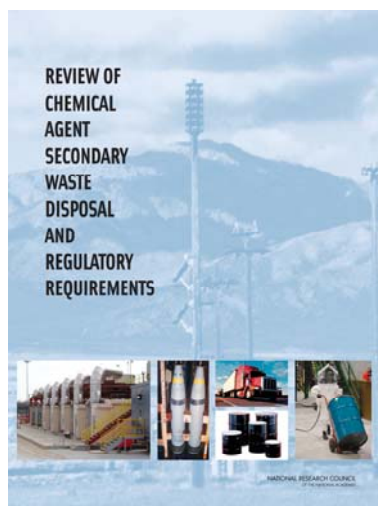


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Review of Chemical Agent Secondary Waste Disposal and Regulatory Requirements—*Report Brief*

BOARD ON ARMY SCIENCE AND TECHNOLOGY



Background Under the direction of the U.S. Army's Chemical Materials Agency (CMA) and mandated by Congress, the nation is destroying its chemical weapons stockpile. Large quantities of secondary waste are being generated in the process, and managing these wastes safely and effectively is a critical part of CMA's weapons disposal program. To assist, the CMA asked the NRC to examine the environmental and regulatory requirements that secondary waste treatment is subject to, and to assess best practices by industry in meeting such requirements for similar facilities. This report presents an overview of secondary wastes from chemical agent disposal facilities (CDF), a comparison of CDF and industry experience, site-specific analysis of major secondary waste issues, an

examination of closure wastes, and findings and recommendations.

Overview Management and disposal of the growing volume of secondary wastes has become a major consumer of time and effort at the CDFs. All of the CDFs are regulated under the Resource Conservation and Recovery Act (RCRA) by the respective state regulatory authorities. Management of the waste at the different facilities differs significantly due to differences in state and local regulations. In general, regulatory requirements for waste characterization and disposal are similar for industry and CDFs.

Most of the waste streams at the different facilities are shipped off-site for disposition. Some wastes, however, require preliminary treatment on-site before they can be shipped and are usually stored until such treatment is possible. How a waste is listed—hazardous or not—also has a significant effect on waste management practices. Waste streams exposed to agent are treated as hazardous waste and require additional treatment.

Disposition of the secondary waste depends on permit conditions which determines whether they can be treated off-site or must be treated on-site. Shipping off-site is preferable because on-site treatment is slowed by the fact that much of the treatment equipment is also used for agent processing. It is technically feasible and advantageous to dispose of as much waste as possible at off-site approved facilities.

Findings and Recommendations

- Trial burn requirements for incinerators destroying agent can be met more expeditiously now that Chemical Stockpile Disposal Program has matured by using data from similar facilities. This method is followed by commercial hazardous waste incineration facilities, and the CMA should pursue this provision of RCRA.
- After trial burn data have been submitted, obtaining regulatory approval can be lengthy due in part to limited state resources to review the documentation. The CMA should provide funding to state authorities to facilitate their analysis of such data.
- Widely different models and parameters have been used for risk assessments of transportation of secondary wastes. The CMA should establish consistent criteria for such assessments.
- Availability of equipment to treat secondary waste along with agent disposal operations at CDFs is severely limited compared to similar commercial facilities. The CMA should continue to pursue off-site shipment and disposal of these wastes.
- Specific problems exist with treatment of activated carbon and protective ensemble suits. The CMA needs to take steps to address these problems including selection of alternative treatment methods and off-site shipment and disposal as appropriate.
- The five CDFs covered in this study all appear to be undertaking open and effective communication with local stakeholders. The CMA should continue such steps in defining acceptable secondary waste disposal practices.
- Closure of CDFs will be eased to the degree concurrent secondary waste treatment can take place. The CMA needs to use off-site secondary waste treatment concurrent with agent disposal wherever possible, and develop appropriate analytical methods for porous waste contamination to minimize closing costs.

For Further Information Copies of the complete report, *Review of Chemical Agent Secondary Waste Disposal and Regulatory Requirements*, can be obtained on the National Academy Press Web <<http://books.nap.edu/>>. Support for this project was provided by the U.S. Department of Defense. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the sponsors. More information about the Board on Army Science and Technology can be found at <http://www7.nationalacademies.org/dmst/BAST_Homepage.html>.

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