

PROJECT NOTE

Proposed BPCL's 10" diameter underground Pipeline from UCPL's SV – 2 Station (at Village Kasap) to proposed LPG Bottling Plant at Rasayani on erstwhile HOCL Plant area

Scope of Project

BPCL currently have Refineries at Mumbai and Kochi with a capacity of 12 Million Metric Tonnes per Annum (MMTPA) and 9.5 MMTPA respectively for refining crude oil. Presently BPCL's Kochi refinery is expanding from 9.5 MMTPA to 15.5 MMTPA and Numaligarh has a capacity of 3 MMTPA. Further, Bharat Oman Refineries Ltd. (BORL) a joint venture of BPCL has set up a state-of-art, grass root refinery with a capacity of 6 MMTPA at Bina, Dist. Sagar, Madhya Pradesh.

Bharat Petroleum Corporation Limited intent to expand its existing refining capacity with various petroleum products in Mumbai Refinery. LPG is one of the product is used by every household and in Industry. Looking at LPG demand in market we intend to construct LPG distribution facilities at Rasayani.

BPCL has purchased land from HOCL, near Rasayani for setting up LPG Bottling Plant consisting of LPG Loading / unloading of domestic and bulk filling Gantries, empty and filled cylinders. To feed LPG Bottling Plant at Rasayani it is proposed to 4.6 km of 10" diameter pipeline along with OFC cable taking tap-off from existing SV-2 Station of Uran Chakan LPG pipeline at Village Kasap on Savroli- Kharpada road.

The proposed pipeline shall have dedicated Tele-communication system and Supervisory Control and Data Acquisition (SCADA) system. The aim of SCADA is to ensure effective management and supervision of the pipeline operating from a centralized location using remote terminal units located along the pipeline. This system also will be used for leak detection. The proposed pipeline shall be protected against external corrosion by 3 LPE coating and internally by impressed Current Cathodic Protection system. The pipeline shall be laid along OFC for internal communication and data transfer.

Social Objectives and Benefits

Ministry of Environment & Forests has recommended that all bulk quantities of Petroleum Products be transported through well-designed pipelines to minimize risks in transportation by rail and road.

Transportation of petroleum products through pipeline is superior to other modes of transportation due to the inherent advantages of increased safety, reliability, reduced rail / road traffic congestion, minimal product loss in transit, lower energy consumption etc. Besides, pipeline projects are environment friendly by minimizing fugitive emissions /in transit risk.

The transportation through pipelines is the safest & environment friendly means of movement of large volumes of petroleum products.

It has the following advantages over other modes of transportation:

- i) Pipeline transportation requires the least energy as compared to other modes, including rail movement. Conservation of energy is a priority activity identified by the Govt. of India.

- ii) Pipeline transportation is environment friendly vis-à-vis rail / road movement. The environmental impact of the pipeline during construction, operation and maintenance phases is negligible. The environmental impact during construction is mostly reversible since, after laying the pipeline, the land is restored to normal use. During operation and maintenance of the pipeline, only a small quantity of effluent is generated at pumping stations and at terminals for which oil water separators are provided. These separators also take care of any oil and petroleum product spillage in the installation in a safe manner.
- iii) Pipeline transportation results in enhanced safety as there is minimum handling of product. The subterranean nature of the pipelines also makes them intrinsically safer than other modes of transportation.
- iv) Petroleum products being volatile in nature, certain losses during loading / unloading operations and during transportation are unavoidable. However, it is observed that these losses can be minimized in the pipeline mode. Experience shows that whilst pipeline transportation losses range between 0.1% to 0.15% the losses in the rail / road transportation are as high as 0.32% to 0.5% especially in lighter products, which are high value products.
- v) Natural calamities like floods, breaches, etc, disturb surface transport systems. As major part of the pipeline system traverses below the ground, the pipelines are normally less affected by natural calamities.
- vi) Transportation by modes other than pipelines, especially road, has an adverse effect on the environment through exhaust emissions apart from the wear and tear caused to the infrastructure like roads, leading to high maintenance cost for the economy.
- vii) Further, in case of pipelines, the land is restored back to its normal use after construction work is completed. In case of rail transportation, the land use pattern is permanently changed. In the pipeline option, it is possible to traverse even through very difficult terrain.

Project Status

The reconnaissance survey has been complete and route is finalized. The detailed engineering of the project is yet to be completed. The detailed pipeline route survey and soil investigation survey is in progress.

Pipeline Route and Description:

Pipeline will start after taking take off from existing SV-2 station of Uran-Chakan Pipeline. The pipeline shall be laid underground along with OFC. The pipeline will traverse along road shoulders of Savroli - Kharpada Road (SH - 104) and will travel upto road corner near Siddheshwari Auto stand for 2.2 kms. Further it will take left turn towards Patalganga River bridge travelling along road shoulders and cross Patalganga River by Horizontal Directional Drilling (HDD) method and moves to Dhand Apta Road (SH - 107) for 1.1 km and takes left turn towards Apta moving on road shoulder of SH-107 upto HOCL's Rasayani Plant Main Gate and enter inside the premises to proposed LPG Bottling Plant site for 1.3 km.

The total pipeline length will be 4.6 kms from SV-2 station of UCPL pipeline take off point to proposed LPG Plant at Rasayani inside HOCL's plant area.

The salient features of the proposed pipeline is as below:

1. Pipeline Parameters	10" NB , API 5L, PSL2, X-60, LSAW
2. Pigging Facilities	Pigging facilities shall be provided at SV-2 station
3. Pipeline length	4.6 km
3. External Coating	3 layer PE for onshore, CTE with concrete coating /other suitable coating will be provided
4. Design Pressure	88 Kg/cm ²
5. Design Temperature	Buried : 45 Deg. C Above Ground : 65 Deg. C
6. Subsoil temperature :	25° C (1.5 meter below ground)
7. Design code	ASME B31.4 & OISD guidelines will be followed as applicable. However, in case of contradictory stipulations, the stringent condition will prevail
9. Corrosion protection system	External protection - PE for On shore portion and CTE with concrete coating /other suitable coating will be provided. - Cathodic protection by impressed current for buried portion of pipeline will be provided
10. SCADA monitoring and Control	The SCADA system aims at ensuring effective and reliable control, management and supervision of the pipeline from a centralized location using remote terminal units (RTUs) along the pipeline route at suitable location.
11. Telecommunication facilities	A telecommunication system is provided for supporting voice, data and video communication along the pipeline. This would include an optical fiber system and mobile communication system. A reliable and dedicated communications system to interact between all stations including Sectionalizing valve stations across the entire pipe line shall be designed and installed and maintained to ensure safe operations under both normal and emergency situations.