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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Board Public Meeting and Hearing

Thursday, March 22, 2012

Session I

1:00 p.m.

Three Rivers Convention Center

7106 West Grandridge Boulevard

Kennewick, Washington

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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

DEFENSE NUCLEAR FACILITIES SAFETY BOARD)
BOARD PUBLIC MEETING AND HEARING)

PARTICIPANTS:

- MR. PETER S. WINOKUR, Chairman
- MS. JESSIE H. ROBERSON, Vice Chairman
- DR. JOHN E. MANSFIELD, Board Member
- MR. JOSEPH F. BADER, Board Member
- MR. TIMOTHY J. DWYER, Technical Director
- MR. RICHARD E. TONTODONATO, Deputy Technical Director
- MR. RICHARD A. AZZARO, General Counsel
- MR. RICK SCHAPIRA, Deputy General Counsel
- MR. BRIAN GROSNER, General Manager
- MR. STEVEN STOKES, Group Lead, Nuclear Facility Design & Infrastructure
- MR. WILLIAM LINZAU, DNFSB Hanford Site Representative
- MR. ROBERT QUIRK, DNFSB Hanford Site Representative

ALSO PRESENT:

(1:30 Panel Discussion)

- MR. DALE KNUTSON, DOE Federal Project Director for WTP
- MR. GARY BRUNSON, DOE Director Engineering Division for WTP
- MR. FRANK RUSSO, WTP Project Director
- MR. WILLIAM GAY, Assistant Project Director, WTP Vessel Completion Team and Plant Operations
- MR. THOMAS PATTERSON, WTP Manager of Engineering
- MS. DONNA BUSCHE, WTP Manager of Environmental and Nuclear Safety
- MR. RUSSELL DANIEL, WTP Vessel Completion Team Technical Manager.

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ALSO PRESENT (Cont'd):

(2:30 Panel Discussion)

MR. MATTHEW MOURY, DOE-EM Deputy Assistant Secretary
for Safety, Security and Quality Programs

MR. SCOTT SAMUELSON, DOE Manager of the Office of
River Protection

MR. DALE KNUTSON, DOE Federal Project Director for
WTP

MR. PAUL HARRINGTON, DOE Assistant Manager of
Engineering and Nuclear Safety for the Office of
River Protection

MR. GARY BRUNSON, DOE Director Engineering Division
for WTP

DR. FRED BERANEK, WTP Manager of Nuclear Safety and
Plant Engineering

MR. THOMAS PATTERSON, WTP Manager of Engineering

MS. DONNA BUSCHE, WTP Manager of Environmental and
Nuclear Safety.

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I N D E X

Chairman's Opening Remarks 5

Statement by Mr. Scott Samuelson, DOE Manager of the Office of River Protection 13

Statement by Mr. Steven Stokes, Group Lead, Nuclear Facility Design & Infrastructure 21

Panel Discussion with Mr. Dale Knutson, DOE Federal Project Director for WTP; Mr. Gary Brunson, DOE Director Engineering Division for WTP; Mr. Frank Russo, WTP Project Director; Mr. William Gay, Assistant Project Director, WP Vessel Completion Team and Plant Operations; Mr. Thomas Patterson, WTP Manager of Engineering; Ms. Donna Busche, WTP Manager of Environmental and Nuclear Safety; and Mr. Russell Daniel, WTP Vessel Completion Team Technical Manager 30

Panel Discussion with Mr. Matthew Moury, DOE-EM Deputy Assistant Secretary for Safety, Security and Quality Programs; Mr. Scott Samuelson, DOE Manager of the Office of River Protection; Mr. Dale Knutson, DOE Federal Project Director for WTP; Mr. Paul Harrington, DOE Assistant Manager of Engineering and Nuclear Safety for the Office of River Protection; Mr. Gary Brunson, DOE Director Engineering Division for WTP; Dr. Fred Beranek, WTP Manager of Nuclear Safety and Plant Engineering; Mr. Thomas Patterson, WTP Manager of Engineering; and Ms. Donna Brusche, WTP Manager of Environmental and Nuclear Safety 78

Public Comments 111

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2
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P R O C E E D I N G S .

CHAIRMAN: Good afternoon. My name is Peter Winokur and I am the Chairman of the Defense Nuclear Facilities Safety Board. I will preside over this public meeting and hearing.

I would like to introduce my colleagues on the Safety Board. To my immediate right is Ms. Jessie Roberson, the Board's Vice Chairman. To my immediate left is Dr. John Mansfield. Next to him is Mr. Joseph Bader. We four constitute the Board.

The Board's General Counsel, Mr. Richard Azzaro, is seated to my far left. The Board's Deputy Technical Director, Mr. Richard Tontodonato, is seated to my far right.

Several members of the Board staff closely involved with oversight of the Department of Energy's defense nuclear facilities are also here.

Today's meeting and hearing was publicly noticed in the Federal Register on January 5 and March 8, 2012. The meeting and hearing are held open to the public per the provisions of the Government in the Sunshine Act. In order to provide timely and accurate information concerning the Board's public and worker health and safety mission throughout the Department of Energy's defense nuclear complex, the Board is recording this

1 proceeding through a verbatim transcript, video
2 recording, and live video streaming.

3 The transcript, associated documents, public
4 notice, and video recording will be available for viewing
5 in our public reading room in Washington, DC. In
6 addition, an archived copy of the video recording will be
7 available through our website for at least 60 days.

8 Per the Board's practice and as stated in the
9 Federal Register notice, we will welcome comments from
10 interested members of the public at the conclusion of
11 testimony, approximately 3:45 p.m. this afternoon for
12 Session I and approximately 8:30 p.m. this evening for
13 Session II.

14 A list of speakers who have contacted the Board
15 is posted at the entrance to this room. We have
16 generally listed the speakers in the order in which they
17 contacted us or, if possible, when they wished to speak.
18 I will call the speakers in this order and ask that
19 speakers state their name and title at the beginning of
20 their presentation.

21 There is also a table at the entrance to this
22 room with a sign-up sheet for members of the public who
23 wish to make a presentation, but did not have an
24 opportunity to notify us ahead of time. They will follow
25 those who have already registered with us in the order in

1 which they have signed up.

2 To give everyone wishing to make a presentation
3 an equal opportunity, we ask speakers to limit their
4 original presentations to five minutes. The Chair will
5 then give consideration for additional comments should
6 time permit.

7 Presentations should be limited to comments,
8 technical information, or data concerning the subjects of
9 this public meeting and hearing. The Board Members may
10 question anyone making a presentation to the extent
11 deemed appropriate.

12 The record of this proceeding will remain open
13 until June 23, 2012.

14 I would like to reiterate that the Board
15 reserves its right to further schedule and regulate the
16 course of this meeting and hearing to recess, reconvene,
17 postpone, or adjourn this meeting and hearing, and to
18 otherwise exercise its authority under the Atomic Energy
19 Act of 1954, as amended.

20 The Board's statutory charter is to ensure the
21 adequate protection of the public health and safety,
22 including safety of the workers. In the case of the
23 Waste Treatment Plant, however, this statutory charge is
24 made more complex because we are not just concerned about
25 whether this plant can operate safely, we are also

1 concerned about whether the plant is fully capable of
2 processing the large volume of toxic and radioactive
3 wastes now stored in underground tanks at Hanford. The
4 oldest tanks, which were built with a 20-year design
5 life, date back to World War II and will be almost 100
6 years old by the end of the projected treatment mission.
7 The Board therefore inquired into many issues that
8 involve a mixture of accident risk and the ability to
9 reduce risks posed by continued storage in Hanford's tank
10 farms due to potential performance limitations of the
11 Waste Treatment Plant.

12 The Board recognizes that the Waste Treatment
13 Plant serves a vital function in the cleanup of the
14 Hanford Reservation, and that it is important to get the
15 plant operational. However, the Board also recognizes
16 that the Department's decision to pursue a design-build,
17 fast-track approach for this project involves potentially
18 greater risk than would a traditional design and
19 construction approach. What concerns the Board are the
20 Department's decisions to continue design and
21 construction of the plant when there are many major
22 unresolved technical issues that can impact not only
23 safety-related controls needed to protect the public and
24 workers, but also the reliability and capability of a
25 plant that must operate safely for decades. Once the

1 plant is operating and processing radioactive waste,
2 options for physical changes in process cells will be
3 extremely limited, costly, and likely to expose workers
4 to hazardous situations. To the maximum extent possible,
5 solutions to design and operational issues must be
6 accommodated before commissioning. A learn-as-we-go
7 operating philosophy is not prudent or safe for this
8 facility.

9 The Board held a hearing at Hanford in October
10 2010 to better understand the project's progress towards
11 resolving technical issues dealing with mixing, hydrogen
12 control, and safety basis development. The Board's
13 evaluation of the technical issues was broadened in
14 December of 2010 to include an investigation into the
15 project's safety culture after the Board received a
16 letter from Dr. Walter Tamosaitis, a former engineering
17 manager for the project. In his letter, Dr. Tamosaitis
18 alleged that he was removed from the project because he
19 identified technical issues that in his view could affect
20 safety. He further alleged that there was a flawed
21 safety culture at the project.

22 The Board's investigation concluded that the
23 Waste Treatment Plant project suffered from serious
24 problems in safety culture and in the management of
25 safety issues. As a result, the Board issued

1 Recommendation 2011-1, Safety Culture at the Waste
2 Treatment and Immobilization Plant, on June 9, 2011,
3 identifying the need for prompt, major improvement in the
4 safety culture of the project. From the Board's
5 perspective, the "flawed" safety culture at the Waste
6 Treatment Plant is an indicator that significant
7 organizational weaknesses may be adversely impacting the
8 project's ability to identify, address, and resolve
9 critical technical issues, which directly impact the
10 ability of the plant to treat waste safely and
11 efficiently. The Department of Energy accepted the
12 Board's Recommendation and is executing a plan to fully
13 characterize and address problems in safety culture at
14 the Waste Treatment Plant.

15 The Department has now completed assessments of
16 safety culture that make it clear that the project has a
17 problem with the timely identification and resolution of
18 technical issues. Pivotal unresolved technical issues
19 that affect safety include the effectiveness of the
20 plant's mixing and transfer systems, the potential for
21 erosion and corrosion of process equipment that is not
22 designed to be accessible for repair or replacement, the
23 effectiveness of the strategy for preventing equipment
24 damage and release of radioactive material due to
25 hydrogen explosions in process systems, and the ability

1 of the Tank Farms to deliver waste that is demonstrated
2 to meet the Waste Acceptance Criteria that will be
3 established for the treatment plant.

4 Taken together, these unresolved design issues
5 challenge the ability of the plant to safely and
6 efficiently perform its mission. Moreover, the project
7 must fully address the need to develop a defensible
8 safety basis for the facility. This safety basis will be
9 embodied in a collection of Documented Safety Analyses
10 per the requirements of DOE's Nuclear Safety Management
11 Rule, 10 CFR its code of regulations Part 830, and its
12 associated standard, DOE-STD-3009, Preparation Guide for
13 DOE Nonreactor Nuclear Facility Documented Safety
14 Analyses. When the Department approves those documents
15 they will serve as a license to safely operate the
16 facility.

17 In this afternoon's session, the Board plans to
18 receive testimony concerning: (1) the significance of the
19 timely integration of safety into the Waste Treatment
20 Plant's design and (2) the relationship between the
21 resolution of safety issues and the development of a
22 sound nuclear safety strategy in support of a defensible
23 safety basis for the facility.

24 To illustrate these challenges, the Board will
25 explore two areas of technical concern: Erosion/

1 corrosion and pulse jet mixing. We do not intend to have
2 an exhaustive technical discussion, but rather an
3 overview of how the project is addressing and resolving
4 these issues and integrating adequate safety controls
5 into the design and safety basis for the facility. We
6 will focus on the potential impact unresolved technical
7 issues have on nuclear safety aspects of the plant's
8 design and ability to treat waste. We will spend some
9 time receiving testimony from senior project and
10 Department personnel on their perspectives concerning the
11 accumulating risks associated with these unresolved
12 issues, both during this hearing and a subsequent hearing
13 to be held in Washington, DC, on May 22, 2012.

14 In the session that will follow tonight, we will
15 receive testimony concerning DOE's progress towards
16 implementing the Board's Recommendation on the project's
17 safety culture. The Board is convinced that
18 strengthening the project's safety culture will be the
19 key to improving how the project resolves technical
20 issues like the ones discussed in this afternoon's
21 session. These two topics, safety culture and resolution
22 of technical issues, are intimately related and closely
23 linked. The Board believes that the keys to resolving
24 technical issues and building a strong safety culture are
25 two sides of the same coin.

1 This concludes my opening remarks.

2 I will now turn to the Board members for their
3 opening remarks. Ms. Roberson.

4 VICE CHAIRMAN: I have no statement at this
5 time, Mr. Chairman.

6 CHAIRMAN: Dr. Mansfield.

7 DR. MANSFIELD: Nothing at this time.

8 CHAIRMAN: Mr. Bader.

9 MR. BADER: No comments.

10 CHAIRMAN: This concludes the Board's opening
11 remarks. At this time I'd like to invite Mr. Scott
12 Samuelson, DOE Manager of the Office of River Protection
13 to the witness table to provide a statement on behalf of
14 the Department of Energy.

15 Mr. Samuelson, we'll accept your full written
16 statement and testimony. I'd like you to, if possible,
17 limit your comments to 10 minutes or less.

18 MR. SAMUELSON: Thank you. Certainly. Thank
19 you. Good afternoon, Mr. Chairman. Thank you and the
20 other Board Members, Board Staff, and members of the
21 public. We appreciate this opportunity to discuss
22 progress at the Waste Treatment Plant and our ongoing
23 work to resolve the technical issues and strengthen our
24 nuclear safety culture. I look forward to an open and
25 productive exchange today.

1 As manager of the Office of River Protection, I
2 am responsible for the entirety of the River Protection
3 Project. That includes ensuring that 56 million gallons
4 of chemical and radioactive waste in Hanford's
5 underground tanks is safely stored while we put in place
6 the capabilities to safely retrieve, deliver, treat and
7 immobilize that waste, and close the tank farms. We
8 appreciate the Board's recognition of the risk posed by
9 Hanford's tank waste and your role in helping to protect
10 the public and workers by helping to ensure our treatment
11 solution at Hanford is both safe and capable. It is
12 critical -- all right, thank you -- it is critical that
13 we view and discuss the challenge before us as "One
14 System," as all of the activities within the River
15 Protection Project must work together to address the risk
16 posed by the tank waste. To this end, one of my highest
17 priorities has been to improve alignment of the WTP and
18 the Tank Farms through the One System approach, improving
19 our ability to address technical issues and challenges.
20 This approach was created to develop the most effective
21 solutions to technical issues and to manage overall
22 schedule and cost risk as we prepare for waste treatment.
23 I am pleased to inform you that this approach is moving
24 forward, and is an essential element in developing
25 responses to Board Recommendation 2010-2 (Pulse Jet

1 Mixing at the Waste Treatment and Immobilization Plant).

2 I'd like to assure you that I recognize the
3 unique responsibility of my role in the department's
4 self-regulating environment, and that I believe safety is
5 absolutely fundamental to everything we do. Without that
6 foundation, we cannot be successful, and failure to
7 achieve this mission safely is not acceptable - a value
8 that I believe the Board and the Department share
9 equally. To be successful, we must instill a culture
10 where executing this mission is a belief shared by all
11 and is widely recognized and valued that safety is a
12 belief shared by all audit is an essential element of the
13 design, construction and operation of our One System.

14 As the Board has pointed out, the WTP is a
15 Design-Build project, and therefore incorporates an
16 iterative design process with risk-based decisions
17 related to procurement and construction. In this
18 approach, early project conservatisms are expected to be
19 refined over time as the design evolves, the safety basis
20 is further developed and studies and analyses clarify
21 uncertainties. In some cases, the completed studies and
22 analyses identify new hazards or the need to increase the
23 design or safety margins, as may be the case in any
24 project approach. In all cases, the ability to meet
25 safety and functional requirements will be verified prior

1 to introducing any hazardous materials to the plant.

2 Since your last public meeting, the project has
3 been the focus of assessments and surveys related to
4 safety culture and quality, and we are identifying and
5 incorporating these opportunities for improvement and how
6 best to address them. These assessments have highlighted
7 that resolution of technical issues in a manner which is
8 transparent, thorough and reflective of our commitment to
9 safety is critical to our mission. We acknowledge and
10 understand the relationship between safety culture and
11 the resolution of technical issues. We will continue to
12 strengthen our resolution processes to assure diverse
13 viewpoints are welcome, that we demonstrate our
14 commitment to understand the issues, and deliberately and
15 transparently determine and communicate our response.

16 We are committed to building a vibrant and
17 sustainable safety culture at Hanford; however, we must
18 also remain vigilant not to allow concerns regarding our
19 current conditions to create barriers to aggressively
20 addressing the known safety issues. At the same time,
21 and in concert with my earlier remarks about One System,
22 we will also ensure that we are addressing safety culture
23 for the entire River Protection Project, and not limiting
24 our focus to a single element of that system.

25 DOE acknowledges the need to resolve technical

1 issues associated with this first-of-a-kind nuclear waste
2 processing facility. As part of the design assurance
3 process, DOE directed the WTP Project to convene an
4 External Flowsheet Review Team in October 2005 and
5 continues to address actions identified by that team.
6 The EFRT identified 28 issues as part of the review,
7 including mixing, erosion and corrosion. The structural
8 integrity of the WTP vessels and piping is vital to
9 ensuring the WTP can be operated for its design life,
10 especially due to the design which does not allow access
11 to the equipment without significant cost and schedule
12 impacts once the facility goes hot. The erosion and
13 corrosion, and hydrogen issues continue to be evaluated
14 by DOE, the Board and external review groups from
15 academia and industry.

16 During the public meeting in 2010, DOE made a
17 commitment to large-scale testing for pulse jet mixed
18 vessels to manage residual risk related to overall mixing
19 performance. This commitment became the foundation for
20 the Implementation Plan to address Recommendation
21 2010-2. The plan provides a framework to resolve the
22 pulse jet mixing issue, and requires the integration of
23 Nuclear Safety and Engineering activities for both WTP
24 and Tank Farms. Relative to nuclear safety the plan
25 addresses criticality, flammable gas, and material

1 failure of process vessel components arising from
2 inadequate mixing of Pulse Jet mixed vessels at WTP.

3 Mixing is the most challenging technical issue
4 remaining for the Pretreatment Facility, and is driven by
5 the uncertainties in the waste feed streams as well as
6 the ability to define and calculate the performance of
7 the full scale pulse jet mixed vessels. The Department
8 has made progress in closing safety issues related to
9 Pulse Jet Mixing and large scale integrated testing.
10 Testing will be conducted three different scales, 4-foot,
11 8-foot, and 14-foot. The 14-foot tests represent full
12 scale tests for some vessels in the Pretreatment
13 Facility. The 8 foot test vessel has been installed and
14 water runs are in the progress. Testing is forecast to
15 start in late April pending final comment resolution on
16 the test documentation and submittal of that
17 documentation to the Board in accordance with our
18 Implementation Plans. Design of the 14-foot test
19 facility is 90 percent complete and is currently being
20 reviewed. In addition, civil and structural work has
21 been started on this new test facility and the current
22 forecast to start operation of the facility is the summer
23 of 2013. We invite the Board to join us for a tour of
24 these test facilities on a future visit to Hanford.

25 DOE realizes the complexity and breadth of the

1 effort that must be accomplished to address the
2 outstanding technical issues, and has developed plans to
3 ensure their resolution. These issues must be resolved
4 in an open and transparent manner to assure ourselves,
5 the Board, and the public that we are designing,
6 constructing and will commission a facility that can
7 safely be operated over its mission life. Without the
8 kind of transparency provided by this hearing, panel
9 discussions along with independent external reviews,
10 stakeholder briefings, open houses and web-based
11 information access, our activities cannot gain the
12 confidence of the public that we need in order to be
13 successful.

14 At the time of the 2010 public meeting, we were
15 transitioning from a design/construction phase to a
16 construction/commissioning phase. We are now at another
17 critical point in the project as we begin to re-plan our
18 path forward to project completion. During this process,
19 our highest priority is to meeting our commitments to
20 ensure resolution of outstanding technical issues
21 consistent with our DNFSB commitments, and improving the
22 alignment between the safety basis and the design basis
23 in a structured, thorough and thoughtful manner.

24 In summary, we will remain committed to the
25 safety of our workers and the public, and the protection

1 of the environment. We fully embrace our oversight role,
2 and will continue to bring resources to bear as needed to
3 identify and resolve issues that may impact the success
4 of the ORP mission. As part of this oversight and issue
5 resolution process we will continue to access and utilize
6 key resources within DOE and contractor teams, as well as
7 from industry, academia and the National Laboratories.
8 Our One System approach improves our ability to make
9 mission-based decisions that reflect a comprehensive
10 approach to accomplishing our mission. We understand the
11 importance of listening, thanking those individuals who
12 express differing views, and providing respectful and
13 technically sound feedback on the decisions we make after
14 careful consideration of all available input.

15 Thank you again for the opportunity provided by
16 this public hearing. We are looking forward to
17 addressing your questions.

18 CHAIRMAN: Thank you, Mr. Samuelson, for the
19 opening statement on behalf of the Department of Energy.
20 At this time the Board would like to recognize Steven
21 Stokes, who is the group lead for Nuclear Facility Design
22 and Infrastructure on our staff. He's going to briefly
23 discuss the status of the project's technical resolution
24 efforts and the development of its nuclear safety
25 strategy to set the stage for this hearing's panel

1 discussions. Mr. Stokes, please proceed with your
2 statement.

3 MR. STOKES: Good afternoon Mr. Chairman and
4 Members of the Board. For the record, my name is Steven
5 Stokes, and I'm the Board's Lead for the Nuclear
6 Facilities Design and Infrastructure. I'm responsible
7 for the Board's staff reviews of design and construction
8 projects.

9 This testimony will address concerns of the
10 Board's staff regarding unresolved safety issues and
11 development of safety-related controls for the Waste
12 Treatment and Immobilization Plant (WTP).

13 The erosion and corrosion of plant systems and
14 pulse jet mixing are both long-standing technical issues
15 at the WTP. The following testimony provides background
16 information and discusses status of efforts to resolve
17 these issues, and development of the WTP nuclear safety
18 basis.

19 For perspective, erosion/corrosion issues are a
20 long standing concern at the WTP. Beginning in October
21 2001, a material of construction Blue Ribbon Panel
22 evaluation recommended the project team consider upgraded
23 materials for vessels that contain solutions with high
24 "pitting" potentials unless the process chemistry
25 conditions could be better defined. This review was

1 followed by reviews in February 2004, two reviews in July
2 2004, and reviews in March 2006 and May 2008.

3 Interestingly, although many of these early
4 concerns are considered resolved by Bechtel National
5 Incorporated's (BNI's) project team, the findings from
6 early reviews share common themes with the findings from
7 recent Department of Energy and Board reviews. The
8 common themes are: Literature studies are used instead
9 of laboratory testing to establish both general and
10 localized wear rates and margins; use of average material
11 performance; poor understanding of waste chemistry; and
12 considering the level of uncertainty, inadequate wear
13 margins.

14 In 2011, the DOE-WTP Engineering Department
15 conducted surveillances that identified issues with
16 material selections for some vessels. DOE's primary
17 concern was that some vessels would be operated at
18 temperatures high enough to make localized corrosion
19 failures possible.

20 In its other surveillance, DOE noted that the
21 selection of materials for certain process vessels was
22 based on literature information, but the literature cited
23 was not directly relevant to WTP process environments.
24 The use of literature values without direct relevance
25 results in substantial uncertainty and is not appropriate

1 to establish vessel operating envelopes with adequate
2 safety margin. DOE determined that the operating
3 temperature for at least six Pretreatment Facility
4 vessels, three High Level Waste Facility vessels, and one
5 Low Level Waste Facility vessel is above the temperature
6 where localized corrosion failures might occur. In
7 response to DOE's ongoing concerns, BNI has agreed to a
8 number of technical studies and actions designed to
9 resolve DOE's concerns.

10 In a separate action, the Board provided a
11 letter to DOE in January 2012, communicating its concerns
12 that design wear allowances for vessels, piping, and PJM
13 nozzles may not be adequate. On March 5, 2012, DOE
14 responded to the Board's letter. DOE and BNI have
15 outlined a number of technical studies and actions they
16 believe will resolve the Board's concerns. DOE also
17 reiterated their commitment to hold additional vessel
18 placements until they have confidence vessel wear
19 allowances are adequate and the WTP can operate safely
20 and reliably for its 40-year mission life.

21 Mixing is also a very long standing issue at the
22 WTP. Beginning in June 2000, when British Nuclear Fuels
23 Limited (BNFL) completed the conceptual design for the
24 pulse jet mixing system until now, work has been ongoing
25 to address various mixing problems. For example,

1 beginning in 2001, when BNFL concluded that testing was
2 required to develop and optimize the Pulse Jet Mixing's
3 ability to mix high-solids and high viscosity fluids,
4 until March 2006, when the External Flowsheet Review
5 Team, or EFRT, identified their PJM mixing issues,
6 unresolved issues have and continue to exist. Following
7 the 2006 EFRT review until recently, testing has been
8 conducted at Pacific Northwest National Laboratory,
9 Mid-Columbia Engineering, and other facilities in an
10 attempt to resolve the mixing issues. In its latest test
11 program, the Large Scale Integrated Test, or LSIT
12 program, testing will be ongoing from 2012 until 2016.

13 Specific to pulse jet mixing, there are still
14 three main unresolved safety issues:

15 1) The accumulation of fissile material at the
16 bottom of vessels leading to potential criticality; 2)
17 The generation and accumulation of hydrogen gas resulting
18 from the accumulation of solids; and 3) the possibility
19 that accumulating solids will interfere with the
20 vessel-level detection system leading to a loss of pulse
21 jet mixer control and overblows.

22 The Department of Energy's mixing issue
23 resolution efforts are linked to the Board's
24 Recommendation 2010-2, Pulse Jet Mixing at the Waste
25 Treatment and Immobilization Plant. DOE is just

1 beginning to respond to the Board's recommendation, and
2 has not yet completed its preparations to begin testing
3 associated with the LSIT program; although, work to
4 prepare for testing has been underway for the past
5 several months.

6 In one of its first actions in response to the
7 Board's recommendation, DOE identified 99 known technical
8 issues associated with pulse jet mixing that require
9 resolution. These issues are related to: Criticality,
10 PJM control and performance, vessel pump out,
11 identification of design margin, validation and
12 verification of computer models, erosion/corrosion,
13 integration of nuclear safety into design, and waste
14 characterization uncertainties.

15 To address these issues, DOE provided the Board
16 with a summary level plan and notional schedule. This
17 plan identified a high level process for developing the
18 safety-related controls for mixing and described the
19 activities they plan to undertake to identify and
20 evaluate the hazards associated with these issues.
21 However, DOE did not identify how or when each issue will
22 actually be resolved.

23 BNI's early testing activities support design
24 verification and vessel placement while later testing
25 will determine mixing performance limitations and support

1 development of Waste Acceptance Criteria.

2 BNI's early test schedule is focused on
3 completing design verification and installing the
4 remaining vessels to support construction. Based on the
5 schedule provided to the Board, vessel installation is
6 planned to precede testing to determine mixing
7 performance limitations, development of the Waste
8 Acceptance Criteria, and reconstitution of the safety
9 basis, by several years.

10 As part of DOE's effort to describe the 99 known
11 technical issues, DOE acknowledged the existence of
12 deficiencies in the WTP safety basis and informed the
13 Board that they will reconstitute the Pretreatment
14 Facility safety basis. Clearly, this effort will be made
15 more difficult by the number of unresolved technical
16 issues the project is addressing that impact safety and
17 the need for controls. Reconstituting the safety basis
18 is a significant development and a major undertaking,
19 particularly at this stage of the WTP project.

20 To reconstitute the safety basis, DOE plans to
21 complete a hazards analysis, accident analysis, and
22 evaluate safety-related control selections to address any
23 associated unevaluated hazards. The Board's staff
24 believes reconstituting the safety basis is warranted,
25 and will likely reveal that the existing safety-related

1 controls are not sufficient to meet DOE nuclear safety
2 requirements. The staff anticipates that as BNI begins
3 resolving the known technical issues, validating
4 assumptions used to advance the design, and
5 reconstituting the safety basis, changes to the existing
6 safety-related controls or the control philosophy will
7 result.

8 Additionally, reconstituting the safety basis at
9 this stage in the WTP project has the potential to be
10 both very costly and difficult to implement. As such,
11 there is potentially much greater reluctance to make
12 changes now than it would have been earlier. For
13 example, the WTP has decided to "pivot" the project from
14 design to construction and operation. Properly
15 reconstituting the safety basis has the potential to stop
16 or delay "pivoting". Secondly, reconstituting the safety
17 basis, a difficult undertaking under the best of
18 circumstances, is more difficult for a fast-track, design
19 build project. And, the existence of unresolved
20 technical issues further complicates the reconstitution
21 process since many of these issues will require further
22 testing as part of their resolution, which takes time to
23 complete. The Board's staff primary concern is that the
24 potential for significant project impacts can
25 inappropriately influence decision makers or project

1 personnel due to the difficult or unpopular nature of
2 these decisions.

3 DOE is aware of this risk and has attempted to
4 institute processes to prevent installation of systems or
5 components which have irreversible impacts on the
6 project. For example, BNI used the management suspension
7 of work process to prevent further design or installation
8 of systems not aligned with the nuclear safety basis.
9 BNI is developing a process to define when the
10 installation of equipment poses unacceptable project risk
11 as part of their design verification process. This
12 process will be designed to ensure that design
13 verification is completed before installation becomes
14 "irreversible".

15 On March 6, 2012, in response to DOE concerns,
16 BNI committed to develop and implement a process that
17 establishes risk decision criteria to evaluate
18 installation of equipment with incomplete design
19 verification and to document these decisions. The
20 Board's staff reviewed BNI's proposed process and
21 observed that nuclear safety considerations are not
22 currently considered when determining if proceeding with
23 incomplete design verification poses an "acceptable
24 risk". The Board's staff believes that failing to
25 include nuclear safety considerations in this

1 determination is inappropriate given that the design
2 verification process must address applicable nuclear
3 safety aspects of the design.

4 This concludes my remarks.

5 CHAIRMAN: Do the Board members have any
6 questions for Mr. Stokes? Seeing none I want thank you
7 for your testimony. And we will move to our first panel.
8 I would like to invite the first panel, the witnesses
9 from the Department of Energy and its contractor
10 organizations to discuss unresolved technical issues at
11 the Waste Treatment Plant with a focus on the issues of
12 erosion and corrosion and pulse jet mixing. Would the
13 panel members please take your seats as I introduce you.

14 Mr. Dale Knutson, DOE's Federal Project Director
15 for the Waste Treatment Plant; Mr. Gary Brunson, DOE's
16 Director of Engineering Division for the Waste Treatment
17 Plant; Mr. Frank Russo, the Waste Treatment Plant Project
18 Director; Mr. William Gay, the Associate Project Director
19 for the Waste Treatment Plant Vessel Completion Team and
20 Plant Operations; Mr. Thomas Patterson, Waste Treatment
21 Plant Manager of Engineering; Ms. Donna Busche, the Waste
22 Treatment Plant Manager of Environmental and Nuclear
23 Safety; Mr. Russell Daniel, the Waste Treatment Plant
24 Vessel Completion Team Technical Manager.

25 The Board will either direct questions to the

1 panel or individual panelists who will answer them to the
2 best of their ability. After that initial answer other
3 panelists may seek recognition of the Chair to supplement
4 an answer as necessary. If panelists would like to take
5 a question for the record, the answer to that question
6 will be entered into the record of the hearing at a later
7 time.

8 Does anyone on the panel wish to submit written
9 testimony at this time? Seeing none I'd like to thank
10 each of you for your testimonies today. With that we
11 will begin with questions from the Board members. And I
12 believe we will begin with Dr. Mansfield.

13 DR. MANSFIELD: Thank you, Mr. Chairman. Mr.
14 Brunson, the Department currently has outstanding
15 surveillances related to caustic stress corrosion
16 cracking of the ultrafiltration system and materials
17 selection for a number of WTP vessels. Can you describe
18 what issues are still open related to these
19 surveillances?

20 MR. BRUNSON: Yes, sir. There -- I believe what
21 you're referring to are two surveillances. One came out
22 in I believe the July/August timeframe of 2011.

23 CHAIRMAN: Could you position the microphone a
24 little closer?

25 MR. BRUNSON: Yes, sir. I believe what you're

1 talking about are two surveillances, one came out of the
2 July/August timeframe and the other one came out I
3 believe in the -- I'd have to go back and look at the
4 record. What the two issues deal with is is the first
5 one had to do with caustic stress corrosion cracking.
6 And that was primary with two vessels, UFP2 alpha and
7 bravo, those are the actual leaching vessels. And I
8 noticed when I got here -- I arrived on the project in
9 late May of 2008. My previous assignment I was a
10 laboratory director for the Navy so I was fairly familiar
11 with metallurgy.

12 When I looked at the vessels I saw that they
13 were made out of a carbon -- excuse me, a stainless
14 steel. The first, I believe UFP1 is a 316 and UFP2 is a
15 304 L. When I looked at that I had a concern about it so
16 I immediately placed a call back and talked to some
17 metallurgists that I worked with before and I just asked
18 them a question, I said, Hey, I've got something, I have
19 a high caustic, I'm running up around 85, 90 degrees
20 celsius. What would you guys recommend that this
21 material be in? They called me back in about an hour and
22 they said it should be a Hastelloy material. Hastellog.

23 So based on that I kind of -- on my board I keep
24 a list of issues that I'm concerned about, so I put it on
25 the board and at that particular time DOE did not have an

1 adequate engineering staff, as told to me by Mr.
2 Eschenberg, who was the federal project director at the
3 time.

4 So at that point in time I started bringing
5 people on. And one of the people I found was when they
6 shut down Yucca Mountain a gentleman named Mr. Bob Fish,
7 so I went down there and I picked him up. And Mr. Fish
8 is, he is experienced at metallurgy and materials, both a
9 bachelor's and master's from Oregon State.

10 So I talked to Mr. Fish and expressed my
11 concern, and told him that I had a job for him and he
12 conceded to come up. So when he got up what I told him
13 was is the first thing I needed him to do was start
14 looking at materials. So when those reports came out the
15 first one had to do with caustic stress corrosion
16 cracking. And there was information that was related to
17 that that when you specifically looked at the region that
18 we were operating in you would have to do some
19 extrapolation in order to make a determination that the
20 material was satisfactory for that. So that was the
21 first one.

22 The second one had to do with general materials
23 of selection for vessels in the plant. And this may also
24 include piping. And when Mr. Fish looked at that we went
25 back and we looked at some process corrosion data sheets.

1 And we saw in there that there was a suggestion made by a
2 peer review team, I can't remember the specific
3 timeframe, I think it was back before 2004, 2005, and
4 that data sheet specifically stated that for this vessel
5 you should pick something that has at least a 6 percent
6 molybdenum content. When he showed that to me I was
7 concerned about that so I told him to go ahead and
8 surveillance it, so he went ahead and wrote that
9 surveillance up. So those two items are open right now.

10 And there was another item that came up and was
11 just issued this past week and that was written by Dr.
12 Alexander, he was the lead on that. This came out of ORP
13 Nuclear Safety Division. And that one cited, I think
14 there was a couple level one findings, two level one
15 findings, four level two findings associated with
16 erosion.

17 DR. MANSFIELD: Thank you. That's a good
18 answer.

19 Is the process of surveillances producing the
20 kind of response from the contractor that you want?

21 MR. BRUNSON: No, not to date, not to date. I
22 have not been satisfied to date with the response from
23 the contractor associated with those. And we are working
24 with the contractor. And we have developed a plan as
25 part of -- Mr. Gay is managing the vessel completion

1 team, and that is within his realm of responsibility.
2 And there's a plan right now that he's developing and it
3 is to address erosion/corrosion issues specific to vessel
4 completion.

5 DR. MANSFIELD: The last part of my question is
6 about wear allowances in the piping and the pulse jet
7 mixing nozzles. Does the Office of River Protection
8 share the Board's concern on this erosion/corrosion
9 issue?

10 MR. BRUNSON: Yes, sir.

11 DR. MANSFIELD: That's all, Mr. Chairman.

12 CHAIRMAN: Mr. Bader.

13 MR. BADER: Mr. Brunson, I read with
14 considerable interest a letter that Mr. Bradford sent to
15 Mr. Knutson on March 9, 2012, that outlines the BNI plan
16 to resolve erosion issues raised by the Board and
17 corrosion issues raised in your recent surveillances
18 concerning the corrosion testing for the ultrafiltration
19 process vessel materials of construction and the
20 materials selection for other process vessels.

21 As Mr. Stokes pointed out in his opening remarks
22 and discussed in his -- and discussed in some of your
23 testimony, these issues have been around in one form or
24 another since 2001. And according to the information
25 that I pulled together again in February 2004, July 2004,

1 May 2008, now it's 2012, and based on the findings
2 documented in your surveillances and in our letter,
3 erosion and corrosion performance of the materials used
4 to fabricate key safety components for WTP systems
5 remains a significant question.

6 What I found interesting about the letter is
7 that there really is no intended change in BNI's approach
8 to resolving the problem. They intend to review
9 additional information from the literature, convene
10 another study group, and produce some additional reports.
11 Only if they find something negative during the study
12 effort will actual tests be performed of materials.
13 Based on what you know do you believe these efforts
14 outlined in their letter will answer the questions that
15 need to be answered.

16 MR. BRUNSON: I have staff members that are
17 intimately involved with the review of the contractor's
18 plan for resolution of erosion and corrosion. From my
19 perspective and my paradigm I cannot design and verify a
20 nuclear facility with words like believe, think,
21 extrapolate. I can't deal with that. My paradigm says
22 that I must know. So with respect to that, I'm going to
23 wait until I see the plan. But I can assure you one
24 thing and that is that my expectations are much aligned
25 with defense board staff with respect to resolution of

1 erosion/corrosion. And I have talked to my manager, Mr.
2 Dale Knutson, and expressed my concern with regard to my
3 expectations and he has assured me that he does not want
4 me to lower my expectations.

5 MR. BADER: Mr. Patterson. Thank you. What
6 systems in the pretreatment facility are impacted by
7 unresolved technical issues related to erosion and
8 corrosion?

9 MR. PATTERSON: Certainly the major systems are
10 related to -- sorry -- the major systems are related to
11 those --

12 (Interruption occurred.)

13 MR. BADER: I'm sorry, could you start over
14 again, please, Mr. Patterson?

15 MR. PATTERSON: The major systems are those
16 related to the vessels where we have Non-Newtonian
17 fluids, where we have Newtonian fluids with high solids,
18 where we have PJM's in the vessels and the associated
19 piping with that. Those are the areas of significant
20 concern that we have as well as DOE. And those are the
21 things that we are really concentrating on today and will
22 concentrate on those until we resolve them to everybody's
23 satisfaction.

24 MR. BADER: You've heard the discussions so far,
25 do you believe testing will be necessary to resolve those

1 issues?

2 MR. PATTERSON: I actually do believe some
3 testing will be required. Based on the information we
4 have today and the information from the beginning of time
5 when we started in 2001, there are areas that indeed we
6 need to look at further. And I just don't believe that
7 just literature searches are going to be satisfactory to
8 satisfy ourselves, let alone DOE and the Defense Board.

9 MR. BADER: Peter.

10 CHAIRMAN: I'm going to go a little bit out of
11 sequence because I -- I think it's only fair at this
12 point to ask the federal project director, Mr. Knutson,
13 what your sense of things is because Mr. Brunson has made
14 some statements and expressed his concern about erosion
15 and corrosion and the Board has done the same. You can
16 give us your perspective on this now?

17 MR. KNUTSON: Yes. Thank you, Mr. Chairman.
18 From a federal project director's perspective, it is
19 actually a great comfort to have an engineering director
20 like Gary Brunson working on our team.

21 As we spoke with you the last time we were
22 together, our commitment to issues of mixing and erosion
23 and corrosion and the M3 and the M2 process included a
24 three-phase strategy. And phase one was the ability to
25 stand up a team that was actually focused on the

1 specifics of the requirements and focused on essentially
2 what is today called the vessel completion team. That
3 vessel completion team is doing a very good piece of work
4 associated with making sure that systems and the
5 requirements associated with those systems are being
6 verified. And Gary's a very significant part of that, as
7 is Tom Patterson and a group of others. And it's led by
8 Mr. Gay.

9 Phase two of that is associated with the testing
10 program that we committed to in September of 2010. That
11 is now informed by the 2010-2 recommendation and the
12 further evaluation that we have done in beginning to
13 flesh out those deliverables.

14 So in general, my sense is that number one,
15 people are taking it very seriously. The issues of
16 erosion and corrosion have never stopped being a very
17 serious issue and people are actually capturing those
18 issues in a way that is different than than they had been
19 captured in the past. And item two we haven't stopped
20 looking. And the vessel completion team is there to help
21 us ensure that our path forward is demonstrable and
22 thorough.

23 CHAIRMAN: The other thing I'm trying to get at
24 is you're the federal project director, you're
25 responsible for this whole thing. What's your

1 perspective on the fact that it's taken so long and we
2 still haven't -- you haven't -- the project hasn't fully
3 resolved the issues with erosion and corrosion, which you
4 know are extremely important to many systems that Mr.
5 Patterson talked about and to your ability to guide the
6 project to place the vessels in the facility and actually
7 get this job done.

8 MR. KNUTSON: So I think it's important for the
9 context of that long history to be made part of the
10 record. There are 28 or 29 different analyses and
11 reports that are have captured various aspects of erosion
12 and corrosion. I think it is important that when you are
13 tackling something that is as difficult to resolve as an
14 erosion and corrosion challenge that involves physical
15 parameters, chemical parameters, operational parameters,
16 that you not limit yourself to a process that is driven
17 by a desire to accomplish something quickly.

18 I think as we've said and have said many times,
19 our mantra in the Department of Energy is deliberate
20 haste. And the process of deliberate involves ensuring
21 that as we understand more from our testing programs,
22 we're able to adapt to that. And as we learn more from
23 our engineering processes, we adapt to that. And that we
24 ensure that our management processes don't allow us to
25 install something that doesn't match up with the safety

1 basis or hasn't met the requirements of design. And I
2 believe those processes are in place today.

3 CHAIRMAN: Ms. Roberson.

4 VICE CHAIRMAN: Thank you, Mr. Chairman.

5 Actually, I have a few questions for you, Ms. Busche. How
6 you doing this afternoon?

7 MS. BUSCHE: Great.

8 VICE CHAIRMAN: Good. I have a few questions
9 for you about your role. I think this is an important
10 topic to you. And it is related to a key commitment in
11 the Department, let me find my note, it's a key
12 commitment in the Department's Recommendation 2010-2
13 implementation plan. And the title of the commitment is
14 establish a plan and schedule to systematically evaluate
15 the hazards of known technical issues. Is that one
16 familiar to you?

17 MS. BUSCHE: Yes, ma'am.

18 VICE CHAIRMAN: Okay. My understanding is in
19 that plan you identify four unresolved issues associated
20 with erosion and corrosion. Can you tell us what those
21 four issues are?

22 MS. BUSCHE: Not off the top of my head I can't.

23 VICE CHAIRMAN: Not off the top of your head.
24 Can you tell us really what your challenge is in trying
25 to reconstitute the safety basis and deal with unresolved

1 technical issues in this area?

2 MS. BUSCHE: I think the predominant area where
3 I've been working with Tom Patterson in engineering is to
4 reconstitute the safety basis we actually, I believe,
5 have to take a step back and look at some fundamentals.
6 All right? It's been a long journey since the last time
7 we visited on where we were with the safety basis, but on
8 the topic of erosion and corrosion I'll give an example.
9 And I think it will be consistent with the rest of the
10 hazards throughout the pretreat facility.

11 The engineering analysis to date, the studies to
12 date, my understanding of them -- I'm a nuclear engineer,
13 not a material expert -- are based on process knowledge,
14 process models that are very geared towards throughput,
15 actual values, anticipated ranges in temperatures,
16 maximum expected volume. But they're not -- they have
17 not included the nuclear safety analysis. So what that
18 means to me is we haven't adequately looked at what
19 happens if we mis-transfer and we have a chemical
20 reaction we didn't anticipate in that throughput model.
21 So there may be some very key functional requirements
22 that have not been captured into the design.

23 So as we go forth and do this systematic
24 evaluation of hazards, we will have to look at the
25 existing safety basis, the existing design, in some cases

1 we may have designed in a hazard. And then we'll have to
2 peel back that onion and figure out what's the right
3 hazards and accident analysis that drive those functional
4 requirements for the ultimate safety control strategy.

5 VICE CHAIRMAN: And so give me a little sense.
6 I'm not quite sure where you started, in a sense you
7 still have unresolved information. How are you going to
8 approach this?

9 MS. BUSCHE: We -- I think we're going to have
10 to start to with first principles. So we have some draft
11 plans for -- in getting for both but all of the
12 facilities. And I'll speak in generalities. We need to
13 understand what hazards and accident analysis do exist
14 today and be very candid upon ourselves is it adequate.
15 We also need to understand what is the process because if
16 we don't understand the process, you can't understand the
17 hazards. We have to then look at the P&IDs, the design
18 as it exists today and the supporting engineering
19 calculations that would drive the process. And then once
20 you understand that body of knowledge, then you can begin
21 that systematic evaluation of hazards. And it will, I
22 think Steve summarized it, it's an arduous task at this
23 stage.

24 VICE CHAIRMAN: Okay.

25 CHAIRMAN: Can you stop for a moment for our

1 audience, I eluded to my testimony, Mr. Stokes did, tell
2 folks what the safety basis is and what you mean when you
3 reconstitute it or re-baseline it. And do this in less
4 than 2000 words.

5 MS. BUSCHE: The safety basis in simple terms is
6 where we will look at the facility, what the facility is
7 intended to do, in our case it will be processing waste,
8 or conditioning waste that will ultimately go to a
9 melter. In doing that process we look at upset
10 conditions, accident conditions, and we look at the broad
11 range of things that could go wrong. And then we
12 interpret that information from a hazards and accident,
13 and we communicate to engineering system requirements,
14 functional requirements, to make sure we control the
15 hazards. At the end of the day we'll have a control set.

16 Now, to reconstitute it it really is setting
17 back the safety basis we have today and starting with
18 first principles. It is taking it back.

19 CHAIRMAN: And that reconstitution came about
20 from the fact that there are unresolved technical issues
21 on the project?

22 MS. BUSCHE: Yes, there's unresolved technical
23 issues. And when we were resolving them I don't believe
24 we -- my professional opinion, we weren't doing it
25 holistically or systematically. We're looking at what's

1 the pulse jet mixer problem? What's the fissile material
2 accumulation problem? What's the hydrogen generation?
3 And at the end of the day I have to have an integrated
4 control strategy because some of those controls that we
5 have today compete. So I can solve the hydrogen
6 generation problem, right? By one or two pulse jet
7 mixers working and create a fissile accumulation hazard
8 because I don't have enough movement to prevent the
9 accumulation. So it is a very delicate balance.

10 CHAIRMAN: Thank you. Mr. Bader.

11 MR. BADER: Ms. Busche, let me just ask a
12 clarifying question. When you're done with your safety
13 basis, that is your input to the documented safety
14 analysis, correct?

15 MS. BUSCHE: Correct.

16 MR. BADER: And my simple picture of what the
17 documented safety analysis constitutes is effectively the
18 license to operate the facility.

19 MS. BUSCHE: Correct.

20 MR. BADER: Thank you. Mr. Patterson, let me
21 come back to you for a moment. In listening to what has
22 gone on before in terms of similar efforts that have been
23 done to resolve the erosion/corrosion issues, do you
24 think this time you're going to be successful and what --
25 if you think it will be successful what elements of the

1 plan that's being developed do you think will make it
2 successful?

3 MR. PATTERSON: Okay. First of all, when I look
4 back I'm sure many other people in my position previously
5 thought we were successful several times over. But as
6 new information became available throughout these 12
7 years, 11 years, each one found that indeed we weren't
8 successful. Even though we closed the issues that came
9 up at the time, we found other things were opening these
10 issues, reopening these issues as a result of different
11 and varying input.

12 So as we move forward, provided we have a clear
13 understanding of the inputs, and this is the difficult
14 one, a clear understanding of the inputs coming in from
15 the tank farm, then with that clear understanding and
16 using that as the basis, it doesn't change, and then I
17 would say yes. The issue is that we have an ever
18 changing input, defining that input is very complex.
19 And, therefore, we need to deal with it. And as a result
20 it could reopen again and again and again based on that
21 variation.

22 So what we need to do in the future is certainly
23 establish what we call our Waste Acceptance Criteria and
24 make sure that is something that we can all buy into
25 today that we feel it is conservative. And once we

1 determine that that is conservative and that's what we're
2 going to use going forward and then yes, we can solve
3 this issue.

4 MR. BADER: Doesn't it involve not only defining
5 what the Waste Acceptance Criteria are for the -- from
6 the tank farms, but also any changes in materials as they
7 go through the process?

8 MR. PATTERSON: There's no question that the
9 process itself, which we are continually tweaking, will
10 have an impact. And that will be part of it, Mr. Bader,
11 yes.

12 MR. BADER: How do you plan to determine what
13 those changes and impact -- first of all, what the
14 changes are in the characteristics of the material?

15 MR. PATTERSON: As it's going through, sir?

16 MR. BADER: As it's going through the process.

17 MR. PATTERSON: We have certainly various
18 programs that we use to determine what the process is all
19 the way through. And we look at that process in terms of
20 normal conditions, we look at upset conditions, we look
21 at it during flushes, during steam cleaning or acid
22 cleaning. So we look at those processes as we go through
23 the system to determine the impact on erosion and
24 corrosion. So that is a fairly well-established process.
25 What we need to assure ourselves is that we've captured

1 all the upset conditions and the time these upset
2 conditions will occur. And I think we are getting a
3 better and better understanding of those conditions. And
4 as a result we will come to a conclusion on that that I
5 would have confidence in, yes.

6 MR. BADER: And this will inform your testing
7 program that you said that you thought would be
8 necessary?

9 MR. PATTERSON: The testing program, certainly
10 this will help, this will inform the testing program.
11 The results of these runs will determine what testing we
12 should be doing in order to be successful, yes.

13 MR. BADER: Will it also help you determine the
14 amount of margin that you build into your calculations
15 where there are uncertainties? Will it help to identify
16 those uncertainties?

17 MR. PATTERSON: It will certainly help us
18 determine what kind of margin we need, yes.

19 MR. BADER: Thank you.

20 CHAIRMAN: I'm going to finish up the
21 questioning in a minute with Mr. Russo. He's a very
22 important individual here. But before that I just want
23 to get clear on one thing, Mr. Patterson. You talked
24 about inputs, part of the input you're talking about is
25 the actual waste stream that's coming from the tank

1 farms, right?

2 MR. PATTERSON: That is correct.

3 CHAIRMAN: And how well you know that and it has
4 to be characterized, right?

5 MR. PATTERSON: That is correct.

6 CHAIRMAN: And that's pretty challenging, right?

7 MR. PATTERSON: Yes, it is.

8 CHAIRMAN: Okay. I'm lying to say I have the
9 last question. You want to go before me?

10 VICE CHAIRMAN: I'd like to go before you if I
11 can.

12 CHAIRMAN: Okay.

13 VICE CHAIRMAN: I wanted you to clarify for me,
14 you said this issue is back on the plate because of new
15 information and that the key would be at this time
16 locking down on the inputs from the tank farm. Have the
17 inputs changed? What's the new information?

18 MR. PATTERSON: It's the way we use that input.
19 We have information from the tank farms, we have used
20 documents like 9805 as one of those that we use to
21 establish the inputs. We have contract parameters that
22 we use to establish the parameters of the inputs. So we
23 have a lot of information to establish inputs.

24 Now, you have to determine how you use those
25 inputs. We, you know, for example, we have used in the

1 past various sizes for erosion, various particle sizes
2 for erosion. And certainly when we started this whole
3 process it was 11 microns was one of the things that we
4 used for erosion calculations. Actually, it was 11
5 microns and we decided to double that and use 22 microns.
6 If you really look into this you can have larger
7 particles of course. So the decision you have to make is
8 how large of a particle should you use in terms of your
9 erosion calculations because erosion calculations are
10 usually done on an average, it's not using the same large
11 particle hitting that plate, hitting that pipe or
12 whatever during the life of the plant. So you have to
13 determine what particle size. And this is where the
14 variations come in in terms of what you use and then what
15 the uncertainty is associated with that and then how much
16 margin you should have for that uncertainty.

17 CHAIRMAN: Thank you. Mr. Russo, it's been --

18 MR. BADER: Can I --

19 CHAIRMAN: No. Mr. Russo, it's been difficult
20 to obviously solve this problem. And Mr. Patterson has
21 talked about new information and you've had to rethink
22 the problem. So from your point of view, what happens if
23 you can't easily resolve this or the new plan that you
24 have in place fails? What's the approach going to be
25 from your perspective as the project director?

1 MR. RUSSO: Well, first and foremost before we
2 ever bring waste into this facility we have to have all
3 of these problems resolved. And to the point earlier
4 made by Donna, it's an iterative process and design. And
5 you want to understand your mechanical, you want to
6 understand your mechanical systems, how they will
7 respond. When you get them to a point where you've got
8 that understood, if not locked down, you want to
9 understand can the safety basis support those mechanical
10 parameters. So some of the learnings we've had over the
11 last several years in terms of ultrafiltration and other
12 of our systems, is that you are now operating at
13 temperatures that are higher than we had originally
14 anticipated.

15 So when you combine that with what Tom said in
16 terms of we also have a variability on what is an
17 appropriate size particle that you would say is hitting
18 that side wall and how often your wear plate and how
19 often it is hitting it, there has to be an
20 acknowledgement that you get that resolved technically
21 from a point of view of what does a design look like,
22 then you go back and look, can I keep the physical
23 process, not being a process of paper but the chemical
24 processing, can you keep it within the ranges that you
25 need to keep it and can an operator operate within that

1 range or is there so many TSR [Technical Safety
2 Requirements] requirements that you put the operator in a
3 fail safe mode. Because if we learned -- or in a fail
4 mode. Because if we've learned anything over the years
5 with operating facilities, whether they're nuclear,
6 chemical, anything that has pressure and/or -- or the
7 ability to cause harm, having a mechanical system that an
8 operator fully understands provides the kind of assurance
9 we all want.

10 I, unlike Tom, since the waste stream is while
11 well known, it's still a variable and I think it will
12 remain a variable. As we get smarter and smarter with
13 the various testing we're doing. There may very well be
14 opportunities to revisit this subject again. And we have
15 got to have both the wisdom and the willingness to
16 revisit it if we learn something new as we go further.
17 And it's not on any one point because if you come out of
18 a decision in the mechanical design, this is Donna's
19 point about being holistic, it could come out of a
20 decision in terms of the material selection. It could
21 come out of a decision from the tank farm.

22 So one of the things that when I first came to
23 the project and met Mr. Knutson, I had in a previous life
24 did a lot of work in chemical processing. And what you
25 learn in that business is you need to understand your

1 feed stock, in our case a waste stream, at a very, very
2 sophisticated level. You have to have that knowledge
3 because a product to market, time to market, purity of
4 product. And we will not have that knowledge because of
5 the nature of the waste. So we talked about One System.
6 We said start with the end in line. We needed to get
7 close coupled with the tank farm.

8 CHAIRMAN: Let me ask you this right now. And
9 we're going to have to move on to mixing in a moment,
10 unless you have a very short question.

11 MR. BADER: I have a short question.

12 CHAIRMAN: Have you placed any vessels at this
13 point that you feel you may need to change the internals
14 or move out based upon erosion/corrosion concerns?

15 MR. RUSSO: We have vessels that were placed
16 several years ago that we have a subcontract in place
17 with CB&I [Chicago Bridge & Iron] to make modifications.

18 CHAIRMAN: Okay. Briefly.

19 MR. BADER: Mr. Patterson, you mentioned that
20 establishing the WAC would be helpful. When do you
21 expect to do that?

22 MR. PATTERSON: Okay. Certainly we have defined
23 a WAC to date, but I think between us and the Department
24 of Energy and the tank farms through One System that is
25 where we will really get down to establishing the details

1 of the WAC [Waste Acceptance Criteria] that we really
2 need to forward. And that's one of the reasons why we
3 established One System such that we can work together and
4 come up with a WAC that is reasonable as a tank farm and
5 something that we can process in our facility with
6 confidence. But I think through that One System
7 organization that we will indeed establish it. Can I
8 give you a date today? No.

9 MR. BADER: Mr. Russo?

10 MR. RUSSO: Again, looking at complexities and
11 the layers of complexity in that question, obviously if
12 we set a Waste Acceptance Criteria over on the tank farm
13 side and on the WTP side of the transfer pit, we're going
14 to have to have the ability to characterize and sample
15 waste to make sure we're within those confines of the
16 Waste Acceptance Criteria.

17 So part of the challenge on the establishment of
18 that criteria is making sure we have the ability to
19 actually validate that what the criteria is stated at can
20 actually be fulfilled and measured as it goes through the
21 transfer from the tank farm to the WTP. We have to know
22 what we're getting. Tank farm has to be able to tell us
23 what we're getting. And we have to know as it moves
24 across for the reasons we talked about in the process
25 that we're not doing anything that puts us in a out-of-

1 spec condition.

2 CHAIRMAN: Okay. Thank you. We're going to
3 move on now to the mixing part of this discussion because
4 we wanted to cover two topics, erosion and corrosion and
5 mixing. So let me ask Dr. Mansfield to begin that
6 discussion also.

7 DR. MANSFIELD: Thank you, Mr. Chairman. Mixing
8 is just about the oldest issue in this project. I
9 remember when BNFL was trying to wrestle with it in the
10 year 2000. And a lot of progress has been made. It
11 appears to me that the major issues now are overblows,
12 solid accumulations, criticality issues, and
13 computational fluid dynamics.

14 On computational fluid dynamics I'd like ask if
15 -- I know you expect to be able to use computation fluid
16 dynamics for understanding the behavior of the Newtonian
17 tanks. What about Non-Newtonian tanks? Will
18 computational fluid dynamics play any role at all or will
19 it all be scaling? Mr. Brunson.

20 MR. BRUNSON: Based upon the information that I
21 have seen, consultation with federal staff, consultation
22 with National Energy Technology Laboratory, the answer to
23 that question is no.

24 DR. MANSFIELD: Good. Thank you. Ms. Busche,
25 let me talk a bit about criticality for a minute. Ms.

1 Busche, do we have enough information now with -- from
2 the mixing efforts to develop the functional requirements
3 for a criticality control program?

4 MS. BUSCHE: No.

5 DR. MANSFIELD: Okay. So this, to me this is
6 defining the work in the future and that's why I asked
7 such questions. I suspected the answer anyway.

8 And, Mr. Daniel, the test program right now or
9 in the future, is it going to be able to support
10 experiments that will help future criticality safety
11 requirements be defined?

12 MR. DANIEL: As we're working through the
13 definition of the testing program today, the first phase
14 of testing we're looking at is CFD [Computational Fluid
15 Dynamics] V&V [Verification and Validation] testing for
16 the Newtonian vessels itself, which would provide some
17 support to the overall evaluation for the criticality.

18 The second phase of testing is looking at the
19 overall performance of the testing itself and
20 determination of operational limits through the scale
21 testing at four, eight and 14 foot. To support that
22 we're currently working with Ms. Busche's staff to
23 identify what needs she would need from a nuclear safety
24 side so we can get those incorporated into the original
25 test planning documents as we move forward with that

1 testing.

2 DR. MANSFIELD: Those test plans will deal with
3 solid accumulations, solids at the bottom, things like
4 that. And they're going to be -- you expect them to be
5 quite definitive?

6 MR. DANIEL: Yes, sir.

7 DR. MANSFIELD: Thank you, Mr. Chairman.

8 CHAIRMAN: Let me just come back to you for just
9 one second before we move on, Ms. Busche.

10 So criticality at one point was considered
11 incredible for this facility, that was my understanding;
12 is that correct? I'm going back a little ways here.

13 MS. BUSCHE: I would actually phrase that the
14 criticality safety evaluation report concluded that
15 criticality was incredible based on controls. So if you
16 look at the integration of hazards in 3009 and 3007,
17 those controls were needed to say criticality was
18 incredible. The primary mechanism to do that was
19 sampling, both on the tank farm side, and I call it to
20 the right of the baths.

21 CHAIRMAN: So right now you're just having
22 difficulty identifying a set of controls that can ensure
23 that we do not have a criticality event; is that true?

24 MS. BUSCHE: Today we don't have controls in the
25 plant that monitor the performance of solids. Where are

1 solids? Where are they accumulating? Are they in the
2 pipe? We don't know. We don't have that mechanism
3 today.

4 CHAIRMAN: So you're a ways from doing this,
5 actually identifying the necessary controls to prevent
6 criticality?

7 MS. BUSCHE: Correct.

8 CHAIRMAN: Mr. Bader.

9 MR. BADER: Mr. Patterson, what systems in the
10 pretreatment facility are impacted by the unresolved
11 technical issues related to mixing? Can you give me a
12 feel for what you believe those systems are?

13 MR. PATTERSON: The primary ones are the vessels
14 with high solids and the non-Newtonian vessels. That
15 makes up eight of our vessels. The other 30 vessels, the
16 total 30 vessels, some of those are in HLW, actually,
17 four of them are in HLW, those vessels which are
18 Newtonian vessels with low solids, really mixing is
19 really not considered a big issue. So it is only those
20 high solid vessels and the non-Newtonian vessels that
21 provide us concern with respect to mixing. And that's
22 really where we're trying to focus on those vessels in
23 particular to ensure we have adequate mixing capability
24 for those vessels.

25 MR. BADER: How about things like the air

1 handling system, ventilation system, PJM controls?

2 MR. PATTERSON: So we're talking about
3 overblows, PJM overblows. Well, certainly PJM overblow
4 is a concern all the way through the facility. And
5 certainly it's something that we are focusing on heavily.
6 We know PJM control is critical to this -- we know PJM
7 control is critical and the various reasons. And so
8 we're actually looking at various alternatives to provide
9 better assurance that we can control the PJM's under all
10 the conditions that are presented before us.

11 So we originally had a plan with respect to how
12 we might controls the PJM's. We determined that that
13 plan is very difficult. There are a lot of issues
14 associated with it. We still plan on looking at that.
15 But we're also looking at other potential ways to control
16 the PJM's that will be more fool proof to ensure that we
17 don't have the overblows. And, in fact, we have an
18 individual within our organization that actually has come
19 up with a very unique design, we are going to test that
20 design. We've done it on a very small scale and it is
21 very -- looks like very good and very promising. And
22 we're going to do it on a larger scale as we move forward
23 into the testing phase in LSIT.

24 So with that in mind provided that that goes as
25 well as it did in the lower scale, in the small scale,

1 provided it goes just as well, this is something that
2 will be a major benefit to us in terms of having a very
3 positive basically fool proof method to ensure that we
4 can control those PJM's adequately and prevent overblows.

5 MR. BADER: What about the impact on the process
6 vent system? Do you see that as having issues related to
7 safety?

8 MR. PATTERSON: Certainly the key here is -- are
9 really overblows is one of the key things, overblows that
10 really is driving it. The other thing that drives it are
11 our spargers for the -- particularly the non-Newtonian
12 vessels. So certainly that does have an impact on that
13 system and certainly that's one of the technical issues
14 that we've been working on resolving. And in actual
15 fact, we're doing testing at this time to look at
16 entrainment values to just determine what the impact of
17 the system is, what the entrainment values really are.
18 And that testing has been going on for several months now
19 and it's nearing completion.

20 Once that testing is complete we can determine
21 whether the system will have -- be impacted or not.
22 Currently the testing is going on very well and we're
23 just going to have to wait and see. I think the report
24 is scheduled to be issued in April and then we will
25 determine just where we are with that system.

1 MR. BADER: Thank you. Ms. Busche, what do you
2 think the impact on your safety basis is of these
3 unresolved issues that we have been discussing with Mr.
4 Patterson?

5 MS. BUSCHE: Specific to Pulse Jet Mixers and
6 the Process Vessel Vent, I will tell you today the
7 Process Vessel Vent is a safety class system that is
8 specifically credited to prevent detonations in the
9 vessel. Today the design cannot perform its intended
10 safety function. So as we resolve the mixing challenges,
11 I think it will be directly related to closing the PVV,
12 including any design changes that may be needed.

13 MR. BADER: For the bulk of the people in this
14 room, what is the PVV?

15 MS. BUSCHE: The Process Vessel Vent. I'm
16 sorry. This is the exhaust system on the vessels. So to
17 control hydrogen detonations in the vessel we have
18 several controls. We first force air into the head space
19 of the vessel, we then with the Process Vessel Vent
20 exhaust air through the vessel to maintain negative head
21 space in the vessel and then we also use the mixing
22 function to make sure that hydrogen is released
23 continuously so that it doesn't overwhelm the head space.

24 MR. BADER: Do you have any sense of how long it
25 is going to take to resolve these issues, either

1 Mr. Patterson or Ms. Busche?

2 MR. PATTERSON: I can start. That particular
3 issue with respect the PVV, we are nearing conclusion
4 with respect to the impact, for example, of overblows,
5 entrainment from spargers, we're nearing completion on
6 that testing. Once that testing is completed, then we
7 can determine what the system could look like and then we
8 can work with nuclear safety in determining if we can
9 solve that issue and how it is going to be solved. I
10 would suggest it is a matter of a short period of time.
11 Certainly within the next few months. We're going to get
12 the data, get the data now, provided that the data is
13 positive, then all we need to do is complete the design
14 of the system and then run it through its hazards
15 analysis and accident analysis and set the controls.

16 CHAIRMAN: All right. Ms. Roberson.

17 VICE CHAIRMAN: Mr. Patterson, has the WTP
18 project performed any assessments on the impact of WTP
19 throughput as a result of the design changes for mixing?

20 MR. PATTERSON: We do these runs constantly. In
21 fact, we have just recently completed another G2 run to
22 determine the impact of any design changes we might have
23 had to date. We do these runs at least once a year.
24 We're just finishing one, as I say, as we speak to
25 determine what the capacity of the plant is, to ensure

1 that anything that we have done doesn't impact what our
2 requirements -- our contractual requirements are with
3 respect to throughput. And to date we can still
4 satisfactorily say that our throughput still meets
5 contractual requirements under the changes that we've had
6 so far.

7 VICE CHAIRMAN: And what is the requirement?

8 MR. PATTERSON: I think it is 70 percent, that
9 it says 70 percent.

10 VICE CHAIRMAN: What assumptions were made in
11 those runs relative to mixing?

12 MR. PATTERSON: There's a number of assumptions
13 made.

14 VICE CHAIRMAN: What are the key assumptions?
15 Just tell me the biggies.

16 MR. PATTERSON: I don't know off the top of my
17 head. I can ask.

18 VICE CHAIRMAN: Well, let me ask Mr. Brunson, do
19 you know?

20 MR. BRUNSON: Could you repeat the question,
21 please?

22 VICE CHAIRMAN: In the most recent assessment of
23 throughput and the assessment of the impact of design
24 changes for mixing, what are the key assumptions that are
25 made in concluding satisfactory --

1 MR. BRUNSON: To my knowledge that, you know, we
2 have an operational readiness that we've run right now
3 which is at 70 point some odd percent, to my knowledge,
4 and I would have to consult with technical staff that
5 reviews that as a deliverable from the contractor. I
6 don't -- I am not specifically aware of any changes to
7 that model specifically related to challenges associated
8 with mixing.

9 VICE CHAIRMAN: You're not aware of what
10 assumptions are input into that model? No is a good
11 answer.

12 MR. BRUNSON: I think what you're looking for
13 and I think the assumption within that model is that we
14 have somewhat homogenous mixing. So, in other words, the
15 assumptions are is that we'll be able to process from
16 vessel to vessel, pull a representative sample for
17 process control and then send it on down the line and
18 based on those samples we'll know what additives to put
19 in there, for example, to facilitate leaching.

20 VICE CHAIRMAN: Well, that may be one
21 assumption. Let me just ask you in the testing program
22 as you proceed to try to verify those assumptions, can
23 you identify the key assumptions you're trying to verify
24 through your testing program?

25 MR. BRUNSON: The key assumptions that we're

1 interested with respect to vessel mixing is the first is
2 can we mix to release gas? Can we have a gaseous
3 release? Another part of the program is that we
4 definitively know that we accumulate some heavy particles
5 in the bottom of the vessel. So one of the other things
6 we want to evaluate is is that heel removal so that we
7 can eliminate those, the solids that are in the vessel,
8 and that's wherein I believe Ms. Busche says the
9 criticality concern comes from.

10 VICE CHAIRMAN: But you have to have made some
11 assumptions of an outcome. And you're going to --

12 MR. AZZARO: We're assured those are short
13 circuits in the mics and they're going to repair that
14 over the break. That's the best I can do now.

15 VICE CHAIRMAN: So, Mr. Brunson, let me just ask
16 one last question because we do have a lot of people, lot
17 of questions. How could the results of the mixing test
18 program impact verification of the assumptions used to
19 determine throughput?

20 MR. BRUNSON: It could result in a change to
21 design, ma'am. It could be that the PJM configuration we
22 have, the firing sequence, the velocity and whatnot are
23 going to be sufficient.

24 CHAIRMAN: Dr. Mansfield.

25 DR. MANSFIELD: Thank you, Mr. Chairman. This

1 is an easy yes or no. Mr. Russo, isn't it true that the
2 -- or is my assumption correct that the current
3 unresolved status of mixing prevents finishing the final
4 design of the pretreatment vessels and establishing
5 controls and therefore completing the safety basis? And
6 my question is, first all, do you agree with that?

7 MR. RUSSO: Yes.

8 DR. MANSFIELD: And can you give an idea of what
9 kind of effort is going to be required to bring it to the
10 point where you can complete a design and a safety basis?

11 MR. RUSSO: So we put together the vessel
12 completion team, originally we started talking in terms
13 of large scale integrated testing and that was a
14 conversation we had a year and a half ago. But the more
15 we look at it, we determined we have to verify not just
16 the LSIT [Large Scale Integrated Testing], the mixing,
17 and the ability to get solids mobilized from the bottom
18 for criticality and for hydrogen generation so that you
19 release the hydrogen. But we've got to look at it
20 holistically. We got to look at the entire piping
21 systems, we have to look at the iterations that it has
22 both on other elements of the design and on what it does
23 to the safety basis.

24 So we put together a vessel completion team,
25 these are all dedicated people that used to have other

1 parts of their job that are now dedicated to vessel
2 completion. Our commitment has been and remains that no
3 vessel will be set until the vessel is fully validated to
4 everyone's satisfaction that has an understanding of our
5 processes. And that remains our commitment.

6 Bill Gay, which you will be speaking to shortly,
7 is leading that team. He has put together a very
8 thorough plan of going through working with Russ and
9 other folks going through element by element, erosion/
10 corrosion, the actual adequacy of mixing, implications on
11 the G2 model, implications on the safety basis. It will
12 and have to iterate again. Can all the conditions that
13 we've established that deem success within the pretreat
14 facility, what does it do to the tank farm? Can they
15 meet those conditions? And if the answer is yes, then we
16 will have closure on mixing. If the answer is no, then
17 we're going to have to go through another hydration
18 either on the tank farm side of the flowsheet or on the
19 WTP side of the flowsheet.

20 DR. MANSFIELD: Thank you, Mr. Chairman.

21 CHAIRMAN: Mr. Knutson, the Board obviously
22 issued Recommendation 2010-2, I know you're quite
23 familiar with that, you recently visited us in Washington
24 and we talked about some progress that the Department is
25 making on that. And I think the understanding is that

1 for waste that does not comply with the Waste Acceptance
2 Criteria you may need alternative strategies. So I guess
3 the question is right now at this time do you have any
4 sense of what quantity of the waste in the tanks may need
5 to be processed with alternative strategies?

6 MR. KNUTSON: I understand that through the One
7 System team, Scott Samuelson is the ORP manager, he's
8 actually working up an answer to that question. It was a
9 commentary that we followed from 18 months ago in our
10 last session. And I believe that the -- I believe
11 there's at least one technical issue summary that we've
12 published for the record in October of 2010 that talked
13 about the process that would be used to actually come to
14 that number. And that process is not completed yet, but
15 I believe that it is a deliverable that is associated
16 with the One System team's product.

17 CHAIRMAN: See, what I'm trying to understand a
18 little better is if you don't fully resolve the mixing
19 issues, how are you going to figure out eventually what
20 the Waste Acceptance Criteria might be and what the
21 percentage of waste is that you won't be able to process
22 through the Waste Treatment Plant? Is that -- in your
23 opinion is that integrally tied, that resolution of that
24 issue to being able to go forward with those assessments?

25 MR. KNUTSON: It is absolutely critical to the

1 formulation of those assessments, but it's also an
2 iterative solution. You can solve the issue of a Waste
3 Acceptance Criteria by forcing a criteria backwards from
4 the pretreatment facility into the tank farms and solve
5 it that way or you can look at the best available
6 knowledge in the tank farms and develop a Waste
7 Acceptance Criteria that comes forward to the
8 pretreatment facility. And both of those require
9 iteration in this discussion.

10 CHAIRMAN: If you want to go from the Waste
11 Treatment Plant back to the tank farms you'll have to
12 know -- you'll have to resolve these issues with mixing
13 in the actual plant in the vessels, right?

14 MR. KNUTSON: That's correct.

15 CHAIRMAN: You can't go that direction right
16 now, right?

17 MR. KNUTSON: We can't go that direction for all
18 parameters, you're absolutely right.

19 CHAIRMAN: Yeah. Do you have any sense of -- I
20 guess another issue I want to ask you very briefly about
21 before I get to the last question is what about sampling?
22 How important -- I mean, we're going to go the other way
23 now -- how important is sampling in the tank farms to be
24 able to, you know, also address what's going to be fed
25 into the plant?

1 MR. KNUTSON: Sampling has always been a key
2 element of the prerequisites of being able to send a
3 batch to the pretreatment facility. It is one of the --
4 it is a critical function.

5 CHAIRMAN: So based on where you are today, do
6 you have any sense of what percentage of the waste you
7 might need to exclude from treatment in the Waste
8 Treatment Plant?

9 MR. KNUTSON: As a personal opinion I'm still
10 personally convinced that a vast majority of the waste
11 will need a Waste Acceptance Criteria that the
12 pretreatment facility can treat. As we learn more about
13 the specific physical parameters that it takes to be able
14 to satisfy that criteria, we have a tremendous team of
15 individuals that are both from tank farms and from the
16 Waste Treatment Plant that are working on how do you
17 translate that into specific physical parameters?

18 CHAIRMAN: Are there a set of tanks in the tank
19 farms right now that you feel you won't be able to
20 process in the Waste Treatment Plant? I'm obviously
21 referring to the plants which have the large plutonium
22 particles in them, the plutonium finishing plant.

23 MR. KNUTSON: Yes. And I think it's important
24 that we refer back to a fundamental DOE policy statement
25 that was put in place in 2003 that had identified that

1 these high fissile content tanks would be satisfied and
2 would need to have an alternative methodology as early as
3 2003 in the discussion.

4 CHAIRMAN: Well, I don't want to leave Mr. Gay
5 out of this thing. And you look a little disappointed.
6 So let me see if I can come up with something your way.

7 One of the things about mixing that is really
8 challenging, at least from the way I understand it, is
9 being able to mix these non-Newtonian vessels. And we
10 have seen some testing, you've seen some testing. One of
11 the things that the project was trying to do is prove the
12 premise that the performance of the Newtonian vessels
13 would basically bound the nonNewtonian vessels. Where
14 are you right now in that process in terms of being able
15 to do that and being able to prove out mixing of the
16 non-Newtonian vessels?

17 MR. GAY: There's an IP deliverable, I think
18 it's August of 2012, October of 2012, where we have to
19 report to you whether Newtonian will bound non-Newtonian
20 or not. I think Frank is ready to say that we will not
21 be pursuing Newtonian bounding non-Newtonian. We do not
22 believe that that's an appropriate approach. We believe
23 scaling is the appropriate approach.

24 In the 14-foot platform we will essentially have
25 a full scale nonNewtonian vessel with UFPZ. So we'll be

1 doing full scale testing with UPFZ. That only leaves
2 three other tanks, which are the lag storage vessels,
3 HLP27A and B and 28 and they're about 28 foot -- they're
4 28 foot in diameter. So we will be -- we could do half
5 scale with those vessels for scaling. But we are also
6 making sure as we build the 14-foot platform
7 infrastructure that we have capacity such that we could
8 do a full scale HLP27A or B or 28, if that's the way we
9 think we ought to go for those three lag storage vessels.
10 They're reasonably large, they carry about 80,000 gallons
11 apiece.

12 Now, there's another thing that's going on, this
13 is somewhat complex that we are looking at
14 erosion/corrosion issues UFP2 vessels. And they may not
15 pass the litmus test and we're -- as a result of that it
16 leads to a trade study that we may be doing that Frank is
17 sponsoring where we if we have to change out some vessels
18 we may go with a different type vessel for HLP27A and B.
19 And that's being evaluated. And I think Frank is leaning
20 towards using UFP2's, which means we'll have done full
21 scale testing on all the non-Newtonian vessels.

22 So I think the good news is that we're
23 definitely going to do full scale testing on UFP2A and B,
24 that's a done deal, it's going to be designed into the
25 14-foot platform. And then the three 80,000-gallon

1 vessels, we have to decide whether half scale is good
2 enough or we're going to need to do full scale. And that
3 decision hasn't been made yet.

4 CHAIRMAN: So you're saying you're a ways out
5 from being able to place any non-Newtonian vessels into
6 that facility?

7 MR. GAY: That's correct, sir.

8 CHAIRMAN: And the timeframe for that would be
9 what?

10 MR. GAY: The key is the design verification
11 from my standpoint. I have an agreement with the
12 government that design verification will be done on the
13 vessels before any of those 11 -- those are the
14 non-Newtonian's, five of them -- before any of those go
15 into the plant. And because of my background, the design
16 verification to me means testing is done,
17 erosion/corrosion is resolved with design margin clearly
18 identified, nuclear safety is in agreement that they have
19 the information such that they can write the DSA, and
20 when all of those issues are resolved plus we have
21 verified the quality of the fabrication, which is another
22 requirement I have with Gary, at that time we'll start
23 putting vessels in the plant. So we're not going to be
24 placing vessels any time soon. We have a lot of work to
25 do before we put any more vessels in the plant.

1 CHAIRMAN: So let me finish up this part of the
2 panel with you, Mr. Brunson. You're the director of
3 engineering for the DOE, how big a challenge do you think
4 these non-Newtonian vessels are? Being able to figure
5 this thing out. Let me ask, is it your sense that
6 testing will be what's required to do this as opposed to
7 any modeling computation of any fluid dynamics codes?

8 MR. BRUNSON: Yes, sir. I'm a Missourian. Show
9 me.

10 CHAIRMAN: And the challenge itself, any sense
11 of how difficult it's going to be to resolve these
12 issues?

13 MR. BRUNSON: I think it's going to be a
14 tremendous challenge because one of the things that we
15 haven't addressed yet in the non-Newtonian vessels is
16 that we have in essence a chandelier assembly and we
17 haven't addressed the ability to remove solids from the
18 top of the chandelier yet. So yeah, there are many
19 challenges that remain, sir.

20 CHAIRMAN: All right. And I lied. Dr.
21 Mansfield has one final question.

22 MR. BADER: I have one.

23 CHAIRMAN: Excuse me, Mr. Bader has a question.

24 MR. BADER: Mr. Gay, you made the comment it
25 will be a different kind of vessel. Could you be more

1 specific as to what you think that would be?

2 MR. GAY: If you look at UFP2 because of the
3 caustic stress corrosion cracking, we may have to go to
4 Hastelloy instead of a stainless version. And there are
5 also some concerns about that some corrosion problems
6 with 80,000 HLP27 A and B vessels and 28 vessels.

7 MR. BADER: You're saying all those are
8 candidates for being changed to Hastelloy?

9 MR. GAY: Candidate after we do the
10 erosion/corrosion evaluation. I think the thing that's
11 important to me is we keep going back and having to
12 revisit erosion and corrosion. And this is the first
13 time I have done this, but I'm kind of interested as we
14 do it this time is to figure out why can't get it right
15 by process because we're going to be able -- we're going
16 to need to be able to do this as a routine nature based
17 on new batches coming over from the tank farm, we have to
18 verify that the vessels will be okay from an
19 erosion/corrosion standpoint.

20 And the good thing from that is that we have to
21 provide the government a vessel assessment integrity plan
22 which specifically will be the processes that are being
23 used to ensure over the lifetime of the plant that the
24 stuff that goes into the vessels will not affect the
25 margin for erosion and corrosion.

1 As we do it this time, Gary and I are both very
2 interested in seeing how we can make the process more
3 robust so that when something design changes one of the
4 assumptions or one of the design impetuses to the vessel
5 from an erosion/corrosion standpoint is let's evaluate on
6 the front end, that's quite a process.

7 MR. BADER: Have you looked recently at the
8 availability of significant quantities of Hastelloy for
9 vessels?

10 MR. GAY: No, I haven't done that. It is
11 probably hard to come by. I know it is expensive.

12 CHAIRMAN: Did you want the final word, Mr.
13 Russo?

14 MR. RUSSO: I was just going to add a point
15 because it goes back to our earlier conversation when I
16 asked for the trade study, when I asked our team to get
17 together and put together a trade study team. It was
18 with the understanding that when you look at it
19 holistically. Are we going to be able to manage process
20 batch to batch so that there are no questions for any of
21 us? And if the answer to that is no in trade what would
22 be an appropriate option that you can put within the
23 physical zones that now exist? And the trade study team
24 has come up with a series of options that they're now
25 evaluating and iterating. But it will still have to be

1 compared and evaluated against can you control the
2 process without creating impossibility for the operator
3 so you don't have to make that trade. And that work will
4 be completed within the next four to six months.

5 CHAIRMAN: So we've been discussing here today
6 these unresolved technical issues, they've been around
7 for awhile. Talked about the fact that there are -- seem
8 to be surprises all the time about what's necessary to
9 resolve these. A lot more work ahead to be able to do
10 that. And we've talked about some of the challenges that
11 your organization has in developing a safety basis for
12 all these moving parts. Until they fix this design and
13 you can say I can put a set of controls in place to
14 address hazards, we won't have a safety basis; is that
15 true?

16 MS. BUSCHE: That is correct.

17 CHAIRMAN: Okay. Let me thank this panel. Let
18 me do it appropriately. Mr. Knutson, Mr. Brunson, Mr.
19 Russo, Mr. Patterson, Ms. Busche, Mr. Gay and Mr. Daniel,
20 thanks a lot.

21 And we're going to call the second panel. Now
22 from the Department of Energy and its contractor
23 organizations for the topic of this panel, the session,
24 will be development of the documented safety analysis.
25 We'd like to invite up Mr. Matthew Moury, DOE's

1 Environmental Management Deputy Assistant Secretary for
2 Safety, Security and Quality Programs; Mr. Scott
3 Samuelson, DOE's Manager of the Office of River
4 Protection; Mr. Dale Knutson, DOE's Federal Project
5 Director for the Waste Treatment Plant; Mr. Paul
6 Harrington, DOE's Assistant Manager of Engineering and
7 Nuclear Safety for the Office of River Protection; Mr.
8 Gary Brunson, DOE's Director of the Engineering Division
9 for the Waste Treatment Plant; Dr. Fred Beranek, the
10 Waste Treatment Plant Manager of Nuclear Safety and Plant
11 Engineering; Mr. Thomas Patterson, the Waste Treatment
12 Plant Manager of Engineering; Ms. Donna Busche, The Waste
13 Treatment Plant Manager of Environmental and Nuclear
14 Safety.

15 The Board will either direct questions to the
16 panel or individual panelists who will answer them to the
17 best of their ability. After that initial answer, other
18 panelists may seek recognition by the Chair to supplement
19 the answer as necessary. If panelists would like to take
20 a question for the record that answer -- the answer to
21 that question will be entered into the record of this
22 hearing at a later time.

23 Does anyone on the panel wish to submit written
24 testimony at this time? Seeing none, we'll go on. I'd
25 like to thank each of you for your testimonies today.

1 With that we'll continue with questions from the board
2 members to the panel. I believe we'll begin with Ms.
3 Roberson.

4 VICE CHAIRMAN: Mr. Chairman, I'm going to defer
5 to Dr. Mansfield.

6 CHAIRMAN: Dr. Mansfield.

7 DR. MANSFIELD: Thank you, Mr. Chairman. Mr.
8 Brunson, my question is about the process ventilation
9 pipe installation and its surveillance of the last year
10 about that issue. Obviously surprising, I'm sure you too
11 as it was to us, that the piping installed was not in
12 accordance with the -- I'm asking about the October 2011
13 DOE surveillance report that BNI installed pretreatment
14 facility vessel advance process piping in Area that was
15 not in accordance with the preliminary documented safety
16 analysis. It led to -- that surveillance led to BNI
17 issuing some management suspensions of work. That's a,
18 I'd say, terrible outcome in just about every case. Do
19 you believe that problem is fixed or do you think you
20 might have other ones pop up? It is really a question
21 for DOE because you're the ones that are doing the
22 surveillances.

23 MR. BRUNSON: I don't definitely know that we
24 won't place another item. I know that we have put
25 processes in place to prevent that management suspension

1 of work. So those processes are in place. I have not
2 seen an extent of condition performed to assess whether
3 we've got any other potentials or have. So I believe
4 that we've got processes in place to mitigate that risk.

5 DR. MANSFIELD: Are there industry-wide
6 processes to avoid problems like this? I imagine people
7 don't have probably preliminary documented safety
8 analysis but they have other operational requirements
9 that leads them not to want material to be installed
10 before the design is verified. Are there ways in this
11 industry to keep an eye on this? I mean, is there --

12 MR. BRUNSON: Well, my experience all comes from
13 naval reactors, so in that program it's a very mature
14 program, it's been around for 60 years. I had never seen
15 a system or component placed where it was not intended to
16 be placed with respect to design.

17 DR. MANSFIELD: So they're always doing it
18 right?

19 MR. BRUNSON: Yes, sir.

20 DR. MANSFIELD: Thank you, Mr. Chairman. There
21 is one more that I could ask you. Is there these -- when
22 you have this kind of inconsistency between the safety
23 basis and design in that involve suspension of work, how
24 does the Department resolve these differences between
25 safety and design to allow the project to move forward?

1 What I mean by that is, do you stop dead or can you
2 continue with design holding the construction or do you
3 consider the construction -- hold the construction while
4 you work on the -- you know, there's all sorts of ways
5 you can think of addressing the issue of the diversions
6 between the preliminary document safety analysis and the
7 design. Do you have a preferred way of doing that when
8 they diverge?

9 MR. KNUTSON: So I'll answer on behalf of the
10 federal project team. The answer is that you stop those
11 activities that have the potential to not be in
12 accordance with the authorization basis. We also have to
13 recognize that there's a very broad spectrum of maturity
14 associated with the Waste Treatment Plant project. We've
15 spent a lot of time talking about the pretreatment
16 facility but we also have four other facilities, all of
17 which are at varying levels of completion, all of which
18 at varying levels of sophistication, both in their
19 understanding of the design and of their ability to
20 remain latched up with the authorization basis. The
21 pretreatment facility is the least mature of any of those
22 facilities. The LBL facilities are the most mature of
23 any of those facilities. And the LBL facilities
24 transition to a commissioning and startup phase starting
25 this year. So the 12-facility infrastructure buildings

1 and two category 3 nuclear facilities are part of the
2 most mature elements of the project.

3 The expectation is that any time that there's a
4 disconnect between an engineered system and the
5 documented safety analysis that that work is -- there's
6 not even a question of whether or not that work is
7 stopped, the work is stopped, and that's the management
8 suspension of work process.

9 DR. MANSFIELD: Thank you, Mr. Chairman.

10 CHAIRMAN: Ms. Roberson.

11 VICE CHAIRMAN: Thank you, Mr. Chairman. Ms.
12 Busche, we talked a little bit about this in the last
13 session, but in context, you know, there have been a
14 number of the DOE assessments, defense board staff
15 reviews, project team reviews, entries into BNI's
16 corrective action management system that have identified
17 misalignments between the WTP design and the safety --
18 the current safety basis. In just a few words, I know we
19 talked about the PVP system, can you describe generally
20 what does a misalignment mean?

21 MS. BUSCHE: A misalignment can be any range of
22 things from the description in the safety document
23 doesn't -- isn't aligned with the design. It could
24 actually in some cases be where the safety basis itself
25 is inconsistent in describing a requirement, so it's

1 transposed in the safety documents. So we use it at a
2 higher level to -- it can be any broad range of, you
3 know, potential non -- you know, misalignments.

4 VICE CHAIRMAN: So we talked a little earlier
5 about the process vessel vent system and I take -- I
6 think Mr. Knutson just made a good point. Do you have
7 misalignments in the safety basis and design of other
8 facilities that are part of the plant?

9 MS. BUSCHE: In other facilities?

10 VICE CHAIRMAN: Yes.

11 MS. BUSCHE: Yes.

12 VICE CHAIRMAN: What are some examples of those?

13 MS. BUSCHE: The -- very related to the process
14 vessel vent in the pretreat it has a specific safety
15 function to prevent hydrogen detonations. In the
16 high-level waste facility we also have somewhat of a
17 misalignment or a technical issue because the current --
18 the C5, the confinement ventilation system currently
19 cannot, may not be able to handle the entrained solids on
20 the mixing side. So that is one where we have a -- the
21 preliminary documented and safety analysis hasn't really
22 been completely updated. So it is an apparent
23 misalignment but we know it is there.

24 VICE CHAIRMAN: And do you consider these
25 misalignments serious or minor as you reconstitute or

1 re-baseline your safety basis? Are these serious
2 misalignments?

3 MS. BUSCHE: There are some that are very
4 serious. When we have a credited safety system that
5 can't perform its function or the design wasn't --
6 doesn't meet the credited safety function, I view those
7 as serious in my world. There are others that it is not
8 as serious. But in the nuclear business you comply with
9 your safety basis document. So I think with discipline
10 this management stop of work or suspension of work,
11 that's what it's focused on doing. First stop, then look
12 at what can you start back in a disciplined process.

13 VICE CHAIRMAN: Thank you.

14 CHAIRMAN: Before we move on, are you surprised
15 that a project that's this far along in design and
16 construction has this type of a misalignment right now
17 between its design and its safety basis?

18 MS. BUSCHE: I'm not surprised on any design
19 construct project that you will have misalignments
20 because of the iterative nature. I am very, very
21 surprised at the nature of some of these misalignments
22 and the significance level that they are.

23 CHAIRMAN: Can you give an example of one that
24 really surprises you?

25 MS. BUSCHE: The process vessel vent is the one

1 probably most prominent in my mind that I have been an
2 advocate for is that it's a safety class system. So when
3 we have a design that's installed that doesn't meet its
4 credited safety functions and we now have to come up with
5 other design solutions because portions are installed, it
6 makes my job and my function more difficult.

7 CHAIRMAN: So is the situation that led to that,
8 has that been corrected? I mean, are you not expecting
9 to see that kind of a situation going forward where
10 there's a significant misalignment between the
11 preliminary document safety analysis and design? Have
12 systems been -- have people learned from that so that
13 it's not going to happen again?

14 MS. BUSCHE: We've recently issued a root cause
15 analysis report and judgement and need. So I would
16 answer that twofold. In going forward we will be fixing
17 our processes to make sure we understand. If there's a
18 change in the safety basis, what's the impact to the
19 existing design, ongoing design, and that's big for a
20 project that outsources a large portion of their work.
21 So going forward I believe we have I think the right
22 alignment both in my procedures and Tom's procedures in
23 engineering going forward. The difficulty when we do
24 this -- the safety basis reconstitution by definition
25 we're going to identify some more. The same process

1 will, you know, will trickle down into all the
2 facilities. So I think that with cautious optimism as we
3 move forward that we won't find any more significant
4 items.

5 CHAIRMAN: So hopefully you've got the process
6 under control but that doesn't negate the fact that if
7 there are unresolved technical issues, it's going to very
8 hard to do your job.

9 MS. BUSCH: That further compounds it.

10 CHAIRMAN: Yeah. Absolutely. Mr. Bader.

11 MR. BADER: I think you asked most of the
12 questions I was going to ask. But let me -- the one
13 thing that I did want to ask Ms. Busche is when you've
14 got this kind of a misalignment, does that compound the
15 problems you've had with your hazards analysis?

16 MS. BUSCHE: Absolutely.

17 MR. BADER: I mean, I would think that's a one
18 for one.

19 MS. BUSCHE: It is sometimes a twofer.
20 Depending on what the issue is because of the
21 interrelationship of these systems and the hazards and
22 the control strategies that we need, if there's a
23 misalignment on the process vessel vent, I now have
24 questions on what's the right mixing schedule to make
25 sure I either don't overwhelm the process vessel vent.

1 So depending on what analysis, either hazards analysis or
2 accident analysis, is going on, every time there's a
3 misalignment, it's almost a -- you have to look at what's
4 going on in place to understand those interrelationships.

5 MR. BADER: Thank you.

6 CHAIRMAN: My apologies. The question I would
7 ask you is: What factors specifically contributed to the
8 need to reconstitute the safety basis?

9 MS. BUSCHE: I have seen probably since I
10 suspended some of the integrated safety management
11 process, I've done a management assessment, I led or
12 requested a management assessment of the low-activity
13 waste, we found numerous issues with what I would say the
14 adequacy and the discipline by which the nuclear safety
15 professionals documented that hazards analysis, the
16 retrievability of records, the traceability to design.

17 So when you then do spot checks on other
18 facilities and you see similar types of issues it -- I
19 get to the point when I look at the pretreatment facility
20 the information in the preliminary documented safety
21 analysis has not been updated for many years,
22 approximately six for mixing. So if nuclear safety isn't
23 updating what's needed in the safety basis, by definition
24 they're not communicating to engineering what nuclear
25 safety will ultimately need in the control strategy. So

1 it's -- if the information's not there, I made that
2 decision because I believe I was obligated to make sure
3 we have the proper safety basis for ultimately to get it
4 into the design and then have a control strategy to
5 mitigate those hazards.

6 CHAIRMAN: So how much time and effort is going
7 to be required to reconstitute the safety basis? Is this
8 a major undertaking?

9 MS. BUSCHE: Absolutely. I would suspect that
10 right now just some preliminary planning that we're
11 doing, we're going to have to have a interdisciplinary
12 team, not just nuclear safety professionals, engineers
13 and operations staff will have to be involved. I would
14 suspect that at least on the nuclear safety side you can
15 talk about 15 to 20 people full time doing the hazards
16 analysis, doing the accident analysis. Similarly, we'll
17 need support from every engineering discipline when we
18 get to that point in the system. So it is significant.
19 And I would gander it is probably a good year effort.
20 And that's with no new issues.

21 CHAIRMAN: So let me ask you, Mr. Samuelson,
22 you're the gentleman whose I guess going to write the
23 license with Mr. Harrington for this facility, right? So
24 this is kind of your baby.

25 MR. SAMUELSON: Yes, sir.

1 CHAIRMAN: And what's your perspective of the
2 challenges that the project faces in terms of actually
3 being able to resolve some of these issues and
4 reconstitute the safety basis? Are you disappointed that
5 this is the situation that you're in at this point?

6 MR. SAMUELSON: I think the approach that I have
7 to take is to make sure that we are looking at where we
8 were now and doing everything we can to make sure that we
9 understand the condition that we are and what we have to
10 do to move forward. So as someone fairly new to the
11 endeavor, I can honestly say that I wish we were further
12 along, but I think that certainly in the almost a year
13 since I have started here I have seen us become much more
14 engaged in open discussion of these types of things and
15 what it is we need to do about them and how we are going
16 to move them to where we want them to be. And so I am
17 actually encouraged that we are going some place that we
18 need to go. I wish that we were further down that
19 journey than we are.

20 CHAIRMAN: Well, it concerns me a little bit and
21 I would also ask Mr. Harrington to help out, this is a
22 facility that's under construction, there are vessels
23 being placed in this facility all the time. I mean, it
24 would seem to me that it would be tremendous concern that
25 these -- that this safety basis has not been kept along

1 and brought along at the same pace as the construction
2 issues have and that you don't have a lot more confidence
3 at this stage that you can in the end end up with a
4 defensible safety basis. I mean, do you share that
5 concern?

6 MR. SAMUELSON: I'll ask Paul to join in on
7 this. I would say I am very concerned that we get to
8 where we need to be. Right now, particularly in
9 pretreat, we are not installing much at all. And we have
10 exercised the management suspension work process, we have
11 stopped the things where we understood there to be
12 problems.

13 As you heard from the previous panel, the
14 vessels where we have questions aren't going any place
15 until we understand what they need to be and whether they
16 can meet their functions in accordance with the safety
17 analysis and their process function. And that's going
18 to take a while, which is going to be what it has to be
19 to get us where we need to go. We have no other choice.
20 We have to do it right.

21 MR. HARRINGTON: I think the governing
22 requirement here is NQA-1 requirement three on design
23 control. And that requires that the design organization
24 share the design with all the affected organizations,
25 that they get approval from those affected organizations

1 and that the same process applies to any proposed design
2 change. I think we have been less than rigorous in
3 application of that requirement and that has led to the
4 observed deltas between nuclear safety and design,
5 between construction and design and that's one of the
6 things that we're working with BNI to do a better job of.

7 Ms. Busche had shared awhile ago when we were
8 first talking about the design basis reconstitution
9 effort her need to get with the design organization to
10 assure herself that she had the correct design as the
11 basis to use for that reconstitution process, absolutely,
12 but that really is not the way it should work. It should
13 be from the design organization to nuclear safety, to
14 operations, to construction, to maintenance. And we
15 simply need to do a better job of that than we have been
16 doing.

17 CHAIRMAN: So you're very experienced in this
18 business. You understand this stuff extremely well.
19 What were the lessons you learned? Why did it happen
20 that you're in the situation where you're in today right
21 now? You said less than rigorous and --

22 MR. HARRINGTON: Yeah. Yes, I did. Having been
23 here a year and a half now focused on the nuclear safety
24 side rather than the design side, I cannot really speak
25 to the historical nature, the historical activities that

1 got us to the position that we're in. But I certainly
2 can speak to what we need to do to get out of that and
3 preclude its repetition.

4 CHAIRMAN: Okay. Thank you. Dr. Mansfield.

5 DR. MANSFIELD: Thank you, Mr. Chairman. This
6 is a pretty simple question. We noticed that there are
7 misalignments in low-activity waste and the laboratory
8 facilities and the balance of facilities that require the
9 preliminary documented safety analysis to be
10 re-baselined. This is, I imagine, the same kind of
11 effort we were talking about in the last few questions
12 when there are disconnections or misalignments. Is this
13 as complex a problem in these other facilities as it is
14 going to be in pretreatment?

15 MR. BUSCHE: No. No. The low-activity waste
16 management assessment that we completed, we do have a
17 pretty fair understanding of what is needed. I would
18 actually almost use the term confirmatory hazards
19 analysis because many things were done with model cuts,
20 for example, so the teams have actually already started
21 physically walking down the facility, an
22 interdisciplinary team. So yes, there are technical
23 issues associated with the safety basis, but we don't see
24 the broad disconnect. But on the low-activity waste
25 there's no research going on. So I think that's the

1 compounding factor.

2 DR. MANSFIELD: In that case it was part of your
3 execution plan to, as you say, walk the plant down.
4 Would walking the plant down more systematically help in
5 pretreatment as well?

6 MS. BUSCHE: It would, but so much of the system
7 doesn't exist today there's nothing to walk down.

8 DR. MANSFIELD: Okay. My last -- I have two
9 more questions, actually. Mr. Harrington, these
10 unresolved issues and misalignments really seems to me to
11 impact your ability to implement the licensing strategy.
12 Is that going to be a big issue? I mean, are we -- are
13 you going to be -- are we going to run to the end of the
14 WTP construction and not be able to put together a
15 licensable facility?

16 MR. HARRINGTON: Before continuing appreciable
17 construction in these areas of question, they'll have to
18 be resolved. So no, I really don't anticipate that we'll
19 get to the end and not have an answer. We need to
20 resolve those issues that were discussed in the earlier
21 session before we're able to define the design solutions
22 that will come out of that and then have Ms. Busche's
23 folks do the corresponding safety analysis.

24 DR. MANSFIELD: Mr. Moury, is that your view
25 too? That's all I have .

1 MR. MOURY: Yes.

2 CHAIRMAN: Well, let's just -- I'm going to turn
3 it over to Mr. Bader in a second. But Mr. Moury, once
4 again we never like to leave panelists off. Can you give
5 us headquarters perspective on this? I know we've heard
6 a lot of commitment from Mr. Samuelson and Mr.
7 Harrington. Can you give us your thoughts on this?

8 MR. MOURY: Yeah. I think it's actually a
9 combination of both what Mr. Samuelson and Mr. Knutson
10 had said before. We wish this misalignment didn't occur.
11 All right. But we are where we are. So we're looking
12 for our path forward. If there is a misalignment, if
13 there's a mismatch between the design and safety basis,
14 as Mr. Knutson said, we will stop before we proceed. I
15 think what the Board should be encouraged by is the fact
16 that you've got a group of panel members up here who are
17 communicating the issues, not candy coating them, telling
18 you how difficult this is going to be, but also laying
19 out the path forward. So that, from a headquarters',
20 perspective is what we're looking for and what we are
21 working with the team to make sure is put in place.

22 CHAIRMAN: Ms. Roberson.

23 VICE CHAIRMAN: I think the only question I
24 asked, and I appreciate your comments, Mr. Moury. I
25 think it is important to be able to focus on a path

1 forward, honestly. I think it is important, though, for
2 one to know the update that got them to a spot to ensure
3 that they don't end up on that path again. So I would
4 still say, ask the question of and probably you Mr.
5 Samuelson or Mr. Knutson, what are -- what is DOE doing
6 to ensure that progress forward does not find you with
7 similar issues that you're faced with now?

8 MR. KNUTSON: I think I'd like to begin. First
9 and foremost, the most recent surveillance that we've
10 issued changes the paradigm at the way we look at
11 surveillances. For so much of our history we have taken
12 individual technical topics and parsed them into
13 technical solutions and then refined that technical
14 surveillance and then refined it again and refined it
15 again. Erosion and corrosion is a classic example of
16 that. 28 reports, multiple iterations, further
17 refinement of a known technical issue. And it takes a
18 very long time to drive issues to closure. You can
19 compound that across multiple types of surveillances,
20 across multiple systems that the Department of Energy has
21 evaluated over the years.

22 The most recent surveillance that we issued has
23 asked our contractors at Bechtel to step back and look at
24 the systems that you're talking about from an integrated
25 management perspective and see if there isn't a better

1 way of dealing with the processes of technical solutions
2 that allows us to answer the questions based on the
3 integrated outcomes as opposed to discrete technical
4 solutions. And I think that's something we have to train
5 our stakeholders in as well as ourselves.

6 For 10 years it's been very very easy to simply
7 pick a technical topic and grill it to death. We need to
8 find ways to be able to identify technical topics and the
9 causal relationships between them as solutions are
10 developed. And that's actually one of the issues that
11 became paramount as this transition to commissioning and
12 startup really began to take hold inside this project
13 team; the need to go from component focused technical
14 issue resolution to integrated systems, the One System.
15 My very first meeting with you we introduced this topic
16 and continued to push this integrated management approach
17 that allows us to stop parsing technical solutions and
18 start integrating technical solutions.

19 CHAIRMAN: Mr. Bader.

20 MR. BADER: Ms. Busche, let me continue along
21 the same types of questions and just go to the issue of
22 technical safety requirements. Is this mismatch between
23 information to you and what you're able to do, does that
24 compromise your ability to also come up with the proper
25 technical safety requirements?

1 MS. BUSCHE: It will have a contribution to the
2 technical safety requirements. I think the bigger issue
3 with technical safety requirements is the reconstitution
4 effort with hazards analysis and making sure we actually
5 have controls so that we can write technical safety
6 requirements.

7 MR. BADER: Let's go to -- I've got to be
8 careful, I was about to say PIER and I don't like to use
9 acronyms that are "inside baseball" acronyms. The
10 Project Issues Evaluation Report 11-1178, the root cause
11 analysis team identified the lack of collaborative
12 interaction between yourselves and engineering
13 organizations as a significant contributor to the
14 misalignment between the design and the safety basis.

15 Given the finding in this Project Issues
16 Evaluation Report, can you discuss the effectiveness of
17 the integrated safety management process and the reasons
18 that those integrated safety management meetings were
19 suspended in November of 2010 and the impact of that
20 suspension on the integration of safety into the design?

21 MS. BUSCHE: That was a multi-faceted question.

22 MR. BADER: That was a multiple question.

23 MS. BUSCHE: The first part of the question, as
24 I understand it, is directly related to that recent root
25 cause analysis that we did that was really focused on a

1 set of those problem identification reports that were
2 known misalignments.

3 My understanding from many interviews that I had
4 with the team is that collaborative effort focus of that
5 particular -- those statements were really geared towards
6 two extremes. This is a tough project. When there's a
7 technical issue you either have folks that are going to
8 actively confront those and work to solve them or in many
9 cases choose not to have the discussion. So on some of
10 our technical issues that have been around for a very,
11 very, very long time, ash fall, flooding, they were
12 choosing not to have the discussion. So there wasn't
13 that collaborative, that shared vision, what do we have
14 to do to get on with it to understand the hazards in the
15 design. So that is something that Tom and I work on once
16 a week on very focused sessions to make sure we're doing
17 the leadership, you know, activities necessary to lead
18 the organizations that if -- neither one's going anywhere
19 without the other one. And that's a difficult part of
20 the human dynamic.

21 On the integrated safety management, my decision
22 to shut that down or stop that or suspend that was -- I
23 had a lot of input. I had clearly feedback from my
24 customers, Paul Harrington and his staff, the quality of
25 documents being submitted to me that were an output of

1 that process, feedback from the site representatives from
2 the Defense Nuclear Facilities Safety Board, and then
3 direct observations.

4 So when you start to get that you actually start
5 walking around and you see that. And to be candid, the
6 quality of work being produced by the nuclear safety
7 professionals was unacceptable. They clearly weren't
8 doing what I consider nuclear safety work. So I chose to
9 stand down that activity. I was actually out of town at
10 the time when I did it. But it gets to the point if
11 we're not going to do quality in, you can't review it in
12 at the back end. So I stood it down. When I got back we
13 had a series of meetings and understanding of what's your
14 job, what's the expectations, what do you need from
15 engineering trying to actually improve the human
16 performance side of that activity. So as we have
17 progressed from November 2010 to date, I will say in some
18 instances we've got some very good examples to where now
19 the nuclear safety professionals are working with
20 engineering when we did -- reconstituted the hazards
21 analysis for CXP, which is a system, I think they worked
22 very well with discipline produced a hazards analysis
23 report, and I'm very comfortable at this iteration
24 nuclear safety's been integrated into that design. So we
25 are trying to now mimic, mirror, and actually play that

1 forward to all the other integrated safety management
2 teams. So it's hard. It's changing I think behavior,
3 understanding, expectations so that you have to have the
4 discussion, you have to have the tough conversations or
5 we're just not going to solve the problem. (Applause.)

6 MR. BADER: How do you follow that up? Mr.
7 Patterson, do you concur in what Ms. Busche said? Are
8 you comfortable with that discussion?

9 MR. PATTERSON: I'm very comfortable with it.
10 Yes, sir.

11 MR. BADER: Do you feel you're making progress?

12 MR. PATTERSON: Most definitely.

13 MR. BADER: Thank you. Dr. Beranek, we don't
14 want to ignore your input.

15 DR. BERANEK: Feel free. (Laughter.)

16 MR. BADER: The root cause analysis on the
17 design and safety basis misalignments recommends that
18 senior project management should ensure a mechanism
19 exists to integrate the efforts of engineering in the
20 nuclear safety organizations. How do you feel the
21 project will implement this recommendation?

22 DR. BERANEK: I think what we'll be doing, in
23 particular one of the meetings I started up recently was
24 a meeting between myself, plant, engineering, and I'll
25 include output operations in that also, is now whether

1 we're heading more toward commissioning. Starting a
2 meeting between the senior management and all those
3 organizations on a biweekly basis to discuss the issues
4 as sometimes I'll say fester for awhile at the working
5 levels and raise that up. And we'll also be doing
6 assessments on how the interaction is going. We have a
7 pretty robust assessment program on the project and
8 assessments will be done on these interactions on these
9 meetings to make sure that interface continues.

10 MR. BADER: Are you comfortable with the
11 progress?

12 DR. BERANEK: Of what?

13 MR. BADER: The interactions.

14 DR. BERANEK: It's come a long way, yes. And
15 I've been back on the project for six months. As you
16 know, I started out here 2001. I can probably help
17 provide a little historical perspective on the issues.
18 But in the months I have been here I have seen -- again,
19 not knowing the -- what's been going on the last two or
20 three years, I see good interaction. I see meetings. I
21 see the usual tension. I have been in this business a
22 long time both on the site engineering side and on the
23 nuclear safety side and operating facilities I have been
24 around for years. There's always tension between nuclear
25 safety and engineering. It's a constructive tension. I

1 see that but I also see issues now getting resolved and
2 being discussed and raised to levels to get resolved.

3 MR. BADER: All of these questions to me begs a
4 question to Mr. Knutson. When I look at what we have
5 heard this afternoon, the impact on engineering, the
6 impact on nuclear safety, on the work in pretreatment
7 facility that, in effect, the impact of trying to deal
8 with the unknown or with the unanswered technical issues,
9 the impact of the re-baselining, and in listening to some
10 of the words that Mr. Harrington and Mr. Samuelson have
11 used and Ms. Busche have used, I get a sense that there
12 is a de facto slowdown on the design and construction of
13 the pretreatment facility. Is that a sense that's
14 correct?

15 MR. KNUTSON: I believe the Department of Energy
16 has actually published that as basic policy in both its
17 FY12 and FY13 budget submittals that said based on the
18 priorities that we've established, the pretreatment
19 facility is the fourth priority of four that are
20 critically important to us. The very first one being
21 resolution of technical issues, the second being -- by
22 the way resolution of technical issues includes 2010-2
23 and the testing that goes with that.

24 The second priority being the LBL facilities and
25 making sure that that capability is maintained in

1 accordance with its baseline commitments.

2 The third priority is the high-level waste
3 facility.

4 And the fourth priority is the pretreatment
5 facility.

6 MR. BADER: But that's fourth priority, does
7 that mean that this is catchup situation to allow all
8 these different issues to be resolved successfully? Is
9 that the sense I should get from that?

10 MR. KNUTSON: I don't think that you should take
11 it in terms of a premise of a catchup situation. What we
12 have is a situation in which the funding request that was
13 necessary to be able to maintain the pace we were on is
14 not realistic in this environment, it's not realistic at
15 all in this environment. And, therefore, making
16 adjustments as part of an integrated program outcome
17 requires us to make sure we can deal with the most
18 important things first, which are technical issues, and
19 those would be the same priorities that we would have set
20 with a more robust budget.

21 MR. BADER: And the re-baseline.

22 MR. KNUTSON: And the re-baseline, yes.

23 MR. BADER: Thank you.

24 CHAIRMAN: Dr. Mansfield.

25 DR. MANSFIELD: Just a short question. Mr.

1 Patterson, because of this misalignment and the
2 suspension of some of the work, do you think it was any
3 lasting damage? I mean, did a lot of engineering work
4 become useless or was this something you could fix and
5 bring into alignment with the more or less corrective
6 measures rather than abandonment of previous work?

7 MR. PATTERSON: Based on what we've seen so far
8 very little engineering becomes useless. I mean, the
9 engineering that we have done so far is still
10 appropriate. Many of the studies that we're doing to
11 determine our system basis are still appropriate. So I
12 would suggest that there's very little engineering that
13 would have to be redone at this point in time.

14 DR. MANSFIELD: That's just the answers I
15 wanted, Mr. Chairman. This was a serious issue but not
16 disastrous. I think that's the kind of answer that I
17 needed. Thanks very much.

18 CHAIRMAN: Well, I think we have heard discussion here
19 today, which is very good that now the nuclear safety
20 organization, the engineering organization are working
21 better together to come up with a defensible safety
22 basis, there's a better process in place. But I want to
23 get back to the Board's earlier discussion about mixing.
24 I'm looking to you, Ms. Busche. I understand in terms of
25 the Recommendation 10-1 that there's something like 99

1 technical issues that still need to be resolved
2 associated with mixing. Is that statement true?

3 MS. BUSCHE: Yes, that was in our response to 5731,
4 correct.

5 CHAIRMAN: How you doing on that?

6 MS. BUSCHE: Well, actually, as part of our
7 reconstituting the hazards analysis we're actually
8 looking at when we give -- we actually owe a, you know,
9 the plan as scheduled to actually do that. We're looking
10 at those known technical issues in conjunction with
11 other, you know, what I'll consider disconnects in the
12 PDSA that aren't on that list. And we're actually trying
13 to put together the plan. So most of those there are no
14 hazards analysis ongoing to resolve those known technical
15 issues per se.

16 CHAIRMAN: So there's a ways to go here?

17 MS. BUSCHE: Yes, sir.

18 CHAIRMAN: I have a final set of questions but
19 let me first just ask a question of your testimony, Mr.
20 Samuelson. We do read these things carefully. And I've
21 heard this many times about the project, this iterative
22 process that the project uses, but this is a design build
23 project, I mean you are constructing things in the field.
24 These other processes don't have much value once vessels
25 are being placed, right? I mean, because the iterative

1 part of the process means ripping internals out, ripping
2 vessels out and doing some very, very costly and
3 difficult things, right?

4 MR. SAMUELSON: We would prefer not to have to
5 go to rework if we could avoid it. Absolutely.

6 CHAIRMAN: So iterative is kind of nice early in
7 the process, but once things begin to mature and the
8 design advances, a significant amount of construction is
9 taking place, it is no longer really very useful to be
10 iterative in terms of what you're doing.

11 MR. SAMUELSON: I think that there's always some
12 amount of iteration required whether it is design build
13 or any other project process. As we learn we have to
14 accept what we now understand, evaluate where our design
15 and our construction is, evaluate where we are based on
16 that knowledge and make sure that we are comfortable that
17 we are building the right thing as we go forward. And we
18 can't -- we do not have the luxury of saying, well, we're
19 really too far down the road to worry about that. That's
20 not acceptable. We have to -- we have to act based on
21 our best knowledge of conditions that we have at the
22 time.

23 I absolutely agree that we are now at the point
24 where we must be driving these things to convergence and
25 rather rapidly. And that is what we are attempting to

1 do. And I think that's why we're seeing some of these
2 things come out now because they were running in parallel
3 paths and now we're driving them together.

4 CHAIRMAN: Let me just kind of end this
5 discussion. I'll always go to you, Mr. Knutson, you're
6 the project director here. Any more thoughts you want to
7 share with us in terms of the challenges you face in
8 terms of what we discussed here today? I mean, you have
9 had -- the project has had a difficult tension, which has
10 been noticed in a lot of different places between the
11 safety organization and the engineer organization,
12 progress seems to have been made in that regard. This
13 led to a misalignment of the safety basis, but you feel
14 right now you're on the right path, you're moving forward
15 and the project now has the assistance in place it needs
16 to begin to close the gaps and address these issues.

17 MR. KNUTSON: So let me take us back to where we
18 were the last time we met in which at that point I'd been
19 on this project exactly three months and four days. And
20 in that timeframe what we had concluded was that there
21 were a series of very important commitments that needed
22 to be made that were documented in the technical issue
23 summaries that established some very strategic outcomes
24 that we needed to make serious progress on to be able to
25 say the answer to the question is yes, we have got the

1 processes in place. The first was to make sure that we
2 committed to a vessel completion team. This three-phase
3 strategy of ensuring how we implement the verification of
4 design products for incoming vessels and for vessels that
5 have already been installed. That vessel completion team
6 is in place.

7 The second thing was to make sure that nuclear
8 safety and the engineering organizations literally
9 converged in their technical approaches for -- necessary
10 to complete DSA development and finalize design. And I
11 have to say that for the last year and a half we have had
12 to work that issue harder than any other issue on this
13 project. Today I can say based on our conversations
14 today and as we've testified, I'm very satisfied that the
15 progress has moved in the right direction and that people
16 have the right mindset for how to drive it home.

17 And the third thing that I wanted to make sure I
18 left you with was my closing remarks from 18 months ago,
19 which is we spend a lot of time talking about
20 pretreatment facility. And the pretreatment facility in
21 and of itself is a worthy topic of discussion, there's a
22 lot of things to talk about there. But it's not the end
23 of the Waste Treatment Plant project. More than 80
24 percent of the footprint of that site starts to
25 transition to commissioning and startup beginning at the

1 end of 2012 and into 2013. And for the next three years
2 the LBL facility infrastructure is going through the
3 processes of startup and commissioning of the basic
4 infrastructure of a nuclear complex and two Category-3
5 nuclear facilities. That was the message associated with
6 pivot, it wasn't directed at the pretreatment facility,
7 it was directed at what does this project team have to be
8 able to do to say that it can get to a status of
9 commissioning. One of the outcomes of having done that
10 of course is the fact that we have identified serious
11 weaknesses in other areas of the project, and we need to
12 correct those. I think we've taken the steps that are
13 necessary to be able to drive those corrections into
14 place and keep them in place for the long run.

15 CHAIRMAN: Thank you very much. Mr. Brunson,
16 before we say good-bye to you, we talked about erosion
17 and corrosion today, we talked about mixing. What else
18 keeps you awake at night in terms of technical challenges
19 facing on this project? (Laughter.)

20 MR. BRUNSON: I was going to say establishing
21 design margin, safety margin and verifying that I have a
22 robust margin. And as Mr. Gay and me had discussed, he
23 was a former ship driver, so his primary concern is is
24 that 15 or 20 years from now when they have the design
25 basis event that there's enough margin for the operators

1 out there to recover the facility.

2 CHAIRMAN: I understand that's absolutely a key
3 thing. And your sense of the margins being built into
4 the system today, do you have any feel for that?

5 MR. BRUNSON: It has not been demonstrated to
6 meet my expectations to date, sir.

7 CHAIRMAN: So what you're saying, so that
8 everyone understands, if we talk about an issue like
9 erosion and corrosion, it's really got to have some
10 margins, there are unknowns about the waste and unknowns
11 about the chemistry, unknowns about what's going to be in
12 the pipes and the vessels. There needs to be a cushion
13 built to make sure that if there's some variations in
14 terms of what the plant sees that it's able to handle it?

15 MR. BRUNSON: Yes, sir. This being a nuclear
16 facility, my perspective is is that that must be
17 something that is innate within the design.

18 CHAIRMAN: Right. And I overhear you're
19 obviously, Ms. Busche, planning on getting the controls
20 in place to not only prevent but mitigate anything that
21 happens, right?

22 MS. BUSCHE: That's correct.

23 CHAIRMAN: All right. So that's kind of the
24 strategy. It's really overall really quite a nice
25 approach that is laid out in the regulations of the

1 Department 10 CFR Part 830 about how to go about doing
2 this. And it basically means you're going to look at the
3 accidents and the hazards and identify a set of controls
4 that can be implemented to be certain that the public and
5 the workers are protected.

6 MS. BUSCHE: That is correct.

7 CHAIRMAN: I appreciate that. Any final
8 thoughts from you, Mr. Samuelson?

9 MR. SAMUELSON: No, I don't believe so. I think
10 it's been quite a conversation.

11 CHAIRMAN: Well, with that we want to -- we have
12 a lot people from the public who want to provide public
13 comment. We're going to move on to that section. I want
14 to thank you, Mr. Moury, Mr. Samuelson, Mr. Harrington,
15 Mr. Knutson, Mr. Brunson, Mr. Patterson, Ms. Busche and
16 Dr. Beranek. Thank you very much.

17 At this time per the Board's practice and as is
18 stated in the Federal Register notices, we will welcome
19 comments from interested members of the public. A list
20 of those speakers who have contacted the Board is posted
21 at the entrance to this room. We have generally listed
22 the speakers in the order in which they will speak. I
23 will call the speakers in this order and ask speakers to
24 state their name and title at the beginning of their
25 presentation. And if they have any testimony that they'd

1 like to submit into the written record I'd be happy to do
2 that.

3 There was also a table at the entrance to this
4 room with a signup sheet for members of the public who
5 wish to make a presentation but did not have an
6 opportunity to notify us ahead of time. And I think
7 we're done with that process right now. They will follow
8 those that have already registered with us in the order
9 in which they have signed up. To get everyone wishing to
10 speak or to make a presentation an equal opportunity, we
11 ask that speakers limit their original presentations to
12 five minutes. The Chair will then give consideration for
13 additional comments should time permit. Presentations
14 should be limited to comments, technical information or
15 data concerning the subject of this public meeting and
16 hearing. The Board members may question anyone making a
17 presentation to the extent deemed appropriate.

18 We want to thank in advance all the members of
19 the public who have come here to provide comments as part
20 of this discussion. With that I will call the first
21 member of the public, Dr. Walter Tamosaitis.

22 DR. TAMOSAITIS: Good afternoon. Is this on?
23 Yes? Is it on? Do you want me to sing, no? All right.
24 Let me try again.

25 Good afternoon, Board. My name is Walter

1 Tamosaitis and I am here representing myself. First, I
2 want to thank the Board for their focus and oversight on
3 the WTP. We need the WTP in the Northwest but it needs
4 to operate safely and it needs to operate well.

5 It is clear to anyone watching that the only
6 group concern with what is going on, especially in the
7 last couple years is that DNSFB, the Board. Without your
8 oversight and involvement DOE, Bechtel and URS would have
9 proceeded to build a plant that would not work. As an
10 example, your investigation and as commented on earlier
11 this afternoon, the last meeting led to commitments to do
12 the large scale mixing test.

13 Today we have heard about many technical
14 problems. I believe some of the answers you've heard are
15 really okay if it was the first or second year of the
16 design. It's now been over a decade since Bechtel and
17 URS have started the WTP. And by all accounts this is
18 the fourth attempt by DOE build a Vit plant. You've
19 heard about reconstituting, which I'll use the word
20 redoing, the safety basis. Before you can reconstitute
21 and redo the safety basis you need to have a process, you
22 need to define what that process is.

23 There are many things which are troubling when
24 you look at the performance in the WTP by Bechtel and URS
25 but I'll highlight just two of them. One of the most

1 troubling one is that after a decade and over \$6 billion
2 having been spent, nobody in DOE, Bechtel or URS can
3 stand up here at this mic and ensure us the public that
4 the place will operate safely and operate efficiently
5 within the current -- with the current design. But yet,
6 we have heard several times today the talk about the
7 pivot point and moving ahead. Changes are needed in the
8 culture and changes are needed in the design.

9 Second, I think it's very troubling that after
10 all the time we've yet to define what the plant can
11 process. And that discussion occurred several times
12 today. I can use many analogies but I'll just ask: How
13 do you build a chemical plant when you don't know what
14 the plant will handle? How do you do the safety analysis
15 when you haven't defined that? That's been the issue for
16 a decade and more. And DOE stands there and let the
17 contractor go on. I say again or ask again how do you go
18 through a so-called pivot point when you don't know what
19 the plant will do?

20 Many technical issues exist and still need to be
21 resolved. Clear and accurate communications are needed
22 so all stakeholders and taxpayers know where the project
23 stands, and that includes Congress. Bechtel claims all
24 technical issues are closed. If they are closed how can
25 you be planning to spend nearly \$200 million on a mixing

1 test? And if the testing costs \$200 million, what will
2 the plan changes cost? How can you have the erosion
3 concerns when the erosion issue was declared closed?
4 Shouldn't the issues be reopened that now have a lot of
5 work going on?

6 I am told that due to insufficient pump head
7 Bechtel engineers are looking at raising the tanks. And
8 the question on sampling was a very good one. How are
9 you going to do that if the tanks are not well mixed?

10 I think I just touched on at least six of the
11 EFRT issues, which they claim are closed. And getting a
12 true schedule for the technical problems is near
13 impossible. The schedules quoted to you, and I ask that
14 the Board review whatever you're told today very
15 carefully, because the schedules quoted to you in the
16 last public meeting are nowhere near reality today. This
17 represents not only technical problems but cultural
18 problems associated with their communications.

19 The cultural and communications problems are not
20 limited to technical. Bechtel claims the total cost of
21 about \$12.3 billion. The recent CPR indicated it would
22 go up by nearly another billion. Current internal
23 reviews indicate the costs will be somewhere between \$18
24 and \$20 billion. The question is: Does that count the
25 expanded low level Vit, canister storage, effluent plant

1 improvements, pretreatment fixes, and the pretreatment
2 for pretreatment. An accurate assessment of the total
3 cost is needed and needs to be communicated. After a
4 decade of the misguided effort I think it's obvious that
5 major changes are needed in both the technical aspects
6 and the culture.

7 I applaud the defense board for their efforts
8 and ask you to continue your effort and pursue with
9 Congress establishing a new design of authority. I ask
10 for the Board to work with Congress to establish
11 independent technical oversight, another B and B or EFRT
12 should be conducted. I ask for the Board to push for an
13 agency to have enforcement authority over DOE of which
14 the Board themselves would be well qualified.

15 Whoever provides the oversight over DOE should
16 also have enforcement authority. DOE has proven that
17 they are incapable of self management and management of
18 their contractors. We need the WTP, as I stated in the
19 beginning, but it needs to run safely and it needs to run
20 well. It needs to finish its mission in the designated
21 time. I thank you for your past and continued efforts to
22 see that the WTP is built correctly. I will be providing
23 written comments after I listen to the session tonight
24 and will summarize my thoughts. Thank you.

25 CHAIRMAN: Thank you. Miriam German.

1 MS. GERMAN: I'm Miriam German from Portland,
2 Oregon from Occupy Portland. As many of you know, we're
3 coming up here in April on April 15th to present a day of
4 awareness. Regarding everything that's been done today
5 there's so many questions, the DNFSB has questions, we
6 have questions as just the people living down stream.
7 And we do live down stream. So everything that goes on
8 up here at Hanford concerns us in Portland and everyone
9 else all on along the way.

10 So in the last six months we've been
11 coordinating together at Occupy to create a list of
12 questions that we were coming up with, some of which have
13 been dealt with today and thank you for that to the
14 DNSFB. I'd like to stick to my questions so that I can
15 just present them to the public and hope that at some
16 point we can get some direct answers, and these are some
17 of them.

18 I'm just going to start anywhere. Where did the
19 missing 15 million of missing tax payer money go for the
20 poor quality tank fabrication? And why has Bechtel not
21 returned it? As an Occupier, these issues are important
22 to us.

23 Why was the mixing issue declared closed if over
24 \$200 million will not be spent just to test it? How much
25 will plant changes cost?

1 What does Bechtel plan to do to prevent trapping
2 explosive hydrogen gas and prevent explosions like at
3 Fukushima?

4 What does Bechtel plan to do to prevent
5 criticalities from happening?

6 Why is Bechtel proceeding with a design if the
7 testing shows major pipe erosion?

8 Why does the DOE let Bechtel proceed with an
9 incomplete design? And that's really disconcerting to
10 me.

11 What will the DOE do differently the next time a
12 whistleblower raises an issue. To me personally
13 whistleblower's are the canary in a coal mine. I
14 understand after doing this research that Washington has
15 no whistleblower law, protective law, and that's
16 concerning and we do plan on talking with the senators in
17 Washington about that and seeing if we can help
18 Washingtonians to make a change for that.

19 Let's see. What is Patty Murray, Maria Cantwell
20 and Doc Hastings doing to have the WTP culture and
21 technical problems corrected? Why did Patty Murray's
22 office support Bechtel with no information in hand when
23 Walt Tamosaitis came out as a whistleblower in 2010?

24 Why does the DNFSB not have enforcement
25 authority? I'm not sure if you guys can address that

1 today up there on the panel, but we'd sure like it if you
2 could and we'd like to do whatever we can to help make
3 that happen. And if that means writing letters to
4 Congress then we're going to do that because showing us
5 today your questions were powerful and we really
6 appreciated that. And what we weren't getting from this
7 end and from the DOE's end and Bechtel's end were dates,
8 money, real answers to what your questions were. And I
9 really wish that you had more power to make them do what
10 it is they say they're doing because personally I'm not
11 really believing that they're doing most of what they say
12 they're doing. And I'll put that on the record.

13 What did the DOE do with the tank farm WTP
14 oversight group recommendations? This was a contract
15 line item group. Why were the reports never made public?
16 Why did the DOE now do away with the CLIM 3.2 oversight
17 group? Like I said, we've been doing our research.

18 Why is Bechtel both the design authority and the
19 design agency and then paid for costs and schedule
20 performance with no responsibility for long term
21 operations?

22 In October of 2010 at the DNSFB public meeting
23 Russo said that Bechtel would issue a definitive plan by
24 August of 2011. And according to my clock that has
25 already gone by. Where is that?

1 Russo also said that key design testing would be
2 done in 2012. When will the testing start? When will
3 the large scale mixing test really be done?

4 CHAIRMAN: So, Ms. German, could you briefly
5 summarize and finish up? Thank you.

6 MS. GERMAN: I'll do that. We have a lot of
7 questions and we'd really like some answers. I'd like to
8 present this to you at some point before we leave today
9 so that we can get some definitive answers in document
10 form. Thank you.

11 CHAIRMAN: We will definitely accept it into the
12 record. I thank you very much. We will get that for the
13 record right now. Thank you.

14 Heidi Lambert.

15 MS. LAMBERT: Sorry, I've never done this
16 before. My name is Heidi Lambert, I live here in
17 Richland, Washington. I come from generations of
18 veterans who have worked at Hanford. And I'm also a
19 member of Occupy Tri-Cities. I want to submit written
20 questions as well.

21 In summary, I just want to thank you again for
22 this opportunity because I've never had this opportunity
23 before. And as this is just another day at work for you
24 guys, I just want to let you know that I took the day off
25 today to come and speak because this is that important to

1 me.

2 My largest concern is about the BNI not being
3 committed to the long term consequences if there is an
4 error. With the WTP continually we are told how robust
5 the WTP will be built but we're never told how much more
6 will need to be expanded for the low level vitrification,
7 canister storage, and other changes in costs. And how
8 will they know that if they don't even know what they're
9 testing or what they're processing until the tests are
10 over. That concludes my statement. Thank you.

11 CHAIRMAN: Thank you. Richard Wood, please.

12 MR. WOOD: Good afternoon. Thank you. My name
13 is Richard Wood. I'm from Portland, Oregon. I'm a
14 member of the Portland Occupy Group and a number of other
15 environmental groups and consider myself fairly socially
16 active. We're supporting open government for the people.
17 That's really what we're demanding. We want to know more
18 about what is going on inside our government, these
19 decisions that are being made. So that's a piece of it.
20 The government's working towards that. The information
21 that you all, your subcontractors is a piece of what we
22 consider open information and we want to know about it.
23 So I know there's work going that way. That's just a
24 statement. I'll submit these comments written to the
25 DNSFB after the meeting and some thought into some of

1 these questions.

2 Basically I'm deeply concerned over health
3 issues caused by ionizing radiation and a poor oversight
4 plan by Congress in resolving the risks introduced by
5 nuclear radiation. The nation has been well aware of the
6 health concerns of atomic energy for decades. There are
7 too many lapses and open questions that undermines our
8 confidence and the motives of the Hanford project and all
9 cleanup activities intended to protect public health.

10 The fact is we are increasingly being exposed to
11 radiation, the risks are increasing and there are lessons
12 that we have learned but not taken to heart that threaten
13 our own safety. Hanford is one example of this. This is
14 not new. Fukushima is the latest example of the
15 potential and results of a nuclear accident. There are
16 nations with land destitute and fallow for centuries to
17 come without great interventions to resolve what we've
18 done to our planet. Fukushima's contaminated air and the
19 Pacific Ocean with MOX fuel waste, Hanford, Three Mile
20 Island, Chernobyl, Savannah River, and a list proving
21 grave dangers and consequences of poor management and
22 oversight go on. So your work is critical to our
23 children's future.

24 Ionizing radiation is a known carcinogen and
25 every health organization recognizes that as a fact.

1 The risk of getting a cancer is low and there are many
2 statistics to support that. While both statements are
3 true, why is there not one institution responsible for
4 studying and setting the standards for allowable
5 exposure.

6 That was one of my question when you were asking
7 your safety folks, what standards were they using. I've
8 found three, seven, 10 different numbers depending on who
9 you are, what nation you're in and whether you're DOD,
10 DOE, or work in a hospital. Why so many different rules?

11 I do not understand the basis of how you're
12 coming to a safety conclusion when what numbers are you
13 using? And I know your sources, depending upon which
14 side of the fence, commercial or the fence you're on,
15 that's disconcerting and to me that's an issue.

16 Basically what happens in all this is the
17 individual ends up assuming their own health risks from
18 whatever work they have done in the area. So a
19 contractor comes in, works or two years, and 10 years
20 later ionizing radiation causes the cancer. It could
21 have been a cigarette, it could have been farmers' waste
22 down the field, or it could have been radiation from 10
23 years ago. I'm in that case from a number of different
24 contamination hazards of all sorts. So it is just
25 disconcerting that there's so many different rules and we

1 don't understand what it is.

2 Universal healthcare would change that
3 situation. One of the big things that we all worry about
4 is liability, corporate liability, personal liability.
5 Right now everyone of us is assuming a personal liability
6 by coming in the Hanford area and drinking the water. Is
7 it a high risk? No, it's not. But we are. If you
8 poison me whose responsible? I'm going to end up paying
9 for it. It's my health insurance. If my employer
10 doesn't like that I'm a whistleblower and fires me and
11 five years later I get cancer, well, shame on me for
12 being a whistleblower. That's the general attitude. And
13 that has to change.

14 Hanford --

15 CHAIRMAN: I would ask you, sir, can you
16 summarize your comments in the next minute or so?

17 MR. WOOD: Okay. Thanks.

18 Hanford is the poster child, it is one of the
19 many across this states let alone the globe. Savannah
20 River and Hanford are sister sites. I personally worked
21 in the early '80s on Savannah River doing low-level
22 controls. Congress de-funded the project. It
23 disappeared out of site yet the project was finished. So
24 the money didn't go away, it got changed or moved around,
25 but something got finished there.

1 This conversation about Hanford is the same
2 conversation that was occurring 10 years earlier about
3 Savannah River, this is not new. We seem to have lost a
4 lot of intelligence across these projects for a number of
5 reasons.

6 I see a weakness in program management, I see a
7 weakness in project management, I don't see great
8 methodologies being followed, I see all kinds of reasons
9 why. But you folks own this and some management
10 organization needs to take control and get this under
11 control. We need to get this past us. We should have a
12 million new jobs around cleaning this stuff up. And
13 we're worried about women's private issues. I don't get
14 it. Thank you. I appreciate it.

15 CHAIRMAN: Thank you. Beth Giansiracusa. I'm
16 sure I didn't pronounce that correctly, but I tried.

17 MS. GIANSIRACUSA: You did a really good job.
18 It's Giansiracusa.

19 CHAIRMAN: I practiced for about 10 minutes.

20 MS. GIANSIRACUSA. Again, my name is Beth
21 Giansiracusa and I belong to several different groups,
22 mainly We the People and Occupy. And I'd like to take a
23 minute to thank the women in this room for holding true
24 to some of the integrity that I don't see a lot of the
25 men have been doing throughout this process.

1 I have been listening and I had something
2 written but I'm changing it up because my main concern is
3 the Columbia River. And you continue to talk about this
4 really thick waste and you talk about a third of those
5 tanks leaking and I know that that leaking is going into
6 the ground water, it's going into the ground, it gets
7 really thick. I saw the whole presentation when they
8 shifted it and made all these wonderful things about how
9 they were going to do the Vit plant.

10 And I am really concerned about what is actually
11 traveling down this river because it is still leaking.
12 And I can't get anyone to answer me. I can't get anyone
13 to tell me whether it is radioactive, how long it stays
14 radioactive. Everyone that says basically the minute it
15 hits Willamette it's dispersed, it's not there anymore.
16 But, you know, how can radioactivity end up being not
17 there anymore?

18 I know that when we dredge this river all kinds
19 of stuff come up. I know that we can't eat bottom
20 feeding fish. I know that we have this kind of problem.
21 And I would really like to see someone take
22 responsibility for saying that the Columbia has some
23 problems. That if Portland wants to do that well
24 drilling in the Columbia well fields that I don't want to
25 feel that, you know, they're drilling, they're bringing

1 stuff up and radioactivity is coming up. And every time
2 they dredge all the way the Columbia River for these big
3 boats you still have stuff coming up. Every time they do
4 that I think the scientists are basically saying there's
5 radioactivity in the algae. I'd like to see something
6 like that posted for all of us so we can stop being in
7 any kind of denial and make proper choices. Because when
8 we don't have these proper choices and we don't know
9 what's there we can't make them. But if you give us what
10 there is there, I mean, we're responsible people, we can
11 choose to move, we can choose to change jobs, we can
12 choose to do a lot of things. We can't make any of those
13 choices if the one that is above everybody else doesn't
14 have any teeth to tell them they can't do it or that they
15 are afraid because of all the lawsuits that happened
16 through the '90s on this down river stuff. A lot of
17 money went into that. This has just got to stop.

18 And that's kind of where my concern comes from,
19 it is with the rivers, with the water, we're 98 percent
20 water people and I know water basically can move a lot
21 things through but I am so not sure about this nuclear
22 waste that continues to leak and you're continuing to
23 talk about how that's the problem, how that's the stuff
24 sitting at the bottom of the these big, huge vessels that
25 you can't get up and out because you only have this much

1 room to get into those vessels because you don't want to
2 go anywhere near them.

3 So that's some -- basically what I have to say.
4 And I will go ahead and put this stuff in writing and
5 send it on to you. Thank you so much.

6 CHAIRMAN: Thank you. Steve Fairish.

7 MR. FAIRISH: My name is Steven Fairish, I'm
8 also with Occupy Portland and I have one question. Why
9 have Bechtel and URS been reimbursed with taxpayer money
10 for their legal defense when they're the ones who caused
11 the problem to begin with? Thank you.

12 CHAIRMAN: Thank you. Shelly Doss.

13 MS. DOSS: Hello. Good afternoon. My name is
14 Shelly Doss. And I'm here representing myself. I want
15 to talk to you guys. I felt very compelled to talk to
16 you. I worked out at Hanford for 23 years out in the
17 tank farms itself, I started out there many, many years
18 ago. I started out in radiation safety, health physics
19 technician is what I started out in. I worked my way up
20 and went through environmental.

21 My whole career out there I have been in the
22 field, worked with -- I have been highly involved in all
23 of our retrievals, highly, highly involved. I know what
24 it takes to develop a retrieval plan, to work through the
25 readiness and assessment, the startup and to get going.

1 I also know the risks you take, the grave risk you take
2 constructing without knowing all of your hazards.

3 And what I wanted to speak to you guys about
4 today was having firsthand knowledge and knowing what
5 goes on. I really implore you, I have been listening to
6 everybody's testimony today and I'm still concerned. I
7 heard DOE, I heard WTP both say we don't know all the
8 hazards. And you know what? They're right. We don't.

9 The tank farms back in 2001 we discovered there
10 was it 1,400 new chemicals. Just because of the nature
11 of what we do I have personally been working in and
12 around those tanks. And I know what the corrosion
13 factors are. I mean, I have been out there where we have
14 actually had to put people in a pit with a sledgehammer
15 and a wedge to try and literally break free a pump that
16 has been sitting in the bottom of the pit that is
17 corroded itself to that pit. I have seen that. I have
18 done that. I've experienced that many times over.

19 And what really concerns me is you have this
20 URS/Bechtel pairing. I recently got laid off from URS,
21 excuse me, from WRPS, which is their parent company is
22 URS. And this not a grudge match. I'm not trying to do
23 anything like that.

24 What happened was and yes, and I am in
25 litigation with WRPS. I want to make that very clear

1 with everybody right now. I'm not trying to hide that.
2 What happened was my whole career out there I have always
3 brought up and we have trained you bring up your safety
4 issues, you have a very strong safety culture. That was
5 fine. All was good. I was commended. I was recognized,
6 as well as many other members of the groups that I worked
7 with for doing this. When WRPS came in that all changed.
8 And raising the safety concerns and bringing these things
9 up in the safety culture quickly demised.

10 And I have also heard being out there for as
11 many years as I've been out there I know people in many
12 different areas all over the site and the things that I
13 have learned of what's happened do WTP quite frankly are
14 very disconcerting. They very much bother me.

15 And where I know for a fact there's a definite
16 chilling effect for people that bring up safety concerns,
17 most definitely. And also now with the amount of recent
18 layoffs and the people that were chosen or I should say
19 it was interesting how they were chosen. Many people out
20 there are flat scared for their jobs to bring up these
21 safety concerns. I mean I'm a poster child for that. I
22 brought up safety concerns and now I no longer have a job
23 after 23 years. When, trust me, it wasn't that I was a
24 bad performer, wasn't that I didn't do my work.

25 But it is sad that you guys can't be more of

1 oversight over DOE because DOE I don't believe has the
2 teeth they need to. I do appreciate what the DNSFB has
3 done. But please very seriously look into all of these
4 technical issues. What we don't want to have another --
5 I don't know if any of you up there are familiar with the
6 grout facility but I was out there when we started up
7 grout. And me down on the very low levels, just a plain
8 little worker, when we -- when orientation, when we went
9 hot in that plant everyone of us said, Wow, we know what
10 system's are going to fail. We could tell. And we're
11 the lowly little low workers.

12 When I'm hearing all these different levels of
13 people talking about what could fail at WTP that does
14 concern me. Look what happened at grout. We didn't know
15 what we had. And now you've got a multi-million dollar
16 complex sitting out there rusting and aging and decaying.

17 WTP or something similar must be built. I
18 realize that, trust me. I understand that. I know that.
19 I know we have leaking tanks. I know what we're doing.
20 It has to be built but you cannot retrofit it after it is
21 built, especially once you go hot. And the sad thing that
22 keeps occurring is its schedule over -- schedule and
23 production over costs and safety. That is always what it
24 is unless it is a quick safety fix.

25 And the sad thing is 10 years ago we started

1 this. I remember when we started talking about doing the
2 Vit plant. And I had a lot of ideas and a lot of things
3 that needed to come forward with concerns, and here I'm
4 still hearing those things same things over 10 years
5 later. It is like, wow, what has really happened. And
6 it's not that I don't want to see this plant built,
7 either this or calcification, something, something has to
8 be done. But for heaven's sake, please look into this.
9 And for the DOE folks and the WTP folks, please don't
10 take any offense to any of this. I know how the
11 contractors change and come and go after years and years
12 and years. There's very few of you people that here now
13 that I knew back when I hired in 23 years ago.

14 CHAIRMAN: Could you summarize?

15 MS. DOSS: I certainly can. I'm sorry for
16 taking so long, sir. Yes. Please review all of these
17 safety and technical concerns, and if there is something
18 I implore for DOE and WTP to please slow down the
19 production, if not stop, especially the construction
20 before you get to the point where you have fabricated
21 these things, put them into place and heaven forbid you
22 go hot. Because once you go hot your costs will increase
23 10 fold easily. I have seen it firsthand on our
24 retrieval platforms.

25 So thank you again, Board, very much for your

1 time and thank you again very much for allowing us to
2 speak.

3 CHAIRMAN: Thank you, Clarence Corriveau.

4 MR. CORRIVEAU: My name is Clarence Corriveau.
5 And I'm glad I'm on the other side of the room. Sorry,
6 I'm Occupy Richland. And I occupy it very happily and
7 without rancor either. I worked for Becthel for 37 or so
8 odd years and so I understand a little bit about
9 engineering and I understand a little bit about WTP. And
10 I was one of the very first WTP mechanical supervisors on
11 the job. So I understand it. I spent time during BNFL
12 and up to about 2006 or thereabouts. Through 2006.

13 It is interesting to hear something that I wrote
14 down in my notes before I came here that they're
15 beginning to talk about root cause analysis. My
16 goodness, after 10 or 11 years all of the sudden we're
17 getting down to why are we 10 or 11 years behind? But
18 what I didn't hear is clearly and succinctly that part of
19 the root cause for all these little silly issues, that
20 your -- they're little, I got to tell you they're little
21 issues. Quite frankly, they're almost too small to even
22 be talking about because you can solve them in a
23 heartbeat. But the organizational and contractual
24 structure that's set up here at Hanford is wrong. It
25 breeds animosity and it does not breed brotherhood,

1 sisterhood and getting a job done well and
2 conservatively. That's period, exclamation point. And
3 everybody in this room really that has been on the job
4 knows that. Absolutely knows that.

5 Let me refresh here because I -- never had to
6 complain about Bechtel, by the way. So I won't. But I
7 will complain about the DOE because they don't do enough.
8 In fact, they don't do much of anything but quote
9 oversight. Well, what kind of -- how can they earn their
10 money doing that? That is worthless. Get down and get
11 your shovel. Period. There is a Hanford culture here
12 and everybody that's been here very long but remembers
13 their past lives understands that it is not very good.
14 It's never getting anything done. And I'm still shocked
15 because that's the truth. And you all know it. But what
16 I also heard today here and not said was that so-called
17 safety analysis that you hear. I have done a lot of that
18 in my past life, particularly before I came here, and
19 what passes for safety analysis is pure bunk. Absolute
20 bunk, bureaucratic -- I won't use anymore nasty words but
21 it is, when you talk about peeling the onion back for
22 safety basis, they've created a cloistered priesthood of
23 inexperienced safety people. And then they still don't
24 have criticality controls. That's incredible. No one
25 should accept that. That's absolutely incredible. And I

1 know everyone else in this room feels the same way.
2 That's incredible. But it is set up by the
3 organizational structure and the three DOE, Bechtel, URS
4 and the subcontractors that are set up it is creating --
5 it's created an unbelievable competition. I know because
6 the engineers don't talk to those safety guys and vice
7 versa. And you heard some of the testimony today that
8 that's the truth. But more importantly, that
9 bureaucratic, silly procedure and system that they have
10 set up to do that is absolutely balderdash. And that's
11 the root cause. That and the organizations competitive
12 and not working together. Well, you hit the working
13 together pretty much, didn't you?

14 Now, regarding the PJM's, I know a lot about
15 them. I signed off some of the documents and the
16 contracts for them and approved drawings. And the answer
17 there is very simple. Very simple. It's been identified
18 in writing in documents, you'll find them because I wrote
19 them. Okay. The answers are very simple. You put
20 enough air down them, blow them fast enough, hard enough,
21 and you put enough in there, it mixes, period. That's
22 the end of the question. And it's the answer. Now, this
23 testing program we identified what each of the vessels
24 needed a long time ago, but no one was willing. In fact,
25 I was told to shut up. The solutions are there and they

1 will be solved. And I ask people to move on very crisply
2 to do that because when you hear people downstream over
3 there in Oregon worried about nonexistent radiation
4 problems. You're giving them fodder. So Godspeed.
5 Godspeed.

6 CHAIRMAN: Would you begin to summarize your
7 comments, please?

8 MR. CORRIVEAU: One more. One more point. It
9 is absolutely disgusting that DOE would not allow all the
10 data that's needed for the front end of this plant to be.
11 It's absolutely unbelievable that we allowed that to
12 happen. And I meant we in the most large sense of the
13 word. There was -- a solution for that is also
14 identified. Okay. And some of you might even know what
15 that is. I'll share that with you separately with you if
16 you want.

17 But in conclusion, you got to get back to the
18 engineering fundamentals. Period. Keep it simple. Keep
19 it conservative. It can be done very simply. No more of
20 this puffery and speech making. And I'm finished with my
21 speech.

22 CHAIRMAN: Thank you. Gregory Sotir. He didn't
23 come. Thank you.

24 Jason Pedegana.

25 MR. PEDEGANNA. Hi, my name is Jason Pedegana. I

1 am here affiliated with Occupy Portland but as well as
2 the Oceania Water Conservation Agency and super group and
3 moreover just as a concerned citizen, native Pacific
4 Northwesterner as well as Cascadian by region. I just
5 have a really quick couple questions for you to go on
6 record. And I'll get out your hair.

7 First of all, I'd like to know, the amount
8 hazardous nuclear waste in the tank farm was once cited
9 to be about 53 million gallons. Now the number is 56
10 million gallons as quoted. I would -- why is it
11 increasing and how much of it has leaked into the
12 environment? How much will have leaked by 2022? I think
13 that does concern everybody regardless of where you do
14 live. This is our planet. Upstream, downstream, we're
15 standing here.

16 Second part is when will the congressional
17 members investigate what is going on and correct it? And
18 I thank you for your time.

19 CHAIRMAN: Thank you. Alexander Baretick. Mr.
20 Baretick. Jessie Sponberg. Jane Hedges.

21 MS. HEDGES: Thank you. My name is Jane Hedges
22 and I represent the Washington State Department of
23 Ecology. I thank you very much for the opportunity to be
24 here and also for the information that was shared today.
25 We sincerely appreciate the Board's involvement.

1 The Waste Treatment Plant is critical to the
2 state of Washington and to the region. You've heard from
3 our neighbors in Portland. We have to treat the 56
4 million gallons of high-level waste that exist on
5 Hanford. And we have to put it in the most safe
6 configuration that we can possibly do. And the state of
7 Washington believes that that is vitrification. And so
8 we need this to succeed. And we all need to work
9 together to make sure it does succeed.

10 So the questions that you ask, the investigation
11 that DOE and their contractors do, and the oversight
12 that the state of Washington does, we all need to work
13 jointly to make sure that we are answering these
14 questions, that we're strategic in addressing not just
15 one as we heard today, but all the whole series of them.
16 And that safety remains the number one priority for all
17 of us that are here and working on it and all of our
18 communities, because for our -- certainly our community
19 it is pivotal that we have this -- the whole Hanford site
20 cleaned up but certainly the tanks addressed. And so we
21 thank you. We appreciate the information that was
22 provided by DOE and Bechtel. And we look forward to
23 further involvement. We are a bit frustrated with some
24 of the issues, the erosion/corrosion was an issue that
25 the state brought up in 2004 that we thought was resolved

1 and appears to be returning.

2 So again, I think we all need to be very
3 diligent in our activities to work together to get this
4 resolved and get a safe plant built and operating. Thank
5 you.

6 CHAIRMAN: Thank you. Richard Worel. Richard
7 Worel I have that correct. I don't see him. So we'll
8 move onto Suzanne Dahl.

9 MS. DAHL: I'm Suzanne Dahl from the Washington
10 State Department of Ecology. I work here in the nuclear
11 waste program locally. Our -- the main objective of the
12 nuclear waste program is to do the regulatory oversight
13 of Hanford. We have a consent decree that's signed in
14 front of a court to have the Waste Treatment Plant built
15 and operational by 2019. And it is a very serious
16 commitment because the waste as it sits in the tanks is a
17 very serious environmental threat to the Northwest.

18 I just wanted to add a few comments to Jane
19 Hedges comments, and that's we at Ecology we issue
20 permits that are sort of like licenses in the sense that
21 we issue a dangerous waste permit or RICQUA permit to
22 allow the construction and operation of the Waste
23 Treatment Plant and many other facilities at Hanford.
24 But specifically to that, we have folks that are looking
25 at the design as it evolves and getting it into our

1 permit.

2 It is frustrating for us for things like erosion
3 and corrosion and material selection to still be coming
4 up this far into the issue. We appreciate the fact that
5 the Department of Energy is doing those detailed level of
6 surveillances and identifying the problems. So it's not
7 that I don't want the problems identified. It is
8 frustrating that they haven't been identified to date and
9 especially since we did put a hold on vessels being
10 installed in 2004 due to erosion issues and had the
11 Department do some erosion testing to validate their
12 erosion equations.

13 So there are other issues that were discussed
14 today that are very important to the waste treatment
15 plant and important to the State that they be resolved.
16 The mixing, being able to clear the solids out of the
17 bottom of vessels, being able to have a functioning
18 facility that moves all the waste, the liquid waste and
19 the solids portions through it so that can run
20 efficiently and effectively and safely. Having a safe
21 facility is obviously paramount. I mentioned the
22 erosion/corrosion issues.

23 And then also having a facility where through
24 its various licensing whether it's from the nuclear
25 safety end or from the dangerous waste regulations. And

1 where you have a waste acceptance criteria that from the
2 waste coming from the tank farms and within waste as it
3 is transferred through the Waste Treatment Plant in its
4 various places something that's functional, a waste
5 acceptance criteria that's functional and allows the
6 facility to operate in an efficient and effective manner.
7 And obviously, as Jane Hedges said, having a Waste
8 Treatment Plant running resolves a major health and
9 safety issue and environmental issue of the 56 million
10 gallons as they sit in those old aging underground tanks
11 currently. Thank you. And appreciate the Boards's
12 interest in this subject.

13 CHAIRMAN: Thank you. I have one additional
14 name who had testified previously, she down a second
15 time. Heidi Lambert. Do you have anything additional to
16 add?

17 You're interested in testifying this evening
18 also?

19 MS. LAMBERT: Yes.

20 CHAIRMAN: All right. We'll note that.

21 So with that I'd like to -- this ends the part
22 of the program dealing with public testimony. I'd like
23 to thank all the members of the public who did provide
24 testimony. At this time the Chair calls a recess of this
25 public meeting and hearing. We'll reconvene this evening

1 at 6 p.m. Thank you.

2 (Hearing recessed at 4:14 p.m.)

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