

**100 Area End State Workshop, June 23 – 24, 2004**

**100 Area Reactors Breakout**

**Question: Should the reactor blocks be moved to the Central Plateau? If so, should they be moved now or at the end of an interim storage period?**

Raw notes from 100 Area reactors discussion

Group 1 – Facilitator - Gariann Gelston

What is hazard, especially N reactor? EIS ROD driver is Co-60 now and C-14 in 75 years. Chemical hazard taken care of in Interim Safe Storage (ISS) process.

What can we learn in 75 years about hazard and technology? EIS technology based on transporter that already exists – space shuttle.

Use only present assumptions, i.e., 100 Area done in 2012? 5 Year Reviews but need ongoing routine discussions.

What are the details of Cocooning?

Funding now vs. later – may not get funding in 75 years.

Should B reactor be separate discussion? Can we deal with first?

What are the cost estimates of alternatives? In EIS, based on 1989 dollars and order of magnitude, approximately \$2M per reactor for Transport only. Need to include all costs. Yes, but 3 cores already in ISS – 5 by end of 2005. Capping in place order of magnitude in EIS was \$5M.

What new technology in 5 year horizon? Don't discount what appears to be science fiction today. Agree open to look at all technologies that arise.

Is technology development possible for lifts – what are other industries doing now?

Does ISS interfere with cleanup? No, basins gone when ISS complete.

What is gained in reducing worker and environmental risk by waiting?

Who is responsible for cores – DOE, EM, LM? What about in long term, in approximately 75 years?

Does Technology Development get better or does cost decrease over time so that it makes sense to wait? Assumption based on DOE analysis is ISS 75 year storage is safe.

What are pros and cons in moving now? Core is gone from current site. May cost less to do now, but not known given higher worker risk, worker cost could be higher.

What are uncertainties – failure modes? Earthquake, fire, flood evaluated. EIS bounding analysis is airplane impact with fire.

What was impact, what are details? No release.

For ISS what is basis of design; what failure modes? How long can it be used? 75 years design life and same failure modes as EIS.

### B Reactor

B Reactor not on ISS Path now? Correct.

DOE is not in museum business, who will step forward, when and how much money will be needed?

Same risks apply to B Reactor as ISS Cores? If yes, makes sense to keep as is.

Can something be done to make B Reactor safer?

Does everyone support B Reactor Museum? Yes!! But, need to address safety.

B Reactor basin hazards?

DOE timeframe for decision should await outcome of pending legislation – do not cocoon before.

What is historical benefit of keeping B Reactor? Significant. Some areas in Reactor may need cleanup.

If B Reactor configuration is safe, does it mean the rest are safe? Depends on O&M.

Others are different? Only metal roof.

What is potential airborne release?

Terrorist; internal threats. All Reactors face same threat. Needs analysis.

### Options

Bury where they are.

Need to move away from River. Takes approximately 2.5 years to move. Same time for mound in place.

Move to 200 Area and consolidate.

DOI may not be able to take land with Reactor Core.

Institutional Controls improved moving to engineered/central location.

Unrealistic to move now. Needs funding.

Decision needs to be based on value of the land, worker risk and cost.

5 Year Review, with Technology evaluation to see if can be moved before 75 years.

Dismantle B Reactor and disposition core but move building to Museum location.

### Group 2 – Facilitator – Doug Houston

What is being moved? Graphite, under support base, but not biological shield.

Deterioration over 75 years? None expected.

11 mile road through desert has impacts – need to dismantle. Worker risk need to be balanced against Ecological risk.

75 years makes sense, Co-60 gone and C-14 left.

Moving as block now is not good idea. Technology Development will improve the move – revisit later.

Does block “crumble” after 75 years?

Will other land uses away from River have limiting effect on move in 75 years?

Is there a structural hazard over 75 years? Plane crash scenario; Dam break.

Having other Reactors along River is not an eyesore – perhaps serve as monument.

Can we leave in ISS for 200 years? What is lifespan? 6 feet thick concrete walls. If left in place “forever” needs some improvement.

Impact on aesthetics, e.g., “viewshed”. Expectation already is to move them.

Is B Reactor really subject to a 2005/2006 decision. B/C final configuration recommendation. 2012 done in 100 Area.

Is moving now a higher priority than other work? [Dennis Faulk rough guesstimate only today] \$22M each for ISS and \$30M each to move.

What is perception of risk? Low.

Not good idea to move now, but should eventually move.

What is impact of road construction/removal if moved as block? Roads for move, perhaps 50-60 miles total.

Is B Reactor Museum/Preservation Important? Yes by consensus.

What is the different from Submarine Reactor transport? Smaller core, roads exist.

Can B Reactor take a different Alternative and Milestone? Currently not in EIS.

What is the B Reactor "decision" and who makes?

Significant number of group thought Reactor Cores could stay for now. Can consider in future before 75 years. Technology Development, e.g., move technology. If move in single piece - does not seem like good idea.

Can money be set aside now for future disposition?

### Group 3 – Facilitator – Susan Leckband

Does plan assume no under Reactor contamination? All Basins removed for the 5 ISS'd Reactors. Not expected to be contaminated under Reactor.

C-14 release during move? Estimated 10,000 curies C-14 and 1 curie C0-60 left after 75 years. 94 % tied up in the graphite matrix. 4% of total Co-60 and C-14 there now.

Need substantial road – 11+ miles.

Data on worker exposure? EIS estimates 10x more for dismantle over 1 piece move. Public exposure no difference. Industrial risk higher for dismantle.

Roof design life is 75 years. Concrete won't degrade in 75 years.

What is in-situ decommissioning concept? Remove roof, fill with grout or soil, cover.

Acceptance of leaving on River?

## Options

Will other options need new EIS? If yes, simpler to do current plan – remove. Says “Up to” 75 years – should be removed.

Timing should coincide with closure when DOE leaves. Say 2035 (9 half-lives for Co-60) not 2061.

How long does ISS last? 75 years.

Didn't all old Reactors have tube failures into the graphite?

If Reactors left in ISS in 2012 what happens next? Allow decay, but move ~~when~~ before DOE leaves.

Do ROD amendment and consider input. Current ROD OK?

Entomb as in EIS.

Does C-14 release cause problem in moving?

Is risk to public acceptable to leave?

## B Reactor

B Reactor Museum will attract visitors. Need funding. Must have restrictions.

B Reactor Museum – approx. 75 % yes, 25% no for group.

No, probably not a draw.

Remove Core and move important items to Highway area.

Impact on Refuge must be considered.

[OK if] Balanced presentation.

Depends on hazards. Any studies, engineering evaluation?

Cost to maintain? Roof replacement; restrictions; upgrades.

Risks? Safe now, approximately 10 years life for roof.