Minutes of the Second meeting of Technical Expert Committee (TEC) for evaluating proposals for utilization of hazardous and other wastes under Rule 9 of the Hazardous & Other Wastes (Management& Transboundary) Rules, 2016".

1. Second Meeting of the Technical Expert Committee (TEC) on "Evaluation of proposal for utilization of the hazardous wastes as a supplementary resource or for energy recovery, or after processing" was held on 30.12.2016 at CPCB, Delhi. List of the participants is given at ***Annexure-I***.

2. Shri Bharat Kr. Sharma, Additional Director, HWM Division, and Member Convener of TEC welcomed the Chairman and members of the committee.

3. Thereafter, the following 03 draft SoPs and Checklist of Minimal Requisite Facilities for utilization of hazardous wastes prepared by CPCB based on trial study conducted in accordance with the trial run monitoring protocol, were also reviewed by TEC:

S.No	Agenda Item	TEC Recommendations
(a)	Standard Operating Procedure (SoP) for utilization of ETP sludge of Writing Printing & News Print Paper unit for energy recovery in Boiler.	SoP and Checklist of Minimal Requisite Facilities for the said utilization with mix of 20:80 (ETP Sludge: Coal) ratio, as recommended after incorporating suggestions of the TEC, is given at ***Annexure – II***.
(b)	Standard Operating Procedure (SOP) for utilization of Spent Ion Exchange Resin for energy recovery in Boiler.	TEC recommends utilization of Spent resin @ mix ratio of 1:99 with coal based thermal power plants as it was successfully utilized in case of an earlier conducted by PCI-II Division of CPCB at M/s Satpura Power Plant, M.P. Accordingly, mix of 1:99 (Spent Ion Exchange Resin: Coal) ratio against proposed ratio of 0.05:99.95 ratio has been recommended by TEC. The recommended SoP and Checklist of Minimal Requisite Facilities for the said utilization after incorporating suggestions of the TEC, is given at ***Annexure – III.***
(c)	Standard Operating Procedure (SOP) for utilization of ETP sludge (generated from Cold Rolling Mills) as resource recovery in Arc Furnace of Ferro-alloy plant	The Committee observed that ETP Sludge may contain fluorides which were not addressed during trial run. Hence, it is recommended that a repeat trial may be carried out with 25 % & 50% mix of ETP Sludge wherein sampling of fluoride should be measured both in fugitive and Electric Arc Furnace emissions. Based on the results of Fluoride emissions, CPCB may finalize SoP without referring to TEC

4. Thereafter, 05 technical presentations about utilization of hazardous wastes (wherein trial utilization study is required to be conducted) were made by CPCB team and representatives of industries. Details of utilization proposals and recommendations made by the TEC are given below;

S.No	Name of the Industry	HW as Raw Material	Product	Process	Recommendations
1.	M/s Arun Industrial Products Plot No: 320/C, Village: Varsola, Vansoli, Ta: Mehmedabad, Dist: KHEDA - 387130	Spent Aluminum Chloride (Category: B10 of Schedule II of HOWM Rules, 2016	Aluminum Hydroxide Chloride	The utilization process includes mixing of Aluminum chloride solution with Aluminum Hydroxide /Alumina and Sodium Hydroxide/ Sodium bicarbonate followed by addition of Calcium Hydroxide and water at ambient temperature in a Reactor. After the 3 hrs Aluminum Hydroxide Chloride is formed as product.	Committee observed that organic constituents are present mainly in residue and only ppm level traces found in product. The committee recommends the following: 1. Trial utilization study shall be carried out as per the draft protocol placed before the TEC. 2. Separate trials should be carried out for each source of spent aluminium chloride 3. Separate tanks shall be used for storage of different source of spent aluminium chloride 4. Requirement of emission control systems for the reaction tank should be assessed during the trial study.
2	M/s Shree Ganesh Pigments Pvt. Ltd., Plot No. A-1/04, GIDC, Ankleshwar - 393002 Dist. Bharuch (Gujarat)	Spent Sulphuric Acid (category: 26.3 of schedule I of HOWM Rules, 2016)	Copper Pthalocyanin	The unit is proposing the utilization of above waste in manufacturing of Copper Pthaolocyanin (CuPc) which is used in Photovoltaics. The process involved mixing of crude copper, Pthalocyanin, water and spent Sulphuric acid in a reactor at 85-900C for 3 hours followed by filtration, washing and drying. A sum of 3434 Kgs of spent acid used to produce 2910 Kgs of CuPc. The discharged waste water (22603 Kgs) during the whole process is treated in units Common Effluent Treatment Plant (CETP).	The committee recommends that the industry shall permitted to conduct a trial run subjected to following criteria: 1. The acidic effluent generated during utilization process should be sent to CETP for proper treatment. 2. Ammonia should be measured in Ambient air quality, work zone area and stack attached to Drowning bath. 3. CETP standard should be applied for waste water treatment.
3	M/s Aceto Chem Pvt. Ltd. – Unit – II., Plot No. 274/3/1, G.I.D.C., Pandesara, District: Surat – 394221	Spent Sulphuric Acid and Spent Sodium Thiosulphate (category: 26.3 of schedule I of HOWM Rules, 2016)	Nitrosylsulph-uric Acid, Sulphur & Sodium Sulphate	Process involved the reaction of spent Sulphuric Acid and spent Sodium Thiosulphate in a reactor. The Sulphur Dioxide generated during the process is scrubbed using HNO_3 which produces	Committee recommends to conduct trial utilization study for 10 batches. Joint team may verify 1 or 2 batches of utilization. Sodium sulphate produced should comply with quality specification.

S.No	Name of the Industry	HW as Raw Material	Product	Process	Recommendations
				Nitrosylsulphuric Acid. The Sulphur precipitated in reaction separated using sulphur filter and Sodium Sulphate is recovered from mother liquid after passing through carbon filter.	, NOx, VOC and Acid Mist may be included in monitoring.
4	M/s Gautam Industrial Corporation Plot No. 8201/2, Road No.8, GIDC, Sachin, Ta-Chorasi, Dist-Surat, Gujarat	Spent Sulphuric Acid (category: 26.3 of schedule I of HOWM Rules, 2016)	6-Acetyl OAPSA and PAABSA.	About 3000 kgs of spent acid is mixed with 9750 kgs of crude product. SO2 is evolved during the isolation process is scrubbed in alkali scrubber connected with isolation vessel. After 10 hours the mixture is filtered in Nutch filter followed by centrifuge. The water separated during the process is sent to ETP for treatment	The committee recommends that the industry shall submit following details: 1. Complete assay of spent Sulphuric Acid generated from each source including name of all organic compounds, their concentration and TOC. 2. Complete assay of product manufactured from above spent Sulphuric acid. Based on above analysis results CPCB may finalize the protocol for trial study without referring the matter to TEC. If required, draft protocol may be sent for comments from members of TEC.
5.	M/s Hindalco Industries Ltd. Hirakund, Odisha (CPP)	Spent Pot Lining (category : 11.2 of schedule I of HOWM Rules, 2016)	As energy recovery in boiler	About 1 % of SPL treated with lime shall be mixed alongwith coal for energy recovery in CFBC boiler of Captive power plant	The committee recommends for draft protocol of Trial Run for Utilization of Hazardous waste (Spent Pot Lining) in Thermal Power plant was agreed and suggested the following: 1. The industry shall follow the monitoring protocol strictly during the trial run study. 2. SPL shall be used after grinding at the level of -5mm. 3. Grinding operation shall be carried out in covered shed and proper arrangements shall made for arresting of dust by provided suction hood connected to dust collector. 4. Transportation of SPL shall be done in environmentally sound manner to avoid fugitive emission. 5. Emission standard notified for power plants dated

S.No	Name of the Industry	HW as Raw Material	Product	Process	Recommendations
					7.12.2015 may apply along with Fluoride emission limit of 4 mg/l. Committee also recommends that proponent may also consider alternative options for utilization by pre-treating SPL prior to utilization in boiler. Such pre-treatment may be wet chemical treatment with NaOCl and lime or by thermal treatment with lime.

5. Next meeting of TEC is tentatively scheduled to be held on 18/01/2017.

6. The meeting ended with vote of thanks to the Chair.

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Annexure I

CENTRAL POLLUTION CONTROL BOARD
DELHI- 110 032

Date: December 30, 2016

Venue: 2nd Floor, Conference room, Parivesh Bhawan, CPCB, Delhi- 110 032

Second Meeting of the Technical Expert Committee for "Evaluation of proposal for utilization of the hazardous and other wastes under Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

List of Participants

S. No	Name	Designation	Member of the Committee / Invitee
1.	Dr R. K. Singh	Retired Scientist 'F', Bureau of Indian Standard	Chairman
2.	Prof. Rajeev Gupta	Department of Chemistry, University of Delhi	Member
3.	Prof. Anil K. Saroha	Department of Chemical Engineering IIT Delhi	Member
4.	Shri A.V. Shah	Environmental Engineer, Gujarat Pollution Control Board	Member
5.	Shri Paras Nath	Regional Officer, Ghaziabad, U.P. Pollution Control Board	Member
6.	Sh. B Vinod Babu	I/c HWMD & Additional Director, HWMD, CPCB, Delhi	Member
7.	Shri Deenbandhu Gauda	Additional Director, PCI-I Div, CPCB, Delhi	Member
8.	Shri Bharat K Sharma	Additional Director, HWMD, CPCB, Delhi	Member Convener
9.	Sh. S.K Paliwal,	Scientist D, PCI-II Division, CPCB, Delhi	Invitee
10.	Ms. Deepti Kapil	Scientist-C, HWMD, CPCB, Delhi	Invitee
11.	Shri G. Rambabu	Scientist-C, HWMD, CPCB, Delhi	Invitee
12.	Ms. Vineeta	Sr. Scientific Assistant, HWMD, CPCB, Delhi	Invitee
13.	Dr. Sandeep Kumar Dixit	Research Associate, HWMD, CPCB, Delhi	Invitee
14.	Dr. Chandan Singh	Research Associate, HWMD, CPCB, Delhi	Invitee