



# NEWSLETTER

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## Introduction

ONGC Ahmedabad Asset is spread over an area of about 6200 km<sup>2</sup>. It has more than 1200 operational producing wells in 28 GGS and number of GCPs, ETPs, and CTF, in and around 60 km radius of Ahmedabad City. During production of oil from these producing wells, oil spills occur, accidentally or due to unavoidable reasons. This spill of oil also includes leakage of flow lines during transportation of crude oil from well sites to GGS and GGS to CTF stations. The spilled oil not only damages the agricultural land, but also poses environmental and safety hazards. Ahmedabad Asset intends to outsource the activity of land restoration and safe disposal of oil-soaked soil/sand through bioremediation to meet its legal, social, safety, and environmental obligations.

The Asset has a vast pipelines network, comprising nearly 6250 km of pipeline for carrying out transportation of oil. The oil spills are environmentally hazardous and hence need immediate action to clean up the contaminated areas, restoration of affected areas, especially at leakage points, and bioremediation of oil-soaked soil at designated pits at Ahmedabad to prevent environmental damages and restoration of cleanliness of work place.

## Broad Scope

The principal steps contained in the proposed bioremediation process are enumerated here.

- i. To execute the jobs of cleaning, lifting, transportation, land restoration (at leakage points), and bioremediation of oil-soaked soil/sand at designated pits at the Ahmedabad Asset.
- ii. The total jobs could be divided into the following five categories:
  - Cleaning and lifting of oil or oily sludge from the spillage area and its transportation, up to designated secured bioremediation pit. If the oil quality is found to be acceptable to ONGC, it would be handed over to the installation manager of the plant.
  - The quantity of the oil-soaked soil to be excavated highly depends on the actual affected volume of the soil.
  - Transportation of oily slush and excavated oily soil up to designated pit.
  - Refilling of the affected area by fresh soil or Bioremediated soil.
  - Bioremediation of oil-soaked soil in nearby secured bioremediation pits.
- iii) The quantum of job relies heavily on the frequency and severity of flow line leakages.



# Responsibilities of OTBL

The principal steps contained in the proposed bioremediation process are enumerated here.

- i. Cleaning of oil spill site(s).
- ii. Lifting/excavation of oily slush/soil.
- iii. Transportation of oily slush/soil.
- iv. Refilling of excavated land by fresh soil.
- v. Bioremediation of oily soil/oil-contaminated soil stored at the designated bioremediation site(s).
- vi. 'Oil Zapper' application on oily soil/oil-contaminated soil.
- vii. Collection of oily soil samples from bioremediation site.
- viii. Tilling of oil soaked soil in secured bioremediation pits.
- ix. After completion of bioremediation, the oil content in contaminated soil must be less than 0.5%. Unless a fish toxicity test will be done by a recognized lab. If non toxicity test confirms absence of toxicity, then bioremediation can be considered as complete.
- x. Submission of soil sample analysis results to the Ahmedabad Asset for testing in Regional Geochemical Lab.
- xi. Arrangement and deployment of adequate manpower and equipment.
- xii. Monitoring the rate of bioremediation.
- xiii. After completion of refilling, certificate of satisfactory completion is to be obtained from the concerned farmer(s) or sample from the refilled area(s). This is to be followed by a soil quality test, duly performed by a recognized lab.
- xiv. Preparation and submission of periodic test reports and job completion report to ONGC.
- xv. Obtaining statutory approvals and performing work in accordance with approvals defined above.
- xvi. Contractor shall ensure compliance with all HSE statutory norms while executing jobs at ONGC.
- xvii. OTBL shall be fully responsible for the safety and security of its personnel, equipment, and other assets.
- xviii. Carrying out the job of land restoration and bioremediation as per scope of the work.
- xix. Arrangement of fresh soil required to restore the excavated area.
- xx. Physical-chemical analysis of sample(s).
- xxi. The contractor shall comply, at his cost with the provisions of all laws, orders, rules, regulations, and notifications whenever central or state local as applicable to him or his contract from time to time.

## Disposal of Bio-remediated soil

After achieving remediation targeted criteria of TPH in contaminated soil fish toxicity of bioremediated soil is tested. Once treated soil is non-toxic then soil fertility is tested in Agricultural University Soil Testing Lab. If bioremediated soil is having any nutrient deficiency then organic nutrients and compost is added in soil to make the soil fit for agriculture and then bio-remediated soil is used for refilling of excavated site in farmers field.



Site I Before

Site I After



2<sup>nd</sup> Oilzapper application for bioremediation Well

