gland	798	Gland	0	0	0	0	0	0
799	10-06-24	Drain Line 1st I/V Gland	799	Gland	0	0	0	0	0	0
800	10-06-24	Stainer Flange	800	Flange	0	0	0	0	0	0
801	10-06-24	Drain Line 2nd I/V Gland	801	Gland	0	0	0	0	0	0
802	10-06-24	16-FV-2204 line C/V U/S Flange	802	Flange	0	0	0	0	0	0
803	10-06-24	16-FV-2204 line C/V Gland	803	Gland	0	0	0	0	0	0
804	10-06-24	16-FV-2204 line C/V D/S Flange	804	Flange	0	0	0	0	0	0
805	10-06-24	Drain Line I/V Gland	805	Gland	0	0	0	0	0	0
806	10-06-24	D/S line I/V Gland	806	Gland	0	0	0	0	0	0
807	10-06-24	Bypass line I/V Gland	807	Gland	0	0	0	0	0	0
808	10-06-24	16-FV-2206 U/S line I/V Gland	808	Gland	0	0	0	0	0	0
809	10-06-24	Drain Line 1st I/V Gland	809	Gland	0	0	0	0	0	0
810	10-06-24	Stainer Flange	810	Flange	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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811	10-06-24	Drain Line 2nd I/V Gland	811	Gland	0	0	0	0	0	0
812	10-06-24	16-FV-2206 C/V U/S Flange	812	Flange	0	0	0	0	0	0
813	10-06-24	16-FV-2206 C/V Gland	813	Gland	0	0	0	0	0	0
814	10-06-24	16-FV-2206 C/V D/S Flange	814	Flange	0	0	0	0	0	0
815	10-06-24	Drain Line I/V Gland	815	Gland	0	0	0	0	0	0
816	10-06-24	D/S line I/V Gland	816	Gland	0	0	0	0	0	0
817	10-06-24	Bypass line Stainer Flange	817	Flange	0	0	0	0	0	0
818	10-06-24	Bypass line I/V Gland	818	Gland	0	0	0	0	0	0
819	10-06-24	16-PA-CF-006A	819	Flange	0	0	0	0	0	0
820	10-06-24	Suction line I/V U/S Flange	820	Flange	0	0	0	0	0	0
821	10-06-24	Suction Line I/V Gland	821	Gland	0	0	0	0	0	0
822	10-06-24	Suction line I/V D/S Flange	822	Flange	0	0	0	0	0	0
823	10-06-24	Stainer Top Flange	823	Flange	0	0	0	0	0	0
824	10-06-24	Drain Line 1st I/V Gland	824	Gland	0	0	0	0	0	0
825	10-06-24	Steamer Flange	825	Flange	0	0	0	0	0	0
826	10-06-24	Drain Line 2nd I/V Gland	826	Gland	0	0	0	0	0	0
827	10-06-24	Suction Line Flange	827	Flange	0	0	0	0	0	0
828	10-06-24	Pump Seal	828	p.seal	0	0	0	0	0	0
829	10-06-24	Discharge Line Flange	829	Flange	0	0	0	0	0	0
830	10-06-24	Vrain Line I/V Gland	830	Gland	0	0	0	0	0	0
831	10-06-24	Vrain Line Safety Flange	831	Flange	0	0	0	0	0	0
832	10-06-24	Meter line I/V Gland	832	Gland	0	0	0	0	0	0
833	10-06-24	NRV U/S Flange	833	Flange	0	0	0	0	0	0
834	10-06-24	NRV Top Flange	834	Flange	0	0	0	0	0	0
835	10-06-24	NRV D/S Flange	835	Flange	0	0	0	0	0	0
836	10-06-24	Drain Line 1st I/V Gland	836	Gland	0	0	0	0	0	0
837	10-06-24	Drain Line 2nd I/V Gland	837	Gland	0	0	0	0	0	0
838	10-06-24	OVS Point	838	Flange	0	0	0	0	0	0
839	10-06-24	Discharge line I/V U/S Flange	839	Flange	0	0	0	0	0	0
840	10-06-24	Discharge line I/V Gland	840	Gland	0	0	0	0	0	0
841	10-06-24	Discharge line I/V D/S Flange	841	Flange	0	0	0	0	0	0
842	10-06-24	16-PA-CF-006B	842	Flange	0	0	0	0	0	0
843	10-06-24	Suction line I/V U/S Flange	843	Flange	0	0	0	0	0	0
844	10-06-24	Suction Line I/V Gland	844	Gland	0	0	0	0	0	0
845	10-06-24	Suction line I/V D/S Flange	845	Flange	0	0	0	0	0	0
846	10-06-24	Stainer Top Flange	846	Flange	0	0	0	0	0	0

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847	10-06-24	Drain Line 1st I/V Gland	847	Gland	0	0	0	0	0	0
848	10-06-24	Steamer Flange	848	Flange	0	0	0	0	0	0
849	10-06-24	Drain Line 2nd I/V Gland	849	Gland	0	0	0	0	0	0
850	10-06-24	Suction Line Flange	850	Flange	0	0	0	0	0	0
851	10-06-24	Pump Seal	851	p.seal	0	0	0	0	0	0
852	10-06-24	Discharge Line Flange	852	Flange	0	0	0	0	0	0
853	10-06-24	Vrain line I/V Gland	853	Gland	0	0	0	0	0	0
854	10-06-24	Vrain Line Safety Flange	854	Flange	0	0	0	0	0	0
855	10-06-24	Meter line I/V Gland	855	Gland	0	0	0	0	0	0
856	10-06-24	NRV U/S Flange	856	Flange	0	0	0	0	0	0
857	10-06-24	NRV Top Flange	857	Flange	0	0	0	0	0	0
858	10-06-24	NRV D/S Flange	858	Flange	0	0	0	0	0	0
859	10-06-24	Drain Line 1st I/V Gland	859	Gland	0	0	0	0	0	0
860	10-06-24	Drain Line 2nd I/V Gland	860	Gland	0	0	0	0	0	0
861	10-06-24	OWS Point	861	Flange	0	0	0	0	0	0
862	10-06-24	Discharge line I/V U/S Flange	862	Flange	0	0	0	0	0	0
863	10-06-24	Discharge line I/V Gland	863	Gland	0	0	0	0	0	0
864	10-06-24	Discharge line I/V D/S Flange	864	Flange	0	0	0	0	0	0
865	10-06-24	MIN FLOW to 16-VV-06 U/S line I/V U/S Flange	865	Flange	0	0	0	0	0	0
866	10-06-24	MIN FLOW to 16-VV-06 U/S line I/V Gland	866	Gland	0	0	0	0	0	0
867	10-06-24	MIN FLOW to 16-VV-06 U/S line I/V D/S Flange	867	Flange	0	0	0	0	0	0
868	10-06-24	NRV U/S Flange	868	Flange	0	0	0	0	0	0
869	10-06-24	NRV Top Flange	869	Flange	0	0	0	0	0	0
870	10-06-24	NRV D/S Flange	870	Flange	0	0	0	0	0	0
871	10-06-24	Drain Line I/V Gland	871	Gland	0	0	0	0	0	0
872	10-06-24	Drain Line Safety Flange	872	Flange	0	0	0	0	0	0
873	10-06-24	Heavy Reformate to Storage U/S line I/V Gland	873	Gland	0	0	0	0	0	0
874	10-06-24	Top Flange	874	Flange	0	0	0	0	0	0
875	10-06-24	Drain Line I/V Gland	875	Gland	0	0	0	0	0	0
876	10-06-24	Drain Line Safety Flange	876	Flange	0	0	0	0	0	0
877	10-06-24	D/S line Stainer Flange	877	Flange	0	0	0	0	0	0
878	10-06-24	D/S line I/V Gland	878	Gland	0	0	0	0	0	0
879	10-06-24	16-PV-2102 U/S line I/V Gland	879	Gland	0	0	0	0	0	0
880	10-06-24	Drain Line I/V Gland	880	Gland	0	0	0	0	0	0
881	10-06-24	16-PV-2102 line C/V U/S Flange	881	Flange	0	0	0	0	0	0

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882	10-06-24	16-PV-2102 line C/V Gland	882	Gland	0	0	0	0	0	0
883	10-06-24	16-PV-2102 line C/V D/S Flange	883	Flange	0	0	0	0	0	0
884	10-06-24	Drain Line I/V Gland	884	Gland	0	0	0	0	0	0
885	10-06-24	D/S line I/V Gland	885	Gland	0	0	0	0	0	0
886	10-06-24	Bypass line Stainer Flange	886	Flange	0	0	0	0	0	0
887	10-06-24	Bypass line I/V Gland	887	Gland	0	0	0	0	0	0
888	10-06-24	16-PA-CF-003A	888	Flange	0	0	0	0	0	0
889	10-06-24	Suction line I/V U/S Flange	889	Flange	0	0	0	0	0	0
890	10-06-24	Suction line I/V Gland	890	Gland	0	0	0	0	0	0
891	10-06-24	Suction line I/V D/S Flange	891	Flange	0	0	0	0	0	0
892	10-06-24	Stainer Top Flange	892	Flange	0	0	0	0	0	0
893	10-06-24	Suction line to Outlet line 1st I/V U/S Flange	893	Flange	0	0	0	0	0	0
894	10-06-24	Suction line to Outlet line 1st I/V Gland	894	Gland	0	0	0	0	0	0
895	10-06-24	Suction line to Outlet line 1st I/V D/S Flange	895	Flange	0	0	0	0	0	0
896	10-06-24	Suction line to Outlet line 2nd I/V U/S Flange	896	Flange	0	0	0	0	0	0
897	10-06-24	Suction line to Outlet line 2nd I/V Gland	897	Gland	0	0	0	0	0	0
898	10-06-24	Suction line to Outlet line 2nd I/V D/S Flange	898	Flange	0	0	0	0	0	0
899	10-06-24	Vrain line I/V Gland	899	Gland	0	0	0	0	0	0
900	10-06-24	Vrain Line Safety Flange	900	Flange	0	0	0	0	0	0
901	10-06-24	Suction line to Outlet line 3rd I/V U/S Flange	901	Flange	0	0	0	0	0	0
902	10-06-24	Suction line to Outlet line 3rd I/V Gland	902	Gland	0	0	0	0	0	0
903	10-06-24	Suction line to Outlet line 3rd I/V D/S Flange	903	Flange	0	0	0	0	0	0
904	10-06-24	Drain Line 1st I/V Gland	904	Gland	0	0	0	0	0	0
905	10-06-24	Drain Line 2nd I/V Gland	905	Gland	0	0	0	0	0	0
906	10-06-24	Steamer Flange	906	Flange	0	0	0	0	0	0
907	10-06-24	Suction Line Flange	907	Flange	0	0	0	0	0	0
908	10-06-24	Discharge Line Flange	908	Flange	0	0	0	0	0	0
909	10-06-24	P.G. Meter I/V Gland	909	Gland	0	0	0	0	0	0
910	10-06-24	Meter line to Drain line I/V Gland	910	Gland	0	0	0	0	0	0
911	10-06-24	Meter line to Drain line Safety Flange	911	Flange	0	0	0	0	0	0
912	10-06-24	NRV U/S Flange	912	Flange	0	0	0	0	0	0
913	10-06-24	NRV Top Flange	913	Flange	0	0	0	0	0	0
914	10-06-24	NRV D/S Flange	914	Flange	0	0	0	0	0	0
915	10-06-24	Drain Line 1st I/V Gland	915	Gland	0	0	0	0	0	0
916	10-06-24	Drain Line 2nd I/V Gland	916	Gland	0	0	0	0	0	0

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917	10-06-24	OWS Point	917	Flange	0	0	0	0	0	0
918	10-06-24	Discharge line I/V U/S Flange	918	Flange	0	0	0	0	0	0
919	10-06-24	Discharge line I/V Gland	919	Gland	0	0	0	0	0	0
920	10-06-24	Discharge line I/V D/S Flange	920	Flange	0	0	0	0	0	0
921	10-06-24	16-PA-CF-003B	921	Flange	0	0	0	0	0	0
922	10-06-24	Suction line I/V U/S Flange	922	Flange	0	0	0	0	0	0
923	10-06-24	Suction Line I/V Gland	923	Gland	0	0	0	0	0	0
924	10-06-24	Suction line I/V D/S Flange	924	Flange	0	0	0	0	0	0
925	10-06-24	Stainer Top Flange	925	Flange	0	0	0	0	0	0
926	10-06-24	Drain Line 1st I/V Gland	926	Gland	0	0	0	0	0	0
927	10-06-24	Steamer Flange	927	Flange	0	0	0	0	0	0
928	10-06-24	Drain Line 2nd I/V Gland	928	Gland	0	0	0	0	0	0
929	10-06-24	Suction Line Flange	929	Flange	0	0	0	0	0	0
930	10-06-24	Discharge Line Flange	930	Flange	0	0	0	0	0	0
931	10-06-24	Meter line I/V Gland	931	Gland	0	0	0	0	0	0
932	10-06-24	Meter line to Drain line I/V Gland	932	Flange	0	0	0	0	0	0
933	10-06-24	Meter line to Drain line Safety Flange	933	Flange	0	0	0	0	0	0
934	10-06-24	NRV U/S Flange	934	Flange	0	0	0	0	0	0
935	10-06-24	NRV Top Flange	935	Flange	0	0	0	0	0	0
936	10-06-24	NRV D/S Flange	936	Flange	0	0	0	0	0	0
937	10-06-24	Drain Line 1st I/V Gland	937	Gland	0	0	0	0	0	0
938	10-06-24	Drain Line 2nd I/V Gland	938	Gland	0	0	0	0	0	0
939	10-06-24	OWS Point	939	Flange	0	0	0	0	0	0
940	10-06-24	Discharge line I/V U/S Flange	940	Flange	0	0	0	0	0	0
941	10-06-24	Discharge line I/V Gland	941	Gland	0	0	0	0	0	0
942	10-06-24	Discharge line I/V D/S Flange	942	Flange	0	0	0	0	0	0
943	10-06-24	16-FV-1803 U/S line I/V Gland	943	Gland	0	0	0	0	0	0
944	10-06-24	Drain Line I/V Gland	944	Gland	0	0	0	0	0	0
945	10-06-24	16-FV-1803 C/V U/S Flange	945	Flange	0	0	0	0	0	0
946	10-06-24	16-FV-1803 C/V Gland	946	Gland	0	0	0	0	0	0
947	10-06-24	16-FV-1803 C/V D/S Flange	947	Flange	0	0	0	0	0	0
948	10-06-24	Drain Line I/V Gland	948	Gland	0	0	0	0	0	0
949	10-06-24	D/S line I/V Gland	949	Gland	0	0	0	0	0	0
950	10-06-24	Bypass line I/V Gland	950	Gland	0	0	0	0	0	0
951	10-06-24	16-FV-1802 D/S line I/V U/S Flange	951	Flange	0	0	0	0	0	0
952	10-06-24	16-FV-1802 D/S line I/V Gland	952	Gland	0	0	0	0	0	0

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953	10-06-24	16-FV-1802 D/S line I/V D/S Flange	953	Flange	0	0	0	0	0	0
954	10-06-24	Drain Line I/V Gland	954	Gland	0	0	0	0	0	0
955	10-06-24	16-FV-1802 C/V U/S Flange	955	Flange	0	0	0	0	0	0
956	10-06-24	16-FV-1802 C/V Gland	956	Gland	0	0	0	0	0	0
957	10-06-24	16-FV-1802 C/V D/S Flange	957	Flange	0	0	0	0	0	0
958	10-06-24	Drain Line I/V Gland	958	Gland	0	0	0	0	0	0
959	10-06-24	16-FV-1802 D/S line I/V U/S Flange	959	Flange	0	0	0	0	0	0
960	10-06-24	16-FV-1802 D/S line I/V Gland	960	Gland	0	0	0	0	0	0
961	10-06-24	16-FV-1802 D/S line I/V D/S Flange	961	Flange	0	0	0	0	0	0
962	10-06-24	Bypass line I/V U/S Flange	962	Flange	0	0	0	0	0	0
963	10-06-24	Bypass line I/V Gland	963	Gland	0	0	0	0	0	0
964	10-06-24	Bypass line I/V D/S Flange	964	Flange	0	0	0	0	0	0
965	10-06-24	16-PA-CF-005A	965	Flange	0	0	0	0	0	0
966	10-06-24	Suction line I/V U/S Flange	966	Flange	0	0	0	0	0	0
967	10-06-24	Suction line I/V Gland	967	Gland	0	0	0	0	0	0
968	10-06-24	Suction line I/V D/S Flange	968	Flange	0	0	0	0	0	0
969	10-06-24	Stainer Top Flange	969	Flange	0	0	0	0	0	0
970	10-06-24	Drain Line I/V Gland	970	Gland	0	0	0	0	0	0
971	10-06-24	Suction Line Flange	971	Flange	0	0	0	0	0	0
972	10-06-24	Discharge Line Flange	972	Flange	0	0	0	0	0	0
973	10-06-24	Meter line I/V Gland	973	Gland	0	0	0	0	0	0
974	10-06-24	Top Flange	974	Flange	0	0	0	0	0	0
975	10-06-24	Drain Line 1st I/V Gland	975	Gland	0	0	0	0	0	0
976	10-06-24	Steamer Flange	976	Flange	0	0	0	0	0	0
977	10-06-24	Drain Line 2nd I/V Gland	977	Gland	0	0	0	0	0	0
978	10-06-24	OWS Point	978	Flange	0	0	0	0	0	0
979	10-06-24	Discharge line I/V Gland	979	Gland	0	0	0	0	0	0
980	10-06-24	16-PA-CF-005B	980	Flange	0	0	0	0	0	0
981	10-06-24	Suction line I/V U/S Flange	981	Flange	0	0	0	0	0	0
982	10-06-24	Suction line I/V Gland	982	Gland	0	0	0	0	0	0
983	10-06-24	Suction line I/V D/S Flange	983	Flange	0	0	0	0	0	0
984	10-06-24	Stainer Top Flange	984	Flange	0	0	0	0	0	0
985	10-06-24	Drain Line I/V Gland	985	Gland	0	0	0	0	0	0
986	10-06-24	Suction Line Flange	986	Flange	0	0	0	0	0	0
987	10-06-24	Discharge Line Flange	987	Flange	0	0	0	0	0	0
988	10-06-24	P.G. Meter I/V Gland	988	Gland	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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989	10-06-24	Drain Line 1st I/V Gland	989	Gland	0	0	0	0	0	0
990	10-06-24	Steamer Flange	990	Flange	0	0	0	0	0	0
991	10-06-24	Drain Line 2nd I/V Gland	991	Gland	0	0	0	0	0	0
992	10-06-24	OWS Point	992	Flange	0	0	0	0	0	0
993	10-06-24	Top Flange	993	Flange	0	0	0	0	0	0
994	10-06-24	Discharge line I/V Gland	994	Gland	0	0	0	0	0	0
995	10-06-24	16-PV-2301 U/S line I/V U/S Flange	995	Flange	0	0	0	0	0	0
996	10-06-24	16-PV-2301 U/S line I/V Gland	996	Gland	0	0	0	0	0	0
997	10-06-24	16-PV-2301 U/S line I/V D/S Flange	997	Flange	0	0	0	0	0	0
998	10-06-24	Drain Line 1st I/V Gland	998	Gland	0	0	0	0	0	0
999	10-06-24	Stainer Flange	999	Flange	0	0	0	0	0	0
1000	10-06-24	Drain Line 2nd I/V Gland	1000	Gland	0	0	0	0	0	0
1001	10-06-24	Drain Line 3rd I/V Gland	1001	Gland	0	0	0	0	0	0
1002	10-06-24	16-PV-2301 C/V U/S Flange	1002	Flange	0	0	0	0	0	0
1003	10-06-24	16-PV-2301 C/V Gland	1003	Gland	0	0	0	0	0	0
1004	10-06-24	16-PV-2301 C/V D/S Flange	1004	Flange	0	0	0	0	0	0
1005	10-06-24	Drain Line I/V Gland	1005	Gland	0	0	0	0	0	0
1006	10-06-24	16-PV-2301 D/S line I/V U/S Flange	1006	Flange	0	0	0	0	0	0
1007	10-06-24	16-PV-2301 D/S line I/V Gland	1007	Gland	0	0	0	0	0	0
1008	10-06-24	16-PV-2301 D/S line I/V D/S Flange	1008	Flange	0	0	0	0	0	0
1009	10-06-24	Bypass line I/V U/S Flange	1009	Flange	0	0	0	0	0	0
1010	10-06-24	Bypass line I/V Gland	1010	Gland	0	0	0	0	0	0
1011	10-06-24	Bypass line I/V D/S Flange	1011	Flange	0	0	0	0	0	0
1012	10-06-24	16-FV-1701 U/S line I/V U/S Flange	1012	Flange	0	0	0	0	0	0
1013	10-06-24	16-FV-1701 U/S line I/V Gland	1013	Gland	0	0	0	0	0	0
1014	10-06-24	16-FV-1701 U/S line I/V D/S Flange	1014	Flange	0	0	0	0	0	0
1015	10-06-24	16-FV-1701 C/V U/S Flange	1015	Flange	0	0	0	0	0	0
1016	10-06-24	16-FV-1701 C/V Gland	1016	Gland	0	0	0	0	0	0
1017	10-06-24	16-FV-1701 C/V D/S Flange	1017	Flange	0	0	0	0	0	0
1018	10-06-24	16-FV-1701 D/S line I/V U/S Flange	1018	Flange	0	0	0	0	0	0
1019	10-06-24	16-FV-1701 D/S line I/V Gland	1019	Gland	0	0	0	0	0	0
1020	10-06-24	16-FV-1701 D/S line I/V D/S Flange	1020	Flange	0	0	0	0	0	0
1021	10-06-24	Bypass line I/V U/S Flange	1021	Flange	0	0	0	0	0	0
1022	10-06-24	Bypass line I/V Gland	1022	Gland	0	0	0	0	0	0

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1023	10-06-24	Bypass line I/V D/S Flange	1023	Flange	0	0	0	0	0	0
1024	10-06-24	16-FV-1102 U/S line I/V U/S Flange	1024	Flange	0	0	0	0	0	0
1025	10-06-24	16-FV-1102 U/S line I/V Gland	1025	Gland	0	0	0	0	0	0
1026	10-06-24	16-FV-1102 U/S line I/V D/S Flange	1026	Flange	0	0	0	0	0	0
1027	10-06-24	Drain Line 1st I/V Gland	1027	Gland	0	0	0	0	0	0
1028	10-06-24	Stainer Flange	1028	Flange	0	0	0	0	0	0
1029	10-06-24	Drain Line 2nd I/V Gland	1029	Gland	0	0	0	0	0	0
1030	10-06-24	16-FV-1102 C/V U/S Flange	1030	Flange	0	0	0	0	0	0
1031	10-06-24	16-FV-1102 C/V Gland	1031	Gland	0	0	0	0	0	0
1032	10-06-24	16-FV-1102 C/V D/S Flange	1032	Flange	0	0	0	0	0	0
1033	10-06-24	Drain Line I/V Gland	1033	Gland	0	0	0	0	0	0
1034	10-06-24	16-FV-1102 D/S line I/V U/S Flange	1034	Flange	0	0	0	0	0	0
1035	10-06-24	16-FV-1102 D/S line I/V Gland	1035	Gland	0	0	0	0	0	0
1036	10-06-24	16-FV-1102 D/S line I/V D/S Flange	1036	Flange	0	0	0	0	0	0
1037	10-06-24	Bypass line I/V U/S Flange	1037	Flange	0	0	0	0	0	0
1038	10-06-24	Bypass line I/V Gland	1038	Gland	0	0	0	0	0	0
1039	10-06-24	Bypass line I/V D/S Flange	1039	Flange	0	0	0	0	0	0
1040	10-06-24	16-FV-1703 U/S line I/V Gland	1040	Gland	0	0	0	0	0	0
1041	10-06-24	Drain Line I/V Gland	1041	Gland	0	0	0	0	0	0
1042	10-06-24	16-FV-1703 C/V U/S Flange	1042	Flange	0	0	0	0	0	0
1043	10-06-24	16-FV-1703 C/V Gland	1043	Gland	0	0	0	0	0	0
1044	10-06-24	16-FV-1703 C/V D/S Flange	1044	Flange	0	0	0	0	0	0
1045	10-06-24	Drain Line 1st I/V Gland	1045	Gland	0	0	0	0	0	0
1046	10-06-24	Stainer Flange	1046	Flange	0	0	0	0	0	0
1047	10-06-24	Drain Line 2nd I/V Gland	1047	Gland	0	0	0	0	0	0
1048	10-06-24	16-FV-1703 D/S line I/V Gland	1048	Flange	0	0	0	0	0	0
1049	10-06-24	Bypass line I/V Gland	1049	Gland	0	0	0	0	0	0
1050	10-06-24	16-PA-CF-001A	1050	Flange	0	0	0	0	0	0
1051	10-06-24	Suction line I/V U/S Flange	1051	Flange	0	0	0	0	0	0
1052	10-06-24	Suction line I/V Gland	1052	Gland	0	0	0	0	0	0
1053	10-06-24	Suction line I/V D/S Flange	1053	Flange	0	0	0	0	0	0
1054	10-06-24	Stainer Top Flange	1054	Flange	0	0	0	0	0	0
1055	10-06-24	Drain Line 1st I/V Gland	1055	Gland	0	0	0	0	0	0
1056	10-06-24	Drain Line 2nd I/V Gland	1056	Gland	0	0	0	0	0	0
1057	10-06-24	OWS Point	1057	Flange	0	0	0	0	0	0

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1058	10-06-24	Suction Line Flange	1058	Flange	0	0	0	0	0	0
1059	10-06-24	Pump Seal	1059	p.seal	0	0	0	0	0	0
1060	10-06-24	Discharge Line Flange	1060	Flange	0	0	0	0	0	0
1061	10-06-24	P.G. Meter line I/V Gland	1061	Gland	0	0	0	0	0	0
1062	10-06-24	NRV U/S Flange	1062	Flange	0	0	0	0	0	0
1063	10-06-24	NRV Top Flange	1063	Flange	0	0	0	0	0	0
1064	10-06-24	NRV D/S Flange	1064	Flange	0	0	0	0	0	0
1065	10-06-24	Steamer Flange	1065	Flange	0	0	0	0	0	0
1066	10-06-24	Drain Line 1st I/V Gland	1066	Gland	0	0	0	0	0	0
1067	10-06-24	Steamer Flange	1067	Flange	0	0	0	0	0	0
1068	10-06-24	Drain Line 2nd I/V Gland	1068	Gland	0	0	0	0	0	0
1069	10-06-24	Discharge line I/V U/S Flange	1069	Flange	0	0	0	0	0	0
1070	10-06-24	Discharge line I/V Gland	1070	Gland	0	0	0	0	0	0
1071	10-06-24	Discharge line I/V D/S Flange	1071	Flange	0	0	0	0	0	0
1072	10-06-24	16-PA-CF-001B	1072	Flange	0	0	0	0	0	0
1073	10-06-24	Suction line I/V U/S Flange	1073	Flange	0	0	0	0	0	0
1074	10-06-24	Suction line I/V Gland	1074	Gland	0	0	0	0	0	0
1075	10-06-24	Suction line I/V D/S Flange	1075	Flange	0	0	0	0	0	0
1076	10-06-24	Stainer Top Flange	1076	Flange	0	0	0	0	0	0
1077	10-06-24	Drain Line 1st I/V Gland	1077	Gland	0	0	0	0	0	0
1078	10-06-24	Drain Line 2nd I/V Gland	1078	Gland	0	0	0	0	0	0
1079	10-06-24	OWS Point	1079	Flange	0	0	0	0	0	0
1080	10-06-24	Suction Line Flange	1080	Flange	0	0	0	0	0	0
1081	10-06-24	Pump Seal	1081	p.seal	0	0	0	0	0	0
1082	10-06-24	Discharge Line Flange	1082	Flange	0	0	0	0	0	0
1083	10-06-24	P.G. Meter line I/V Gland	1083	Gland	0	0	0	0	0	0
1084	10-06-24	NRV U/S Flange	1084	Flange	0	0	0	0	0	0
1085	10-06-24	NRV Top Flange	1085	Flange	0	0	0	0	0	0
1086	10-06-24	NRV D/S Flange	1086	Flange	0	0	0	0	0	0
1087	10-06-24	Drain Line 1st I/V Gland	1087	Gland	0	0	0	0	0	0
1088	10-06-24	Steamer Flange	1088	Flange	0	0	0	0	0	0
1089	10-06-24	Drain Line 2nd I/V Gland	1089	Gland	0	0	0	0	0	0
1090	10-06-24	Discharge line I/V U/S Flange	1090	Flange	0	0	0	0	0	0
1091	10-06-24	Discharge line I/V Gland	1091	Gland	0	0	0	0	0	0
1092	10-06-24	Discharge line I/V D/S Flange	1092	Flange	0	0	0	0	0	0
1093	10-06-24	From FEED DRYER line D/S I/V U/S Gland	1093	Gland	0	0	0	0	0	0

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1094	10-06-24	Top Flange	1094	Flange	0	0	0	0	0	0
1095	10-06-24	Stainer Flange	1095	Flange	0	0	0	0	0	0
1096	10-06-24	D/S line I/V Gland	1096	Gland	0	0	0	0	0	0
1097	10-06-24	Drain Line I/V Gland	1097	Gland	0	0	0	0	0	0
1098	10-06-24	Drain Line Safety Flange	1098	Flange	0	0	0	0	0	0
1099	10-06-24	From 16-C-01 Bottom line 1st I/V U/S Flange	1099	Flange	0	0	0	0	0	0
1100	10-06-24	From 16-C-01 Bottom line 1st I/V Gland	1100	Gland	0	0	0	0	0	0
1101	10-06-24	From 16-C-01 Bottom line 1st I/V D/S Flange	1101	Flange	0	0	0	0	0	0
1102	10-06-24	NRV U/S Flange	1102	Flange	0	0	0	0	0	0
1103	10-06-24	NRV Top Flange	1103	Flange	0	0	0	0	0	0
1104	10-06-24	From 16-C-01 Bottom line 2nd I/V U/S Flange	1104	Flange	0	0	0	0	0	0
1105	10-06-24	From 16-C-01 Bottom line 2nd I/V Gland	1105	Gland	0	0	0	0	0	0
1106	10-06-24	From 16-C-01 Bottom line 2nd I/V D/S Flange	1106	Flange	0	0	0	0	0	0
1107	10-06-24	NRV U/S Flange	1107	Flange	0	0	0	0	0	0
1108	10-06-24	NRV Top Flange	1108	Flange	0	0	0	0	0	0
1109	10-06-24	16-FV-1804 U/S line I/V U/S Flange	1109	Flange	0	0	0	0	0	0
1110	10-06-24	16-FV-1804 U/S line I/V Gland	1110	Gland	0	0	0	0	0	0
1111	10-06-24	16-FV-1804 U/S line I/V D/S Flange	1111	Flange	0	0	0	0	0	0
1112	10-06-24	Drain Line 1st I/V Gland	1112	Gland	0	0	0	0	0	0
1113	10-06-24	Stainer Flange	1113	Flange	0	0	0	0	0	0
1114	10-06-24	Drain Line 2nd I/V Gland	1114	Gland	0	0	0	0	0	0
1115	10-06-24	16-FV-1804 C/V U/S Flange	1115	Flange	0	0	0	0	0	0
1116	10-06-24	16-FV-1804 C/V Gland	1116	Gland	0	0	0	0	0	0
1117	10-06-24	16-FV-1804 C/V D/S Flange	1117	Flange	0	0	0	0	0	0
1118	10-06-24	Drain Line I/V Gland	1118	Gland	0	0	0	0	0	0
1119	10-06-24	16-FV-1804 D/S line I/V U/S Flange	1119	Flange	0	0	0	0	0	0
1120	10-06-24	16-FV-1804 D/S line I/V Gland	1120	Gland	0	0	0	0	0	0
1121	10-06-24	16-FV-1804 D/S line I/V D/S Flange	1121	Flange	0	0	0	0	0	0
1122	10-06-24	Bypass line I/V U/S Flange	1122	Flange	0	0	0	0	0	0
1123	10-06-24	Bypass line I/V Gland	1123	Gland	0	0	0	0	0	0
1124	10-06-24	Bypass line I/V D/S Flange	1124	Flange	0	0	0	0	0	0
1125	10-06-24	ISOMER From DRYER DEGASSER U/S line I/V U/S Flange	1125	Flange	0	0	0	0	0	0
1126	10-06-24	ISOMER From DRYER DEGASSER U/S line I/V Gland	1126	Gland	0	0	0	0	0	0

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1127	10-06-24	ISOMER From DRYER DEGASSER U/S line I/V D/S Flange	1127	Flange	0	0	0	0	0	0
1127	10-06-24	ISOMER From DRYER DEGASSER U/S line I/V D/S Flange	1127	Flange	0	0	0	0	0	0

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CDU/VDU										
1	18-06-24	Intergas Inlet Line U/S I/V U/S Flange	1	FLANGE	0	0	0	0	0	0
2	18-06-24	Intergas Inlet Line U/S I/V U/S Gland	2	GLAND	0	0	0	0	0	0
3	18-06-24	Intergas Inlet Line U/S I/V D/S Flange	3	FLANGE	0	0	0	0	0	0
4	18-06-24	Intergas Inlet Line D/S I/V U/S Flange	4	FLANGE	0	0	0	0	0	0
5	18-06-24	Intergas Inlet Line D/S I/V U/S Gland	5	GLAND	0	0	0	0	0	0
6	18-06-24	Intergas Inlet Line D/S I/V D/S Flange	6	FLANGE	0	0	0	0	0	0
7	18-06-24	UNSTAB Naptha Outlet Line U/S I/V U/S	7	VALVE	0	0	0	0	0	0
8	18-06-24	UNSTAB Naptha Outlet Line U/S I/V U/S	8	VALVE	0	0	0	0	0	0
9	18-06-24	UNSTAB Naptha Outlet Line U/S I/V D/S	9	VALVE	0	0	0	0	0	0
10	18-06-24	UNSTAB Naptha Outlet Line D/S I/V U/S	10	VALVE	0	0	0	0	0	0
11	18-06-24	UNSTAB Naptha Outlet Line D/S I/V U/S	11	VALVE	0	0	0	0	0	0
12	18-06-24	UNSTAB Naptha Outlet Line D/S I/V D/S	12	VALVE	0	0	0	0	0	0
13	18-06-24	STAB Naptha to Storage Outlet Line I/V	13	VALVE	0	0	0	0	0	0
14	18-06-24	STAB Naptha to Storage Outlet Line I/V	14	VALVE	0	0	0	0	0	0
15	18-06-24	STAB Naptha to Storage Outlet Line I/V	15	VALVE	0	0	0	0	0	0
16	18-06-24	Meter line 1st I/V Gland	16	GLAND	0	0	0	0	0	0
17	18-06-24	Meter line 2nd I/V Gland	17	GLAND	0	0	0	0	0	0
18	18-06-24	Drain line 1st I/V Gland	18	GLAND	0	0	0	0	0	0
19	18-06-24	Drain line 2nd I/V Gland	19	GLAND	0	0	0	0	0	0
20	18-06-24	Vrain Line I/V Gland	20	GLAND	0	0	0	0	0	0
21	18-06-24	Vrain Line Safty Flange	21	FLANGE	0	0	0	0	0	0
22	18-06-24	LPG Bullet Outlet U/S Line I/V U/S Flange	22	FLANGE	0	0	0	0	0	0
23	18-06-24	LPG Bullet Outlet U/S Line I/V U/S Gland	23	GLAND	0	0	0	0	0	0
24	18-06-24	LPG Bullet Outlet U/S Line I/V D/S Flange	24	FLANGE	0	0	0	0	0	0
25	18-06-24	LPG Bullet Outlet D/S Line I/V U/S Flange	25	FLANGE	0	0	0	0	0	0
26	18-06-24	LPG Bullet Outlet D/S Line I/V U/S Gland	26	GLAND	0	0	0	0	0	0
27	18-06-24	LPG Bullet Outlet D/S Line I/V D/S Flange	27	FLANGE	0	0	0	0	0	0
28	18-06-24	LPG to Inlet Vrain Line I/V Gland	28	VALVE	0	0	0	0	0	0
29	18-06-24	LPG to Inlet Vrain Line I/V Safty Flange	29	FLANGE	0	0	0	0	0	0
30	18-06-24	LPG to Inlet U/S Line I/V U/S Flange	30	FLANGE	0	0	0	0	0	0
31	18-06-24	LPG to Inlet U/S Line I/V U/S Gland	31	VALVE	0	0	0	0	0	0
32	18-06-24	LPG to Inlet U/S Line I/V D/S Flange	32	FLANGE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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33	18-06-24	LPG to Inlet D/S Line I/V U/S Flange	33	FLANGE	0	0	0	0	0	0
34	18-06-24	LPG to Inlet D/S Line I/V U/S Gland	34	VALVE	0	0	0	0	0	0
35	18-06-24	LPG to Inlet D/S Line I/V D/S Flange	35	FLANGE	0	0	0	0	0	0
36	18-06-24	LPG Ex SPHERE Inlet U/S Line I/V U/S Flange	36	FLANGE	0	0	0	0	0	0
37	18-06-24	LPG Ex SPHERE Inlet U/S Line I/V U/S Gland	37	VALVE	0	0	0	0	0	0
38	18-06-24	LPG Ex SPHERE Inlet U/S Line I/V D/S Flange	38	FLANGE	0	0	0	0	0	0
39	18-06-24	LPG Ex SPHERE Inlet D/S Line I/V U/S Flange	39	FLANGE	0	0	0	0	0	0
40	18-06-24	LPG Ex SPHERE Inlet D/S Line I/V U/S Gland	40	VALVE	0	0	0	0	0	0
41	18-06-24	LPG Ex SPHERE Inlet D/S Line I/V D/S Flange	41	FLANGE	0	0	0	0	0	0
42	18-06-24	Fuel Gas Inlet U/S Line I/V U/S Flange	42	FLANGE	0	0	0	0	0	0
43	18-06-24	Fuel Gas Inlet U/S Line I/V U/S Gland	43	VALVE	0	0	0	0	0	0
44	18-06-24	Fuel Gas Inlet U/S Line I/V D/S Flange	44	FLANGE	0	0	0	0	0	0
45	18-06-24	Fuel Gas Inlet D/S Line I/V U/S Flange	45	FLANGE	0	0	0	0	0	0
46	18-06-24	Fuel Gas Inlet O/S Line I/V U/S Gland	46	VALVE	0	0	0	0	0	0
47	18-06-24	Fuel Gas Inlet D/S Line I/V D/S Flange	47	FLANGE	0	0	0	0	0	0
48	18-06-24	Vrain Line I/V Gland	48	VALVE	0	0	0	0	0	0
49	18-06-24	Vrain Line safety Flange	49	FLANGE	0	0	0	0	0	0
50	18-06-24	LPG to SPHERE Inlet U/S Line I/V U/S Flange	50	FLANGE	0	0	0	0	0	0
51	18-06-24	LPG to SPHERE Inlet U/S Line I/V U/S Gland	51	VALVE	0	0	0	0	0	0
52	18-06-24	LPG to SPHERE Inlet U/S Line I/V D/S Flange	52	FLANGE	0	0	0	0	0	0
53	18-06-24	LPG to SPHERE Inlet D/S Line I/V U/S Flange	53	FLANGE	0	0	0	0	0	0
54	18-06-24	LPG to SPHERE Inlet D/S Line I/V U/S Gland	54	VALVE	0	0	0	0	0	0
55	18-06-24	LPG to SPHERE Inlet D/S Line I/V D/S Flange	55	FLANGE	0	0	0	0	0	0
56	18-06-24	Meter Line Flange	56	FLANGE	0	0	0	0	0	0
57	18-06-24	01-FV-1905 U/S Line I/V U/S Flange	57	FLANGE	0	0	0	0	0	0
58	18-06-24	01-FV-1905 U/S Line I/V U/S Gland	58	VALVE	0	0	0	0	0	0
59	18-06-24	01-FV-1905 U/S Line I/V D/S Flange	59	FLANGE	0	0	0	0	0	0
60	18-06-24	Drain Line I/V Gland	60	VALVE	0	0	0	0	0	0
61	18-06-24	Drain Line I/V Safety Flange	61	FLANGE	0	0	0	0	0	0
62	18-06-24	01-FV-1905 C/V Line I/V U/S Flange	62	FLANGE	0	0	0	0	0	0
63	18-06-24	02-FV-1905 C/V Line I/V U/S Gland	63	VALVE	0	0	0	0	0	0
64	18-06-24	01-FV-1905 C/V Line I/V D/S Flange	64	FLANGE	0	0	0	0	0	0
65	18-06-24	01-FV-1905 D/S Line I/V U/S	65	VALVE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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66	18-06-24	01-FV-190S D/S Line I/V U/S Gland	66	VALVE	0	0	0	0	0	0
67	18-06-24	01-FV-190S D/S Line I/V D/S Flange	67	FLANGE	0	0	0	0	0	0
68	18-06-24	Bypass Line I/V U/S Flange	68	FLANGE	0	0	0	0	0	0
69	18-06-24	Bypass Line I/V U/S Gland	69	VALVE	0	0	0	0	0	0
70	18-06-24	Bypass Line I/V D/S Flange	70	FLANGE	0	0	0	0	0	0
71	18-06-24	01-FV-1921 U/S Line I/V U/S Flange	71	FLANGE	0	0	0	0	0	0
72	18-06-24	01-FV-1921 U/S Line I/V U/S Gland	72	VALVE	0	0	0	0	0	0
73	18-06-24	01-FV-1921 U/S Line I/V D/S Flange	73	FLANGE	0	0	0	0	0	0
74	18-06-24	Drain Line I/V Gland	74	VALVE	0	0	0	0	0	0
75	18-06-24	Drain Line Safety Flange	75	FLANGE	0	0	0	0	0	0
76	18-06-24	01-FV-1921 C/V U/S Flange	76	FLANGE	0	0	0	0	0	0
77	18-06-24	01-FV-1921 C/V U/S Gland	77	VALVE	0	0	0	0	0	0
78	18-06-24	01-FV-1921 C/V D/S Flange	78	FLANGE	0	0	0	0	0	0
79	18-06-24	01-FV-1921 D/S Line I/V U/S Flange	79	FLANGE	0	0	0	0	0	0
80	18-06-24	01-FV-1921 D/S Line I/V U/S Flange	80	FLANGE	0	0	0	0	0	0
81	18-06-24	01-FV-1921 D/S Line I/V D/S Flange	81	FLANGE	0	0	0	0	0	0
82	18-06-24	Drain Line I/V Gland	82	VALVE	0	0	0	0	0	0
83	18-06-24	Drain Line Safety Flange	83	FLANGE	0	0	0	0	0	0
84	18-06-24	Bypass Line I/V U/S Flange	84	FLANGE	0	0	0	0	0	0
85	18-06-24	Bypass Line I/V U/S Gland	85	VALVE	0	0	0	0	0	0
86	18-06-24	Bypass Line I/V D/S Flange	86	FLANGE	0	0	0	0	0	0
87	18-06-24	01-LV-1701 U/S Line I/V U/S Flange	87	FLANGE	0	0	0	0	0	0
88	18-06-24	01-LV-1701 U/S Line I/V U/S Gland	88	VALVE	0	0	0	0	0	0
89	18-06-24	01-LV-1701 U/S Line I/V D/S Flange	89	FLANGE	0	0	0	0	0	0
90	18-06-24	Drain Line I/V Gland	90	VALVE	0	0	0	0	0	0
91	18-06-24	Drain Line Safety Flange	91	FLANGE	0	0	0	0	0	0
92	18-06-24	01-LV-1701 C/S Line I/V U/S Flange	92	FLANGE	0	0	0	0	0	0
93	18-06-24	01-LV-1701 C/S Line I/V U/S Gland	93	VALVE	0	0	0	0	0	0
94	18-06-24	01-LV-1701 C/S Line I/V D/S Flange	94	FLANGE	0	0	0	0	0	0
95	18-06-24	01-LV-1701 D/S Line I/V U/S Flange	95	FLANGE	0	0	0	0	0	0
96	18-06-24	01-LV-1701 D/S Line I/V U/S Gland	96	VALVE	0	0	0	0	0	0
97	18-06-24	01-LV-1701 D/S Line I/V D/S Flange	97	FLANGE	0	0	0	0	0	0
98	18-06-24	Drain Line I/V Gland	98	VALVE	0	0	0	0	0	0

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99	18-06-24	Drain Line Safety Flange	99	FLANGE	0	0	0	0	0	0
100	18-06-24	Bypass Line I/V U/S Flange	100	FLANGE	0	0	0	0	0	0
101	18-06-24	Bypass Line I/V U/S Gland	101	VALVE	0	0	0	0	0	0
102	18-06-24	Bypass Line I/V D/S Flange	102	FLANGE	0	0	0	0	0	0
103	18-06-24	01-FV-1901 U/S Line I/V U/S Flange	103	FLANGE	0	0	0	0	0	0
104	18-06-24	01-FV-1901 U/S Line I/V U/S Gland	104	VALVE	0	0	0	0	0	0
105	18-06-24	01-FV-1901 U/S Line I/V D/S Flange	105	FLANGE	0	0	0	0	0	0
106	18-06-24	Drain Line I/V Gland	106	VALVE	0	0	0	0	0	0
107	18-06-24	Drain Line Safety Flange	107	FLANGE	0	0	0	0	0	0
108	18-06-24	01-FV-1901 C/V U/S Flange	108	FLANGE	0	0	0	0	0	0
109	18-06-24	01-FV-1901 C/V U/S Gland	109	VALVE	0	0	0	0	0	0
110	18-06-24	01-FV-1901 C/V D/S Flange	110	FLANGE	0	0	0	0	0	0
111	18-06-24	01-FV-1901 D/S Line I/V U/S Flange	111	FLANGE	0	0	0	0	0	0
112	18-06-24	01-FV-1901 D/S Line I/V U/S Gland	112	VALVE	0	0	0	0	0	0
113	18-06-24	01-FV-1901 D/S Line I/V D/S Flange	113	FLANGE	0	0	0	0	0	0
114	18-06-24	Drain Line I/V Gland	114	VALVE	0	0	0	0	0	0
115	18-06-24	Drain Line Safety Flange	115	FLANGE	0	0	0	0	0	0
116	18-06-24	Bypass Line I/V U/S Flange	116	FLANGE	0	0	0	0	0	0
117	18-06-24	Bypass Line I/V U/S Gland	117	VALVE	0	0	0	0	0	0
118	18-06-24	Pump Seal	118	VALVE	0	0	0	0	0	0
119	18-06-24	01-FV-1904 U/S Line I/V U/S Flange	119	FLANGE	0	0	0	0	0	0
120	18-06-24	01-FV-1904 U/S Line I/V U/S Gland	120	VALVE	0	0	0	0	0	0
121	18-06-24	01-FV-1904 U/S Line I/V D/S Flange	121	FLANGE	0	0	0	0	0	0
122	18-06-24	Drain Line I/V Gland	122	VALVE	0	0	0	0	0	0
123	18-06-24	Drain Line Safety Flange	123	FLANGE	0	0	0	0	0	0
124	18-06-24	01-FV-1904 C/V U/S Flange	124	FLANGE	0	0	0	0	0	0
125	18-06-24	01-FV-1904 C/V U/S Gland	125	VALVE	0	0	0	0	0	0
126	18-06-24	01-FV-1904 C/V D/S Flange	126	FLANGE	0	0	0	0	0	0
127	18-06-24	01-FV-1904 D/S Line I/V U/S Flange	127	FLANGE	0	0	0	0	0	0
128	18-06-24	01-FV-1904 D/S Line I/V U/S Gland	128	VALVE	0	0	0	0	0	0
129	18-06-24	01-FV-1904 D/S Line I/V D/S Flange	129	FLANGE	0	0	0	0	0	0
130	18-06-24	Bypass Line I/V U/S Flange	130	VALVE	0	0	0	0	0	0
131	18-06-24	Bypass Line I/V U/S Gland	131	VALVE	0	0	0	0	0	0

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132	18-06-24	Bypass Line I/V D/S Flange	132	FLANGE	0	0	0	0	0	0
133	18-06-24	01-FV-1903 U/S Line I/V U/S Flange	133	FLANGE	0	0	0	0	0	0
134	18-06-24	01-FV-1903 U/S Line I/V U/S Gland	134	VALVE	0	0	0	0	0	0
135	18-06-24	01-FV-1903 U/S Line I/V D/S Flange	135	FLANGE	0	0	0	0	0	0
136	18-06-24	Drain Line I/V Gland	136	VALVE	0	0	0	0	0	0
137	18-06-24	Drain Line Safety Flange	137	FLANGE	0	0	0	0	0	0
138	18-06-24	01-FV-1903 C/V U/S Flange	138	FLANGE	0	0	0	0	0	0
139	18-06-24	01-FV-1903 C/V U/S Gland	139	VALVE	0	0	0	0	0	0
140	18-06-24	01-FV-1903 C/V D/S Flange	140	FLANGE	0	0	0	0	0	0
141	18-06-24	01-FV-1903 D/S Line I/V U/S Flange	141	FLANGE	0	0	0	0	0	0
142	18-06-24	01-FV-1903 D/S Line I/V U/S Gland	142	VALVE	0	0	0	0	0	0
143	18-06-24	01-FV-1903 D/S Line I/V D/S Flange	143	FLANGE	0	0	0	0	0	0
144	18-06-24	Drain Line I/V Gland	144	VALVE	0	0	0	0	0	0
145	18-06-24	Drain Line Safety Flange	145	FLANGE	0	0	0	0	0	0
146	18-06-24	Bypass Line I/V U/S Flange	146	FLANGE	0	0	0	0	0	0
147	18-06-24	Bypass Line I/V U/S Gland	147	VALVE	0	0	0	0	0	0
148	18-06-24	Bypass Line I/V U/S Flange	148	FLANGE	0	0	0	0	0	0
149	18-06-24	01-PA-106A Suction Line I/V Gland	149	VALVE	0	0	0	0	0	0
150	18-06-24	Stainer Top Flange	150	FLANGE	0	0	0	0	0	0
151	18-06-24	Stainer Top Flange Drain Line I/V Gland	151	VALVE	0	0	0	0	0	0
152	18-06-24	Stainer Top Flange Drain Line Safety Flange	152	FLANGE	0	0	0	0	0	0
153	18-06-24	Suction Line Flange	153	FLANGE	0	0	0	0	0	0
154	18-06-24	Pump Seal	154	VALVE	0	0	0	0	0	0
155	18-06-24	Discharge Line Flange	155	FLANGE	0	0	0	0	0	0
156	18-06-24	Meter line 1st I/V Gland	156	VALVE	0	0	0	0	0	0
157	18-06-24	Meter line 2nd I/V Gland	157	VALVE	0	0	0	0	0	0
158	18-06-24	Meter line Sampling I/V Gland	158	VALVE	0	0	0	0	0	0
159	18-06-24	Discharge Line Gland	159	VALVE	0	0	0	0	0	0
160	18-06-24	01-PA-106B Suction Line I/V Gland	160	VALVE	0	0	0	0	0	0
161	18-06-24	Stainer Top Flange	161	FLANGE	0	0	0	0	0	0
162	18-06-24	Stainer Top Flange Drain Line I/V Gland	162	VALVE	0	0	0	0	0	0
163	18-06-24	Stainer Top Flange Drain Line Safety Flange	163	FLANGE	0	0	0	0	0	0
164	18-06-24	Suction Line Flange	164	FLANGE	0	0	0	0	0	0

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165	18-06-24	Pump Seal	165	VALVE	0	0	0	0	0	0
166	18-06-24	Discharge Line Flange	166	FLANGE	0	0	0	0	0	0
167	18-06-24	Meter line 1st I/V Gland	167	VALVE	0	0	0	0	0	0
168	18-06-24	Meter line 2nd I/V Gland	168	VALVE	0	0	0	0	0	0
169	18-06-24	Meter line Sampling I/V Gland	169	VALVE	0	0	0	0	0	0
170	18-06-24	Discharge Line Gland	170	VALVE	0	0	0	0	0	0
171	18-06-24	01-PA-105 A Suction Line I/V U/S Flange	171	FLANGE	0	0	0	0	0	0
172	18-06-24	01-PA-105A Suction Line I/V U/S Gland	172	VALVE	0	0	0	0	0	0
173	18-06-24	01-PA-105A Suction Line I/V D/S Flange	173	FLANGE	0	0	0	0	0	0
174	18-06-24	Stainer Top Flange	174	FLANGE	0	0	0	0	0	0
175	18-06-24	Stainer Top Flange Drain Line I/V Gland	175	VALVE	0	0	0	0	0	0
176	18-06-24	Stainer Top Flange Drain Line Safety Flange	176	FLANGE	0	0	0	0	0	0
177	18-06-24	Suction Line Flange	177	FLANGE	0	0	0	0	0	0
178	18-06-24	Pump Seal	178	VALVE	0	0	0	0	0	0
179	18-06-24	Discharge Line Flange	179	FLANGE	0	0	0	0	0	0
180	18-06-24	Meter line 1st I/V Gland	180	VALVE	0	0	0	0	0	0
181	18-06-24	Meter line 2nd I/V Gland	181	VALVE	0	0	0	0	0	0
182	18-06-24	Meter line Sampling I/V Gland	182	VALVE	0	0	0	0	0	0
183	18-06-24	NRV U/S Flange	183	FLANGE	0	0	0	0	0	0
184	18-06-24	NRV Top Flange	184	FLANGE	0	0	0	0	0	0
185	18-06-24	NRV D/S Flange	185	VALVE	0	0	0	0	0	0
186	18-06-24	Discharge Line I/V U/S Flange	186	FLANGE	0	0	0	0	0	0
187	18-06-24	Discharge Line I/V U/S Gland	187	VALVE	0	0	0	0	0	0
188	18-06-24	Discharge Line I/V D/S Flange	188	FLANGE	0	0	0	0	0	0
189	18-06-24	01 PA-105B Suction Line I/V U/S Flange	189	FLANGE	0	0	0	0	0	0
190	18-06-24	01-PA-105B Suction Line I/V U/S Gland	190	VALVE	0	0	0	0	0	0
191	18-06-24	01-PA-105B Suction Line I/V D/S Flange	191	FLANGE	0	0	0	0	0	0
192	18-06-24	Stainer Top Flange	192	FLANGE	0	0	0	0	0	0
193	18-06-24	Stainer Top Flange Drain Line I/V Gland	193	FLANGE	0	0	0	0	0	0
194	18-06-24	Stainer Top Flange Drain Line Safety Flange	194	FLANGE	0	0	0	0	0	0
195	18-06-24	Suction Line Flange	195	FLANGE	0	0	0	0	0	0
196	18-06-24	Pump Seal	196	VALVE	0	0	0	0	0	0
197	18-06-24	Discharge Line Flange	197	FLANGE	0	0	0	0	0	0
198	18-06-24	Meter line 1st I/V Gland	198	VALVE	0	0	0	0	0	0

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199	18-06-24	Meter line 2nd I/V Gland	199	VALVE	0	0	0	0	0	0
200	18-06-24	Meter line Sampling I/V Gland	200	VALVE	0	0	0	0	0	0
201	18-06-24	NRV I/V U/S Flange	201	FLANGE	0	0	0	0	0	0
202	18-06-24	NRV Top Flange	202	FLANGE	0	0	0	0	0	0
203	18-06-24	NRV I/V D/S Flange	203	FLANGE	0	0	0	0	0	0
204	18-06-24	Discharge Line I/V U/S Flange	204	FLANGE	0	0	0	0	0	0
205	18-06-24	Discharge Line I/V U/S Gland	205	VALVE	0	0	0	0	0	0
206	18-06-24	Discharge Line I/V D/S Flange	206	FLANGE	0	0	0	0	0	0
Area	18-06-24	Pump		VALVE	0	0	0	0	0	0
207	18-06-24	01-PA-103B Suction Line I/V U/S Flange	207	FLANGE	0	0	0	0	0	0
208	18-06-24	01-PA-1038 Suction Line I/V Gland	208	VALVE	0	0	0	0	0	0
209	18-06-24	01-PA-103B Suction Line I/V D/S Flange	209	VALVE	0	0	0	0	0	0
210	18-06-24	Steamer Top Flange	210	FLANGE	0	0	0	0	0	0
211	18-06-24	Steamer Top Flange Drain Line I/V Gland	211	VALVE	0	0	0	0	0	0
212	18-06-24	Steamer Top Flange Drain Line Safety Flange	212	FLANGE	0	0	0	0	0	0
213	18-06-24	Suction Line Flange	213	FLANGE	0	0	0	0	0	0
214	18-06-24	Pump Seal	214	VALVE	0	0	0	0	0	0
215	18-06-24	Discharge Line Flange	215	FLANGE	0	0	0	0	0	0
216	18-06-24	Meter line 1st I/V Gland	216	VALVE	0	0	0	0	0	0
217	18-06-24	Meter line 2nd I/V Gland	217	VALVE	0	0	0	0	0	0
218	18-06-24	Meter line Sampling I/V Gland	218	VALVE	0	0	0	0	0	0
219	18-06-24	NRV I/V U/S Flange	219	FLANGE	0	0	0	0	0	0
220	18-06-24	NRV Top Flange	220	FLANGE	0	0	0	0	0	0
221	18-06-24	NRV I/V D/S Flange	221	FLANGE	0	0	0	0	0	0
222	18-06-24	Discharge Line I/V U/S Flange	222	FLANGE	0	0	0	0	0	0
223	18-06-24	Discharge Line I/V Gland	223	VALVE	0	0	0	0	0	0
224	18-06-24	Discharge Line I/V D/S Flange	224	FLANGE	0	0	0	0	0	0
225	18-06-24	Suction Line to Outside Line 1st I/V U/S	225	VALVE	0	0	0	0	0	0
226	18-06-24	Suction Line to Outside Line 1st I/V Gland	226	VALVE	0	0	0	0	0	0
227	18-06-24	Suction Line to Outside Line 1st I/V D/S	227	VALVE	0	0	0	0	0	0
228	18-06-24	Suction Line to Outside Line 2nd I/V U/S	228	VALVE	0	0	0	0	0	0
229	18-06-24	Suction Line to Outside Line 2nd I/V Gland	229	VALVE	0	0	0	0	0	0
230	18-06-24	Suction Line to Outside Line 2nd I/V D/S	230	VALVE	0	0	0	0	0	0
231	18-06-24	Suction Line to Outside Line 3rd I/V U/S	231	VALVE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
232	18-06-24	Suction Line to Outside Line 3rd I/Vgland	232	VALVE	0	0	0	0	0	0
233	18-06-24	Suction Line to Outside Line 3rd I/V D/S	233	VALVE	0	0	0	0	0	0
234	18-06-24	Stainer Flange	234	VALVE	0	0	0	0	0	0
235	18-06-24	OWS Point	235	VALVE	0	0	0	0	0	0
236	18-06-24	01-PA-103A Suction Line I/V U/S Flange	236	FLANGE	0	0	0	0	0	0
237	18-06-24	01-PA-103A Suction Line I/V Gland	237	VALVE	0	0	0	0	0	0
238	18-06-24	01-PA-103A Suction Line I/V D/S Flange	238	FLANGE	0	0	0	0	0	0
239	18-06-24	Stainer Top Flange	239	FLANGE	0	0	0	0	0	0
240	18-06-24	Stainer Top Flange Drain Line Gland	240	VALVE	0	0	0	0	0	0
241	18-06-24	Stainer Top Flange Drain Line Safety Flange	241	FLANGE	0	0	0	0	0	0
242	18-06-24	Suction Line Flange	242	FLANGE	0	0	0	0	0	0
243	18-06-24	Pump Seal	243	VALVE	0	0	0	0	0	0
244	18-06-24	Discharge Line Flange	244	FLANGE	0	0	0	0	0	0
245	18-06-24	Meter line 1st I/VGland	245	VALVE	0	0	0	0	0	0
246	18-06-24	Meter line 2nd I/V Gland	246	VALVE	0	0	0	0	0	0
247	18-06-24	Meter line Sampling Point I/V Gland	247	VALVE	0	0	0	0	0	0
248	18-06-24	NRV I/V U/S Flange	248	FLANGE	0	0	0	0	0	0
249	18-06-24	NRV Top Flange	249	FLANGE	0	0	0	0	0	0
250	18-06-24	NRV I/V D/S Flange	250	FLANGE	0	0	0	0	0	0
251	18-06-24	Discharge Line I/V U/S Flange	251	FLANGE	0	0	0	0	0	0
252	18-06-24	Discharge Line I/V Gland	252	VALVE	0	0	0	0	0	0
253	18-06-24	Discharge Line I/V D/S Flange	253	FLANGE	0	0	0	0	0	0
254	18-06-24	Pump to Drain Line 1st I/V Gland	254	VALVE	0	0	0	0	0	0
255	18-06-24	Pump to Drain Line 2nd I/V Gland	255	VALVE	0	0	0	0	0	0
256	18-06-24	Pump to Drain Line 3rd I/V Gland	256	VALVE	0	0	0	0	0	0
257	18-06-24	Stainer Flange	257	FLANGE	0	0	0	0	0	0
258	18-06-24	OWS Point	258	VALVE	0	0	0	0	0	0
259	18-06-24	01-FV-4003 U/S Line I/V U/S Flange	259	FLANGE	0	0	0	0	0	0
260	18-06-24	01-FV-4003 U/S Line I/V Gland	260	VALVE	0	0	0	0	0	0
261	18-06-24	01-FV-4003 U/S Line I/V D/S Flange	261	FLANGE	0	0	0	0	0	0
262	18-06-24	Drain Line I/V Gland	262	VALVE	0	0	0	0	0	0
263	18-06-24	Drain Line Safety Flange	263	FLANGE	0	0	0	0	0	0
264	18-06-24	01-FV-4003 C/V U/S Flange	264	FLANGE	0	0	0	0	0	0
265	18-06-24	01-FV-4003 C/V Gland	265	VALVE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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266	18-06-24	01-FV-4003 C/V D/S Flange	266	FLANGE	0	0	0	0	0	0
267	18-06-24	Drain Line I/V Gland	267	VALVE	0	0	0	0	0	0
268	18-06-24	Drain Line Safety Flange	268	FLANGE	0	0	0	0	0	0
269	18-06-24	01-FV-4003 D/S Line I/V U/S Flange	269	FLANGE	0	0	0	0	0	0
270	18-06-24	01-FV-4003 D/S Line I/V Gland	270	VALVE	0	0	0	0	0	0
271	18-06-24	01-FV-4003 D/S Line I/V D/S Flange	271	FLANGE	0	0	0	0	0	0
272	18-06-24	Bypass Line I/V U/S Flange	272	FLANGE	0	0	0	0	0	0
273	18-06-24	Bypass Line I/V Gland	273	VALVE	0	0	0	0	0	0
274	18-06-24	Bypass Line I/V D/S Flange	274	FLANGE	0	0	0	0	0	0
275	18-06-24	01-FV-3803 U/S Line I/V U/S Flange	275	FLANGE	0	0	0	0	0	0
276	18-06-24	01-FV-3803 U/S Line I/V Gland	276	VALVE	0	0	0	0	0	0
277	18-06-24	01-FV-3803 U/S Line I/V D/S Flange	277	FLANGE	0	0	0	0	0	0
278	18-06-24	Drain Line I/V Gland	278	VALVE	0	0	0	0	0	0
279	18-06-24	Drain Line Safety Flange	279	FLANGE	0	0	0	0	0	0
280	18-06-24	01-FV-3803 C/V U/S Flange	280	FLANGE	0	0	0	0	0	0
281	18-06-24	01-FV-3803 C/V Gland	281	VALVE	0	0	0	0	0	0
282	18-06-24	01-FV-3803 C/V D/S Flange	282	FLANGE	0	0	0	0	0	0
283	18-06-24	Drain Line I/V Gland	283	VALVE	0	0	0	0	0	0
284	18-06-24	Drain Line Safety Flange	284	FLANGE	0	0	0	0	0	0
285	18-06-24	01-FV-3803 D/S Line I/V U/S Flange	285	FLANGE	0	0	0	0	0	0
286	18-06-24	01-FV-3803 D/S Line I/V Gland	286	VALVE	0	0	0	0	0	0
287	18-06-24	01-FV-3803 D/S Line I/V D/S Flange	287	FLANGE	0	0	0	0	0	0
288	18-06-24	Bypass Line I/V U/S Flange	288	FLANGE	0	0	0	0	0	0
289	18-06-24	Bypass Line I/V Gland	289	VALVE	0	0	0	0	0	0
290	18-06-24	Bypass Line I/V D/S Flange	290	FLANGE	0	0	0	0	0	0
291	18-06-24	01-FV-3901 U/S Line I/V U/S Flange	291	FLANGE	0	0	0	0	0	0
292	18-06-24	01-FV-3901 U/S Line I/V Gland	292	VALVE	0	0	0	0	0	0
293	18-06-24	01-FV-3901 U/S Line I/V D/S Flange	293	FLANGE	0	0	0	0	0	0
294	18-06-24	Drain Line I/V Gland	294	VALVE	0	0	0	0	0	0
295	18-06-24	Drain Line Safety Flange	295	FLANGE	0	0	0	0	0	0
296	18-06-24	01-FV-3901 C/V U/S Flange	296	FLANGE	0	0	0	0	0	0
297	18-06-24	01-FV-3901 C/V Gland	297	VALVE	0	0	0	0	0	0
298	18-06-24	01-FV-3901 C/V D/S Flange	298	FLANGE	0	0	0	0	0	0
299	18-06-24	Drain Line I/V Gland	299	VALVE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
300	18-06-24	Drain Line Safety Flange	300	FLANGE	0	0	0	0	0	0
301	18-06-24	01-FV-3901 D/S Line I/V U/S Flange	301	FLANGE	0	0	0	0	0	0
302	18-06-24	01-FV-3901 D/S Line I/V Gland	302	VALVE	0	0	0	0	0	0
303	18-06-24	01-FV-3901 D/S Line I/V D/S Flange	303	FLANGE	0	0	0	0	0	0
304	18-06-24	Bypass line I/V U/S Flange	304	FLANGE	0	0	0	0	0	0
305	18-06-24	Bypass Line I/V Gland	305	VALVE	0	0	0	0	0	0
306	18-06-24	Bypass line I/V D/S Flange	306	FLANGE	0	0	0	0	0	0
307	18-06-24	3.P.01.3916.A1A To EE-108 Line I/V	307	VALVE	0	0	0	0	0	0
308	18-06-24	3.P.01.3916.A1A To EE-108 Line I/V	308	VALVE	0	0	0	0	0	0
309	18-06-24	3.P.01.3916.A1A To EE-108 Line I/V	309	VALVE	0	0	0	0	0	0
310	18-06-24	3.P.01.3916.A1A To Naptha Pool	310	VALVE	0	0	0	0	0	0
311	18-06-24	3.P.01.3916.A1A To Naptha Pool	311	VALVE	0	0	0	0	0	0
312	18-06-24	3.P.01.3916.A1A To Naptha Pool	312	VALVE	0	0	0	0	0	0
313	18-06-24	01-PR-101B Suction Line I/V U/S Flange	313	FLANGE	0	0	0	0	0	0
314	18-06-24	01-PR-101B Suction Line I/V Gland	314	VALVE	0	0	0	0	0	0
315	18-06-24	01-PR-101B Suction Line I/V D/S Flange	315	FLANGE	0	0	0	0	0	0
316	18-06-24	Steamer Top Flange	316	FLANGE	0	0	0	0	0	0
317	18-06-24	Steamer Top Flange Drain Line I/V	317	VALVE	0	0	0	0	0	0
318	18-06-24	Steamer Top Flange Drain Line I/V	318	VALVE	0	0	0	0	0	0
319	18-06-24	Suction Line Flange	319	FLANGE	0	0	0	0	0	0
320	18-06-24	Pump Seal	320	VALVE	0	0	0	0	0	0
321	18-06-24	Discharge Line Flange	321	FLANGE	0	0	0	0	0	0
322	18-06-24	Meter line 1st I/V Gland	322	VALVE	0	0	0	0	0	0
323	18-06-24	Meter line 2nd I/V Gland	323	VALVE	0	0	0	0	0	0
324	18-06-24	Meter line Sampling Point I/V Gland	324	VALVE	0	0	0	0	0	0
325	18-06-24	NRV I/V U/S Flange	325	FLANGE	0	0	0	0	0	0
326	18-06-24	NRV Top Flange	326	FLANGE	0	0	0	0	0	0
327	18-06-24	NRV I/V D/S Flange	327	FLANGE	0	0	0	0	0	0
328	18-06-24	Discharge Line I/V U/S Flange	328	FLANGE	0	0	0	0	0	0
329	18-06-24	Discharge Line I/V Gland	329	VALVE	0	0	0	0	0	0
330	18-06-24	Discharge Line I/V D/S Flange	330	FLANGE	0	0	0	0	0	0
331	18-06-24	Pump to Drain Line 1st I/V Gland	331	VALVE	0	0	0	0	0	0
332	19-06-24	Pump to Drain Line 2nd I/V Gland	332	VALVE	0	0	0	0	0	0
333	19-06-24	Pump to Drain Line 3rd I/V Gland	333	VALVE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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334	19-06-24	Steamer Flange	334	FLANGE	0	0	0	0	0	0
335	19-06-24	OWS Point	335	VALVE	0	0	0	0	0	0
336	19-06-24	01-PA-101A Suction Line I/V U/S Flange	336	FLANGE	0	0	0	0	0	0
337	19-06-24	01-PA-101A Suction Line I/V Gland	337	VALVE	0	0	0	0	0	0
338	19-06-24	01-PA-101A Suction Line I/V D/S Flange	338	FLANGE	0	0	0	0	0	0
339	19-06-24	Steamer Top Flange	339	FLANGE	0	0	0	0	0	0
340	19-06-24	Steamer Top Flange I/V Gland	340	FLANGE	0	0	0	0	0	0
341	19-06-24	Steamer Top Flange Safety Flange	341	FLANGE	0	0	0	0	0	0
342	19-06-24	Suction Line Flange	342	FLANGE	0	0	0	0	0	0
343	19-06-24	Pump Seal	343	VALVE	0	0	0	0	0	0
344	19-06-24	Discharge Line Flange	344	FLANGE	0	0	0	0	0	0
345	19-06-24	Meter line 1st I/V Gland	345	VALVE	0	0	0	0	0	0
346	19-06-24	Meter line 2nd I/V Gland	346	VALVE	0	0	0	0	0	0
347	19-06-24	Meter line Sampling Point I/V Gland	347	VALVE	0	0	0	0	0	0
348	19-06-24	Discharge Line I/V U/S Flange	348	FLANGE	0	0	0	0	0	0
349	19-06-24	Discharge Line I/V Gland	349	VALVE	0	0	0	0	0	0
350	19-06-24	Discharge Line I/V D/S Flange	350	FLANGE	0	0	0	0	0	0
351	19-06-24	Suction Line to Outside Line 1st I/V	351	VALVE	0	0	0	0	0	0
352	19-06-24	Suction Line to Outside Line 1st I/V	352	VALVE	0	0	0	0	0	0
353	19-06-24	Suction Line to Outside Line 1st I/V	353	VALVE	0	0	0	0	0	0
354	19-06-24	Suction Line to Outside Line 2nd I/V	354	VALVE	0	0	0	0	0	0
355	19-06-24	Suction Line to Outside Line 2nd I/V	355	VALVE	0	0	0	0	0	0
356	19-06-24	Suction Line to Outside Line 2nd I/V	356	VALVE	0	0	0	0	0	0
357	19-06-24	Suction Line to Outside Line 3rd I/V	357	VALVE	0	0	0	0	0	0
358	19-06-24	Suction Line to Outside Line 3rd I/V	358	VALVE	0	0	0	0	0	0
359	19-06-24	Suction Line to Outside Line 3rd I/V	359	VALVE	0	0	0	0	0	0
360	19-06-24	Pump to Drain Line 1st I/V Gland	360	VALVE	0	0	0	0	0	0
361	19-06-24	Pump to Drain Line 2nd I/V Gland	361	VALVE	0	0	0	0	0	0
362	19-06-24	Pump to Drain Line 3rd I/V Gland	362	VALVE	0	0	0	0	0	0
363	19-06-24	Steamer Flange	363	FLANGE	0	0	0	0	0	0
364	19-06-24	OWS Point	364	VALVE	0	0	0	0	0	0
365	19-06-24	01-FV-3701 U/S Line I/V U/S Flange	365	FLANGE	0	0	0	0	0	0
366	19-06-24	01-FV-3701 U/S Line I/V Gland	366	VALVE	0	0	0	0	0	0
367	19-06-24	01-FV-3701 U/S Line I/V D/S Flange	367	FLANGE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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368	19-06-24	Drain Line I/V Gland	368	VALVE	0	0	0	0	0	0
369	19-06-24	Drain Line Safety Flange	369	FLANGE	0	0	0	0	0	0
370	19-06-24	01-FV-3701 C/V U/S Flange	370	FLANGE	0	0	0	0	0	0
371	19-06-24	01-FV-3701 C/V Gland	371	VALVE	0	0	0	0	0	0
372	19-06-24	01-FV-3701 C/V D/S Flange	372	FLANGE	0	0	0	0	0	0
373	19-06-24	Drain Line I/V Gland	373	VALVE	0	0	0	0	0	0
374	19-06-24	Drain Line Safety Flange	374	FLANGE	0	0	0	0	0	0
375	19-06-24	01-FV-3701 D/S Line I/V U/S Flange	375	FLANGE	0	0	0	0	0	0
376	19-06-24	01-FV-3701 D/S Line I/V Gland	376	VALVE	0	0	0	0	0	0
377	19-06-24	01-FV-3701 D/S Line I/V D/S Flange	377	FLANGE	0	0	0	0	0	0
378	19-06-24	Bypass Line I/V Gland	378	GLAND	0	0	0	0	0	0
379	19-06-24	To Naptha Pool EX-PA-101 Line I/V	379	VALVE	0	0	0	0	0	0
380	19-06-24	To Naptha Pool EX-PA-101 Line I/V	380	VALVE	0	0	0	0	0	0
381	19-06-24	To Naptha Pool EX-PA-101 Line I/V	381	VALVE	0	0	0	0	0	0
382	19-06-24	Naptha To EE-109 EX-PA-101 Line	382	VALVE	0	0	0	0	0	0
383	19-06-24	Naptha To EE-109 EX-PA-101 Line	383	VALVE	0	0	0	0	0	0
384	19-06-24	Naptha To EE-109 EX-PA-101 Line	384	VALVE	0	0	0	0	0	0
385	19-06-24	01-FV-4005 U/S Line I/V U/S Flange	385	FLANGE	0	0	0	0	0	0
386	19-06-24	01-FV-4005 U/S Line I/V Gland	386	GLAND	0	0	0	0	0	0
387	19-06-24	01-FV-4005 U/S Line I/V D/S Flange	387	FLANGE	0	0	0	0	0	0
388	19-06-24	Drain Line I/V Gland	388	GLAND	0	0	0	0	0	0
389	19-06-24	Drain Line Safety Flange	389	FLANGE	0	0	0	0	0	0
390	19-06-24	01-FV-4005 C/V U/S Flange	390	FLANGE	0	0	0	0	0	0
391	19-06-24	01-FV-4005 C/V Gland	391	GLAND	0	0	0	0	0	0
392	19-06-24	01-FV-4005 C/V D/S Flange	392	FLANGE	0	0	0	0	0	0
393	19-06-24	Drain Line I/V Gland	393	GLAND	0	0	0	0	0	0
394	19-06-24	Drain Line Safety Flange	394	FLANGE	0	0	0	0	0	0
395	19-06-24	01-FV-4005 D/S Line I/V U/S Flange	395	FLANGE	0	0	0	0	0	0
396	19-06-24	01-FV-4005 D/S Line I/V Gland	396	GLAND	0	0	0	0	0	0
397	19-06-24	01-FV-4005 D/S Line I/V D/S Flange	397	FLANGE	0	0	0	0	0	0
398	19-06-24	Bypass Line I/V Gland	398	GLAND	0	0	0	0	0	0
399	19-06-24	01-PA-CF-012A Suction Line I/V U/S Flange	399	FLANGE	0	0	0	0	0	0
400	19-06-24	01-PA-CF-012A Suction Line I/V Gland	400	GLAND	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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401	19-06-24	01-PA-CF-012A Suction Line I/V D/S Flange	401	FLANGE	0	0	0	0	0	0
402	19-06-24	Steamer Top Flange	402	FLANGE	0	0	0	0	0	0
403	19-06-24	Steamer Top Flange I/V Gland	403	FLANGE	0	0	0	0	0	0
404	19-06-24	Steamer Top Flange Safety Flange	404	FLANGE	0	0	0	0	0	0
405	19-06-24	Suction Line Flange	405	FLANGE	0	0	0	0	0	0
406	19-06-24	Pump Seal	406	VALVE	0	0	0	0	0	0
407	19-06-24	Discharge Line Flange	407	FLANGE	0	0	0	0	0	0
408	19-06-24	NRV I/V U/S Flange	408	FLANGE	0	0	0	0	0	0
409	19-06-24	NRV Top Flange	409	FLANGE	0	0	0	0	0	0
410	19-06-24	NRV I/V D/S Flange	410	FLANGE	0	0	0	0	0	0
411	19-06-24	Meter line 1st I/V Gland	411	GLAND	0	0	0	0	0	0
412	19-06-24	Meter line 2nd I/V Gland	412	GLAND	0	0	0	0	0	0
413	19-06-24	Meter line Sampling Point I/V Gland	413	GLAND	0	0	0	0	0	0
414	19-06-24	Discharge Line I/V U/S Flange	414	FLANGE	0	0	0	0	0	0
415	19-06-24	Discharge Line I/V Gland	415	GLAND	0	0	0	0	0	0
416	19-06-24	Discharge Line I/V D/S Flange	416	FLANGE	0	0	0	0	0	0
417	19-06-24	Pump to Drain Line 1st I/V Gland	417	GLAND	0	0	0	0	0	0
418	19-06-24	Pump to Drain Line 2nd I/V Gland	418	GLAND	0	0	0	0	0	0
419	19-06-24	Pump to Drain Line 3rd I/V Gland	419	GLAND	0	0	0	0	0	0
420	19-06-24	Steamer Flange	420	FLANGE	0	0	0	0	0	0
421	19-06-24	OWS Point	421	VALVE	0	0	0	0	0	0
422	19-06-24	01-PV-04 Suction Line I/V U/S Flange	422	FLANGE	0	0	0	0	0	0
423	19-06-24	01-PV-04 Suction Line I/V Gland	423	GLAND	0	0	0	0	0	0
424	19-06-24	01-PV-04 Suction Line I/V D/S Flange	424	FLANGE	0	0	0	0	0	0
425	19-06-24	Steamer Top Flange	425	FLANGE	0	0	0	0	0	0
426	19-06-24	Steamer Top Flange I/V Gland	426	FLANGE	0	0	0	0	0	0
427	19-06-24	Steamer Top Flange Safety Flange	427	FLANGE	0	0	0	0	0	0
428	19-06-24	Suction Line Flange	428	FLANGE	0	0	0	0	0	0
429	19-06-24	Discharge Line 1st Flange	429	FLANGE	0	0	0	0	0	0
430	19-06-24	Discharge Line 2nd Flange	430	FLANGE	0	0	0	0	0	0
431	19-06-24	Meter Line I/V Gland	431	GLAND	0	0	0	0	0	0
432	19-06-24	Meter Line Sampling Point I/V Gland	432	GLAND	0	0	0	0	0	0
433	19-06-24	NRV I/V U/S Flange	433	FLANGE	0	0	0	0	0	0
434	19-06-24	NRV Top Flange	434	FLANGE	0	0	0	0	0	0
435	19-06-24	NRV I/V D/S Flange	435	FLANGE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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436	19-06-24	Discharge Line I/V U/S Flange	436	FLANGE	0	0	0	0	0	0
437	19-06-24	Discharge Line I/V Gland	437	GLAND	0	0	0	0	0	0
438	19-06-24	Discharge Line I/V D/S Flange	438	FLANGE	0	0	0	0	0	0
439	19-06-24	Drain Line I/V Gland	439	GLAND	0	0	0	0	0	0
440	19-06-24	Drain Line Safety Flange	440	FLANGE	0	0	0	0	0	0
441	19-06-24	Pump to Drain Line 1st I/V Gland	441	GLAND	0	0	0	0	0	0
442	19-06-24	Pump to Drain Line 2nd I/V Gland	442	GLAND	0	0	0	0	0	0
443	19-06-24	Stainer Flange	443	FLANGE	0	0	0	0	0	0
444	19-06-24	OWS Point	444	VALVE	0	0	0	0	0	0
445	19-06-24	01-PV-04A Suction Line I/V U/S Flange	445	FLANGE	0	0	0	0	0	0
446	19-06-24	01-PV-04A Suction Line I/V Gland	446	GLAND	0	0	0	0	0	0
447	19-06-24	01-PV-04A Suction Line I/V D/S Flange	447	FLANGE	0	0	0	0	0	0
448	19-06-24	Stainer Top Flange	448	FLANGE	0	0	0	0	0	0
449	19-06-24	Stainer Top Flange I/V Gland	449	GLAND	0	0	0	0	0	0
450	19-06-24	Stainer Top Flange Safety Flange	450	FLANGE	0	0	0	0	0	0
451	19-06-24	Suction Line Flange	451	FLANGE	0	0	0	0	0	0
452	19-06-24	Pump Seal	452	VALVE	0	0	0	0	0	0
453	19-06-24	Discharge Line 1st Flange	453	FLANGE	0	0	0	0	0	0
454	19-06-24	Discharge Line 2nd Flange	454	FLANGE	0	0	0	0	0	0
455	19-06-24	Meter line I/V Gland	455	GLAND	0	0	0	0	0	0
456	19-06-24	Meter line Sampling Point I/V Gland	456	GLAND	0	0	0	0	0	0
457	19-06-24	NRV I/V U/S Flange	457	FLANGE	0	0	0	0	0	0
458	19-06-24	NRV Top Flange	458	FLANGE	0	0	0	0	0	0
459	19-06-24	NRV I/V D/S Flange	459	FLANGE	0	0	0	0	0	0
460	19-06-24	Drain Line I/V Gland	460	GLAND	0	0	0	0	0	0
461	19-06-24	Drain Line Safety Flange	461	FLANGE	0	0	0	0	0	0
462	19-06-24	Discharge Line I/V U/S Flange	462	FLANGE	0	0	0	0	0	0
463	19-06-24	Discharge Line I/V Gland	463	GLAND	0	0	0	0	0	0
464	19-06-24	Discharge Line I/V D/S Flange	464	FLANGE	0	0	0	0	0	0
465	19-06-24	Pump to Drain Line 1st I/V Gland	465	GLAND	0	0	0	0	0	0
466	19-06-24	Pump to Drain Line 2nd I/V Gland	466	GLAND	0	0	0	0	0	0
467	19-06-24	Stainer Flange	467	FLANGE	0	0	0	0	0	0
468	19-06-24	OWS Point	468	VALVE	0	0	0	0	0	0
469	19-06-24	01-PA-CF-013-B Suction Line I/V U/S Flange	469	FLANGE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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470	19-06-24	01-PA-CF-013-B Suction Line I/V Gland	470	GLAND	0	0	0	0	0	0
471	19-06-24	01-PA-CF-013-B Suction Line I/V D/S Flange	471	FLANGE	0	0	0	0	0	0
472	19-06-24	Stainer Top Flange	472	FLANGE	0	0	0	0	0	0
473	19-06-24	Stainer Top Flange I/V Gland	473	FLANGE	0	0	0	0	0	0
474	19-06-24	Stainer Top flange Safety Flange	474	FLANGE	0	0	0	0	0	0
475	19-06-24	Suction Line Flange	475	FLANGE	0	0	0	0	0	0
476	19-06-24	Pump Seal	476	VALVE	0	0	0	0	0	0
477	19-06-24	Discharge Line 1st Flange	477	FLANGE	0	0	0	0	0	0
478	19-06-24	Discharge Line 2nd Flange	478	FLANGE	0	0	0	0	0	0
479	19-06-24	Meter line I/V Gland	479	GLAND	0	0	0	0	0	0
480	19-06-24	Meter line Sampling Point I/V Gland	480	GLAND	0	0	0	0	0	0
481	19-06-24	NRV I/V U/S Flange	481	FLANGE	0	0	0	0	0	0
482	19-06-24	NRV Top Flange	482	FLANGE	0	0	0	0	0	0
483	19-06-24	NRV I/V D/S Flange	483	FLANGE	0	0	0	0	0	0
484	19-06-24	Discharge Line I/V U/S Flange	484	FLANGE	0	0	0	0	0	0
485	19-06-24	Discharge Line I/V Gland	485	VALVE	0	0	0	0	0	0
486	19-06-24	Discharge Line I/V D/S Flange	486	FLANGE	0	0	0	0	0	0
487	19-06-24	Pump to Drain Line 1st I/V Gland	487	GLAND	0	0	0	0	0	0
488	19-06-24	Pump to Drain Line 2nd I/V Gland	488	GLAND	0	0	0	0	0	0
489	19-06-24	Pump to Drain Line 3rd I/V Gland	489	GLAND	0	0	0	0	0	0
490	19-06-24	Stainer Flange	490	FLANGE	0	0	0	0	0	0
491	19-06-24	OWS Point	491	VALVE	0	0	0	0	0	0
492	19-06-24	01-PA-CF-013-A Suction Line I/V U/S Flange	492	FLANGE	0	0	0	0	0	0
493	19-06-24	01-PA-CF-013-B Suction Line I/V Gland	493	GLAND	0	0	0	0	0	0
494	19-06-24	01-PA-CF-013-B Suction Line I/V D/S Flange	494	FLANGE	0	0	0	0	0	0
495	19-06-24	Stainer Top Flange	495	FLANGE	0	0	0	0	0	0
496	19-06-24	Stainer Top Flange I/V Gland	496	FLANGE	0	0	0	0	0	0
497	19-06-24	Stainer Top Flange Safety Flange	497	FLANGE	0	0	0	0	0	0
498	19-06-24	Suction Line Flange	498	FLANGE	0	0	0	0	0	0
499	19-06-24	Pump Seal	499	VALVE	0	0	0	0	0	0
500	19-06-24	Discharge Line 1st Flange	500	FLANGE	0	0	0	0	0	0
501	19-06-24	Discharge Line 2nd Flange	501	FLANGE	0	0	0	0	0	0
502	19-06-24	Meter line I/V Gland	502	GLAND	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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503	19-06-24	Meter line Sampling Point I/V Gland	503	GLAND	0	0	0	0	0	0
504	19-06-24	NRV I/V U/S Flange	504	FLANGE	0	0	0	0	0	0
505	19-06-24	NRV Top Flange	505	FLANGE	0	0	0	0	0	0
506	19-06-24	NRV I/V D/S Flange	506	FLANGE	0	0	0	0	0	0
507	19-06-24	Discharge Line I/V U/S Flange	507	FLANGE	0	0	0	0	0	0
508	19-06-24	Discharge Line I/V Gland	508	GLAND	0	0	0	0	0	0
509	19-06-24	Discharge Line I/V D/S Flange	509	FLANGE	0	0	0	0	0	0
510	19-06-24	Pump to Drain Line 1st I/V Gland	510	GLAND	0	0	0	0	0	0
511	19-06-24	Pump to Drain Line 2nd I/V Gland	511	GLAND	0	0	0	0	0	0
512	19-06-24	Pump to Drain Line 3rd I/V Gland	512	GLAND	0	0	0	0	0	0
513	19-06-24	Stainer Flange	513	FLANGE	0	0	0	0	0	0
514	19-06-24	OWS Point	514	VALVE	0	0	0	0	0	0
515	19-06-24	01-FV-1505 U/S Line I/V U/S Flange	515	FLANGE	0	0	0	0	0	0
516	19-06-24	01-FV-1505 U/S Line I/V Gland	516	GLAND	0	0	0	0	0	0
517	19-06-24	01-FV-1505 U/S Line I/V D/S Flange	517	FLANGE	0	0	0	0	0	0
518	19-06-24	Drain Line I/V Gland	518	GLAND	0	0	0	0	0	0
519	19-06-24	Drain Line Safety Flange	519	FLANGE	0	0	0	0	0	0
520	19-06-24	01-FV-1505 C/V U/S Flange	520	FLANGE	0	0	0	0	0	0
521	19-06-24	01-FV-1505 C/V Gland	521	GLAND	0	0	0	0	0	0
522	19-06-24	01-FV-1505 C/V D/S Flange	522	FLANGE	0	0	0	0	0	0
523	19-06-24	01-FV-1505 D/S Line I/V U/S Flange	523	FLANGE	0	0	0	0	0	0
524	19-06-24	01-FV-1505 D/S Line I/V Gland	524	GLAND	0	0	0	0	0	0
525	19-06-24	01-FV-1505 D/S Line I/V D/S Flange	525	FLANGE	0	0	0	0	0	0
526	19-06-24	Bypass Line I/V U/S Flange	526	FLANGE	0	0	0	0	0	0
527	19-06-24	Bypass Line I/V U/S Gland	527	GLAND	0	0	0	0	0	0
528	19-06-24	Bypass Line I/V D/S Flange	528	FLANGE	0	0	0	0	0	0
529	19-06-24	01-PV-2002 U/S Line I/V Gland	529	GLAND	0	0	0	0	0	0
530	19-06-24	Drain Line I/V Gland	530	GLAND	0	0	0	0	0	0
531	19-06-24	Drain Line Safety Flange	531	FLANGE	0	0	0	0	0	0
532	19-06-24	01-PV-2002 D/S line I/V Gland	532	GLAND	0	0	0	0	0	0
533	19-06-24	Drain Line I/V Gland	533	GLAND	0	0	0	0	0	0
534	19-06-24	Drain Line Safety Flange	534	FLANGE	0	0	0	0	0	0
535	19-06-24	Bypass Line I/V Gland	535	GLAND	0	0	0	0	0	0
536	19-06-24	01-PV-1402 U/S line I/V Gland	536	GLAND	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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537	19-06-24	Drain Line I/V Gland	537	GLAND	0	0	0	0	0	0
538	19-06-24	Drain Line Safety Flange	538	FLANGE	0	0	0	0	0	0
539	19-06-24	01-PV-1402 C/V Gland	539	GLAND	0	0	0	0	0	0
540	19-06-24	01-PV-1402 D/S line I/V Gland	540	GLAND	0	0	0	0	0	0
541	19-06-24	Drain Line I/V Gland	541	GLAND	0	0	0	0	0	0
542	19-06-24	Drain Line Safety Flange	542	FLANGE	0	0	0	0	0	0
543	19-06-24	Bypass Line I/V Gland	543	GLAND	0	0	0	0	0	0
544	19-06-24	01-PV-1401 U/S line I/V Gland	544	GLAND	0	0	0	0	0	0
545	19-06-24	Drain Line I/V Gland	545	GLAND	0	0	0	0	0	0
546	19-06-24	Drain Line Safety Flange	546	FLANGE	0	0	0	0	0	0
547	19-06-24	01-PV-1401 C/V U/S Flange	547	FLANGE	0	0	0	0	0	0
548	19-06-24	01-PV-1401 C/V Gland	548	GLAND	0	0	0	0	0	0
549	19-06-24	01-PV-1401 C/V D/S Flange	549	GLAND	0	0	0	0	0	0
550	19-06-24	01-PV-1401 D/S line I/V Gland	550	GLAND	0	0	0	0	0	0
551	19-06-24	Drain Line I/V Gland	551	GLAND	0	0	0	0	0	0
552	19-06-24	Drain Line Safety Flange	552	FLANGE	0	0	0	0	0	0
553	19-06-24	Bypass Line I/V Gland	553	GLAND	0	0	0	0	0	0
554	19-06-24	01-SDV-1401 C/V U/S Flange	554	FLANGE	0	0	0	0	0	0
555	19-06-24	01-SDV-1401 C/V Gland	555	GLAND	0	0	0	0	0	0
556	19-06-24	01-SDV-1401 C/V D/S Flange	556	FLANGE	0	0	0	0	0	0
557	19-06-24	Drain Line I/V Gland	557	GLAND	0	0	0	0	0	0
558	19-06-24	Drain Line Safety Flange	558	FLANGE	0	0	0	0	0	0
559	19-06-24	01-FV-3804 D/S Line I/V U/S Flange	559	FLANGE	0	0	0	0	0	0
560	19-06-24	01-FV-3804 D/S Line I/V Gland	560	GLAND	0	0	0	0	0	0
561	19-06-24	01-FV-3804 D/S Line I/V D/S Flange	561	FLANGE	0	0	0	0	0	0
562	19-06-24	01-FV-3804 C/V U/S Flange	562	FLANGE	0	0	0	0	0	0
563	19-06-24	01-FV-3804 C/V Gland	563	GLAND	0	0	0	0	0	0
564	19-06-24	01-FV-3804 C/V D/S Flange	564	FLANGE	0	0	0	0	0	0
565	19-06-24	01-FV-2702 C/V U/S Flange	565	FLANGE	0	0	0	0	0	0
566	19-06-24	01-FV-2702 C/V Gland	566	GLAND	0	0	0	0	0	0
567	19-06-24	01-FV-2702 C/V U/S Flange	567	FLANGE	0	0	0	0	0	0
568	19-06-24	01-FV-1702 C/V U/S Flange	568	FLANGE	0	0	0	0	0	0
569	19-06-24	01-FV-1702 C/V Gland	569	GLAND	0	0	0	0	0	0
570	19-06-24	01-FV-1702 C/V D/S Flange	570	FLANGE	0	0	0	0	0	0
571	19-06-24	Drain Line I/V Gland	571	GLAND	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
572	19-06-24	Drain Line Safety Flange	572	FLANGE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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WAX										
1	24-06-24	Pump -18PA109A Wax Scripper Bottom Pump	1	VALVE	0	0	0	0	0	0
2	24-06-24	I/V Gland	2	GLAND	0	0	0	0	0	0
3	24-06-24	I/V D/S Flange	3	FLANGE	0	0	0	0	0	0
4	24-06-24	Drain line I/V Gland	4	GLAND	0	0	0	0	0	0
5	24-06-24	Drain Line Safety Flange	5	FLANGE	0	0	0	0	0	0
6	24-06-24	Discharge line I/V U/S Flange	6	FLANGE	0	0	0	0	0	0
7	24-06-24	I/V Gland	7	GLAND	0	0	0	0	0	0
8	24-06-24	I/V D/S Flange	8	GLAND	0	0	0	0	0	0
9	24-06-24	18PA109B Suction Line I/V U/S Flange	9	FLANGE	0	0	0	0	0	0
10	24-06-24	Meter Line I/V Gland	10	GLAND	0	0	0	0	0	0
11	24-06-24	OWS point	11	VALVE	0	0	0	0	0	0
12	24-06-24	Pump Seal	12	VALVE	0	0	0	0	0	0
13	24-06-24	I/V Gland	13	GLAND	0	0	0	0	0	0
14	24-06-24	I/V D/S Flange	14	FLANGE	0	0	0	0	0	0
15	24-06-24	Drain line I/V Gland	15	GLAND	0	0	0	0	0	0
16	24-06-24	Drain Line Safety Flange	16	FLANGE	0	0	0	0	0	0
17	24-06-24	Discharge line I/V U/S Flange	17	FLANGE	0	0	0	0	0	0
18	24-06-24	I/V Gland	18	GLAND	0	0	0	0	0	0
19	24-06-24	I/V D/S Flange	19	FLANGE	0	0	0	0	0	0
20	24-06-24	18PA105A Suction Line I/V U/S Flange	20	FLANGE	0	0	0	0	0	0
21	24-06-24	Meter Line 1st I/V Gland	21	GLAND	0	0	0	0	0	0
22	24-06-24	Meter Line 2nd I/V Gland	22	GLAND	0	0	0	0	0	0
23	24-06-24	OWS point	23	VALVE	0	0	0	0	0	0
24	24-06-24	Pump Seal	24	VALVE	0	0	0	0	0	0
25	24-06-24	I/V Gland	25	GLAND	0	0	0	0	0	0
26	24-06-24	I/V D/S Flange	26	FLANGE	0	0	0	0	0	0
27	24-06-24	Drain line I/V Gland	27	GLAND	0	0	0	0	0	0
28	24-06-24	Drain Line Safety Flange	28	FLANGE	0	0	0	0	0	0
29	24-06-24	Meter Line 1st I/V Gland	29	GLAND	0	0	0	0	0	0
30	24-06-24	Meter Line 2nd I/V Gland	30	GLAND	0	0	0	0	0	0
31	24-06-24	Pump Seal	31	VALVE	0	0	0	0	0	0
32	24-06-24	18PA105B Suction Line I/V U/S Flange	32	FLANGE	0	0	0	0	0	0
33	24-06-24	I/V Gland	33	GLAND	0	0	0	0	0	0
34	24-06-24	I/V D/S Flange	34	FLANGE	0	0	0	0	0	0
35	24-06-24	Discharge line I/V Gland	35	GLAND	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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36	24-06-24	I/V D/S Flange	36	FLANGE	0	0	0	0	0	0
37	24-06-24	Drain line I/V Gland	37	GLAND	0	0	0	0	0	0
38	24-06-24	Drain Line Safety Flange	38	FLANGE	0	0	0	0	0	0
39	24-06-24	Meter Line 1st I/V Gland	39	GLAND	0	0	0	0	0	0
40	24-06-24	Meter Line 2nd I/V Gland	40	GLAND	0	0	0	0	0	0
41	24-06-24	OWS point	41	VALVE	0	0	0	0	0	0
42	24-06-24	18PA105C Suction Line I/V U/S Flange	42	FLANGE	0	0	0	0	0	0
43	24-06-24	I/V Gland	43	GLAND	0	0	0	0	0	0
44	24-06-24	I/V D/S Flange	44	FLANGE	0	0	0	0	0	0
45	24-06-24	Discharge line I/V U/S Flange	45	FLANGE	0	0	0	0	0	0
46	24-06-24	I/V Gland	46	GLAND	0	0	0	0	0	0
47	24-06-24	I/V D/S Flange	47	FLANGE	0	0	0	0	0	0
48	24-06-24	Pump Seal	48	VALVE	0	0	0	0	0	0
49	24-06-24	Drain line I/V Gland	49	GLAND	0	0	0	0	0	0
50	24-06-24	Drain Line Safety Flange	50	FLANGE	0	0	0	0	0	0
51	24-06-24	Meter Line 1st I/V Gland	51	GLAND	0	0	0	0	0	0
52	24-06-24	Meter Line 2nd I/V Gland	52	GLAND	0	0	0	0	0	0
53	24-06-24	OWS point	53	VALVE	0	0	0	0	0	0
54	24-06-24	Pump Seal	54	VALVE	0	0	0	0	0	0
55	24-06-24	I/V Gland	55	GLAND	0	0	0	0	0	0
56	24-06-24	I/V D/S Flange	56	FLANGE	0	0	0	0	0	0
57	24-06-24	18PA105D Suction Line I/V U/S Flange	57	FLANGE	0	0	0	0	0	0
58	24-06-24	Drain line I/V Gland	58	GLAND	0	0	0	0	0	0
59	24-06-24	Drain Line Safety Flange	59	FLANGE	0	0	0	0	0	0
60	24-06-24	Meter Line 1st I/V Gland	60	GLAND	0	0	0	0	0	0
61	24-06-24	Meter Line 2nd I/V Gland	61	GLAND	0	0	0	0	0	0
62	24-06-24	1902CV Gland	62	GLAND	0	0	0	0	0	0
63	24-06-24	LV1902 Suction Line I/V U/S Flange	63	FLANGE	0	0	0	0	0	0
64	24-06-24	I/V Gland	64	GLAND	0	0	0	0	0	0
65	24-06-24	I/V D/S Flange	65	FLANGE	0	0	0	0	0	0
66	24-06-24	Drain line I/V Gland	66	GLAND	0	0	0	0	0	0
67	24-06-24	Drain Line Safety Flange	67	FLANGE	0	0	0	0	0	0
68	24-06-24	OWS point	68	VALVE	0	0	0	0	0	0
69	24-06-24	Discharge Line I/V Gland	69	GLAND	0	0	0	0	0	0
70	24-06-24	Discharge Line Drain Line I/V Gland	70	GLAND	0	0	0	0	0	0
71	24-06-24	Drain Line Safety Flange	71	FLANGE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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72	24-06-24	LV2002 Suction Line I/V U/S Flange	72	FLANGE	0	0	0	0	0	0
73	24-06-24	I/V Gland	73	GLAND	0	0	0	0	0	0
74	24-06-24	I/V D/S Flange	74	FLANGE	0	0	0	0	0	0
75	24-06-24	Drain line I/V Gland	75	GLAND	0	0	0	0	0	0
76	24-06-24	Drain Line Safety Flange	76	FLANGE	0	0	0	0	0	0
77	24-06-24	LV2002 CV Gland	77	GLAND	0	0	0	0	0	0
78	24-06-24	Discharge Line I/V Gland	78	GLAND	0	0	0	0	0	0
79	24-06-24	Discharge Line Drain Line I/V Gland	79	GLAND	0	0	0	0	0	0
80	24-06-24	Drain Line Safety Flange	80	FLANGE	0	0	0	0	0	0
81	24-06-24	LV1802 Suction Line I/V Gland	81	GLAND	0	0	0	0	0	0
82	24-06-24	LV1802 CV Gland	82	GLAND	0	0	0	0	0	0
83	24-06-24	Discharge Line I/V Gland	83	GLAND	0	0	0	0	0	0
84	24-06-24	Drain line I/V Gland	84	GLAND	0	0	0	0	0	0
85	24-06-24	Drain Line Safety Flange	85	FLANGE	0	0	0	0	0	0
86	24-06-24	PV2401 Suction Line I/V U/S Flange	86	FLANGE	0	0	0	0	0	0
87	24-06-24	I/V Gland	87	GLAND	0	0	0	0	0	0
88	24-06-24	I/V D/S Flange	88	FLANGE	0	0	0	0	0	0
89	24-06-24	Drain line I/V Gland	89	GLAND	0	0	0	0	0	0
90	24-06-24	Drain Line Safety Flange	90	FLANGE	0	0	0	0	0	0
91	24-06-24	PV2401 Suction Line I/V U/S Flange	91	FLANGE	0	0	0	0	0	0
92	24-06-24	PV2401 CV Gland	92	GLAND	0	0	0	0	0	0
93	24-06-24	CV D/S Flange	93	FLANGE	0	0	0	0	0	0
94	24-06-24	Discharge line I/V U/S Flange	94	FLANGE	0	0	0	0	0	0
95	24-06-24	I/V Gland	95	GLAND	0	0	0	0	0	0
96	24-06-24	I/V D/S Flange	96	FLANGE	0	0	0	0	0	0
97	24-06-24	Drain line I/V Gland	97	GLAND	0	0	0	0	0	0
98	24-06-24	Drain Line Safety Flange	98	FLANGE	0	0	0	0	0	0
99	24-06-24	NRV U/S Flange	99	FLANGE	0	0	0	0	0	0
100	24-06-24	NRV D/S Flange	100	FLANGE	0	0	0	0	0	0
101	24-06-24	Meter Line 1st I/V Gland	101	GLAND	0	0	0	0	0	0
102	24-06-24	Meter Line 2nd I/V Gland	102	GLAND	0	0	0	0	0	0
103	24-06-24	LV1702 Suction Line I/V Gland	103	GLAND	0	0	0	0	0	0
104	24-06-24	Drain line I/V Gland	104	GLAND	0	0	0	0	0	0
105	24-06-24	Drain Line Safety Flange	105	FLANGE	0	0	0	0	0	0
106	24-06-24	LV1702 CV Gland	106	GLAND	0	0	0	0	0	0
107	24-06-24	CV D/S Flange	107	FLANGE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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108	24-06-24	Discharge line I/V Gland	108	GLAND	0	0	0	0	0	0
109	24-06-24	Discharge line Flange	109	FLANGE	0	0	0	0	0	0
110	24-06-24	Drain line I/V Gland	110	GLAND	0	0	0	0	0	0
111	24-06-24	Drain Line Safety Flange	111	FLANGE	0	0	0	0	0	0
112	24-06-24	LV1602 Suction Line I/V Gland	112	GLAND	0	0	0	0	0	0
113	24-06-24	Drain line I/V Gland	113	GLAND	0	0	0	0	0	0
114	24-06-24	Drain Line Safety Flange	114	FLANGE	0	0	0	0	0	0
115	24-06-24	LV1602 CV Gland	115	GLAND	0	0	0	0	0	0
116	24-06-24	CV D/S Flange	116	FLANGE	0	0	0	0	0	0
117	24-06-24	Discharge line I/V Gland	117	GLAND	0	0	0	0	0	0
118	24-06-24	Discharge line Drain Line I/V Gland	118	GLAND	0	0	0	0	0	0
119	24-06-24	Drain Line Safety Flange	119	FLANGE	0	0	0	0	0	0
120	24-06-24	18PA114A Suction Line I/V U/S Flange	120	FLANGE	0	0	0	0	0	0
121	24-06-24	I/V Gland	121	GLAND	0	0	0	0	0	0
122	24-06-24	I/V D/S Flange	122	FLANGE	0	0	0	0	0	0
123	24-06-24	Pump Seal	123	VALVE	0	0	0	0	0	0
124	24-06-24	I/V Gland	124	FLANGE	0	0	0	0	0	0
125	24-06-24	I/V D/S Flange	125	FLANGE	0	0	0	0	0	0
126	24-06-24	NRV U/S Flange	126	FLANGE	0	0	0	0	0	0
127	24-06-24	NRV D/S Flange	127	FLANGE	0	0	0	0	0	0
128	24-06-24	Discharge line I/V U/S Flange	128	FLANGE	0	0	0	0	0	0
129	24-06-24	Meter Line 1st I/V Gland	129	GLAND	0	0	0	0	0	0
130	24-06-24	Meter Line 2nd I/V Gland	130	GLAND	0	0	0	0	0	0
131	24-06-24	18PA114B Suction Line I/V U/S Flange	131	FLANGE	0	0	0	0	0	0
132	24-06-24	I/V Gland	132	GLAND	0	0	0	0	0	0
133	24-06-24	I/V D/S Flange	133	FLANGE	0	0	0	0	0	0
134	24-06-24	Discharge line I/V U/S Flange	134	FLANGE	0	0	0	0	0	0
135	24-06-24	I/V Gland	135	GLAND	0	0	0	0	0	0
136	24-06-24	I/V D/S Flange	136	FLANGE	0	0	0	0	0	0
137	24-06-24	NRV U/S Flange	137	FLANGE	0	0	0	0	0	0
138	24-06-24	NRV D/S Flange	138	FLANGE	0	0	0	0	0	0
139	24-06-24	Pump Seal	139	VALVE	0	0	0	0	0	0
140	24-06-24	Meter Line 1st I/V Gland	140	GLAND	0	0	0	0	0	0
141	24-06-24	Meter Line 2nd I/V Gland	141	GLAND	0	0	0	0	0	0
142	24-06-24	18PA104A Suction Line I/V U/S Flange	142	FLANGE	0	0	0	0	0	0
143	24-06-24	I/V Gland	143	GLAND	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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144	24-06-24	I/V D/S Flange	144	FLANGE	0	0	0	0	0	0
145	24-06-24	Drain line I/V Gland	145	GLAND	0	0	0	0	0	0
146	24-06-24	Drain Line Safety Flange	146	FLANGE	0	0	0	0	0	0
147	24-06-24	Discharge line I/V U/S Flange	147	FLANGE	0	0	0	0	0	0
148	24-06-24	I/V Gland	148	GLAND	0	0	0	0	0	0
149	24-06-24	I/V D/S Flange	149	FLANGE	0	0	0	0	0	0
150	24-06-24	Pump Seal	150	VALVE	0	0	0	0	0	0
151	24-06-24	Meter Line 1st I/V Gland	151	GLAND	0	0	0	0	0	0
152	24-06-24	Meter Line 2nd I/V Gland	152	GLAND	0	0	0	0	0	0
153	24-06-24	18PA104BSuction Line I/V U/S Flange	153	FLANGE	0	0	0	0	0	0
154	24-06-24	I/V Gland	154	GLAND	0	0	0	0	0	0
155	24-06-24	I/V D/S Flange	155	FLANGE	0	0	0	0	0	0
156	24-06-24	Drain line I/V Gland	156	GLAND	0	0	0	0	0	0
157	24-06-24	Drain Line Safety Flange	157	FLANGE	0	0	0	0	0	0
158	24-06-24	Discharge line I/V U/S Flange	158	FLANGE	0	0	0	0	0	0
159	24-06-24	I/V Gland	159	GLAND	0	0	0	0	0	0
160	24-06-24	I/V D/S Flange	160	FLANGE	0	0	0	0	0	0
161	24-06-24	Pump Seal	161	VALVE	0	0	0	0	0	0
162	24-06-24	Meter Line 1st I/V Gland	162	GLAND	0	0	0	0	0	0
163	24-06-24	Meter Line 2nd I/V Gland	163	GLAND	0	0	0	0	0	0
164	24-06-24	18PA104C Suction Line I/V U/S Flange	164	FLANGE	0	0	0	0	0	0
165	24-06-24	I/V Gland	165	GLAND	0	0	0	0	0	0
166	24-06-24	I/V D/S Flange	166	FLANGE	0	0	0	0	0	0
167	24-06-24	Drain line I/V Gland	167	GLAND	0	0	0	0	0	0
168	24-06-24	Drain Line Safety Flange	168	FLANGE	0	0	0	0	0	0
169	24-06-24	Discharge line I/V U/S Flange	169	FLANGE	0	0	0	0	0	0
170	24-06-24	I/V Gland	170	GLAND	0	0	0	0	0	0
171	24-06-24	I/V D/S Flange	171	FLANGE	0	0	0	0	0	0
172	24-06-24	Pump Seal	172	VALVE	0	0	0	0	0	0
173	24-06-24	Meter Line 1st I/V Gland	173	GLAND	0	0	0	0	0	0
174	24-06-24	Meter Line 2nd I/V Gland	174	GLAND	0	0	0	0	0	0
175	24-06-24	18PA104D Suction Line I/V U/S Flange	175	FLANGE	0	0	0	0	0	0
176	24-06-24	I/V Gland	176	GLAND	0	0	0	0	0	0
177	24-06-24	I/V D/S Flange	177	FLANGE	0	0	0	0	0	0
178	24-06-24	Drain line I/V Gland	178	GLAND	0	0	0	0	0	0
179	24-06-24	Drain Line Safety Flange	179	FLANGE	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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180	24-06-24	Discharge line I/V U/S Flange	180	FLANGE	0	0	0	0	0	0
181	24-06-24	I/V Gland	181	GLAND	0	0	0	0	0	0
182	24-06-24	I/V D/S Flange	182	FLANGE	0	0	0	0	0	0
183	24-06-24	Pump Seal	183	VALVE	0	0	0	0	0	0
184	24-06-24	Meter Line 1st I/V Gland	184	GLAND	0	0	0	0	0	0
185	24-06-24	Meter Line 2nd I/V Gland	185	GLAND	0	0	0	0	0	0
186	24-06-24	18PA104E Suction Line I/V U/S Flange	186	FLANGE	0	0	0	0	0	0
187	24-06-24	I/V Gland	187	GLAND	0	0	0	0	0	0
188	24-06-24	I/V D/S Flange	188	FLANGE	0	0	0	0	0	0
189	24-06-24	Drain line I/V Gland	189	GLAND	0	0	0	0	0	0
190	24-06-24	Drain Line Safety Flange	190	FLANGE	0	0	0	0	0	0
191	24-06-24	Discharge line I/V U/S Flange	191	FLANGE	0	0	0	0	0	0
192	24-06-24	I/V Gland	192	GLAND	0	0	0	0	0	0
193	24-06-24	I/V D/S Flange	193	FLANGE	0	0	0	0	0	0
194	24-06-24	Pump Seal	194	VALVE	0	0	0	0	0	0
195	24-06-24	Meter Line 1st I/V Gland	195	GLAND	0	0	0	0	0	0
196	24-06-24	Meter Line 2nd I/V Gland	196	GLAND	0	0	0	0	0	0
197	24-06-24	18PA104F Suction Line I/V U/S Flange	197	FLANGE	0	0	0	0	0	0
198	24-06-24	I/V Gland	198	GLAND	0	0	0	0	0	0
199	24-06-24	I/V D/S Flange	199	FLANGE	0	0	0	0	0	0
200	24-06-24	Drain line I/V Gland	200	GLAND	0	0	0	0	0	0
201	24-06-24	Drain Line Safety Flange	201	FLANGE	0	0	0	0	0	0
202	24-06-24	Discharge line I/V U/S Flange	202	FLANGE	0	0	0	0	0	0
203	24-06-24	I/V Gland	203	GLAND	0	0	0	0	0	0
204	24-06-24	I/V D/S Flange	204	FLANGE	0	0	0	0	0	0
205	24-06-24	Pump Seal	205	VALVE	0	0	0	0	0	0
206	24-06-24	Meter Line 1st I/V Gland	206	GLAND	0	0	0	0	0	0
207	24-06-24	Meter Line 2nd I/V Gland	207	GLAND	0	0	0	0	0	0
208	24-06-24	Level Indicator connecting Point	208	VALVE	0	0	0	0	0	0
209	24-06-24	U/S line I/V Gland	209	GLAND	0	0	0	0	0	0
210	24-06-24	U/S line I/V Flange	210	FLANGE	0	0	0	0	0	0
211	24-06-24	Drain line I/V Gland	211	GLAND	0	0	0	0	0	0
212	24-06-24	Drain line Safety Flange	212	FLANGE	0	0	0	0	0	0
213	24-06-24	D/S line I/V Gland	213	GLAND	0	0	0	0	0	0
214	24-06-24	D/S line I/V Flange	214	FLANGE	0	0	0	0	0	0
215	24-06-24	Meter line I/V Gland	215	GLAND	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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216	24-06-24	T.No.43TTCR102 (Service HVGO)	216	VALVE	0	0	0	0	0	0
217	24-06-24	Level Indicator connecting Point	217	VALVE	0	0	0	0	0	0
218	24-06-24	U/S line I/V Gland	218	GLAND	0	0	0	0	0	0
219	24-06-24	U/S line I/V Flange	219	FLANGE	0	0	0	0	0	0
220	24-06-24	Drain line I/V Gland	220	GLAND	0	0	0	0	0	0
221	24-06-24	Drain Line Safety Flange	221	FLANGE	0	0	0	0	0	0
222	24-06-24	D/S line I/V Gland	222	GLAND	0	0	0	0	0	0
223	24-06-24	D/S line I/V Flange	223	FLANGE	0	0	0	0	0	0
224	24-06-24	Meter line I/V Gland	224	GLAND	0	0	0	0	0	0
225	24-06-24	T.No.43TTCR101B (Service MVGO)	225	VALVE	0	0	0	0	0	0
226	24-06-24	Level Indicator connecting Point	226	VALVE	0	0	0	0	0	0
227	24-06-24	U/S line I/V Gland	227	GLAND	0	0	0	0	0	0
228	24-06-24	U/S line I/V Flange	228	FLANGE	0	0	0	0	0	0
229	24-06-24	Drain line I/V Gland	229	GLAND	0	0	0	0	0	0
230	24-06-24	Drain line Safety Flange	230	FLANGE	0	0	0	0	0	0
231	24-06-24	D/S line I/V Gland	231	GLAND	0	0	0	0	0	0
232	24-06-24	D/S line I/V Flange	232	FLANGE	0	0	0	0	0	0
233	24-06-24	Meter line I/V Gland	233	GLAND	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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Unit- NRMT TANK NO-001 A: Service: MTBE

1	25-06-24	Level Indicator connecting point rimseal area	1	0	0	0	0	0	0	0
2	25-06-24	Rimseal Area Point No- 2	2	0	0	0	0	0	0	0
3	25-06-24	Rimseal Area Point No- 3	3	0	0	0	0	0	0	0
4	25-06-24	Rimseal Area Point No- 4	4	0	0	0	0	0	0	0
5	25-06-24	Rimseal Area Point No- 5	5	0	0	0	0	0	0	0
6	25-06-24	Rimseal Area Point No- 6	6	0	0	0	0	0	0	0
7	25-06-24	Rimseal Area Point No- 7	7	0	0	0	0	0	0	0
8	25-06-24	Rimseal Area Point No- 8	8	0	0	0	0	0	0	0
9	25-06-24	Rimseal Area Point No- 9	9	0	0	0	0	0	0	0
10	25-06-24	Rimseal Area Point No- 10	10	0	0	0	0	0	0	0
11	25-06-24	Rimseal Area Point No-11	11	0	0	0	0	0	0	0
12	25-06-24	Rimseal Area Point No- 12	12	0	0	0	0	0	0	0
13	25-06-24	Rimseal Area Point No- 13	13	0	0	0	0	0	0	0
14	25-06-24	Rimseal Area Point No- 14	14	0	0	0	0	0	0	0
15	25-06-24	Rimseal Area Point No- 15	15	0	0	0	0	0	0	0
16	25-06-24	Rimseal Area Point No- 16	16	0	0	0	0	0	0	0
17	25-06-24	Rimseal Area Point No- 17	17	0	0	0	0	0	0	0
18	25-06-24	Rimseal Area Point No- 18	18	0	0	0	0	0	0	0
19	25-06-24	Rimseal Area Point No- 19	19	0	0	0	0	0	0	0
20	25-06-24	Rimseal Area Point No- 20	20	0	0	0	0	0	0	0
21	25-06-24	Rimseal Area Point No- 21	21	0	0	0	0	0	0	0
22	25-06-24	Rimseal Area Point No- 22	22	0	0	0	0	0	0	0
23	25-06-24	Rimseal Area Point No- 23	23	0	0	0	0	0	0	0
24	25-06-24	Rimseal Area Point No- 24	24	0	0	0	0	0	0	0
25	25-06-24	Rimseal Area Point No- 25	25	0	0	0	0	0	0	0
26	25-06-24	Rimseal Area Point No- 26	26	0	0	0	0	0	0	0
27	25-06-24	Rimseal Area Point No- 27	27	0	0	0	0	0	0	0
28	25-06-24	Rimseal Area Point No- 28	28	0	0	0	0	0	0	0
29	25-06-24	Rimseal Area Point No- 29	29	0	0	0	0	0	0	0
30	25-06-24	Rimseal Area Point No- 30	30	0	0	0	0	0	0	0
31	25-06-24	Rimseal Area Point No- 31	31	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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32	25-06-24	Rimseal Area Point No- 32	32	0	0	0	0	0	0	0
33	25-06-24	Rimseal Area Point No- 33	33	0	0	0	0	0	0	0
34	25-06-24	Rimseal Area Point No- 34	34	0	0	0	0	0	0	0
35	25-06-24	Rimseal Area Point No- 35	35	0	0	0	0	0	0	0
36	25-06-24	Rimseal Area Point No- 36	36	0	0	0	0	0	0	0
37	25-06-24	Rimseal Area Point No- 37	37	0	0	0	0	0	0	0
38	25-06-24	Rimseal Area Point No- 38	38	0	0	0	0	0	0	0
39	25-06-24	Rimseal Area Point No- 39	39	0	0	0	0	0	0	0
40	25-06-24	Rimseal Area Point No- 40	40	0	0	0	0	0	0	0
41	25-06-24	Rimseal Area Point No- 41	41	0	0	0	0	0	0	0
42	25-06-24	Rimseal Area Point No- 42	42	0	0	0	0	0	0	0
43	25-06-24	Rimseal Area Point No- 43	43	0	0	0	0	0	0	0
44	25-06-24	Rimseal Area Point No- 44	44	0	0	0	0	0	0	0
45	25-06-24	Rimseal Area Point No- 45	45	0	0	0	0	0	0	0
46	25-06-24	Rimseal Area Point No- 46	46	0	0	0	0	0	0	0
47	25-06-24	Rimseal Area Point No- 47	47	0	0	0	0	0	0	0
48	25-06-24	Rimseal Area Point No- 48	48	0	0	0	0	0	0	0
49	25-06-24	Rimseal Area Point No- 49	49	0	0	0	0	0	0	0
50	25-06-24	Rimseal Area Point No- 50	50	0	0	0	0	0	0	0
51	25-06-24	Rimseal Area Point No- 51	51	0	0	0	0	0	0	0
52	25-06-24	Rimseal Area Point No- 52	52	0	0	0	0	0	0	0
53	25-06-24	Rimseal Area Point No- 53	53	0	0	0	0	0	0	0
54	25-06-24	Rimseal Area Point No- 54	54	0	0	0	0	0	0	0
55	25-06-24	Rimseal Area Point No- 55	55	0	0	0	0	0	0	0
56	25-06-24	Rimseal Area Point No- 56	56	0	0	0	0	0	0	0
57	25-06-24	Rimseal Area Point No- 57	57	0	0	0	0	0	0	0
58	25-06-24	Rimseal Area Point No- 58	58	0	0	0	0	0	0	0
59	25-06-24	Rimseal Area Point No- 59	59	0	0	0	0	0	0	0
60	25-06-24	Rimseal Area Point No-60	60	0	0	0	0	0	0	0
61	25-06-24	Rimseal Area Point No-61	61	0	0	0	0	0	0	0
62	25-06-24	Rimseal Area Point No-62	62	0	0	0	0	0	0	0
63	25-06-24	Rimseal Area Point No-63	63	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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64	25-06-24	Rimseal Area Point No-64	64	0	0	0	0	0	0	0
65	25-06-24	Rimseal Area Point No-65	65	0	0	0	0	0	0	0
66	25-06-24	Rimseal Area Point No-66	66	0	0	0	0	0	0	0
67	25-06-24	Rimseal Area Point No-67	67	0	0	0	0	0	0	0
68	25-06-24	Rimseal Area Point No-68	68	0	0	0	0	0	0	0
69	25-06-24	Rimseal Area Point No-69	69	0	0	0	0	0	0	0
70	25-06-24	Rimseal Area Point No-70	70	0	0	0	0	0	0	0
71	25-06-24	Rimseal Area Point No-71	71	0	0	0	0	0	0	0
72	25-06-24	Rimseal Area Point No-72	72	0	0	0	0	0	0	0
73	25-06-24	Rimseal Area Point No-73	73	0	0	0	0	0	0	0
74	25-06-24	Rimseal Area Point No-74	74	0	0	0	0	0	0	0
75	25-06-24	Rimseal Area Point No-75	75	0	0	0	0	0	0	0
76	25-06-24	Rimseal Area Point No-76	76	0	0	0	0	0	0	0
77	25-06-24	Rimseal Area Point No-77	77	0	0	0	0	0	0	0
78	25-06-24	Rimseal Area Point No-78	78	0	0	0	0	0	0	0
79	25-06-24	Rimseal Area Point No-79	79	0	0	0	0	0	0	0
80	25-06-24	Rimseal Area Point No-80	80	0	0	0	0	0	0	0
81	25-06-24	Rimseal Area Point No-81	81	0	0	0	0	0	0	0
82	25-06-24	Rimseal Area Point No-82	82	0	0	0	0	0	0	0
83	25-06-24	Rimseal Area Point No-83	83	0	0	0	0	0	0	0
84	25-06-24	Rimseal Area Point No-84	84	0	0	0	0	0	0	0
85	25-06-24	Rimseal Area Point No-85	85	0	0	0	0	0	0	0
86	25-06-24	Rimseal Area Point No-86	86	0	0	0	0	0	0	0
87	25-06-24	Rimseal Area Point No-87	87	0	0	0	0	0	0	0
88	25-06-24	Rimseal Area Point No-88	88	0	0	0	0	0	0	0
89	25-06-24	Rimseal Area Point No-89	89	0	0	0	0	0	0	0
90	25-06-24	Rimseal Area Point No-90	90	0	0	0	0	0	0	0
91	25-06-24	Rimseal Area Point No-91	91	0	0	0	0	0	0	0
92	25-06-24	Rimseal Area Point No-92	92	0	0	0	0	0	0	0
93	25-06-24	Rimseal Area Point No-93	93	0	0	0	0	0	0	0
94	25-06-24	Rimseal Area Point No-94	94	0	0	0	0	0	0	0
95	25-06-24	Rimseal Area Point No-95	95	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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96	25-06-24	Rimseal Area Point No-96	96	0	0	0	0	0	0	0
97	25-06-24	Rimseal Area Point No-97	97	0	0	0	0	0	0	0
98	25-06-24	Rimseal Area Point No-98	98	0	0	0	0	0	0	0
99	25-06-24	Rimseal Area Point No-99	99	0	0	0	0	0	0	0
100	25-06-24	Rimseal Area Point No-100	100	0	0	0	0	0	0	0
101	25-06-24	Rimseal Area Point No-101	101	0	0	0	0	0	0	0
102	25-06-24	Rimseal Area Point No-102	102	0	0	0	0	0	0	0
103	25-06-24	Rimseal Area Point No-103	103	0	0	0	0	0	0	0
104	25-06-24	Rimseal Area Point No-104	104	0	0	0	0	0	0	0
105	25-06-24	Rimseal Area Point No-105	105	0	0	0	0	0	0	0
106	25-06-24	Rimseal Area Point No-106	106	0	0	0	0	0	0	0
107	25-06-24	Rimseal Area Point No-107	107	0	0	0	0	0	0	0
108	25-06-24	Rimseal Area Point No-108	108	0	0	0	0	0	0	0
109	25-06-24	Rimseal Area Point No-109	109	0	0	0	0	0	0	0
110	25-06-24	Rimseal Area Point No-110	110	0	0	0	0	0	0	0
111	25-06-24	Rimseal Area Point No-111	111	0	0	0	0	0	0	0
112	25-06-24	Rimseal Area Point No-112	112	0	0	0	0	0	0	0
113	25-06-24	Rimseal Area Point No-113	113	0	0	0	0	0	0	0
114	25-06-24	Rimseal Area Point No-114	114	0	0	0	0	0	0	0
115	25-06-24	Rimseal Area Point No-115	115	0	0	0	0	0	0	0
116	25-06-24	Rimseal Area Point No-116	116	0	0	0	0	0	0	0
117	25-06-24	Rimseal Area Point No-117	117	0	0	0	0	0	0	0
118	25-06-24	Rimseal Area Point No-118	118	0	0	0	0	0	0	0
119	25-06-24	Rimseal Area Point No-119	119	0	0	0	0	0	0	0
120	25-06-24	Rimseal Area Point No-120	120	0	0	0	0	0	0	0
121	25-06-24	Rimseal Area Point No-121	121	0	0	0	0	0	0	0
122	25-06-24	Rimseal Area Point No-122	122	0	0	0	0	0	0	0
123	25-06-24	Rimseal Area Point No-123	123	0	0	0	0	0	0	0
124	25-06-24	Rimseal Area Point No-124	124	0	0	0	0	0	0	0
125	25-06-24	Rimseal Area Point No-125	125	0	0	0	0	0	0	0
126	25-06-24	Rimseal Area Point No-126	126	0	0	0	0	0	0	0
127	25-06-24	Rimseal Area Point No-127	127	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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128	25-06-24	Rimseal Area Point No-128	128	0	0	0	0	0	0	0
129	25-06-24	Rimseal Area Point No-129	129	0	0	0	0	0	0	0
130	25-06-24	Rimseal Area Point No-130	130	0	0	0	0	0	0	0
131	25-06-24	Rimseal Area Point No-131	131	0	0	0	0	0	0	0
132	25-06-24	Rimseal Area Point No-132	132	0	0	0	0	0	0	0
133	25-06-24	Rimseal Area Point No-133	133	0	0	0	0	0	0	0
134	25-06-24	Rimseal Area Point No-134	134	0	0	0	0	0	0	0
135	25-06-24	Rimseal Area Point No-135	135	0	0	0	0	0	0	0
136	25-06-24	Rimseal Area Point No-136	136	0	0	0	0	0	0	0
137	25-06-24	Rimseal Area Point No-137	137	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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Unit: NRMT TANK NO-001 B: Service: OB										
1	25-06-24	Level Indicator connecting point rimseal area	1	0	0	0	0	0	0	0
2	25-06-24	Rimseal Area Point No- 2	2	0	0	0	0	0	0	0
3	25-06-24	Rimseal Area Point No- 3	3	0	0	0	0	0	0	0
4	25-06-24	Rimseal Area Point No- 4	4	0	0	0	0	0	0	0
5	25-06-24	Rimseal Area Point No- 5	5	0	0	0	0	0	0	0
6	25-06-24	Rimseal Area Point No- 6	6	0	0	0	0	0	0	0
7	25-06-24	Rimseal Area Point No- 7	7	0	0	0	0	0	0	0
8	25-06-24	Rimseal Area Point No- 8	8	0	0	0	0	0	0	0
9	25-06-24	Rimseal Area Point No- 9	9	0	0	0	0	0	0	0
10	25-06-24	Rimseal Area Point No- 10	10	0	0	0	0	0	0	0
11	25-06-24	Rimseal Area Point No-11	11	0	0	0	0	0	0	0
12	25-06-24	Rimseal Area Point No- 12	12	0	0	0	0	0	0	0
13	25-06-24	Rimseal Area Point No- 13	13	0	0	0	0	0	0	0
14	25-06-24	Rimseal Area Point No- 14	14	0	0	0	0	0	0	0
15	25-06-24	Rimseal Area Point No- 15	15	0	0	0	0	0	0	0
16	25-06-24	Rimseal Area Point No- 16	16	0	0	0	0	0	0	0
17	25-06-24	Rimseal Area Point No- 17	17	0	0	0	0	0	0	0
18	25-06-24	Rimseal Area Point No- 18	18	0	0	0	0	0	0	0
19	25-06-24	Rimseal Area Point No- 19	19	0	0	0	0	0	0	0
20	25-06-24	Rimseal Area Point No- 20	20	0	0	0	0	0	0	0
21	25-06-24	Rimseal Area Point No- 21	21	0	0	0	0	0	0	0
22	25-06-24	Rimseal Area Point No- 22	22	0	0	0	0	0	0	0
23	25-06-24	Rimseal Area Point No- 23	23	0	0	0	0	0	0	0
24	25-06-24	Rimseal Area Point No- 24	24	0	0	0	0	0	0	0
25	25-06-24	Rimseal Area Point No- 25	25	0	0	0	0	0	0	0
26	25-06-24	Rimseal Area Point No- 26	26	0	0	0	0	0	0	0
27	25-06-24	Rimseal Area Point No- 27	27	0	0	0	0	0	0	0
28	25-06-24	Rimseal Area Point No- 28	28	0	0	0	0	0	0	0
29	25-06-24	Rimseal Area Point No- 29	29	0	0	0	0	0	0	0
30	25-06-24	Rimseal Area Point No- 30	30	0	0	0	0	0	0	0
31	25-06-24	Rimseal Area Point No- 31	31	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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32	25-06-24	Rimseal Area Point No- 32	32	0	0	0	0	0	0	0
33	25-06-24	Rimseal Area Point No- 33	33	0	0	0	0	0	0	0
34	25-06-24	Rimseal Area Point No- 34	34	0	0	0	0	0	0	0
35	25-06-24	Rimseal Area Point No- 35	35	0	0	0	0	0	0	0
36	25-06-24	Rimseal Area Point No- 36	36	0	0	0	0	0	0	0
37	25-06-24	Rimseal Area Point No- 37	37	0	0	0	0	0	0	0
38	25-06-24	Rimseal Area Point No- 38	38	0	0	0	0	0	0	0
39	25-06-24	Rimseal Area Point No- 39	39	0	0	0	0	0	0	0
40	25-06-24	Rimseal Area Point No- 40	40	0	0	0	0	0	0	0
41	25-06-24	Rimseal Area Point No- 41	41	0	0	0	0	0	0	0
42	25-06-24	Rimseal Area Point No- 42	42	0	0	0	0	0	0	0
43	25-06-24	Rimseal Area Point No- 43	43	0	0	0	0	0	0	0
44	25-06-24	Rimseal Area Point No- 44	44	0	0	0	0	0	0	0
45	25-06-24	Rimseal Area Point No- 45	45	0	0	0	0	0	0	0
46	25-06-24	Rimseal Area Point No- 46	46	0	0	0	0	0	0	0
47	25-06-24	Rimseal Area Point No- 47	47	0	0	0	0	0	0	0
48	25-06-24	Rimseal Area Point No- 48	48	0	0	0	0	0	0	0
49	25-06-24	Rimseal Area Point No- 49	49	0	0	0	0	0	0	0
50	25-06-24	Rimseal Area Point No- 50	50	0	0	0	0	0	0	0
51	25-06-24	Rimseal Area Point No- 51	51	0	0	0	0	0	0	0
52	25-06-24	Rimseal Area Point No- 52	52	0	0	0	0	0	0	0
53	25-06-24	Rimseal Area Point No- 53	53	0	0	0	0	0	0	0
54	25-06-24	Rimseal Area Point No- 54	54	0	0	0	0	0	0	0
55	25-06-24	Rimseal Area Point No- 55	55	0	0	0	0	0	0	0
56	25-06-24	Rimseal Area Point No- 56	56	0	0	0	0	0	0	0
57	25-06-24	Rimseal Area Point No- 57	57	0	0	0	0	0	0	0
58	25-06-24	Rimseal Area Point No- 58	58	0	0	0	0	0	0	0
59	25-06-24	Rimseal Area Point No- 59	59	0	0	0	0	0	0	0
60	25-06-24	Rimseal Area Point No-60	60	0	0	0	0	0	0	0
61	25-06-24	Rimseal Area Point No-61	61	0	0	0	0	0	0	0
62	25-06-24	Rimseal Area Point No-62	62	0	0	0	0	0	0	0
63	25-06-24	Rimseal Area Point No-63	63	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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64	25-06-24	Rimseal Area Point No-64	64	0	0	0	0	0	0	0
65	25-06-24	Rimseal Area Point No-65	65	0	0	0	0	0	0	0
66	25-06-24	Rimseal Area Point No-66	66	0	0	0	0	0	0	0
67	25-06-24	Rimseal Area Point No-67	67	0	0	0	0	0	0	0
68	25-06-24	Rimseal Area Point No-68	68	0	0	0	0	0	0	0
69	25-06-24	Rimseal Area Point No-69	69	0	0	0	0	0	0	0
70	25-06-24	Rimseal Area Point No-70	70	0	0	0	0	0	0	0
71	25-06-24	Rimseal Area Point No-71	71	0	0	0	0	0	0	0
72	25-06-24	Rimseal Area Point No-72	72	0	0	0	0	0	0	0
73	25-06-24	Rimseal Area Point No-73	73	0	0	0	0	0	0	0
74	25-06-24	Rimseal Area Point No-74	74	0	0	0	0	0	0	0
75	25-06-24	Rimseal Area Point No-75	75	0	0	0	0	0	0	0
76	25-06-24	Rimseal Area Point No-76	76	0	0	0	0	0	0	0
77	25-06-24	Rimseal Area Point No-77	77	0	0	0	0	0	0	0
78	25-06-24	Rimseal Area Point No-78	78	0	0	0	0	0	0	0
79	25-06-24	Rimseal Area Point No-79	79	0	0	0	0	0	0	0
80	25-06-24	Rimseal Area Point No-80	80	0	0	0	0	0	0	0
81	25-06-24	Rimseal Area Point No-81	81	0	0	0	0	0	0	0
82	25-06-24	Rimseal Area Point No-82	82	0	0	0	0	0	0	0
83	25-06-24	Rimseal Area Point No-83	83	0	0	0	0	0	0	0
84	25-06-24	Rimseal Area Point No-84	84	0	0	0	0	0	0	0
85	25-06-24	Rimseal Area Point No-85	85	0	0	0	0	0	0	0
86	25-06-24	Rimseal Area Point No-86	86	0	0	0	0	0	0	0
87	25-06-24	Rimseal Area Point No-87	87	0	0	0	0	0	0	0
88	25-06-24	Rimseal Area Point No-88	88	0	0	0	0	0	0	0
89	25-06-24	Rimseal Area Point No-89	89	0	0	0	0	0	0	0
90	25-06-24	Rimseal Area Point No-90	90	0	0	0	0	0	0	0
91	25-06-24	Rimseal Area Point No-91	91	0	0	0	0	0	0	0
92	25-06-24	Rimseal Area Point No-92	92	0	0	0	0	0	0	0
93	25-06-24	Rimseal Area Point No-93	93	0	0	0	0	0	0	0
94	25-06-24	Rimseal Area Point No-94	94	0	0	0	0	0	0	0
95	25-06-24	Rimseal Area Point No-95	95	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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96	25-06-24	Rimseal Area Point No-96	96	0	0	0	0	0	0	0
97	25-06-24	Rimseal Area Point No-97	97	0	0	0	0	0	0	0
98	25-06-24	Rimseal Area Point No-98	98	0	0	0	0	0	0	0
99	25-06-24	Rimseal Area Point No-99	99	0	0	0	0	0	0	0
100	25-06-24	Rimseal Area Point No-100	100	0	0	0	0	0	0	0
101	25-06-24	Rimseal Area Point No-101	100	0	0	0	0	0	0	0
102	25-06-24	Rimseal Area Point No-102	100	0	0	0	0	0	0	0
103	25-06-24	Rimseal Area Point No-103	100	0	0	0	0	0	0	0
104	25-06-24	Rimseal Area Point No-104	100	0	0	0	0	0	0	0
105	25-06-24	Rimseal Area Point No-105	100	0	0	0	0	0	0	0
106	25-06-24	Rimseal Area Point No-106	100	0	0	0	0	0	0	0
107	25-06-24	Rimseal Area Point No-107	100	0	0	0	0	0	0	0
108	25-06-24	Rimseal Area Point No-108	100	0	0	0	0	0	0	0
109	25-06-24	Rimseal Area Point No-109	100	0	0	0	0	0	0	0
110	25-06-24	Rimseal Area Point No-110	100	0	0	0	0	0	0	0
111	25-06-24	Rimseal Area Point No-111	100	0	0	0	0	0	0	0
112	25-06-24	Rimseal Area Point No-112	100	0	0	0	0	0	0	0
113	25-06-24	Rimseal Area Point No-113	100	0	0	0	0	0	0	0
114	25-06-24	Rimseal Area Point No-114	100	0	0	0	0	0	0	0
115	25-06-24	Rimseal Area Point No-115	100	0	0	0	0	0	0	0
116	25-06-24	Rimseal Area Point No-116	100	0	0	0	0	0	0	0
117	25-06-24	Rimseal Area Point No-117	100	0	0	0	0	0	0	0
118	25-06-24	Rimseal Area Point No-118	100	0	0	0	0	0	0	0
119	25-06-24	Rimseal Area Point No-119	100	0	0	0	0	0	0	0
120	25-06-24	Rimseal Area Point No-120	100	0	0	0	0	0	0	0
121	25-06-24	Rimseal Area Point No-121	100	0	0	0	0	0	0	0
122	25-06-24	Rimseal Area Point No-122	100	0	0	0	0	0	0	0
123	25-06-24	Rimseal Area Point No-123	100	0	0	0	0	0	0	0
124	25-06-24	Rimseal Area Point No-124	100	0	0	0	0	0	0	0
125	25-06-24	Rimseal Area Point No-125	100	0	0	0	0	0	0	0
126	25-06-24	Rimseal Area Point No-126	100	0	0	0	0	0	0	0
127	25-06-24	Rimseal Area Point No-127	100	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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128	25-06-24	Rimseal Area Point No-128	100	0	0	0	0	0	0	0
129	25-06-24	Rimseal Area Point No-129	100	0	0	0	0	0	0	0
130	25-06-24	Rimseal Area Point No-130	100	0	0	0	0	0	0	0
131	25-06-24	Rimseal Area Point No-131	100	0	0	0	0	0	0	0
132	25-06-24	Rimseal Area Point No-132	100	0	0	0	0	0	0	0
133	25-06-24	Rimseal Area Point No-133	100	0	0	0	0	0	0	0
134	25-06-24	Rimseal Area Point No-134	100	0	0	0	0	0	0	0
135	25-06-24	Rimseal Area Point No-135	100	0	0	0	0	0	0	0
136	25-06-24	Rimseal Area Point No-136	100	0	0	0	0	0	0	0
137	25-06-24	Rimseal Area Point No-137	100	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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Unit- NRMT TANK NO-001 C Service: PYGAS										
1	25-06-24	Level Indicator connecting point rimseal area	1	0	0	0	0	0	0	0
2	25-06-24	Rimseal Area Point No- 2	2	0	0	0	0	0	0	0
3	25-06-24	Rimseal Area Point No- 3	3	0	0	0	0	0	0	0
4	25-06-24	Rimseal Area Point No- 4	4	0	0	0	0	0	0	0
5	25-06-24	Rimseal Area Point No- 5	5	0	0	0	0	0	0	0
6	25-06-24	Rimseal Area Point No- 6	6	0	0	0	0	0	0	0
7	25-06-24	Rimseal Area Point No- 7	7	0	0	0	0	0	0	0
8	25-06-24	Rimseal Area Point No- 8	8	0	0	0	0	0	0	0
9	25-06-24	Rimseal Area Point No- 9	9	0	0	0	0	0	0	0
10	25-06-24	Rimseal Area Point No- 10	10	0	0	0	0	0	0	0
11	25-06-24	Rimseal Area Point No-11	11	0	0	0	0	0	0	0
12	25-06-24	Rimseal Area Point No- 12	12	0	0	0	0	0	0	0
13	25-06-24	Rimseal Area Point No- 13	13	0	0	0	0	0	0	0
14	25-06-24	Rimseal Area Point No- 14	14	0	0	0	0	0	0	0
15	25-06-24	Rimseal Area Point No- 15	15	0	0	0	0	0	0	0
16	25-06-24	Rimseal Area Point No- 16	16	0	0	0	0	0	0	0
17	25-06-24	Rimseal Area Point No- 17	17	0	0	0	0	0	0	0
18	25-06-24	Rimseal Area Point No- 18	18	0	0	0	0	0	0	0
19	25-06-24	Rimseal Area Point No- 19	19	0	0	0	0	0	0	0
20	25-06-24	Rimseal Area Point No- 20	20	0	0	0	0	0	0	0
21	25-06-24	Rimseal Area Point No- 21	21	0	0	0	0	0	0	0
22	25-06-24	Rimseal Area Point No- 22	22	0	0	0	0	0	0	0
23	25-06-24	Rimseal Area Point No- 23	23	0	0	0	0	0	0	0
24	25-06-24	Rimseal Area Point No- 24	24	0	0	0	0	0	0	0
25	25-06-24	Rimseal Area Point No- 25	25	0	0	0	0	0	0	0
26	25-06-24	Rimseal Area Point No- 26	26	0	0	0	0	0	0	0
27	25-06-24	Rimseal Area Point No- 27	27	0	0	0	0	0	0	0
28	25-06-24	Rimseal Area Point No- 28	28	0	0	0	0	0	0	0
29	25-06-24	Rimseal Area Point No- 29	29	0	0	0	0	0	0	0
30	25-06-24	Rimseal Area Point No- 30	30	0	0	0	0	0	0	0
31	25-06-24	Rimseal Area Point No- 31	31	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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32	25-06-24	Rimseal Area Point No- 32	32	0	0	0	0	0	0	0
33	25-06-24	Rimseal Area Point No- 33	33	0	0	0	0	0	0	0
34	25-06-24	Rimseal Area Point No- 34	34	0	0	0	0	0	0	0
35	25-06-24	Rimseal Area Point No- 35	35	0	0	0	0	0	0	0
36	25-06-24	Rimseal Area Point No- 36	36	0	0	0	0	0	0	0
37	25-06-24	Rimseal Area Point No- 37	37	0	0	0	0	0	0	0
38	25-06-24	Rimseal Area Point No- 38	38	0	0	0	0	0	0	0
39	25-06-24	Rimseal Area Point No- 39	39	0	0	0	0	0	0	0
40	25-06-24	Rimseal Area Point No- 40	40	0	0	0	0	0	0	0
41	25-06-24	Rimseal Area Point No- 41	41	0	0	0	0	0	0	0
42	25-06-24	Rimseal Area Point No- 42	42	0	0	0	0	0	0	0
43	25-06-24	Rimseal Area Point No- 43	43	0	0	0	0	0	0	0
44	25-06-24	Rimseal Area Point No- 44	44	0	0	0	0	0	0	0
45	25-06-24	Rimseal Area Point No- 45	45	0	0	0	0	0	0	0
46	25-06-24	Rimseal Area Point No- 46	46	0	0	0	0	0	0	0
47	25-06-24	Rimseal Area Point No- 47	47	0	0	0	0	0	0	0
48	25-06-24	Rimseal Area Point No- 48	48	0	0	0	0	0	0	0
49	25-06-24	Rimseal Area Point No- 49	49	0	0	0	0	0	0	0
50	25-06-24	Rimseal Area Point No- 50	50	0	0	0	0	0	0	0
51	25-06-24	Rimseal Area Point No- 51	51	0	0	0	0	0	0	0
52	25-06-24	Rimseal Area Point No- 52	52	0	0	0	0	0	0	0
53	25-06-24	Rimseal Area Point No- 53	53	0	0	0	0	0	0	0
54	25-06-24	Rimseal Area Point No- 54	54	0	0	0	0	0	0	0
55	25-06-24	Rimseal Area Point No- 55	55	0	0	0	0	0	0	0
56	25-06-24	Rimseal Area Point No- 56	56	0	0	0	0	0	0	0
57	25-06-24	Rimseal Area Point No- 57	57	0	0	0	0	0	0	0
58	25-06-24	Rimseal Area Point No- 58	58	0	0	0	0	0	0	0
59	25-06-24	Rimseal Area Point No- 59	59	0	0	0	0	0	0	0
60	25-06-24	Rimseal Area Point No-60	60	0	0	0	0	0	0	0
61	25-06-24	Rimseal Area Point No-61	61	0	0	0	0	0	0	0
62	25-06-24	Rimseal Area Point No-62	62	0	0	0	0	0	0	0
63	25-06-24	Rimseal Area Point No-63	63	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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64	25-06-24	Rimseal Area Point No-64	64	0	0	0	0	0	0	0
65	25-06-24	Rimseal Area Point No-65	65	0	0	0	0	0	0	0
66	25-06-24	Rimseal Area Point No-66	66	0	0	0	0	0	0	0
67	25-06-24	Rimseal Area Point No-67	67	0	0	0	0	0	0	0
68	25-06-24	Rimseal Area Point No-68	68	0	0	0	0	0	0	0
69	25-06-24	Rimseal Area Point No-69	69	0	0	0	0	0	0	0
70	25-06-24	Rimseal Area Point No-70	70	0	0	0	0	0	0	0
71	25-06-24	Rimseal Area Point No-71	71	0	0	0	0	0	0	0
72	25-06-24	Rimseal Area Point No-72	72	0	0	0	0	0	0	0
73	25-06-24	Rimseal Area Point No-73	73	0	0	0	0	0	0	0
74	25-06-24	Rimseal Area Point No-74	74	0	0	0	0	0	0	0
75	25-06-24	Rimseal Area Point No-75	75	0	0	0	0	0	0	0
76	25-06-24	Rimseal Area Point No-76	76	0	0	0	0	0	0	0
77	25-06-24	Rimseal Area Point No-77	77	0	0	0	0	0	0	0
78	25-06-24	Rimseal Area Point No-78	78	0	0	0	0	0	0	0
79	25-06-24	Rimseal Area Point No-79	79	0	0	0	0	0	0	0
80	25-06-24	Rimseal Area Point No-80	80	0	0	0	0	0	0	0
81	25-06-24	Rimseal Area Point No-81	81	0	0	0	0	0	0	0
82	25-06-24	Rimseal Area Point No-82	82	0	0	0	0	0	0	0
83	25-06-24	Rimseal Area Point No-83	83	0	0	0	0	0	0	0
84	25-06-24	Rimseal Area Point No-84	84	0	0	0	0	0	0	0
85	25-06-24	Rimseal Area Point No-85	85	0	0	0	0	0	0	0
86	25-06-24	Rimseal Area Point No-86	86	0	0	0	0	0	0	0
87	25-06-24	Rimseal Area Point No-87	87	0	0	0	0	0	0	0
88	25-06-24	Rimseal Area Point No-88	88	0	0	0	0	0	0	0
89	25-06-24	Rimseal Area Point No-89	89	0	0	0	0	0	0	0
90	25-06-24	Rimseal Area Point No-90	90	0	0	0	0	0	0	0
91	25-06-24	Rimseal Area Point No-91	91	0	0	0	0	0	0	0
92	25-06-24	Rimseal Area Point No-92	92	0	0	0	0	0	0	0
93	25-06-24	Rimseal Area Point No-93	93	0	0	0	0	0	0	0
94	25-06-24	Rimseal Area Point No-94	94	0	0	0	0	0	0	0
95	25-06-24	Rimseal Area Point No-95	95	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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96	25-06-24	Rimseal Area Point No-96	96	0	0	0	0	0	0	0
97	25-06-24	Rimseal Area Point No-97	97	0	0	0	0	0	0	0
98	25-06-24	Rimseal Area Point No-98	98	0	0	0	0	0	0	0
99	25-06-24	Rimseal Area Point No-99	99	0	0	0	0	0	0	0
100	25-06-24	Rimseal Area Point No-100	100	0	0	0	0	0	0	0
101	25-06-24	Rimseal Area Point No-101	101	0	0	0	0	0	0	0
102	25-06-24	Rimseal Area Point No-102	102	0	0	0	0	0	0	0
103	25-06-24	Rimseal Area Point No-103	103	0	0	0	0	0	0	0
104	25-06-24	Rimseal Area Point No-104	104	0	0	0	0	0	0	0
105	25-06-24	Rimseal Area Point No-105	105	0	0	0	0	0	0	0
106	25-06-24	Rimseal Area Point No-106	106	0	0	0	0	0	0	0
107	25-06-24	Rimseal Area Point No-107	107	0	0	0	0	0	0	0
108	25-06-24	Rimseal Area Point No-108	108	0	0	0	0	0	0	0
109	25-06-24	Rimseal Area Point No-109	109	0	0	0	0	0	0	0
110	25-06-24	Rimseal Area Point No-110	110	0	0	0	0	0	0	0
111	25-06-24	Rimseal Area Point No-111	111	0	0	0	0	0	0	0
112	25-06-24	Rimseal Area Point No-112	112	0	0	0	0	0	0	0
113	25-06-24	Rimseal Area Point No-113	113	0	0	0	0	0	0	0
114	25-06-24	Rimseal Area Point No-114	114	0	0	0	0	0	0	0
115	25-06-24	Rimseal Area Point No-115	115	0	0	0	0	0	0	0
116	25-06-24	Rimseal Area Point No-116	116	0	0	0	0	0	0	0
117	25-06-24	Rimseal Area Point No-117	117	0	0	0	0	0	0	0
118	25-06-24	Rimseal Area Point No-118	118	0	0	0	0	0	0	0
119	25-06-24	Rimseal Area Point No-119	119	0	0	0	0	0	0	0
120	25-06-24	Rimseal Area Point No-120	120	0	0	0	0	0	0	0
121	25-06-24	Rimseal Area Point No-121	121	0	0	0	0	0	0	0
122	25-06-24	Rimseal Area Point No-122	122	0	0	0	0	0	0	0
123	25-06-24	Rimseal Area Point No-123	123	0	0	0	0	0	0	0
124	25-06-24	Rimseal Area Point No-124	124	0	0	0	0	0	0	0
125	25-06-24	Rimseal Area Point No-125	125	0	0	0	0	0	0	0
126	25-06-24	Rimseal Area Point No-126	126	0	0	0	0	0	0	0
127	25-06-24	Rimseal Area Point No-127	127	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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128	25-06-24	Rimseal Area Point No-128	128	0	0	0	0	0	0	0
129	25-06-24	Rimseal Area Point No-129	129	0	0	0	0	0	0	0
130	25-06-24	Rimseal Area Point No-130	130	0	0	0	0	0	0	0
131	25-06-24	Rimseal Area Point No-131	131	0	0	0	0	0	0	0
132	25-06-24	Rimseal Area Point No-132	132	0	0	0	0	0	0	0
133	25-06-24	Rimseal Area Point No-133	133	0	0	0	0	0	0	0
134	25-06-24	Rimseal Area Point No-134	134	0	0	0	0	0	0	0
135	25-06-24	Rimseal Area Point No-135	135	0	0	0	0	0	0	0
136	25-06-24	Rimseal Area Point No-136	136	0	0	0	0	0	0	0
137	25-06-24	Rimseal Area Point No-137	137	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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Unit: NRMT TANK NO-004 B Service: MS										
1	26-06-24	Level Indicator connecting point rimseal area	1	0	0	0	0	0	0	0
2	26-06-24	Rimseal Area Point No- 2	2	0	0	0	0	0	0	0
3	26-06-24	Rimseal Area Point No- 3	3	0	0	0	0	0	0	0
4	26-06-24	Rimseal Area Point No- 4	4	0	0	0	0	0	0	0
5	26-06-24	Rimseal Area Point No- 5	5	0	0	0	0	0	0	0
6	26-06-24	Rimseal Area Point No- 6	6	0	0	0	0	0	0	0
7	26-06-24	Rimseal Area Point No- 7	7	0	0	0	0	0	0	0
8	26-06-24	Rimseal Area Point No- 8	8	0	0	0	0	0	0	0
9	26-06-24	Rimseal Area Point No- 9	9	0	0	0	0	0	0	0
10	26-06-24	Rimseal Area Point No- 10	10	0	0	0	0	0	0	0
11	26-06-24	Rimseal Area Point No-11	11	0	0	0	0	0	0	0
12	26-06-24	Rimseal Area Point No- 12	12	0	0	0	0	0	0	0
13	26-06-24	Rimseal Area Point No- 13	13	0	0	0	0	0	0	0
14	26-06-24	Rimseal Area Point No- 14	14	0	0	0	0	0	0	0
15	26-06-24	Rimseal Area Point No- 15	15	0	0	0	0	0	0	0
16	26-06-24	Rimseal Area Point No- 16	16	0	0	0	0	0	0	0
17	26-06-24	Rimseal Area Point No- 17	17	0	0	0	0	0	0	0
18	26-06-24	Rimseal Area Point No- 18	18	0	0	0	0	0	0	0
19	26-06-24	Rimseal Area Point No- 19	19	0	0	0	0	0	0	0
20	26-06-24	Rimseal Area Point No- 20	20	0	0	0	0	0	0	0
21	26-06-24	Rimseal Area Point No- 21	21	0	0	0	0	0	0	0
22	26-06-24	Rimseal Area Point No- 22	22	0	0	0	0	0	0	0
23	26-06-24	Rimseal Area Point No- 23	23	0	0	0	0	0	0	0
24	26-06-24	Rimseal Area Point No- 24	24	0	0	0	0	0	0	0
25	26-06-24	Rimseal Area Point No- 25	25	0	0	0	0	0	0	0
26	26-06-24	Rimseal Area Point No- 26	26	0	0	0	0	0	0	0
27	26-06-24	Rimseal Area Point No- 27	27	0	0	0	0	0	0	0
28	26-06-24	Rimseal Area Point No- 28	28	0	0	0	0	0	0	0
29	26-06-24	Rimseal Area Point No- 29	29	0	0	0	0	0	0	0
30	26-06-24	Rimseal Area Point No- 30	30	0	0	0	0	0	0	0
31	26-06-24	Rimseal Area Point No- 31	31	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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32	26-06-24	Rimseal Area Point No- 32	32	0	0	0	0	0	0	0
33	26-06-24	Rimseal Area Point No- 33	33	0	0	0	0	0	0	0
34	26-06-24	Rimseal Area Point No- 34	34	0	0	0	0	0	0	0
35	26-06-24	Rimseal Area Point No- 35	35	0	0	0	0	0	0	0
36	26-06-24	Rimseal Area Point No- 36	36	0	0	0	0	0	0	0
37	26-06-24	Rimseal Area Point No- 37	37	0	0	0	0	0	0	0
38	26-06-24	Rimseal Area Point No- 38	38	0	0	0	0	0	0	0
39	26-06-24	Rimseal Area Point No- 39	39	0	0	0	0	0	0	0
40	26-06-24	Rimseal Area Point No- 40	40	0	0	0	0	0	0	0
41	26-06-24	Rimseal Area Point No- 41	41	0	0	0	0	0	0	0
42	26-06-24	Rimseal Area Point No- 42	42	0	0	0	0	0	0	0
43	26-06-24	Rimseal Area Point No- 43	43	0	0	0	0	0	0	0
44	26-06-24	Rimseal Area Point No- 44	44	0	0	0	0	0	0	0
45	26-06-24	Rimseal Area Point No- 45	45	0	0	0	0	0	0	0
46	26-06-24	Rimseal Area Point No- 46	46	0	0	0	0	0	0	0
47	26-06-24	Rimseal Area Point No- 47	47	0	0	0	0	0	0	0
48	26-06-24	Rimseal Area Point No- 48	48	0	0	0	0	0	0	0
49	26-06-24	Rimseal Area Point No- 49	49	0	0	0	0	0	0	0
50	26-06-24	Rimseal Area Point No- 50	50	0	0	0	0	0	0	0
51	26-06-24	Rimseal Area Point No- 51	51	0	0	0	0	0	0	0
52	26-06-24	Rimseal Area Point No- 52	52	0	0	0	0	0	0	0
53	26-06-24	Rimseal Area Point No- 53	53	0	0	0	0	0	0	0
54	26-06-24	Rimseal Area Point No- 54	54	0	0	0	0	0	0	0
55	26-06-24	Rimseal Area Point No- 55	55	0	0	0	0	0	0	0
56	26-06-24	Rimseal Area Point No- 56	56	0	0	0	0	0	0	0
57	26-06-24	Rimseal Area Point No- 57	57	0	0	0	0	0	0	0
58	26-06-24	Rimseal Area Point No- 58	58	0	0	0	0	0	0	0
59	26-06-24	Rimseal Area Point No- 59	59	0	0	0	0	0	0	0
60	26-06-24	Rimseal Area Point No-60	60	0	0	0	0	0	0	0
61	26-06-24	Rimseal Area Point No-61	61	0	0	0	0	0	0	0
62	26-06-24	Rimseal Area Point No-62	62	0	0	0	0	0	0	0
63	26-06-24	Rimseal Area Point No-63	63	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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64	26-06-24	Rimseal Area Point No-64	64	0	0	0	0	0	0	0
65	26-06-24	Rimseal Area Point No-65	65	0	0	0	0	0	0	0
66	26-06-24	Rimseal Area Point No-66	66	0	0	0	0	0	0	0
67	26-06-24	Rimseal Area Point No-67	67	0	0	0	0	0	0	0
68	26-06-24	Rimseal Area Point No-68	68	0	0	0	0	0	0	0
69	26-06-24	Rimseal Area Point No-69	69	0	0	0	0	0	0	0
70	26-06-24	Rimseal Area Point No-70	70	0	0	0	0	0	0	0
71	26-06-24	Rimseal Area Point No-71	71	0	0	0	0	0	0	0
72	26-06-24	Rimseal Area Point No-72	72	0	0	0	0	0	0	0
73	26-06-24	Rimseal Area Point No-73	73	0	0	0	0	0	0	0
74	26-06-24	Rimseal Area Point No-74	74	0	0	0	0	0	0	0
75	26-06-24	Rimseal Area Point No-75	75	0	0	0	0	0	0	0
76	26-06-24	Rimseal Area Point No-76	76	0	0	0	0	0	0	0
77	26-06-24	Rimseal Area Point No-77	77	0	0	0	0	0	0	0
78	26-06-24	Rimseal Area Point No-78	78	0	0	0	0	0	0	0
79	26-06-24	Rimseal Area Point No-79	79	0	0	0	0	0	0	0
80	26-06-24	Rimseal Area Point No-80	80	0	0	0	0	0	0	0
81	26-06-24	Rimseal Area Point No-81	81	0	0	0	0	0	0	0
82	26-06-24	Rimseal Area Point No-82	82	0	0	0	0	0	0	0
83	26-06-24	Rimseal Area Point No-83	83	0	0	0	0	0	0	0
84	26-06-24	Rimseal Area Point No-84	84	0	0	0	0	0	0	0
85	26-06-24	Rimseal Area Point No-85	85	0	0	0	0	0	0	0
86	26-06-24	Rimseal Area Point No-86	86	0	0	0	0	0	0	0
87	26-06-24	Rimseal Area Point No-87	87	0	0	0	0	0	0	0
88	26-06-24	Rimseal Area Point No-88	88	0	0	0	0	0	0	0
89	26-06-24	Rimseal Area Point No-89	89	0	0	0	0	0	0	0
90	26-06-24	Rimseal Area Point No-90	90	0	0	0	0	0	0	0
91	26-06-24	Rimseal Area Point No-91	91	0	0	0	0	0	0	0
92	26-06-24	Rimseal Area Point No-92	92	0	0	0	0	0	0	0
93	26-06-24	Rimseal Area Point No-93	93	0	0	0	0	0	0	0
94	26-06-24	Rimseal Area Point No-94	94	0	0	0	0	0	0	0
95	26-06-24	Rimseal Area Point No-95	95	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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96	26-06-24	Rimseal Area Point No-96	96	0	0	0	0	0	0	0
97	26-06-24	Rimseal Area Point No-97	97	0	0	0	0	0	0	0
98	26-06-24	Rimseal Area Point No-98	98	0	0	0	0	0	0	0
99	26-06-24	Rimseal Area Point No-99	99	0	0	0	0	0	0	0
100	26-06-24	Rimseal Area Point No-100	100	0	0	0	0	0	0	0
101	26-06-24	Rimseal Area Point No-101	101	0	0	0	0	0	0	0
102	26-06-24	Rimseal Area Point No-102	102	0	0	0	0	0	0	0
103	26-06-24	Rimseal Area Point No-103	103	0	0	0	0	0	0	0
104	26-06-24	Rimseal Area Point No-104	104	0	0	0	0	0	0	0
105	26-06-24	Rimseal Area Point No-105	105	0	0	0	0	0	0	0
106	26-06-24	Rimseal Area Point No-106	106	0	0	0	0	0	0	0
107	26-06-24	Rimseal Area Point No-107	107	0	0	0	0	0	0	0
108	26-06-24	Rimseal Area Point No-108	108	0	0	0	0	0	0	0
109	26-06-24	Rimseal Area Point No-109	109	0	0	0	0	0	0	0
110	26-06-24	Rimseal Area Point No-110	110	0	0	0	0	0	0	0
111	26-06-24	Rimseal Area Point No-111	111	0	0	0	0	0	0	0
112	26-06-24	Rimseal Area Point No-112	112	0	0	0	0	0	0	0
113	26-06-24	Rimseal Area Point No-113	113	0	0	0	0	0	0	0
114	26-06-24	Rimseal Area Point No-114	114	0	0	0	0	0	0	0
115	26-06-24	Rimseal Area Point No-115	115	0	0	0	0	0	0	0
116	26-06-24	Rimseal Area Point No-116	116	0	0	0	0	0	0	0
117	26-06-24	Rimseal Area Point No-117	117	0	0	0	0	0	0	0
118	26-06-24	Rimseal Area Point No-118	118	0	0	0	0	0	0	0
119	26-06-24	Rimseal Area Point No-119	119	0	0	0	0	0	0	0
120	26-06-24	Rimseal Area Point No-120	120	0	0	0	0	0	0	0
121	26-06-24	Rimseal Area Point No-121	121	0	0	0	0	0	0	0
122	26-06-24	Rimseal Area Point No-122	122	0	0	0	0	0	0	0
123	26-06-24	Rimseal Area Point No-123	123	0	0	0	0	0	0	0
124	26-06-24	Rimseal Area Point No-124	124	0	0	0	0	0	0	0
125	26-06-24	Rimseal Area Point No-125	125	0	0	0	0	0	0	0
126	26-06-24	Rimseal Area Point No-126	126	0	0	0	0	0	0	0
127	26-06-24	Rimseal Area Point No-127	127	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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128	26-06-24	Rimseal Area Point No-128	128	0	0	0	0	0	0	0
129	26-06-24	Rimseal Area Point No-129	129	0	0	0	0	0	0	0
130	26-06-24	Rimseal Area Point No-130	130	0	0	0	0	0	0	0
131	26-06-24	Rimseal Area Point No-131	131	0	0	0	0	0	0	0
132	26-06-24	Rimseal Area Point No-132	132	0	0	0	0	0	0	0
133	26-06-24	Rimseal Area Point No-133	133	0	0	0	0	0	0	0
134	26-06-24	Rimseal Area Point No-134	134	0	0	0	0	0	0	0
135	26-06-24	Rimseal Area Point No-135	135	0	0	0	0	0	0	0
136	26-06-24	Rimseal Area Point No-136	136	0	0	0	0	0	0	0
137	26-06-24	Rimseal Area Point No-137	137	0	0	0	0	0	0	0
138	26-06-24	Rimseal Area Point No-138	138	0	0	0	0	0	0	0
139	26-06-24	Rimseal Area Point No-139	139	0	0	0	0	0	0	0
140	26-06-24	Rimseal Area Point No-140	140	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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Unit: NRMT TANK NO-004 C Service: MS										
1	26-06-24	Level Indicator connecting point rimseal area	1	0	0	0	0	0	0	0
2	26-06-24	Rimseal Area Point No- 2	2	0	0	0	0	0	0	0
3	26-06-24	Rimseal Area Point No- 3	3	0	0	0	0	0	0	0
4	26-06-24	Rimseal Area Point No- 4	4	0	0	0	0	0	0	0
5	26-06-24	Rimseal Area Point No- 5	5	0	0	0	0	0	0	0
6	26-06-24	Rimseal Area Point No- 6	6	0	0	0	0	0	0	0
7	26-06-24	Rimseal Area Point No- 7	7	0	0	0	0	0	0	0
8	26-06-24	Rimseal Area Point No- 8	8	0	0	0	0	0	0	0
9	26-06-24	Rimseal Area Point No- 9	9	0	0	0	0	0	0	0
10	26-06-24	Rimseal Area Point No- 10	10	0	0	0	0	0	0	0
11	26-06-24	Rimseal Area Point No-11	11	0	0	0	0	0	0	0
12	26-06-24	Rimseal Area Point No- 12	12	0	0	0	0	0	0	0
13	26-06-24	Rimseal Area Point No- 13	13	0	0	0	0	0	0	0
14	26-06-24	Rimseal Area Point No- 14	14	0	0	0	0	0	0	0
15	26-06-24	Rimseal Area Point No- 15	15	0	0	0	0	0	0	0
16	26-06-24	Rimseal Area Point No- 16	16	0	0	0	0	0	0	0
17	26-06-24	Rimseal Area Point No- 17	17	0	0	0	0	0	0	0
18	26-06-24	Rimseal Area Point No- 18	18	0	0	0	0	0	0	0
19	26-06-24	Rimseal Area Point No- 19	19	0	0	0	0	0	0	0
20	26-06-24	Rimseal Area Point No- 20	20	0	0	0	0	0	0	0
21	26-06-24	Rimseal Area Point No- 21	21	0	0	0	0	0	0	0
22	26-06-24	Rimseal Area Point No- 22	22	0	0	0	0	0	0	0
23	26-06-24	Rimseal Area Point No- 23	23	0	0	0	0	0	0	0
24	26-06-24	Rimseal Area Point No- 24	24	0	0	0	0	0	0	0
25	26-06-24	Rimseal Area Point No- 25	25	0	0	0	0	0	0	0
26	26-06-24	Rimseal Area Point No- 26	26	0	0	0	0	0	0	0
27	26-06-24	Rimseal Area Point No- 27	27	0	0	0	0	0	0	0
28	26-06-24	Rimseal Area Point No- 28	28	0	0	0	0	0	0	0
29	26-06-24	Rimseal Area Point No- 29	29	0	0	0	0	0	0	0
30	26-06-24	Rimseal Area Point No- 30	30	0	0	0	0	0	0	0
31	26-06-24	Rimseal Area Point No- 31	31	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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32	26-06-24	Rimseal Area Point No- 32	32	0	0	0	0	0	0	0
33	26-06-24	Rimseal Area Point No- 33	33	0	0	0	0	0	0	0
34	26-06-24	Rimseal Area Point No- 34	34	0	0	0	0	0	0	0
35	26-06-24	Rimseal Area Point No- 35	35	0	0	0	0	0	0	0
36	26-06-24	Rimseal Area Point No- 36	36	0	0	0	0	0	0	0
37	26-06-24	Rimseal Area Point No- 37	37	0	0	0	0	0	0	0
38	26-06-24	Rimseal Area Point No- 38	38	0	0	0	0	0	0	0
39	26-06-24	Rimseal Area Point No- 39	39	0	0	0	0	0	0	0
40	26-06-24	Rimseal Area Point No- 40	40	0	0	0	0	0	0	0
41	26-06-24	Rimseal Area Point No- 41	41	0	0	0	0	0	0	0
42	26-06-24	Rimseal Area Point No- 42	42	0	0	0	0	0	0	0
43	26-06-24	Rimseal Area Point No- 43	43	0	0	0	0	0	0	0
44	26-06-24	Rimseal Area Point No- 44	44	0	0	0	0	0	0	0
45	26-06-24	Rimseal Area Point No- 45	45	0	0	0	0	0	0	0
46	26-06-24	Rimseal Area Point No- 46	46	0	0	0	0	0	0	0
47	26-06-24	Rimseal Area Point No- 47	47	0	0	0	0	0	0	0
48	26-06-24	Rimseal Area Point No- 48	48	0	0	0	0	0	0	0
49	26-06-24	Rimseal Area Point No- 49	49	0	0	0	0	0	0	0
50	26-06-24	Rimseal Area Point No- 50	50	0	0	0	0	0	0	0
51	26-06-24	Rimseal Area Point No- 51	51	0	0	0	0	0	0	0
52	26-06-24	Rimseal Area Point No- 52	52	0	0	0	0	0	0	0
53	26-06-24	Rimseal Area Point No- 53	53	0	0	0	0	0	0	0
54	26-06-24	Rimseal Area Point No- 54	54	0	0	0	0	0	0	0
55	26-06-24	Rimseal Area Point No- 55	55	0	0	0	0	0	0	0
56	26-06-24	Rimseal Area Point No- 56	56	0	0	0	0	0	0	0
57	26-06-24	Rimseal Area Point No- 57	57	0	0	0	0	0	0	0
58	26-06-24	Rimseal Area Point No- 58	58	0	0	0	0	0	0	0
59	26-06-24	Rimseal Area Point No- 59	59	0	0	0	0	0	0	0
60	26-06-24	Rimseal Area Point No-60	60	0	0	0	0	0	0	0
61	26-06-24	Rimseal Area Point No-61	61	0	0	0	0	0	0	0
62	26-06-24	Rimseal Area Point No-62	62	0	0	0	0	0	0	0
63	26-06-24	Rimseal Area Point No-63	63	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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64	26-06-24	Rimseal Area Point No-64	64	0	0	0	0	0	0	0
65	26-06-24	Rimseal Area Point No-65	65	0	0	0	0	0	0	0
66	26-06-24	Rimseal Area Point No-66	66	0	0	0	0	0	0	0
67	26-06-24	Rimseal Area Point No-67	67	0	0	0	0	0	0	0
68	26-06-24	Rimseal Area Point No-68	68	0	0	0	0	0	0	0
69	26-06-24	Rimseal Area Point No-69	69	0	0	0	0	0	0	0
70	26-06-24	Rimseal Area Point No-70	70	0	0	0	0	0	0	0
71	26-06-24	Rimseal Area Point No-71	71	0	0	0	0	0	0	0
72	26-06-24	Rimseal Area Point No-72	72	0	0	0	0	0	0	0
73	26-06-24	Rimseal Area Point No-73	73	0	0	0	0	0	0	0
74	26-06-24	Rimseal Area Point No-74	74	0	0	0	0	0	0	0
75	26-06-24	Rimseal Area Point No-75	75	0	0	0	0	0	0	0
76	26-06-24	Rimseal Area Point No-76	76	0	0	0	0	0	0	0
77	26-06-24	Rimseal Area Point No-77	77	0	0	0	0	0	0	0
78	26-06-24	Rimseal Area Point No-78	78	0	0	0	0	0	0	0
79	26-06-24	Rimseal Area Point No-79	79	0	0	0	0	0	0	0
80	26-06-24	Rimseal Area Point No-80	80	0	0	0	0	0	0	0
81	26-06-24	Rimseal Area Point No-81	81	0	0	0	0	0	0	0
82	26-06-24	Rimseal Area Point No-82	82	0	0	0	0	0	0	0
83	26-06-24	Rimseal Area Point No-83	83	0	0	0	0	0	0	0
84	26-06-24	Rimseal Area Point No-84	84	0	0	0	0	0	0	0
85	26-06-24	Rimseal Area Point No-85	85	0	0	0	0	0	0	0
86	26-06-24	Rimseal Area Point No-86	86	0	0	0	0	0	0	0
87	26-06-24	Rimseal Area Point No-87	87	0	0	0	0	0	0	0
88	26-06-24	Rimseal Area Point No-88	88	0	0	0	0	0	0	0
89	26-06-24	Rimseal Area Point No-89	89	0	0	0	0	0	0	0
90	26-06-24	Rimseal Area Point No-90	90	0	0	0	0	0	0	0
91	26-06-24	Rimseal Area Point No-91	91	0	0	0	0	0	0	0
92	26-06-24	Rimseal Area Point No-92	92	0	0	0	0	0	0	0
93	26-06-24	Rimseal Area Point No-93	93	0	0	0	0	0	0	0
94	26-06-24	Rimseal Area Point No-94	94	0	0	0	0	0	0	0
95	26-06-24	Rimseal Area Point No-95	95	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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96	26-06-24	Rimseal Area Point No-96	96	0	0	0	0	0	0	0
97	26-06-24	Rimseal Area Point No-97	97	0	0	0	0	0	0	0
98	26-06-24	Rimseal Area Point No-98	98	0	0	0	0	0	0	0
99	26-06-24	Rimseal Area Point No-99	99	0	0	0	0	0	0	0
100	26-06-24	Rimseal Area Point No-100	100	0	0	0	0	0	0	0
101	26-06-24	Rimseal Area Point No-101	101	0	0	0	0	0	0	0
102	26-06-24	Rimseal Area Point No-102	102	0	0	0	0	0	0	0
103	26-06-24	Rimseal Area Point No-103	103	0	0	0	0	0	0	0
104	26-06-24	Rimseal Area Point No-104	104	0	0	0	0	0	0	0
105	26-06-24	Rimseal Area Point No-105	105	0	0	0	0	0	0	0
106	26-06-24	Rimseal Area Point No-106	106	0	0	0	0	0	0	0
107	26-06-24	Rimseal Area Point No-107	107	0	0	0	0	0	0	0
108	26-06-24	Rimseal Area Point No-108	108	0	0	0	0	0	0	0
109	26-06-24	Rimseal Area Point No-109	109	0	0	0	0	0	0	0
110	26-06-24	Rimseal Area Point No-110	110	0	0	0	0	0	0	0
111	26-06-24	Rimseal Area Point No-111	111	0	0	0	0	0	0	0
112	26-06-24	Rimseal Area Point No-112	112	0	0	0	0	0	0	0
113	26-06-24	Rimseal Area Point No-113	113	0	0	0	0	0	0	0
114	26-06-24	Rimseal Area Point No-114	114	0	0	0	0	0	0	0
115	26-06-24	Rimseal Area Point No-115	115	0	0	0	0	0	0	0
116	26-06-24	Rimseal Area Point No-116	116	0	0	0	0	0	0	0
117	26-06-24	Rimseal Area Point No-117	117	0	0	0	0	0	0	0
118	26-06-24	Rimseal Area Point No-118	118	0	0	0	0	0	0	0
119	26-06-24	Rimseal Area Point No-119	119	0	0	0	0	0	0	0
120	26-06-24	Rimseal Area Point No-120	120	0	0	0	0	0	0	0
121	26-06-24	Rimseal Area Point No-121	121	0	0	0	0	0	0	0
122	26-06-24	Rimseal Area Point No-122	122	0	0	0	0	0	0	0
123	26-06-24	Rimseal Area Point No-123	123	0	0	0	0	0	0	0
124	26-06-24	Rimseal Area Point No-124	124	0	0	0	0	0	0	0
125	26-06-24	Rimseal Area Point No-125	125	0	0	0	0	0	0	0
126	26-06-24	Rimseal Area Point No-126	126	0	0	0	0	0	0	0
127	26-06-24	Rimseal Area Point No-127	127	0	0	0	0	0	0	0

Sr.No.	Date	Location	Tag No.	Component Type	Screening Value (PPM) before Repair	Emission Kg/Hr	Emission Kg/day	Screening Value (PPM) after Repair	Emission Kg/Hr	Emission Kg/day
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128	26-06-24	Rimseal Area Point No-128	128	0	0	0	0	0	0	0
129	26-06-24	Rimseal Area Point No-129	129	0	0	0	0	0	0	0
130	26-06-24	Rimseal Area Point No-130	130	0	0	0	0	0	0	0
131	26-06-24	Rimseal Area Point No-131	131	0	0	0	0	0	0	0
132	26-06-24	Rimseal Area Point No-132	132	0	0	0	0	0	0	0
133	26-06-24	Rimseal Area Point No-133	133	0	0	0	0	0	0	0
134	26-06-24	Rimseal Area Point No-134	134	0	0	0	0	0	0	0
135	26-06-24	Rimseal Area Point No-135	135	0	0	0	0	0	0	0
136	26-06-24	Rimseal Area Point No-136	136	0	0	0	0	0	0	0
137	26-06-24	Rimseal Area Point No-137	137	0	0	0	0	0	0	0
138	26-06-24	Rimseal Area Point No-138	138	0	0	0	0	0	0	0
139	26-06-24	Rimseal Area Point No-139	139	0	0	0	0	0	0	0
140	26-06-24	Rimseal Area Point No-140	140	0	0	0	0	0	0	0

Annexure -VI : Ground Water Monitoring at
SLF
(Sep'24)



NUMALIGARH REFINERY LIMITED

(Quality Control Department)

Test Report of ground water monitoring wel sample of Secured Landfill (For the Month of September 2024)

Date of sampling : 25.09.2024

Sampling Point : Newly installed ground water monitoring wel (South-West)

Date of Certification: 28.09.2024

Analyzed by : Prabhas Kumar Thakur

Sl No.	Parameters	Requirement as per IS 10500 : 2012 (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of test, Ref to the part of IS 3025	Results of ground water monitoring wel
1	Odor	Agreeable	Agreeable	Part 5	Odorless
2	pH Value	6.5-8.5	No relaxation	Part 11	7.0
3	Iron (as Fe), mg/l, Max	0.3	No relaxation	Part 53	0.525
4	Copper (as Cu), mg/l, Max	0.05	1.5	Part 42	0.000
5	Nickel (as Ni), mg/l, Max	0.02	No relaxation	Part 54	0.000
6	Cadmium (as Cd), mg/l, Max	0.003	No relaxation	Part 41	0.000
7	Total arsenic (as As), mg/l, Max	0.01	0.05	Part 37	0.000
8	Lead (as Pb), mg/l, Max	0.01	No relaxation	Part 47	0.000
9	Zinc (as Zn), mg/l, Max	5	15	Part 49	0.003
10	Total chromium (as Cr), mg/l, Max	0.05	No relaxation	Part 52	0.000
11	Magnesium (as Mg), mg/l, Max	30	100	Part 46	1.60
12	Calcium (as Ca), mg/l, Max	75	200	Part 40	4.81
13	Selenium (as Se), mg/l, Max	0.01	No relaxation	Part 56	0.000
14	Sodium(as Na), mg/l	***	***	Section 3120 B. APHA-AWWA	17.20

Barhai

Certified by: Dr Bedobrat Barhai [बेदब्रत बर्हई]

Sr Officer (Quality Control)

बेदब्रत बर्हई/BEDOB RAT BARHAI

वरिष्ठ अधिकारी (गुणवत्ता नियंत्रण)/Sr. Officer (Quality Control)

नुमालीगढ़ रिफाइनरी लिमिटेड / Numaligarh Refinery Limited

गोलाघाट, असम - 785 699 / Golaghat, Assam - 785 699



NUMALIGARH REFINERY LIMITED

(Quality Control Department)

Test Report of ground water monitoring wel sample of Secured Landfill (For the Month of September 2024)

Date of sampling : 25.09.2024
Sampling Point : Newly installed ground water monitoring wel(North-West)
Date of Certification: 28.09.2024
Analyzed by : Prabhas Kumar Thakur

Sl No.	Parameters	Requirement as per IS 10500 : 2012 (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of test, Ref to the part of IS 3025	Results of ground water monitoring wel
1	Odor	Agreeable	Agreeable	Part 5	Odorless
2	pH Value	6.5-8.5	No relaxation	Part 11	7.0
3	Iron (as Fe), mg/l, Max	0.3	No relaxation	Part 53	1.06
4	Copper (as Cu), mg/l, Max	0.05	1.5	Part 42	0.000
5	Nickel (as Ni), mg/l, Max	0.02	No relaxation	Part 54	0.000
6	Cadmium (as Cd), mg/l, Max	0.003	No relaxation	Part 41	0.000
7	Total arsenic (as As), mg/l, Max	0.01	0.05	Part 37	0.000
8	Lead (as Pb), mg/l, Max	0.01	No relaxation	Part 47	0.000
9	Zinc (as Zn), mg/l, Max	5	15	Part 49	0.005
10	Total chromium (as Cr), mg/l, Max	0.05	No relaxation	Part 52	0.000
11	Magnesium (as Mg), mg/l, Max	30	100	Part 46	1.59
12	Calcium (as Ca), mg/l, Max	75	200	Part 40	3.78
13	Selenium (as Se), mg/l, Max	0.01	No relaxation	Part 56	0.000
14	Sodium(as Na), mg/l	***	***	Section 3120 B. APHA-AWWA	18.20

Certified by: Dr Bedobrat Barhai [बेदब्रत बर्हई]
Sr Officer (Quality Control)

बेदब्रत बर्हई/BEDOBRAI BARHAI

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गोलाघाट, असम - 785 699 / Golaghat, Assam - 785 699