



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

July 25, 1995

4WD-OHA

MEMORANDUM

SUBJECT:

Risk review comments, human health aspects,
Human Health Preliminary Risk Evaluation of the
Jinkanpo Incineration Complex Activities,
Naval Air Facility, Atsugi, JAPAN

FROM:

Ted W. Simon, Ph.D. DABT, Toxicologist
BRAC Team Risk Assessor
Office of Health Assessment *TWS*

THROUGH:

Elmer W. Akin, Chief
Office of Health Assessment *EWA*

TO:

Yvonne P. Walker, Deputy Director, Environmental
Programs
Navy Environmental Health Center

In early July, 1995, I was approached by Ms. Vera Wang and asked by telephone to review the Preliminary Risk Assessment for the facility. This memorandum constitutes my review.

Summary

In general, I concur with the findings of the evaluation and the action plan presented at the end. There is definitely cause for concern with the total cancer risk at 7×10^{-3} and the non-cancer hazard approaching 100.

The last of the recommendations presented is to provide the occupational medicine staff of NAVENVIRHLTHCEN with a copy of this report to determine if a health or epidemiological study is warranted. If any evidence surfaces suggesting that base residents have been adversely impacted by environmental releases from the incinerator, prompt medical intervention is advisable. The occupational medicine staff should complete their study as quickly as possible so that, if necessary, testing individuals for evidence of exposure to hazardous materials can be performed.

General Comments:

- 1) **Additivity of Toxic Effects.** The procedure for Preliminary Risk Evaluations is to sum the risks from carcinogens and non-carcinogens separately to arrive at a total cancer risk and total non-cancer hazard. Chloroform and methylene chloride both produce liver cancer in rats. Both are metabolized via the mixed function oxidase to produce toxic metabolites.

Because of these similarities, the cancer risks from all chemicals are likely to be additive and the cancer risk of 7×10^{-3} is definitely of concern.

- 2) **Plume Estimation.** The details of the air dispersion model, ISCTST2, were not presented. The modeling predicted the location of SITE 2. It would be helpful to collect data at several other sampling locations for the purposes of (1) ensuring that SITE 2 does present the highest level of emissions; and (2) to validate the model.

If a more detailed assessment is performed at a future time, the results of the modeling should be reviewed by someone knowledgeable in this area.

- 3) **Risk from dibenzodioxins/dibenzofurans.** All the dioxins and furans (and PCBs to some extent) interact with the Aryl Hydrocarbon (AH) receptor. The normal function of the AH receptor is steroid recognition by cells. The Toxic Equivalency Factors (TEFs) indicate the strength of binding of individual congeners to the AH receptor relative to that of 2,3,7,8-TCDD. It is generally best to sum the products of the concentrations and TEFs of the congeners to arrive at an equivalent concentration of 2,3,7,8-TCDD.

This approach recognizes the toxicological similarity of the dioxins/furans and should be employed in this assessment. A table of TEFs is attached.

- 4) **Source of water for off-base residents.** Because of the potential for off-base residents south of the Jinkanpo complex to be exposed to contaminated groundwater, the description of the water supply of the area should be expanded to enable the reader to gauge the likelihood of such exposure.

- 5) **Valence State of Chromium.** The assumption was made that all chromium present in the emissions is in the form of chromium III. The basis for this assumption should be presented. Note that chromium III is not carcinogenic whereas chromium VI is carcinogenic.
- 6) **Analyses for future sampling.** Any future environmental sampling should have 20% of the samples from each medium analyzed for all TCL/TAL chemicals. This will increase the likelihood that all hazardous substances present will be detected.

Specific Comments:

- 1) **Executive Summary, last sentence.** It says:
 ... 2) to conduct surface soil and groundwater sampling to further assess human health.

Rewrite as follows:

... 2) to conduct surface soil and groundwater sampling to assess potential risks to human health from contact with these media.

- 2) **References.** Several references are given by lower case letters. The reviewer was unable to find a list of these references. This list should be placed at the end of the text portion of the report.

Please let me know if I can be of any further help. I can be reached at (404)347-3555 X6368.

Attachment

Table 9-1, Toxic Equivalency Factors for CDDs and CDFs

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