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MEMBER SECRETARY  
SEIAA (GUJARAT)



STATE LEVEL ENVIRONMENT  
IMPACT ASSESSMENT  
AUTHORITY  
GUJARAT

No. SEIAA/GUJ/EC/1(b)/1784/2022

Date: 19 JUL 2022

By R P A D  
Time Limit

Sub: Environment Clearance to M/s. Vedanta Ltd. (Div: Cairn Oil & Gas) for setting up manufacturing plant of 'Offshore and onshore oil and gas exploration, development & production at CB-ONHP-2018/4 Hydrocarbon block, District: Vadodara, State: Gujarat. In Category 1(b) of Schedule annexed with EIA Notification dated 14/09/2006.

Ref: Your Proposal No. SIA/GJ/IND2/245513/2022.

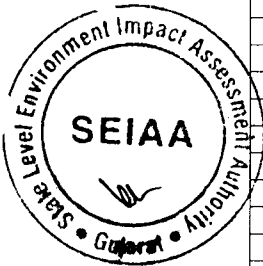
Dear Sir,

This has reference to your application along with form-1, Pre-Feasibility Report, Environment Management Plan and other supporting documents dated 10/02/2022 submitted to SEIAA, seeking Environmental Clearance under Environment Impact Assessment Notification, 2006.

The proposal is for Environmental Clearance to onshore Oil and Gas Exploration in the Appraisal and early production in the Block CB-ONHP-2018/4 in Vadodara Districts, Gujarat. It is a proposed project for onshore Oil and Gas Exploration, Appraisal and Early Production in the Block CB-ONHP-2018/4 in Vadodara Districts, Gujarat. The block CB-ONHP-2018/4 located in Vadodara Districts, Gujarat. It encloses an area of 558.77Sq.Km. and is bounded by the points having following coordinates provided in below Table. The proposed project is green field in nature. The proposed onshore oil and gas exploration & appraisal and early production is expected to carry out Drilling of 43 exploratory (including appraisal) wells and the exploratory and appraisal wells will be drilled to explore the reservoirs up to a depth of 3500-5000 m approx. After successful drilling and discovery of hydrocarbon, 8 Nos. of Early Production Units (EPUs)/ Quick Production Units (QPUs) for produced well fluid processing and early production of up to 16000 BOPD crude oil & natural gas of 30 MMSCFD will be set up.

Table 1: Apex Co-ordinates of Block CB-ONHP-2018/4 boundary (as per RSC)

Apex Points	Longitude	Latitude
1.	73° 15' E	22° 10' N
2.	73° 20' E	22° 10' N
3.	73° 20' E	21° 55' N
4.	73° 15' E	21° 55' N
5.	73° 15' E	21° 56' N
6.	73° 14' E	21° 56' N
7.	73° 14' E	21° 58' N
8.	73° 13' E	21° 58' N
9.	73° 13' E	22° 0' N
10.	73° 8' E	22° 0' N
11.	73° 8' E	22° 3' N
12.	73° 5' E	22° 3' N
13.	73° 5' E	22° 1' N
14.	73° 3' E	22° 1' N
15.	73° 3' E	22° 3' N
16.	73° 0' E	22° 3' N
17.	73° 0' E	22° 4' N
18.	72° 59' E	22° 4' N
19.	72° 59' E	22° 5' N
20.	73° 0' E	22° 5' N
21.	73° 0' E	22° 7' N
22.	72° 59' E	22° 7' N
23.	72° 59' E	22° 8' N
24.	72° 58' E	22° 8' N
25.	72° 58' E	22° 12' N
26.	73° 0' E	22° 12' N
27.	73° 0' E	22° 11' N



28.	73° 1' E	22° 11' N
29.	73° 1' E	22° 10' N
30.	73° 3' E	22° 10' N
31.	73° 3' E	22° 8' N
32.	73° 4' E	22° 8' N
33.	73° 4' E	22° 7' N
34.	73° 8' E	22° 7' N
35.	73° 8' E	22° 8' N
36.	73° 9' E	22° 8' N
37.	73° 9' E	22° 10' N
38.	73° 10' E	22° 10' N
39.	73° 10' E	22° 8' N
40.	73° 11' E	22° 8' N
41.	73° 11' E	22° 7' N
42.	73° 13' E	22° 7' N
43.	73° 13' E	22° 6' N
44.	73° 14' E	22° 6' N
45.	73° 14' E	22° 7' N
46.	73° 15' E	22° 7' N
47.	73° 15' E	22° 9' N
48.	73° 14' E	22° 9' N
49.	73° 14' E	22° 10' N
50.	73° 13' E	22° 10' N
51.	73° 13' E	22° 11' N
52.	73° 12' E	22° 11' N
53.	73° 12' E	22° 12' N
54.	73° 11' E	22° 12' N
55.	73° 11' E	22° 13' N
56.	73° 15' E	22° 13' N
57.	73° 11' E	22° 3' N
58.	73° 12' E	22° 3' N
59.	73° 12' E	22° 1' N
60.	73° 17' E	22° 1' N
61.	73° 17' E	22° 2' N
62.	73° 18' E	22° 2' N
63.	73° 18' E	22° 5' N
64.	73° 11' E	22° 5' N

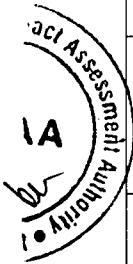


The proposed well locations with Village and Taluka/Tehsil as follows:

Proposed Well Locations with coordinates, land use, distance from major water bodies, human habitat, roads, forests, protected areas

Well id	Latitude (N)	Longitude (E)	Village	Taluka / Tehsil	District	Present Land use	Road Infrastructure	Forest/WL S/ NP	Nearest River/ Water bodies	Major Human establishments, etc	Industries, etc
1.	22°11'9.33"	73°13'27.70"	Shahpura	Vadodara	Vadodara	Agricultural	Shahpura village road, 0.3 km, S	No	Vishwamitri River, 1.80 Km, SE	Shahpura, 1.4 km, SE	--
2.	22°10'34.22"	73°13'12.48"	Shahpura	Vadodara	Vadodara	Agricultural	Shahpura village road, 0.3 km, E	No	Vishwamitri River, 1.4 Km, SE	Shahpura, 0.7 km, SE	--
3.	22°10'33.88"	73°14'8.51"	Shahpura	Vadodara	Vadodara	Agricultural	Shahpura village road, 0.03 km, N	No	Vishwamitri River, 0.3 km, E	Shahpuravill., 0.7 km, SW	--
4.	22°9'41.57"	73°14'33.37"	Hansapura	Dabhoi	Vadodara	Agricultural	Hansapura village road, 0.6 km, E	No	Vishwamitri River, 1.5 Km, N	Hansapura, 1.2 km, NW	JashP ckging, 1.3 km, SE
5.	22°1'30.99"	73°17'22.31"	Timbarva	Shinor	Vadodara	Agricultural	Kayavarohan - sadhali road, 1.8 km, W	No	Canal (Timbarva), 1.2 Km, S	Timbarva, 1.4 km, SW	--

6.	22° 1'41.41"	73°18'5.4 2"	Achisar a	Shinor	Vadodar a	Agricult ural	Achisara village road,0.6 km, S	No ne	Canal (Timbarva), 1.5 Km, S	Achisa ra, 1.7 km, SE	--
7.	21°59'24. 41"	73°18'45. 45"	Awakhal	Shinor	Vadodar a	Agricult ural	Awakhal village road, 0.8 km, NW	No ne	Canal (Achisara), 3.0 Km, N	Awakh al, 1.60 km, NNE	Electro Magne tic Ind., 0.9 km, NW Nama h Agro, 0.8 km, NW
8.	22° 0'30.18"	73°17'29. 09"	Timbarv a	Shinor	Vadodar a	Agricult ural	Kayavarohan - Sadhalird, 0.9 km, W	No ne	Canal (Timbarva), 0.7 Km, N	Timbar va, 1.6 km, NW	Electro Magne tic Ind., 2.0 km, SE
9.	22° 0'26.56"	73°18'28. 14"	Awakhal	Shinor	Vadodar a	Agricult ural	Awakhal village road, 0.9 km, SE	No ne	Canal (Achisara) vill,1.5 Km, NE	Awakh al,0.6 km, NE	Electro Magne tic Ind., 1.3 km, S
10.	22° 4'0.35"	73° 9'30.60"	Kandari	Karjan	Vadodar a	Agricult ural	Kandari village road, 0.3 km, W	No ne	Karjan lake, 4.0 Km, SW	Kandar i village, 0.8 km, NW	Ramd ev Polym ers, 0.9 km, S
11.	22° 4'10.51"	73°10'39. 56"	Dhanora	Vadod ara	Vadodar a	Agricult ure follow land	Ganpatpura road, 1.3 km, E SH 161, 1.5 km, S	No ne	Karjan lake, 6.0 Km, SW	Dhanor a,1.1 km, NNE	Gandh ara Sugar, 4.0 Km, SE
12.	22° 3'55.76"	73° 5'47.12"	Kurai	Karjan	Vadodar a	Agricult ural	Karjan – handod road, 0.7 km, S	No ne	Vishwamitri River, 4.8 Km, NW  Karjan lake, 3.3 Km, SE	Kurai village, 0.8 km, NW	Phoeni x Industr ies,1.0 0 km,SE
13.	22° 4'4.32"	73° 4'38.01"	Kurai	Karjan	Vadodar a	Agricult ural	Karjan – handod road, 0.6 km, S	No ne	Vishwamitri River, 3.9 KM N Karjan lake, 5.0 Km, SE	Kurai village, 1.0 km, NE	--
14.	22°11'27. 53"	73°12'42. 08"	Sundarp ura	Vadod ara	Vadodar a	Agricult ural	Sundarpura- Voragamdivill rd, 0.3 km, E	No ne	Vishwamitri River,3.0 Km, SE	Sundar pura, 0.5 km, NNW	--
15.	22° 7'58.66"	73° 0'24.96"	Kanda	Padra	Vadodar a	Agricult ural	Ambada village road, 0.2 km, NW	No ne	Vishwamitri River,4.8 Km, S	Kanda, 1.0 km, SW	--
16.	22° 7'29.42"	73° 1'21.31"	Gayapur a	Padra	Vadodar a	Agricult ural	Gayapura village road, 0.3 km, W	No ne	Vishwamitri River, 2.4 Km, S	Gayap ura,0.6 km, Sok	--
17.	22° 8'48.35"	73° 0'25.19"	Ambada	Padra	Vadodar a	Agricult ural	Ambada village road, 0.4 km, E	No ne	Vishwamitri River, 5.3 Km, SE	Ambad a, 0.7 km, NNE	--
18.	22° 5'38.94"	73° 3'42.43"	Manpur	Karjan	Vadodar a	Agricult ural	Manpur village road, 0.9 km E	No ne	Vishwamitri River, 1.3 Km, NE	Manpu r, 1.0 km, NE	--



19.	21°58'47.70"	73°16'59.82"	Sadhali	Shinor	Vadodara	Agricultural	SH 160, 0.6 km, N	No	Narmada River, 6.0 Km, S Canal (Timbarva), 3.7 Km, N	Sadhali, 0.8 km, E	--
20.	21°57'53.47"	73°18'28.41"	Manjrol	Sankheda	Vadodara	Agricultural	Sadhali-Manjrol road, 0.10, km, W SH 160, 1.5 km, S	No	Narmada River, 6.2 Km, SE Canal (Tersa), 0.5 Km, NW	Manjrol, 0.6 km, S	--
21.	22°7'24.85"	73°8'29.62"	North side Gosindra	Waghodia	Vadodara	Agricultural	Gosindra village road, 0.3 km, SW	No	Vishwamitri River, 1.3 Km, NW	Gosindra, 1.0 km, NW	--
22.	22°2'24.20"	73°10'5.17"	Dhavat	Karjan	Vadodara	Agricultural	SH 160, 0.3 km, S	No	Canal (Dhavat village), 1.7 Km, SE	Dhavat, 1.0 km, SE	Cosmo Films, 1.7 km, NW
23.	22°0'34.69"	73°8'18.88"	Bharthali west	Karjan	Vadodara	Agricultural	Bharthana village road, 0.3 km, N	No	Canal (JuniJithardi), 2.5 Km, N	Bharthali, 0.6 km, NE	--
24.	21°57'10.18"	73°15'0.53"	Ranapur	Karjan	Vadodara	Agricultural	Palej-Sadhali road, 1.0 km, SE	No	Narmada River, 1.8 Km, S	Ranapur, 1.1 km, S	--
25.	21°55'49.43"	73°16'55.15"	Surasamal	Shinor	Vadodara	Agricultural	SH 160, 1.1 km, E	No	Narmada River, 1.3 Km, SW	Surasamal, 1.0 km, NE	--
26.	22°5'41.08"	73°16'30.43"	Khanpur	Dabhoi	Vadodara	Agricultural	Khanpur village road, 0.2 km, W	No	Kayavarohan lake, 2.9 Km SW	Khanpurvill, 0.9 km NW	Maa Shakti Ind, 4.5 km, E
27.	22°6'22.14"	73°10'56.94"	Bamangam	Karjan	Vadodara	Agricultural	NH 8, 0.9 km, E	No	Vishwamitri River, 3.3 Km, NNW	Bamangam, 1.0 km, SE	Horizontal in park, 1.0 km, SE
28.	22°6'8.57"	73°6'0.07"	Pingalwada	Karjan	Vadodara	Agricultural	SH 160, 0.5 km, SW	No	Vishwamitri River, 1.9 Km, NW	Pingalwadavi, 1.4 km, NW	--
29.	22°4'39.25"	73°0'38.09"	Abhara	Karjan	Vadodara	Agricultural	Abhara village road, 0.3 km, W	No	Vishwamitri River, 1.15 Km, N	Abhara, 0.9 km, NNE	--
30.	22°9'39.18"	73°2'14.50"	Anti	Padra	Vadodara	Agricultural	Ambada village road, 0.9 km, NW	No	Vishwamitri River, 5.30 Km, SSE	Anti, 0.8 km, NW	--
31.	22°10'41.33"	72°59'7.04"	Karnakuva	Padra	Vadodara	Agricultural	Karnakuva village road, 0.2 km, E	No	Muval lake, 2.5 km, E	Karnakuva, 1.2 km, NW	Zydex Industries Pvt. Ltd., 3.5 Km, SW
32.	22°8'33.91"	72°58'26.94"	Mobha	Padra	Vadodara	Agricultural	Mobha village road, 0.4 km, W	No	Vishwamitri River, 6.0 Km, S	Mobha, 0.7 km, SW	--
33.	22°1'47.70"	73°3'44.79"	kambola	Savli	Vadodara	Agricultural	SH 161, 1.1 km, S	No	Canal (kambola), 1.0 km, NW	Kambola, 1.8 km, NW	--

34.	22° 5'39.51"	73° 8'32.90"	sarar	Vadodara	Vadodara	Agricultural	Sarar village road, 0.6 km, W	No	Vishwamitri River, 4.2 Km, NNW	Sarar, 0.8 km, NW	--
35.	22° 5'33.11"	73°14'11.57"	Kayavarohan	Dabhoi	Vadodara	Agricultural	Por-Kayavarohan road, 0.7 km, E	No	Kayavarohan lake, 1.6 Km, SE	Kayavarohan, 1.3 km, SE	Omguru Cast., 0.55 km, NNE
36.	22° 5'44.74"	73° 9'48.15"	manglej	Karjan	Vadodara	Agricultural	NH 8, 0.9 km, S	No	Vishwamitri River, 5.4 Km, NNW	Manglej, 0.8 km, SE	--
37.	22° 7'39.32"	73° 3'20.24"	Bhadari	Padra	Vadodara	Agricultural	Sadhi village road, 0.5 km, E	No	Vishwamitri River, 1.3 Km, S	Bhadari, 1.0 km, SE	--
38.	22° 6'26.38"	73° 0'35.32"	Thikariya Math west	Padra	Vadodara	Agricultural	Sahera village road, 1.1 km E	No	Vishwamitri River, 1.5 Km, SE	Sahera, 1.4 km, SE	--
39.	22° 4'50.22"	73° 2'46.90"	Handod	Karjan	Vadodara	Agricultural	Handod village road, 0.1 km, E	No	Vishwamitri River, 3.0 Km, N	Handod, 0.5 km, S	--
40.	22° 0'14.17"N	73°13'22.78"	Vemar North West	Karjan	Vadodara	Agricultural	SH 160, 0.8 km, E Vemarvillrd, 0.2 km, S	No	Narmada River, 7.9 Km, SSE Canal (Kothav), 1.5 Km, W	Vemar, 0.8 km, E	--
41.	22° 8'0.04"	73°17'10.28"	Nariya	Dabhoi	Vadodara	Agricultural	SH 11, 1.4 km, E	No	Kayavarohan lake, 6.7 Km, SW	Nariya, 1.8 km, NE	--
42.	22° 0'0.67"	73°15'27.55"	Tarva	Shinor	Vadodara	Agricultural	Tarvavillrd, 0.7 km, E SH 160, 1.0 km, SW	No	Narmada River, 7.1 Km, S Canal (Timbarva), 1.9 Km N	Tarva, 0.9 km, NE	--
43.	21°58'45.68"	73°14'31.86"	Tinglod	Shinor	Vadodara	Agricultural	Metni-Utrajvillrd, 0.6 km, S SH 160, 1.8 km, NE	No	Narmada River, 4.8 Km, S Canal (Timbarva), 4.5 Km, N	Tinglod, 1.5 km, NNE	--

Note: Actual geographical surface coordinates of exploratory and appraisal well/Well Pad locations will be within 2000 m radius of the proposed coordinates while maintaining safe distance from major human habitat/ water body/ forest/ ESZ.



The project activity is covered in 1(b) and is of 'B' Category. Since, the project falls in B2 category as per the MoEF&CC's amendment EIA Notification vide S.O. 236(E) dated 16.01.2020, the public consultation is not required as per paragraph 7(i) (III) (i) (e) of the Environment Impact Assessment Notification-2006.

The SEAC, Gujarat vide their letter dated 18/06/2022 had recommended to the SEIAA, Gujarat, to grant the Environment Clearance for the above-mentioned project based on its meeting held on 04/04/2022. The proposal was considered by SEIAA, Gujarat in its meeting held on 05/07/2022 at Gandhinagar. After careful consideration, the SEIAA hereby accords Environmental Clearance to above project under the provisions of EIA Notification dated 14th September, 2006 subject to the compliance of the following conditions.

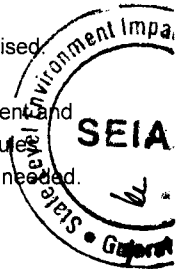
**A. CONDITIONS :**

**A.1 SPECIFIC CONDITION :**

1. Project proponent (PP) shall obtain separate Environmental Clearance for commercial drilling and exploration as this proposal is for drilling of Exploration activity only as per EIA Notification 2006 and amendment dated 16.01.2020 [Category B2 of activity 1(b)]
2. No drilling shall be carried out in protected areas.
3. The company shall make all arrangements at the drilling site to prevent runoff of any oil containing waste into the nearby water bodies. Separate drainage system shall be created for oil contaminated and non-oil contaminated. Effluent shall be properly treated and treated waste water shall conform to CPCB/GPCB standards.
4. Drill cuttings separated from drilling fluid shall be adequately washed and disposed according to HWMH rule, 2016. No effluent /drilling mud /drill cutting shall be discharged /disposed off into nearby surface water bodies. The company shall comply with the guidelines for disposal of solid waste, drill cutting and drilling fluids for onshore drilling operation notified vide GSR. 546 dated 30

the August ,2005

5. Oil spillage prevention and mitigation scheme shall be prepared. In case of oil spillage/ contamination, action plan shall be prepared to clean the site by adopting proven technology. The recyclable waste (oily sludge) and spent oil shall be disposed of to the authorized recyclers.
6. After completion of drilling activities, in case of non-availability of hydrocarbons the site shall be restored back to its normal condition as per the prevailing Rules/Guidelines/Site restoration policy.
7. PP shall adopt best drilling practices and drilling operations shall be designed in such a way that there is no chance of contamination of ground water aquifer.
8. PP shall take all precautionary measures to avoid any contamination of ground water.
9. The National Ambient Air Quality Emission Standards issued by the Ministry vide G. S. R. No. 826 (E) dated 16<sup>th</sup> November, 2009 shall be complied with.
10. Unit shall have to adhere to the prevailing area specific policies of GPCB with respect to the discharge of pollutants and shall carry out the project development in accordance & consistence with the same.
11. The project proponent must strictly adhere to the stipulations made by the Gujarat Pollution Control Board, State Government and/or any other statutory authority.
12. The company shall develop a contingency plan for H2S release including all necessary aspects from evacuation to resumption of normal operations. The workers shall be provided with personal H2S detectors in locations of high risk of exposure along with self-containing breathing apparatus.
13. Company shall prepare operating manual in respect of all activities, which would cover all safety & environment related issues and measures and measures to be taken for protection. One set of environment manual shall be made available at the drilling site/project site. Awareness shall be created at each level of management. All the schedules and results of environmental monitoring shall be available at the project site office. Remote monitoring of site should be done.
14. **Safety & Health:**
  - a. PP shall carry out mock drill within the premises as per the prevailing guidelines of safety and display proper evacuation plan in the manufacturing area in case of any emergency or accident.
  - b. PP shall take all the necessary steps for human safety within premises to ensure that no any harm is caused to any worker/employee or labor within premises.
  - c. The consequence arising out of incidents such as Well Blow Out, Fire, Explosion, Natural Calamities etc. shall be accurately predicted with the help of latest technique available by various Risk Analysis Studies and unit shall submit Disaster Management Plan (DMP) to the concern authority based on such probable scenarios.
  - d. Personal Protective Equipments (PPEs) shall be provided to workers and its usage shall be ensured and supervised.
  - e. First Aid Box shall be made readily available in the unit.
  - f. Occupational health surveillance of the workers shall be done and its records shall be maintained. Pre-employment and periodical medical examination for all the workers shall be undertaken on regular basis as per Factories Act & Rules.
  - g. The company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed.
  - h. Blow out preventer system shall be installed to prevent well blowouts during drilling operations.
  - i. Emergency response plan shall be based on the guidance prepared by OISD, DGMS and Govt. of India.



#### **A. 2 WATER:**

15. Total water requirement for the project shall not exceed 87 KLD per well drilling. Unit shall reuse 41 KLD per well of treated industrial effluent within premises. Hence, fresh water requirement shall not exceed 46 KLD per well and it shall be met through tankers.
16. PP shall not dig borewell for freshwater requirements.
17. The industrial effluent generation from each early production location from the project shall not exceed 235 KLD.
18. Total Industrial effluent generated from various activities shall be treated in mobile ETP and reused back in process.
19. PP shall obtain prior permission for disposal of treated effluent.
20. Zero Liquid Discharge [ZLD] status shall be maintained all the time and there shall be no drainage connection from the premises.
21. Domestic wastewater generation shall not exceed 12 KLD/well drilling for proposed project and 2 KLD for each early production location and it shall be treated in STP/ Septic Tank & Soak Pit system. Treated sewage shall be utilized for dust suppression, etc. purpose within premises after achieving on-land discharge norms prescribed by the GPCB.
22. During monsoon season when treated sewage may not be required for the plantation / Gardening / Greenbelt purpose, it shall be stored within premises. There shall be no discharge of wastewater outside the premises in any case.
23. Unit shall provide buffer water storage tank of adequate capacity for storage of treated wastewater during rainy days.
24. The unit shall provide metering facility at the ETP & STP and maintain records for the same.
25. Proper logbooks of ETP & STP; treated effluent reused in gardening/ plantation; chemical consumption in effluent treatment; quantity & quality of treated effluent; power consumption etc. shall be maintained and shall be furnished to the GPCB from time to time.

#### **A.3AIR:**

26. Unit shall not exceed fuel consumption for drilling site, camp site, liquid mud pump, radio room and testing flare as mentioned below:

S.N o.	Source of emission with Capacity	Stack Height (meter)	Type of Fuel	Quantity of Fuel MT/Day	Type of emissions i.e. Air Pollutants	Air Pollution Control Measures (APCM)
<b>Drilling a well</b>						
1.	Drilling Rig- 3 x 1000 KVA (2W and 1S) or 2x 1850 KVA (1W and 1S)	10	HSD	15-18	PM10, NOx	Exhausts of diesel generators will be positioned at a sufficient height to ensure dispersal of exhaust emissions; Periodic maintenance of DG sets will be undertaken
2.	Camp Site- 2 X 350 KVA (1W and 1S)	6	HSD	3-4	PM10, NOx	
3.	Liquid Mud Pump (LMP)- 3X500 KVA (2W and 1S)	6	HSD	2-3	PM10, NOx	
4.	Radio Room- 2X100 KVA (1W and 1S)	10	HSD	1-2	PM10, NOx	
5.	Testing Flare Stack	30	--	--	PM10, NOx, SO2	Engineering controls to ensure complete combustion of gas; No cold venting. Flaring will be done with combustion efficient elevated flare tip; and Location of flare stacks to be chosen considering the sensitive receptors adjoining the site.
6.	Diesel fired Heater-Treater or IWBH (Induced Water Bath Heater) with Well Testing/ Extended Well Testing Set up 1X350 KVA	6	HSD	3 KLD	PM10, NOx, SO2	
<b>Each Early Production Location</b>						
7.	GEG 1 MW	10	NG	283.16 m3/hr	PM10, NOx	Exhausts of diesel generators will be positioned at a sufficient height to ensure dispersal of exhaust emissions. Periodic maintenance of DG sets will be undertaken
8.	EPU Requirement- 1X500 KVA (Emergency Backup)	6	HSD	0.12 KLD	PM10, NOx, SO2	
9.	Flaring for each Early production location	30	NG	71 m3/hour	NOx, SO2	
10.	Dual fuel (Diesel/Gas) fired Heater-Treater or IWBH (Induced Water Bath Heater) 1X 800 KVA	6	NG or HSD	0.25 MMSCF D or 4 KLD	PM10, NOx, SO2	
11.	Natural gas fired heater for TEG regeneration 1X250 KVA	6	NG	0.4 MMSCF D	NOx, SO2	
12.	Compressor (Gas Engine Driven) 2X 800 KVA (1W+1S)	6	NG	0.23 MMSCF D	NOx, SO2	

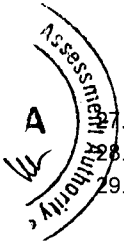
- Unit shall provide adequate APCM with flue gas generation sources as mentioned above:
28. There shall be no process gas emission from drilling & exploration activities and other ancillary operations.
29. The fugitive emission in the work zone environment shall be monitored. The emission shall conform to the standards prescribed by the concerned authorities from time to time (e.g. Directors of Industrial Safety & Health). Following indicative guidelines shall also be followed to reduce the fugitive emission.
30. Internal roads shall be either concreted or asphalted or paved properly to reduce the fugitive emission during vehicular movement.
31. Air borne dust shall be controlled with water sprinklers at suitable locations in the plant.
32. A green belt shall be developed all around the plant boundary and also along the roads to mitigate fugitive & transport dust emission.
33. Regular monitoring of Volatile Organic Compounds (VOCs) shall be carried out in the work zone area and ambient air.
34. Regular monitoring of ground level concentration of PM10, PM2.5, SO2, NOx, and VOCs shall be carried out in the impact zone and its records shall be maintained. Ambient air quality levels shall not exceed the standards stipulated by the GPCB. If at any stage these levels are found to exceed the prescribed limits, necessary additional control measures shall be taken immediately. The location of the stations and frequency of monitoring shall be decided in consultation with the GPCB.

**A.4 SOLID / HAZARDOUS WASTE:**

35. All the hazardous waste management shall be taken care as mentioned below:

**Drilling Operation (from drilling a well)**

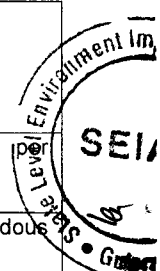
S. no.	Type/Name of Hazardous waste	Specific Source of generation (Name of the Activity,	Category and Schedule as per HW	Quantity (MT/Annum )	Management of HW



		Product etc.)	Rules.		
1	Drill cuttings excluding those from WBM	Drilling	HW Sc-I cat. 2.1	500-1500 tons/well	Collection in HDPE lined pit and disposal as per Hazardous waste Rules, 2016 (Co processing in cement kiln as fuel substitute, common Hazardous waste TSDF, HW processing facility)/ Brick manufacturing.
2	Drilling mud containing oil (SBM)	Drilling	HW Sc-I cat 2.3	250-500 tons/well	Collection in HDPE lined pit and disposal as per Hazardous waste Rules, 2016 (Co processing in cement kiln as fuel substitute, common Hazardous waste TSDF, HW processing facility).
3	Used oil/ spent oil	Others	HW Sc-I cat 5.1	1-2 tons/well	Disposal as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
4	Sludge containing oil and other drilling waste	Others	HW Sc-I cat.2.2	250-500 tons/well	Disposal as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
5	Spent Chemical	Drilling	HW Sc-I cat.32.1	0.6 ton/well	Collection in HDPE lined pit and disposal in Co processing in cement kiln/ common Hazardous waste TSDF/ HW processing facility.
6	Wastes or residues containing oil	Drilling	HW Sc-I cat.5.2	0.5 ton/well	Disposal in Co processing in cement kiln/ common Hazardous waste TSDF/ HW processing facility.
7	Empty barrels/containers/liners contaminated with hazardous chemicals /wastes	Drilling	HW Sc-I cat.33.1	50 nos./well	Will be sent to recyclers.
8	Chemical sludge from wastewater treatment	Drilling	HW Sc-I cat.35.3	120 ton/well	Collection in HDPE lined pit and disposal in Co processing in cement kiln/ common Hazardous waste TSDF/ HW processing facility.

**Early Production (from each early production location)**

S. no.	Type/Name of Hazardous waste	Specific Source of generation (Name of the Activity, Product etc.)	Category and Schedule as per HW Rules.	Quantity (MT/Annun m)	Management of HW
1	Oily sludge/residues	Well work over, crude storage tank bottom cleaning	HW Sc-I cat. 2.2	20 Ton/Year	Oily sludge will be disposed as per Hazardous Waste Rules, 2016
2	Waste oil (Slop oil)	Well work over, crude storage tank bottom cleaning	HW Sc-I cat. 4.3	2 Ton/Year	Waste oil will be disposed as per Hazardous Waste Rules, 2016
3	ETP sludge	ETP operation	HW Sc-I cat. 34.2	120 Ton/Year	ETP sludge will be disposed as per Hazardous Waste Rules, 2016
4	Used oil/spent oil	DG sets maintenance and other misc.	HW Sc-I cat 5.1	1 KL/yr.	Used oil will be sent CPCB authorized recyclers.
5	Oil contaminated filters, cottons, rags, gloves, etc.	Misc. maintenance	HW Sc-I cat. 3.3	0.3 ton/yr.	Will disposed as per Hazardous Waste Rules, 2016
6	Waste/residues containing oil	Well Work Over	HW Sc-I cat. 5.2	0.5 KL/yr.	Waste/ residues containing oil will disposed as per Hazardous Waste Rules, 2016
7	a) Spent Chemicals	b) Well Work over	--	c) 0.6 tons/yr	Spent Chemicals will disposed as per Hazardous Waste Rules, 2016
8	Spent carbon	ETP/STP	HW Sc-I cat. 36.2	3 tons/ yr.	Spent carbon will be disposed as per Hazardous Waste Rules, 2016
9	Discarded containers/ barrels/ liners contaminated with hazardous waste	Well work over	HW Sc-I cat. 33.1	50 Nos./yr.	The Discarded containers will be disposed as per Hazardous Waste Rules, 2016





36. Authorized end-users shall have permissions from the concerned authorities under the Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016.
37. Unit shall explore the possibilities for environment friendly methods like co-processing of hazardous waste for disposal of Incinerable & land fillable wastes before sending to CHWIF & TSDF sites respectively.

#### **A. 50THER:**

38. The project proponent shall also comply with any additional condition that may be imposed by the SEAC or the SEIAA or any other competent authority for the purpose of the environmental protection and management.
39. Necessary permissions as mandated under water (Prevention and control of Pollution) act, 1974 and the Air (prevention and control pollution) Act, 1981, as applicable from time to time, shall be obtained from the State Pollution Control Board.
40. The project proponent shall allocate the separate fund of Rs. 4.87 Crore (in 4 years) towards CER activities as MoEFCC's Office Memorandum No. F.No.22-65/2017-IA.III dated 30/09/2020. The entire activities proposed under CER shall be monitored and the monitoring report shall be submitted to the regional office of MoEF&CC as a part of half-yearly compliance report and to district collector. The monitoring report shall be posted on the website of the project proponent.
41. All the environmental protection measures and safeguards proposed in the Form - 2, Form-1, EMP & PFR submitted by the project proponent and commitments made in their application shall be strictly adhered to in letter and spirit.

#### **B. GENERAL CONDITIONS:**

##### **B.1 CONSTRUCTION PHASE:**

42. Water demand during construction shall be reduced by use of curing agents, super plasticizers and other best construction practices.
43. Project proponent shall ensure that surrounding environment shall not be affected due to construction activity. Construction materials shall be covered during transportation and regular water sprinkling shall be done in vulnerable areas for controlling fugitive emission.
44. All required sanitary and hygienic measures shall be provided before starting the construction activities and to be maintained throughout the construction phase.
45. First Aid Box shall be made readily available in adequate quantity at all the times.
46. The project proponent shall strictly comply with the Building and other Construction Workers' (Regulation of Employment & Conditions of Service) Act 1996 and Gujarat rules made there under and their subsequent amendments. Local bye-laws of concern authority shall be complied in letter and spirit.
47. Ambient noise levels shall conform to residential standards both during day and night. Incremental pollution load on the ambient air and noise quality shall be closely monitored during construction phase.
48. Use of Diesel Generator (DG) sets during construction phase shall be strictly equipped with acoustic enclosure and shall conform to the EPA Rules for air and noise emission standards.
49. Safe disposal of waste water and municipal solid wastes generated during the construction phase shall be ensured.
50. All topsoil excavated during construction activity shall be used in horticultural / landscape development within the project site. Excavated earth to be generated during the construction phase shall be utilized within the premises to the maximum extent possible and balance quantity of excavated earth shall be disposed off with the approval of the competent authority after taking the necessary precautions for general safety and health aspects. Disposal of the excavated earth during construction phase shall not create adverse effect on neighbouring communities.
51. Project proponent shall ensure use of eco-friendly building materials including fly ash bricks, fly ash paver blocks, Ready Mix Concrete [RMC] and lead free paints in the project.
53. Fly ash shall be used in construction wherever applicable as per provisions of Fly Ash Notification under the E.P. Act, 1986 and its subsequent amendments from time to time.
54. "Wind – breaker of appropriate height i.e. 1/3rd of the building height and maximum up to 10 meters shall be provided. Individual building within the project site shall also be provided with barricades.
55. "No uncovered vehicles carrying construction material and waste shall be permitted."
56. "No loose soil or sand or construction & demolition waste or any other construction material that cause dust shall be left uncovered. Uniform piling and proper storage of sand to avoid fugitive emissions shall be ensured."
57. Roads leading to or at construction site must be paved and blacktopped (i.e. – metallic roads).
58. No excavation of soil shall be carried out without adequate dust mitigation measures in place.
59. Dust mitigation measure shall be displayed prominently at the construction site for easy public viewing.
60. Grinding and cutting of building materials in open area shall be prohibited.
61. Construction material and waste should be stored only within earmarked area and road side storage of construction material and waste shall be prohibited.
62. Construction and demolition waste processing and disposal site shall be identified and required dust mitigation measures be notified at the site. (If applicable).

##### **B.2 OPERATION PHASE:**



93. Training shall be imparted to all the workers on safety and health aspects of chemicals handling.
94. Occupational health surveillance of the workers shall be done and its records shall be maintained. Pre-employment and periodical medical examination for all the workers shall be undertaken as per the Factories Act & Rules.
95. Transportation of hazardous chemicals shall be done as per the provisions of the Motor Vehicle Act & Rules.
96. The company shall implement all preventive and mitigation measures suggested in the Risk Assessment Report.
97. Necessary permissions from various statutory authorities like PESO, Factory Inspectorate and others shall be obtained prior to commissioning of the project.

**B.2.5 NOISE:**

98. The company shall make all arrangement for control of noise from the drilling activities.
99. The overall noise level in and around the plant area shall be kept well within the standards by providing noise control measures including engineering controls like acoustic insulation, hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise level shall confirm to the standards prescribed under Environment (Protection) Act & Rules, 1986 amended from time to time.
100. Noise levels for workers shall be as per the Factories Act & Rules.

**B.2.6 CLEANER PRODUCTION AND WASTE MINIMISATION:**

101. The unit shall undertake the Cleaner Production Assessment study through a reputed institute / organization and shall form a CP team in the company. The recommendations thereof along with the compliance shall be furnished to the GPCB.
102. The company shall undertake various waste minimization measures such as :
  - 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 materials substitutes.
  - c. Use of automated and close filling to minimize spillages.
  - d. Use of close feed system into batch reactors.
  - e. Venting equipment through vapour recovery system.
  - f. Use of high pressure hoses for cleaning to reduce wastewater generation.
  - g. Recycling of washes to subsequent batches.
  - h. Recycling of steam condensate.
  - i. Sweeping / mopping of floor instead of floor washing to avoid effluent generation.
  - j. Regular preventive maintenance for avoiding leakage, spillage etc.

**B.2.7 GREEN BELT AND OTHER PLANTATION:**

103. The unit shall develop green belt within premises as per the CPCB guidelines. However, if the adequate land is not available within the premises, the unit shall take up adequate plantation on road sides and suitable open areas in GIDC estate or any other open areas in consultation with the GIDC / GPCB and submit an action plan of plantation for next three years to the GPCB.
104. Drip irrigation / low-volume, low-angle sprinkler system shall be used for the green belt development within the premises.

**B.3 OTHER CONDITION:**

105. This EC is provisional for early production and testing. When proponent wishes to carry out commercial production they shall obtain EC from MoEF&CC.
106. During the trial stage it shall open for inspection and supervision by competent authority, SEAC or representative of SEIAA.
107. This provisional EC is valid for three years, if however the commercial production can not began that time with valid justification it may apply for extension under intimation to Government of India.
108. Project proponent shall install all environment management systems as per the CPCB/GPCB directives regarding the effluent discharge and air emission in working condition.
109. Project proponent shall display the copy of Environment Clearance at the site prominently.
110. Project proponent shall prepare and follow regular and preventive maintenance plan. The copy of same shall be submitted to SEIAA.
111. Project Proponent will have to display the safety procedure in working area.
112. The project proponent shall obtain all required permissions for safety, health and fire from competent authorities like PESO/Fire Authority etc. and intimate SEIAA.
113. Project Proponent will intimate SEIAA/SEAC/GPCB after obtaining the membership of common facilities like CETP / TSDF / CHWIF / CMEE / Common Spray Dryer as the case may be.
114. Extra care will be taken by PP to avoid any accidental blast in any machinery in the plant.
115. Environment monitoring, training and disaster management plan should be undertaken and complied at regular interval.
116. Integrated Regional Office of MoEF&CC, Gandhinagar and GPCB will monitor all environment, safety & health norms as per the prevailing rules.
117. PP shall submit six monthly compliance report to SEIAA/ SEAC / GPCB.
118. The project proponent shall allocate the separate fund for Corporate Environment Responsibility (CER) in accordance to the

MoEFCC's Office Memorandum No. F.No.22-65/2017-IA.III dated 01/05/2018 to carry out the activities under CER in affected area around the project. The entire activities proposed under CER shall be monitored and the monitoring report shall be submitted to the regional office of MoEFCC as a part of half-yearly compliance report and to district collector. The monitoring report shall be posted on the website of the project proponent.

119. Rain water harvesting of surface as well as rooftop runoff shall be undertaken and the same water shall be used for the various activities of the project to conserve fresh water as well as to recharge ground water. Before recharging the surface run off, pre-treatment must be done to remove suspended matter.
120. The unit shall join and participate financially and technically for any common environmental facility / infrastructure as and when the same is taken up either by the Industrial Association or GIDC or GPCB or any such authority created for this purpose by the Govt. / GIDC.
121. Application of solar energy shall be incorporated for illumination of common areas, lighting for gardens and street lighting in addition the provision for solar water heating system shall also be provided.
122. The area earmarked as green area shall be used only for plantation and shall not be altered for any other purpose.
123. All the commitments / undertakings given to the SEAC during the appraisal process for the purpose of environmental protection and management shall be strictly adhered to.
124. The project proponent shall also comply with any additional condition that may be imposed by the SEAC or the SEIAA or any other competent authority for the purpose for the environmental protection and management.
125. In the event of failure of any pollution control system adopted by the unit, the unit shall be safely closed down and shall not be restarted until the desired efficiency of the control equipment has been achieved.
126. The project authorities must strictly adhere to the stipulations made by the Gujarat Pollution Control Board (GPCB), State Government and any statutory authority.
127. During material transfer there shall be no spillages and gullies and drains shall be constructed to avoid mixing of accidental spillages with domestic wastewater or storm water.
128. Pucca flooring / impervious layer shall be provided in the work areas, chemical storage areas and chemical handling areas to minimize soil contamination.
129. Leakages from pipes, pumps shall be minimal and if occurs, shall be arrested promptly.
130. No further expansion or modifications in the plant likely to cause environmental impacts shall be carried out without obtaining prior Environment Clearance from the concerned authority.
131. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.
132. The project proponent shall comply all the conditions mentioned in "The Companies (Corporate Social Responsibility Policy) Rules, 2014" and its amendments from time to time in a letter and spirit.
133. The project management shall ensure that unit complies with all the environment protection measures, risk mitigation measures and safeguards recommended in the EMP report and Risk Assessment study report as well as proposed by project proponent.
134. The project authorities shall earmark adequate funds to implement the conditions stipulated by SEIAA as well as GPCB along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.
135. The applicant shall inform the public that the project has been accorded environmental clearance by the SEIAA and that the copies of the clearance letter are available with the GPCB and may also be seen at the Website of SEIAA/ SEAC/ GPCB. This shall be advertised within seven days from the date of the clearance letter, in at least two local newspapers that are widely circulated in the region, one of which shall be in the Gujarati language and the other in English. A copy each of the same shall be forwarded to the concerned Regional Office of the Ministry.
136. It shall be mandatory for the project management to submit half-yearly compliance report in respect of the stipulated prior environmental clearance terms and conditions in soft copies to the regulatory authority concerned, on 1st June and 1st December of each calendar year.
137. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
138. The project authorities shall also adhere to the stipulations made by the Gujarat Pollution Control Board.
139. The SEIAA may revoke or suspend the clearance, if implementation of any of the above conditions is not found satisfactory.
140. The company in a time bound manner shall implement these conditions. The SEIAA reserves the right to stipulate additional conditions, if the same is found necessary.
141. The project authorities shall inform the GPCB, Regional Office of MoEF and SEIAA about the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
142. This environmental clearance is valid for seven years from the date of issue.
143. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

144. Submission of any false or misleading information or data which is material to screening or scoping or appraisal or decision on the application makes this environment clearance cancelled.

**B.4 COMPLIANCE OF ENVIRONMENT CLEARANCE/REPORTING/ADMINISTRATION/APPEAL:**

145. Project proponent shall inform to all the concerned authorities including Municipal Corporation and District Collector and shall also give wide publicity through advertisement in minimum two local newspapers within seven days, about the Environment Clearance order accorded.
146. Project proponent shall appoint a key person in the organization who shall be responsible for compliance of above condition fully on behalf of the proponent. It will not mean that appointing a key person will exempt the project proponent from the responsibility of compliance. Any change in key person shall immediately be informed to SEIAA and all concerned authorities.
147. Designated key person shall submit six monthly compliance report to SEIAA/SEAC, MOEF&CC, GPCB and Nodal Department of the Government.
148. The Nodal Department or any authority or officer authorized by MOEF&CC/SEIAA can inspect the site of the project and all the facilities, for verification of compliances of environment clearance conditions.
149. In case of violation reported upon, the project proponent shall be responsible for all the legal actions as per Environment Protection Act, 1986 including SEIAA may cancel, withdraw or keep in abeyance, the Environment Clearance accorded.
150. Any person including the project proponent affected by this Environment Clearance order may file appeal to Honorable National Green Tribunal West Zone branch, Pune, preferably within a period of thirty days from the date of issue of Environment Clearance as prescribe under section 16 of National Green Tribunal Act 2010.
151. All complains and public grievance or representations may be addressed to SEIAA/SEAC in the email addresses (a) msseiaagj@gmail.com& (b) seacgujarat@gmail.com

  
(PRAKASH K. MAJMUDAR)  
Member Secretary

**Issued to:**

**M/s. Vedanta Ltd. (Div: Cairn Oil & Gas)  
CB-ONHP-2018/4 Hydrocarbon block,  
District: Vadodara, State: Gujarat**

**Copy to:-**

1. The Secretary, SEAC, C/O. G.P.C.B. Gandhinagar - 382010.
2. The Additional Chief Secretary, Forests & Environment Department, Govt. of Gujarat, Block 14, 8<sup>th</sup> floor, Sachivalaya, Gandhinagar-382010.
3. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD -cum-Office Complex, East Arjun Nagar, New Delhi-110032
4. The Additional Principal Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office (WZ), E-5, Arera Colony, Link Road-3, Bhopal-462016, MP  
Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi-110003.  
The Member Secretary, Gujarat Pollution Control Board, Paryavaran Bhavan, Sector-10 A, Gandhinagar-382010  
Select File



