Technical Note

A. Present Project

M/s. Uttam Sugar Mills Limited (Distillery Division) is operating 75 KLPD molasses based distillery along with 3.0 MW Co-generation Power Plant at village Barkatpur, Tehsil Najibabad, District Bijnor, Uttar Pradesh and treating entire spent wash followed by Bio-methanation, MEE and bio composting route. Environmental Clearance was obtained from MoEFCC, New Delhi vide letter no. J-11011/428/2006-IA II (I) dated 22nd Sep., 2008.

For the existing distillery, spent wash generated, is Bio-methanised, concentrated in Multi-effect evaporator and then used for Bio-composting. Process condensate from MEE is treated in C.P.U. system and recycled back in the process, as per CPCB directives.

In 2014, the company applied in MoEFCC, New Delhi for expansion of distillery from 75 to 150 KLPD within existing plant premises. Environment Clearance was obtained vide letter no. J-11011/169/2014-IA-II (I) dated 19th August, 2016. As per the EC granted for 150 KLPD, the treatment of spent wash generated will be same i.e. it will be Bio-methanised, concentrated in Multi-effect evaporator and then used for Bio-composting. Process condensate from MEE will be treated in C.P.U. system and recycled back in the process.

As on date, the installation of expanded capacity from 75 to 150 KLPD is going on and the plant is expected to run for expanded capacity (150 KLPD) within 2 months.

B. Project Proposal

The company is now proposing to installation of incineration boiler (60 TPH) and therefore seek amendment in EC Conditions granted to existing unit by amendment in spent wash treatment scheme (From Bio-composting to Incineration as well as Bio-composting route) and thereby increasing the number of days from 270 days/ annum to 365 days/ annum (round the year) at village Barkatpur, Tehsil Najibabad, District Bijnor, Uttar Pradesh.

The amendments proposed are as mentioned below:

1. Increase in number of days from 270 days/ annum to 365 days/ annum (round the year).
2. Amendment in spent wash treatment scheme (From Bio-composting to Incineration as well as Bio-composting route) with installation of incineration boiler.
3. ESP along with stack of adequate height shall be provide to control particulate emission within 50mg/Nm3 from Incineration Boiler (Concentrated Spent Wash & Biomass/ Baggage/ Rice Husk/ Coal fired Boiler). The gaseous emission should be disbursed through stack of adequate height as per CPCB/SPCB guideline.

With this amendment, production capacity of distillery remains the same as per earlier granted capacity vide MOEFCC letter no. J-11011/169/2014-IA-II (I) dated 19th August, 2016. There will be no additional requirement of land, water, power, steam and also no increase in pollution load from that
existing because of this proposed amendment. For molasses based operation incineration boiler (60 TPH) will be installed.

C. Need for amendment
Presently, the company has adopted bio-composting technology to treat the spent wash, With the proposed amendment the company will treat the spent wash with either bio-composting or burning in the incineration boiler. This will provide following benefits:

- Contribution toward flagship ethanol blending program of GOI.
- Reduce dependency on crude oil.
- Save precious foreign exchange.
- Contribute to local farmers towards prompt cane payment.

D. Benefits of the proposed amendment
In the incineration boiler, spent wash will be completely burnt along with auxiliary fuel like bagasse/ rice husk/ coal. It also ensures that there are no chances of effluent spillage during seasonal rain.

The proposed amendment will ensure self-dependency, growth of economy and also increase in wellness of farmers. Proposed amendment will also ensure reduction in consumption of water.

E. Treatment Scheme
Existing
Spent wash generated during Distillery operation, is being/will be treated in Bio-digester and after biomethanisation is concentrated in Multi-effect evaporator and then used for Bio-composting. Record of waste water returned back to process for utilization in Fermentation/cooling tower and to gardening is being/will be kept. Process condensate from MEE will be treated and recycled back in the process.

- Spent Lees from Distillation column is being/ will be recycled back.
- Spent Wash is being/ will be sent for anaerobic treatment & thus production of useful Biogas (used as fuel in boiler), which is being / will be followed by concentration in multi-effect evaporator.
- Process condensate from MEE is being/ will be treated and recycled back in the process.
- Concentrated spent wash is being / will be mixed with press mud generated from sugar unit for manufacturing organic manure.
- Yeast sludge & digesters sludge is being/ will be finally disposed after mixing with press mud.
- The company is being/ will utilize the spent wash for manufacturing bio-compost within the premises, with proper labelling and marketing of the finished compost, in sealed bags, bearing the name and seal of our industry and the composition of the bio-compost.
- The company will not sell compost in open tractors / trolleys.
Exiting Process Flow Diagram of Molasses Based distillery on Bio-composting route
After Proposed Amendment

- **Spent Wash**: Spent wash generated from the analyzer column during the operation, will be concentrated in integrated & standalone Multi – Effect Evaporator (MEE) from initial 12% solid to 55% solid and transferred for complete incineration in a special boiler designed for spent wash. Hence, the complete spent wash will be concentrated & incinerated or bio compost & no spent wash will be discharged. Distillery will operate on ZLD.

- **Process Condensate**: Process condensate from MEE will be treated & polished in CPU and recycled to process and cooling tower makeup.

- **Spent Lees & PR lees**: The spent lees & PR lees will be completely used in fermentation process.

- **Blow down**: Waste water generated from cooling tower blow down, boiler blow down, vacuum pump and sealing will be recycled in the process itself after proper treatment in CPU/RO.

*The distillery is / will be completely based on Zero Liquid Discharge (ZLD).*

**Capacity at 150KLPD Plant Production Concentrate / Condensate Generation & Utilization for ZLD on Incineration Boiler Route.**

*Note- Working days of the plant will be 365 Days/Annum.*
F. Environment Management Plan

There will be no additional pollution load from that mentioned in the last EIA/EMP Report submitted to the MoEFCC, New Delhi.

Air Quality Management

- ESP with stack of adequate height will be installed with the boiler to control the particulate and gaseous emissions, as per CPCB guidelines.
- Adequate measures for control of fugitive dust emissions are being/will be taken.
- All the internal roads are being/will be asphalted and swept regularly to avoid vehicular activity.
- Greenbelt development around the periphery & within the premises of the project is being/will help in attenuating the pollutants emitted and maintaining air quality.
- Regular monitoring is being/will be done to ensure ambient air quality standards and stack emissions standards.
- Online Stack Monitoring System will be installed as per CPCB guidelines.

Water Quality Management

- The distillery is being/will be based on “ZERO EFFLUENT DISCHARGE”.
- There will be no change in water requirement after proposed amendment.
- Existing Spent wash treatment method - Spent Wash generated during the process, is being first treated in Bio-Digester (Bio-Methanation) is being followed by Multi-effect evaporator and then used for Bio-composting.
- After proposed amendment, Spent wash treatment method - Spent wash will be concentrated in MEE and used as fuel in incineration boiler and it will be mixed with press mud for manufacturing of organic manure (bio-composting).
- Process condensate from MEE is being/will be treated and recycled back in the Fermentation process and as makeup water.

Noise Quality Management

- Personal Protective Equipment like earplugs and earmuffs is being/will be provided to the workers exposed to high noise level.
- Proper maintenance, oiling and greasing of machines at regular intervals is being/will be done to reduce generation of noise.
- Proper greenbelt/plantation has been developed and the same will be further developed and maintained in future.
Regular monitoring of noise level is being/will be carried out and corrective measures in concerned machinery are being/will be adapted accordingly to the possible extent.

**Solid Waste Management**
- No change with respect to solid waste quantity and treatment is proposed.
- Fly ash generated from the boiler is/will be utilized for brick manufacturing/soil amendment.

**Odour Management**
- Adequate greenbelt all around the periphery of the plant is developed and shall continue.
- Efficient CO2 scrubbing to avoid carryover of alcohol vapours & other fumes.
- Better housekeeping maintains good hygiene condition by regular steaming of all fermentation equipment.