Mangalore Chemicals
& Fertilizers Limited

PREFEASIBILITY PROJECT REPORT
(PPR)

ON

INSTALLATION OF LNG STORAGE
AND
REGASIFICATION FACILITY

SEPTEMBER 2016

MANGALORE CHEMICALS & FERTILIZERS LIMITED
PANAMBUR, MANGALORE – 575 010.

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1. Introduction

Mangalore Chemicals & Fertilizers Ltd (MCF) is an 'Adventz' Group Company, a large and diversified business house. The main products of MCF are Urea, Di-Ammonium Phosphate (DAP), NP 20:20:00:13, Ammonium Bi-Carbonate (ABC) - Food grade, Sulphuric Acid, Specialty Mixtures of Plant Nutrients consisting of Water Soluble Fertilizers, Micronutrients & Soil Conditioners and an Industrial Product called Sulphonated Naphthalene Formaldehyde (SNF) used in construction industry.

MCF is the only manufacturer of chemical fertilizers in the state of Karnataka. The factory is strategically located at Panambur, 9 km north of Mangalore City, on the banks of the Gurpur River, along the National Highway 66, opposite to the New Mangalore Port Trust. MCF is an ISO 14001, OHSAS 18001 and ISO 22000 certified Company.

The consented capacity for the intermediates and products manufactured are as below:

Sl. No.	Product	t/y
1	Ammonia	2,40,900
2	Urea	4,19,750
3	DAP & NP (16:20 & 20:20)	4,01,500
4	Ammonium Bicarbonate (ABC)	24,750
5	Sulphuric Acid	1,46,000
6	Sulphonated Naphthalene Formaldehyde	85,000
7	Speciality mixtures of plant nutrients	2,21,000
8	Handling of imported fertilizers	4,00,000

Construction of Ammonia and Urea plants commenced in 1972 and commercial production started in 1976. Di-ammonium Phosphate (DAP) production commenced during 1986. Commercial production of Ammonium Bicarbonate started in 1982. Sulphuric Acid Plant was commissioned during March 2006. Captive Power Plant consisting of 8 Diesel Generators of 6 MW each were commissioned during 1986. The power plant has been revamped in 2012-2014.

A new construction chemical product Sulphonated Naphthalene Formaldehyde facility was installed in 2010 as part diversification. MCF also has installed a Speciality fertilizer plant to make Water Soluble Fertilizers & Micronutrients in 2011.

2. Need for the project:

At present naphtha is used as feed stock and fuel for Ammonia plant. However, as per mandate from Department of Fertilizer (DOF), Government of India, MCF converted its Ammonia plant to operate on natural gas (NG). Also, fuel for boiler and power plant were converted from furnace oil to NG. MCF has signed Gas Supply Agreement (GSA) with Indian Oil Corporation and Gas Transmission Agreement (GTA) with GAIL (India) Ltd. for supply of NG through the proposed line from M/s. Petronet LNG Ltd (PLL), Kochi to Mangalore. The pipe laying work by GAIL was not yet completed due to ROU issues in Kerala. Hence NG is not made available at Mangalore. The plant was forced to shutdown in 2014 as Department of Fertilizer discontinued subsidy for naphtha based plants. However, later new policy issued dated 17.06.2015 by DOF has enabled us to run on naphtha till NG is made available.

MCF now intends to meet their part requirement by supply of NG through road tankers and by installing a regasification facility at their premises at Panambur. This will help to reduce the subsidy burden on GOI and also to reduce the emissions from the plant.

PLL will supply NG through a private contractor. The contractor will install the necessary storage and regasification facility at MCF premises and supply NG through road tankers. Once this installation of facility is completed, part of feed/ fuel requirement of fertilizer complex will be met by the new facility.

3. Process Description:

LNG will be loaded at PLL Kochi terminal and transported by road tankers each @16-20 tons capacity through road. On arrival at MCFL site, it will be unloaded to storage tanks by means of the unloading pumps located in the new facility as shown in the figure 1. There will be 4 numbers of storage tanks and total capacity is 1060 kL.

The liquefied NG from the storage tank will be pumped by the high pressure pumps as required by the plant and vaporized by the means of ambient air vaporizers. The facility will have skid to control flow and pressure as required by the plant. A local control room with PLC based system will be installed at the vicinity of the storage to control the regasification facility.

The regasified LNG will be connected to the already existing NG network installed inside the battery limits to cater to the various needs of the plant.

4. Salient features of the project

The salient features are as follows:

Total capacity of tanks	:	1060 kL
Total NG handled	:	150,000 tons per year
Site location	:	Inside MCFL premises at Panambur
Capacity of tankers	:	16-20 t
Project cost	:	Rs.100 crores

The storage tanks are cryogenic in nature and pressure is near to atmospheric.

5. Environment Management

The proposed storage/regasification facility will not have any impact on the environment. In fact NG being a cleaner fuel will reduce the SO_2 emission and carbon foot print of the site.

The risk assessment study will be carried out by a reputed consultant and all precautions will be taken to mitigate the risk identified.

No additional natural resources like water will be required for this project and drinking water requirement will be met from the existing facility.

No effluent will be generated from the project.

Any washings and cleaning of the floor will be collected and sent to water recovery plant.

6. Safety:

All safety measures including emergency stop system, methane sensors, fire hydrant monitors will be installed for the safety of the installation in accordance with the standards approved by Petroleum and Explosives Safety Organization (PESO).

All safety personnel protection equipment (PPE) will be used during operation of the plant. Separate risk assessment due to installation of the facility will be carried out. All the necessary PESO norms will be followed and necessary approvals will be obtained.

7. Green Belt:

MCF has already developed and maintained a green belt covering an area of about 64 acres. The green belt contains around 63,000 trees of different species viz. Mangium, Casurina, Subabul, Acacia, Gulmohar, Jack, Cashew, Mango, Banyan, Peepal, etc.

The project will include procurement and movement of LNG road tankers by the contractor. The contractor will also build own and operate the facility at MCF premises.