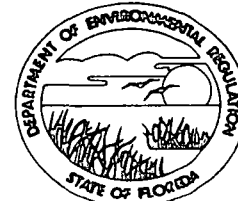


State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION



Interoffice Memorandum

TO: Clair Fancy
THROUGH: Ed Middleswart *Edm 1/27*
FROM: Jack Preece *J.P.*
DATE: January 27, 1988
SUBJECT: Champion International Corporation,
Toxic Evaluation of Bleach Plant
Ref: 1) AC17-113551
2) Final Air Stripper Review Procedures

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BAQM

During review of applications submitted for operation permits for sources constructed by Champion International Corporation under reference 1, a check of allowed emissions against the guidelines of reference 2 was carried out. The worst case comparison was 3.7 pounds of ClO_2 per hour allowed from the tail gas of the ClO_2 generation system. The conservative estimate of maximum ambient concentration, using equation in reference 2 is:

$$\begin{aligned} \text{MAC} &= \text{ACH}^B \\ &= 327.84.37(100)^{-2.264} \\ &= 0.0360 \text{ mg/meter}^3 \end{aligned}$$

H is 100 feet as reported in the emissions test report (test date November 20, 1987) this contrasts to H = 60 feet stated in original application for construction permit.

The acceptable ambient concentration proposed in reference 2 for ClO_2 is:

$$\begin{aligned} \text{AAC} &= 0.238 \text{ (TLV/A)} \\ \text{where } A &= 100 \text{ (CAT}_3\text{A)} \\ \text{TLV} &= 0.3 \text{ mg/m}^3 \\ &= 0.238 (0.3/100) = 0.000714 \text{ mg/m}^3 \end{aligned}$$

This appraisal revealed the allowed emissions failed the screening test for acceptable toxic emissions by a ratio of:

$$\frac{0.0360}{0.000714} = 50.4$$

If the reference 2 guidance or some other toxic screening procedure had been in effect at the time the AC was under review, I am sure a more sophisticated modelling would have been required and probably reduced allowed emissions would have been specified.

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Re: Champion Bleach Plant
January 27, 1988
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I recommend that BAQM should take on the task of running more sophisticated modelling to determine what emissions will comply with the proposed AAC. The more sophisticated modelling should be less conservative than the reference 2 equation in the following:

- 1) Include plume rise due to exit velocity from the stack (ACFM 910, Stack diameter 10 inches)
- 2) Use 5 years of actual meteorological data vs worst case meteorological assumption of reference 2
- 3) Time average calculated ambient concentrations vs instantaneous maximum concentration assumption of reference 2. I recommend time averaging should equal 168 hours.
- 4) Receptors should be located at plant property lines vs maximum location assumed by reference 2.

Additionally, the impact of four other sources of Cl_2 and ClO_2 emissions combined with the one worst case source discussed above should be evaluated.

In the meantime, I plan to recommend issuance of operation permits with allowed emissions as specified in the AC, but with the condition that more stringent allowed emissions forthcoming from toxics rulemaking shall be applied. Further, the permit shall contain surrogate parameter limits to assure actual emissions measured by test (0.35 pounds per hour) are continued.

JP/jpl

cc: Steve Smallwood

Copied: Bruce Mitchell
Barry Anarues
CFF/BST

1-28-88mm