116- F.6403/2017	**Proposed Solvent Extraction Plant at existing heavy water plant premises, Tuticorin by M/s. Heavy Water Board at S.F.No. 439/2, 459, 460, 462, 463, Mullakkadu Village, Thoothukudi Taluk & District, Tamilnadu – Activity 5 (f), Category "B1" – Synthetic Organic Chemicals – Environmental Clearance to be issued- Regarding**

The Proponent, M/s. Heavy Water Board, has applied to SEIAA-TN for Terms of Reference for the proposed Solvent Extraction Plant at existing heavy water plant premises, Tuticorin at 439/2, 459, 460, 462, 463, Mullakkadu Village, Thoothukudi Taluk & District, Tamil Nadu on 25.05.2017.

ToR was issued by SEIAA-TN vide Lr. No. SEIAA-TN/F.No. 6403/2017/ToR/5(f)/ToR- 282/2017 dated: 26.07.2017. The proponent has submitted the EIA report to SEIAA-TN.

The proposal was placed in the 116th SEAC Meeting held on 10.07.2018.

The salient features of the project are as follows:

1.

S. NO.	Details	Description
1	Water supply	TWAD Board (HWP has approval available for 20 MGD) Consumption for proposed project is 22 KLD which will be sourced from the existing agreement with HWP Tuticorin.
2	Man power	The Existing man power from HWP/HWB of about 78 Nos. will be deployed for operation & maintenance of the plant. The contract man power of around 40-45 Nos. will be deployed.
3	Power requirement	3500 KW
4	Waste water generation	Sewage - 1.1 KLD Effluent - 22.2 KLD. The effluent will be treated in RO and reused for gardening

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		etc.
5	Treatment system	ETP – (Capacity-25 KLD) RO – 23.3 KLD
6	Disposal of treated water	3 KLD – Floor Washing of Process unit 13 KLD – Gardening 7.3 KLD – RO reject to Solar Evaporation Pond

2. The phosphoric acid will be drawn from the Greenstar fertilizer (phosphoric acid plant). The rare material (RM) will be recovered from phosphoric acid involving the following steps:
   - Pre-treatment of phosphoric acid
   - Solvent extraction RM from phosphoric acid
   - Product Yellow cake precipitation
   - Post treatment of phosphoric acid after the recovery of RM.
3. The final product of Solvent Extraction Plant is produced in the form of semi solid slurry which contains 50% moisture. It carries low levels of alpha-emitting U_3O_8 and small amounts of uranium daughter products. Due to relatively low content of natural uranium in the product, external radiation level is **below 0.005 mSv/hr.** However, adverse health effects such as kidney disease may occur due to intake of uranium. In order to avoid this following measure are taken:

i) The product is kept in form of semi solid slurry to avoid air borne contamination.

ii) The handling of Rare Material complex-2 is done using Suitable PPE like Hand gloves, Shoe covers, Aprons, lab coats, Respirators/ dust mask etc.

iii) The product filled in polythene bags is stored in 200 litre MS drums (600mm dia X 900mm height) provided with a drum lid locked by a seal ring. These Drums shall meet general

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requirement for Industrial Package Type-1 (IP-1) specified by AERB.

4. Procedure duly approved by AERB for handling &transportation of RM complex-2 exists for similar facility (TDP, Chembur) of HWB and the same will be followed for Solvent Extraction plant. Rare material containing uranium will be handled scientifically as per AERB Norms and report will be submitted to AERB periodically
5. Solid Waste Generation & Management:
   - About 07 tons/annum of spent activated carbon will be generated which will be disposed of through SPCB authorized agency.
   - About 76.5 tons/annum of ETP sludge will be generated which will be disposed to TSDF of Tamilnadu Waste Management Limited (TNWML) or any other alternative arrangements on approval of TNPCB.
   - Residue from evaporative solar ponds used for Reject from RO plant will be sent to TSDF.
   - Suitable sensors with adequate numbers will be installed in chemical storage and for process area for monitoring gaseous emissions, if any. Provision will be made for trapping fugitive emissions will be scrubbed and discharged through stack.
   - ETP sludge containing calcium salts will be chemically treated before disposal to comply with PCB norms.
6. Gaseous Emissions & Management:
   - Gaseous emissions due to vaporization of spilled / leaked solvents and acids will be collected and will pass through scrubber then released through stack.

The SEAC decided to recommend the proposal of M/s. Heavy Water Board for the proposed Solvent Extraction Plant at existing heavy water plant premises, Tuticorin at 439/2, 459, 460, 462, 463,

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	Mullakkadu Village, Thoothukudi Taluk & District for the grant of Environmental Clearance to SEIAA-TN subject to the following condition in addition to normal conditions: 1. From the appraisal of the project proposal it is observed that the project involves production of rare materials including radioactive materials like uranium. The process involved is complex and leads to air emissions, hazardous solid waste generation, radioactive material handling & liquid effluents. Even though scientifically proven methods of management of these air emission/effluents/hazardous solid waste have been proposed in the project proposal, any failure on the part of the proponent to effectively manage these systems, will lead to hazards for the people including diseases like kidney problems for the people. Hence, the proponent is directed to take utmost care in the operation maintenance of the plant proposed. 2. There should be scientific monitoring of the functioning of the plant by reputed Government Institutions for the vital parameters and the monitored data should be submitted to TNPCB periodically. 3. Comprehensive health survey should be conducted for the employees associated with the plant and for the people living in the nearby villages especially in Mullakkadu Village annually by reputed Government Health Institutions. 4. Third party monitoring involving reputed institutions should be done for the vital Environmental parameters (Physical, Chemical and Biological) at least once in 3 months covering all seasons and the proponent should undertake follow up action based on the report of the institution.

S.No	Name	Designation	Signature
1	Dr. K. Thanasekaran	Member	

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2	Dr.K.Valivittan	Member	
3	Dr.Indumathi M. Nambi	Member	
4	Dr. G. S. Vijayalakshmi	Member	
5	Dr. M. Jayaprakash	Member	
6	Shri V. Shanmugasundaram	Member	
7	Shri B. Sugirtharaj Koilpillai	Member	
8	Shri. P. Balamadeswaran	Co-opt Member	
9	Shri. M.S. Jayaram	Co-opt Member	

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