

**GOVERNMENT OF ASSAM**  
**ENVIRONMENT AND FOREST DEPARTMENT**  
**DISPUR, GUWAHATI-6**

ECF No.255095/66

Dated Dispur, the 08<sup>th</sup> December, 2022

**To :** The Regional Officer,  
Government of India,  
Ministry of Environment, Forest & Climate Change,  
Integrated Regional Office, 4<sup>th</sup> Floor, Housefed Building,  
G.S Road, Rukminigaon, Guwahati-781022

**Sub :** **Forest diversion proposal of 1.7888 Ha. forest land for exploratory drilling location NRAH in Nambar South Reserved Forest under Golaghat Division in favour of ONGC, Jorhat**

**Ref :** Government of India letter No. 3-AS B/130/2022/GHY/2927-2928 dated 24.8.2022.

Sir,

In inviting a reference to your letter on the subject cited above, I am directed to furnish herewith the additional information/documents as below for favour of your kind information and necessary action: -

<b>Govt. of India letter No 3-AS B/130/2022/ GHY/2927-2928 dated 24.8.2022</b>	<b>Information Provided</b>
Condition No. (1)	The User Agency (ONGC) has deposited the 2 % NPV for proposed drilling wells to the Ad-hoc CAMPA account on 30.9.2016 (Copy enclosed as <b>Annexure-I</b> )
Condition No. (2)	The User Agency (ONGC) has clarified that , the forest clearance under section 2(iii) has been granted in respect of the forest area involved in the PML vide letter dated 31.10.2022 (Copy enclosed as <b>Annexure-II</b> )
Condition No. (3)	The User Agency (ONGC) has submitted the layout map (Copy enclosed as <b>Annexure-III</b> )
Condition No. (4)	The User Agency (ONGC) has submitted the detail list of the exploratory drilling and production locations in the Nambar PML (Copy enclosed as <b>Annexure-IV</b> )
Condition No. (5)	The User Agency (ONGC) has stated that the cumulative impact study report, i.e. the EIA report has been submitted for all the 'development drilling locations which falls under category A projects as per EIA,2006 while applying for EC. But since this diversion proposal NRAH is for exploratory drilling and as it comes under category B2 project, so a detailed EIA study has been conducted as this category of project has been exempted from doing the same while applying for EC.

I/84824/2022

	However, an EMP is followed as a generalized management plan for countering any impact generator drilling vide letter dated 31.10.2022 (Copy enclosed as <b>Annexure-II</b> ) .
Condition No. (6)	The User Agency (ONGC) has stated that the Environment clearance is to be applied after grant of “In-Principal Approval”.
Condition No. (7)	The GPS coordinates of the proposed drilling location “NRAH” are as follows: Long:- 93°52’42.56” Lat:- 26°03’42.46”
Condition No. (8)	A lump sum of 2% of project cost may be earmarked for Human Elephant Conflict and Wildlife Conservation Plan as per the guideline. After approval of CWLW, the Plan will be submitted in due course of time before Final Approval.
Condition No. (9)	The User Agency (ONGC) has stated that the FRA-2006 certificate is under process.
Condition No. (10)	The number of bore hole is one and size- 17.1/2” (Diameter in Inches)
Condition No. (11)	The DFO, Golaghat division has submitted the revised Net Present Value calculation sheet (Copy enclosed as <b>Annexure-V</b> )
Condition No. (12)	The User Agency (ONGC) has submitted the undertakings for Net Present Value & Addl. Net Present Value (Copy enclosed as <b>Annexure-VI</b> )

Yours faithfully,

**Signed by Indreswar Kalita****Date: 08-12-2022 15:47:26**

Addl. Secretary to the Govt. of Assam

Environment and Forest Department.

Enclo: As stated above.

Memo ECF No.255095/66-A,  
Copy to:Dated Dispur, the 08<sup>th</sup> December, 2022

1. The Principal Chief Conservator of Forests &HoFF, Assam, Panjabari, Guwahati-37.

**E-Signed**Addl. Secretary to the Govt. of Assam  
Environment and Forest Department.

31/10/22  
31/10

31/10/2022  
Date - 21/10/2022

To  
The Divisional Forest Officer,  
Golaghat Division,  
Golaghat  
Assam – 785621

Sub – Proposal for diversion of 1.7888 ha of forest land for drilling location NRAH in Nambar South Reserved Forest under Golaghat Division in favor of ONGC Ltd., Jorhat.

Ref – i) DFO Golaghat letter no A/62/ONGC/NRAH/Glt.DIVN/2022/2050-52, dated-09/09/2022  
ii) IRO, MoEF & CC, Guwahati letter ref . F.No.3-AS B 130/2022/GHY/2927-2928 ,dated 24/08/2022

Sir,

With reference to your letter, A/62/ONGC/NRAH/Glt Divn/2022/2050-52, dated -09/09/2022, I would like to enclose herewith the information/documents as per requirement against the points mentioned in IRO letter dated 24.08.2022. The information against the points are being mentioned below-

Sl. No.	Observation	Reply
1	The status on 2% NPV realization of the forest land involved in the Nambar PML and the total forest area involved in the Nambar PML.	<b>2% NPV payment has been made. (Annexure 1)</b>
2	To clarify whether forest clearance under section 2 (iii) has been granted of the forest area involved in the PML or not as per Ministry's letter dated 24.06.2015.	<b>PML has been enclosed as per requirement. (Annexure 2)</b>
3	The lay out map of the propose area with proper title of the proposal name indicating the drilling location 'NRAH' approach road, etc with proper legend.	<b>Attached as per requirement (Annexure 3)</b>
4	The detail list of the exploratory drilling and production locations in the 'Nambar PML' indicating the legal status of the land, GPS coordinates and map indicating the same along with their forest clearance status.	<b>Attached as per requirement (Annexure 4)</b>
5	The cumulative impact study report of the block of PML area where the drilling location "NRAH" has been proposed.	<b>The cumulative impact study report, i.e. the EIA report has been submitted for all the 'development' drilling locations which falls under category A projects as per EIA, 2006 while applying for EC. But since this diversion proposal NRAH is for 'exploratory' drilling and as it comes under category B2 project, so a detailed EIA</b>

		study has not been conducted as this category of project has been exempted from doing the same while applying for EC. However an EMP (Environment Management Plan) is followed as a generalised management plan for countering any impact generated in the environment during exploratory drilling. The same has been attached for your reference. (Annexure 5 )
6	The current status the environment clearance of this instant proposal.	EC is to be applied after grant of IPA
7	The GPS co-ordinate of the proposed drilling location 'NRAH' as the submitted coordinate is for the proposed plinth area.	GPS Coordinate for NRAH – LONG- 93°52'42.56" E LAT- 26°03'42.46" N
8	The human elephant conflict mitigation and conservation plan approved by CWLW as recommended by the State Govt.	Under process with the consultation of DFO, Golaghat.
9	The current status of Forest (Right) Act, 2006 certificate of the proposed area.	Under process.
10	The number of the bore hole and its size involved in this proposal.	Number of Bore Hole - 1 Size - 17 ½" (Diameter in Inches)
11	The undertaking certificate of the NPV & addl. NPV are to be submitted as the submitted certificates has not mentioned about the details of the proposed area	Attached as per requirement. (Annexure 6)

This is for your kind information and consideration please

Thanking You

  
Munindra Das  
GM (Drilling)  
In-Charge, LAQ  
ONGC Jorhat  
Cinnamara

MUNINDRA DAS  
GM (D)  
I/C LAQ  
ONGC, JORHAT





অসম অসম ASSAM

27AA 749412

**UNDERTAKING BY USER AGENCY**

FOR FOREST LOCATION (NRAH): GOLAGHAT, ASSAM

FOR NPV & CA

ONGC is liable to pay compensatory Afforestation cost and NPV as per the demand note to be issued by the Government. While processing the proposal, if there is any increase in afforestation cost and NPV decided by the Government, ONGC is ready to pay the increased amount.

For additional amount of the Net Present Value (NPV)

Do hereby undertake to bear the cost of additional amount of the Net Present Value (NPV) for Diversion of Forest Land measuring 1.7888 ha if any, becoming due after finalizing/revision of the same by the Hon'able Supreme Court of India.

*Munindra Das*  
13/10/2022  
Munindra Das  
GM (Drilling)  
In Charge LAQ  
ONGC, Jorhat

**SCHEME FOR COMPENSATORY AFFORESTATION (PLANTATION) SCHEME  
AGAINST THE LAND PROCURED BY ONGC FOR DIVERSION PROPOSAL OF  
EXPLORATORY DRILLING LOCATION NRAH (1.7888 Ha) WITHIN DOYANG  
RESERVE FOREST UNDER GOLAGHAT DIVISION**

NAME OF THE RESERVED FOREST	AREA IN HECT
Deopani Reserve Forest under Sadiya Range of Doomdooma Division	3.5776 Ha.
Area of Afforestation	1.7888 Ha. X 2 = 3.5776 Ha. in Deopani Reserve Forest with the following GPS location under Doomdooma Forest Division. a) Lat = : 27°57'26.895" N; Log = : 95°49'6.041" E b) Lat = : 27°57'23.802" N; Log = : 95°49'7.981" E c) Lat = : 27°57'17.872" N; Log = : 95°48'59.148" E; d) Lat = : 27°57'21.321" N; Log = : 95°48'56.672" E;

**ESTIMATE**


I)	Area to be taken for plantation = 3.5776 Ha.	= 44,52,283.00
II)	NPV @ Rs. 11,16,900.00/Ha x 1.7888 Ha.	= 19,97,910.00
	<b>Total</b>	<b>= 64, 50,193.00</b>

(Rupees Sixty Four Lakhs Fifty Thousand One Hundred and Ninety Three only)

Submitted

*[Signature]*  
Divisional Forest Officer  
Golaghat Division  
Golaghat



	<b>Oil and Natural Gas Corporation Limited</b> <b>Assam &amp; Assam Arakan Basin</b> Luit Bhavan, ONGC Complex, Cinnamara, Jorhat Phone: +91 376 2360011, 2707002, FAX: +91 376 2360012/14	
<b>File Ref</b>	No. JRT/ BM-AAA/ BMG/1 /2016 /4138	12.09.2016
<b>From</b>	Office of Basin Manager, A& AA Basin : Jorhat	
<b>To</b>	Chief Conservator of Forests & Nodal Officer, (F.C. Act) O/o the Principal Chief Conservator of Forests and Head of Forest Force: Panjabari: Guwahati- 781 037 Assam.	

Sub: Payment of NPV @ 2% against forest area covered under PMLs of ONGC in Assam.

Ref: Letter No. FG.27/Noda/OIL & ONGC/ Genl. dated 09.05.2016.

Letter No. FG.27/Nodal/OIL & ONGC/ Genl. dated 22.07.2016

Letter No. JRT/ BM-AAA/ 20 /2016 dated 24.08.2016.

Sir,

Reference is invited to the letters mentioned above regarding realization of payment of NPV @ 2% against Forest area covered under Mining Lease.

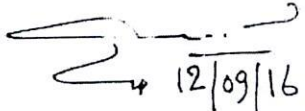
In this connection, the following documents are hereby submitted in compliance to letter dated 9<sup>th</sup> May 2016 & 22<sup>nd</sup> July 2016 for your kind perusal.

1. Approval letter of each PML accorded by Govt. of India (point 1). Refer Table-2 and Annexures I to XI
2. Coordinates of the approved PML area. (Coordinates of the ML area provided with the area covered under Forest area as depicted in the maps (point 4) Refer Table-3
3. Copy of Petroleum Mining lease granted by State Govt. of Assam (point 5). Refer Table-2 and Annexures XII to XVI
4. Royalty is paid for the ML areas under production. For the PML areas yet to be put on production or awaiting grant from state Govt. Dead rent is under process/ will be deposited on grant of Mining Lease. (Point 7)

Remaining data is under compilation/ preparation and will be submitted shortly for which we request for time extension to furnish the documents as requested.

ONGC has made an assessment of approximately 358.29 sq.km as the total forest area under PML as is detailed in table-1. It is requested to kindly intimate us about the amount to be paid so that the same may be processed at the earliest.

With regards,

  
(D.C. Pant)  
DGM (Geol) - Head BMG

Copy for information to:

1. Divisional Forest Officer, Golaghat,
2. Divisional Forest Officer, Cachar,
3. Divisional Forest Officer, Karimganj,
4. ED-Asset Manager, Jorhat Asset, Jorhat
5. GGM-Head EXCOM, New Delhi

Pl. put draft reply  
sh. to chand

  
12.5.16

No	PML Block	Block Area (sq.Km)	Name of Reserved Forest	Forest Area (Sq.Km)	District
<b>A&amp;AA Basin, Jorhat</b>					
1	Adamtila Extn	148	Tilbhum Hills & Langai R.F.	84.37	Karimganj
2	North Patharia	60	Pathari Hills R.F.	3.12	Karimganj
3	Cachar	732	Sonai R.F, Inner Line R.F. and Lower Jiri R.F.	31.3	Cachar
4	Kasomarigaon (Additiona)	56	Doyang R.F	56	Golaghat
5	East Lakhibari Extn.	49	Doyang R.F	8	Golaghat
	<b>Total</b>	<b>1045</b>		<b>182.79</b>	
<b>Jorhat Asset</b>					
1	Kalyanpur	40	Doyang R.F	37.5	Golaghat
2	Kasomarigaon	20	Doyang R.F	20	Golaghat
3	Khoraghat	3	South Nambar & Rengma R.F.	3	Golaghat
4	Khoraghat Ext-1	83	South Nambar & Rengma R.F.	80.5	Golaghat
5	East Lakhibari	8.5	Doyang R.F	8.5	Golaghat
6	Nambar	26	South Nambar & Rengma R.F.	26	Golaghat
	<b>Total</b>	<b>180.5</b>		<b>175.5</b>	
	<b>Grand Total</b>	<b>1225.5</b>		<b>358.29</b>	

(Source: data taken from the original PML grant application and the authenticated maps).



Table-1

Details of PMLs held by ONGC under A&AA Basin and Jorhat Asset in Assam State						
SI No	Area	Validity of PML		Area of PML (Sq. Km.)		Remarks.
		From	To	Overall	Forest Cover	
JORHAT ASSET						
1	Borholla	17.06.1998	16.06.2018	32.12	0	Jorhat Dt.
2	Mekrang	19.09.1997	18.09.2017	16.00	0	Jorhat Dt.
3	Titabar	24.12.2008	23.12.2023	10.00	0	Jorhat Dt.
4	Nambar (Forest Area)	05.09.1999	04.09.2019	26.00	26.00	Golaghat Dt.
5	Khoraghat (Extn-1)	17.07.2000	16.07.2020	83.00	80.50	Golaghat Dt.
6	East Lakhibari	23.07.2003	22.07.2023	8.50	8.50	Golaghat Dt
7	Khoraghat	26.07.2009	25.07.2024	3.00	3.00	Golaghat Dt
8	Golaghat Ext II A	09.12.2009	08.12.2024	24.00	0	Golaghat Dt.
9	Kasomarigaon	09.12.2009	08.12.2025	20.00	20.00	Golaghat Dt.
10	Kalyanpur	13.04.2007	12.04.2027	40.00	37.50	Golaghat Dt.
	Total for Jorhat Asset			262.62	175.50	
BASIN (Jorhat + Cachar)						
1	Badarpur	01.08.2009	31.07.2019	2.3	0	Hailakandi Dt
2	Adamtila	24.11.2014	23.11.2034	4.00	0	Karimganj Dt
3	Adamtila Extn.	03.03.2012	02.03.2032	148.00	84.37	Karimganj Dt
4	North Patharia	30.03.2012	29.03.2029	60.00	3.12	Karimganj Dt
5	Banaskandi	21.07.1997	20.07.2017	15.00	0	Cachar Dt
6	Bhubandar	22.12.2002	21.12.2022	6.00	0	Cachar Dt
7	Sector VC	30.11.2014	29.11.2034	497.00	0	Cachar Dt
8	Cachar	04.01.2013	03.01.2020	732.00	31.30	Cachar Dt (7 yr PML)
9	Kasomarigaon (Add)	06.07.2016	05.07.2023	56.00	56.00	Golaghat Dt (7 Yr PML)
10	Golaghat Ext II A (Add)	21.11.2012	20.11.2019	61.00	0	Golaghat Dt (7 Yr PML)
11	East Lakhibari Extn.	10.10.2013	09.10.2020	59.00	8.00	Golaghat Dt (7 Yr PML)
	Total for A & AA Basin			1640.3	182.79	
	Total for Jorhat Work Centre (Asset + Basin)			1902.92	358.29	

read sent for 1902 km<sup>2</sup>  
= 2.25 G.  
NPV for forest work out  
to be 74.739 G.

SL NO	MINING LEASE	FIELD	Well No	NAME	TYPE	DATE OF RIG RELEASE	CUR_STAT	FLOW/INJ	FC STATUS OF LAND	Lat	Long
1	Nambar ML	KHORAGHAT	KH-14	KHAG	EXPL	17/05/2000	OIL	FLOWING	FC available	26° 05' 25.9"	93° 54' 11.3"
2	Nambar ML	KHORAGHAT	KH-25	KHAP	EXPL	03/03/2003	OIL	NON-FLOWING	FC available	26° 05' 04.329"	93° 53' 52.768"
2	Nambar ML	KHORAGHAT	KH-31	KHAV	EXPL	29/12/2011	OIL	NON-FLOWING	FC available	26° 05' 17.707"	93° 53' 21.797"
3	Nambar ML	KHORAGHAT	KH-36z	KH-36z	DEVL	15/07/2019	OIL	FLOWING	FC available	26° 03' 14.760"	93° 55' 26.896"
4	Nambar ML	KHORAGHAT	KH-38z	KH88z	DEVL	05/02/2017	OIL	FLOWING	FC available	26° 05' 17.561"	93° 53' 21.669"
5	Nambar ML	KHORAGHAT	KH-41	KHB6	EXPL	17/11/2017	OIL	FLOWING	FC available	26° 03' 14.946"	93° 55' 27.210"
6	Nambar ML	KHORAGHAT	KH-42	KHBE	EXPL	04/05/2018	OIL	NON-FLOWING	FC available	26° 05' 17.530"	93° 53' 21.860"
7	Nambar ML	KHORAGHAT	KH-45	KHBI	EXPL	12/07/2020	OIL	FLOWING	FC available	26° 03' 18.275"	93° 54' 37.196"
8	Nambar ML	NAMBAR	NR-1	KGP-1	EXPL	13/07/1999	OIL	FLOWING	FC available	26° 03' 28.48416"	93° 53' 39.12107"
9	Nambar ML	NAMBAR	NR-2	NRAB	EXPL	18/08/2000	6AS	NON-FLOWING	FC available	26° 03' 18.27126"	93° 54' 37.22767"
10	Nambar ML	NAMBAR	NR-5	NRAA	EXPL	28/08/2002	OIL	NON-FLOWING	FC available	26° 02' 48.45148"	93° 53' 24.18303"
11	Nambar ML	NAMBAR	NR-6	NRDC	DEVL	01/02/2003	OIL	NON-FLOWING	FC available	26° 03' 28.56196"	93° 53' 34.78990"
12	Nambar ML	NAMBAR	NR-9	NRDF	DEVL	09/11/2010	OIL	FLOWING	FC available	26° 03' 02.10450"	93° 53' 34.96480"
13	Nambar ML	NAMBAR	NR-12	NRAF	EXPL	28/05/2016	OIL	NON-FLOWING	FC available	26° 03' 34.22"	93° 53' 38.56"
14	Nambar ML	NAMBAR	NR-14	NRDH	DEVL	16/10/2017	OIL	NON-FLOWING	FC available	26° 03' 33.77"	93° 53' 38.61"



/ENV&FOREST

Office of the  
ED-Assam Manager  
ONGC, Jorhat Asset  
No. 22-05-2018  
20.06.2020

Office of the  
Basin Manager, ARAC  
Jorhat

GOVERNMENT OF ASSAM  
MINES AND MINERALS DEPARTMENT  
DISPUR, GUWAHATI-6.

No. PEM 246/2019/128

Dated Dispur, the 24<sup>th</sup> April, 2020

From: Shri D.C. Das, ACS  
Secretary to the Government of Assam,  
Mines and Minerals Department,  
Dispur, Guwahati-6.

To: Asset Manager, Jorhat Asset,  
Oil and Natural Gas Corporation Ltd. Assam,  
Cinnamara Complex, P.O. Jorhat, Dist. Jorhat, Assam, Pin-785704

Sub: Regrant of Nambur Petroleum Mining Lease in Golaghat District  
measuring 26.00 Sq Km to Oil & Natural Gas Corporation Ltd.

Ref: Your application No. ONGC/JKT/AM/Nambur PMI-45/01/2018 dated 10-10-18.

Sir,  
I am directed to invite a reference to the letter cited above, and to say that the Governor of Assam is pleased to regrant the Petroleum Mining Lease (PML) under rule 5(1) (ii) Read with Rule 12 of the Petroleum & Natural Gas Rules, 1959 (as amended from time to time) to Oil & Natural Gas Corporation Ltd. over an area measuring 26.00 Sq. Kms. for Nambur PML in Golaghat District of Assam for production of Crude Oil and Natural Gas for a period of 17 (Seventeen) years from the effective date i.e. 05-09-2019 to 04-09-2036 in pursuance of Govt. of India letter F.No.Expl-11032(11)/39/2018 ONG-1 (P 27498) dated 6<sup>th</sup> November, 2019 conveying their approval for re grant of PML for Golaghat Dist.

The grant of PML is subject to the observance of the terms & conditions laid down in the PML Deed to be executed between the Govt. of Assam and ONGC Ltd. The grant of PML is also subject to the terms and conditions as per letter No. F.No.Expl-11032(11)/39/2018 ONG-1 (P 27498) dated 6<sup>th</sup> November, 2019 of the Ministry of Petroleum and Natural Gas, Govt. of India.

You are also requested to fulfil all the conditions like Environment Clearance, Forest Clearance etc. as required before the execution of PML Deed without delay.

Yours faithfully,

Secretary to the Govt. of Assam  
Mines and Minerals Department,  
Dispur, Guwahati-6.

Dated Dispur, the 24<sup>th</sup> April, 2020

Memo No. 246/2019/128-A

Copt to:-

1. The Under Secretary to the Govt. of India, Ministry of Petroleum & Natural Gas, Shastri Bhawan, New Delhi with reference to his letter F.No. No. F.No.Expl-11032(11)/39/2018 ONG-1 (P 27498) dated 6<sup>th</sup> November, 2019
2. The Director, Geology & Mining, Assam, Kahilipara, Guwahati-19. He is requested to prepare the draft PML Deed and execute the same with ONGC Ltd. incorporating and updating the relevant clauses of terms and condition as necessitated with recent amendment with intimation to this Department at an early date. This has the reference to his letter No.GM/MM/88-C/5/5362 dated 06/12/2019.
3. The Deputy Commissioner, Golaghat District, Assam for information and necessary action.
4. The Principal Chief Conservator of Forest & Head of Forest Force, Assam, Aranya Bhawan, Panjabari, Ghy-37 for information and necessary action.

By order and

Joint Secretary to the Government of Assam,  
Mines & Minerals Department  
Dispur, Guwahati-6

SM

ED. B.M. for M.D. of M.

For information record  
CGM-BIK MGT-CAS  
HBMG



EMP Budget for 38 locations

Pertaining to Drilling Services, Jorhat

Sr.No.	Mitigation /Management measures	Total Capital Cost Rs.	Recurring Cost Rs.
1	Wastewater and effluent Management <ul style="list-style-type: none"> <li>• Modular STP</li> <li>• Water Quality Monitoring</li> </ul>	---	Rs.3,89,299.50 (approx.) per Mobile ETP per well of 75 days. (For drilling location under DS, A&AAB, Jorhat)
2	Fuel ,Lubricant and Chemical Management	Lubricant: 44 lakh	3.25/ well
3	Noise and Vibration Mitigation <ul style="list-style-type: none"> <li>• Acoustic Enclosure and Personal Protective Equipment</li> <li>• Noise Monitoring</li> <li>• Maintenance cost of equipment.</li> </ul>	1.35 Core	0.50Lakh
4	Solid Waste Management		
5	Air emission mitigation <ul style="list-style-type: none"> <li>• Maintenance of D.G. sets</li> <li>• Air monitoring</li> </ul>	15.0 Core	05 Lakh / well 0.40 Lakh / well ( For Air Noise & Stack monitoring)
6	Soil Quality		
7	Training to Staff		
8	General Awareness in Local Public		

N. K. DAS  
EMP/Envy-DS, ONGC Ltd  
A & AA Basin Jorhat





**Project Name:-** Proposal for Drilling of exploratory wells (38 No's) in the non-forest areas of the Cachar District PML Block and Pre-NELP Block AA-ONJ/2, Assam.

### **ENVIRONMENT MANAGEMENT PLAN**

The objective of the Environmental Management Plan (EMP) is to identify project specific actions that will be undertaken to mitigate and manage impacts associated with the proposed project. In view of the proposed project, the adequacy of the proposed pollution control measures has been analyzed to meet the standards and norms of concerned authorities. The EMP reflects statutory requirements, ONGC's own corporate operational guidelines for drilling of wells project. Cognizance has been taken of all the applicable standards and guidelines (amongst others) in the preparation of the EMP. The following sections discuss the mitigation measures for each potential effect. Actions and monitoring requirements are summarized Table-1. The Environmental Management Plan (EMP) describes both generic good practices. Measures and site-specific measures, the implementation of which is aimed at mitigating potential impacts associated with the proposed project.

**TABLE-1**  
**SUMMARY OF ENVIRONMENTAL MANAGEMENT ACTIONS**

Potential Impact	Action	Responsibility	Parameters for Monitoring	Timing
1. Land take	1.1 Ensure that all necessary protocols are followed and legal requirements implemented: a) Ensure that appropriate legal requirements have been met with regard to land occupancy, land ownership or usage rights, notice and compensation etc.; b) Establish and clearly document land take agreements with owners, users and state authorities.	ONGC, Land Acquisition coordinators  Land Acquisition coordinators	Check list of action items	Pre-deployment of Topographic survey team or site clearance crew.
	1.2 Mark out site boundaries. Ensure that land take during drilling site construction is restricted to pre-agreed area.	ONGC/Contractors	Site boundaries marked	After selection of precise site location and Orientation. Prior to onset of site clearance.
2. Soil Erosion	2.1 Minimize area extent of site Clearance, by staying within defined boundaries.	Contractor Supervisor	Site boundaries marked	Prior to onset of site clearance.



	3.4 All bulldozer operators involved in site preparation shall be trained to observe the defined site boundaries.	Contractor Supervisor	Maintenance of integrity of boundary markers.	Duration of site Preparation.
	3.5 Hunting, fishing and wildlife trapping is forbidden. Removal or disturbance to nesting or breeding birds and animals, their eggs or young is strictly prohibited.	Contractor Supervisor	Awareness training	Entire drilling campaign
4. Fuels, Lubricants and Chemicals Management	4.1 Maintain strict inventory of all fuel, lubricants and chemicals brought to the drilling site.	Drilling Site manager	Up-to-date inventory in place	-do-
	4.2 All fuels, lubricants and chemicals placed in controlled storage.	Drilling Site manager	Periodic checking of Integrity of storage area, impervious liner; All drums and containers located within footprint of storage area.	-do-
	4.3 All used and unused lubricants and chemicals no longer required, to be stored in a secure paved area and disposed to authorized recyclers	Drilling Site Manager	Validity of authorization of the approved recyclers; Manifest and records to be maintained.	-do-
	4.4 Refueling operations to be undertaken over area with impervious flooring and surface drainage with oil traps.	Drilling Site Manager.	Paved facilities to be installed and training to concern to be Provided.	- do-
	4.5 Delivery of fuel to drilling site to be supervised.	Drilling Site Manager.	Detailed procedure in place and training to concerned provided.	-do-

	2.2 Stockpile of topsoil wherever possible and applicable at the edge of site.	Contractor supervisor	Topsoil stockpile in place on site edge.	Site Construction. Duration of program up until demobilization.
	2.3 Install and maintain effective run-off controls, including siltation ponds, traps and diffusion methods so as to minimize erosion.	Drilling Site manager	Condition of siltation ponds. Rill or gully development in Immediate off-site surroundings.	Site construction. Duration of program and beyond.
	2.4 Avoid uprooting trees or removing undergrowth where possible, so as to retain land stability.	Contractor supervisor	Trees to be preserved identified	Site clearance.
3.Habitat disturbance	3.1 Mark out site boundaries	Drilling Site Manager	Clear boundary markers in place.	Prior to commencement of site clearance.
	3.2 Avoid uprooting trees and other plants where possible so as to facilitate subsequent re-growth.	Contractor Supervisor	Trees to be preserved identified	Entire drilling campaign
	3.3 For cleared areas, retain top soil in stockpile where possible on perimeter of site for subsequent re-spreading onsite during restoration	Contractor Supervisor	Topsoil stockpile in place on site edge.	Duration of programme until Demobilization or prior opportunity for vegetation of verges.



	4.6 Adequate oil spill containment and clean-up equipment and materials on-hand and available to contain foreseeable oil spill.	Drilling Site manager	Facilities and inventories readily available and in good working order.	Entire drilling campaign
5. Waste and Effluent Management	5.1 Implement Drilling Waste Management Plan	Drilling site Manage	Comprehensive Waste Management Plan in place and available at site.	Prior to site clearance.
6. Soil Contamination	6.1 Impervious liners in place for a) Fuel, lubricants and chemicals storage area. b) Cuttings pit; stream side pump set station.	Drilling Site manager	Evidence of protective measures in place. No visual sign of oil spills.	Daily throughout duration of programme
	6.2 Effective bunds capable of containing 110 % of the volume of the largest container within and enclosing all Potentially contaminating materials. To be used for fuel lubricants and chemicals storage area.	Drilling Site manager	Evidence of protective measures in place. Absence of visual evidence of contamination.	Daily throughout duration of programme
	6.3 Non - contaminated and potentially contaminated run-off will be kept separate. Non-contaminated run-off will be routed to off-site areas via silt traps. Potentially contaminated surface run-off will be routed through oil traps.	Drilling Site manager	Evidence of separate routes and effectively working silt traps. Oily water separation in good working order.	Duration of entire drill programme.

	<p>6.4 Oil drip pans shall be used wherever there is significant potential for leakage including, but not limited to;</p> <ul style="list-style-type: none"> <li>• Drill rig engine;</li> <li>• Electric generator engine;</li> <li>• Compressors, pumps or other motors;</li> <li>• Maintenance areas;</li> <li>• Fuel transfer areas.</li> </ul>	Drilling Site manager	Drip pans in place. Absence of visible signs of soil contamination.	Duration of entire drill programme.
	<p>6.5 All spills/leaks contained, reported and cleaned up immediately:</p> <ul style="list-style-type: none"> <li>• Oil absorbent /spill containment material deployed to contain large spills;</li> <li>• Contaminated soil dug up, placed in drums and subsequently removed from site.</li> </ul>	Drilling Site manager	Written spill procedure in place. Oil spills containment materials onsite (and always ready for deployment). Spill reporting procedure in place	Duration of entire drill programme.
7. Water quality and other aquatic impacts.	7.1 No untreated discharge to be made to water courses.	Drilling Site manager	Ensure no untreated effluent discharged on land or watercourse from the drilling site / campsite.	Duration of programme with particular emphasis during site layout design and site construction



	7.2 Minimize suspended solids loads to watercourses by installing appropriate surface run-off drainage systems (eg. silt traps)	Drilling Site manager	Surface drainage systems in good working order. Absence of visible erosion and gullies. Absence of visible suspended solids loads in streams. Results from water monitoring programme	Duration of programme.
8. Noise and Vibration (Applies to Site preparation as well as drilling)	8.1 List of all potential noise / vibration generating machinery on-site Identifying age of plant.	Drilling Site manager	Ensure that the drilling rig DG sets have acoustic hoods and noise dampers in place; Mapping of noise generating equipment noise levels before commencement of drilling and once during the drilling operation; Check the anti-vibration pads /other measures in place to attenuate transmission of machinery vibration	Prior to commencement of work by contractors at each drilling site. During drilling operation
	8.2 Equipment maintained in good Working order. Workers near noise source provided with noise protection equipment (ear muffs)	Drilling Site manager	Written record of maintenance for all equipment. Monitor effective use of personnel protective equipment	Prior to commencement of work by contractors at each drilling site.

	8.4 Acoustic mufflers in large engines (where practicable)	Drilling Site manager	Mufflers in place.	Duration of entire drill programme.
9.Air Emissions	9.1 All equipment operated within specified design parameters (site preparation and drilling phases)	Drilling Site manager	N/A	Duration of entire drill Programme.
	9.2 Any dry, dusty materials (chemicals, mud etc) shall be stored in original packaging's and loose storage avoided (wherever avoided (wherever possible).	Drilling Site manager	Absence of stockpiles or open Containers of dusty material.	Duration of entire drill Programme.



	<p>9.3 Well testing (flaring) to be undertaken so as to minimize impacts of emissions:</p> <ul style="list-style-type: none"> <li>• Duration of testing minimized by careful planning;</li> <li>• High combustion efficiency, smokeless flare/burner to be used.</li> </ul>	Drilling site Manager	<p>Check flare controls before flaring; Physical Inspection during flaring; Maintenance checklist of flaring equipment;</p> <p>Check firewall in place, where required and flare direction</p>	Well testing.
	<p>10.1 Well site to be developed to avoid any habitat and cultural / archaeological centers</p> <p>10.2 Adequate dialogue with the local population and the authority while designing compensation packages, close monitoring on the type of land loss:</p> <ul style="list-style-type: none"> <li>• Permanent</li> <li>• Temporary</li> </ul>	ONGC Land Acquisition Supervisor	<p>Checklist of action items. Continued dialogue with the local villagers and other stake holders</p>	At the initial stage of well site planning
	<p>Protection of traditional water structures provision of health and education services. Loss of land and crop loss to be compensated. The land will be acquired on a temporary basis and if commercial quantity of oil or gas is found, the land will be taken on long lease and if oil and gas is not found in commercial quantities, the land will be returned to the owner by bringing back to its original status and adequate compensation as per the guidelines of local administration will</p>	ONGC Land acquisition supervisor	<p>Project management plan should incorporate these aspects at the initial planning stage</p>	<p>All through drilling and post drilling operation</p> <p>During site acquisition phase</p> <p>During the site preparatory works</p>

- viii. Hazardous materials such as diesel, lubrication oil, paint materials and other necessary tubular required at the site during construction activities would be stored in an earmarked area with safe operating facilities & practices and disposed as per hazardous waste management authorisation conditions.
- ix. To ensure that the local inhabitants are not exposed to the hazards of construction site would be secured by fencing and manned entry posts.
- x. The chemical and diesel storage area will be paved and provided with spill containment walls. Pits for storage of water, drilling mud and drill cuttings will be provided with impervious liner. Sufficient free-board will be provided to prevent overflow.
- xi. It would be ensured that diesel powered construction vehicles are properly maintained. Vehicle maintenance would be carried out authorized service centres. Service centres will be so selected to ensure that these conform to statutory regulations.

### **Environment Management Plan during Drilling**

#### **1. Soil Erosion**

Well site design and planning incorporate certain best practices principles such as grading and levelling of ground and ensuring the local drainage patterns are disturbed to the minimum, minimum clearance of vegetation, restoration of topsoil and drainage system to minimize the soil erosion. Efforts will be taken up to reduce long-term soil erosion and loosening of the soil in the site preparation activities. With the adequate management plan for restoration of the soil cover and proper management plan the impact on soil erosion will be minimized.

#### *Soil Contamination*

ONGC also has a detailed waste management plan to ensure safe disposal practices and minimize potentiality of soil or sub surface contamination. Some of the specific measures included in the management plan are:

- Minimize area extent of site clearance, by staying within the defined boundaries;
- Stockpile of topsoil wherever possible and applicable at the edge of site;



- Install and maintain effective run-off controls, including siltation ponds, traps and diffusion methods so as to minimize erosion; and
- Avoid uprooting trees or removing undergrowth where possible so as to retain land stability;
- Only effluent from treated sewage (septic tank and soak pit system) will be discharged to the local environment;
- The clarified waste water will be collected in lined pits and treated through packaged treatment plant for oil and suspended solids removal to ensure that it meets land or water discharge standards depending on discharge point;
- Spent lubricants and other waste or unused materials will be removed from site as soon as is practicable (and certainly prior to leaving the site) for appropriate off-site disposal or use elsewhere;
- An inventory will be maintained of all fuel, lubricants and chemicals stored on the site. Oil and chemicals, will be stored in dedicated paved and contained areas;
- Waste oil resulting from equipment lubrication will be stored and handled as per the provisions of the Hazardous Waste (Management, Handling & Trans boundary Movement) Rules, 2016; and
- Implementation of the waste management plan actions as described in the earlier points are subjected to regular audits to ensure effectiveness All oil handling and storage areas will be provided with concert paving and secondary containment. The impact on surrounding soils from any accidental fuel spills will depend upon the season and the nature of the spillage. During the dry season, small spills are likely to cause only localized impact on soil. During the monsoon season, however, when surface soils are likely to be water saturated, pollutants are more likely to travel along the surface as runoff. Oil spill response plan will be put in place including the provision of absorbents and in case of unlikely event of a significant spill, soil remediation measures will be taken to clean up the contaminated area.

## 2 Air Pollution Management Plan

Other potential sources of emissions which can cause impacts on environmental components are gaseous emissions and noise pressure levels at the rig. The gaseous emissions would routinely be contributed by D.G. sets deployed for power generation. But in this project, diesel with low sulphur content will only be used. The incremental concentrations of SO<sub>2</sub> and NO<sub>2</sub> due to the operation of DG sets and flaring will be negligible. There will be no sensitive receptors to the emissions of combustion products in the