

CHAPTER 6

CONCLUSION

6.1 Conclusions

The proposed area for exploration drilling is located in an almost virgin, previously unexplored area. The drilling operations are unlikely to have any major negative impact on the livelihood of local population. Further, the land will be reinstated to its existing condition as far as possible after the drilling.

The drill site and its immediate impact zone do not have any historical monument, archaeological site, big water body/dam/reservoir, declared national park/wildlife sanctuary/tiger reserve/elephant reserve, declared biosphere reserve, and declared habitat of migratory birds. The proposed exploration activity will not have any significant negative effect nor will it affect inland fishing activities.

The drilling of the exploration well will result in a range of controlled releases to the environment with remote possibility for non-routine or accidental releases. The environmental impact assessment process has systematically identified and assessed all potential environmental impacts associated with the drilling operations.

The main source of liquid effluents generated during the drilling operations will be from the spent drilling fluid resulting from the cleaning of the cuttings from the drilling fluid circulation system. The drilling fluid may contain trace amounts of heavy metals. The heavy metals, entering into the environment, may be bioaccumulated up the food chain. However the drilling fluid to be used for the drilling will be water based mud, comprising of PLONOR chemicals and the effluents generated during the drilling are unlikely to contain any appreciable heavy metal concentration, and should conform to the CPCB norms prescribed for effluents

The major solid wastes generated during operations will be the rock cuttings. These will be separated from the circulation system and adequately dried and stored at site temporarily in separate cuttings pit.

As a result of the control measures and management processes that will be in place, there should be no significant impacts resulting from the proposed operations. The key hazards and their residual impacts following the implementation of mitigation measures are given in Tables 6.1 and 6.2.

It is expected that this report will assist OIL in carrying out the proposed drilling activities in a manner such that adverse environmental impacts are minimized and sustainable development of the area is possible. To ensure this, OIL should take up the following monitoring targets during the drilling operations:

1. Periodic check on wastewater discharge quality,
2. Periodic check of water quality of natural water bodies around the drilling site
3. Performance of comprehensive waste management plan as outlined in the EMP.
4. Periodic check of protective measures in place.

Table 6.1. Summary of Hazards, Effects and Mitigation Measures for Routine Hazards

Hazard & Effect(s)	Mitigation	Residual Impact
Physical Presence	<p>Planned short period of drilling of approximately 90 days.</p> <p>The land required for site construction had been restricted to minimum possible thereby minimizing the trees to be cut. Only those big trees in critical positions at the site will be felled while others will be left and rig equipments positioned around them.</p>	Restrictions will be limited to an area less than one square kilometre for the duration of drilling programme only.
Noise & Vibration	Location of the well does not interfere with the major animal populations as per the baseline survey conducted.	Studies indicate effects are likely to be negligible.
Atmospheric emissions Localized emissions from power generation & engines. Flaring during well testing will affect air quality.	<p>Advanced planning will be under taken at all stages to ensure efficient operations. Well-maintained & operated equipment & generators. Regular monitoring of fuel consumption.</p> <p>Well evaluation by means of RFT will reduce the duration of the Well tests. The oil produced during conventional testing will be stored securely rather than being flared.</p>	Negligible. No local effect although emissions will contribute to global greenhouse & ozone depleting gases.
Cuttings & Drill Fluids & Cement	<p>Water based mud (WBM) will be used. Selection of most environmentally benign mud & cement chemicals where possible. The WBM to be used is completely comprised of chemicals considered to pose little or no risk to the environment.</p> <p>Potential impacts minimized through installation of cuttings & mud cleaning and drying equipment to ensure optimal cleaning. Management procedures will ensure optimal performance of cuttings cleaning equipment & a continuous mud mass balance will be maintained throughout the drilling programme.</p> <p>The dried cuttings will be contained in separate lined pits at site for disposal later.</p>	Minor effects.

Hazard & Effect(s)	Mitigation	Residual Impact
<p>Drainage & Grey water discharge Water from rig wash down may contain trace amounts of drill fluid, lubricants & residual chemicals. There will be discharge of grey water</p>	<p>Good housekeeping measures will have to be implemented to minimize the amount of mud & associated chemicals entering the drainage system. Standard soak pits & septic tanks with cement pads to prevent ingress of sewage fluid into the soil.</p> <p>A properly designed drainage system will be in place at the site to separate the storm/rain water from other effluents. Oil will be separated from the drains with oil traps.</p>	<p>Negligible.</p>
<p>Solid Wastes Wastes will include galley wastes, scrap metal, waste oil & surplus chemicals.</p>	<p>Garbage will be stored in and periodically burnt in burn pits at site. Other wastes will be stored in suitable containers.</p> <p>Material such as scrap metal, waste oil & surplus chemicals will be where practicable sent for re-cycle or re-use or will be disposed of in a controlled manner through authorised waste contractors.</p>	<p>Minimal. Wastes will be contained, treated and removed where appropriate.</p>

Table 6.2. Summary of Hazards, Effects and Mitigation Measures for Non Routine Hazards

Hazard and Effect(s)	Mitigation	Residual Risk
<p>Spill of Hydrocarbons</p> <p>Potential impacts on fauna and flora and Land & water bodies.</p>	<p>Spill Response (For all spills)</p> <p>A specific Oil Spill Contingency Plan (OSCP) will be in place providing guidance on actions to be taken in the event of a spill. This is likely in case of truck tripping over.</p> <p>Unburnt hydrocarbons during testing</p> <p>Oil expected to be produced during testing from the well will not be burnt but will be stored and put to use. Only associated gas is to be flared with vertical flares.</p> <p>Fuel base oil or other utility fluids (e.g. diesel, lubricants)</p> <p>Separate area will be earmarked for refueling at site, which will be properly lined and banded. Accidental spills due to tripping of fuel tankers etc will be dealt with as per the Oil Spill Contingency Plan.</p> <p>Risk of a loss of well control</p> <p>Minimized through detailed mud programme planning and implementation based on detailed study of the known geological conditions of the area, appropriate BOP design, and use, appropriate training and drills and good drilling practice.</p>	<p>Operational spills are typically minor in nature and the rig will be equipped with appropriate containment equipment and the personnel will be trained for appropriate responses for containment of any kind of spills.</p> <p>Moreover the drilling program will be designed to prevent any major oil spill events like blowouts from occurring.</p> <p>Hence the residual risk from the effects of oil spills will be minimal.</p>