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F.No. IA-J-11011/41/2018- IA II(I)
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)

Indira Paryavaran Bhawan
Jorbagh Road, New Delhi - 110003

Dated: 15th October, 2020

To

M/s Vedanta Limited (Division Cairn Oil & Gas)
DLF Atria, DLF Phase-2, DLF City
Gurgaon, Haryana – 122 002

Email: dilipkumar.bera@cairmindia.com

Sub: Expansion of Offshore and Onshore Oil and Gas Exploration, Development & Production in Ravva Field, PKGM-1 Block of 331.26 km² located near Surasaniyanam Village (S. Yanam) in Krishna-Godavari Basin, East Godavari District, Andhra Pradesh by M/s Vedanta Limited (Cairn Oil & Gas Division)-Environmental and CRZ Clearance - reg.


Sir,

This has reference to your proposal No. IA/AP/IND2/102271/2013 dated 8th July, 2019, submitting the EIA/EMP report on the above subject matter.

2. The Ministry of Environment, Forest and Climate Change has examined the proposal for Environmental and CRZ Clearance to the project for Expansion of Offshore and Onshore Oil and Gas Exploration, Development & Production in Ravva Field, PKGM-1 Block of 331.26 km² located near Surasaniyanam Village (S. Yanam) in Krishna-Godavari Basin, East Godavari District, Andhra Pradesh by M/s Vedanta Limited (Cairn Oil & Gas Division).

3. It is informed that there shall be drilling of a total of 123 exploratory and development wells covering 83 nos. exploratory wells and 40 nos. development (production) wells. Of the 83 exploratory wells, 59 are proposed to be drilled from standalone offshore locations, 14 nos. from existing offshore platforms and 10 nos. from two onshore well pads to assess presence of hydrocarbons in prospects identified. Of the 40 development (production) wells, 17 will be drilled from the existing offshore platforms and 23 nos. from onshore well pads. The project also includes establishing of two onshore well pads numbered as WP-7 (RX-8) and WP-8 (RX-9); and laying of ~8 km of pipeline corridor (for three pipelines) connecting onshore well pads with the existing onshore oil & gas processing Ravva Terminal.

Existing land area is about 235 acres, additional land of about 49 acres (~20 ha) consisting of two onshore well pads (well pads WP-7 & WP-8) and 8 km long pipeline corridor (of 15 m width) will be used for proposed expansion under Right of



Usage. Industry has already developed greenbelt more than 35% i.e., 83 Acres of total area.

4. The estimated project cost is Rs. 7,924 Crores (to be spent in 10 years) and existing cumulative investment is Rs. 10,460 crores. Total capital cost earmarked towards environmental pollution control measures is approximately Rs. 400 Crores and the recurring cost (O&M) will be about Rs. 1.37 crores per annum. Total direct employment exists for ~550 persons and indirect employment to ~100 for expansion (during drilling of wells & related work).

5. There are no National parks, Wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wild life Corridors etc. within 10 km distance from the project site. The PKGM-1 Block area lies mostly offshore from the Godavari Delta. Estuary of Vrudha Gautami River and Nilarevu River are located at ~17.3 km and ~20 km respectively northeast from the existing offshore RB Platform in PKGM-1 Block.

6. The total water requirement is 18,285 m³/day (including 10,413 m³/day existing approved by APWALTA of saline groundwater abstraction from deep bore wells + proposed maximum 7,872 m³/day saline groundwater abstraction from deep bore wells) of which no fresh water will be required. The entire water requirement will be sourced through ground water abstraction from the saline bore wells after obtaining necessary permission from APWALTA. For drilling of wells, water requirement is 60 m³/day (for onshore drilling of a well for ~50 days per well sourcing water from existing RO Plant at Ravva Terminal) and 85 m³/day (for offshore drilling of a well for 50 days per well sourcing 40 m³/day from nearby port and 45 m³/day from sea).

7. For onshore drilling of a well, effluent of 5 m³/day/well and domestic wastewater of 4.5 m³/day will be treated in skid mounted modular ETP and STP respectively at drilling site followed by treatment in ETP at Ravva Terminal and STP at Living Quarters. For offshore drilling, onboard domestic wastewater generation is expected to be 30 m³/day, which will be treated onboard STP and bilge and wash wastewater of 5 m³/day will be treated oil-in-water separator before offshore discharge complying with MARPOL 73/78 standards of 15 mg/L of oil in water content.

For drilling of an onshore well, power requirement will be met through diesel generators of 1,000 kVA capacity (1 working + 1 standby) and 350 kVA capacity (1 working + 1 standby) installed onboard the onshore rig at a well pad and the one diesel generator of 350 kVA catering to the power requirement at the campsite. For the offshore drilling, power requirement will be met through diesel generators of 2,000 kVA (2 working + 1 standby) and one no of 250 kVA capacity installed onboard the rig. Existing power requirement at Ravva Terminal is 10 MW, which is met through 2.5 MW x 4 nos. gas turbines and no additional power is required. There is no boiler existing and no boilers proposed by the project proponent.

From both onshore and offshore drilling, point source air emissions will be generated from diesel generators and temporary test flares during drilling of a well. During initial period of operation phase, in case of emergency, there will be elevated flaring from a well pad. The emissions will be controlled through adequate stack height as per CPCB criteria. No change in emissions from existing operations at Ravva Terminal.

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Solid waste to be generated from onshore and offshore drilling activities will include hazardous and non-hazardous wastes, which are further classified as recyclable and non-recyclable waste. All the wastes will be segregated at the source of generation and disposed in the legally acceptable manner. All recyclable hazardous wastes such as used oil, waste oil, used containers etc., and recyclable non-hazardous waste such as metals and non-metals (paper, cardboard, wood, plastic etc.) will be disposed to the authorized recyclers. The major waste anticipated due to drilling of wells include spent drilling mud and drill cuttings. These wastes are stored, handled and disposed as per the requirements of the applicable Indian regulation, and APPCB. The domestic waste from onshore campsite will be composted in-house and will be used as manure.

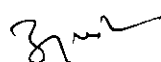
8. The project/activity is covered under category A of item 1(b) 'Offshore and onshore oil and gas development & production' of schedule to the Environment Impact Assessment (EIA) Notification, 2006, and requires appraisal at central level by sectoral Expert Appraisal Committee in the Ministry.

9. Standard Terms of References (ToRs) was issued by the Ministry vide letter dated 24th March 2018. Public Hearing for the proposed project was conducted by the Andhra Pradesh Pollution Control Board on 11th October 2018, which was presided over by the Joint Collector. The main issues raised during the public hearing included drinking water supply, social infrastructure development, greenbelt development, land subsidence, employment, CSR, and pollution in the area.

10. It was informed that the Ministry had issued EC dated 30 July 1990 (Preliminary Clearance); EC dated 19 December 1991 (Final Clearance) (for development of oil/gas fields, installation of onshore oil & gas processing terminal and production of oil & gas by drilling of 32 wells); EC dated 03 July 1996 (for development of one single point mooring and laying of one crude oil export pipeline); EC dated 30 January 2001 (for drilling, development of facilities both at offshore and onshore for gas production); EC dated 17 September 2001 (for oil & gas exploratory drilling of 8 nos. of wells in offshore); EC dated 04 August 2005 (for drilling of 15 nos. additional infill (development) wells in offshore to sustain production); EC dated 31 March 2006 (for exploratory drilling in onshore area of PKGM-1 Block for drilling of 2 nos. of wells); EC dated 23 February 2015 & CRZ Clearance vide letter dated 25 May 2017 (for drilling of 20 + 6 development & exploratory offshore wells; one new platform and subsea pipeline) to the existing project for Oil & Gas Development in existing Ravva Offshore Field, PKGM-1 Block located off Surasaniyanam (S.Yanam) in the Bay of Bengal, East Godavari District, Andhra Pradesh in favor of M/s Vedanta Limited (Cairn Oil & Gas Division).

11. Compliance status of the existing EC conditions have been verified by the Environmental Engineer, Andhra Pradesh Pollution Control Board Regional Office Kakinada after conducting site inspection on 28.12.2018 & 18.01.2019. It is informed by the project proponent that there is no litigation pending against the proposal.

12. The Andhra Pradesh Coastal Zone Management Authority (APCZMA) vide its letter No. 138/APCZMA/CRZ/IND/2019/91, dated 3rd April, 2019 has forwarded recommendation for the project subject to compliance of general and specific conditions.



13. The proposal was considered by the Expert Appraisal Committee (Industry-2) in its meetings held on 28-29 August, 2019, 30th December 2019 -1st January 2020 and 17th July, 2020 in the Ministry, wherein the project proponent and their accredited consultant M/s ERM India Private Limited presented the EIA/EMP report as per the ToR. The Committee found the EIA/EMP report complying with the ToR and recommended the project for grant of environmental clearance.

14. The EAC, constituted under the provision of the EIA Notification, 2006 and comprising of Experts Members/domain experts in various fields, have examined the proposal submitted by the Project Proponent in desired form along with EIA/EMP report prepared and submitted by the Consultant accredited by the QCI/ NABET on behalf of the Project Proponent.


The EAC noted that the Project Proponent has given undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP report. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.

The Committee noted that the EIA/EMP report is in compliance of the ToR issued for the project, reflecting the present environmental concerns and the projected scenario for all the environmental components. The Committee has found the baseline data and incremental GLC due to the proposed project within NAAQ standards. The Committee has also deliberated on the CER plan and found to be addressing the issues in the study area and public hearing issues. Additional information submitted by the project proponent found to be satisfactory and addressing the concerns of the Committee.

The Committee suggested that as per the extant rules of the Ministry, the projects involving Environmental & CRZ clearance needs to be examined as per the CRZ Notification, 2011/2019. The Committee has taken cognizance of the recommendations of the APSCZMA for CRZ clearance and has recommended the project.

The EAC has deliberated the proposal and has made due diligence in the process as notified under the provisions of the EIA Notification, 2006, and the CRZ Notification, 2011, as amended from time to time and accordingly made the recommendations to the proposal. The Experts Members of the EAC have found the proposal in order and have recommended for grant of environmental & CRZ clearance.

15. The environmental & CRZ clearance granted to the project/activity is strictly under the provisions of the EIA Notification 2006 and the CRZ Notification, 2011 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. The project proponent shall obtain necessary permission as mandated under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of



Pollution) Act, 1981, as applicable from time to time, from the State Pollution Control Board, prior to construction & operation of the project.

16. Based on the proposal submitted by the project proponent and recommendations of the EAC (Industry-2), Ministry of Environment, Forest and Climate change hereby accords environmental and CRZ clearance to the project for **Expansion of Offshore and Onshore Oil and Gas Exploration, Development & Production in Ravva Field, PKGM-1 Block of 331.26 km² located near Surasaniyanam Village (S. Yanam) in Krishna-Godavari Basin, East Godavari District, Andhra Pradesh by M/s Vedanta Limited (Cairn Oil & Gas Division)**, under the provisions of the EIA Notification, 2006 and CRZ Notification, 2011, subject to the compliance of terms and conditions as under:-

- (i) The project proponent shall comply with all the conditions stipulated in the APSCZMA CRZ recommendations and NOC issued for the same.
- (ii) 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.
- (iii) No pipelines or its part shall be laid in the Forest land/Protected Area without prior permission/approval from the Competent Authority.
- (iv) As proposed by the project proponent, Zero Liquid Discharge shall be ensured and no waste/treated water shall be discharged to any surface water body, sea and/or on land. Mobile ETP along with RO plant shall be installed to treat the waste water.
- (v) During exploration, production, storage and handling, the fugitive emission of methane, if any, shall be monitored using Infra-red camera/ appropriate technology.
- (vi) The project proponent also to ensure trapping/storing of the CO₂ generated, if any, during the process and handling.
- (vii) Approach road shall be made pucca to minimize generation of suspended dust.
- (viii) The project proponent shall make all arrangements for control of noise from the drilling activity. Acoustic enclosure shall be provided for the DG sets along with the adequate stack height as per CPCB guidelines.
- (ix) Total fresh water requirement shall not exceed 25 cum/day/well. Prior permission shall be obtained from the concerned regulatory authority. Mobile ETP coupled with RO shall be installed to reuse the treated water in drilling system. Size of the waste shall be equal to the hole volume+ volume of drill cutting and volume of discarded mud if any. Two feet free board may be left to accommodate rain water. There shall be separate storm water channel and rain water shall not be allowed to mix with waste water. Alternatively, if possible pit less drilling be practiced instead of above.
- (x) The company shall construct the garland drain 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.

- (xi) Drill cuttings separated from drilling fluid shall be adequately washed and disposed in HDPE lined pit. Waste mud shall be tested for hazardous contaminants and disposed according to HWMH Rules, 2016. No effluent/drilling mud 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(E) dated 30th August, 2005.
- (xii) 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.
- (xiii) The project proponent shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At fixed installations or plants use of ground flare shall be explored. At the place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during operation.
- (xiv) The project proponent 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.
- (xv) Blow Out Preventer system shall be installed to prevent well blowouts during drilling operations.
- (xvi) On completion of the project, necessary measures shall be taken for safe plugging of wells with secured enclosures to restore the drilling site to the original condition. The same shall be confirmed by the concerned regulatory authority from environment safety angle. In case of hydrocarbon not found economically viable, a full abandonment plan shall be implemented for the drilling site in accordance with the applicable DGH / Indian Petroleum Regulations.
- (xvii) All the commitments made to the public during public hearing/consultation shall be satisfactorily implemented. As committed Rs. 20 crore shall be allocated for Corporate Environment Responsibility (CER) shall be utilized for meeting the commitment of the issues of public hearing. The CER plan shall be completed before commissioning or expansion project.
- (xviii) No lead acid batteries shall be utilized in the project/site.
- (xix) Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules. All workers & employees shall be provided with required safety kits/mask for personal protection.
- (xx) Oil content in the drill cuttings shall be monitored and report & shall sent to the Ministry's Regional Office.
- (xxi) The project proponent shall prepare operating manual in respect of all activities, which would cover all safety & environment related issues and measures to be taken for protection. One set of environmental manual shall be made available at the drilling site/ project site. Awareness shall be created at each level of the

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management. All the schedules and results of environmental monitoring shall be available at the project site office. Remote monitoring of site should be done.

16.1 The grant of environmental clearance is further subject to compliance of other general conditions as under:-

- (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/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 to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- (ii) The energy source for lighting purpose shall be preferably LED based, or advance having preference in energy conservation and environment betterment.
- (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.
- (iv) The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed.
- (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. 75 dBA (day time) and 70 dBA (night time).
- (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.
- (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.
- (viii) 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.
- (ix) The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- (x) 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.

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- (xi) 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.
- (xii) 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.
- (xiii) 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.
- (xiv) 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 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.
- (xv) 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.
- (xvi) 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.
- (xvii) 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.

17. The Ministry reserves the right to stipulate additional conditions, if found necessary at subsequent stages and the project proponent shall implement all the said conditions in a time bound manner. The Ministry may revoke or suspend the environmental clearance, if implementation of any of the above conditions is not found satisfactory.

18. 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 the Environment (Protection) Act, 1986.

19. 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.

20. The above conditions shall 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 and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.

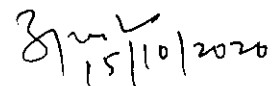
21. This issues with approval of the competent authority.


15/10/2020

(Ashok Kr. Pateshwary)
Director

Copy to: -

1. The Deputy DGF (C), MoEF&CC, Regional Office (SEZ), 1st & 11nd Floor, Handloom Export Promotion Council, 34, Cathedral Garden Road, Nungambakkam, Chennai
2. The Secretary, Department of Environment, Forests, Science and Technology, Government of Andhra Pradesh, A.P Secretariat Office, Velagapudi, Guntur (AP)
3. The Member Secretary, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex East Arjun Nagar, Delhi - 32
4. The Member Secretary, Andhra Pradesh Pollution Control Board, D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalamvari Street, Kasturibaipet, Vijayawada – 8
5. The District Collector, District East Godavari (Andhra Pradesh)
6. Guard File/Monitoring File/Website/Record File


15/10/2020

(Ashok Kr. Pateshwary)
Director
Tel.No. 24695290