Monsanto

AUG 31 1971

FROM (NAME & LOCATION) K. B. JONES, C.E.D. EUROPE

DATE : 24 August 1971

SUBJECT : CEA 2518 - Aroclor Distillation, Newport.

REFERENCE : ENG/KBJ/JVH

TO : J. E. BACKHURST

cc: A. Akroyd, S & PP
T.W. Cornish, Newport
H. Disley, Newport
A. Dorkings, London
K.B. Jones, London
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S. Wood, London
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CEA 2518 Project file
D.O. File

PRE PROJECT ENVIRONMENT CONTROL REVIEW
TUESDAY AUGUST 3rd 1971 - PARNELL HOUSE

Attendance at Review Meeting

A. Akroyd	- S & PP
J.E. Backhurst	- Project Manager
T.W. Cornish	- Newport
H. Disley	- Newport
A. Dorkings	- London
K.B. Jones	- London
R.S. Yates	- London

Review Basis

This pre-project review is based on the Provisional Project Scope dated July 15th 1971 prepared by A.J. Heinze (St. Louis).

Project Objectives

The primary object of the project is to provide manufacturing facilities to produce 15 M lb/year of Aroclor 1016 which will contain less persistent polychlorinated biphenyls (P.C.B's) than in Aroclor products previously manufactured. Aroclor 1016 would thus contribute towards the reduction of the environmental hazards associated with P.C.B's. In addition 0.8 M lb/year of monochlorobiphenyl (MCS 1109) which is also biodegradable will be produced from the new column system.

Process Description

Aroclor 1016 will be produced by the distillation of Aroclor 1142 from the existing 3 batch chlorinator process using a new semi-continuous column system.

Monochlorobiphenyl (MCS 1109) will be produced from Aroclor 1115 also from the above existing chlorinator process.

The new facilities will have the following waste streams :-

1. Gaseous Effluent

The effluent containing P.C.B's would be discharged from vacuum ejectors in the new column system. According to the Scope the emission should be "in the order of less than 1 lb. per day".

2. Liquid Effluent

(a) Aroclor residue

The excess residue or high boilers from the new column system of both Aroclor 1016 and MCS 1109 which contain high concentration of non-biodegradable P.C.B's would be recycled within the system to produce Aroclor 1254. On the basis of current sales forecasts of Aroclor 1254 the above major potential waste streams will thus be eliminated. If the waste quantities to be absorbed in this way exceed Aroclor 1254 requirements then the excess high boiler waste would be incinerator off site by Purle Bros.

(b) Lime Slurry

The waste stream, used in chlorine and HCL scrubbing will not be increased by CEA 2518. It will continue to be discharged to the existing effluent system.

3. Spills

Any liquid leaks or spills from the new storage and column system would contain dangerous concentrations of P.C.B's.

Discussion

After consideration in depth of P.C.B's both in general and at Newport the following relevant data was noted.

1. No U.K. statutory limits so far established.
2. Maximum allowable concentration in atmosphere used by Monsanto 0.5 - 1 m.g./m^3.
3. Sampling of plant atmospheres around the present Aroclor plant for P.C.B. contamination has shown variations from 0.93 mg/m^3 to zero. A top concentration of 1.61 mg/m^3 in Aroclor control room had been reported but this was considered to be spurious.
4. Newport are fully aware that the potential increase in P.C.B. emission arising from the new column system could exacerbate the present situation. They have set up a regular procedure for P.C.B. sampling of the liquid and gaseous effluents at various locations including the column ejector. The necessity for additional instrumentation to detect potential upsets has still to be determined.

5. The gaseous effluent from the top of the new column, which will be approx. 70 ft. high, will be heavier than air but of a molecular structure which is biodegradable. Further information of the speed of degradation is required in order to check if the possibility of fall out within and outside the plant area will be a hazard. The meeting was of the opinion that a non-condensing ejector at the top of the column will be the most efficient method of reducing P.C.B. emission.

6. Solubility of P.C.B's in water ------ 200 parts/billion.

7. Long term aim of P.C.B. concentration mixed with Newport effluent and discharged to sea is ----- 10 parts/billion.

8. To eliminate the diffusion of P.C.B's after spills and leaks via surface rainwater or fire water the concrete curbed area referred to in the scope would be developed into a bund sufficient to contain the largest tank volume, namely 15,000 i.gals. The bund would be emptied via a steam ejector with an effluent sump for discharge either to Purle Bros. road tanker in the event of spills or to the factory effluent system when uncontaminated. It is recommended that an effective method of bund and effluent sump sampling be provided.

9. The effect of batch production of MCS 1109 in terms of effluent emission as compared with the semi-continuous operation in the USA will not be known before plant start-up. Newport were not anticipating any great difficulties.

NB. The following information was obtained after the review meeting from A. Vodden - Ruabon Research Dept. Talks between Monsanto and the Ministry of the Environment suggest statutory limits of P.C.B. emission unlikely. Control may be left to the voluntary co-operation between the P.C.B. producers and the users and limitation of supplies to approved users. The reference to the limit of 1 lb. per day of P.C.B's refers to the total emission of the plant as a whole and not to the emission from the new equipment provided only by this project.

KBJ

K. B. JONES