

STATEMENT OF BASIS FOR NON-CRITERIA POLLUTANTS

for the issuance of Draft Air Permit # 544-AOP-R0

PERMITTING AUTHORITY:

Arkansas Department of Pollution Control and Ecology
8001 National Drive
Post Office Box 8913
Little Rock, Arkansas 72219-8913

APPLICANT:

Baxter Healthcare Corporation
1900 N Hwy. 201
Mountain Home, Arkansas 72653

PERMIT WRITER:

John Bailey

SUBMITTALS: June 25, 1996

REVIEWER'S NOTES:

During review of the draft permit, a preliminary modeling analysis for Ethylene Oxide (EO), HMXDI, and DEHP was performed. The preliminary analysis indicated there was a potential for an adverse impact on the environment as a result of predicted pollutant concentrations of these three chemicals. The Department requested a more refined modeling analysis predicting no adverse impacts to the environment. During this exercise, Baxter Healthcare, found some very conservative assumptions made when the original permit application was submitted. These issues were revisited and tightened up.

EO Emissions

Three different EO emissions scenarios were modeled. The first is the interim period before the facility is in full compliance with the NESHAP, which will occur on or before December 6, 1999. Revised calculations show the facility could only charge the scrubber with 550 lbs of EO per hour not 1000 lbs as previously estimated. Also per USEPA EO NESHAP background documents, 2 percent of total EO usage can be expected to exhaust from the rear chamber. In the permit application it was assumed a worst case maximum of 5 percent could be exhausted out the rear chamber exhaust. Furthermore, there will be no more than 3 vessels actively venting via the rear chamber at the same time. Using these assumptions the maximum 24-hour concentration observed was 16.2 Fg/m³ which is below the 1/100 the TLV. The second operating scenario is the period after the facility is in full compliance with NESHAP. This is the primary scenario

presented in the Title V application where the catalytic oxidizer controls the rear chamber and aeration room exhausts and the scrubber controls the sterilizer main exhaust. All emissions of EO are controlled. The maximum 24 hour concentration was less than 5 Fg/m³. The third operating scenario is the use of a larger scrubber that would replace SN-58. The larger scrubber would control the rear chamber exhaust and sterilizer main exhaust and the aeration rooms would be controlled by the oxidizer. The maximum 24 hour concentration was less than 16 Fg/m³.

HMXDI Emissions

In the permit application the emission rate for HMXDI was shown to be 0.1 pounds per hour. Referring to test data, the concentration of HMXDI in the exhaust stack was below the instrument detection limit of 0.15 ppm. Assuming then an HMXDI concentration of 0.15 ppm to be absolute worst case, it is calculated that the resultant worst case emission rate to be 0.00744 grams per second. Using this flow rate a maximum 24-hour concentration was found to be 0.0238 Fg/m³ which is lower than 1/100 the TLV of 0.34 Fg/m³.

DEHP Emissions

Sources SN-89 and SN-90 were revised to reflect a more accurate proposed maximum DEHP emission rate of 0.5 lbs/hr for each source. The maximum 24-hour concentration was 40 Fg/m³ which is lower than 1/100 the TLV of 50 Fg/m³.

Modeling of Non-Criteria Pollutants

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The PAER was deemed by the Department to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m³), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m³)	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
Methylene Chloride	174	19.14	1.3	Pass
MEK	590	64.9	5	Pass
HCl	7.5	0.825	0.1	Pass
Chlorine	1.5	0.165	0.1	Pass

Pollutant	TLV (mg/m³)	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
Ethylene Oxide	1.8	0.198	13.33*	Fail
Ethylene Glycol	100	11	1.32	Pass
HMXDI	0.034	0.0037	0.08	Fail
DEHP	0.5	0.055	2.34	Fail
Maganese	0.2	0.022	0.0034	Pass
Chromium	0.5	0.055	0.034	Pass
Freon	7670	843.7	2.0	Pass

2nd Tier Screening (PAIL)

ISCST3 air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound was deemed by the Department to be one one-hundredth of the Threshold Limit Value, as listed by the ACGIH.

Pollutant	(PAIL, µg/m³) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m³)	Pass?
Ethylene Oxide	18	16.2*	Yes
HMXDI	0.034	0.0238	Yes
DEHP	50	40	Yes

* lb/hr is based on worst case scenario, which would be scenario one as listed above. All other emission rates are lower and therefore the concentrations would be lower.