



Recommendation No. 129

September 26, 2000

Request for Data/Information on Alternative Technologies to Incineration

Background

In a settlement agreement between a citizens group (*Keep Yellowstone Nuclear Free*) and DOE-HQ concerning the proposed development and operation of a mixed waste incinerator at Idaho National Engineering and Environmental Laboratory (INEEL) (Ref. 1), DOE-HQ committed to the goal of identifying both regulatory and technological alternatives to incineration. As part of this agreement, DOE-HQ established a "Blue-Ribbon" panel of independent scientific experts to explore technological alternatives to incineration (Ref. 2).

On August 29, 2000, this Panel issued a request for technical information on alternatives to incineration for mixed transuranic and alpha low-level waste (Ref. 3). The Panel will use the information to evaluate and recommend the approach and focus DOE-HQ should take concerning the development, testing, permitting, and deployment of emerging non-incineration technologies. The panel has selected seven criteria as guidelines for making recommendations to DOE-HQ on emerging alternative technologies: 1) environmental, safety and health considerations, 2) stakeholder and regulatory interest, 3) functional and technical performance, 4) operational reliability, 5) pre- and post-treatment requirements, 6) economic viability, and 7) maturity of the technology. They hope the information requested and to be provided will document the current status, knowledge, testing, and operating experience on alternative technologies.

Information in response to this request is due by September 29, 2000. The Panel will make their recommendation in a report back to DOE-HQ by December 15, 2000, regarding the alternatives. The Panel will consider all input received but individual response back to data/information providers is not planned.

Comment

DOE-HQ sponsored a number of investigations into treatment options of mixed low-level waste (MLLW) between 1993 and 1997. These studies included both internal reviews and external independent scientific peer reviews of both thermal treatment systems and non-thermal treatment systems and culminated in a technical paper entitled *Integrated Process Analysis of Treatment Systems for Mixed Low Level Waste* (Ref. 4). This paper concluded that:

1. There were not any potential advantages of emerging technologies that would out-weigh the disadvantage of a significant time delay in treatment of MLLW while these emerging technologies were being developed;
2. Incineration technology is safe and effective for treating MLLW;
3. There may be critical flaws with non-thermal treatment systems due to the incomplete treatment of organics to insure long-term safe disposal; and
4. The potential for larger quantities of incomplete reaction is more likely to result from low temperature reactions than from higher temperature reactions (i.e. incineration).

The SRS CAB agrees with this report that incineration technology is safe and effective for treating MLLW and has consistently supported getting on with waste disposal using existing technologies (Ref. 5). The SRS CAB does not consider it a good use of tax dollars to develop alternative technologies to replace existing viable, safe, and reliable technologies (i.e. incineration) unless it can be proven that another technology is superior to incineration by measures of cost, technology, and waste products. The SRS CAB does not see the need in duplicating the work of this recent report, as the request of information appears to do.

The Blue Ribbon Panel is one of at least three groups investigating alternative technologies to incineration. The SRS CAB is also aware of the DOE complex-wide studies being performed under the direction of Ms. Helen Belencan (Technical Lead for the Alternative Incineration Team) and the SRS

study of alternatives to CIF (Ref. 6). This duplication of effort gives the impression that DOE is not coordinating their efforts, wasting both time and resources.

One aspect of the Panel's request that the SRS CAB supports is the emphasis on the stakeholder and regulatory interest. However, DOE-HQ should be aware that these same interests apply to stopping existing MLLW treatment, as in the case of the SRS Consolidated Incineration Facility (CIF). The SRS CAB is following closely the impacts the decision to suspend CIF operations has on delaying the legal and regulatory commitments for legacy waste reduction at SRS.

Recommendation

The SRS Citizens Advisory Board recommends that:

1. The Blue Ribbon Panel utilize the report entitled *Integrated Process Analysis of Treatment Systems for Mixed Low Level Waste* by C. R. Cooley, W. E. Schwinkendorf, and T. E. Bechtold published in the *Technology Journal of The Franklin Institute*, Vol. 334A, pp. 303-325. 1997 in its recommendation to DOE-HQ.
2. DOE-HQ expand the mission of the Blue Ribbon panel from exploring technological alternatives to incineration to identifying the best available technology for treatment of transuranic, mixed transuranic, low-level waste, mixed low-level waste or other incinerable waste.
3. DOE-SR follow the same objective of identifying the best available technology for treatment of PUREX waste in its investigation. Alternative treatment technologies to incineration should only be investigated if they can meet all regulatory requirements, and are environmentally cleaner and less expensive to operate.
4. DOE-HQ justify the duplications of time and resources by funding the following three separate studies of alternative technologies for incineration:
 - o "Integrated Process Analysis of Treatment Systems for Mixed Low Level Waste" by Carl Cooley, Office of Business and Technology, Office of Environmental Management, U.S. Department of Energy, Germantown, MD, September 30, 1997.
 - o Blue Ribbon Panel appointed by Secretary Bill Richardson. Report due to DOE by September 29, 2000.
 - o Alternatives Technology Study Team Report, led by Helen Belencan, EM-30, U. S. Department of Energy.

References

1. Settlement Agreement, *Keep Yellowstone Nuclear Free v. Richardson et al*, March 25, 2000.
2. News Release, Richardson approves Revised Plan for Construction of Waste Treatment Facility in Idaho: Construction of Incinerator to be Deferred, Secretary to Establish Panel to Study Alternatives, March 27, 2000.
3. Request for Data and Information on Alternative Technologies to Incineration for Mixed Transuranic and Alpha Low-level Waste, *Commerce Business Daily*, August 29, 2000.
4. *Integrated Process Analysis of Treatment Systems for Mixed Low Level Waste*, Cooley, C. R., et. al., *Technology Journal of The Franklin Institute*, Vol. 334A, pp. 303-325. 1997.
5. Citizens Advisory Board Recommendation No. 126 (adopted July 25, 2000), "Path Forward for Consolidated Incineration Facility".
6. Consolidated Incineration Facility Public Workshop, by Ray Hannah, Peter Hudson, and Helen Belencan, June 5, 2000.

Agency Responses

[Department of Energy-SR](#)