SUSTAINABILITY REPORT 2021-22

HOEC

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PARTICULARS

A COMMITMENT FROM THE MANAGING DIRECTOR

P. Elango
Managing Director

Dear Stakeholders,

HOEC team took the initiative to publish its first ever Sustainability Report in June 2019. Our idea was to capture under one report the key activities, initiatives and plans that promote safe operations, protect our operating environment, and improve the quality of lives in the local community. We impact these three areas through our operating practices, Health Safety & Environment policy, management procedures and through our well thought out Corporate Social Responsibility (CSR) projects. In absolute terms, the scale of HOEC's operations and its footprint is not large. However, despite our size, we wish to evolve pioneering models and demonstrate their feasibility to the larger upstream oil and gas segment to scale up for the benefit of our country. In other words, we stand committed to operate as a Responsible Corporate and this Sustainability Report for FY 21-22 will outline the small steps we have taken in this long journey.

1. Promoting Safe Operations

The company is engaged in activities where a certain level of risk is unavoidable. Company's forays into western offshore operations through the development of Block B-80 has increased its risk exposure. However, through the development and execution of detailed training programs, effective standard operating procedures (SOPs) and risk management, we strive to achieve maximum plant and workplace safety. All commissioned operational activities are preceded by Ready For Start Up (RFSU) assessments. This process involves identifying and evaluating all potential risks, and subsequently devising adequate controls and mitigation measures to reduce the risks associated with the company's E&P activities.

At the Board level, there is a Risk Management Committee that is headed by Mr. P.K. Borthakur (Independent Director on the HOEC Board and Former Director Offshore, on the Board of ONGC). During FY 21-22, this committee met 2 times as a team to review operational efficiency, including HSE performance of each Block. At an operational level, the firm has established a Health, Safety and Environment (HSE) Committee to ensure that all relevant safety and environmental compliance

requirements are being adequately followed. A robust HSE Management System is in place and is deeply rooted within the respective site management teams. This system serves as a guideline for applicable best practices. All contractors and outside personnel working with HOEC are held accountable to follow this system with the same vigilance as HOEC's employees. The HSE Steering Committee met 3 times during FY 21-22.

Furthermore, considering the acceptance that local communities give us in our operating areas, as responsible corporate citizens, we hold ourselves strongly accountable to provide them with the tools and resources necessary to improve their quality of life. The company has taken up various projects including development of educational infrastructure, installation of solar streetlamps, construction of street roads, and hosting of career guidance workshops and women empowerment programs in its areas of operation.

2. Protecting the Operating Environment

Preservation and protection of the environment are of primary importance, right from the initial planning phase of any project to the design, engineering and technology adopted during execution, thereby delivering holistic value to all our stakeholders. HOEC remains committed to implementing new and innovative ideas to reduce its operating footprint. For instance, in Dirok, we have implemented a Net Zero Emission policy/strategy and committed to reducing the flare quantity to decrease our environmental footprint. In our Cambay asset, a limited volume of Associated Natural Gas that was once flared, is now sold; thereby achieving zero flare. Apart from this, HOEC has started to plant trees to offset the footprint left behind.

3. Improving Quality of Life in the Local Community

HOEC's Corporate Social Responsibility Policy commits us to:

- Proactive development of trust and productive relationships with host communities through effective consultations.
- Respect local customs and traditions and leverage technology in all CSR programmes.
- Treat host communities as valued partners in our resource development endeavours.

HOEC CSR programmes focus on following broad themes with the objective to improve overall socio-economic indicators in HOEC's area of business operations.

- Rural development including improved access to roads & solar power.
- Access to quality education, skill enhancement & essential infrastructure.
- Promotion of local culture, art and sports.

Under our Rural Development Programs, all major and inner (Kutcha) roads in Augbandha village are being converted into paver cement block roads in phases. HOEC has built 4.5 kilometres of paver cement block roads in Phases 1 and 2. HOEC will build a 1.6 km paver cement block road in Phase 3. In addition, 257 solar streetlamps have been installed in HOEC's operating area to date. To provide quality education and infrastructure, HOEC is associated with four schools in the operating area and has constructed new classrooms, an auditorium, a multi utility hall, a sanitation facility, and a play area with equipment and a compound wall

As an initiative to support the sports personnel, the Boxing Centre in Margherita was renovated, and a new boxing ring was installed. An open gym has also been provided in Margherita for the public to keep themselves fit and healthy.

At the Board level there is a Corporate Social Responsibility Committee headed by Mr. Vivek Rae, Chairman of the HOEC Board and Former Petroleum Secretary to the Government of India.

HOEC's Board and Management shall continue to undertake the responsibility to consistently reinforce the concept of sustainability in all its business decisions, and to champion the company's ambition to conduct its business operations as a Responsible Corporate. The company will remain unwavering in its efforts to play a part in India's move towards sustainable, clean, and affordable energy for all.

We remain committed to continuously enhance our business practices to effect positive change, and to enable HOEC to stand at the forefront of the Oil & Gas companies operating in India.

Sincerely,

P. Elango
Managing Director

Introduction

Sustainability is at the heart of HOEC's decision making at all levels. Employees are encouraged to solve problems in a methodical manner while strictly abiding to HOEC's sustainability principles. The design of any proposed solution must ensure minimal impact on the environment and the socio- economic conditions of the area.

HOEC's sustainability policies are devised to enable smooth execution of daily operations by leveraging latest technology, to ensure growth and profitability.

Reporting Guidelines

This report is a culmination of information gathered from various internal company documents, site assessments, systems and practices, Standard Operating Procedures, Standard Maintenance Procedures and various technology adoption & engineering controls being followed at site level.

The information on the impacts of flaring has been segregated into two categories:

i) Flaring during the Testing phase (Subsequent to Drilling, which lasts about 4-5 days)

ii) Flaring during regular production (Usually in a small quantity as it is not economically viable to process or store)

The details of (i) are included in the 'Drilling Practices' section and the details of (ii) are included in the 'Gas Flaring' section. Information for the 'Gas Flaring' section has been extracted from energyeducation.ca, an energy education website associated with the University of Calgary.

Company Overview

Since its inception in 1983, HOEC has been on a mission to create meaningful impact across the oil and gas value chain. The company's rich history establishing itself as India's first private oil and gas exploration company, has laid a solid foundation for it to continue striving towards its goal of transformation through talent and technology.

However, the management understands that this growth needs to continue in a responsible manner. To ensure this:

- HOEC strives to utilize degraded or low-value land to the best of its ability for the execution of its projects.
- HOEC tasks third-party organizations for carrying out Environmental Impact Assessment (EIA) studies on its behalf to analyze the environmental and social implications on the surrounding areas like ambient air, ground water, surface water, soil quality & emissions etc. due to its projects.
- The company also participates in the public hearing process that forms part of the EIA study, and does its best to address the concerns of the local community, as well as to mitigate any potential threat from its operations that could affect the healthy functioning or livelihood of the community members.
- All designing and project planning is done in a way to minimize environmental damage, and all procured machinery is assessed to ensure that it complies with desired environmental & safety standards.
- HOEC monitors various emission factors at all worksites to ensure minimal environmental & social impact:
    - **Air Quality:** Periodic ambient air quality monitoring is conducted in accordance with an Environmental Monitoring Program.
    - **Noise Management:** High noise generating equipment equipped with engineering controls such as mufflers, silencers, acoustic enclosure etc. are deployed at all worksites and preventive maintenance being carried out periodically for the same.

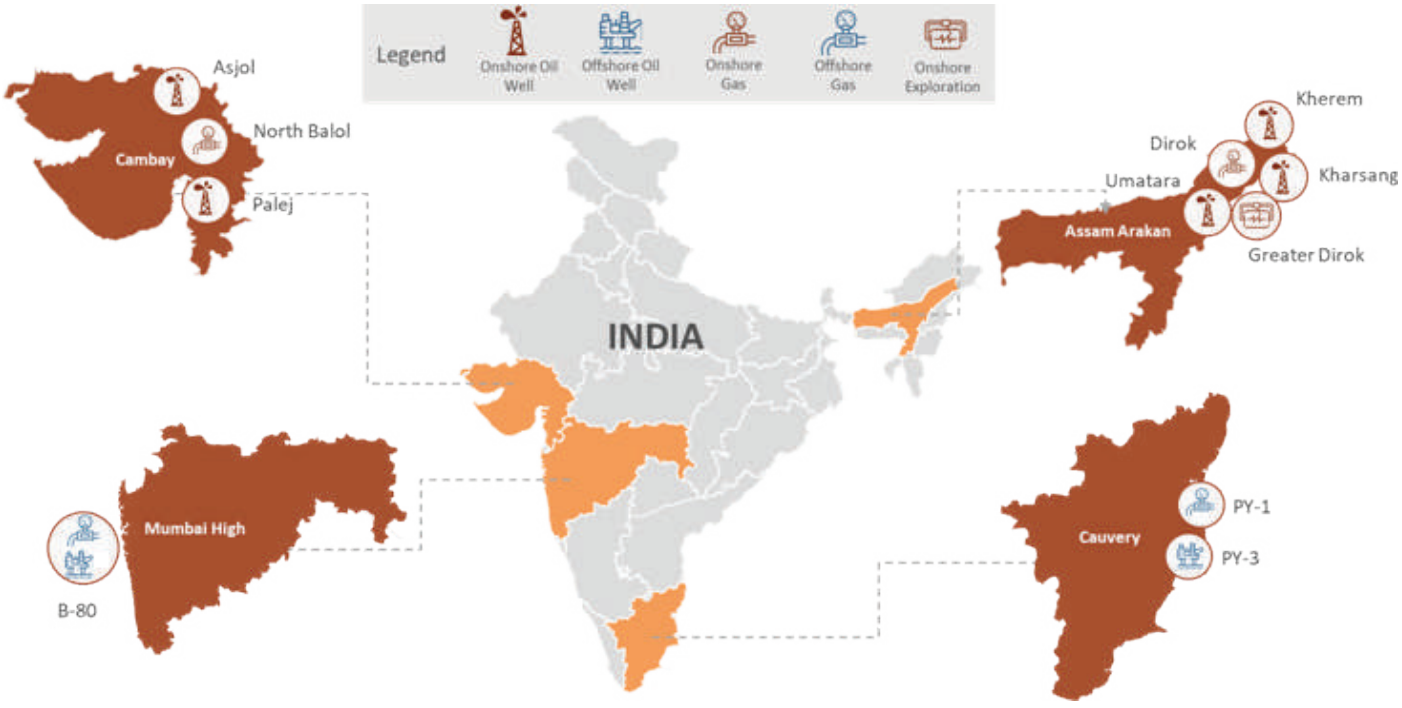
- **Soil Quality Management:** Periodic monitoring of soil quality is conducted in accordance with an Environmental Monitoring Program. Fuel, lubricants and processed chemicals are stored in exclusive paved storage areas meant for it and adequately bunded to accommodate any spill.
- **Surface Water Quality Management:** Regular monitoring of surface water quality is conducted in accordance with an Environmental Monitoring Program. Sediment filters & Oil-Water interceptors are installed to intercept run-off and remove sediments before it enters any water course.
- **Ground Water Quality Management:** Regular monitoring of ground water quality is conducted in accordance with an Environmental Monitoring Program. Water based mud comprising of low toxicity chemicals/ additives is used as drilling fluid to ensure minimal ground water contamination.
- **Waste Management:** Protocols for storage and disposal of drill cuttings, waste mud and other hazardous waste at production site are complied in accordance with a Solid & Hazardous Waste Management Plan.

- Third-party agencies approved by State Pollution Control Board are periodically tasked with monitoring emissions at site level.
- All Health, Safety, Environment, socio-economic, local community concerns and related issues are incorporated and addressed during hookup & commissioning of new installations, routine operations and regular logistical facilities for both, onshore and offshore.
- HOEC has a robust Emergency Response Plan (ERP) for production operations, Drilling Campaigns and project execution activities to respond swiftly during any emergency.
- Risk assessment studies are conducted for critical activities and safe operating procedures are developed to control identified hazards.
  - Risks associated with onshore production operations include fire and explosion, gas leak, oil spills, pipeline failure, structural failure, process gas or oil releases, and occupational injuries.
  - Risks associated with offshore production operations include fire & explosion, oil spills, process leaks, pipeline failure high well pressure & temperature, capsize of vessel and transportation of personnel & equipment via helicopter.
- Company follows strict adherence of Standard Operating Procedure to ensure the intended outcome and always believe that standard operating procedures help training of fresh employees and serve as important reference tools.

Brief Overview of HOEC's Asset Portfolio

HOEC currently has 11 Blocks across India and 6 producing Fields (including Kharsang) with a gross average production of 7,895 BOEPD and a net average production of 2,441 BOEPD during FY21. This includes both oil and gas producing Blocks spanning Assam, Cauvery, Cambay and Bombay High regions.

Asset Map



Risk Management Committee

HOEC's Risk Management Committee was setup with the objective of assessing operations on a Block-by-Block basis, and to find ways to mitigate or manage any strategic/operational risk element that has the potential to disrupt the normal functioning of a particular asset, or the company as a whole.

THE COMMITTEE COMPRISES OF:

Mr. P.K. Borthakur
Chairman of the Committee/Non-Executive Independent

DIRECTOR

Mr. P. Elango
Managing Director

Mr. R. Jeevanandam
Executive Director
& Chief Financial Officer

Mr. G. Janakiraman
Head – Health Safety
& Environment

While the committee focuses on deliberation of risk ranging from portfolio management and investment to project development, risk management with respect to Health, Safety and Environment also forms an integral part of its oversight.

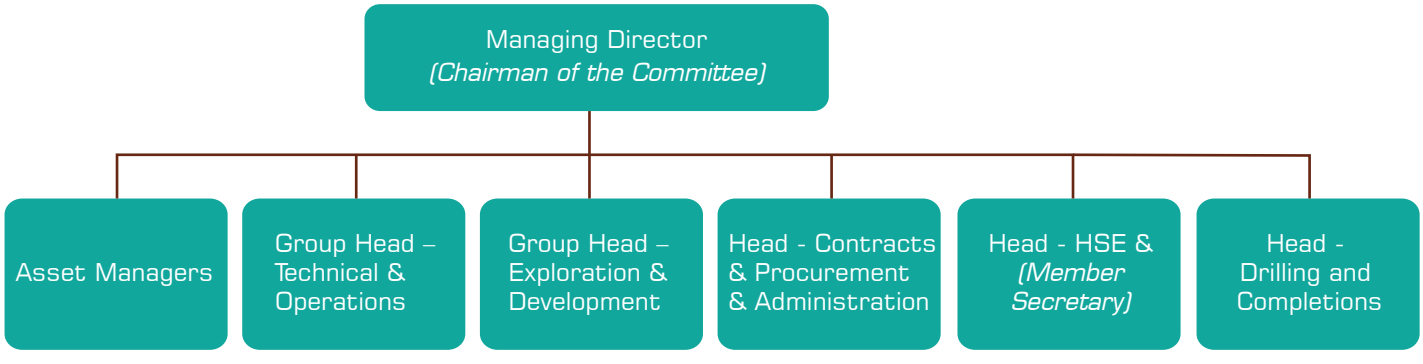
- Taking severe action against worksite personnel who fail to comply with mandated HSE practices.
- Carrying out regular inspections and maintenance of equipment used at operational sites.
- Creating an emergency support chart by taking references from major Indian offshore players Establishing mutual aid agreement with near by operators to avail the assistance during emergency.

HSE Steering and Risk Management (HSESRM) Committee

HOEC has an HSESRM Committee to provide an avenue to review the HSE performance of the company's operations, to strengthen the concept of line responsibility towards HSE, and to provide necessary guidelines and corrective measures as deemed fit. All critical issues that need a management directive are discussed during these meetings. However, issue-based decisions are initiated for quicker corrective action, in consultation with all concerned, and decisions need not be pending until these meetings. The committee reviews & evaluates the operational performance, major operational deficiencies, analyses major & high potential accidents/ incidents, and initiates corrective actions. It also reviews and commends noteworthy accomplishments. The committee meets once a month to review the status of operations with respect to HSE issues.

The HSESRM Committee comprises of:

- **Managing Director -** *Chairman of the Committee*
- **Asset Managers**
- **Group Head – Technical & Operations**
- **Group Head – Exploration & Development**
- **Head - Contracts & Procurement & Administration**
- **Head - HSE -** *Member SecretaryHead - Drilling and Completions*
- **Head - Drilling and Completions**



The functions of the committee are as follows:

- Review HSE statistics of all the operating assets, , review or initiate corrective actions and provide directions for improvement.
- Review all incident/ near miss reports and identify the level of investigation required.
- Review critical action items raised out of HSE inspections & audit (internal/external) reports and monitor the implementation.
- Review effectiveness of emergency drills and exercises and propose further improvement, if any.
- Review and evaluate safety suggestions put forward by staff for the improvement of conditions regarding safety and health.
- Review new activities/project proposals, evaluate the potential risks and control measures that may be needed to reduce/control the risks.
- The Head of HSE ensures execution of all action required to be taken with regards to issues discussed in the committee meeting.
- During FY 2021-22 the HSESRM Committee convened for a total of 4 times. Some of the key decisions taken during these meetings included:
  - Establishing an effective communication system for offshore installation to handle contingencies.
  - Ensuring daily weather monitoring for offshore assets for critical forecast information.
- Continuing GPS monitoring of pipelines in Assam, to safeguard against miscreant activities.
- Forming a Crisis Management Team for HOEC's B-80 project.

Structure of the HSESRM Committee

Responsible Growth

HOEC recognizes that the safety of people and preservation of the environment is essential in its efforts to explore for and produce oil and natural gas. The company understands the operational & environmental risks involved in its activities and places utmost importance on the safety of both, its employees and the local communities in which it operates.

A Health, Safety & Environment Management System (HSE – MS) has been developed to achieve the objectives of corporate and regulatory requirements. Environmental Audits are conducted quarterly at all operating assets to reinforce the company's commitment to the same.

HOEC recognizes that contractors working with the company have their own HSE procedures. However, as part of the company's philosophy of responsible operations, HOEC expects all contractors to comply with all local regulatory requirements, as well as with HOEC's own HSE requirements. The company endeavours to produce hydrocarbons in a safe and environmentally responsible manner, and to eventually go beyond minimum compliance, thereby emerging as a leader in the Field of HSE.

Health & Safety

HOEC's Health and Safety Policy is anchored on the core principle that "All Lives Have Equal Value" and "Nothing is More Important than Safe Operations". HOEC's Board and the Management understand the need for sustainable development and are committed to achieve this goal, by laying strict emphasis on compliance with all legislations and statutory requirements and adopting global best practices. This includes the welfare, health and safety of employees, contractors and the local communities where the company operates, as well as the safety of all its operational machinery and equipment.

To ensure this:

- HOEC has a robust Emergency Response Plan (ERP) for production operations, drilling campaigns and project execution activities to respond swiftly during any emergency.
- Risk assessment studies are conducted for critical activities and safe operation procedures are developed for controlling identified hazards.
- All Health, Safety, Environment and related issues are incorporated and addressed during hook-up & commissioning of new installations, routine productions and regular logistical facilities for onshore and offshore.
- Reviewing regularly all Standard Operating Procedures (SOPs) and developing new ones that are in line with those implemented across the industry.
- Assessing and monitoring the health & safety track record and performance of all service providers and contractors, both, before and after the award of contracts, to achieve the common objective of safe operations.
- HOEC has a "Stop Work Program" holding all operating personnel accountable to maintain a healthy and safe working environment on site, by empowering them to stop an unsafe act irrespective of its financial impact, to ensure zero tolerance.
- HSE awareness campaigns are conducted regularly and best practices are felicitated by an HSE Awards Program.

Health and Safety records of all employed contractors are evaluated before bringing them on board, and all contractors are expected to adhere to the Health and Safety guidelines prescribed by HOEC, in addition to adherence with local guidelines.

In terms of training, a mandatory monthly health awareness training program is conducted at site. Safety and environmental awareness training on different topics are also administered internally on site. Standard operating procedures (SOPs) and training programs for accident prevention, personal protective equipment and workplace hazards are also in place. For those involved in offshore operations, Personal Survival Training (PST) is necessary. First-aid training and firefighting training are mandatory for all employees operating at site level. Furthermore, all members of the Oil Spill Response team at HOEC's PY-1 facility have successfully completed Level I of the Oil Spill Response Training program conducted by the Indian Coast Guard. Lost-time injury rate (LTIR) and all near miss incidents related to operational activity are tracked on a regular basis.

Mock drill exercise at KGB Offshore Installation

First Aid Training on " Cardio Pulmonary Resuscitation (CPR) at MGPP

Fire Fighting Team of Dirok Field

Vehicle Management Policy

Monthly inspection of all company vehicles is carried out by the HSE Engineers at site. Fitness Certificates are issued to all company vehicles upon inspection by third-party inspectors, confirming their safety for daily operations.

These vehicles that use petrol or diesel are periodically assessed, and maintenance is carried out to minimize smoke in the exhaust. The vehicle maintenance area is identified to ensure that the soil is not contaminated by accidental spillage of oil. HOEC's company vehicles have a GPS device installed. The device allows the centralized HSE team at HOEC's Corporate Office to monitor all vehicles in real time. The device can track metrics like distance travelled and vehicular speed at different times. Each vehicle's speed is closely monitored to avoid any violations. In case of any speed limit violation, the HSE Managers conduct a briefing with the concerned driver, and also advise them on defensive driving techniques. The HSE team also awards drivers for following safe driving practices on a quarterly basis.

Drilling Practices

Flaring activity during well testing is carried out within enclosures lined with asbestos sheets. Asbestos, which is both heat resistant and fire resistant, along with periodic sprinkling of water, ensures that no radiation from flaring is released into the surrounding atmosphere. All generator sets and noise producing machineries used during drilling are provided with acoustic enclosures to reduce noise pollution. Due to increasing environmental concerns, the use of Oil- Based Mud for High-Pressure, High-Temperature (HPHT) drilling, is either prohibited or restricted. Hence, most of HOEC's Drilling Campaigns are carried out using Water-Based Mud (WBM), as it is a more environment-friendly option. The volume of drilling fluids used is reduced at the design stage by selecting modern drilling engineering technology. The mud is reused after its separation from the cuttings. The mud and drill cuttings are first passed over the shale shaker, which is an inclined vibrating screen that separates cuttings from the drilling fluids. The fluids are then pumped through sand trap(s), hydrocyclones (desander and desilter), and centrifuges before arriving at the mud mixing tanks. The sand trap allows sand size particles from the drilling fluids to settle. The hydrocyclones or cyclone-type centrifugal separators impart a whirling motion to the fluids, which produces sufficient centrifugal force to separate the sand and silt size suspended solids from the fluids. The centrifuge is generally used to recover weighting materials, and to remove drilled solids finer than silt. At the end of the Drilling Campaign, the existing mud plant is used for storage and maintenance of drilling muds, for use in other wells.

Reusing drilling fluids significantly lessens their impact on the environment. The following strategy is followed for the management of drilling fluids:

a) Low toxicity WBM with LC 50 > 30,000 mg/l is used in the Drilling Campaign.

b) The drilling fluids are recycled and reused to a maximum extent. Residual WBM may be discharged under controlled conditions into the sea. This is done to comply with MoEF&CC/CPCB regulations related to excess turbidity in the water column. Handling and installation of all heavy equipment on site is carried out as per SOPs and requisite safety standards. A Reverse Osmosis (RO) Plant and Effluent Treatment Plant (ETP) are engaged during the drilling process, to treat any generated effluent, and all treated water is routed back for the preparation of mud. During drilling, casing is installed to prevent any seepage of waste into the subsurface in shallow sections. HOEC ensures the maintenance of the structural integrity of all casing through the following tests:

(i) Ultrasonic Test to check the thickness of the casing before it is commissioned;

(ii) 'Drifting' to check the ovality and thickness of the casing to avoid any failure in latter period of well life; and

(iii) Magnetic Particle Test on the threads and body of tubulars.

Oil Spill Management

HOEC is prepared to respond to any oil spill incident that may arise during the course of its operations. The Oil Spill Contingency Plan (OSCP) and preparedness for oil spill response in units handling petroleum products in bulk, is a mandatory requirement as per the IMO Convention of Oil Pollution Preparedness, Response and Co Operation (OPRC) 1990, to which India is also a signatory. In addition, the directives given by Indian Coast Guard as per National Oil Spill Disaster Contingency Plan (NOS-DCP), 2015 make it mandatory for all oil companies, ports and oil handling facilities to have an OSCP. The Ministry of Environment, Forest and Climate Change (MoEF&CC) too, have made having an OSCP a mandatory requirement for environmental clearance of offshore locations, before commencement of production operations.

To ensure compliance, HOEC has adopted the following:
All onshore facilities are equipped with Oil Spill Kits and an Oil Spill Containment Boom. Fail close pneumatic actuated ball valves act as shutdown valves in the case of high or low oil levels in the condensate tank. As part of incident management efforts at offshore installation, the supply vessel also consists of an Oil Spill Containment Boom. The OSCP has been devised as per the guidelines on Contingency Planning provided by the NOS-DCP of the Indian Coast Guard, Oil Industry Safety Directorate (OISD), Ministry of Petroleum, International Maritime Organization

(IMO), and International Petroleum Industry Environmental Conservation Association (IPIECA). In addition, good practices on Oil Spill Contingency Planning from the European Union Series, and shoreline clean up from the United States Coast Guard (USCG) guidelines have also been adopted. An option for shore clean up and separation, and disposal of oil and debris as per the IMO Manual on Oil Spill Response, Volume 4 are also in place.

All equipment selection finalized as per the guidelines given in:

- Oil Spill Response in Fast Current by USCG
- Study on latest in Oil & Chemical Spill Technology - The Australian Maritime Safety Authority (AMSA)
- World Catalog of Oil Spill Response Products – 2008/09
- Manual on Oil Pollution, Section-IV - IMO
- Action Plan for Oil Pollution Preparedness & Response by European Maritime Safety Agency (EMSA)

Different scenarios are visualized to enable operating personnel to respond effectively to any accidental oil spill from operational activities. These include removal of floating oil from adjoining sea, preventing spilled oil from reaching the coastline, protecting environmentally sensitive areas and coastline clean up response if the spill reaches ashore.

Prevention of oil spillage is HOEC's first priority. Offshore production and drilling facilities have been designed, installed and are being operated in a way, so as to minimize the possibility of oil spills. Facilities, resources and support provided by third parties are also of paramount importance to meet national and international pollution prevention design and operation standards.

HOEC shares the community's concern for the protection of the natural environment from oil spills. The company is committed to integrating into its operations, ways to identify oil spill risks, prevent oil spills, and to implement appropriate changes in its contingency plan for spill response and cleanup strategies.

To achieve this, HOEC's policy is to:

- Respond immediately to any oil spill incident with the objective of protecting marine & human life and to minimize environmental impacts.
- Work and consult with appropriate government bodies and the local community to address any issues relating to oil spills in a timely manner.
- Provide adequate training and information to enable employees and contractors to adopt environmentally responsible work practices, and to be aware of their responsibilities in the prevention and cleanup of oil spills.

- Develop emergency plans and procedures so that incidents (accidental releases) can be responded to in a timely manner.
- Develop and maintain a management system to identify, control & monitor risks, to comply with Statutory Regulations and industry guidelines.
- Assess the situation and take timely & appropriate action where third-party interests are involved, such as chartered vessels, drill rigs, nearby production platform, nearby ports etc.
- Ascertain that each identified employee is responsible for the implementation of this policy in association with his/her specific duties.This includes both contractors and employees.

Effective response to a marine oil spill requires mobilization of resources depending on a number of factors. One of the most critical factors is the time taken to activate the plan and mobilize equipment & resources to the scene of the spill. To ensure efficiency of response, a tiered approach including tie-ups with oil spill response agencies is adopted by HOEC management in line with NOS-DCP and OISD guidelines. This plan takes into account the response time needed to mobilize, transport and deploy increasing amounts of resources to the scene of a spill depending upon its size.

Maintenance of Oil Spill Containment boom reel

Waste Management

All forms of waste, hazardous or otherwise, that are generated by the company's operating assets are recorded based on type, quantity, method of storage and disposal location. Each container used for the disposal of hazardous and solid wastes on-site is labelled appropriately. All onsite wastes are stored in appropriate separate containers based on the type of waste. HOEC has also laid special emphasis on the 'Reduce, Reuse and Recycle' policy as part of its operations. An annual Return for the generated waste is filed and submitted by June 30th to the relevant State Pollution Control Board for the preceding period from April to March. An annual Environmental Statement is also submitted to the relevant State Pollution Control Board laying special emphasis on the following:

(i) The company's water and raw material consumption;

(ii) Quantity of pollutants discharged into air and water;

(iii) Quantity of hazardous wastes generated from drilling activities, pollution control facilities and other sources;

(iv) Quantity of solid wastes generated from drilling activities and pollution control facilities, as well as quantity recycled/reutilized, sold and disposed; and

(v) Proposed abatement measures and investment to mitigate and prevent pollution.

Waste bins are colour coded to segregate the wastes

The relevant State Pollution Control Board grants the company a three-year authorization for the management & transboundary movement of Hazardous & other wastes. Waste generated during operational activity is handled in the following ways:

(i) Solid wastes are properly segregated;

(ii) Organic waste is macerated and disposed as slurry into the sea for easy dilution and dispersion;

(iii) Paper and plastic wastes are bailed and sent for disposal to waste recyclers;

(iv) Waste lubricating and hydraulic oil are disposed to authorized waste oil recyclers;

(iv) Materials such as scrap metal and surplus chemicals are sent for recycle or reuse as far as practicable;

(vi) All waste containers are sent for disposal to authorized waste dealers;

(vii) A waste management plan incorporating regulatory & best practice measures is implemented and the staff responsible for waste disposal are provided training and information to ensure proper disposal of the waste; and

(viii) Inventory of solid waste generation & type are prepared and disposal facilities are audited for suitability prior to the commissioning of operations.

Hazardous waste storage yard at MGPP with ventilation

Hazardous waste generated mostly exists in the form of used oil (categories 5.1 and 5.2) and waste/oil residues. Category 5.1 refers to used or spent oil waste generated when replacing hydraulic or lubricant oil from generators, compressors and other pumps & motors after a certain period of time. Category 5.2 refers to wastes or residues containing oil such as sludge collected during slop oil tank cleaning/produced water treatment package cleaning etc. Non-hazardous wastes include kitchen wastes from the canteen, wood wastes from material packing, plastic wastes from empty barrels, paper wastes in the form of old newspapers and office waste paper, and scrap metals from mechanical waste. The used oil is disposed of in accordance with a hazardous waste manifest, and is sent to an authorized waste collector. While the plastic is sold to local collectors, water is diverted to an on-site Sewage Treatment Plant (STP) to be treated and used for maintenance of the green belt on site. Suitable locations are identified at site location to place designated trashcans for the disposal of biodegradable and non-biodegradable wastes. Large drums are used to dispose of the non-biodegradable wastes from processing activities, which are then emptied out by the municipality. In addition to the above-mentioned waste management strategies, the company's MGPP in Assam, has an LED Digital Display, which reflects:

(i) The quantity and nature of hazardous chemicals being used at the facility; and
(ii) the quantity of air emissions, waste water discharge and solid wastes generated during operations. An external agency carries out a thorough cleaning of the facility daily.

LED Digital Display at MGPP in Assam

Transport Emergency Card (TREM)

A Transport Emergency Card (TREM) is issued to any third-party service provider transporting hazardous/other wastes from any of the company's operating assets. These cards contain information about the waste being transported and include details such as type of waste, physical properties, chemical constituents, exposure hazards and the relevant first aid required. This practice has been implemented to ensure the safety of all HOEC's third-party transporters, should any unforeseeable circumstances arise.

TRANSPORT EMERGENCY (TREM) CARD

[To be carried by the transporter during transportation of hazardous and other wastes, provided by the sender of waste]

1. Characteristics of hazardous and other wastes:

S. No.	Type of waste	Physical properties/	Chemical constituents	Exposure hazards	First Aid requirements

2. Procedure to be followed in case of fire :
3. Procedure to be followed in case of spillage/accident/explosion :
4. For expert services, please contact :
   (i) Name and Address :
   (ii) Telephone No. :

(Name, contact number and signature of sender)

Date.....

Place.....

Incident Management

All incidents that occur on site are reported to the installation manager (IM). The IM is responsible for all incident reporting and management and is duly supported by the Health, Safety and Environment team. Regardless of the magnitude of the incident, a detailed investigation is carried out to assess the cause of the event, as well as to make recommendations to avoid something similar from occurring in the future. All details of the incident & subsequent investigations are recorded in an Incident Management Register.

Observations on unsafe condition, unsafe acts, Environmental aspects etc. are notified through HSE Observation cards at site. These enable site personnel to report any event or observation that they believe has the potential to cause an undesired incident. If it needs to be addressed immediately, appropriate action is taken to do so, otherwise housekeeping and those in charge of maintenance ensure that all aspects of the facility are functioning as they should.

Land Management

All land utilized for HOEC's operations is acquired on a long-term lease for permission for the same is obtained from the concerned Landowner or District Administration.

During construction, if the project site is undulated, some leveling is done. The terraced level of the site is fixed effectively to balance "cut and fill" by utilizing earth work in excavation in filling low lying areas. Vegetation on topsoil is removed prior to commencement of bulk earthwork. Construction water is drawn from existing approved vendors in the vicinity. During dry weather conditions, dust may be generated by activities like excavation and transportation. The dust is suppressed by water sprinkling or dust barriers.

HOEC and/or concerned contractors identify site-specific restoration requirements that align with applicable regulatory, landowner, and stakeholder requirements and expectations. The company understands the regulatory requirements from project-specific regulatory registers, EIA-EMP studies, and license/production sharing documents. The company respects the views and concerns of stakeholders (who directly or indirectly depend on land use of a particular area) through the stakeholder engagement process and tries to address them to the best of its ability. The owners of the land, stakeholders, or their legitimate representatives are consulted in the preparation of the site-specific restoration procedure.

All utility services such as electricity, gas and water are shut off during demolition work. Tanks, vessels and pipe work are completely isolated from inlet, outlet and overflow points. All equipment, machines and infrastructure (e.g. storage tanks, flow lines and pipelines) are purged and/ or flushed as appropriate, to remove hazardous materials such as hydrocarbons and chemicals. The recovered hazardous materials are disposed to an Effluent Treatment Plant (ETP) facility that meets the Pollution Control Board guidelines. Drilling waste pits (viz. reserve pits, soak pits) are closed as soon as reasonably possible following the completion of activities. Reserve pits are maintained after the drilling waste is removed, and the pit is dry. The liner is left in place.

At least 1 metre of crown material is left over the filled pit. The reserve pits are adequately barricaded to prevent entrapment and mortality of animals. Septic tanks and soak pits are restored by dismantling in place, and backfilling with at least 1 metre of soil cover after they have dried, or once the wastewater has been removed and disposed of.

Non-hazardous wastes from the site are moved to HOEC's waste storage area. Records of all waste transfer/ disposal are maintained. All equipment and machines that are engaged during the drilling campaign, are dismantled and removed in the following ways:

- The reuse of salvage materials is considered prior to start of restoration.
- All RCC and PCC structures are dismantled. Blasting was not permitted in any case or as per environment management plan.

- Broken materials such as concrete debris, bricks etc. are disposed of to a safe place, where there is no potential damage to the environment, property of HOEC or any other third-party property. They can also be reused, if required. The debris disposal site is pre-determined and approval for the same is obtained from HOEC by the contractors to avoid any concerns with regards to disposal at unauthorized/- objectionable sites.
- Storage of dismantled materials is not permitted at HOEC's site premises. Contractors are asked to remove them from site immediately after the dismantling process is complete.

Upon completion of decommissioning and demobilization, the site is thoroughly cleaned by removal of all materials that are not required for restoration. No construction debris, industrial or domestic waste is left behind. All the waste removed from site is managed in a manner to ensure no environmental or social impacts in future.

- Care also taken to avoid excessive cutting & removal of existing soil of the land while removal/ scraping of the WBM/ Gravel/ Mooram etc.
- Stone masonry & brick masonry are removed safely from all the existing on site and disposed of to a safe place in a manner that acceptable to HOEC. They can also be reused for any other work.
- After removing/ scraping all the construction materials, the leftover materials mixed with the existing soil, are carefully removed with minimum quantity of soil from the completed site and the area leveled & graded appropriately.
- Once the entire area adequately graded/leveled as per HOEC's satisfaction, good quality topsoil (from the same area, which stored separately before the initiation of the work) kept at the top surface of the land by blending into the existing soil.
- Borrow material required for restoration is sourced from authorized sources.
- The site area is graded and leveled to the original contour level as best as possible. The hard surface along the access road is considered and topsoil is spread to its original location. The erosional potential of undulating or sloping lands due to water and wind, is considered during topsoil replacement.

Drill site restored at GGS of Assam

After the completion of drilling activities, all drill sites are restored back to near original condition. Leveling and compaction are done with the help of graders and mechanical rollers, while earth, fill material, and rubble are used for land filling and site restoration. The drainage of the restored site is consistent with the original patterns, direction and capacity established during baseline studies and is compatible with the surrounding landscape.

Air Management

During construction, specific attention is paid to:

(i) Appropriate management of power generation source to achieve fuel efficiency and therefore reduce emissions;

(ii) Use of low sulphur diesel oil (0.25% sulphur content);

(iii) Appropriate storage and handling procedures to reduce fugitive emissions of VOC's from diesel fuel; and

(iv) Installation of closed circuit type refrigeration and air conditioning systems to avoid the loss of ozone depleting material.

During the operational phase, the following measures are adopted:

(i) Appropriate maintenance and management of solar power generation sources;

(ii) Use of low sulphur diesel oil (0.25% sulphur content) in DG sets for emergency operations;

(iii) Minimization of fugitive emissions from storage and handling operations; and

(iv) Periodic verification and audits are carried out for leakages along with status of seals and packing at all joints.

Air quality monitoring by PCB accredited agency at MGPP

The potential for any direct impact on ambient air quality on site can be mainly attributed to the Gas Generator stack and the Hot Oil stack. The State Pollution Control Board monitors ambient air quality on site. Additionally, an external laboratory is tasked with assessing ambient air quality levels at site on a monthly basis. The laboratory compiles a report of its findings and sends it to the chemist on site. Indirect impact on ambient air quality can be attributed to flaring activities on site. Adequate DG stack height is accounted for to enable effective dispersion of air pollutants, and to meet the minimum stack height and emission concentrations criteria set by the Central Pollution Control Board (CPCB). Additionally all HOEC land assets have a dedicated Green Belt to maintain adequate balance in ambient air quality. These Green Belts are regularly maintained and cultivated with new saplings to enhance their effectiveness.

Green Belt area at MGPP of Assam

About 1828 different species like Agar, Lamon, Beetlenut, Banana tree, Debdaru, Royal pump, X mas, Gulmahar, Shirish, Baklul, Lishu etc. are planted in the green belt area of MGPP and GGS at Assam.

Green belt area at PY-1 site

The sources of emission at PY-1 site are GG stack, hot oil stack, flare stack, and level monitoring activity (sound gauging) of CST tanks. All emissions from GGs are connected to a common stack fixed at a height of 30 meters from the ground level.

Green belt area at PY-1 site

A total of 16826 tree species like Arjuna tree, Gulmohar, Neem, Vagai, Mandarai, Casuarina, Kadamba, Sarak Kondra, Subabul etc. are planted in the green belt area of PY-1 site.

Operation of the 1450 KVA Gas Generators installed at PY-1 site is restricted during low production mode to reduce fuel gas consumption and to avoid operating gas generators under their rated capacity. Instead, 300 KVA Gas Generators are being operated at their full load capacity to enhance output efficiency, thereby reducing the probability of improper firing and unburnt gas emission at the GG exhaust. All PSVs outlet gases are routed to a flare header.

Gas Flaring

Flaring of natural gas releases carbon dioxide and thus contributes to climate change. Other harmful emissions include sulfur oxides and nitrogen oxides, which combine with moisture in the atmosphere to form acid rain that acidifies lakes, streams, and damages vegetation. Furthermore, pollutants such as particulate matter, hydrocarbons and ash can deplete soil nutrients through acidification, and harm agriculture.

The health implications of flaring can be significant too. Exposure to the emissions of flaring can cause cancer, lung damage and skin problems.

In order to mitigate the undesirable impacts of flaring, HOEC has made a conscious effort to design its flaring systems as per requisite environmental standards. All processing facilities are equipped with flare systems for the safe and clean disposal of hydrocarbon vapour during operations. Both, a High Pressure (HP) and Low Pressure (LP) flare system are provided for the disposal of high-pressure and low-pressure sources of hydrocarbon. Equipment with a design pressure of 75 psig or greater is connected to the HP flare system; the remaining sources relieve into the low-pressure header.

The high-pressure sources could include:

- Relief valves from high-pressure equipment such as Slug catcher, Separators, Sales gas to a power plant, and 1st Stage Separator.
- Automated blow down valves from high-pressure systems.
- Manual vents from high-pressure equipment.

The only sources of low-pressure release could be a Second Stage Separator and the Produced Water Degasser. The HP Flare System consists of a flare header and several branch lines. The header slopes downwards and feeds into the HP Flare Knockout Drum where relief liquids are removed. The HP Flare Drum Pumps direct hydrocarbon and aqueous liquid separated within the drum to the Slop Oil Tank. The relief vapour then continues to the Flare Package where it is combusted in an elevated high-pressure flare tip. The tip is mounted directly on the stack, and high-pressure hydrocarbon releases are combusted at this point. The tip arrangement also includes a separate connection for the LP header. The low pressure relief vapour is not combusted within the HP tip, rather directed into the flare pilot. The LP Flare System consists of a flare header, which slopes downwards and into the LP Flare Knockout Drum. Liquids separated in the LP drum are directed to the Slop Oil Tank by the LP Flare Drum Pumps. The relief vapour then continues to the Flare Package where it is combusted. The elevated Flare Package contains both a high-pressure (HP) and low-pressure (LP) tip for the disposal of hydrocarbon releases. The tips are mounted on a 30 metre high self-supporting stack, and the package is designed for pressure assisted smokeless operation.

Flare Tower at PY-1

Another system called the ground flare (300-X-003) is a sonic, natural draft, horizontal flare system fitted with six burners, four pilots, one ignition control panel and one flare header. The flare and piping to the flare are sized for 35 mmscfd. A fence is provided around the ground flare to guarantee that the flames are concealed, thereby preventing exposure to the surrounding environment. The Dirok team devised a shutdown procedure for the plant in order to avoid unwanted flaring of natural gas.

Flare Enclosure at Modular Gas Processing Plant in Assam

Liquid Waste Management

Offshore

Wastewater generated mainly contains domestic sewage and wash downs if any. The following measures are taken to ensure that no waste is discharged directly into the sea: (i) the Barge is equipped with suitable containment and treatment systems; (ii) deck washings are routed through an oil/water separator before being discharged into the sea; (iii) good housekeeping practices are adopted onboard the Barge; (iv) chemicals are stored in dedicated storage areas with containment provisions; (v) any oily waste or chemical waste generated, is brought back to the shore for proper disposal; and (vi) the sanitary effluents onboard are treated in a suitably designed Sewage Treatment Plant (STP) before being discharged into the sea.

B-80: KGB-Offshore Installation with FSO and Calm Buoy

Onshore

The following measures are taken to ensure minimum contamination of water: (i) the processing facilities are equipped with suitable containment and treatment systems; (ii) good housekeeping practices are adopted at site; (iii) chemicals are stored in dedicated storage areas with containment provisions; (iv) any oily waste or chemical waste generated, is disposed of as per norms; (v) sanitary effluents at site are treated in a suitably designed Sewage Treatment Plant (STP) before being discharged into the sea; (vi) appropriate segregation and collection systems are in place for various effluents depending on their individual stream characteristics; and (vii) the process area is paved to avoid the contamination of soil/ subsoil/ ground water in case of accidental spills/ leakage of hydrocarbon liquids.

The produced water generation has been reduced by optimizing the choke size efficiently. Plant wash water is connected to the contaminated rainwater storage system and the traces of oil recovered are pumped into the Slop Oil tank. No contaminated oil is discharged into the environment. During routine operations, no liquid waste generation occurs. However, there is a provision made for rain and storm water, as the water coming from the equipment may contain oil or other contaminants. Water production during the gas processing cycle can only be attributed to the slug catcher area. The degasser filters out the dissolved gases and minor traces of oil in the water and diverts the filtered water to the produced water holding pond on site. A deoiling hydrocyclone is utilized to separate oil from the produced water by means of centrifugal force. Water in the pond is periodically aerated and when the pond is sufficiently full, the water is sent back into the sea in the form of marine outfall. Marine outfall is tested periodically by an external laboratory, to ensure that it is compliant with relevant thresholds.

Marine Outfall Point at PY-1

The Sewage Treatment Plant at PY-1 site is designed to treat 10KLD domestic sewage waste produced at HOEC Plant, and all sewage water is routed to a collection tank fitted with a Bar Screen chamber. Additionally, the sewage routing is provided with eight inspection chambers. The quantity of treated water generated is approximately 3 to 4 kl/day, and the same is used for plantations and gardening purposes.

Wastewater Purification / Reuse Measures

- Plant wash water is connected to the contaminated rainwater storage system and the traces of oil recovered are pumped into the slop oil tank. There is no open discharge of contaminated oil to the environment.
- Wastewater discharge from all buildings and the canteen are routed to the STP Treatment System.
- The treated STP water is used for green belt development inside the site premises.

Pledge for Environment protection by PY-1 team during World Environment Day

Energy Efficiency

HOEC has taken up the task of promoting energy efficiency across all its assets, in a manner that is consistent with the size and scope of its operations. Some measures adopted by the company in FY2021-22 include:

(i) Phased conversion of conventional light fittings to energy efficient LED light fittings;

(ii) Optimization of load of electric heaters to reduce power generation; and

(iii) Maintenance of installed solar street lights.

Noise Management

To minimize ambient noise levels the following steps are taken:

(i) Generators are provided with acoustic enclosures;

(ii) The exhausts are provided with silencers;

(iii) Operators/ personnel working near noise sources are provided with earmuffs and earplugs and their use is strongly enforced;

(iv) Insulating caps and aids are provided at the exit of the noise source on the machinery;

(v) Damping materials such as thin rubber/ lead sheet are used for wrapping the work places like compressors, generators;

(vi) Shock absorbing techniques are adopted to reduce impact;

(vii) All openings like covers and partitions are acoustically sealed; and

(viii) Inlet and outlet mufflers are provided.

Apart from the measures stated above, during routine operations, operators/personnel working near noise sources are mandated to use earmuffs and earplugs.

The main sources of noise on site would be the Instrument Compressor House and the Gas Generator Set. A third-party agency approved by the State Pollution Control Board is also tasked with measuring and monitoring noise levels on site on a monthly basis.

Noise monitoring device

Pipeline Management

During installation of pipelines connecting producing wells with processing facilities, the following precautions and protection measures are taken:

Offshore

(i) Care is taken to cause minimum damage to benthic fauna of water bodies during pipeline installation;

(ii) Minimal seabed disturbances are ensured;

(iii) Precautions are taken to prevent the formation of spoil banks as a result of pipeline laying to ensure minimum alteration of sedimentary patterns;

(iv) Minimal disturbance of the shoreline and foreshore dunes; any disturbed areas are restored to their previous alignment and level;

(v) Any existing pipelines in the layout route are protected;

(vi) Access ways are reinstated to pre-development condition, particularly where the alignment crosses watercourses;

(vii) Pipelines are laid below ground level to a sufficient depth where the line crosses water-courses to ensure that the integrity of the line is protected;

(viii) Existing surface flow conditions are reinstated wherever diversion of the flow of streams, ditches, culverts etc. are required in the course of pipeline construction;

(ix) All areas affected by the establishment of the line, both within and adjacent to the layout are restored;

(x) All excavated material is back filled and compacted prior to top soiling using the material originally excavated from that portion of the trench as far as practicable;

(xi) Erosion is adequately controlled;

(xii) Discarded or surplus materials, litter and other debris from the activity and other working areas are removed and they are left in a neat, clean condition;

(xiii) Adequate provisions for infrastructure facilities are provided to the labourers during the construction period in order to avoid damage to the environment;

(xiv) Colonies for the labourers are located away from the Coastal Regulation Zone (CRZ) area;

(xv) All construction areas have restricted access, taking into consideration safety, environment and construction objectives;

(xvi) Controls are put in place to ensure that the construction work has minimal impact on the local population;

(xvii) An appropriate standard of housekeeping is maintained at the construction camp to ensure that waste is stored and disposed of in a manner to prevent vermin, flies etc.;

(xviii) All rubbish and waste material are removed upon the completion of construction;

(xix) Safe drinking water is supplied to the labourers' colony;

(xx) Safety programs and safety audits are regularly implemented;

(xxi) For Barge/ vessel movement, relevant internationally recognized safety standards are applied.

Onshore

(i) All the debris resulting from onshore installation is retrieved;

(ii) Precautions are taken to prevent the formation of spoil banks as a result of pipeline laying to ensure minimum alteration of sedimentary patterns;

(iii) Since the submerged pipeline runs onshore, the pipeline route is flagged to avoid damage from digging operations;

(iv) Any existing pipelines in the layout route are protected;

(v) Minimal vegetation clearance and stockpile vegetation for onshore pipeline installation;

(vi) Access ways are reinstated to pre-development condition, particularly where the alignment crosses roads;

(vii) Pipelines are laid below ground level to a sufficient depth where the line crosses dunes, roads or access tracks to ensure that the integrity of the line is protected;

(viii) All areas affected by the establishment of the line, both within and adjacent to the layout are restored;

(ix) All excavated material is back filled and compacted prior to top soiling using the material originally excavated from that portion of the trench as far as practicable;

(x) Restoration of land surface and landform in a way that is consistent with the condition and contours prior to the commencement of construction;

(xi) Erosion is adequately controlled;

(xii) Discarded or Surplus materials, litter and other debris from the activity and other working areas are removed and they are left in a neat, clean condition;

(xiii) Adequate provisions for infrastructure facilities are provided to the labourers during the construction period in order to avoid damage to the environment;

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(xvi) An appropriate standard of housekeeping is maintained at the construction camp to ensure that waste is stored and disposed of in a manner to prevent vermin, flies etc.;

(xvii) All rubbish and waste material are removed upon the completion of construction;

(xviii) Safe drinking water is supplied to the labourers' colony;

(xix) Safety programs and safety audits are regularly implemented;

(xx) A dedicated team of personnel regularly patrols the pipeline with GPS trackers to ensure that no part of it is exposed and that its physical integrity is maintained, so as to prevent any leakages.

Environment Preservation and Net Zero Emission Initiatives:

Dirok Field's location near the forest and wildlife sanctuary in the upper Assam region has been bestowed with natural beauty. HOEC, being the operator of the JV field located in the prolific geological Assam-Arakan basin, is committed to preserving the nature and environment of the area. Dirok team supported by distinguished JV partners - Oil India and Indian Oil, initiated efforts towards NETZERO and GHG emission reduction in FY 21-22. The "Pathway to Net Zero Emission Policy" was adopted by the Dirok Field in April 2021. Under this Policy, the following commitments were made:

(a) Accounting for Green House Gases every Financial Year and declaring the same;

(b) Working towards reducing Green House Gases on a year-on-year basis;

(c) Delivering Dirok Gas with low GHG emissions to consumers; and

(d) Achieving Net Zero Emission and sustaining the same

All team members of the Dirok Field have taken a pledge to implement the "Pathway to Net Zero Emission Policy". An eight-week familiarization session was conducted for all staff members (Technical/Non-Technical) by the team leaders. The session addressed working in the field of Climate Change, its impact on the environment, and the necessity for Net Zero Emission.

A monitoring and surveillance program was implemented to muster, record, and estimate the Green House Gases that are generated during the operation, transmission and marketing of the hydrocarbon in the field. Any emissions related to plant operation, wellsite intervention, project work execution or employee and business transportation have been meticulously captured in the calculation program.

GHG calculations and reporting

Accounting is carried out covering the main greenhouse gases viz., carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and hydrofluorocarbons (HFCs).

Green House Gases Emissiosn are accounted for Scope 1 and Scope 2 Categories only.

Scope 1 emissions are those direct emissions from the operations that are owned or controlled by the Dirok Field. All direct emissions from GGS, HMGPP, wellsites, pipeline, project execution work, warehouse, and company/contractor passenger and goods vehicles fall under this category.

Scope 2 emissions are those indirect emissions from the generation of purchased or acquired electricity, steam, heating, or cooling consumed by the Dirok Field.

Scope 3 emissions are all other indirect emissions (not included in scope 2) that occur in the value chain of Dirok Field operations, including both upstream and downstream stakeholders' emissions. These have been excluded from the purview of the reporting method for now.

Total GHG emitted and the Carbon Intensity

Financial Year	**Total GHG Emitted (Tons of CO2 Equivalent)**	**Carbon Intensity (KGs of CO2 equivalent GHG emitted per barrel of oil equivalent produced (KG/BOEC)**
20-21	4131.50	1.47
21-22	3709.09	1.411

GHG Emission from Gas Generators and Flare constituted a majority of total emissions. Flare reduction activity has been budgeted for implementation in FY 22-23, which can significantly reduce the existing GHG emissions.

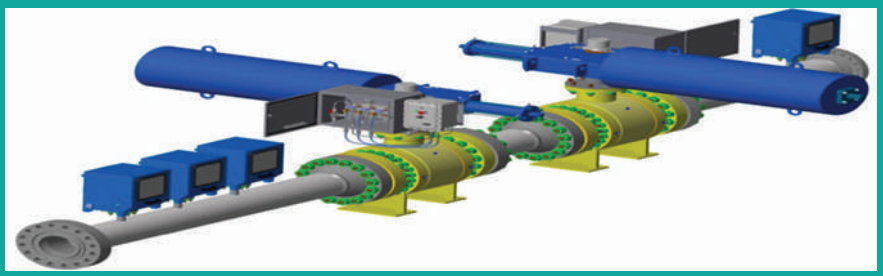
Overall, Dirok Field has a low GHG emissions and carbon intensity track record in comparison to the companies operating in the industry globally.

Preventive Maintenance

Preventive maintenance onshore is carried out by site personnel, as well as external contractors, depending on the nature of the work. As is the case with all other work on site, carrying out maintenance work requires one to have a permit. The facilities are equipped with a Safety Integrity Logic – Level III (SIL) System. All plant parameters on site are controlled through a Distributed Control System (DCS). In case of any deviation from the requisite parameters, the DCS shuts down all systems.

The Emergency Shutdown System (ESD) operates on three different levels (Levels I, II and III), each of which initiate a unique shutdown sequence, to ensure maximum safety. The ESD also includes an integrated fire and gas reduction system comprising of flame detectors, point source gas detectors, open path gas detectors, manual call points, and fusible loop plugs. Additionally, all members of the operations team carry multifunctional portable gas detectors to assess upper and lower explosive limits (UEL and LEL) at all times. The ESD undergoes scheduled preventive maintenance, as well as an integrity test every 6 months, so as to remain optimally functional at all times. Individual preventive maintenance reports are generated for each component of the ESD.

The offshore facility is equipped with a Supervisory Control and Data Acquisition (SCADA) System. All offshore operations are controlled through a Programmable Logic Controller (PLC). The facility has gas detectors installed at more than 20 locations, and also comprises of pressure switches and level switches. In case of an emergency, a remote shutdown of the facility can be carried out from onshore.



HIPPS (High Integrated Pressure Protection System) between Dirok GGS and HMGPP assures the integrity of main feeding pipeline

Corporate Social Responsibility

HOEC is committed to operate and grow its business in a socially and environmentally responsible way with a vision to transform the quality of life in all its operating areas. We strive to demonstrate the highest standards of corporate behaviour towards all stakeholders and the local communities in which we operate. We believe that only through responsible actions, can we earn our License to Operate from our host communities.

Corporate Social Responsibility (CSR) is an integral part of the company's business operations and resource development endeavours, and the company's mission is aligned with Schedule VII of the Companies Act, 2013. HOEC's CSR programmes focus on the following seven broad themes with the objective to improve overall socio- economic indicators in the company's areas of operation:

- Promote local content by developing local vendors
- Rural development including improved access to roads & solar power
- Affordable & mobile solutions for healthcare
- Access to quality education, skill enhancement & essential infrastructure
- Promote personal safety and environmental protection awareness
- Support promotion of local culture, art and sports
- Provide relief to local community during natural calamities and contribute to appropriate State Relief & Disaster Management Funds

Infrastructure/Rural Development

Dirok

HOEC strives to improve lives of the local communities through their CSR initiatives, by identifying areas that need intervention. Various activities have been taken up towards developing the basic infrastructure in and around Margherita Sub-Division. These include Construction of Dug Wells, Creating Sports Infrastructure and developing infrastructure facilities in Schools and other allied activities. As of March 2022, the company has installed about 257 solar streetlamps within its operating area, receiving positive response from the local community that often faces several power cuts.

Solar Streetlamps Installed by HOEC in Dirok & PY1

Education

Dirok

Upgradation and infrastructure development has been undertaken in more than 3 schools in past years. In FY 21-22, HOEC constructed an auditorium and sanitation facility at a high school in Powai.

HOEC

Powai School in Margherita

Conclusion

HOEC understands the growing concern for environmental quality and its subsequent impact on life. The company continues to remain committed to adhering to the highest environmental standards and enhancing the socio- economic and environmental quality of the local communities where it operates. HOEC's long-term vision includes using research and technology to move towards being emission-free and leaving a positive ecological footprint. The company recognizes that constant improvement is vital to achieving this and will continue to do so with utmost dedication. The company will focus on:

(i) continuously developing a comprehensive Environmental Management System (EMS) to minimize waste and emission generation, and promote operational efficiency; and (ii) conducting extensive research on the possibilities of utilizing the by-products from its operations, in order to prevent their release into the surrounding environment. Through its efforts, HOEC aims to lead by example, and hopes to create impact that other oil and gas companies would be proud to emulate.

ANNEXURES

HOEC® **Hindustan Oil Exploration Company Limited**

HEALTH AND SAFETY POLICY

The oil and gas sector is a critical global industry and its operations can have both positive and negative impact. HOEC is committed to enhance the positive impact, avoid and mitigate negative impact by carefully planning and safely implementing each of its operations.

HOEC's Health and Safety Policy is anchored on the core principle that **"All Lives Have Equal Value"** and **"Nothing is More Important than Safe Operations".** HOEC's Board and the Management understand the need for sustainable development and are committed to achieve this goal, by laying strict emphasis on compliance with all legislations and statutory requirements and to adopt global best practices. This includes the welfare, health and safety of employees, contractors, and the local communities, in its area of operations.

HOEC aims to create a healthy and safe work place for all relevant stakeholders by :

- Hosting extensive training programmes periodically to familiarizes all new and existing recruits with SOPS.
- Holding all operating personnel accountable to maintain a healthy and safe working environment on site, by empowering them to stop an unsafe act irrespective of its financial impact.
- Performing comprehensive internal site audits before and during major operational activities, such as drilling, development and production.
- Assessing and monitoring the health and safety track record and performance of all service providers and contractors, both before and after the award of contracts to achieve the common objective of safe operations.
- Utilizing the Health, Safety and Environment (HSE) Department as a store house of expertise, which passes on all relevant knowledge to Operating Personnel and Managers stationed at various sites.
- Reviewing regularly all Standard Operating Procedures (SOPs) and developing new ones that are in line with those implemented across the industry.
- Continuously engaging with vendors and contractors as partners to achieve the common goal of safe operations.
- Engaging all operating personnel in monthly mock safety drills to ensure that all personnel remain aware and vigilant carrying-out operational activity.
- Carrying out an extensive review of all its facilities to ensure that all machinery and equipment are functioning in accordance with industry standards.
- Regularly monitoring the Emergency Response Plans in place at all sites, so as to prevent escalation and to enable the mitigation of impact on all personnel and asses, in the case of an emergency.
- The HSE Department is tasked with conducting in-depth research to stay informed on new practices in safety drills, safety methods and techniques. These include, but are not restricted to chemical exposure, chemical storage, chemical handling, equipment / machine hazards, safe practices in confined spaces / excavations, fall protection, fire protection, electrical work, hot work like welding and flame cutting operations, personal protective equipment, power sources and working in the heat or long shifts and marine safety.
- HOEC Board has constituted a Risk Management Committee to provide oversight to ensure full implementation of this Health and Safety Policy.
- It is the responsibility of all employees and service contractors' personnel to strictly adhere to the Health and Safety Policy of the Company and follow the Standard Operating Procedures (SOP). HOEC has a "No Excuse Policy", when it involves safety and integrity.

Chennai, September 23, 2022

P Elango
Managing Director

ANNEXURES

HOEC® Hindustan Oil Exploration Company Limited

ENVIRONMENTAL POLICY

Oil and Gas Industry has great impact on the Environment during the Exploration and production activities and has ecological footprint. In absolute terms, the scale of HOEC's operations and its footprint is not large. However, despite our size, we wish to evolve pioneering models and demonstrate their feasibility to the larger upstream oil and gas segment to scale up for the benefit of our country.

HOEC lays strict emphasis on adhering to all environmental laws and regulations introduced by the Government of India.

HOEC's long-term vision includes striving towards being emission-free, and leaving a positive ecological footprint, through the use of technology. In order to achieve this, the company is committed to:

- **Developing a comprehensive Environmental Management System (EMS) to minimize waste and emission generation, thereby promoting operational efficiency.**
- **Assessing and monitoring the sustainability record of all service providers and contractors, to ensure that their goals align with those of HOEC.**
- **Enhancing the socio-economic and environmental quality of the local communities where the company operates.**
- **Establishing a plastic management system to track the amount of plastic used throughout the organization, and develop strategies to reduce the same.**
- **Utilizing the Health, Safety and Environment (HSE) department as a storehouse of expertise, which passes on all relevant knowledge to the Health, Safety and Environment Managers stationed at various sites.**
- **Performing comprehensive internal site audits before and during major operational activities, such as drilling and production, to ensure the adoption of adequate measures to protect surrounding air, water, land, and biodiversity.**
- **Conserve natural resources by focusing on environment-friendly and energy-efficient technologies in all our operations.**
- **Work with employees and local community to promote awareness programs periodically to familiarize with the EMS and its relevant procedures.**
- **Accounting for greenhouse gas emissions appropriately, and adopting measures to reduce the volume emitted.**
- **Integrating relevant sustainability practices into the design and construction of new facilities to adopt sustainable development.**
- **Devising a suitable water management system that would allow the company to recycle and reuse non-potable water, rather than disturbing freshwater sources in and around the communities where it operates.**
- **Identify good industry practices by utilizing the by-products from its operations, in order to prevent their release into the surrounding environment.**
- **Dedicating resources towards the research and implementation of new technologies and methodologies that would help the company in meeting its sustainability goals.**

HOEC Board and the Management is committed and passionate about conserving natural resources. The Management undertakes to implement and comply with the Environmental Policy, and expect that all the employees and service contractors' personnel to do the same.

Chennai, September 23, 2022

P Elango
Managing Director