

EXECUTIVE SUMMARY

Jumbo Roofings & Tiles (JRT)

KATAMUR-VILLAGE, CHANGSARI-P.O.
NORTH GUWAHATI CIRCLE
KAMRUP RURAL DISTRICT, Assam

1.0 GENERAL

1.1 PREAMBLE

Jumbo Roofings & Tiles (JRT) has proposed to setup an Asbestos Cement Corrugated sheets, plain sheets, Roofing accessories and Non-Asbestos sheets manufacturing Unit. The proposed capacity of the company is 50,000 MT Per Annum (TPA). The Unit location is proposed at Katamur village, North Guwahati Revenue Circle, Kamrup Rural District of Assam state. The unit operates in the manufacture of Asbestos cement sheets. The process involves fibre milling, opening, raw material slurry preparation & mixing, sheet making, moulding, curing and storing.

In order to assess the likely impacts arising out of the proposed project, JRL had appointed PARYAVARAN LABS (INDIA) LTD., HYDERABAD to undertake the Rapid Environmental Impact Assessment (REIA) study for the various environmental components which may be affected, to assess the impact arising out of the proposed project and to prepare a detailed environmental management plan (EMP) to minimize those adverse impacts. It also examines the possible impact on the people, their home land or their livelihoods, or to other nearby developments.

Baseline Data have been collected for the various environmental component such as air environment, water environment, land environment, noise environment and socio-economic environment during Post monsoon and are presented in this report along with prediction and evaluation of impacts of the proposed project activities. After

predicting potential problems, the EIA identifies measures to minimize the problems (adverse impacts) that may arise due to project and outlines ways to improve the project's suitability for its proposed environment.

21.2. UTILITIES

1.2.1 POWER

The total connected load is 550 KVA which is under HT limits. Proposed power shall be obtained from ASEB. However, D.G set of 550 KVA & 125 KVA is also proposed to be installed in the scheme as a stand by to the ASEB connection

1.2.2 WATER

Total water requirement will be around 50 KLD (per day) for process + administrative purposes. It will be met by Existing bore wells within the project site of JRT.

WATER BALANCE

| REQUIREMENT | CU.M/DAY |
|----------------------|-------------|
| 1. Process (make up) | 45.0 |
| 2. Curing | 2.0 |
| 3. Domestic | 3.0 |
| Total | 50.0 |

| WASTE WATER | CU.M/DAY |
|-------------------------|-------------|
| 1. process (absorption) | 45.0 |
| 2. Losses | 3.0 |
| 3. Sewage/effluent | 2.0 |
| Total | 50.0 |

1.2.3 MANPOWER

The regular manpower required for administration, and production purposes will be around 50.

1.0 **PROCESS DESCRIPTION:**

The proposed capacity of the company is 50,000 MT Per Annum (TPA) Asbestos cement corrugated sheets & Tiles.

RAW MATERIALS

| Raw Material | Quantity/Day | Source |
|--------------|--------------|--|
| Cement | 56.25 MT | Nearby sources |
| Fly ash | 40.63 MT | Nearby Power station |
| Fibre | 11.25 MT | Fully Imported from Canada, Brazil, Russia |
| Pulp | 0.88 MT | Local |
| Water | 28.67 MT | Bore wells |

MANUFACTURING PROCESS OF A.C. PRODUCT

Asbestos Fiber of different grades are imported, mainly from Canada, Russia, Zimbabwe etc, and received in pressure packed condition in impermeable bags in palletized form. The fibre pallets are transported to the factory in closed containers through the trailer trucks. These palletized fiber bags are unloaded in fiber go-downs with the help of fork lifts. Fiber bag pallets are conveyed to the fiber feeding section by means of fork lifts. The fiber bags shall be slit open in closed automatic bag opening device. The empty bags shall be lifted by a hooking device attached within the bag opening device and carried to the attached bag shredder unit and the fiber after passing through the lump breaker shall be collected in the attached blender where some water shall be added to maintain the process in wet condition.. When all the bags in one charge empties the fiber on to the blender, the fiber in wet form shall be taken to the Edge Runner Mill via a screw conveyor and elevator which is also joined by the shredded bag pieces

from the shredder unit. Here at ERM some more water is further added to the fibre for milling operation. The bag opening device & the edge runner mill shall be kept under negative pressure by tapping it on to a Bag Filter Type Dust Collector with pulse jet which again is connected to a Hydro-static Precipitator, connected to a blower (capacity _ 6000 m³/hr) driven by a 15 Hp motor. The delivery point of the blower is connected to the Air Wet Washer and through to a 18 m tall stack. The Hydro-static Precipitator works on the principle of tidal wave generation. Particles collected in hydro-static precipitator shall be periodically recycled in wet form.

From this point onwards the total process operations involving fibre are carried out in wet condition with no possibility of dust generation during manufacturing process. The milled fiber is weighed in weigh hopper. The pre-requisite quantity of fiber which is about 8% of the product is mixed with required quantity of water in Wet Opener or fibre cone where it is re-circulated for about 3 to 4 minutes. The above slurry along with other fibers, if any, a small quantity (around less than 1%) of pulp and small quantities of homogenized solid waste + process sludge in slurry form (from sludge recycling tank/Wet Ball Mill) is taken to Beater tank. Cement is received and stored in go-down., from where it is conveyed to the Cement + Fly ash Mixing Tank via screw conveyor. Next, Fly ash is received and stored in closed go-down. Fly ash shall be pneumatically conveyed Pre-requisite quantity of Special binders - Fly ash (around 26 to 28 % of the product) is mixed with water, converted into slurry and sent to Storage tanks. A measured quantity of Fly ash slurry is taken to the Batch Hopper and then to the Cement + Fly ash Mixing Tank. The cement + FA slurry thus prepared in the Mixing tank is sent to Wet Rotary Sieve & thence to the Beater Tank, thus joining fiber slurry.

The RM slurry thus prepared is transferred to Storage Tank where it is under constant agitation. From here slurry is taken to the Dilution Tank(or

Distribution Tank) and diluted further using recycled process water. Slurry from the Dilution Tank is taken to the sheet forming machine consisting of an assembly of 5 vats placed in series and with rotating sieve cylinders placed one in each of 5 vats. The sieve cylinders are fitted at its periphery, with the wire mesh of specific size (mostly 40 mesh on top surface and 5 mesh on bottom surface). An end-less felt made of synthetic woven fabric runs tangentially atop the sieve cylinders. The slurry through the sieve cylinders gets filtered out. The differential hydrostatic pressure thus created between the sieve cylinder and Vat causes an asbestos cement film to be formed and picked up by the sieve cylinder which in turn gets transferred to the moving felt. The gradually thickening slurry due to filtration is constantly diluted in the vats. The excess water in film is dehydrated by vacuum system. The wet film from the felt is then transferred on to the rotating sheet forming drum.

After the required thickness is achieved the wet sheet is cut by automatic cutter fixed on the sheet forming drum. The formed sheet is then trimmed widthwise with long cutters to the required width. The length of the sheet varies as per the market requirement from 1.5 M to 3 M. after cutting to the required length the sheet is transferred on to the profiling machine (Corrugator) by vacuum sucking.

The formed sheets are stacked in between the steel moulds (templates) which will be air cured for about 12 hrs in a closed chamber. After the air curing the sheets are separated out from the templates in destacker machine. The templates are cleaned and lubricated and sent back to profiling machine. The sheets then are inspected on-line, stacked on steel pallets and water cured for a minimum of 12 days before being finally inspected and then dispatched.

1.1 AIR POLLUTION SOURCES & CONTROL MEASURES

Fiber Bag Opening and Milling

The fiber bags shall be slit open in closed automatic bag opening device. The empty bags shall be lifted by a hooking device attached within the bag opening device and carried to the attached bag shredder unit and the fiber after passing through the lump breaker shall be collected in the attached blender where some water shall be added to maintain the process in wet condition.. When all the bags in one charge empties the fiber on to the blender, the fiber in wet form shall be taken to the Edge Runner Mill via a screw conveyor and elevator which is also joined by the shredded bag pieces from the shredder unit. Here at ERM some more water is further added to the fibre for milling operation. The bag opening device & the edge runner mill shall be kept under negative pressure by tapping it on to a Bag Filter Type Dust Collector with pulse jet which again is connected to a two stage venture scrubber, connected to a blower (capacity _ 6000 m³/hr) driven by a 15 Hp motor. The delivery point of the blower is connected to a 18 m tall stack.

Cement and Fly ash Feeding

- The cement feeding point shall be tapped on to bag filter type dust collector with pulse jet and with a blower (capacity - 2500 m³/hr) driven by a 5HP MOTOR. The let out shall be through a stack of 18 m height.
- The Fly ash feeding point shall be tapped on to bag filter type dust collector with pulse jet and with a blower (capacity - 2500 m³/hr) driven by a 5HP MOTOR. The let out shall be through a stack of 18 m height.

Standby Power Supply System - DG sets - Pollutant: Suspended Particulate matter, SO₂ and NO_x 15 Meters stack height.

2.0 NOISE

JRT is procuring Compressors and Generators with Noise protection systems as per CPCB norms.

3.0 WATER ENVIRONMENT

There will be no waste water generated due to the process. The sanitary waste is diverted into a septic tank followed by soak pit.

3.1 RAIN WATER HARVESTING

Based on available data on roof area – 5 no. rain harvesting pits have been envisaged, to ensure charging of ground water. Pits will be made with gravel and sand filled in as filtering media. TANK SIZES: 5.0MX5.0MX3.0M(MWD) in 5 nos.

4.0 . SOLID WASTE MANAGEMNT

Solid Waste Generation

| | |
|--|-------------|
| 1. Empty Fibre Bags – From Bag Opening Device (BOD) | = 0.0261 MT |
| 2. Fibre Dust – From Dust Collector at ER Mill & BOD | = 0.0058 MT |
| 3. Process Sludge – From Week-End Tank | = 0.0484 MT |
| 4. Hard Broken Pieces – From Damages/Rejects | = 1.4013 MT |
| 5. Cement Dust – From Dust Collector at Cem Feeding | = 0.0241 MT |
| 6. Fly Ash Dust – From Dust Collector at FA Feeding | = 0.0197 MT |

Disposal (Fully Recycled)

1. Shredded in the Shredder unit attached to the Bag Opening Device and sent along with the opened fibre through the screw conveyor.
2. Periodically recycled after the container containing water and placed beneath the rotary valve of the Dust Collector is adequately filled in.

- 3&4. Continuously recycled through the Wet Ball Mill in slurry form.
- 5&6. Periodically recycled after the containers placed beneath the rotary valve of the respective Dust Collectors are adequately filled in.

5. 0 GREEN BELT DEVELOPMENT

To maintain the ecological balance JRL authorities have proposed to develop green belt in and around the plant. Green belt recommendations made around the project site evolved for noise pollution control, balancing eco-environment, soil erosion /protection, economic sustenance and aesthetics. The scenario of planting arrangement made and size based on the optimum use of available land.

Total land allocated for green belt development plan is - 15000 Sq.m.

6.0 POST PROJECT MONITORING

| | |
|---|--------------------------------|
| Personal/Static Sampling Low Volume Sampler. Fibre count | Monthly (for each location) |
| Stack Emission (for fibre, cement & fly ash) | Monthly (for each stack) |
| Ambient Air Monitoring (at 3 equi-angled stations with RM sec as centre point, within the site, | Monthly (for each station) |

7.0 EXPENDITURE ON ENVIRONMENTAL MANAGEMENT PLAN

| SL | ITEM | RsinLakhs |
|-------------------------------|--|-----------|
| CAPITAL EXPENDITURE: | | |
| 1 | Air Pollution control equipment like ID fans, Bag Filters, s connected to cement, Flyash & Fibre handling systems (main equipment) including stacks. | 30.00 |
| 3 | Sewage Treatment for Doestic waste water. | 5.00 |
| 4 | Emission Monitoring equipment at sources and ambient air quality in the vicinity) and laboratory. | 10.00 |
| 5 | Green belt development. | 10.00 |
| 6 | Establishment of Environment cell and Environmental Monitoring. | 10.00 |
| 7 | Total Capital Expenditure | 65.00 |
| RECURRING EXPENDITURE: | | |
| 8 | Recurring expenditure on environmental management cell and on pollution control systems is about 10% of the Env. Management & Equipment capital. | 6.50 |

BUDGET FOR WELFARE MEASURES

| SL | ITEM | INVESTMENT, RS IN Lakhs |
|-----------|--------------------------------|------------------------------------|
| 1 | School & Education | 2.00 |
| 2 | Medical Services | 2.00 |
| 3 | Roads Development | 2.00 |
| 4 | Community Development | 2.00 |
| 5 | Supporting Self-help groups | 2.00 |
| | Total | 10.00 |

SUMMARY AND CONCLUSION

- I. Production and Process management
 1. The technology chosen and machinery selected are energy efficient and environment friendly.
 2. Plant designed to meet all the standard norms of State and Central pollution Control Boards and MOE&F .
 3. Noise levels designed at less than 90 dBAs as per OHS standard of 90 dBs of 8 hours exposure at work Environment

- II. Pollution control equipment
 1. Pulse Jet bag filters For all Emission Sources.
 2. Stack monitoring of SPM, SOX and NOX
 3. Annual maintenance budget provided @ Rs.6.50 Lakhs.

III. Material handling and storage

1. All spillages and deposits on structures will be cleaned up promptly using vacuum cleaners or vacuum system.
2. Automatic devices and control systems will be used.
3. Traffic areas, including roads and areas with regular vehicle movement, will be paved with a suitable road-way covering and be kept clean constantly
4. Boundary of the plant s surrounded with thick plantation.
5. Thick plantation along the unpaved haul road also be provided.

IV. Corporate environment management

1. Corporate environment policy.
2. Utmost importance is given to occupational health and safety.
3. Socio-economic development
4. Encouraging and creating opportunities for self employment
5. Infrastructure strengthening and development
6. Environmental Policy to ensure overall eco-friendly plant
7. Environmental management cell for regular reviews and ensuing correct implementation of policy.

JRT strongly believes in the concept of eco friendly industrialization. Apart from eco -friendly operations, various socio economic development activities will be undertaken to bring about overall socio economic improvements in the areas. Hence the project may be accorded environmental clearance.