

Accelerator Transmutation of Waste Steering Committee Meeting

Argonne National Laboratory—7/21-22/1999

8:00 a.m.

Attendees:

Dill Shipler	PNNL
Mike Shay	PNNL
Paul Eslinger	PNNL
Dick Smith	PNNL
Julian Hill	PNNL
Eric Schmieman	PNNL
Rosalind Schrempf	PNNL
Jim Bresee	DOE-RW
Dave Goodwin	DOE-SC
Eric Schweitzer	DOE-DP
George Lawrence	LANL
Darleane Hoffman	LBNL
Les Burris	ANL
Mike Todosow	BNL
John Herczeg	DOE-NE
Carl Walters	LLNL
Greg Van Tuyle	LANL
Dave Wade	ANL
Chet Erhman	PNNL
Jim Laidler	ANL
Doug Crawford	ANL-W
Philip Finck	ANL
Hussein Khalil	ANL
David Hill	ANL

- **Hill**—Logistics
 - Computer room upstairs—network hookups and printers.
- **Bresee**—Rewrite of Ex Sum is available. Had no problems with it. Conclusions OK. Just need to work the support back into the Overview Report.
- **Shay**—Orientation for this weeks work
 - Review new ex sum

- Review outline
- Check items to be addressed in each section
- Prioritize sections for review
- PNNL staff will rewrite in real time
- Finish by tomorrow
- **Herczeg**—suggest we have an independent reviewer (non-involved person) check the final document.
- **Bresee**—Summary of July SC meeting
 - Experts thought that:
 - The rapid build up and approach would be difficult to achieve.
 - Try a more moderate program and reconsider in 5-8 years.
 - Keep testing and demonstration small, i.e., 100 MWt.
 - Use existing technology as much as possible.
 - Need more on international collaboration.
 - Reconsider funding process and plan in accordance.
 - More emphasis on critical R&D issues.
 - De-emphasize implementation. Too far out.
 - Need trade/system studies to scope and focus efforts.
 - Include reactor path as an option/comparison.
 - Address several sensitive issues: reprocessing, fast reactors, tritium production, others.
 - **Q-Walter**—Why would this budget be discretionary funding rather than program funding?
 - 70% is locked in, entitlement funding. Only 30% is discretionary (includes defense-although somewhat of a sacred cow).
 - NIH will be the highest priority for increased science funding. NSF would be 2nd and DOE will be about 3rd on the list.
 - **Finck**—Trade/System Studies (see vugraphs)
 - Use systems approach, system definition, issues, performance objectives, sizing, RAMI, etc.
 - **Schweitzer**—Haven't addressed environmental/waste issues, e.g., mixed waste. Need trade studies.
- **Wade**—Draft of Executive Summary (See handouts: conclusions and recommendations)
 - Not ready for review: do have set of conclusions and recommendations that will go at the back of the section.
 - Draft ready after lunch.

- **Conclusions paper:**
 - Should stand alone-may be copied separately and handed around.
 - Item 1, separate SF and DW. How good is ATW, how does it impact repository. Other benefits, e.g., NN, criticality. Clarify volume and types of all waste and where they go.
 - Item 3, separate into R&D and deployment.
 - Reorder items 1 and 2 (and others), e.g., fissile materials, impact on performance, then waste volumes, etc.
 - Uranium could be reused or disposed of as Class C waste.
 - Don't use "cute" words. State it as it is, proliferation/diversion, reprocessing/conditioning.
 - Item 4—needs stronger emphasis.
 - Item 5 is "feasibility". We still need to demonstrate that it is technically/commercially feasible.
 - Keep the section/conclusion neutral. DOE is not looking to deploy an ATW system. DOE wants a science-based program. DOE is not ready to recommend deployment.
 - Add--haven't found any show stoppers.
 - Add—R&D will advance other science areas.
- **Recommendation Paper:**
 - Note that other R&D activities will likely be identified during the trade/system studies.
 - Clarify on recommended length of initial and follow-on R&D program.
 - Need early milestones to demonstrate progress.
 - Need estimate of the science R&D number, by component?
 - Five year M/S is for feasibility to demonstrate only. Not enough information to start title I design on all components, e.g., coolant, fuel.
 - Expect that there will be an annual report for the program. This would be one of those reports. Needs to be ready for funding planning for the sixth year of the program,
 - Five year period begins in October 2001.
 - Need an in-depth institutional analysis.
 - Needs: based on starting a Conceptual Design at end of year 5 of the program (assumes feasibility of the concept).
 - Science and technology-based, prioritized activities.
 - Related costs.

- Related schedule.
- A few key milestones.

LUNCH

- Shay: Review and Revision of the Requirements Table
- Bresee: Section 6 schedule will become 5-10 year
- Schweitzer: discuss institutional issues before schedule. Include PEIS.
- Dave Goodwin: move 5&6 before 10. All demo stuff to the end.
- Schweitzer: executive summary should send DOE's message for each of the 9 Congressional questions, e.g., "there are no technical issues that are show stoppers, but there are gaps in scientific knowledge that we propose to fill with a 5-year research program."

CHAPTER 10

- Dave Goodwin: section 10 can be reduced. Add electrical credit @43.5 mils to Dick Smith's new table. Keep Fig 10.5. Two pages.
- Mike Shay also keep Fig 10.1.
- Schweitzer: show R&D as investment, show capital & operating costs offset by electrical credit.
- Shay summary: rewrite chapter 10 around 10.1, add 10.6 and new fig with discount rate. Schweitzer comment immediately above. Show electric credit, cite EPRI as source for rate. Discuss uncertainty to jive with executive summary.

CHAPTER 11

- Goodwin: delete chapter 11, conclusions, since they are in executive summary

CHAPTER 2

- Darleanne: Fig is 2.1 implementation, confusing.
- Burris: line 110, "research will be directed ..." last line, leave off "... (targets) will be processed in the same manner...".
- Schweitzer: requirements not listed, so how do we get to R&D needs. Carl Walter: they come from reference scenario. Schweitzer: add a paragraph.
- Darleanne: keep Chapter 1 as intro/summary, separate from executive summary.

- Dave Hill: collapse 1&2. Example: 1.5 *ATW Components* and 2.5 *Major ATW components*. Ch 1 as background, what we knew before we started, and Ch 2 as introductory ATW information.

2:40 PM CSDT 21 Jul 99 Wednesday

CHAPTER 1

- Bresee: Page numbering will be consecutive in final report
- Schweitzer: why this structure with Steering Committee, 4 TWGs, etc.
- Put in congressional words in the mandate in chapter 1 early
- Move bullets to the executive summary
- Condense paragraph on page 1.1 (delete from line 15 through 1)?
- Modify Figure 1.1 – add world experts and take out PNL
- Move figure 1.1 reference from line 17 to line 9
- List of acronyms could move to the front of the document

Acronyms

- Take out milliamps and all SI units (Carl Walter)

INTRODUCTION AND BACKGROUND (old Executive summary)

- Old page 1.1 – take out lines 49-51.
- Delete lines 116-122
- Lines 124-128 combine with lines 61-67
- Line 92-98 – rework and remove “small”
- Line 100 – denote for 800 tons
- Drop U-238 example from figure 1.4 – Darleane provide additional comments
- P 1.8 – line 228 – spent fuel, until a second repository is licensed.
- Make benefits in line 233-332 into bullets – and remove tritium production
- Move figure 1.5 and text into the repository chapter
- Use the term transmuter consistently throughout the document
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Bresee – Cost estimate will be provided for a rapidly deployed system. However, DOE recommends a five-year research program. At the end of 5 years DOE will be able to provide a better cost estimate.