

EMAIL TO: Jared.Thompson@arkansas.gov

Jared W. Thompson, Program Manager
Radioactive Materials Program
Arkansas Department of Health
4815 West Markham Street, Slot 30
Little Rock, Arkansas 72205

Dear Mr. Thompson:

This response replies to your telephone inquiry of March 27, 2020 seeking the NRC staff's views about what options are available regarding the Department of Energy's (DOE's) disposal of freon at an incinerator in Arkansas starting in May 2020.

BACKGROUND INFORMATION:

Based upon the emails that you provided to Mr. Randy Erickson, Regional State Agreements Officer, NRC Region IV, the DOE plans to ship freon from the decommissioning Paducah and Portsmouth fuel facilities to the Clean Harbors El Dorado incinerator in El Dorado, Arkansas for disposal over an 8-10-year period, starting May 1, 2020. The DOE provided COMPLY code results and the Sampling and Analysis Event Plan to your office for this first shipment. The DOE took samples from the various containers the freon is stored in and based on the DOE's analysis, they confirmed the presence of the following radionuclides: Am-241, Np-237, Pu-238, Pu-239, Pu-240, Tc-99, Th-228, Th-230, Th-232, U-234, U-235, and U-238.

The requirements for off-site transportation of radioactive material are separate and distinct from the requirements for the receipt, use, and disposal of radioactive material. If the amounts in a shipment are less than the activity concentration and consignment limits for each radionuclide (or mixture of radionuclides) listed in Table A-2 in Title 10 of the *Code of Federal Regulations* (CFR) Part 71, Appendix A, then the shipment would be exempt from the 10 CFR Part 71 requirements or Arkansas' equivalent thereof. DOE, however, would still be required to follow all applicable Department of Transportation regulations, as appropriate. The receipt of these shipments by the incinerator, and the storage and disposal of any radioactive waste, is regulated under the State of Arkansas' counterpart regulations to 10 CFR Parts 30, 40, and 70. Based upon the information provided, the Arkansas permit issued to the Clean Harbors El Dorado incinerator does not authorize the receipt, storage, or disposal of any radioactive material in any quantity.

OPTIONS FOR ARKANSAS:

The Sampling and Analysis Event Plan and the COMPLY code results indicate the presence of radioactive material in the freon samples. We would encourage you to perform an independent review of DOE's sampling measurements and calculations to validate the data. We also encourage you to validate the parameters used in the COMPLY code:

Release height 59 meters.
Building height 6 meters.
Distance from the source to the receptor is 1609 meters.
Default mean wind speed used (2.0 m/sec).

You asked for NRC staff's views about what options are available to assure regulatory

compliance with the receipt, storage, and disposal of radioactive materials at the Clean Harbors El Dorado incinerator. In response, the NRC staff believes that the two principal options are:

1. License the Clean Harbors El Dorado incinerator, or otherwise amend its permit, to allow for it to receive, store, and dispose of the radioactive material in the freon under the applicable Arkansas regulations; or
2. Deny the request.

Arkansas can also consider exempting Clean Harbors from the applicable Arkansas regulations related to the receipt, storage, and disposal of radioactive material. We are not, however, in a position to evaluate the safety and health impacts of exempting Clean Harbors from these requirements given the limited information available to us and that the planned DOE disposal campaign will run for an 8-10-year period.

We recommend that you discuss these options with your legal department.

If you have any questions regarding this matter, please contact Randy Erickson, Regional State Agreements Officer, at (817) 200-1143 (Randy.Erickson@nrc.gov).

Sincerely,

/RA/
Kathy Modes, Health Physicist
State Agreement and Liaison Programs Branch
Division of Materials Safety, Security, State,
and Tribal Programs
Office of Nuclear Material Safety
and Safeguards

cc:

RErickson, RSAO
JCook, RSAO
DPstrak, NMSS
BWhite, NMSS
CMcKenney, NMSS
ASchwartzman, NMSS
YFaraz, NMSS
MHeath, NMSS
LCuadrado, NMSS
DWhite, NMSS
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