

**Questions Taken for the Record  
DNFSB Public Hearing and Meeting Convened  
October 2, 2012**

**Record Item 1:** (Page 47/Lines 12-24)

CHAIRMAN WINOKUR: If you can give me a brief answer, it's fine. If not, perhaps you can take this for the record. Can you name any other DOE projects in which -- multi-billion dollar projects in which you've changed contractors at this stage of the project? If you could give me a brief answer to that now? If not, we'll just take it for the record?

MR. ESCHENBERG: Waste Treatment Plant was one that didn't work out extremely well.

CHAIRMAN WINOKUR: Do you have any other examples that pop into mind?


MR. ESCHENBERG: I don't, but we would be happy to take that question for the record.

**Record Response:**

The National Nuclear Security Administration (NNSA) has transitioned contractors during the execution of major line item projects in recent history.

At the Lawrence Livermore National Lab, the NNSA transitioned the Management and Operations (M&O) Contract to Lawrence Livermore National Security, LLC in 2007. During this transition, a major line item project the National Ignition Facility (NIF) was under construction. The project achieved Critical Decision 4, project completion, in March 2009.

At the Los Alamos National Lab, the NNSA transitioned the Management and Operations (M&O) Contract to Los Alamos National Security, LLC in 2006. During this transition, a major line

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item project the Chemistry and Metallurgy Research Replacement (CMRR) Facility was in design, and a \$164 M subproject for CMRR, the Radiological Laboratory Utility Office Building (RLUOB), was under construction. Construction of this project has since been deferred due to budget and program priorities.

**Record Item 2:** (Page 80/Line 24 – Page 82/Line 13)

MR. SULLIVAN: Thank you, Mr. Chairman. I just wanted to follow up along the very same lines with respect to Beta 2E and 9215, but Mr. Erhart, I notice that the facility risk review does say 2030, the language isn't -- doesn't make that a hard date. But what else we just heard you say was we take a look at it every five years. The facility risk review was done this year in May, so if we wait five years it would be 2017 when we do another facility risk review. And I look at what we're doing now on the design till the time when we expect to be operational in UPF and out of 9212, and so from the time we go get in the final design until the time we transfer all of the -- all of the operations, is going to be a decade, most likely, if not longer.

So is waiting five years, is that prudent with respect to these facilities?

MR. ERHART: That's a good question. One thing I failed to mention in my last -- my last answer was they recently decided to conduct the same review essentially that was done on 9212 with the same visibility with these other two buildings, so I believe in that process that they'll be rolled up with the

9212 status, and presented to headquarters and I believe that might be yearly, as a result of that decision.

Now, I will say that if five years is not the right periodicity, then we'd have the option to go in, especially if something changes, so we have to look at significant changes, but there's -- if the need is there to do another study and to take a look at where we are with those facilities, we'll certainly do that.

MR. SULLIVAN: You can take it for the record, if you like, but I would like to have submitted for the record a response to the Department as to what is the marker for -- what are we laying down now for a marker for when we need to look at those two facilities again.

MR. ERHART: Yes, sir.

**Record Response:**

Buildings 9204-2E and 9215 are being placed under the purview of the Y-12 Continued Safe Operating Oversight Team (CSOOT) that is presently in place for building 9212. The Charter of the CSOOT is currently under revision to broaden the scope to include the three facilities. Presently, the CSOOT provides increased vigilance and close observation of enriched uranium infrastructure and process equipment in 9212, including regularly assessing the physical condition of 9212 to support safe operations, and provides timely assessment to senior line management to ensure reliable and safe operations. The CSOOT has been tasked to periodically review technical and performance data and provide updates to senior management on their evaluations and recommendations regarding the adequacy of 9212 to support continued reliable and safe operations. An annual CSOOT formal report for 9212 is prepared and the team presents an annual briefing to the National Nuclear Security Administration (NNSA) and the Defense Nuclear Facilities Safety

Board (DNFSB). NPO is provided oversight with full access to CSOOT team meetings, metrics, system evaluations, annual reports, management briefings, etc. With the ongoing addition of buildings 9215 and 9204-2E to the CSOOT Charter, the plan is to collect and review infrastructure and performance data for each of the three facilities throughout calendar year 2013 and document the CSOOT findings and recommendations in one report encompassing the three facilities on an annual basis.

**Record Item 3: (Page 99/Line 3 – Page 100/Line 4)**

MS. ROBBINS: Yes. The SDOR technology, which is Saltless Direct [Oxide] Reduction, has been demonstrated to a TRL of 6, and in that we do have as part of the technology readiness assessment process, questions with regard to nuclear safety. We do have nuclear safety participants on our technology readiness assessment team, and those considerations have been made.

We do plan on testing the safe shutdown mechanisms associated with the Saltless Direct [Oxide] Reduction System as part of startup testing for the facility, and we consider those to be ancillary to the actual process equipment, the actual shutdown mechanisms that will be used, and that they are common industry technology as far as relays and switches and gas supplies.

MR. BADER: Concerns have been expressed to me about that and I think that is something we -- I would like for the record, if you would submit further information on that, please.

MS. ROBBINS: We can do that.

MR. BADER: My understanding is that's necessary to the successful operation of the SDOR system, and that it challenges it.

MS. ROBBINS: Okay. Yes, sir, we can supply you with a written response.

MR. BADER: Thank you.

**Record Response:**

Regarding Technology Maturity in the UPF project, NNSA is committed to application of the DOE guide on Technology Readiness Assessments (DOE G413.3-4A) including the technology readiness assessment level questions. As part of technology development process, the project will demonstrate safety functions.

The current Technology Readiness Level for the Saltless Direct Oxide Reduction (SDOR) system is 6. The UPF technology readiness assessment process that identified Level 6 did not evaluate whether the safety function had been demonstrated. The UPF Technology Readiness Level questions are being adjusted to align with the DOE Guide 413.3-4A questions. The annual assessment of Technology Readiness Level will utilize the updated questions.

**Record Item 4: (Page 101/Line 12 – Page 102/Line 5)**

CHAIRMAN WINOKUR: Let me just ask the final question. Where are you right now? I know we have to keep this brief. In the critical design process, you were approaching this fall 90 percent design completion. I know we've discussed what that even means. Now we're talking about a potential -- not a potential -- a re-design of the facility, perhaps raising the roof 13 feet. Where are you right now in terms of the critical decision process? Where are you in terms of getting to that 90

percent design? Are you at 80, 70, 60? Where are you at now?

MR. ESCHENBERG: I would like to take that question for the record, and the reason is that we will be much better informed in 20 days on the impacts of the engineering replan, and then what impacts that may have to our ability to achieve Critical Decision 2 by September, 2013. So within approximately three weeks we will be much better informed to answer that question.

**Record Response:**

**The engineering re-plan, as a result of the space/fit challenge, lowered the design percent complete from ~79% to ~60% complete. At the close of the calendar year, the overall design effort is estimated at 66% complete. Following the engineering re-plan efforts, completion of the critical decision 2 (CD-2) milestone is anticipated in 2014.**

**Record Item 5: (Page 113/Lines 3 - 16)**

MR. HAYNES: . . . I also just want to take one second to mention that you do it through people, and it's a critical resource today, people who actually have nuclear operating and nuclear design experience, and I just want to tell you a little bit about the people around me, so you know who's accountable, what roles they have.

CHAIRMAN WINOKUR: I think we understand that right now, basically who they are. I appreciate that very much. You can submit that for the record, but we have some questions we'd like to do and I think it might be best right now to just move

on. Dr. Mansfield.

MR. HAYNES: Yes, sir.

**Record Response:**

In order to achieve these improvements, we have assembled a strong team of experienced professionals to design and construct this facility. They include significant experience dealing with nuclear and chemical hazards, in design, in construction, and in operations. Key functions are represented here today on this panel, and I would like go describe their roles:

- Mark Seely is our Project Director (reporting to me)
  - Has over 24 years of successful project engineering and project management experience.
  - Counterpart to Mr. Eschenberg, FPD
  - Single point accountability for execution of the project, including safety analysis, engineering, procurement, and construction.
- John Gertsen is responsible for UPF Programs (reporting to me)
  - Has over 29 years of engineering management and operational experience in Y-12 Enriched Uranium processes, operations, and development.
  - Counterpart to Dr. Cook's staff and to Mr. Erhart's staff.
  - Represents the Y-12 user of UPF, from programmatic, operations, and safety basis perspectives, focused ultimately on safe operation of UPF to meet mission.
- Brant Morowski is our Engineering Manager (reporting to Mr. Seely)
  - Has over 27 years of nuclear engineering management experience with the Department of Energy and Commercial Nuclear Power Industry.
  - Accountable for delivery of design and safety basis documents by managing a large team of engineers from our company and four engineering subcontractors.
  - Integrates safety and design, and coordinates with Y-12 counterparts who provide independent Design Authority.
- Kevin Kimball is our Safety Analysis Engineering Manager
  - Has over 30 years of experience with DOE nuclear facilities in the management of safety analysis engineering including nuclear criticality safety and nuclear facility safety.

- **Leads facility safety analysis and nuclear criticality safety analysis.**
- **Accountable to deliver safety basis documents integrated with design and with a robust safety control set.**

**Record Item 6: (Page 72/Line 22 - Page 73/Line 16)**

MR. BADER: This goes to my other question. Are you comfortable that you know the cause adequately that you can control the risk going forward of having to remove even further processes, as the design continues?

MR. ESCHENBERG: At this point we are. I will tell you that over the course of the next quarter we will be much better informed by, one, the results that of our independent assessment and evaluation of the factors that led to this. Two, the detailed engineering completion schedule or the two-go engineering completion schedule. And thirdly, although I gave you kind of a higher order of thumbnail sketch of what the structural impacts were and how the individual operations were going to be reconfigured to help accommodate our space-fit challenge, as those details become more clear to me and our design review team, I'll be much more informed and can give you a much more informed answer in approximately 90 days.

**Record Response:**

**NNSA has reviewed and assessed these areas: baseline change package; technical resolution of space/fit issues; and the circumstantial and mechanistic conditions that led to a late discovery of process equipment fit challenges. The latter was conducted as an after-action fact finding review (AAFFR) or root**



cause analysis. The AAFFR identified the following causes of the space\fit issue:

- Premature establishment of the building footprint.
- Less than adequate integration between design groups (Subcontractor to subcontractor, subcontractor to M&O and within the M&O).
- Late use of off-project resources to seek a solution.
- Ineffective risk management of known space margin risks.
- Ineffective space margin management.
- Poor management of the 3-dimensional modeling tool that allowed multiple users without centralized control.
- Weaknesses in Systems Engineering Integration (processes and procedures).

The UPF Project Team has taken the following actions to address the causes above:

- Establishing a "phased gate approach" to assess known risks to the size of the facility at pre-determined intervals prior to proceeding with successive design phases. The size of the facility will not be determined and finalized until we have confidence in internal infrastructure needs and equipment sizing has been completed.
- Reevaluation and assessment of the project's risks and risk management database and upgrades to the risk management program.
- Established a space margin management program.
- Established a disciplined and formal process for 3-dimensional model management.
- Ongoing contract transition facilitates an opportune juncture for upgrading Systems Engineering processes and procedures.