Summary of
Workshop on Transuranium (TRU) Waste Disposal
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I am pleased to have had the opportunity to chair this workshop. I must say that all of the participants contributed significantly with their comments and ideas. I want to thank all those who attended and participated.

We divided the workshop into seven task groups with each task group addressing a specific set of problems related to the management of TRU contaminated waste. Seldom do we have the opportunity of so many experts working together towards the better understanding of a common problem and this conference provided that opportunity.

We identified two major objectives of our workshop:

1) To identify the problems and needs associated with the management of TRU contaminated waste.

2) To discuss the alternatives available for treatment of this waste.

The seven major issues we addressed in our workshop are shown below:

1) Reduction in generation of TRU waste.

2) Treatment of combustible waste.

3) Treatment of liquid/sludge waste.

4) Treatment of noncombustible waste.

5) Storage and disposal.

6) Advanced waste management concepts.

7) Industry involvement.

As you may recognize these seven issues are not all inclusive but we felt they were ones where discussion would be meaningful.

I plan now to summarize the significant points brought out during the discussion of each topic.

I. Program to Reduce the Generation of TRU Contaminated Waste

In December of last year (1974), the General Manager of AEC initiated a one-year program to emphasis a reduction at source, not necessarily a volume reduction after generation, but a reduction in the generation of waste. ERDA received the first report in February 1975. A most favorable response was received and it is expected measurable reductions will be achieved during this coming year. Emphasis of the program is in the following areas:

1) Administration Controls (awarness of operations on the impact to waste generation)

2) Personnel Training

3) Process Modification, such as,

   a) New long-term filter development.

   b) Eliminate PVC if possible.

   c) Etc.

4) Waste Assay and Monitoring

5) Post Generation Volume Reduction

II. Treatment of Combustible Waste

The need exist to develop incineration technology for three reasons:

1) Reduce the volume.

2) Eliminate radiolysis hazards.

3) Possible recovery of Pu.

There are currently six programs being funded by the Division of Waste Management and Transportation (WMT) within ERDA to investigate incineration concepts:

1) Acid Digestion

2) Controlled Air Incineration

3) Cyclone Air Incineration

4) Pyrolysis

5) Fluidized-Bed Incineration

6) Molten Salt Combustion Process

The task group came up with a set of criteria for selecting one or more of these concepts for full scale demonstration.

1) Volume Reduction

2) Pu Recovery

3) Economics

4) End Products of Process

5) Process Maintenance

6) Operability in Radioactive Environment

7) Safety

8) Universality of Process

III. Treatment of Liquid Waste/Sludges

The general agreement of this task group was that first of all:

1) Sludges/liquids should be converted to solid, low-leachable form.

2) The waste converted to form acceptable for disposal.

During the discussions it was obvious ERDA/industry have not spent enough effort and funding in developing methods in the following areas:

1) Reduce the generation of this type of waste.

2) Reduce the volume.

3) Decontamination of this waste.

4) Convert to a solid, low-leachable form acceptable for long-term storage and disposal.

IV. Treatment of Noncombustible Waste

This is a type of waste that has significant value. Several concepts were discussed for treating this waste of which smelting was one method evaluated. Smelting of contaminated metals has several advantages.

1) Decontamination of metal.

2) Possible reuse of metal.

3) Converts to a stable, low-leachable form.

V. Storage/Disposal of TRU Waste

This subject within the task group received the largest participation. The subjects addressed are shown below:

1) Interim storage.

2) Exhumation of buried waste.

3) Long-term storage in a retrievable manner.

4) Disposal concepts.

We also discussed the need for better definition of the different categories of alpha waste and these waste may be treated differently.

Let me summarize the significant points made in these discussions.

1) Interim Storage - Such methods as now used in Idaho

is a viable and necessary method of storage which provide us:

a) A safe retrievable method for temporary storage.

b) Provides time for developing more acceptable methods.

Most of all we must not become compliant with this concept or think of this concept in any other way then temporary.

2) Exhumation - Three basic issues must be considered:

a) What are the associated hazards of exhuming waste verse leaving the waste in place?

b) Can technology be developed to exhume, treat, and repackage waste in acceptable manner?

c) Are there techniques in which one can fix in place already buried waste?

It is believed that technology can be developed to possibly exhume, compact, repackage, and encapsulate buried waste in a safe and environmentally acceptable manner.

3) Long-Term Storage and Disposal Concept - This topic has been discussed thoroughly during this conference and I will not repeat them here except to mention that ERDA is now initiating a program to develop and demonstrate geological disposal methods in bedded salt.

The approach is first to demonstrate a pilot plant in salt in a retrievable manner and after demonstration, operation could be established and continued.

VI. Advanced Concepts

Partitioning/transmutation methods were explored but it was agreed the technology for these concepts are not now sufficiently well established to now be considered. While we should continue to evaluate these concepts, we should direct our efforts and money

as so well stated in the Monday morning session "on a horse that can finish the race".

VII. Industry Involvement and Needs

I believe it is past time that we in the nuclear industry make full utilization of the talents and technology developed in the other industries to help us in the treatment of nuclear waste. We are guilty ourselves of the Not Invented Here (NIH) factor. But before we can seek others help, we must first identify the major problems and issues in such a way that the other industries can understand the problem. For example, if the packaging and chemical industry can develop safe methods to package and transport a deadly pesticide such as parathion they can surly help us with a less hazardous material such as radioactive waste.

Therefore, let us each not overlook the various talents of others outside the nuclear community for assistance in resolving nuclear waste management problems.

In summary, I appreciated the opportunity to work with so many expertise and to focus our attention during this workshop on transuranium waste disposal.