Lender's Independent Engineer Report for Energy Improvement Project of Ammonia Plant of Mangalore Chemicals & Fertilizers Limited situated at Panambur, Mangalore as on 30th June, 2022

RBSA Advisors

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Executive Summary

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1. Executive Summary

To,

State Bank of India,
Commercial Branch, 1st Floor,
Krishi Bhavan, Hudson Circle,
Bengaluru – 560 001, Karnataka.

RBSA Valuation Advisors LLP ("RBSA" or "RBSA Advisors") has been appointed by State Bank of India ("SBI" or "Bank" or "Client"), Commercial Branch, Bengaluru, Karnataka vide SBI engagement letter Ref. No.: CBB/RM-I/MCFL/2021-22/96 dated 9th December, 2021 to provide Lender's Independent Engineer ("LIE") services for Energy Improvement Project of ammonia plant ("EIP" or "Project") of Mangalore Chemicals & Fertilizers Limited ("MCFL" or "MCF" or "Company") situated at Panambur, Mangalore – 575 010, Karnataka for funding from Punjab National Bank, State Bank of India and ICICI Bank.

Reference: Our previous report details are mentioned below,

Report	Report Reference No.	Project Status for the Quarter	Inspection date	Report date
1st LIE Report	RVA2122BTFAREP051	Dec-21	11th January, 2022	17th March, 2022
2nd LIE Report	RVA2223BLRREP008	March-22	21st April, 2022	29th June, 2022

Pursuant to instructions from Bank and our above mentioned previous report submitted to Bank, we have inspected the Project on 28th July, 2022 (Inspection date) to estimate the work progress of civil work, plant and machinery of the Project as on 30th June, 2022 (Project status date). We assume that there is no material change in work progress as on Project status date and Inspection date.

Project Description

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2. Project Description

The Plant

Mangalore Chemicals & Fertilizers Limited is situated at Karnataka Industrial Area Development Board (KIADB), Panambur, Mangalore. Ammonia and Urea plant was designed and commissioned in 1976 by Jacobs Engineering (erstwhile H&G) based on naphtha steam reforming. Furnace oil was used as fuel for boiler and captive power plant. The Urea plant is designed based on CO_2 stripping technology by Stamicarbon. The Ammonia plant and captive power plant were converted to operate on natural gas (NG) in the year 2014.

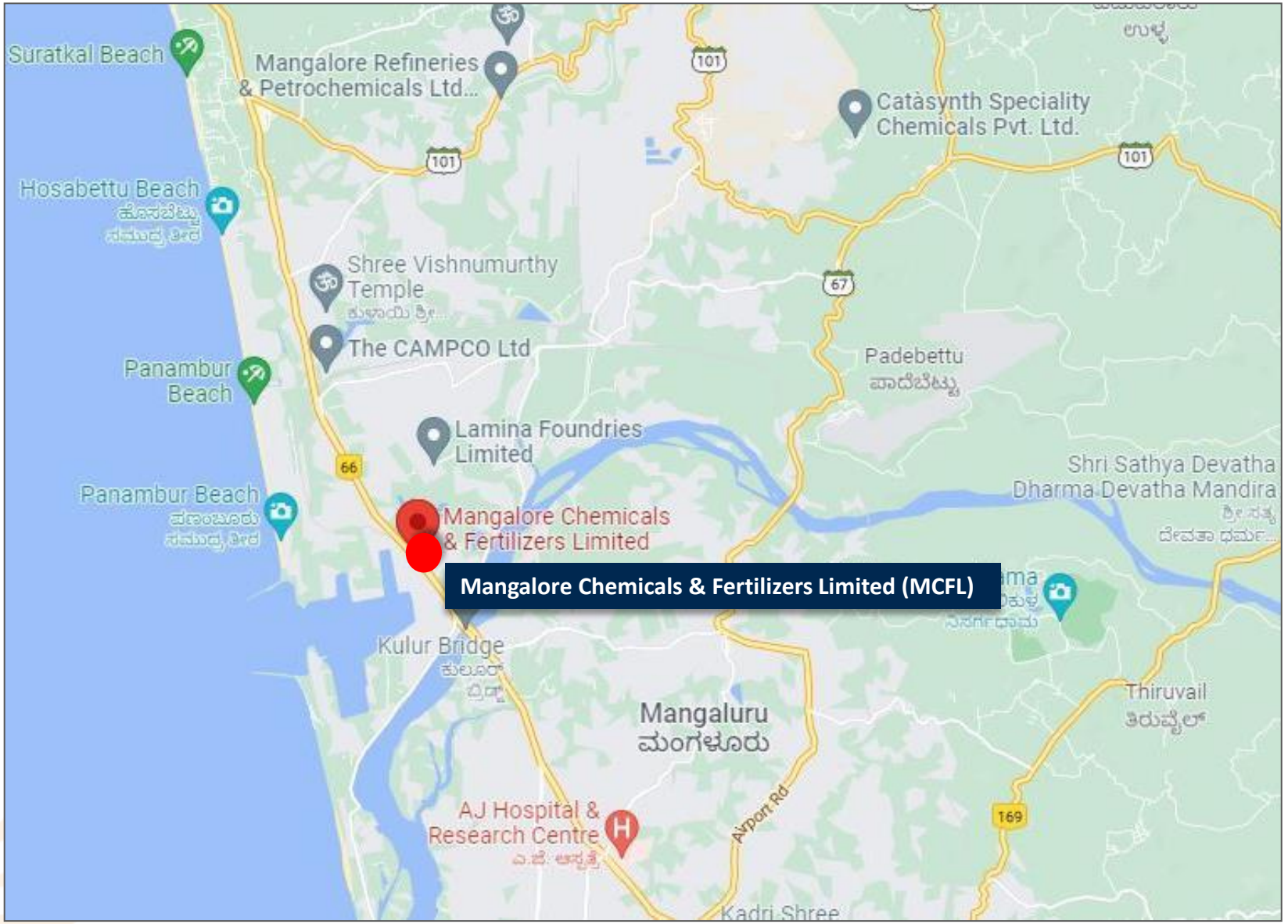
Government of India (GOI) announced new Urea policy No. 12018/4/2014-FPP on 17th June, 2015 which mandated Specific Energy Consumption (SEC) for MCF as 6.5 Gcal/t of Urea from 2018-19 onwards. This policy is further amended by the Notification dated 28th March, 2018 thereby existing norms of Urea was continued for two years or MCFL gets the pipeline connectivity, whichever is earlier.

Gas Supply Agreement (GSA) was signed with M/s. GAIL India Limited on 26th February, 2020 for supply of NG from Petronet, Kochi and supply was started from December 2020. Energy consumption in ammonia plant is high. The SEC for manufacture of Urea mainly depends upon SEC of Ammonia plant. Hence, it is proposed to bring down SEC of Ammonia plant by its revamp and modernization.

Source: Company

2. Project Description

Location Map / Route Map



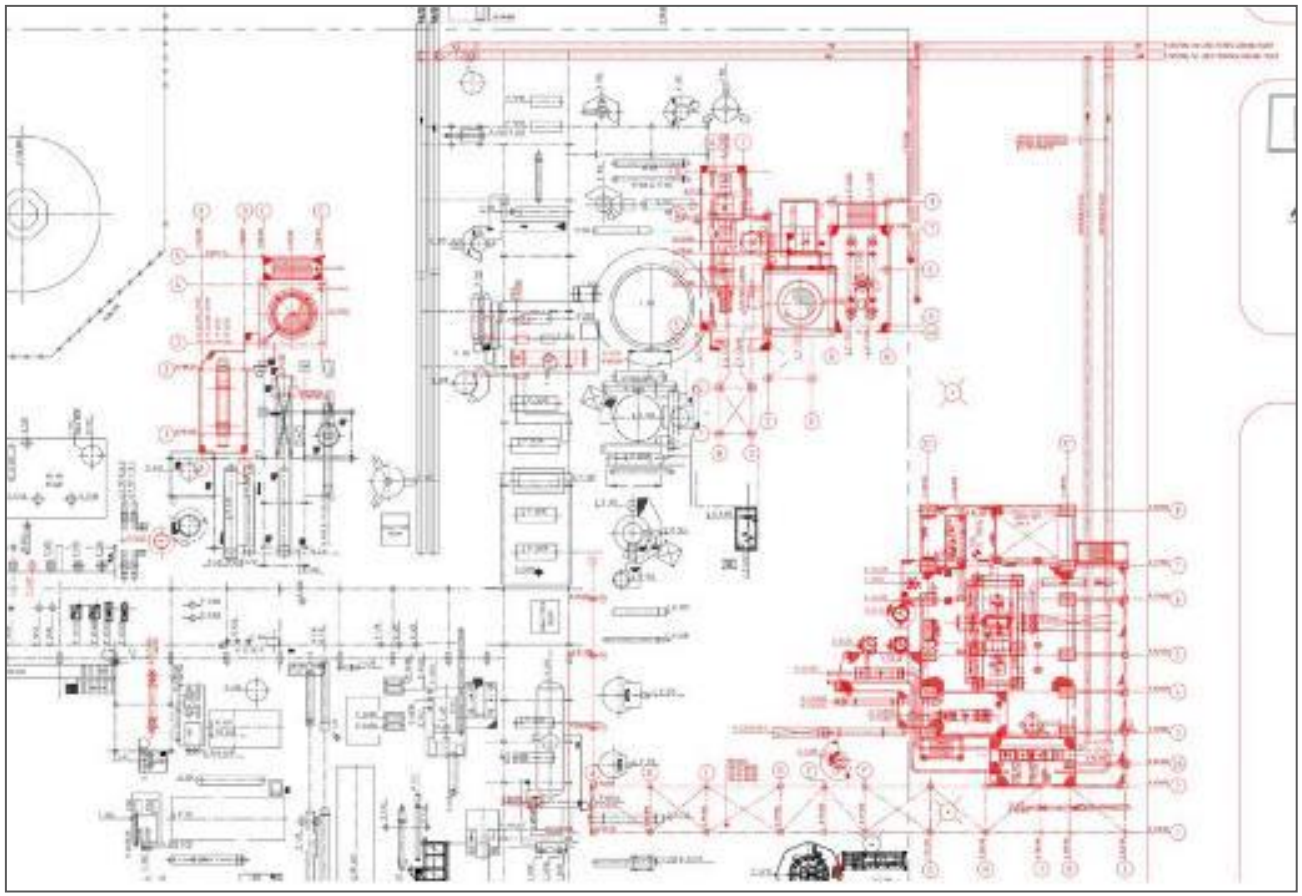
Source: Google maps and RBSA analysis

2. Project Description

Project Overview

To reduce the specific energy consumption and to increase the capacity, the Company has decided to revamp the existing plant by implementing the Energy Improvement Project (EIP). Accordingly, feasibility study was carried out by two reputed ammonia technical licensors viz., M/s. Kellogg Brown & Root LLC (KBR) and M/s. Haldor Topsoe A/S (HTAS). Both technical licensors completed the study and submitted the final report. It was decided by the Company to carry out Energy Improvement Project by incorporating the modifications suggested by KBR in their report.

The major modifications are in the Flue Gas section of the reformer, CO_2 removal section and Ammonia Synthesis section. New Syngas compressor was proposed in place of existing compressor. Refrigeration circuit and steam system to be optimized. New medium pressure stripper to be installed to reduce Ammonia emission to atmosphere.

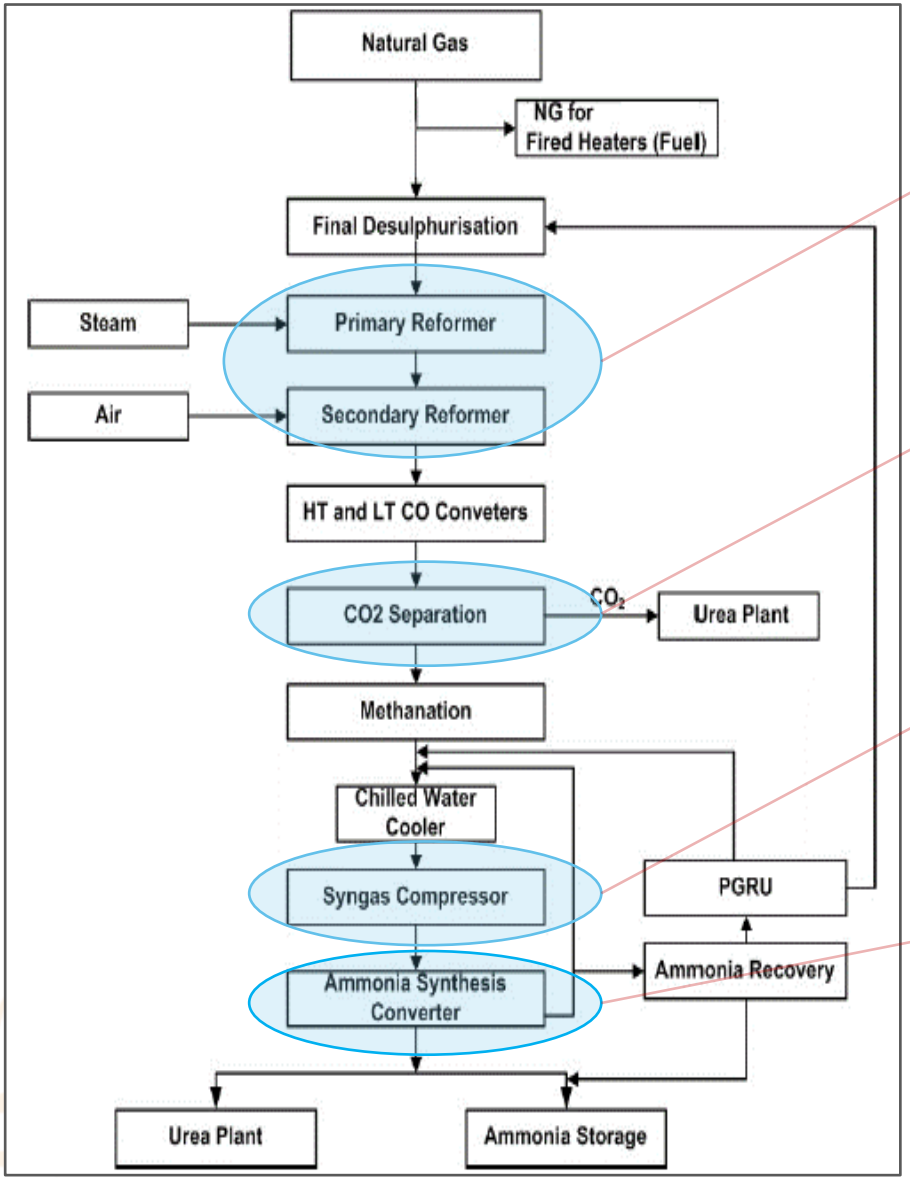


Draft Plant & Machinery Layout showing area earmarked of Energy Improvement Project (EIP) in the existing MFCL Plant

Source: Company

2. Project Description

Process Flow Chart of Ammonia Unit



Source: Company and RBSA analysis

Proposed Changes under EIP

- Addition of a new NG feed preheat coil.
- Addition of new mixed feed preheat coil.
- Replacement of coils of super heater coil.
- Replacement of air preheater.

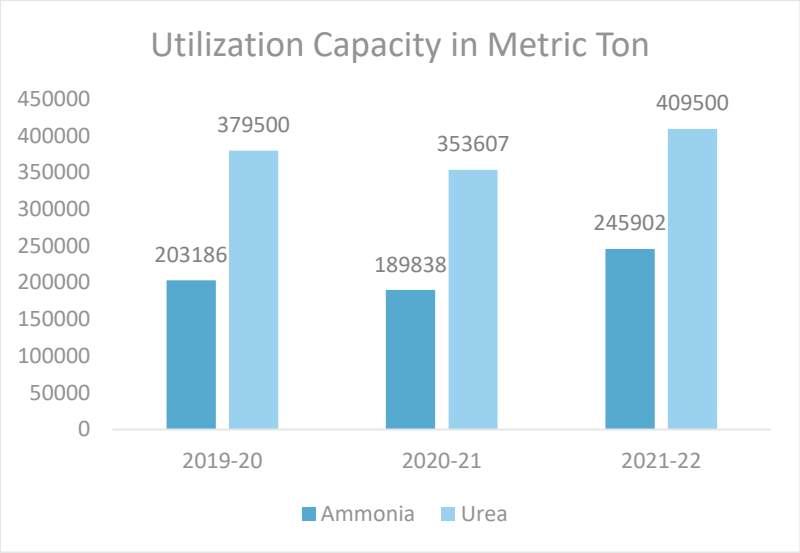
- Additional LP strippers.
- Booster compressor.
- Additional heat exchanger and pumps.

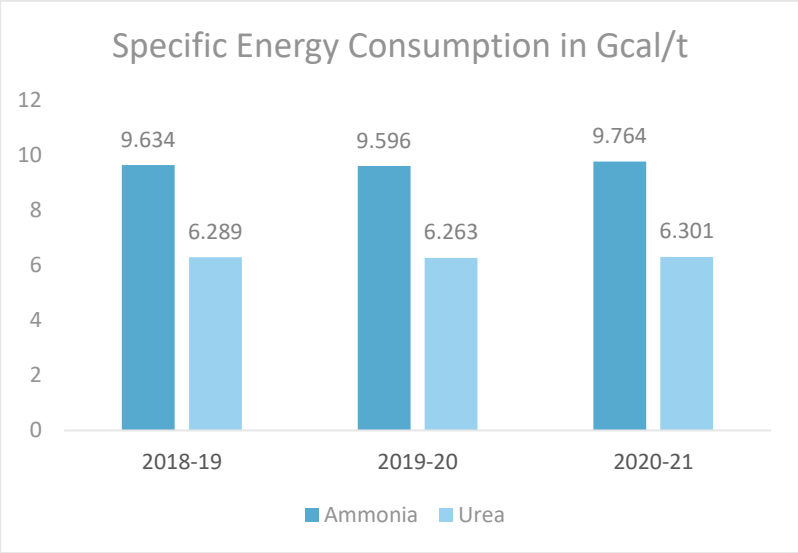
- Existing electrical motor driven syngas compressor will be replaced by steam turbine driven syngas compressor.
- New Intercoolers to reduce pressure drop across the gas section.
- Additional chiller and dehydrator.

- Add-on convertor in series with existing one.

2. Project Description

- Present/ reassessed installed capacity of urea plant is 3,79,500 MT per annum and present SEC is 6.3 Gcal/t. The SEC for manufacture of urea mainly depends upon SEC of ammonia plant. As per data provided by Company, individual capacity of ammonia plant is 2,17,800 MT per annum and SEC is around 9.6 Gcal/t.
- Capacity utilization and specific energy consumption of urea and ammonia plant for last 3 years is as follows,





Source: Company

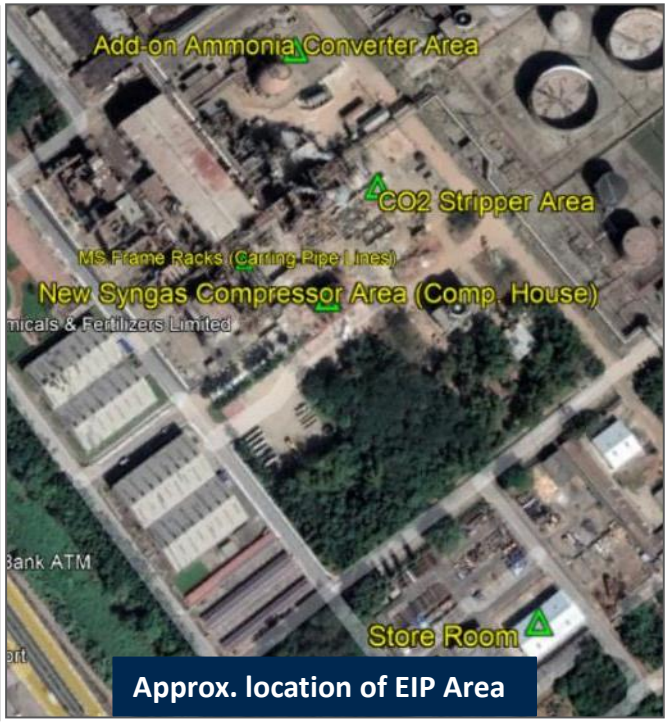
- As per information provided by Company, due to EIP, overall efficiency of the plant will be increased which in turn will result in increase of capacity of urea and ammonia plant. As per data provided, the proposed capacity (post completion of EIP) of urea plant and ammonia plant will be 4,29,000 MT per annum and 2,90,400 MT per annum respectively.
- The SEC, post completion of EIP, of urea plant would be 5.5 Gcal/t and ammonia plant would be 7.95 Gcal/t.

2. Project Description

Civil Work

- As per copies of drawings provided by Company, the under construction Energy Improvement Project (EIP) mainly comprises of New Syngas Compressor Area, CO_2 Stripper Area and Add-on Ammonia Converter Area which foundations are supported by piling works and along with MS Frame structure for laying of pipe lines and material storage Godown.

Existing Plant marking with approx. location of EIP Area



Approx. location of EIP Area

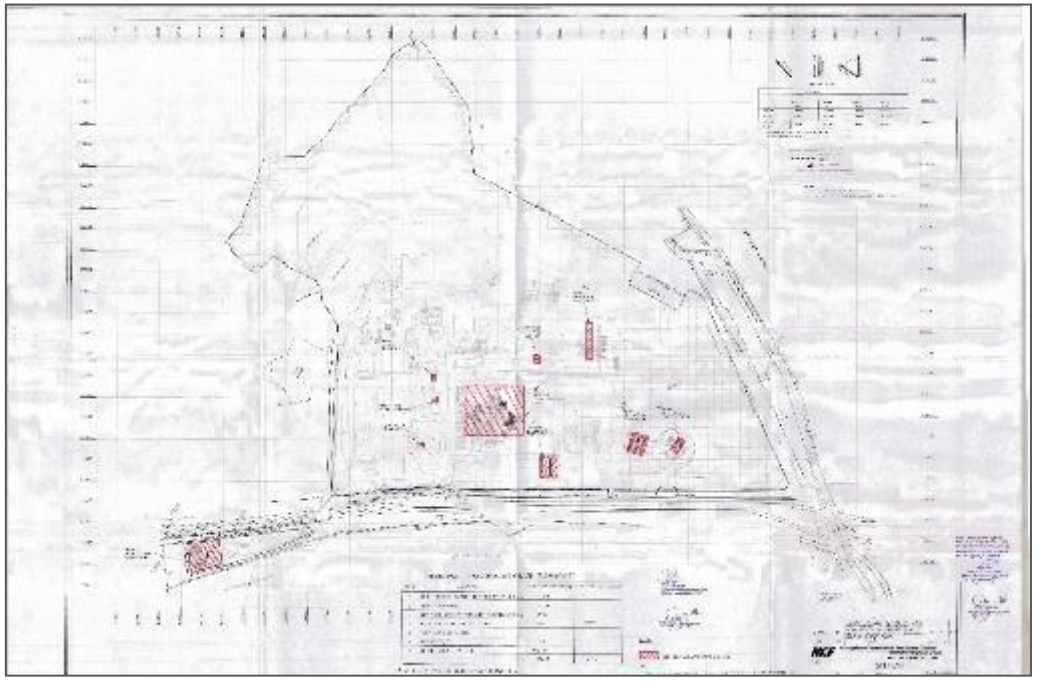
Source: Google earth and RBSA analysis

During inspection it has been observed that, the major civil works are in form of Pile foundation and RCC works. As per our site inspection it has been observed that the piling work and construction of RCC structure has been completed in all main areas. Further it has been observed that, MS Frame structure work in all main areas is in progress and nearing completion and the store room for material storage has been completed.

Further it has been understands that, major civil works has planned to built for equipment foundation and it's supporting works.

2. Project Description

- As per copy of "Building Approval Letter and Site Plan" issued by Director, Dept. of Factories, Boilers, Industrial Health & Safety, Bengaluru by Dept. of Factories, Boilers, Industrial Health & Safety dated 29th September, 2018, the Energy Improvement Project (EIP) has been approved under overall additional developments proposed at MCFL Plant.



Source: Company

- As per the copy of above approved building plan, built-up/ plinth area details of proposed buildings are not mentioned. As per dimensions of building in plan, plinth area of New Syngas Compressor Area is as follows:

Sr. No.	Particulars	Dimensions (M)			Plinth Area (SMT)
		Length	Breadth	Height	
1	New Syngas Compressor Area	25.20	16.70	24.50	420.84

- Further as per dimensions material go-down mentioned in working drawings provided by company, plinth area of material go-down is as follows :

Sr. No.	Particulars	Dimensions (M)			Plinth Area (SMT)
		Length	Breadth	Height	
1	Material go-down	30.05	15.55	5.70	467.20

2. Project Description

As per data provided by MCFL, list of equipment's procured for the Project is as follows,

Sr. No.	Description	Quantity (in Nos.)
	Equipment list	
A	**Syngas Compressor**	
1	Syngas compressor (Q/K-5401 (BH)	1
2	Surface condenser (Kelvion)	1
B	**Add on Converter**	
1	Add-on Synthesis Converter (V-5401)	1
C	**Catalyst**	
1	Add-on Convertor catalyst	1
2	Primary reformer catalyst	1
D	**Furnace related including Air preheater**	
1	Air Pre Heater APH (F-5207)	1
2	H-5305 A & B	1
3	Suction air chiller H-5201 and Filter	1
E	**CO_2 Removal upgrade**	
1	CO_2 Booster compressor (K-5300)	1
F	**Heat exchangers**	
1	H-5256	1
2	H-5301	1
3	H-5302	1
4	H-5310	1
5	H-5312	1
6	H-5313	1
7	H-5402	1
8	H-5403A	1
9	H-5403B	1
10	H-5404	1
11	H-5406	1
12	H-5412	1
13	H-5413	1
14	H-5411	1
15	Methanator Exchanger	1

Sr. No.	Description	Quantity (in Nos.)
G	**Vessels and columns**	
1	V5302	1
2	V-5309	1
3	V-203	1
4	V-5411	1
5	V-5412	1
6	V-5425	1
7	V-5405	1
8	V-5305	1
9	V-5501	1
10	V5302 take off tray & FF distributor	1
11	Vessel Internals	1
12	Weight assisted check valve	2
H	**Pumps, Turbines**	
1	Centrifugal pumps	Lot
2	Q-5203A (Boiler Feed water Turbine)	1
3	UHS condensate transfer pump	1
I	**Other Equipment & Spares**	
1	Combustion air duct replacement	Lot
2	Combustion air duct replacement	Lot
3	Lube Oils	Lot
4	Makeup packings for V-301 & V-302	Lot
5	Anti foaming Agent	Lot
6	ACT-1	Lot
7	Potassium Carbonate	Lot
8	Ammonium meta vanadate	Lot
9	Caustic Soda	Lot
10	Caustic Soda	Lot
11	Self Actuated Valve-1	1
12	Rotameter -1	1
13	Mass flow meter-1	1

2. Project Description

Sr. No.	Description	Quantity (in Nos.)
14	Flow Elements(29 Orifice + 6 RO)	35
15	Conductivity Analyzer-2 no	2
16	Transmitters(43 FT,7 DPT, 62 PT, 43 LT, 98 TT, & 7 spare)+manifold	260
17	Level gauges-10	10
18	Instrumentation Cables	79 600
19	Temperature gauges, element, thermowell & Pressure gauges (89 TE, 38 TG,69 PG)	196
20	MV cables	1210
21	Silencer	2
22	Strainers	14
23	Steam traps	35
24	Supports	Lot
25	APC Hardware	Lot
26	DCS Upgrade	Lot
27	Process desuperheater station	1
28	Copper cables	Lot
29	RO Inlet flowmeter	Lot
30	Kaolite 2500-LI (Make: Thermal ceramics,	Lot
31	High Pressure Stop Valve ASM19-3" 1500#	Lot
32	Butterfly valve	Lot
33	Ammonium Metavanadate	Lot
34	Diaphragm Seal level Transmitter	Lot
35	Seal water system for P302AB & Other pumps	Lot
36	EOT Crane	1
37	Electronic Governors	Lot
38	Steam desuperheater with Control Valve	1
39	AI-412/414 Analyzer	1

Source: Company

Photographs

3

3. PHOTOGRAPHS

Factory Buildings

View of new Syngas Compressor area

View of CO_2 stripper area

View of Add-on Ammonia converter area

View of material storage godown

3. PHOTOGRAPHS

Plant and machinery

Syngas Compressor

Process control room

CO_2 stripper column

EOT crane at Syngas Compressor section

3. PHOTOGRAPHS

CO_2 booster compressor

Add-on Convertor

Heat exchangers for add-on convertor

Seal water system

Documents Received

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4. Documents Received

The list of documents provided by Company for 3rd LIE is as follows:

A	Copies of Documents / Data's:
1	Revised Project Cost with revised summary
2	Revised Project Implementation Schedule – Mail Dated 16th September, 2022
3	Purchase Orders (Multiple)
4	Utilization Certificate dated 16th July'22 for 30th June'22 **– Refer Exhibit 'A'**
5	Utilization Certificate - Detailed Excel Break-up of Amount Spent Till 30th June'22
6	Detailed revised break-up for Bulk & Site construction (INR 107.32 Crore)
7	Utilization capacity data for Ammonia and Urea for last 3 years
8	Health test certificate for existing Reformer tubes**– Refer Exhibit 'B'**

Source: Company

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Approvals & NOC's

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5. APPROVALS & NOC's

The list of requisite approvals required/obtained as on date is as follows:

Sr. No.	List of Approvals / NOC's	Approving Authority	Reference No.	Date of Approval	Validity	Status	Remarks by RBSA
1	Environmental Clearance for Expansion cum Modernization of Fertilizer Plant of MCFL	Ministry of Environment, Forest and Climate Change	F. No. J-11011/159/2016-IA-II(I)	14-Aug-18	NA	Obtained	
2	Approved Building Plan	Director, Dept. of Factories, Boilers, Industrial Health & Safety, Bengaluru	KADAAN/FPL-S/FPN/CR - 112/018-19	29-Sep-18	NA	Obtained	
3	Consent for Expansion of the unit in the Existing premises under the Water (Prevention & Control of Pollution) Act,1974 & the Air (Prevention & Control of Pollution) Act, 1981	Karnataka State Pollution Control Board	Consent Order No: CTE-311632 and PCB ID: 10259	23-Mar-19	23-Nov-23	Obtained	
4	Consent for Operation for existing plant	Karnataka State Pollution Control Board	Order No. AW-326396	25-Aug-21	30-Jun-26	Obtained	
5	Consent For Operation (CFO)	Karnataka State Pollution Control Board	---	---	---	Applied	Received the acknowledgement

Source: Company and RBSA analysis

Note: As per information provided by the Company, Energy Improvement Project (EIP) is an integral part of existing plant. Hence, approvals and NOC's related to operations of existing plant are valid & applicable for EIP project.

Total Project Cost

6

6. Total Project Cost

As per data provided by Company, the revised Project cost of Energy Improvement Project (EIP) is as follows:

Sr. No.	Details	Category	Estimated cost for 2nd LIE	Revised Estimated cost for 3rd LIE	Reason for variation in Cost
			INR	INR	
1	Equipment	Syngas Compressor	81 20 56 000	81 32 27 514	Increased due to fluctuation in exchange rate for balance payment.
		Syngas compressor service	--	2 94 13 238	New contract for erection, commission and training of Syngas compressor.
		Add on Converter	52 41 22 000	52 41 22 000	--
		Catalyst	6 77 88 000	7 18 41 777	Increased due to addition of freight charges.
		Reformer Tubes	19 44 58 000	--	Removed from Project
		Furnace Related	8 99 36 000	8 99 94 647	Increased due to addition of freight charges.
		Furnace Related service	--	56 05 000	New contract for erection and pre-commission of air pre-heater.
		CO_2 Removal upgrade	10 38 33 000	10 38 33 000	--
		Heat exchangers	29 21 00 000	29 21 00 000	--
		Vessels and columns	14 28 02 000	15 48 53 124	Increased due to addition of vessel (V5302).
		Pumps and Turbines	4 45 00 000	4 67 73 013	Increased due to addition of Condensate transfer pump.
		Other Equipment	18 11 74 000	20 04 70 764	Increased due to addition of new equipment
2	Services	Bulk & Site Construction	82 78 04 000	1 07 31 92 715	Increase due to additional work and additional material purchased as per site requirement.
		License & Engineering	28 36 40 000	28 36 40 000	--
		Contingencies & Pre-Operative Expenses	11 57 87 000	5 00 00 000	To cover future additions, if any.
3	Financial Charges	IDC and other	27 00 00 000	30 00 00 000	Increased due to extension in date of commercial operation.
		Total Amount	**395 00 00 000**	**403 90 66 792**	

Source: Company

- As informed to us, Project cost is inclusive of applicable taxes.

6. Total Project Cost

- It has been observed that Project cost is revised from INR 395.00 Crore to INR 403.90 Crore and revised Project cost is excluding the cost of reformer tubes and its accessories. As per our discussion with the Company, we understand that the supply of new reformer tubes have been delayed due to post Covid issues at vendors end and rescheduled in the month of February 2023. Hence, the new reformer tubes will be installed during next shut down of the plant, scheduled in the month of March 2023.
- However, to complete the Project as per schedule, Company has decided to continue with existing reformer tubes till March 2023. Hence, to confirm on the fitness of existing reformer tubes, a third party was appointed by the Company, to carry out the health survey of existing reformer tubes. As per third party report, the existing reformer tubes were found fit to use (refer Exhibit B) and hence the Company has excluded the cost of new reformer tubes and its accessories from the Project cost.
- Further, we were informed that increase in cost of Project i.e., INR 8.90 Crore will be borne by Company.

As per data provided by Company, the breakup for revised cost of Bulk & Site Construction is as follows,

Sr. No.	Bulk & Site Construction	Cost as per 2nd LIE (INR)	Cost as per 3rd LIE (INR)
1	Mechanical valves and check valves	9 16 70 497	10 08 07 618
2	Pipes and fittings	10 93 20 156	22 90 95 824
3	Flanges, Special fittings, Fasteners, Gaskets, Spring supports & Steam traps	4 94 59 360	5 10 47 983
4	Pipe rack & structural	6 28 80 417	11 94 10 802
5	Civil construction & Contract	10 00 25 001	10 00 25 001
6	Gratings	1 48 47 000	1 55 76 148
7	Paint	1 00 72 000	1 36 21 837
8	Insulation	62 91 000	1 97 71 902
9	Mechanical contract for Erection and Instrument & Electrical installation jobs	36 90 01 247	40 95 98 600
10	Civil works for storage	80 00 000	80 00 000
11	Other Miscellaneous Work	62 37 000	62 37 000
	Total Amount	**82 78 03 678**	**107 31 92 715**

6. Total Project Cost

Means of Finance and Draw Down Schedule

As per data provided by Company, the planned means of finance with respect to project cost of Energy Improvement Project (EIP) is as follows:

Sr. No.	Particulars	Planned
1	Total Project Cost	395 00 00 000
2	Draw down schedule (Debt)	280 00 00 000
3	Cost incurred by Promoter (Equity)	115 00 00 000
4	Debt Contribution in % (Debt Contribution against Total Project Cost is 71%)	70.89%
5	Equity Contribution in % (Equity Contribution against Total Project Cost is 29%)	29.11%

As per the data provided by the Company, revised disbursement schedule is as follows:

(INR in Crore)

Sr. No.	Description	FY 21-22								FY 22-23					Total
		Aug'21	Sep'21	Oct'21	No'21	Dec'21	Jan'22	Feb'22	Mar'22	Apr'22	May'22	Jun'22	July'22	Aug'22	
1	Punjab National Bank	11.08	27.16	0.00	0.00	0.41	1.52	7.70	5.29	28.65	22.72	22.83	3.47	39.17	170.00
2	State Bank of India	0.00	0.00	0.84	1.71	4.49	4.37	3.97	18.69	6.97	11.43	6.12	16.12	0.28	75.00
3	ICICI Bank	0.00	0.00	10.00	10.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.00
Total		**11.08**	**27.16**	**10.84**	**11.71**	**19.90**	**5.89**	**11.67**	**23.98**	**35.62**	**34.15**	**28.95**	**19.59**	**39.45**	**280.00**
Cumulative Total		**11.08**	**38.24**	**49.08**	**60.80**	**80.70**	**86.59**	**98.26**	**122.24**	**157.86**	**192.01**	**220.96**	**240.55**	**280.00**	

Source: Company

6. Total Project Cost

As per data provided by the Company, details of actual disbursement amount – bank wise (till June, 2022) is as follows:

Sr. No.	Particulars	Actual Disbursement Till 30th June'22
1	Punjab National Bank	127 36 26 193
2	State Bank of India	58 60 30 563
3	ICICI Bank Limited	35 00 00 000
	Total Amount	**220 96 56 756**

Review of draw down schedule (planned disbursement) vs. Actual disbursement (till June, 2022) is as follows:

(INR in Crore)

Sr. No.	Description	FY 21-22								FY 22-23			Total
		Aug'21	Sep'21	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22	Apr'22	May'22	June'22	
Draw Down Schedule (Planned Disbursment):													
1	Punjab National Bank	11.08	27.16	0.00	0.00	0.41	1.52	7.70	5.29	28.65	22.72	22.83	127.36
2	State Bank of India	0.00	0.00	0.84	1.71	4.49	4.37	3.97	18.69	6.97	11.43	6.12	58.60
3	ICICI Bank	0.00	0.00	10.00	10.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	35.00
Total (INR in Crore)		**11.08**	**27.16**	**10.84**	**11.71**	**19.90**	**5.89**	**11.67**	**23.98**	**35.62**	**34.15**	**28.95**	**220.96**
Cumulative Total (INR in Crore)		**11.08**	**38.24**	**49.08**	**60.80**	**80.70**	**86.59**	**98.26**	**122.24**	**157.86**	**192.01**	**220.96**	
Actual Disbusment:													
1	Punjab National Bank	11.08	27.16	0.00	0.00	0.41	1.52	7.70	5.29	28.65	22.72	22.83	127.36
2	State Bank of India	0.00	0.00	0.84	1.71	4.49	4.37	3.97	18.69	6.97	11.43	6.12	58.60
3	ICICI Bank	0.00	0.00	10.00	10.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	35.00
Total (INR in Crore)		**11.08**	**27.16**	**10.84**	**11.71**	**19.90**	**5.89**	**11.67**	**23.98**	**35.62**	**34.15**	**28.95**	**220.96**
Cumulative Total (INR in Crore)		**11.08**	**38.24**	**49.08**	**60.80**	**80.70**	**86.59**	**98.26**	**122.24**	**157.86**	**192.01**	**220.96**	

Source: Company

Note: As per our review it is observed that, actual disbursement is in line with draw down schedule as on 30th June, 2022.

Verification of Work Progress

7

7. Verification of Work Progress

Work Progress of Factory Building is as follows

Sr. No.	Particulars	Type of Structure	Type of Roof	Status of Work Progress as on 3rd LIE
1	New Syngas Compressor Area	RCC Structure	Cement Sheet	Piling, Foundation and RCC Frame Work has been completed.
2	CO2 Stripper Area	RCC Foundation	Not Applicable	Piling, Foundation and RCC Frame Work has been completed.
3	Add-on Ammonia Converter Area	RCC Foundation	Not Applicable	Piling, Foundation and RCC Frame Work has been completed.
4	MS Frame structure for all above main areas	MS Frame	Not Applicable	MS Frame structure work for all above main areas is nearing completion.
5	Material Storage Go-down	MS Frame	Cement Sheet	Completed.
6	Piling Works	Not Applicable	Not Applicable	Completed.

Source: Company and RBSA analysis

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7. Verification of Work Progress

Work Progress of equipment is as follows

Sr. No.	Description	Status as on 2nd LIE	Observation as on 2nd LIE	Status as on 3rd LIE	Observation as on 3rd LIE
	Equipment list				
A	**Syngas Compressor**				
1	Syngas compressor (Q/K-5401 (BH)	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
2	Surface condense(Kelvion), LO skid	Arrived	Installation was in progress	Arrived	Commissioning was in progress
B	**Add on Converter**				
1	Add-on Synthesis Converter (V-5401)	Arrived	Installation was in progress	Arrived	Commissioning was in progress
C	**Catalyst**				
1	Add-on Convertor catalyst	Arrived	Kept in storage yard	Arrived	Kept in storage yard
2	Primary reformer catalyst	Yet to arrive	--	Arrived	Kept in storage yard
D	**Furnace related including Air preheater**				
1	Air Pre Heater APH (F-5207)	Partially arrived	Kept in storage yard	Arrived	Commissioning was in progress
2	H-5305 A & B	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
3	Suction air chiller H-5201 and Filter	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
E	**CO_2 Removal upgrade**				
1	CO_2 Booster compressor (K-5300)	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
F	**Heat exchangers**				
1	H-5256	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
2	H-5301	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
3	H-5302	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
4	H-5310	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
5	H-5312	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
6	H-5313	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
7	H-5402	Arrived	Installation in progress	Arrived	Commissioning was in progress
8	H-5403A	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
9	H-5403B	Arrived	Kept in storage yard	Arrived	Commissioning was in progress

7. Verification of Work Progress

Sr. No.	Description	Status as on 2nd LIE	Observation as on 2nd LIE	Status as on 3rd LIE	Observation as on 3rd LIE
10	H-5404	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
11	H-5406	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
G	**Vessels and columns**				
1	V5302	Yet to arrive	--	Arrived	Commissioning was in progress
2	V-5309	Yet to arrive	--	Arrived	Commissioning was in progress
3	V-203	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
4	V-5411	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
5	V-5412	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
6	V-5425	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
7	V-5405	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
8	V-5305	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
9	V-5501	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
10	V5302 take off tray & FF distributor	--	--	Arrived	Commissioning was in progress
11	Vessel Internals	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
H	**Pumps, Turbines**				
1	Centrifugal pumps	Partially arrived	Kept in storage yard	Arrived	Completed
2	Q-5203A (Boiler Feed water Turbine)	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
3	UHS condensate transfer pump	--	--	Arrived	Completed
I	**Other Equipment & Spares**				
1	Combustion air duct replacement	Arrived	Kept in storage yard	Arrived	Commissioning was in progress
2	Combustion air duct replacement	--	--	Arrived	Commissioning was in progress
3	Makeup packings for V-301 & V-302	Yet to arrive	--	Arrived	Completed
4	Self Actuated Valve-1	Arrived	Kept in storage yard	Arrived	Completed
5	Rotameter -1	Arrived	Kept in storage yard	Arrived	Completed
6	Mass flow meter-1	Arrived	Kept in storage yard	Arrived	Completed
7	Flow Elements(29 Orifice + 6 RO)	Arrived	Kept in storage yard	Arrived	Completed
8	Conductivity Analyzer-2 no	Arrived	Kept in storage yard	Arrived	Completed
9	Transmitters(43 FT,7 DPT, 62 PT, 43 LT, 98 TT, & 7 spare)+manifold	Arrived	Kept in storage yard	Arrived	Completed

7. Verification of Work Progress

Sr. No.	Description	Status as on 2nd LIE	Observation as on 2nd LIE	Status as on 3rd LIE	Observation as on 3rd LIE
10	Level gauges-10	Arrived	Kept in storage yard	Arrived	Completed
11	Instrumentation Cables	Arrived	Kept in storage yard	Arrived	Completed
12	Temperature gauges, element, thermowell & Pressure gauges (89 TE, 38 TG,69 PG)	Yet to arrive	--	Arrived	Completed
13	MV cables	Arrived	Kept in storage yard	Arrived	Completed
14	EOT Crane	--	--	Arrived	Completed
15	Electronic Governers	--	--	Arrived	Completed
16	Steam desuperheater with Control Valve	--	--	Arrived	Completed
17	AI-412/414 Analyzer	--	--	Arrived	Completed
18	Silencer	Yet to arrive	--	Arrived	Completed
19	Strainers	Yet to arrive	--	Arrived	Completed
20	Steam traps	Yet to arrive	--	Arrived	Completed
21	Supports	Yet to arrive	--	Arrived	Completed
22	APC Hardware	Partially Received	Kept in storage yard	Arrived	Commissioning was in progress
23	DCS Upgrade	Partially Received	Kept in storage yard	Arrived	Commissioning was in progress
24	Process desuperheater station	Yet to Receive	--	Arrived	Completed
25	Copper cables	Received	Kept in storage yard	Arrived	Completed
26	RO Inlet flowmeter	Received	Kept in storage yard	Arrived	Completed
27	High Pressure Stop Valve ASM19-3" 1500#	Yet to Receive	--	Arrived	Completed
28	Kaolite 2500-LI (Make: Thermal ceramics	--	--	Arrived	Completed
29	Butterfly valve	Received	Kept in storage yard	Arrived	Completed
30	Diaphragm Seal level Transmitter	Yet to Receive	--	Arrived	Completed
31	Seal water system for P302AB & Other pumps	Yet to Receive	--	Arrived	Completed

Cost Incurred for the Project

8

8. Cost Incurred for the Project

As per copy of Chartered Accountant Utilization Certificate issued by B. R. Kamath & Co., the incurred cost till 30th June, 2022 is as follows,

Sr. No.	Requirement	Proposed Total	Incurred Cost as on 30th June'22
1	Capital Expenditure for Energy Improvement ("Capex")	395 00 00 000	350 33 25 197
	Grand Total	**395 00 00 000**	**350 33 25 197**
Sr. No.	**Sources**	**Proposed Total**	**Incurred Cost Till 30th June'22**
1	Internal Accurals ("Promoter Contributions")	115 00 00 000	129 36 68 442
	Total of Promoter Contribution (A)	**115 00 00 000**	**129 36 68 442**
2	**Long Term Loans:**		
2a)	Punjab National Bank	170 00 00 000	127 36 26 193
2b)	State Bank of India	75 00 00 000	58 60 30 563
2c)	ICICI Bank Limited	35 00 00 000	35 00 00 000
	Total of Bank Contribution (B)	**280 00 00 000**	**220 96 56 756**
	Grand Total (A+B)	**395 00 00 000**	**350 33 25 197***

Source: Company

* Including the cost of amount paid to the suppliers of reformer tubes and its accessories like pig tail and reformer tube seals.

Note: We have been provided with the detailed summary list of incurred cost which includes Invoice No., Invoice Date, Vendor Name, Category, Invoice Amount, Paid Amount, Date of Payment, Type and Status of Work.

The summary of Debt and Equity fund utilization (till 30th June, 2022) is as follows:

Sr. No.	Particulars	As on 30th June'22
1	Incurred Cost as per CA Certificate	350 33 25 197
2	Draw down schedule (Debt)	280 00 00 000
3	Actual Disbursement (Debt)	220 96 56 756
4	Cost incurred by Promoter (Equity)	129 36 68 442
5	Debt Contribution in % (Debt Contribution against Total Project Cost is 71%)	63.07%
6	Equity Contribution in % (Equity Contribution against Total Project Cost is 29%)	36.93%

Note: As per above table it is observed that, equity & debt contribution is within the limits of above terms as on 30th June, 2022.

8. Cost Incurred for the Project

As per further inputs provided by the Company in the detailed list of incurred cost till 30th June, 2022, the category wise summary of incurred cost along with estimated cost and committed cost is as follows,

Sr. No.	Details	Category	Revised estimated as per 3rd LIE (INR)	Committed cost as per 3rd LIE (INR)	Incurred cost as on 30th June, 2022 (INR)
1	Equipment	Syngas Compressor	81 32 27 514	81 32 27 514	79 98 74 707
		Syngas compressor service	2 94 13 238	2 94 13 238	
		Add on Converter	52 41 22 000	52 41 22 000	51 30 83 955
		Catalyst	7 18 41 777	7 18 41 777	4 81 28 776
		Furnace Related	8 99 94 647	8 99 94 647	8 26 90 447
		Furnace related service	56 05 000	56 05 000	--
		CO_2 Removal Upgrade	10 38 33 000	10 38 33 000	10 31 19 389
		Heat Exchangers	29 21 00 000	29 21 00 000	28 71 73 020
		Vessels and Columns	15 48 53 124	15 48 53 124	10 53 13 974
		Pumps and Turbines	4 67 73 013	4 67 73 013	4 04 30 569
		Other Equipment	20 04 70 764	20 04 70 764	8 37 30 251
2	Services	Bulk & Site Construction	1 07 31 92 715	107 31 92 715	82 78 65 507
		License & Engineering	28 36 40 000	28 36 40 000	26 28 86 951
		Contingencies & Pre-Operative Expenses	5 00 00 000	--	--
3	IDC	Financial Charges	30 00 00 000	30 00 00 000	28 58 19 788
		Total Amount	**4 03 90 66 792**	**3 98 90 66 792**	**3 44 01 17 334$**

Source: Company

$ Excluding the cost of advance paid to the suppliers of reformer tubes and its accessories like pig tail and reformer tube seals.

8. Cost Incurred for the Project

Comparison of cost incurred as per CA certificate and cost incurred based on work completion status based on physical inspection as per RBSA is as follows:

Sr. No.	Details	Category	Revised Estimated Budget Cost (INR)	Work Progress as per CA certificate as on 3rd LIE		Work Progress as per site inspection as on 3rd LIE	
				INR	%	INR	%
1	Equipment	Syngas Compressor	81 32 27 514	79 98 74 707	98%	81 32 27 514	100%
		Syngas compressor service	2 94 13 238		0%	88 23 971	30%
		Add on Converter	52 41 22 000	51 30 83 955	98%	52 41 22 000	100%
		Catalyst	7 18 41 777	4 81 28 776	67%	7 18 41 777	100%
		Furnace Related	8 99 94 647	8 26 90 447	92%	8 99 94 647	100%
		Furnace Related service	56 05 000	--	0%	16 81 500	30%
		CO_2 Removal Upgrade	10 38 33 000	10 31 19 389	99%	10 38 33 000	100%
		Heat Exchangers	29 21 00 000	28 71 73 020	98%	29 21 00 000	100%
		Vessels and Columns	15 48 53 124	10 53 13 974	68%	15 48 53 124	100%
		Pumps and Turbines	4 67 73 013	4 04 30 569	86%	4 67 73 013	100%
		Other Equipment	20 04 70 764	8 37 30 251	42%	20 04 70 764	100%
2	Services	Bulk & Site Construction	1 07 31 92 715	82 78 65 507	77%	95 92 40 819	89%
		License & Engineering	28 36 40 000	26 28 86 951	93%	26 28 86 951	93%
		Contingencies & Pre-Operative Expenses	5 00 00 000	--	--	--	--
3	Financial Charges	IDC and other	30 00 00 000	28 58 19 788	95%	28 58 19 788	95%
		Total	**4 03 90 66 792**	**3 44 01 17 334#**	**85%**	**3 81 56 68 868**	**94%**

Source: *Company and RBSA analysis*

Excluding the cost of advance paid to the suppliers of reformer tubes and its accessories like pig tail and reformer tube seals.

- Work progress as per CA certificate is based on amount paid to vendors and is including advances to vendors/ contractors.

8. Cost Incurred for the Project

- It should be noted that, cost incurred as per site inspection is based on material physically received at site and work completion at site. Further, work progress as per site inspection as on 3rd LIE is excluding advances to vendor/ contractors.
- Cost incurred as per site inspection for category License & Engineering and Financial Charges is adopted as per CA certificate for this exercise.

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Project Implementation Schedule

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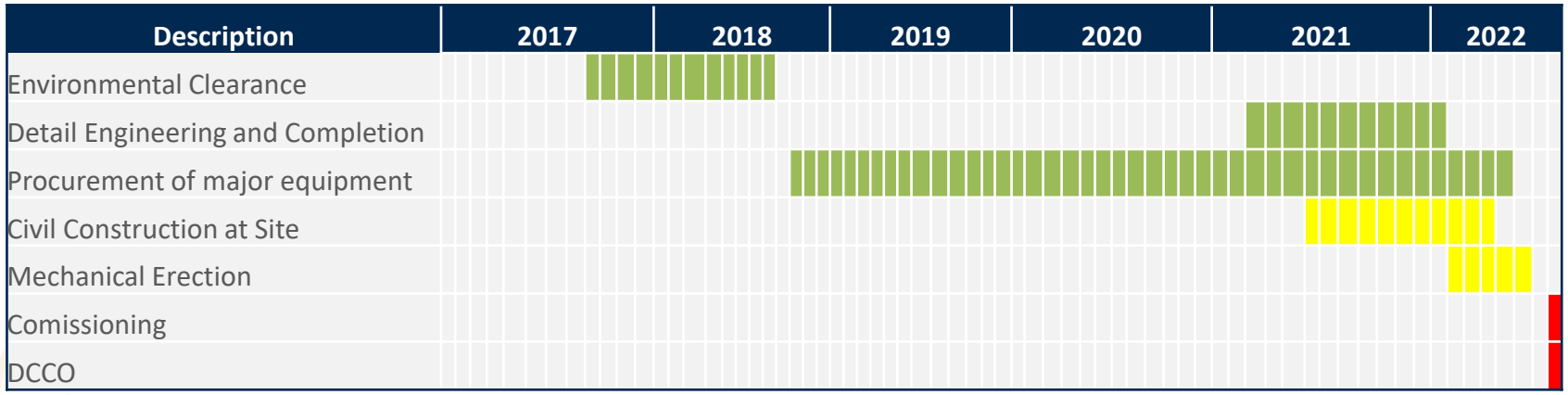
9. Project Implementation Schedule

Project Implementation Schedule as provided by Company is as follows,

Description	Start Date	End Date	Start Date	End Date	Status as on 3rd LIE
	Revised as per 2nd LIE		Revised as per 3rd LIE		
Environmental Clearance	01-09-2017	31-08-2018	01-09-2017	31-08-2018	Completed
Detail Engineering and Completion	01-03-2021	31-03-2022	01-03-2021	07-06-2022	Completed
Procurement of equipment	30-09-2018	30-06-2022	30-09-2018	11-05-2022	Completed
Civil Construction at Site	01-06-2021	25-04-2022	01-06-2021	25-04-2022	In progress
Mechanical Erection	01-02-2022	15-07-2022	01-02-2022	30-06-2022	In progress
Commissioning	14-07-2022	31-07-2022	13-08-2022	20-09-2022	In progress
Commencement of Commercial operation (DCCO)	31-07-2022		20-09-2022		Yet to Start

Source: Company

Gantt Chart (As per Implementation Schedule) – Energy Improvement Project (EIP)



Source: Company and RBSA Analysis

Legend:
Completed
In Progress
Yet to Start

9. Project Implementation Schedule

Civil Construction at Site:

As per copy of implementation schedule provided by company, civil construction at site is proposed to be complete on 31st March, 2022 (1st LIE) and further revised to 25th April, 2022 (2nd LIE).

As per our professional judgment & physical progress observed during inspection, the actual progress of construction work at site that includes activities of Contractor Mobilization, Civil Pile & Pile Cap are completed and MS Frame structure work in all main areas is in progress and nearing completion. Further it has been informed to us, miscellaneous civil work which are pending will be finished upon completion/ erection of plant and machinery items.

Plant and machinery:

During site inspection, it was observed and confirmed by Company that all equipment were received at site. Further, installation of all significant equipment was completed, and commissioning work was under progress.

Based on physical inspection and revised implementation schedule provided to us, commissioning of the Project may be completed as per proposed timeline i.e., 20th September 2022.

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Observations, Assumptions & Limiting Conditions

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10. Observations, Assumptions & Limiting Conditions

The following assumptions and limiting conditions form the basis of this exercise.

- Pursuant to instructions from Bank, we have inspected the Project on 28th July, 2022 (Inspection date) to estimate the work progress of civil work, plant and machinery of the Project as on 30th June, 2022 (Project status date). We assume that there is no material change in work progress as on Project status date and Inspection date.
- Our scope of work excludes vetting of Project cost estimated by the Company.
- The user of the report should understand that this is a Lender Report for Construction Monitoring only; and it is not a Valuation Report.
- The reported analysis, opinion and conclusion are limited only by the information provided by Company and reviewed by us and reported assumptions and limiting conditions.
- We have assumed that information provided to us is reliable, accurate & complete in all respects. We reserve our right to alter our conclusions at a later date, if it is found that data provided to us by Company was not- reliable, accurate or complete.
- This report is being issued on the basis of visual observation only. We have neither verified invoices for advances paid to vendors nor carried out any measurements/ sample analysis to ascertain the quality, nature etc.
- In the course of this exercise, we have relied upon the hardcopy, softcopy, email, documentary and verbal information provided by the Company/ Client without further verification. We have assumed that the information provided to us is reliable, accurate and complete in all respects. We reserve our right to alter our conclusions at a later date, if it is found that the data provided to us by the Company was not - reliable, accurate or complete.
- Possession of this report or any copy thereof does not carry with it right of publication. No portion of this report shall be disseminated to third parties through prospectus, advertising, public relations, news or any other means of communication without the written consent and approval of RBSA.
- We have used our professional judgment/ data from similar project available with us/ inputs from MCFL officials at the time of visit to make a fair judgment on the Project status.

10. Observations, Assumptions & Limiting Conditions

- Any matters related to legal title and ownership are outside the purview and scope of this exercise. Any legal due diligence or study is outside the scope of this engagement; therefore no such due diligence or study has been carried out by RBSA. Further, no legal advice regarding the title and ownership of the asses has been obtained while conducting this exercise. The reader is advised to take appropriate legal opinion on the matter while taking any decision on the basis of this report.
- No soil analysis or geological or other technical studies were made in conjunction with the report, nor was any water, oil, gas or other subsurface mineral and use rights or conditions investigated. Any environmental/ health and safety/ quality and performance of Project due diligence or study is outside the scope of this engagement; therefore no such due diligence or study has been carried out by RBSA.
- Due to COVID-19, we are faced with an unprecedented set of circumstances on which to base a judgement/ estimate. Our report is therefore reported on the basis of such 'uncertain circumstances'. Consequently, less certainty and a higher degree of caution should be attached to our judgement/ estimate than would normally be the case. Given the unknown future impact that COVID-19 might have, we recommend that you keep our judgement/ estimate under frequent review. The judgement/ estimate so assessed may change significantly and unexpectedly over a relatively short period of time till the effect of COVID-19 stabilises. We would like to highlight that any person who relies on this report understands that it has been prepared under extraordinary circumstances. We do not imply that the report cannot be relied upon; rather, considering the current extraordinary circumstances, less certainty can be attached to our judgement/ estimate than it would otherwise. Considering this, we recommend that the user(s) of this report carry out the review of our judgement/ estimate and update the same periodically till situation does not normalise.
- Other observations, assumptions and limiting conditions, as appropriate, are also mentioned in respective sections of this report and annexures.

Specific to land and building:

- As per copy of "Building Approval Letter and Site Plan" issued by Director, Dept. of Factories, Boilers, Industrial Health & Safety, Bengaluru by Dept. of Factories, Boilers, Industrial Health & Safety dated 29th September, 2018, the Energy Improvement Project (EIP) has been approved under overall additional developments proposed at MCFL Plant.

10. Observations, Assumptions & Limiting Conditions

- Mandatory approvals and NOC's for construction of EIP project are obtained and same has been verified. As per information provided by the Company, Energy Improvement Project (EIP) will be an integral part of existing plant. Hence, approvals and NOC's related to operations of existing plant are valid & applicable for EIP project. The estimated incurred cost of civil construction as per physical inspection is excluding of advances to vendor/contractors.

Specific to plant and machinery:

- As per data provided by the Company the Project cost is revised from INR 395.00 Crore to INR 403.90 Crore. As per information by Company escalation in Project Cost is due to increase in materials requirement for bulk and site construction, new contracts awarded for erection and pre-commission works of syngas compressor and air pre-heater. Further, as per information by Company, escalated cost will be funded by Company from the internal sources.
- It has been observed that revised Project cost is excluding the cost of reformer tubes and its accessories. As per our discussion with the Company, we understand that the supply of new reformer tubes have been delayed due to post Covid issues at vendors end and rescheduled in the month of February 2023. Hence, the new reformer tubes will be installed during next shut down of the plant, scheduled in the month of March 2023.
- However, to complete the Project as per schedule, Company has decided to continue with existing reformer tubes till March 2023. Hence, to confirm on the fitness of existing reformer tubes, a third party was appointed by the Company, to carry out the health survey of existing reformer tubes. As per third party report, the existing reformer tubes were found fit to use (refer Exhibit B) and hence the Company has excluded the cost of new reformer tubes and its accessories from the Project cost.
- Further, we were informed that increase in cost of Project i.e., INR 8.90 Crore will be borne by Company.
- Based on physical inspection and revised implementation schedule provided to us, commissioning of the Project may be completed as per proposed timeline i.e., 20th September 2022.
- Material such as pipes, valves, flanges, elbows and electronic equipment installed at site were verified as 'lot' at the time of site inspection.

10. Observations, Assumptions & Limiting Conditions

- Our estimation of cost of work completed is based on work progress and material received at site. However, we do not confirm on payment made for same. For equipment arrived at site, we have considered total amount as per purchase order for supply of equipment as cost incurred based on physical status.
- Due diligence or study with respect to quality and performance of Project is outside the scope of this engagement. However, comment on performance of Project can be done only post completion of the Project based on the performance report provided by Company.
- This report is further governed by our standard terms and conditions of professional engagement which are herein after:

a) *The Valuation Services (including Deliverables submitted by RBSA herein under) are not for the benefit of any third party. RBSA accepts no liability or responsibility to any third party who benefits from, or uses, the Services or gains access to the Valuation.*

b) *The entire and collective liability of RBSA and/ or its Partners, Officers and Executives arising out of or relating to the Valuation and/or other Services provided, regardless of the form of the cause of action, whether in contract, tort (including negligence), statute or otherwise, shall in no event exceed the total professional fees paid to RBSA for this service.*

c) *Notwithstanding anything to the contrary, RBSA and / or its Partners, Officers and Executives shall not under any circumstance, be liable or responsible for any consequential, incidental, indirect, punitive, exemplary or special damages of any nature whatsoever, or for any damages arising out of or in connection with any bad debts, non-performing assets, any financial loss including that of loss of principal, loss of interest or loss of profit, malfunctions, delay, loss of data, interruption of service or loss of business or anticipatory profits.*

d) *RBSA and / or its Partners, Officers and Executives accept no responsibility for detecting fraud or misrepresentation, whether by management or employees of the Client or third parties. Accordingly, RBSA will not be liable in any way from, or in connection with, fraud or misrepresentations, whether on the part of the Client, its contractors or agents, or on the part of any other third party.*

e) *Commencement of Legal Proceeding. Any legal proceeding Client brings arising from, or in connection with, the Services or the Agreement must be commenced within six (6) months from the date when Client become aware of, or ought reasonably to have become aware of, the facts which give rise to the alleged liability and, in any event, not later than one (1) year from the date of the Deliverable which has given rise to the alleged liability.*

f) *If Client has any concerns or complaints about the Services, it should not hesitate to discuss them with the officials of RBSA. Any service related issue by Client arising from or in connection with this Agreement (or any variation or addition thereto) shall be brought to the notice, in writing, of RBSA within one month from the date when Client has the knowledge of or ought reasonably to have such knowledge of the facts which give rise to the alleged service related issue and in no event, later than six months from the date of completion of Services.*

10. Observations, Assumptions & Limiting Conditions

g) *If Client has any concerns or complaints about the Services, it should not hesitate to discuss them with the officials of RBSA. Any service related issue by Client arising from or in connection with this Agreement (or any variation or addition thereto) shall be brought to the notice, in writing, of RBSA within one month from the date when Client has the knowledge of or ought reasonably to have such knowledge of the facts which give rise to the alleged service related issue and in no event, later than six months from the date of completion of Services.*

h) *DISPUTE RESOLUTION: Any dispute arising out of the Valuation or other Services rendered shall be referred to the nominated senior representatives of both the Parties for resolution through conciliation. In case, any such difference or dispute is not amicably resolved within forty five (45) days of such referral, it shall be resolved through Arbitration, in India, in accordance with the provisions of Arbitration and Conciliation Act 1996. The venue of the arbitration shall be at Ahmedabad, Gujarat, India. The authority of the arbitrator(s) shall be subject to the terms of these standard terms of service, including the provision of limitation of liability. The proceedings of arbitration, including arbitral award, shall be kept confidential.*

i) *The User of the report, while having acted on the basis of this report, is deemed to have read, understood and agreed RBSA's standard terms and conditions of business and the assumptions and limiting conditions mentioned in this document.*

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Conclusion

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11. Conclusion

Lender's Independent Engineer report for Energy Improvement Project of ammonia plant at Mangalore Chemicals & Fertilizers Limited situated at Panambur, Mangalore – 575 010, Karnataka, India as on 30th June, 2022 is as follows:

- Mandatory approvals and NOC's for construction of EIP project are obtained and same has been verified. As per information provided by the Company, Energy Improvement Project (EIP) will be an integral part of existing plant. Hence, approvals and NOC's related to operations of existing plant are valid & applicable for EIP project.
- As per copy of "Building Approval Letter and Site Plan" issued by Director, Dept. of Factories, Boilers, Industrial Health & Safety, Bengaluru by Dept. of Factories, Boilers, Industrial Health & Safety dated 29th September, 2018, the Energy Improvement Project (EIP) has been approved under overall additional developments proposed at MCFL Plant.
- As per our review it is observed that, actual disbursement is in line with draw down schedule as on 30th June, 2022.
- As per copy of implementation schedule provided by Company, civil construction at site is proposed to be complete on 31st March, 2022 (1st LIE) and further revised to 25th April, 2022 (2nd LIE). As per our professional judgment & physical progress observed during inspection, the actual progress of construction work at site that includes activities of Contractor Mobilization, Civil Pile & Pile Cap are completed and MS Frame structure work in all main areas is in progress and nearing completion. Further it has been informed to us, miscellaneous civil work which are pending will be finished upon completion/ erection of plant and machinery items.
- As per data provided by the Company the Project cost is revised from INR 395.00 Crore to INR 403.90 Crore. As per information by Company escalation in Project Cost is due to increase in materials requirement for bulk and site construction, new contracts awarded for erection and pre-commission works of syngas compressor and air pre-heater. Further, we were informed that increase in cost of Project i.e., INR 8.90 Crore will be borne by Company.
- As per copy of CA certificate, cost incurred as on 30th June 2022, is INR 350.33 Crore (including advances and amount paid to vendors of reformer tubes and its accessories). Further, cost incurred as per work progress observed at site for 3rd LIE is INR 381.56 Crore (excluding advances and amount paid to vendor of reformer tubes and its accessories).

11. Conclusion

- Based on physical inspection and revised implementation schedule provided to us, commissioning of the Project may be completed as per proposed timeline i.e., 20th September 2022.
- **As per CA certificate, the financial progress is approximately 85% and physical progress observed during inspection is works out to is approximately 94%.**

For RBSA Valuation Advisors LLP

Dattatraya Kota Partner	Tejas Shah Partner	Nadeem Shaikh Associate Vice President - Valuation
B. Nagaraj Manager – Valuation	Nagaraj Kinnal Asst. Manager – Valuation	

EXHIBITS

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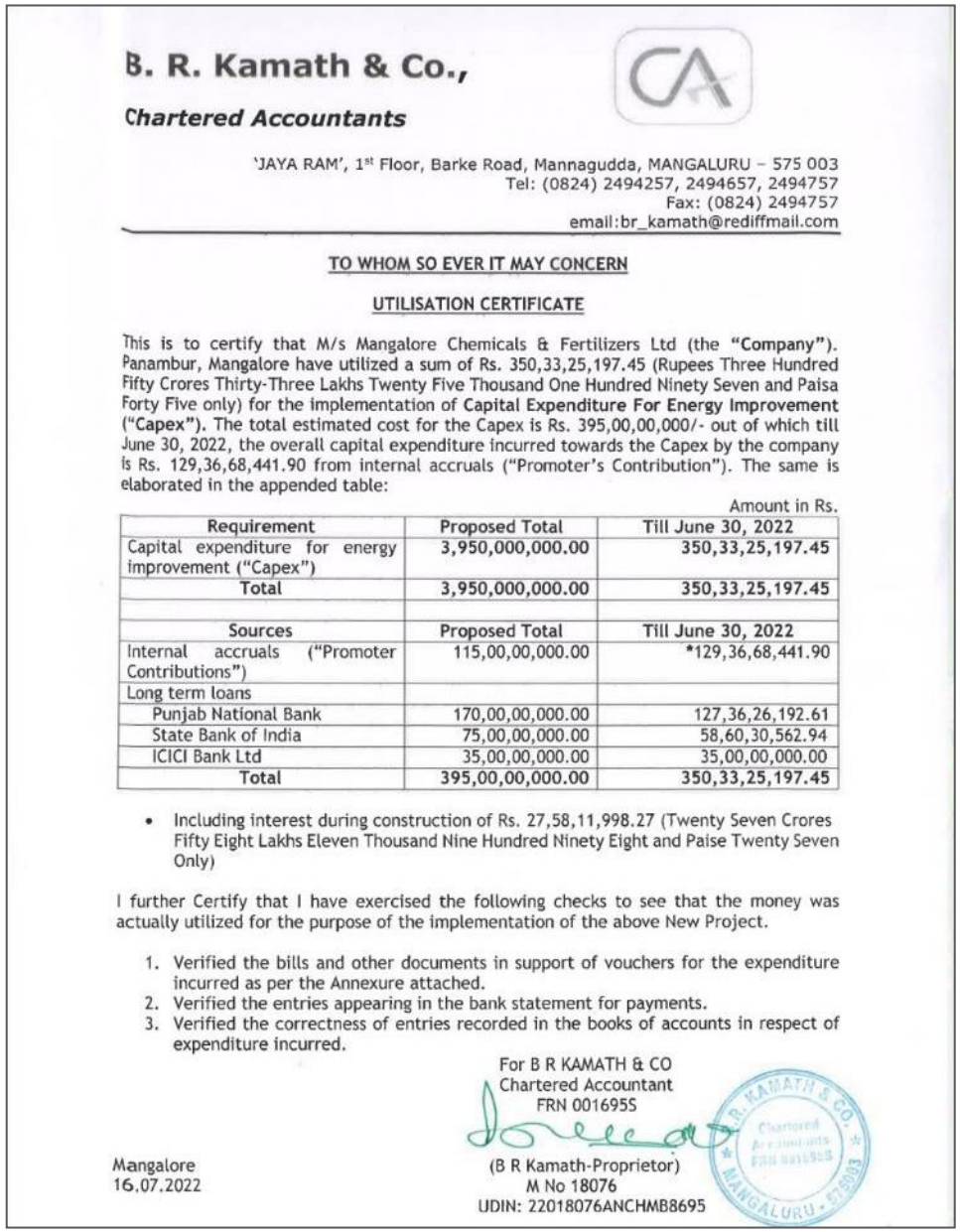
12. EXHIBITS

Exhibit A: Copy of 'Utilization Certificate' as on 30th June, 2022



B. R. Kamath & Co.,

Chartered Accountants

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Tel: (0824) 2494257, 2494657, 2494757
Fax: (0824) 2494757
email:br_kamath@rediffmail.com

TO WHOM SO EVER IT MAY CONCERN

UTILISATION CERTIFICATE

This is to certify that M/s Mangalore Chemicals & Fertilizers Ltd (the **"Company"**). Panambur, Mangalore have utilized a sum of Rs. 350,33,25,197.45 (Rupees Three Hundred Fifty Crores Thirty-Three Lakhs Twenty Five Thousand One Hundred Ninety Seven and Paisa Forty Five only) for the implementation of **Capital Expenditure For Energy Improvement ("Capex").** The total estimated cost for the Capex is Rs. 395,00,00,000/- out of which till June 30, 2022, the overall capital expenditure incurred towards the Capex by the company is Rs. 129,36,68,441.90 from internal accruals ("Promoter's Contribution"). The same is elaborated in the appended table:

Amount in Rs.

Requirement	Proposed Total	Till June 30, 2022
Capital expenditure for energy improvement ("Capex")	**3,950,000,000.00**	**350,33,25,197.45**
Total	**3,950,000,000.00**	**350,33,25,197.45**
Sources	**Proposed Total**	**Till June 30, 2022**
Internal accruals ("Promoter Contributions")	115,00,00,000.00	*129,36,68,441.90
Long term loans		
Punjab National Bank	170,00,00,000.00	127,36,26,192.61
State Bank of India	75,00,00,000.00	58,60,30,562.94
ICICI Bank Ltd	35,00,00,000.00	35,00,00,000.00
Total	**395,00,00,000.00**	**350,33,25,197.45**

- Including interest during construction of Rs. 27,58,11,998.27 (Twenty Seven Crores Fifty Eight Lakhs Eleven Thousand Nine Hundred Ninety Eight and Paise Twenty Seven Only)

I further Certify that I have exercised the following checks to see that the money was actually utilized for the purpose of the implementation of the above New Project.

1. Verified the bills and other documents in support of vouchers for the expenditure incurred as per the Annexure attached.
2. Verified the entries appearing in the bank statement for payments.
3. Verified the correctness of entries recorded in the books of accounts in respect of expenditure incurred.

For B R KAMATH & CO
Chartered Accountant
FRN 001695S

(B R Kamath-Proprietor)
M No 18076
UDIN: 22018076ANCHMB8695

Mangalore
16.07.2022

RBSA Advisors

Exhibit B: Copy of health test certificate for Reformer tubes– Refer Exhibit 'B'

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O. Conclusions

Based on inspection, following points are summarized:

Reformer tubes:

1. Visual examination revealed no significant abnormalities and reformer tubes found without apparent bowing with uniform rough surface.
2. The ultrasound attenuation of reformer tubes classifies to Category II, indicating normal metallurgical ageing without internal creep cavities / fissures.
3. OD measurements indicate maximum 3.19% creep stain on Tube D-45.
4. The minimum measured thickness observed higher than the minimum sound wall thickness specified in the drawing.
5. The microstructural examination of reformer tubes revealed metallurgical ageing without presence of micro-cracks / fissures.
6. Hardness measurement on metallography locations show normal values.
7. Permeability measured on reformer tubes observed in the range of 1.02 to 1.99 µ.

Outlet Pigtail Tubes:

1. Measured OD on outlet pigtail tubes observed in the range of 41.0 to 43.4mm against nominal of 42.164mm. This indicates around 2.9% creep strain.
2. Permeability measured on outlet pigtail tubes observed in the range of 1.01 to 1.46 µ.

Outlet Headers:

1. Measured OD on outlet headers observed in the range of 206.6 to 209.1 mm against nominal of 207.04 mm (±1.5 mm tolerance as per the drawing). The observed OD does not indicate any significant change.

M/s Mangalore Chemicals and Fertilizers Ltd., Mangalore
Inspection of F-201 Primary Reformer components
(June – 2022)
Report No.: U22921
Date: 08-07-2022
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P. Recommendation

1. The operation of the reformer should be performed strictly within the prescribed limits of the operational parameters set by OEM / process licensor's guidelines.
2. The tube metal temperatures are to be regularly monitored and kept under limits.
3. It is recommended to re-inspect the reformer components after 2 years of service.

It is presumed that tube metal temperatures shall be regularly monitored and controlled. It is to be noted that tube life expectancy can be severely affected by flame impingement, catalyst degeneration, condition of hotspot, short term high rate of carburization and oxidation, damage to the supports that cannot be predicted, hence due care shall be taken to avoid any such condition.

For, TCR Advanced Engineering P. Ltd.,

Authorized Signatory

Notes:

1. *It is to be noted that tube life expectancy and tube failures are related to flame impingement, catalyst degeneration or short-term high rates of oxidation, damage to the supports. These events cannot be predicted. Hence due care shall be taken to avoid such condition.*

Disclaimers:

1. *The inspection report is based on data supplied by the customer and may vary in varied operational conditions. The report may be used as a guideline for scheduling regular maintenance and shutdown plans and may not be construed as any guarantee on fitness. The findings do not forecast future events, life and fitness of the equipment but is only an indication of the equipment's condition on the date of the testing.*
2. *TCR renders consultancy advisory services. This report on the fitness for service of equipment is restricted on metallurgical and mechanical aspects, based on technical data furnished by the company and are recommending in nature, notwithstanding the findings, the events like accidents and mechanical/operational failure cannot be ruled out. TCR accepts no financial, contractual, penal or statutory liability. As the owner of the equipment shall take adequate precautions to handle the effect and consequences of accident, mechanical/operational failure and the consequences thereof.*
3. *Report generated by TCR is only for the use by management and is not valid for any legal, statutory or other purposes and shall be void, if produced before third party. The report shall not be used, reproduced in full or in part without written consent of TCR.*

Reference literature:

1. *Drawing provided by MCF for design data (Drawing number [illegible])*
2. *Engineering failure analysis reformer tubes after 10 years – 2010 Science Direct*
3. *RLA and Microstructure Studies on Service Exposed Primary Reformer Tubes of a catalytic Converter of an Ammonia Plant: Krishna Guguloth, T. Swaminathansumantabagui and Ashok Kumar Ray High temperature. Mater. Proc, Vol.31 (2012), 159-76*

M/s Mangalore Chemicals and Fertilizers Ltd., Mangalore
Inspection of F-201 Primary Reformer components
(June – 2022)
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