Central Pollution Control Board
Waste Management - II Division, Delhi

Sub: Minutes of the 26th virtual meeting of the Technical Expert Committee (TEC) for "Evaluation of proposals for utilization of hazardous and other wastes under Hazardous and Other Wastes (Management and Transboundary Movement) (HOWM) Rules, 2016".

1. 26th meeting of TEC for "Evaluation of proposals received from various industries for utilization of hazardous and other wastes under Rule 9 of HOWM Rules, 2016" was held virtually on October 29, 2021.

2. Sh. Anil C. Ranveer, Member Convener & Sc. E, Waste Management-II Division, CPCB, Delhi, welcomed the Chairman and members of the committee. List of the participants is enclosed at **Annexure A**.

3. The following applicants were requested to make technical presentation about their utilization proposal before the committee:

   i. M/s Godavari Power Ispat Ltd., Raipur, Chhattisgarh

   ii. M/s Preet Group Ltd., Korba, Chhattisgarh

4. The above listed applicants made technical presentations before the committee. The details of the proposals alongwith recommendations of the committee are given in **Annexure-B**.

5. M/s Abhinandan Processors and M/s Sareshwar Udyog, Rajasthan were invited to present their representation regarding revision of existing SoP for utilization of ETP Sludge in TFH/Boiler. The representative from M/s Sareshwar Udyog Ltd., requested the committee to consider their representation regarding amendment in SoP for (i) allowing primary sludge as source of waste in the SoP, (ii) waiving of OCEMS condition for small-scale industry and (iii) modification of stack emission standards prescribed in SoP.

   After deliberation, committee observed that calorific value of the sludge is very high as the source been naphthalene (petroleum based) and polyester as informed by the unit representative. Also committee observed the analysis report is not up to the mark as no heavy metals has been mentioned and further Loss on Ignition & Volatile Matter value are not in similar line.

   In this regard, the committee recommended that unit shall submit a comprehensive analysis report consisting ultimate & proximate analysis, heavy metals, PAHs, Volatile organic compounds (VOCs), Total organic Carbon(TOC) and Loss on Ignition (LoI) etc. from NABL accredited laboratory and analysis report from cement industry. CPCB may consider the amendment in the SoP based on the analysis report.

   The committee observed that condition for waiving off OCEMS is in the purview of SPCB in terms of industry scale.

6. SoPs & Checklist of Minimal Requisite facilities for utilization of hazardous waste prepared by WM-II Division, CPCB, based on trial study reports were reviewed by TEC. Details of the same and recommendations of the committee are as below:

Sl. No.	Draft SoP	TEC Recommendations
1.	SoP for pre-processing of Cathode Residue (Silicon Carbide)	The committee observed that the unit has conducted trial run and the segregation method of Silicon carbide from cathode residue was not evaluated. The committee observed that cathode residue (refractory part) which consist of multiple layers of different constituents and difficult to segregate silicon carbide. Therefore, segregation is a challenge. The committee also observed that treatment of constituent like cyanide and fluoride in the hazardous waste can be another challenge. Dust of Silicon carbide may be highly hazardous and can cause lung diseases (Pneumoconiosis, silicosis, etc). Therefore, TEC suggested that utilization process shall be in a complete closed system. Parameters of work zone emission may be verified from the Factories Act, 1948 and incorporated in the SoP. The information regarding segregation of silicon carbide from refractory as well as detoxification (if required) of Cyanide and Fluoride from the Cathode residue (Refractory part) may be mentioned in the SoP. The committee recommended for finalization of SoP after incorporating above information and suggestions.
2.	SoP for utilization of calcium hypochlorite generated during manufacturing of high strength bleach powder) in ETP	Upon deliberation, the committee observed that typical characteristics of hazardous waste shall also contain analysis of calcium. Further, draft SoP has been discussed in detail and committee suggested that the generic SoP shall be made including provision of "Technical committee of SPCBs/PCCs for evaluation of quantity and quality of hazardous waste for proposed utilization". The committee recommended for finalization of SoP on receipt of revised SoP from GPCB, after

		inclusion of above suggestions.
3.	SoP for utilization of Spent Ammonia (generated during manufacturing of Pesticide products) in manufacturing of Liquor Ammonia	TEC observed that characteristics of hazardous waste do not consist of analysis of pesticide components, which will not indicate the overall characteristics of the hazardous waste. TEC suggested to analyse the hazardous waste for pesticide constituents, TOC etc. and the same shall be incorporated in the SoP. Also suggested for verification and inclusion of the provision of chilling section by GPCB in the SoP. The committee recommended for finalization of SoP on receipt of revised SoP from GPCB after inclusion of above suggestions.
4.	SoP for utilization of Spent Hydrochloric Acid generated during manufacturing of Vinyl Sulphone in manufacturing of Calcium Chloride ($CaCl_2$)	TEC observed that CPCB has already prepared two SoPs for utilization of Spent Hydrochloric Acid for manufacturing of Calcium Chloride. However, source of generation of Spent HCl is different in all these cases. In this regard, TEC suggested to review the draft SoP which has to be in line with previous existing SoPs as the utilization process are same and also suggested for verification of typical characteristics of Spent HCl. The committee recommended for finalization of SoP on receipt of revised SoP from GPCB after inclusion of above suggestions.

7. The committee members proposed to organize next meeting of TEC in the last week of November, 2021.

8. The meeting ended with vote of thanks to chair.

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Annexure A

CENTRAL POLLUTION CONTROL BOARD
DELHI- 110 032

List of Participants

Sl. No	Name	Designation and Organization	Member of the Committee / Invitee
1.	Dr. R.K. Singh	Retired Scientist 'F', Bureau of Indian Standard, New Delhi	Chairman
2.	Dr. C.S. Sharma	Ex. Additional Director, CPCB, Delhi	Member
3.	Prof. Kamal Kishore Pant	Department of Chemical Engineering, Indian Institute of Technology, Delhi	Member
4.	Sh. Ved Prakash Mishra	Director, Hazardous Substance Management Division, MoEF&CC	Member
5.	Dr. A K Swar	Chief Environmental Engineer, State Pollution Control Board, Odisha	Member
6.	Sh. D. M. Thaker	Unit Head, Hazardous Waste Cell, Gujarat Pollution Control Board, Gujarat	Member
7.	Sh. Dinabandhu Gouda	Head, IPC-I, CPCB, Delhi	Member
8.	Sh. Anil C Ranveer	Scientist E, WM-II Div., CPCB, Delhi	Member Convener
9.	Dr. Ranu Chouksey Verma	Scientist B, CPCB-RD, Bhopal	Invitee
10.	Sh. Mohd Salik	SRF, WM-II Division, CPCB, Delhi	Invitee
11.	Sh. M. V. Srinivas	JRF,WM-II Division, CPCB, Delhi	Invitee

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Annexure B

Recommendation of the Technical Expert Committee for approval of proposals under Rule 9 of the HOWM Rules, 2016.

S. no.	Name of the Industry	HW as Raw Material	Product	Brief Process	Recommendations
1.	M/s Godavari Power & Ispat Ltd., Chhattisgarh	"ETP sludge generated from Rolling mill, fabrication unit, Annealing & winding unit and Galvanizing unit is categorized as hazardous waste under the category – 35.3 of Schedule I of HOWM Rules, 2016.	Raw material in the manufacturing of iron ore pellet	During waste water treatment process at ETP of M/s RR Ispat, Raipur (which operates Rolling Mill, Rack & Panels fabrication unit, Annealing & winding wire unit and Galvanizing plant) generates sludge. Above said ETP Sludge is procured and mixed with beneficiated iron ore & other raw material (lime stone, bentonite and flux) and then moved to balling disk for making green pellets, the pellets fed to travelling grate (1000-1100°C, residence time 45 minutes) and then to rotary kilns (1200-1300°C, residence time 30 minutes). The hot iron ore pellet from rotary kiln fed to annual cooler for cooling. Waste flue gas generated during the process passed through ESP and then to stack. Iron Ore pellets will be used as raw material for manufacturing of sponge iron.	The committee observed that there is significant Loss on Ignition (LoI) of ETP sludge. The temperature in the proposed utilization process is around 1200 – 1300 °C. The committee recommended trial run permission may be granted with following conditions: i. Hazardous waste (i.e. ETP Sludge) shall be analysed for pH, LoI, CHNS, Moisture content, Carbon content, Sulphur, and Heavy metals (i.e., Barium, Lead, Zinc, Tin, Cadmium, Arsenic, Mercury, Chromium, Cobalt, Nickel, Copper, Vanadium, Antimony and Manganese), Fluoride and Total Petroleum Hydrocarbons ii. ESP dust shall be analysed for Carbon content, Sulphur, Ammonia, VOC, Heavy metals (i.e., Barium, Lead, Zinc, Tin, Cadmium, Arsenic, Mercury, Chromium, Cobalt, Nickel, Copper, Vanadium, Antimony, Manganese and iron) Fluoride, and Total Petroleum Hydrocarbons. iii. Work zone emission shall be monitored for PM_{10}, CO, SO_2, and NOx. iv. Source emission shall be monitored for PM, SO_2, NO_X, and CO. v. The inspecting team shall collect analysis report of ETP sludge from cement industry, where the unit currently supplying for co-processing.

Annexure B

S. no.	Name of the Industry	HW as Raw Material	Product	Brief Process	Recommendations
2.	M/s Preet Group, Korba	Shot ball metal (iron) and Shot blast dust categorized as hazardous waste (flue gas dust and other particulates) as Category 11.4 under Schedule-I, of HOWM Rules, 2016	Iron metals separated are proposed to send to steel industries for metal recycling and blast dust to fluxes industries	Shot ball metal (iron) and shot blast dust procured directly from aluminium industries were stored in a covered shed. These materials are then fed into hopper to magnetic separator. Dust cyclone system attached to bag filter is provided. Iron metals separated are proposed to send to steel industries for metal recycling and blast dust to fluxes industries	The committee observed the following: i. Shot ball metal and Shot blast dust is generated during utilization of used anode butt. ii. CPCB has prepared SoP for utilization of used anode butt. iii. The Shot blast dust may have calorific value and can be utilized after removal of fluoride content. iv. The proposed utilization is only pre-processing of Shot ball metal and Shot blast dust. v. The unit has claimed that the pre-processed Shot ball metal and Shot blast dust can be further utilized in steel industry and flux manufacturing industry respectively. vi. The unit also claimed that fluoride content present in dust is desirable in flux industry and fluoride content shall be removed as temperature in furnace is about 1400 °C in steel industry. The committee suggested for monitoring of emission standards at the final utilizers (steel and flux industries) of this dust, so as to verify the claims of the applicant regarding removal of fluoride at the end of steel industry and also suggested that alternatively, the industry may take up fluoride removal before selling it to the steel industry. Therefore, committee suggested to confirm the willingness of actual users (steel and flux industries) of their pre-processed products by the unit in consultation with Chhattisgarh Environment Conservation Board. The committee recommended for trial run for pre-

Annexure B

S. no.	Name of the Industry	HW as Raw Material	Product	Brief Process	Recommendations
					processing at M/s Preet Group and for utilization at actual users upon receipt of willingness from all the units with following conditions: i. Hazardous waste (i.e., Shot ball metal (iron) and shot blast dust) shall be analysed for Carbon content, SiO_2, Al_2O_3, Fe_2O_3, Na, Fluoride and Cyanide ii. Work zone emission shall be monitored for PM_{10}, Fluoride and Cyanide. iii. Source emission shall be monitored for PM, and Total Fluoride. iv. Iron particles need to be washed, dried and the effluent so-generated shall be treated for removal of fluoride.

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