APPENDIX

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WASHINGTON

WALTER L. TAMOSAITIS, PHD, *et al.*, Plaintiffs, v. BECHTEL NATIONAL, INC., *et al.*, Defendants.	NO. CV-10-5116-RHW **ORDER GRANTING PLAINTIFFS' MOTION TO REMAND**

Before the Court are Defendants' Motions to Dismiss (Ct. Recs. 13, 17, and 21), Plaintiffs' Motion to Strike (Ct. Rec. 32) and Plaintiffs' Motion to Remand (Ct. Rec. 33). The Court held a hearing on these motions on January 25, 2011. Plaintiffs were represented by John Sheridan; Defendants were represented by Kevin Baumgardner, Michael Saunders, and Timothy Lawlor.

The above-captioned matter was removed to this Court on the basis of diversity jurisdiction. However, all individual Defendants are citizens of the State of Washington, so their presence in the case would destroy diversity. Those Defendants argue that they were fraudulently joined, which overlaps with their arguments that they should be dismissed from the matter under Fed. R. Civ. P. 12(b)(6). For the reasons set forth below, the Court finds that individual Defendants Russo and Ashley were not fraudulently joined. Therefore, the Court denies their motion to dismiss and grants Plaintiffs' motion to remand.

FACT SUMMARY

Plaintiff alleges two claims: (1) intentional interference with contract or business expectancy, against Defendant Bechtel and its agents; and (2) civil conspiracy, against all Defendants.

According to the Complaint, Plaintiff Walter Tamosaitis, Ph.D., was the Manager of Research and Technology at the Hanford Waste Treatment Plant (WTP) in Richland, Washington. Plaintiff alleges that he was transferred from his contract position at the Hanford WTP in retaliation for raising safety and technical concerns. He had been working at this position since 2003. Plaintiff alleges that Defendant Bechtel National, Inc. (BNI) falsely claimed to meet its June 30, 2010, contract requirements to earn a $6 million fee. The next day, Plaintiff allegedly presented a 50-item list at a meeting with BNI and URS managers. Plaintiff alleges that this list detailed a number of safety and technical concerns with the project, which called into question Bechtel's June 30th claim.

On July 2, 2010, Plaintiff alleges that he returned to work for a scheduled 7:00 a.m. meeting. He alleges that he was informed that he was terminated from the WTP project immediately and was directed to turn in his badge, cell phone, and blackberry. Plaintiff allegedly was instructed to leave the site and was escorted out of the building without retrieving his personal effects from his office.

Plaintiff was reassigned to a URS facility off the Hanford site. He is now working in an office in the basement and alleges that he has been given little or no meaningful work. Plaintiff is still employed by URS.

STANDARD OF REVIEW

Under Fed. R. Civ. P. 8(a), the complaint must contain a "short and plain statement of the claim showing that the pleader is entitled to relief." A complaint need not contain "'detailed factual allegations,' but it demands more than an unadorned, the-defendant-unlawfully-harmed-me accusation." *Ashcroftt v. Iqbal*, — U.S. —, 129 S.Ct. 1937, 1949 (2009) (quoting *Bell Atlantic Corp. v. Twombly*,

550 U.S. 544, 555 (2007)). That is, "a formulaic recitation of the elements of a cause of action will not do." *Twombly*, 550 U.S. at 555. Rather, a complaint must state "enough facts to state a claim to relief that is plausible on its face." *Id.* at 570.

Under the fraudulent joinder doctrine, "[i]f a plaintiff fails to state a cause of action against a resident defendant, and the failure is obvious according to the well-settled rules of the state, the joinder is fraudulent and 'the defendant's presence in the lawsuit is ignored for purposes of determining diversity.'" *United Computer Sys., Inc. v. AT & T Corp.*, 298 F.3d 756, 761 (9th Cir. 2002) (quoting *Morris v. Princess Cruises, Inc.*, 236 F.3d 1061, 1067 (9th Cir. 2001).

ANALYSIS

The Court will first analyze Plaintiff's claim against individual Defendants Russo and Ashley. Because the Court concludes that the Complaint states a plausible claim against them for tortious interference, the Court declines to reach Plaintiff's claim for civil conspiracy and the other Defendants' Motions to Dismiss.

Plaintiff's first claim against Defendants Russo and Ashley is for the tort of intentional interference with contract or business expectancy. The tort has the following elements: "(1) the existence of a valid contractual relationship or business expectancy; (2) that the defendants had knowledge of that relationship; (3) an intentional interference inducing or causing a breach or termination of the relationship or expectancy; (4) that defendants interfered for an improper purpose or used improper means; and (5) resultant damage." *Deep Water Brewing, LLC v. Fairway Resources, Ltd.*, 152 Wash. App. 229, 261-62 (2009).

Defendants' first argument is that they cannot be personally liable for any tort because they were acting in the scope of employment, citing the Complaint's allegation that Defendant Bechtel is liable under the doctrine of *respondeat superior*. According to Defendants, only a master can be held liable for the torts of his servant under this doctrine. Defendants' argument fundamentally misrepresents the doctrine of *respondeat superior* / vicarious liability, and is contrary to basic

principles of tort law: "Where vicarious liability applies, it allows the plaintiff to sue either employer or employee, or both together." WASHINGTON PRACTICE VOL. 16 § 3.2 (citing *Orwick v. Fox*, 65 Wash. App. 71, 80 (1992) ("An employer and its employees are jointly and severally liable for the negligent acts of the employee in the scope of employment, and one damaged by such acts can sue both the employer and the employee or either separately.")); *see also Vanderpool v. Grange Ins. Ass'n*, 110 Wash. 2d 483, 484 (1988) (holding that because both an employer and an employee are liable where vicarious liability applies, the "release of an employer from vicarious liability does not, by operation of law, release the primarily liable employee"); *Ensley v. Pitcher*, 152 Wash. App. 891, 905 n. 11 (2009) (reaffirming the rule of law stated in *Orwick*); *Cordova v. Holwegner*, 93 Wash. App. 955, 962 (1999) (same).

Defendants' reliance on *Houser v. City of Redmond*, 91 Wash. 2d 36, 40 (1978), is misplaced. *Houser* is merely an example of the familiar proposition that a party cannot interfere with its own contract. That principle animates *Houser*'s holding that employees of an entity that is party to a contract cannot function as third-party intermeddlers with that contract unless they act outside the scope of their employment. *Id. Houser*'s holding cannot apply out of this context, and no language in *Houser* suggests that it should. The case is simply inapposite here, where the Complaint alleges that Ashley and Russo, employees and agents of Bechtel, interfered with a contract between Plaintiff and URS, to which neither Ashley, Russo, nor Bechtel were parties. Other than *Houser*, the cases Defendants cite merely articulate the doctrine of vicarious liability – that an employer is liable for the torts of its employees acting in the scope of employment, *see, e.g., Kuehn v. White*, 24 Wash. App. 274 (1979). No authorities state the proposition Defendants urge the Court to recognize: that where an employer is vicariously liable, its employees are somehow immune. Therefore, the Court rejects this argument.

Defendants' next argument is that no cause of action will lie for tortious

interference with an employment contract where such a contract is terminable at will. There is some support for this proposition: *see Woody v. Stapp*, 144 Wash. App. 1041 (2008) ("Generally, at-will employees do not have a business expectancy in continued employment."). *Woody* is an unpublished decision. As support for this general claim, it cites *Raymond v. Pacific Chem.*, 98 Wash. App. 739, 747 (1999). The page of *Raymond* to which *Woody* cites analyzes the nature of an at-will employment contract in the context of a wrongful discharge claim; the section of *Raymond* that analyzes the plaintiff's tortious interference claim is silent on the issue of the at-will contract, and affirms dismissal of the claim on another basis entirely. *Id.* at 748-49. Defendants also cite a recent opinion written by Judge Shea, which relies on *Woody* to dismiss a claim for intentional interference with an at-will employment contract. *Nat'l City Bank v. Prime Lending*, 2010 WL 2854247 (E.D. Wash. 2010).

Woody appears to stand alone, contrary to the weight of authority. Two published opinions of the Washington Court of Appeals squarely hold that an at-will contract can satisfy the first element of this cause of action. *Lincor Contractors, Ltd. v. Hyskell*, 39 Wash. App. 317, 323 (1984) (holding that a third party could tortiously interfere with contract terminable at will, "so long as neither of the parties had elected to terminate it"); *Island Air, Inc. v. LaBar*, 18 Wash. App. 129, 140 (1977) ("[T]he fact that a party's terminable at will contract is ended in accordance with its terms does not defeat that party's claim for damages caused by unjustifiable interference, for the wrong for which the courts may give redress includes also the procurement of the termination of a contract which otherwise would have continued in effect.") (quotation omitted). A third published case notes the same: *Eserhut v. Heister*, 52 Wash. App. 515, 519 n. 4 (1988) ("A contract that is terminable at will is, until terminated, valid and subsisting, and the defendant

may not interfere with it.").[1] As Plaintiff points out, persuasive authority also suggests the same. The RESTATEMENT OF TORTS 2d § 766, cmt. g, notes that an at will contract is "valid and subsisting, and the defendant may not improperly interfere with it." The Washington Pattern Jury Instructions, 352.01, notes: "[T]here may be a cause of action for interference with contract, even though the contract is terminable at will."

It appears that the Washington Supreme Court has yet to address this precise issue. Until that occurs, and given the substantial amount of authority supporting Plaintiff's position, the Court finds that Plaintiff's at-will employment relationship can satisfy the first element of the tort of intentional interference with contract or business expectancy. Moreover, the Court cannot find that Plaintiff fails to state a claim and "the failure is obvious according to the well-settled rules of the state." *United Computer Sys.*, 298 F.3d at 761.

Defendants also argue that Plaintiff has failed to allege that Defendants engaged in some specifically unlawful conduct, supposedly required under *Pleas v. Seattle*, 112 Wash. 2d 794, 804 (1989). Again, Defendants misrepresent the law by failing to quote the entire relevant passage from *Pleas*: "Interference can be 'wrongful' by reason of a statute or other regulation, or a recognized rule of common law, *or an established standard of trade or profession.*" *Id.* (emphasis added to clause omitted from Defendants' brief). Plaintiff has alleged (both in the Complaint and in a proposed Amended Complaint that Plaintiff would move for leave to file if this Court retains jurisdiction) that Defendants interfered with his employment relationship with URS in retaliation for his raising safety concerns,

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[1] Defendants argue that *Eserhut I* was disavowed by the Court of Appeals in a later decision. *Eserhut v. Heister*, 62 Wash. App. 10 (1991). While that is true, the Court of Appeals did so because it found that the defendants did not act with the requisite intent. *Id.* at 16. *Eserhut II* is wholly silent on the issue of at-will employment contracts, and therefore it is incorrect to argue that the opinion supports Defendants' reading of the law.

and that this retaliation violated Bechtel's obligations under contract and regulation. Those allegations (accepted as true at this point) seem more than sufficient to qualify as "wrongful" conduct by reason of both a regulation and an established standard of Plaintiff's engineering profession, as manifested in the contractual and regulatory language Plaintiff cites.

Defendants also argue that Plaintiff's claim is essentially one for retaliatory transfer, a tort that the Washington Supreme Court has expressly declined to recognize. *White v. State*, 131 Wash. 2d 1, 19-20 (1997). Also, Defendants argue that "Washington tort law does not extend to retaliation claims based on nuclear safety whistle blower complaints because federal law already provides adequate alternative means for promoting nuclear safety at Hanford and elsewhere" (Ct. Rec. 18, Defendants' Memo in Support, p. 14, citing *Korslund v. DynCorp*, 156 Wash. 2d 168 (2005)). Defendants point out that Plaintiff currently has a complaint pending before the Department of Labor based on the same basic set of facts involved in this matter.

Plaintiff recognizes the validity of these authorities, but argues that he is not asserting a claim for retaliatory transfer. The Court agrees and finds that Plaintiff's claim here is distinct from the claims advanced in *White* and *Korslund*. Plaintiff does not claim that his employer is liable for wrongfully transferring him, but rather that third parties are liable for wrongfully interfering with Plaintiff's contract with his employer. Moreover, the Court finds that Defendants read the case law too broadly. No language in *Korslund* suggests that Washington tort law as a whole is preempted by federal law relating to the nuclear industry. Rather, *Korslund*'s analysis centers around the "jeopardy" and public policy elements of a wrongful discharge claim, and declined to recognize a cause of action for wrongful retaliation on that basis alone. 156 Wash. 2d at 184. Those elements are simply not implicated by Plaintiff's tortious interference claim.

Therefore, the Court rejects each of Defendant Ashley and Russo's

arguments, and denies their Motion to Dismiss. Because they were thus not fraudulently joined, their presence in the case destroys diversity and the Court must grant Plaintiffs' Motion to Remand.

The final issue before the Court is Plaintiffs' request for costs and fees related to removal under 28 U.S.C. § 1447©). "Absent unusual circumstances, courts may award attorney's fees under § 1447©) only where the removing party lacked an objectively reasonable basis for seeking removal. Conversely, when an objectively reasonable basis exists, fees should be denied." *Gardner v. UICI*, 508 F.3d 559, 561 (9th Cir. 2007) (quoting *Martin v. Franklin Capital Corp.*, 546 U.S. 132, 141 (2005)). Given the unclear state of the law discussed above (particularly with respect to tortious interference with an at-will contract, and the applicability of *Korslund* to Plaintiff's claim here), the Court finds that Defendants did not lack an objectively reasonable basis for seeking removal. Therefore, the Court denies Plaintiffs' request for costs and fees.

Accordingly, **IT IS HEREBY ORDERED**:

1. Defendants Ashley and Russo's Motion to Dismiss (Ct. Rec. 17) is **DENIED.**

2. Plaintiffs' Motion to Remand (Ct. Rec. 33) is **GRANTED.**

3. The remaining motions (Ct. Recs. 13, 21, and 32) are **DENIED as moot.**

4. This matter is **remanded** in its entirety to the Superior Court for the State of Washington in and for Benton County.

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IT IS SO ORDERED. The District Court Executive is directed to enter this Order, provide copies to counsel, and **close the file.**

DATED this 31st day of January, 2011.

s/Robert H. Whaley
ROBERT H. WHALEY
United States District Court

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United States Government Accountability Office

GAO

Testimony

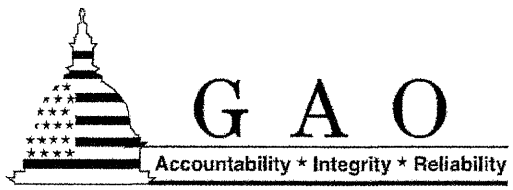
Before the Subcommittee on Energy and Water Development and Related Agencies, Committee on Appropriations, House of Representatives

For Release on Delivery
Expected at 10:00 a.m. EDT
Thursday, April 6, 2006

HANFORD WASTE TREATMENT PLANT

Contractor and DOE Management Problems Have Led to Higher Costs, Construction Delays, and Safety Concerns

Statement of Gene Aloise, Director
Natural Resources and Environment



GAO-06-602T

GAO
Accountability-Integrity-Reliability

Highlights

Highlights of GAO-06-602T, a testimony to the Subcommittee on Energy and Water Development and Related Agencies, Committee on Appropriations, House of Representatives

Why GAO Did This Study

The Waste Treatment Plant Project at the Department of Energy's (DOE) Hanford site in southeastern Washington state is a massive effort to stabilize and prepare for disposal 55 million gallons of radioactive and hazardous wastes currently held in underground tanks. In 2000, DOE awarded an 11-year, $4.3 billion contract project to Bechtel National, Inc. (Bechtel) to design and construct the plant. Since then, numerous problems and changes have occurred that will significantly increase the project's final cost and completion date.

This testimony discusses (1) how and why the project's cost and schedule have changed since 2000; (2) the status of DOE and Bechtel efforts to address these problems and improve project management; and (3) our observations on issues that need to be addressed in going forward. It is based on previous GAO reports and ongoing work.

What GAO Recommends

GAO recommends that DOE (1) consider the feasibility of completing 90 percent of facility design or facility component design before restarting construction; (2) ensure that the revised project baseline fully reflects remaining uncertainties; and (3) improve management controls.

DOE generally agreed, but was concerned about the costs of delaying construction to complete design activities.

www.gao.gov/cgi-bin/getrpt?GAO-06-602T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Gene Aloise at (202) 512-3841 or aloiseg@gao.gov.

April 2006

HANFORD WASTE TREATMENT PLANT

Contractor and DOE Management Problems Have Lead to Higher Costs, Construction Delays, and Safety Concerns

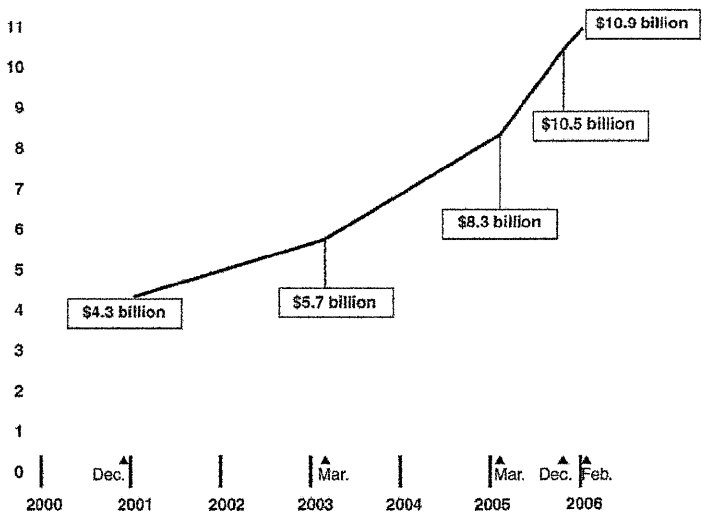
What GAO Found

Since the waste treatment plant construction contract was awarded in 2000, the project's estimated cost has increased more than 150 percent to about $11 billion, and the completion date has been extended from 2011 to 2017 or later. There are three main causes for the increases in the project's cost and completion date: (1) the contractor's performance shortcomings in developing project estimates and implementing nuclear safety requirements, (2) DOE management problems, including inadequate oversight of the contractor's performance, and (3) technical challenges that have been more difficult than expected to address.

To address the causes of the cost and schedule increases and regain management control of the project, DOE and Bechtel have taken steps to develop a more reliable cost and schedule baseline; slow down or stop construction activities on some of the facilities to allow time to address technical and safety problems and to advance design activities farther ahead of construction activities; and strengthen both project management and project oversight activities.

Despite these actions, we have continuing concerns about the current strategy for going forward on the project. Our main concerns include: (1) the continued use of a fast-track, design-build approach for the remaining work on the construction project, (2) the historical unreliability of cost and schedule estimates, and (3) inadequate incentives and management controls for ensuring effective project management and oversight.

Progression of Cost Estimates on the WTP Project



Source: DOE.

United States Government Accountability Office

URS00007606

BEFORE THE UNITED STATES
DEPARTMENT OF LABOR

OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION

In the Matter of :	
WALTER TAMOSAITIS,	**CASE NO. 0-1960-10-038**
Complainant,	**DECLARATION OF DALE E. KNUTSON**
v.	
URS, INC., BECHTEL NATIONAL, INC., and THE U.S. DEPARTMENT OF ENERGY,	
Respondents.	

I, DALE E. KNUTSON, subject to the penalties of perjury, declare the following is true and correct to the best of my knowledge, information, and belief:

1. I am the Federal Project Director for the Waste Treatment Plant (WTP) Project at the Department of Energy (DOE), Office of River Protection (ORP). I have served in this capacity since June 1, 2010. In my capacity as Federal Project Director, my primary authority and responsibility is to develop, optimize, and integrate all requirements to design, commission, construct, and operate the WTP within the broad framework of policies established by DOE for safe and effective operation of the Hanford site.

2. The Human Resources Management Division maintains a system of records that lists the names of individuals who are, or have previously been, DOE employees. A review of that system conducted by Human Resources staff under my cognizance has revealed that Dr. Walter Tamosaitis has never been a federal employee at the DOE Richland Operations Office (RL) or ORP.

3. DOE has a contract with Bechtel National, Inc. (BNI) to construct and commission the Waste Treatment Plant (WTP) on the Hanford Site. BNI has a subcontract with URS, Inc. to complete work scope under the WTP contract. BNI is responsible for administering its contract with URS.

4. BNI and URS are responsible for managing and supervising their employees. DOE does not manage or supervise BNI or URS employees.

5. DOE did not hire Dr. Walter Tamosatis and had no authority to terminate his employment with URS or to affect a transfer of his employment within URS. DOE did not manage, supervise, or control the manner or means by which Dr. Tamosaitis performed or accomplished his duties. DOE had no authority to instruct Dr. Tamosaitis when or how long he must work. No DOE employee supervised or managed Dr. Tamosaitis' work or evaluated his work performance.

6. To the best of my knowledge, URS paid, and continues to pay, Dr. Tamosaitis' salary and employee benefits.

7. I did not direct BNI or URS to take any specific actions with regards to Dr. Tamosaitis.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Signed at Richland, Washington, this 11th day of February, 2011.

DALE E. KNUTSON
Federal Project Director, Waste Treatment Plant
DOE, Office of River Protection

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF BENTON

SCOTT BRUNDRIDGE, DONALD HODGIN, JESSIE JAMES, CLYDE KILLEN, PEDRO NICACIO, SHANE O'LEARY, RAYMOND RICHARDSON, JAMES STULL, RANDALL WALLI, and DAVID FAUBION, Plaintiffs, v. FLUOR DANIEL, INC., a California corporation; FLUOR DANIEL HANFORD, INC., a Washington corporation; FLUOR DANIEL NORTHWEST, INC., a Washington corporation; JERRY NICHOLS, an individual and his marital community; DAVID FOUCAULT, an individual and his marital community; and JIM HOLLADAY, an individual and his marital community, Defendants.	Case No. 99-2-01250-7 DECLARATION OF ROBERT M. CAROSINO IN SUPPORT OF DEFENDANTS' MEMORANDUM OPPOSING PLAINTIFFS' MOTION TO COMPEL CERTAIN DEPOSITION TESTIMONY OF DAVID FOUCAULT

I, ROBERT M. CAROSINO, having first-hand knowledge of the subject matter of this declaration and being competent to testify, declares, under penalty of perjury, as follows:

1. I am an attorney. I am employed by the United States Department of Energy ("DOE") in the Office of the General Counsel, Richland Operations Office. I am responsible for DOE's oversight of certain litigation involving its contractors, including Fluor Hanford, Inc. This case is one of the cases for which I am responsible.

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EXHIBIT 16

2. Contractors such as Fluor Hanford are employed under the terms of a written contract. In general terms, the contract requires Fluor to provide certain services and requires DOE to pay the costs of contract compliance.

3. DOE's obligation to pay the costs associated with contract compliance includes costs, fees, judgments, and the like associated with some forms of litigation. Attached to this declaration, and incorporated in it by reference as Exhibit 1, is Paragraph H.38 of Contract DE-AC06-96RL13200, as modified October 1, 1999. This is the Insurance-Litigation and Claims article of the contract, which governs most of the litigation that DOE pays for under the contract.

4. As a matter of practice, and as required by the terms of Exhibit 1, Fluor Hanford is required to notify DOE whenever an action or claim is initiated against it. When it is notified of such a claim or action, DOE takes a close interest in claim handling and litigation practice. It retains a right of approval of outside counsel retained to represent the company; it is authorized to, and does in practice, coordinate with the company and its counsel in settling and/or defending the case or claim; it requires its contractors to periodically report to it on the status of, and any developments in, pending litigation; it retains a right of approval over settlements; and it may, in cases where more than one of its contractors are named in the same case, require all to agree to representation by common counsel.

5. DOE satisfies itself that its interests in contractor litigation are being adequately served by the contractor by periodic meetings attended by, among others, contractor counsel, DOE counsel, and any DOE or contractor personnel whose input is necessary for the parties to carry out this relationship. These meetings often involve the exchange of detailed information

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about cases and claims, their values, and the contractor's plans for defense, settlement, or the like. Both DOE and, to my knowledge, its contractors, have historically viewed the exchanges that have occurred in these meetings as confidential.

6. It is DOE's practice to refuse to produce documents relating to these meetings and exchanges when asked to do so under the Freedom of Information Act. This practice has been upheld; *see Miller, Anderson, Nash, Yerk & Weiner v. U.S. Dept. of Energy*, 499 F. Supp. 767 (D.Or. 1980).

7. DOE's refusal to produce documents such as litigation plans prepared and submitted by its contractors has also been upheld. Attached to this declaration, and incorporated in it as Exhibit 2, is the decision of the Honorable Lorenzo F. Garcia, Magistrate Judge, in *Morrison Knudsen Corp. v. Ground Improvement Techniques, Inc.*, Misc. No. 96-37 MV/LFG (D.N.M. 1996), finding that such materials are privileged.

8. The basis for DOE's refusal to produce the information submitted to it under the Litigation and Claims Article is its belief that, as Judge Garcia said, "Both DOE and . . . [its contractor] . . . share a common interest in this litigation." Exhibit 2 at 5.

9. Fluor Hanford's contract contains additional provisions relating to "Whistleblower Actions." Attached to this declaration, and incorporated in it as Exhibit 3, is Paragraph H.40 of the contract, entitled Costs Associated with Whistleblower Actions.

10. Paragraph H.40 limits the circumstances under which DOE is required to take financial responsibility for costs associated with the unsuccessful defense of whistleblower claims. While DOE may not ultimately bear the costs associated with this sort of claim, its interest in its contractor's defense is no less common than its interest in any other form of

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A-000017

litigation. This is because DOE has an interest in the appropriate resolution of whistleblower actions, takes financial responsibility in the case of successful defense of such claims, and has discretion under the contract, to fund the defense even after an "adverse determination" has been made. As a practical matter, DOE would probably be less inclined to approve reimbursement of costs associated with such a claim in the absence of even more detailed disclosures and justifications than it would require with respect to other forms of litigation.

11. DOE has not decided whether all of Fluor's Pipefitter-related costs will be reimbursed under the contract. At the present time, no dispute or conflict exists between DOE and the contractor regarding this issue.

12. I believe that my ability to carry out my responsibilities for oversight of Fluor Hanford litigation would be harmed if the common interest of DOE and its contractor in this litigation is not recognized. We have always expected that the communications necessary to carry out these functions would be held in confidence by both DOE and the contractor. As a result, we have expected that the contractor would provide full and open reports to us regarding the progress of the litigation, its strengths and its weaknesses. Obviously, we would not have the same level of confidence in the contractor's disclosures if we felt that the contractor had to hold back for fear that its comments and reports would be subject to discovery.

I declare under penalty of perjury under the laws of the State of Washington that to the best of my knowledge the foregoing is true and correct.

DATED this 28th day of March, 2000.

Robert M. Carosino

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From:	Tamosaitis, Walter
Sent:	Thursday, October 1, 2009 9:50 PM
To:	Barnes, Steven M (WGI) <smbarnes@bechtel.com>; Damerow, Frederick (WGI) <fwdamero@bechtel.com>; Truax, John <John.Truax@wgint.com>
Subject:	IMPORTANT -- M3

Just came from a mtg with WTP mgmt. I am the new M3 Program Mgr. Organ structure is same as M-12 with addition of Russ. First meeting is **9am tomorrow Friday in A-201**. Steve/Fred: please attend if possible.

Organ structure for right now is ----

Walt

Test Tech Plans	Test Ops	Engr and Support
Steve	JET	Russ
	Support	Engr
	Phil	Hanson

Target date to have data (not final reports) is June 30.

I told them that everything is fair game for change -- just get out of our way. This includes -

- Throwing out CFD and using scaling if we want.
- Involvement of PNNL (Meyer)
- Improved measurements
- Engr had to do building assessments now - -not when we are done.
- Lamm had to ID alternate schedule approaches-- not bang the table.
- Other things also

We need to talk people: Huckaby, Sundar ??

Buckle up boys -- we are in the spot light again.

Walt

M3 Program
Update and Assessment

October 5, 2009

Dr. Walter L. Tamosaitis
Program Manager

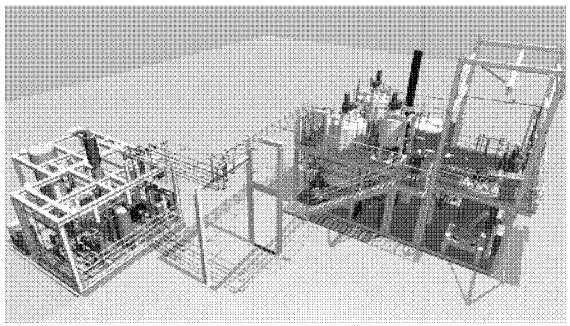
AGENDA

- Issue, Objective, and Organization
- Closure Assumptions, Assessment and Status
- Fabrication and Installation Schedule
- Key Path Forward Tasks
- Summary
- Background
  - ORP Questions

EFRT M3 Issue

"Issues were identified related to mixing system designs that will result in insufficient mixing and/or extended mixing times. These issues include a design basis that discounts the effects of large particles and of rapidly settling Newtonian slurries. There is also insufficient testing of the selected designs."

— EFRT March 2006

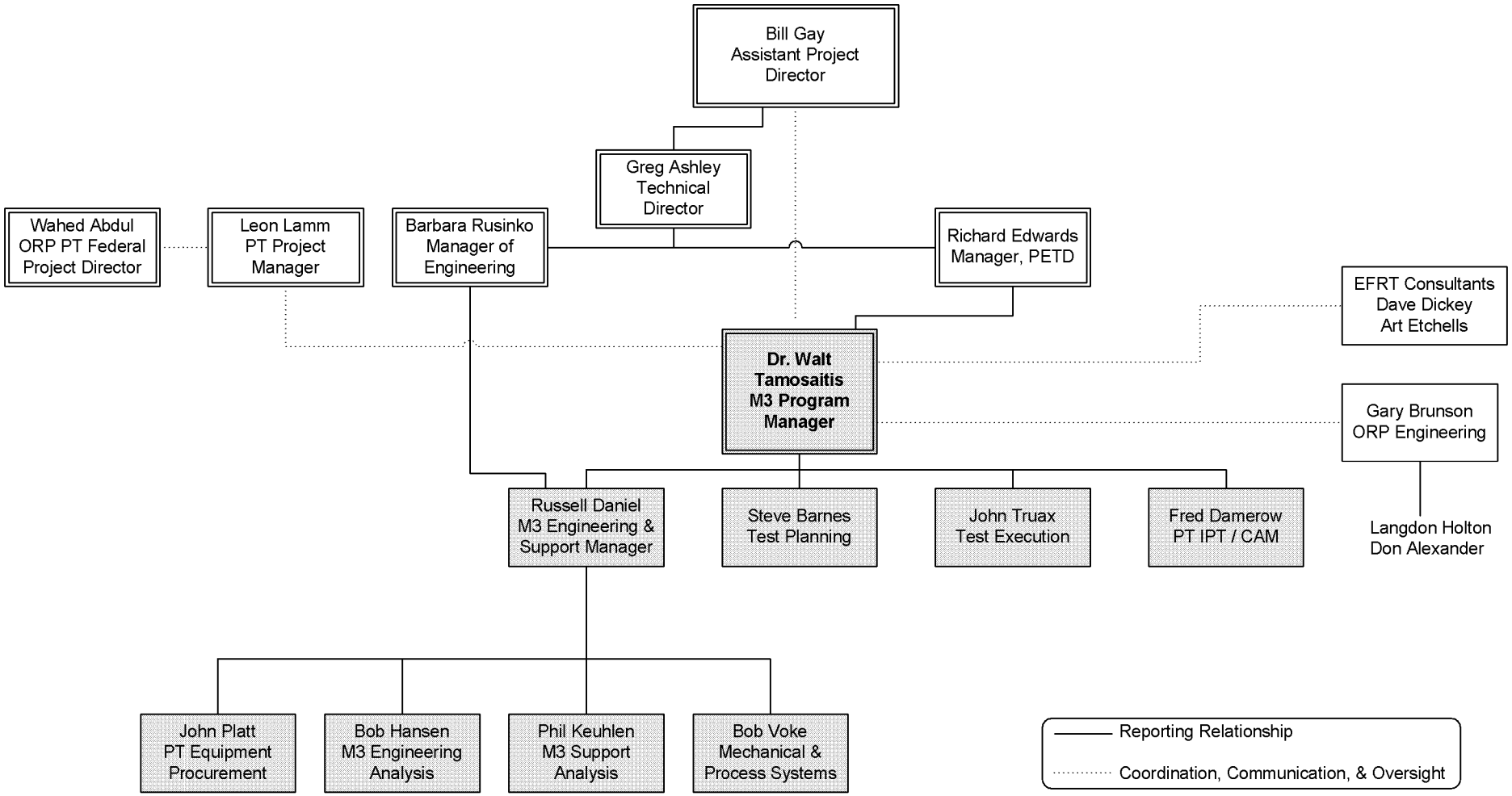


M3 Prototypic Test Platform

Project Goals:

- Provide **robust** vessel mixing capability
- All testing completed by 12/31/09
- No negative impact to PT critical path
- Closure ready for M3 NLT April 30, 2010

M3 Program Organization



M3 Objective

- To provide design and operational solutions to address the EFRT mixing issue so that:
  - Mixing systems meet Basis of Design mixing requirements.
  - Tank and facility design/fabrication can proceed.
  - There are no impacts to the PT critical path schedule.
  - Confidence in mixing is established so that M3 can be closed.

Key M3 Findings

Accomplishments:

- Developed Issue Response Plan
- Defined mixing criteria for each vessel
- Conducted vessel assessment to document ability of mixing system to meet criteria
- Performed gap analysis and define testing needs matrix
- Conducted tests with 4-foot prototypic test platform and bench scale (radial and linear flume) testing to support engineering analysis
- Defined design and/or operational changes
- Issued response plan update
- Mixing criteria defined and initial vessel assessment completed
- Testing/analytical gaps defined and test matrix defined
- Closure Package 1A (17 vessels) & 1B (9 vessels) approved
- Representative physical & bounding simulants formulated
- Prototype platform designed, fabricated, & installed
- Planned 8 & 12 PJM platform testing completed
- WSU radial flume designed, modified, & placed in service
- WSU linear flume testing completed, radial flume in progress
- Computational fluid dynamics models developed & significant benchmarking performed
- Trends and advanced work authorization approved for design improvements

Key Findings:

- **Vessel bottom clearing is driven by jet velocity and power**
- **Additional power is needed to assure bottom clearing in selected vessels**
- **Power/Unit volume is a conservative way to scale**
- **Design/operational improvements can be combined to provide sufficient additional power**

Proposed M3 Approach

Major Points

- Robust mixing system proposed
- Engineering will modify systems to enable mixing recommendations
- Power/Vol used as scaling method
- FRP vessels remain as currently designed

Key Action –

- Customer concurrence

Top Level Summary

- Testing and analysis to date indicates modifications are needed to improve confidence in mixing performance.
- PJM design improvements are not expected to impact PT facility critical path schedule.
- Initial review of support systems indicates changes can be implemented.
- Need confirmation/alignment on critical factors to meet objectives. Includes:
  - Scope
  - Closure criteria
  - Analyses basis
  - Deliverables

Closure Assumptions

Assessment Basis

- Predominance of evidence via multiple analytical approaches is basis used to "verify" adequacy of scaling & mixing recommendations.
- FRP-2 vessel feed is in accordance with ICD-19 and BOD.
- Feed characteristics are based on RPP-9805 & WTP-RPT-153
- Current mixing requirements are confirmed, not changed.

Assessment Approach

- Mixing system recommendations for FEP-17, UFP-1 & HLP-22 are based on preliminary data followed by demo test
- UFP-1 vessels are bounded by FEP 17 testing
- PWD 33, 43, 44 handled by operational measures.
- Final reports are not part of M3 closure.

Modifications

- System design changes to support mixing are not tied to M3 closure.
- Data collected to date is sufficient for recommendation.
- Systems (internal and support) will be designed to meet mixing system needs.
  - Internal: Erosion, overblow, seismic, structural, etc
  - External: PVV, PJV, Scrubber, Utilities, etc
- Suction dilution line testing not part of M3 (demonstrated tech)
- 6 inch JPP demonstrated design exists
- No non-Newtonian vessel requires mods for Newtonian settling solids.

Scope & Schedule

- CFD V&V is not required for M3 closure
- No significant failure of test platform or supporting systems
- No chemical simulant testing
- External review comments addressed with no scope (especially testing) expansion and no added reviews
- Agreement by ORP on proposed approach and scope by October 8th.

WTP Preliminary Assessment

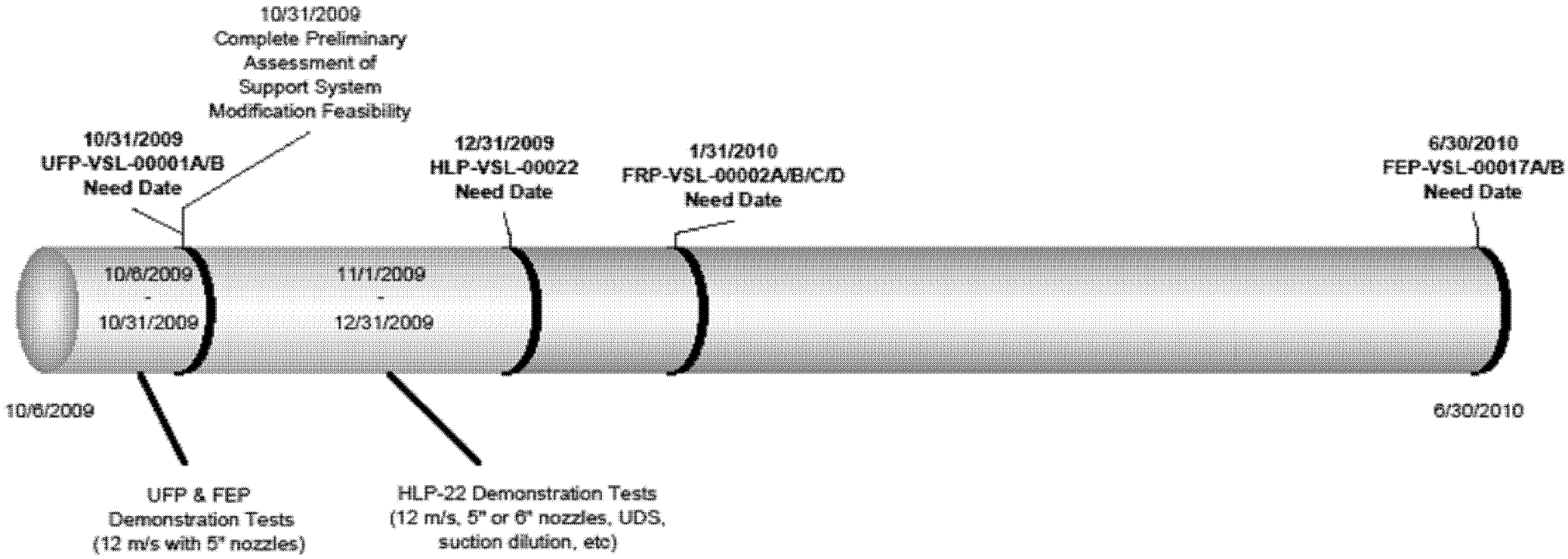
Engineering analysis via multiple approaches of preliminary data indicates:

- FEP-17 A/B design solution set (12 m/s, 5” nozzles) is ready for demonstration test
  - Will be conducted by end of October
- UFP-1 A/B solution is provided based on bounding FEP-17 demonstration
- FRP-02 A/B/C/D design requires no changes when assessed against Basis of Design and ICD-19.
- PWD-33, -43, -44 require no design changes and can be closed
  - Minimal solids anticipated during normal operations. System design features for flushes and chemical addition are provided for operational recovery from off normal conditions.

Needed-

- HLP 22 design solution and demonstration test

Near Term Vessel Fabrication Need Dates



Key Path Forward Tasks

- Receive and evaluate all testing data
- Prototypic Demonstration Test for FEP-17
- Develop design improvement package for HLP-22
- Prototypic Test for HLP-22
- Reassess Closure Package 1B vessels in light of baseline testing results, and Non-Newtonian vessels for handling of rapidly settling newtonian slurries (UFP-2 and possibly HLP-27A)
- Confirm Mixing Requirements Document
- Assess DNFSB & CRESP feedback and identify gaps requiring additional analysis or testing
- Conduct additional tests based on updated test matrix or gaps
- Obtain EFRT buy-in for multiple approach scaling
- Complete, review and issuance of test reports and analysis
- Complete, review and issuance of Closure Packages 2-3

Summary

- Complete data analysis and review
- Obtain EFRT Input
- Flesh out Logic diagram – October 9th
- Compile draft schedule - October 9th
- Prepare for FEP Prototype test
- Confirm design deliverable for closure – Oct 23
- Confirm tank requirements ⟶ mixing goals

Bottom Line

- Use of assumptions and concurrence by ORP as outlined in this presentation leads to:
  - M3 closure (no additional scope) April 30, 2010

Summary: Overall Vessel Status

Vessel Identification2			Preliminary Assessment			Impact Dates	
Vessel Number	Vessel Name	Type Vessel	Mixing Performance Risk Level	Additional Actions Forecast	Margin Enhancement Options Forecast	Schedule Need Date	
HLP-VSL-00022	HLW Feed Receipt	HLW feed characteristics	High	Test/Analysis	TBD Design Change	12/31/2009	
FRP-VSL-00002A/B/C/D	LAW Feed Receipt	HLW feed characteristics	Low	Non-settling	No Change		
			High	Settling	Contract & Design Changes	1/31/2010	
FEP-VSL-00017A/B	FEP Evap Feed	HLW feed characteristics	High	Demo Test	12 m/s & 5" Nozzle Design Change	6/1/2010	
UFP-VSL-00001A/B	Ultrafilter feed prep	HLW feed characteristics	High	Analysis	12 m/s & 5" Nozzle Design Change	10/31/2009	
PWD-VSL-00033	Ultimate Overflow Vessel	Non process	medium	Analysis	Address Operationally	N/A	
PWD-VSL-00043	HLW effluent transfer to PT	Non process	medium	Analysis	Address Operationally	N/A	
PWD-VSL-00044	Plant Wash Collection	Non process	medium	Analysis	Address Operationally	N/A	
UFP-VSL-00002A/B	Ultrafilter feed vessel	Non - Newtonian	Low	Closure Reanalysis	No Change	N/A	
HLP_VSL_00028	HLW Blend Vessel	Non - Newtonian	Low	Closure Reanalysis	No Change	N/A	
HLP-VSL-00027A/B	HLW Lag Storage	Non - Newtonian	Low	Closure Reanalysis	No Change	N/A	
RDP-VSL-00002A/B/C	Spent Resin Storage	Resin storage	Low	None	No Change	N/A	
RLD-VSL-00008	Plant Wash and Drains collection	Low solids	Low	Closure Reanalysis	No Change	N/A	

Summary: Overall Vessel Status

Vessel Identification2			Preliminary Assessment			Impact Dates	
Vessel Number	Vessel Name	Type Vessel	Mixing Performance Risk Level	Additional Actions Forecast	Margin Enhancement Options Forecast	Schedule Need Date	
TCP-VSL-00001	Treated LAW Concentrate	Low solids	Low	Closure Reanalysis	No Change	N/A	
HLW-HOP-VSL-903/904	HLW SBS condensate receiver	Low solids	Low	Closure Reanalysis	No Change	N/A	
TLP-VSL-00009A/B	LAW SBS returns to PT (TLP Evap feed)	Low solids	Low	Closure Reanalysis	No Change	N/A	
RLD-VSL-00007	Acidic Waste Collection	Low solids	Low	Closure Reanalysis	No Change	N/A	
PWD-VSL-00015/16		Liquid - Liquid	Low	Closure Reanalysis	No Change	N/A	
UFP-VSL-00062A/B/C	Ultrafilter Permeate Collection Vessels	Liquid - Liquid	Low	None	No Change	N/A	
CXP-VSL-00026A/B/C	Treated LAW Collection	Liquid - Liquid	Low	None	No Change	N/A	
CXP-VSL-00004	Casutic Rinse Collection	Liquid - Liquid	Low	None	No Change	N/A	
CNP-VSL-00004	Cs Evaporator Recovered Nitric Acid	Liquid - Liquid	Low	None	No Change	N/A	
CNP-VSL-00003	IX eluate contingency storage	Liquid - Liquid	Low	None	No Change	N/A	

Background Material

Responses to Recent ORP Questions

- What is the number of vessels where the design is still in question?
  - Potentially 1 Vessel. 12 tanks in question are: HLP-22, FEP-17 A/B, UFP-1 A/B, FRP-02 A/B/C/D, PWD-33,43,44. FEP mixing measures are identified and bracket UFP, leaving only HLP-22. FRP tanks do not receive settling solids. PWD handled via operating measures.
- Why is design still in question?
  - Testing indicated higher mixing power required for suspension of rapidly settling solids
  - Recent feedback from DNFSB & CRESP
  - Selected mixing requirements in review/revision (Criticality/Settling Solids/HPAV/MAR)
- What do we know based on testing to date?
  - Confirmed effective mixing improvement options
    - Operational: operating level & dilution
    - Design: PJM velocity, PJM nozzle size, suction dilution, diverter system
  - Determined scaling basis for PJM velocity (Power/Volume)
  - Determined bounding physical simulants with EFRT assistance

Responses to Recent ORP Questions

- What more needs to be determined through testing?
  - Demonstrate satisfactory performance & margin of FEP-17 design improvement set
  - Develop design improvement set for HLP-22 & demonstrate
- What more needs to be determined through analysis/contract clarification?
  - Confirm UFP-1 design through analysis of FEP-17 testing
  - FRP-02 A/B/C/D basis of evaluation
    - Vessels satisfactory based on approved Basis of Design & Interface Control Document 19 (Non-settling solids)
  - Lock down mixing requirements & assessment criteria
- How long will it take to have confidence design is adequate?
  - 3 to 7 months contingent on analysis issues, design development, and testing results
- What is critical path relationship?
  - M3 can be closed and PT Facility critical path schedule worked without impact with concurrence on program assumptions.

Input/Issues from CRESP

CRESP Issue/Comment	Resolve Prior to M-3 Closure	Comments
Present a clear flowdown of mixing requirements to the test/analysis program used to assess vessel adequacy. Indicate which test platform is/was used to provide the required information	Y	Present this flowdown in the closure documentation and in the next CRESP review
Sampling in the Platform was sparse and inadequate to support CFD assessments/V&V	N	Additional experimentation is required to support the V&V of CFD post M3 Closure
Experimental program should include physical/chemical simulants reflective of the actual anticipated operating conditions. Consider testing in the PEP do to potential limitations on the Platform	Y	Platform tests with HLW simulant provide partial information on complex simulant. PEP testing information to be evaluated as part of M3 closure If required additional testing will be defined
Provide a basis to understand the basis for scaling for key parameters used to assess vessel adequacy (e.g. PJM zone of influence, cloud height, solids lift).	Y	Include in analysis of M3 Testing information
Test program should demonstrate the ability to re-suspend the sediment layer following a shutdown. Evaluate several sediment depths.	Y	Platform tests with HLW simulant provide partial information on complex simulant following settling of sediment layer
Assess the accumulation of solids in the vessel beyond a point of concern.	Y	Accumulation of solids to be evaluated as part of vessel assessments
Consider a remote means, such as a radiation probe to determine if sediment layers form on the bottom of the vessel.	N	Future decision based on outcome of M3 work and feasibility of method.

Input/Issues from DNSFB Staff

Issue/Concern	Resolve prior to M3 Closure?	Comment
Use of QA data in Vessel Assessments	Y	Only NQA-1 data to be used in Closure of M3 Mixing Issues
Prototypic Testing	Y	Testing information for M3 to come from prototypes (partial and full)
Reconciliation of Phase 1 data	N	Phase 1 data not to be used for Closure of M3
Proper V&V of CFD	N	CFD V&V to be completed post M3 closure
Detection of Sludge Buildup in Vessel during Normal Operation	Y	Mixing requirements to be updated to limit accumulation. Vessels to be assessed against requirement.
Criticality (Tied to Sludge Buildup)	N	Criticality issues to be resolved as part of Criticality Safety Program
Re-suspension of Solids following Loss of Mixing	Y	Initial testing to be completed to assess solids re-suspension following period of settling
Sampling System for PJM Vessels Inadequate	N	Sampler design to be evaluated consistent with waste feed properties and expected vessel performance
Erosion Wear of Engineered Components	Y	Velocities of fluids striking/flowing along engineered components to be controlled to less than 12 fps
Pump Transfer Requirements /Uncertainty in fluid properties of tank waste	Y	Pump transfer requirements to be demonstrated in Closure documentation. Uncertainties in Hanford tank waste properties to be considered for feed receipt vessels (HLP, FRP)
Newtonian waste in Non-Newtonian Vessels	Y	Non-Newtonian vessels design accepted. Assessment will be completed at a later date to project performance.
Prototypic Long Term PJM Control Test	N	Requirement for Test to be evaluated and recommendation made to DOE
Review of Basis for Closure Package 1A, 1B	Y	Basis for Closure of the Closure Package 1B (solids containing vessels) to be reviewed

From: Gay, William (URS)
Sent: Tue Nov 03 22:29:30 2009
To: Ashley, Gregory; Rusinko, Barbara
Cc: Tamosaitis, Walter; Papp, Ivan; Edwards, Richard E (WGI)
Subject: FW: IMPORTANT: FEP Mixing Req
Importance: Normal
Attachments: FEP mixing requirments.doc

Help to Russ would be appreciated if it is available. We need it soon.

I would assume the mixing requirements need to come from some type of source document.

Thank you,

William W. Gay III

Assistant Project Director

Engineering, Quality, Safety & Operations

PH: 509.371.2389

From: Tamosaitis, Walter
Sent: Tuesday, November 03, 2009 2:08 PM
To: Gay, William (URS)
Subject: IMPORTANT: FEP Mixing Req

Bill-

Attached for your info. Establishing the mixing requirements has been

the hardest part of the program so far. Russ plans to meet with Engr mgmt

and get agreement on what they are. This is a good idea as I don't

want to see Russ pushed out onto thin ice.

I hope he can have something by tomorrow. If not, this will

be a big gap in the program. Obviously this should have been

answered months ago!

The issue is that one can argue that bottom clearing is not

needed to meet the requirements. Also, demonstrating no

accumulation will be tough. From the discussions, one could conclude that poor mixing is really what you want, not good mixing!! This leads to no system changes. But process control and operational controls need to be addressed.

Bottom line: I have pushed Russ to think through this carefully and get help because I don't believe Engr has thought through the system analysis carefully.

Walt

ps- Engr assumed homogeneously mixed tanks when they scoped out control systems, pumps, sampling, etc. Far from what we have.

From: Tamosaitis, Walter

Sent: Tuesday, November 03, 2009 1:32 PM

To: Daniel, Russell

Cc: Barnes, Steven M (WGI)

Subject: FEP Mixing Req

Russ-

In the meeting tomorrow you will need to cover something like the attached. This is the same thing taped to your computer except I improved the words in the no accumulation req. It will then need to be transmitted to me via a CCN.

Pls note that I think there are conflicting requirements. Also, I do not rate the probability high of achieving the no accumulation sampling goal. Not meeting this goal means test failure.

As we discussed, I encourage Engr to look differently at the requirements

to see if other options exist to show compliance.

Tks.

Walt

<<...>>

From: Ashley, Gregory
Sent: Tue Dec 01 15:21:40 2009
To: Feigenbaum, Ted; Gay, William (URS); Tamosaitis, Walter
Cc: Lamm, Leon (WTP); Rusinko, Barbara
Subject: RE: An Honest Appraisal of M3
Importance: Normal

Ted, if a 50% increase in the number of PJMs is what is required to meet the performance requirements for HLP-22 we will strongly have to weigh the cost benefits of maintaining the the size of HLP-22 vs the option of a smaller (e.g. HLP-27) vessel. We had a conference call yesterday to outline a high level (meaning fast) VE study to evaluate the options. Expect a draft strawman outline today. Target for an output of this study would be approx two weeks.

Greg Ashley, P.E.
WTP Technical Director
(509) 371-3418
(509) 420-3394 cell
(509) 371-3506 fax
grashley@bechtel.com

From: Feigenbaum, Ted
Sent: Monday, November 30, 2009 11:56 PM
To: Ashley, Gregory; Gay, William (URS); Tamosaitis, Walter
Cc: Lamm, Leon (WTP); Rusinko, Barbara
Subject: Fw: An Honest Appraisal of M3

For HLP-22 are we going to test a realistic arrangement that we could actually accomplish in our facility without major design revision?

From: Gay, William (URS)
To: Lamm, Leon (WTP)
Cc: Feigenbaum, Ted; Tamosaitis, Walter; Gary E. Brunson (gary_e_brunson@rl.gov) <gary_e_brunson@rl.gov>; Guy A. Girard (Guy_A_Girard@orp.doe.gov) <Guy_A_Girard@orp.doe.gov>; Ashley, Gregory
Sent: Mon Nov 30 22:08:10 2009
Subject: An Honest Appraisal of M3

I believe that Walt's Team and the ORP Team are close to the test objectives for FEP-17 and UFP-1.With this being said ,even with testing going to 7/24 supposedly this week, I think these two tanks will finish about 12/15 with dedication and sacrifice by all involved.
To perform the HLP-22 tank testing ,we are talking about significant hardware and electronic modifications (18 PJM array including infrastructure) including some equipment recalibrations. When you also need to get consensus from both sides of the fence regarding the HLP-22 testing criteria, I believe that late January 2010 is the best we can hope for. If this date is unacceptable, the two tank theory with the HLP -27 design should be looked at hard for all the reasons that were discussed before

Thanksgiving.
We will keep pushing every day and other people may disagree with me but that is my **uneducated** evaluation.
Thank you,

William W. Gay III
Assistant Project Director
Engineering, Quality, Safety & Operations

PH: 509.371.2389

From: Groves, Kevin
Sent: Monday, November 30, 2009 2:14 PM
To: Groves, Kevin; McAdoo, Robert (WGI); Harper, Darrell; 'Chris Chapman'; Siler, Joel (URS); French, Robert (WGI); Tamosaitis, Walter; Chapman, Chris; Daniel, Russell; Damerow, Frederick (WGI); Huckaby, James; Keuhlen, Phillip; Markillie, Jeffrey; Barnes, Steven M (WGI); Truax, John; Gay, William (URS)
Subject: M3 Platform Status Day Shift November 30, 2009 (and SSW report)

Safety

No Issues

Progress and Activities

During tuning of PJMs for 6.0m/sec, it was found that the vacuum regulator could not be physically adjusted to meet the cycle time parameters required.
It was suggested that there was some water trapped in the valve body that was frozen creating a physical blockage in the vacuum regulator.
Heat was applied to the valve using a heat gun, which resolved the issue.
Jim Huckaby was informed of the delay in the absence of Steve Barnes.
PJMs were tuned for 6.0m/sec.
One of the PJMs was having difficulty maintaining drive pressure and pressure regulator for the PJM was found to be leaking air.
The STL shutdown the PJMs and notified the pipe fitters to replace the pressure regulator. Steve Barnes was informed of delay.
The PJMs were re-tuned to the velocity of 6.0m/sec.
The cycle time was very erratic and often drifted, requiring a close eye to watch trends.
The vacuum need to be adjusted to maintain cycle time.
After many small adjustments to the vacuum regulator, the cycle time was steady with no indication as to the cause of the cycle time stabilization.
Video and data were captured including visual observations (Ucs, Cloud height max min, ZOI).
Started sample system to collect Coriolis Densitometer readings. At turnover, 12 of the 13 levels were completed.

Visitors

Don Alexander DOE
Jim Shelor DOE
Jim Huckaby

Kevin Groves
M3 Project Shift Test Engineer
Shift Work Cell 509-420-3084

From: Feigenbaum, Ted
Sent: Tue Dec 01 04:56:03 2009
To: Ashley, Gregory; Gay, William (URS); Tamosaitis, Walter
Cc: Lamm, Leon (WTP); Rusinko, Barbara
Subject: Fw: An Honest Appraisal of M3
Importance: Normal

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To: Lamm, Leon (WTP)
Cc: Feigenbaum, Ted; Tamosaitis, Walter; Gary E. Brunson (gary_e_brunson@rl.gov) < gary_e_brunson@rl.gov>; Guy A. Girard (Guy_A_Girard@orp.doe.gov) <Guy_A_Girard@orp.doe.gov>; Ashley, Gregory
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We will keep pushing every day and other people may disagree with me but that is my **uneducated** evaluation.
Thank you,

William W. Gay III
Assistant Project Director
Engineering, Quality, Safety & Operations

PH: 509.371.2389

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Subject: M3 Platform Status Day Shift November 30, 2009 (and SSW report)

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Visitors

Don Alexander DOE
Jim Shelor DOE
Jim Huckaby

Kevin Groves
M3 Project Shift Test Engineer
Shift Work Cell 509-420-3084

From: Russo, Frank M (WTP)
Sent: Wed Mar 31 03:20:27 2010
To: 'Ines.Triay@em.doe.gov'
Subject: Re: HLP-27 UPDATE
Importance: Normal

I was getting ready to send you an email. It was like herding cats. Scientists that were diametrically opposed at the beginning of the meeting were in lock step harmony when we told them the science is ending. They all hated it. By the end of the meeting my guys were on board and Guy was on board but some of his direct reports remain cynical. I told them and the entire room that their job now is to give me/ Guy and then you a well developed and balanced business case that talks to tank by tank capability, operational protocols that make that capability acceptable (first inside WTP and then in concert with TF). They also need to provide the G 2 through- put analysis and operational mitigations that protect the mission. They all got it. Even your consultants

Tomorrow I will remind ORP and my folks and will do the same Thursday. Guy will keep ORP and DOE consultants in line , I will help and I will send anyone on my team home if they demonstrate an unwillingness or inability to fulfill my direction.

Testing is now one test per tank type. It ends 4/22 and the business cases are due on or before 5/15.

Re the non Newtonian tanks....no new tests, a TSG majority and if needed minority position paper and a recommendation by BNI as design authority to you on recommended position. The recommended position which the majority already agrees is non Newtonian tanks are acceptable as is

Frank

Frank

From: Triay, Ines <Ines.Triay@em.doe.gov>
To: Russo, Frank M (WTP)
Sent: Tue Mar 30 23:03:23 2010
Subject: RE: HLP-27 UPDATE

How was this resolved this afternoon?

From: Russo, Frank M (WTP) [mailto:frusso@Bechtel.com]
Sent: Tuesday, March 30, 2010 2:26 PM
To: Triay, Ines; Chung, Dae
Subject: FW: HLP-27 UPDATE
Importance: High

FYI

From: Tamosaitis, Walter
Sent: Tuesday, March 30, 2010 11:12 AM
To: Russo, Frank M (WTP); Gay, William (URS); Robinson, Michael K (WTP); Daniel, Russell; Truax, John; Barnes, Steven M (WGI); Damerow, Frederick (WGI); Edwards, Richard E (WGI); Rusinko, Barbara; French, Robert (WGI)
Subject: HLP-27 UPDATE

Importance: High

All-

I met with Don for an hour this morning.

Basically he is in disagreement with Dr. Etchells. I showed him the draft letter from Etchells, the WTP 2005 report, and described the videos of mixing 4mm (4000 micron !) glass beads. Don draws ZOIs (zone of influence (clearing)) and contends the tank will not clear the bottom. I told him I saw NO such indication with the beads. He maintains his position and opinion. Not sure how to dispute opinion and drawings in face of professional opinion and videos.

I told him that I would be presenting my information this afternoon and would be in disagreement with his position on the need for testing HLP-27.

He has had discussions with Craig Myler and Joel Peltier and according to Don, they support his opinion.

We talked FEP, UFP-1A/B, and HLP-22 also.

Walt

From: Russo, Frank M (WTP)
Sent: Wed Apr 07 17:30:59 2010
To: 'Triay, Ines'; 'Chung, Dae'; 'Olinger, Shirley'; 'Guy_A_Girard@orp.doe.gov'
Cc: Ogilvie, J; Walker, David
Subject: FW: Waste Treatment Plant
Importance: Normal

Ines, Please see below: I am using this one piece of communication as an example of activities and actions that may be taking all of us in directions that we don't want to go.

I think it important that I meet with Dan Poneman and/ or Secretary Chu as soon as their schedules allow. I am getting feedback from around the country that their offices are making calls to folks at all levels of labs, other sites, competitors.etc. Bob Iotti (a colleague who I respect) hasn't been involved in years but yet is getting calls to discuss current events. To Bob's credit, he is advising folks he is not current.

In addition, we have a long list of seemingly normal actions, all well intentioned (CPR, Technical Review, EVMS recertification) that quickly multiply to self fulfilling prophecy when my senior management team spends all of it's time preparing, orientating and then supporting all the external help that is being provided to the project.

I have been involved in this type of well intentioned support before. It never ends well. The project team becomes so reactive and distracted that it never gets in front of the daily issues that every project experiences. The workforce loses direction and focus as the external help increases and this loss of focus and direction enables more external help.....it is a cycle that never ends and is continually fed by the deteriation in performance that is directly attributed to the loss of direction and focus because leadership is busy with external reviews. And, I am not even thinking about the DNFSB oversight. All projects deal with external oversight, even on the commercial side. This project is currently experiencing an oversight factor that is exponentially greater than anything I have seen in 38 years of project work.

The project is not the "problem" being shared with and by lab directors around the complex. We have the same exact issues that every big, highly regulated project experiences. Mixing is a unique problem. But in the end, it becomes a money issue and one that can be managed given nine years and $5 billion dollars of 'to go' schedule and cost. Also, if Mike Kluse's email happens to get broader distribution and my team sees it, it will takes extreme effort and good fortune not to lose their pride in the project. If we lose the teams discretionary effort, it will cost more than M-3 and CNP/CXP combined.

There are things that need to be fixed. Parts of my team behave too much like an M&O, we need better quality communications with the DNFSB, need to freeze design, need to stop change; at this point in the job change always turns into a sub optimization since any change now ripples through too much completed work at very high re work costs). Guy as FPD, Shirley as ORP and my team are capable of dealing with these needed fixes. There is no great idea that another external team will bring in that we haven't thought of or previously managed at another site and time. As long as we are partnered with you, our customer, there is nothing left in this job that can't be solved in a timely and cost effective manner.

Although you already know most of this, I feel to important that Mr. Poneman and Chu understand that Bob Iotti sought my advise when he came to ICP after Parker's early exit. I was George Miller's most trusted

direct report within nine months of arriving at Livermore (no small task). John Post was a subordinate to me at Livermore who George and Ed Moses asked me to mentor. Royal Dutch Shell, Motiva, Exxon Mobil still ask Bechtel to put me on their multi-Billion dollar projects, even though I have not worked for any of them for the last 10 years. Neither I nor Bechtel nor you nor your folks here at the site are at a loss for how to get this project built, if just given the opportunity to build some momentum.

I need to meet with your 7th floor before their good intentions turn into the self fulfilling prophecy that they desire to avoid.

Frank

From: Liedle, Steven
Sent: Wednesday, April 07, 2010 8:37 AM
To: Russo, Frank M (WTP); Walker, David; Moreton, Mary
Subject: Fwd: Waste Treatment Plant

FYI. Looks like Labs will be asked to "help". I will keep you posted if I hear more.

Date: Wed, 7 Apr 2010 07:38:50 -0700
To: Steve Liedle <liedle1@llnl.gov>,
Tomas Diaz De La Rubia <delarubia@llnl.gov>,
"Penrose C. Albright" <albright6@llnl.gov>,
Bruce Goodwin <btgoodwin@llnl.gov>, Ed Moses <moses1@llnl.gov>,
"Boyd, Donald M" <boyd33@llnl.gov>, Bruce Warner <warner2@llnl.gov>,
Larry Ferderber <ferderber1@llnl.gov>, cochran5@llnl.gov,
Paul Ehlenbach <ehlenbach1@llnl.gov>, Linda Rakow <rakow1@llnl.gov>
From: George Miller <miller21@llnl.gov>
Subject: Fwd: Waste Treatment Plant

FYI. If you or any of your people are contacted, please let me know so we can respond in a coordinated way.

Regards, George

X-IronPort-Anti-Spam-Filtered: true
X-IronPort-Anti-Spam-Result:
AmYBAEyLu0vAZW0fkWdsb2JhbACBPpkyTBUBAQEBCQsKBxEFHbpiglUcghg

EgyQ
From: "Kluse, Michael" <mkluse@pnl.gov>
To: "Mason, Thom" <masont@ornl.gov>, George Miller <miller21@llnl.gov>,
Michael Anastasio <manastasio@lanl.gov>
CC: "Vasquez, Peggy S" <peggy.vasquez@pnl.gov>,
"Novich, Carolynn M"
<Carolynn.Novich@pnl.gov>
Date: Tue, 6 Apr 2010 19:29:39 -0700
Subject: Waste Treatment Plant
Thread-Topic: Waste Treatment Plant
Thread-Index: AcrV20yJc1h8CospSVaA9sbzZHQXKwAE0MjA
Accept-Language: en-US
acceptlanguage: en-US
Thom, Mike, George,

You are likely aware that the construction of the Waste Treatment Plant (the Vitrification Plant) on the Hanford Site is facing a number of project management and technical challenges. To be clear this is not a PNNL project. Bechtel is the prime contractor for DOE EM. Dan Lehman has assembled a project review team that has been involved with reviewing the project progress, identifying, problems, and making recommendations for improvement. The next Lehman review is scheduled for May 3-6 at Hanford.

One of my staff, Dale Knutson has been part of the Lehman team. Dale has been contacted by Steve Chu, Dan Poneman, and Mike Kane regarding recommendations for the path forward as well as identifying capabilities and talent across the national lab complex that could help meet the WTP challenges. It is likely that Dale will be asked to take on a leadership role (yet to be defined) perhaps as an IPA. Dale knows that there is talent at each of your labs that could also play major roles in the WTP plans going forward. I have been in discussions with Mike Kane at DOE HQ and have suggested that this time prior to the May Lehman review be used to understand and work the issues associated with accessing talent and capabilities from the national labs. Mike asked that I coordinate with you and begin to identify the issues and concerns we as Lab Directors will have in making staff available to help the WTP.

Since I've been thinking about this quite a bit, let me start by telling you that one of my top concerns is that while I'm willing to make selected PNNL staff available, there is no way that PNNL or Battelle as the operator of PNNL will assume any institutional responsibility or accountability for the WTP. This must remain squarely with DOE EM. Second, I've told Mike Kane that our respective Under Secretaries (Koonin, D'Agostino) need to be fully on board and make it clear to their respective Lab Directors that this project is of top priority and that we are expected to support requests for staff and that our support will be recognized and rewarded. Third, if our staff are put into IPA or detailee positions, they must be able to reach back to their home institutions to call on needed staff without any potential conflict of interest for them or for any of the labs. Fourth, because some staff could get consumed for long periods of time (potentially multiple years) the Lab Directors will need help in assimilating these staff back in to the labs when their WTP roles are completed. Fifth, the staff need to be fairly compensated for their commitment and extended travel as needed whether by the labs or directly by DOE. This could require non-standard approaches to compensation. Sixth, as Lab Directors we need to be in the loop regarding what staff are committed, for how long, and under what circumstances in light of other Lab and mission priorities. Seventh, all lab support is fully funded by EM--no gratis work.

These are just several top of mind items I've thought of, but I'd like to know others you may have

so that I can consolidate them and provide to Mike Kane.

I realize there are many unknowns and the devil is in the details of who may be requested, how much time is needed, the structure of assignments, etc. But I wanted to at least get you thinking about requests we may all be getting from the highest levels of DOE.

Feel free to send me a note or give me a call.

Thanks in advance.

Mike

Michael Kluse
Laboratory Director
Pacific Northwest National Laboratory
902 Battelle Boulevard
P.O. Box 999, MSIN K1-46
Richland, WA 99352 USA
Tel: 509-375-6614
Fax: 509-375-6844
mkluse@pnl.gov
www.*pnl.gov

Steve

From: Gay, William (URS)
Sent: Thu Apr 15 02:49:58 2010
To: Tamosaitis, Walter
Cc: Barnes, Steven M (WGI); Truax, John; Daniel, Russell
Subject: Non-Neutonian Tank Testing
Importance: Normal

I would appreciate if you would help in all ways possible to complete the testing required in the non-neutionan tanks (3). I am shooting to have everything lined up so when the array is ready, everything else has been staged. We strictly only need to show no accumulation not gas release. Helping to manage Dr Don would also be very helpful. The goal is to finish this testing in mid-May. Russell will be the Lead in that the Engineering is point. Your support is crucial in this effort.
Thank you,

William W. Gay III
Assistant Project Director
Quality, Safety & Operations

PH: 509.371.2389

From: Gay, William (URS)
Sent: Sat Apr 17 00:08:35 2010
To: Tamosaitis, Walter; Truax, John; Barnes, Steven M (WGI); French, Robert (WGI)
Subject: Non-Neutonian Tank Testing
Importance: Normal

I had a quiet meeting with Guy today and he is pleased that "we" are moving at WARP speed to set up for the non-neutonian tank testing **as a fall back position** if the white paper /analysis is unsuccessful. I told him that we should be ready to go NLT mid-May with only about 3 days of testing.

I have studied the Dr Don report and would like to have a brain storming session on Monday at Walt's call, where we decide what John needs from an array hardware standpoint to have immediately available , assuming the current non-neutonian array does not meet minimum expectations. I spent last night talking with Dickey so I have some ideas that are not hard to do and would not invalidate the previous testing. I would like to have this session completed before Walt flies on Tuesday and we loose him for the rest of the week. I have no reason to assume the current array won't work, it is just that we have no recovery time.

P.S> I have heard that 80% of the fee has now been attached to M3 closure on time. That makes it personal from a bonus standpoint for senior URS personnel. We need to nail this issue to the ground in mid May.

Walt, please set up the meeting and allow ample time. Please invite the right people.

We have lived this issue 7/24 since October 2,2009. Time for the Team to take it to the House!

Thank you,

William W. Gay III
Assistant Project Director
Quality, Safety & Operations

PH: 509.371.2389

Office of River Protection

PERFORMANCE EVALUATION AND MEASUREMENT PLAN (PEMP)

Volume I – Incentive B - Award Fee

DESIGN, CONSTRUCTION, AND COMMISSIONING OF THE HANFORD TANK WASTE TREATMENT & IMMOBILIZATION PLANT

CONTRACT NO. DE-AC27-01RV14136

Evaluation Period 2010-A

January 1, 2010 to June 30, 2010

Bechtel National, Inc.
Richland WA

Rev 1 – Effective April 19, 2010

Issued By:

Guy A. Girard
Federal Project Director, WTP
Fee Determination Official

Accepted By:

Frank Russo
Bechtel National, Inc.

needed changes to the PEMP for consideration by the PEB and FDO: and 4) maintain a performance dialogue with BNI Performance Measure owners throughout the evaluation period.

C. Process & Schedule

Activity No.	Activity	Footnote	# of Days From	Activity Number	Days from Beginning of Evaluation Period: From	To	Dates - Evaluation Period 2010-A: Start	Finish
1	Performance Evaluation Board (PEB) Appointed		0		-90	-90	10/03/09	10/03/09
2	DOE Generates Draft PEMP	1	75	1	-90	-60	10/03/09	11/02/09
3	Contractor Review Comments on Draft PEMP		75	2	-60	-45	11/02/09	11/17/09
4	HQ Approval - Business Clearance		60	3	-45	-30	11/17/09	12/02/09
5	Final PEMP Execution	2	15	4	-30	-15	12/02/09	12/17/09
6	FDO, PEB, and PEM Evaluate Performance		181	5	0	180	01/01/10	06/30/10
7	Contractor Self-Assessment (S/A)		10	6	180	190	06/30/10	07/10/10
8	PEM Submit Final Reports to PEB	3	10	7	190	198	07/10/10	07/18/10
9	PEB Completes Report		37	8	198	235	07/18/10	08/24/10
10	PEB Briefs FDO		7	9	235	242	08/24/10	08/31/10
11	FDO Determines Award Fee Amount	4	8	10	242	250	08/31/10	09/08/10
	Performance Period Begins							01/01/10

Footnotes:

1 Contractor is provided opportunity to review and comment
2 PEMP is executed unilaterally if parties cannot agree by beginning of evaluation period
3 PEM Reports are updated (if necessary) based on consideration of Contractor Self-Assessment
4 Fee payment made to Contractor seven days after receipt of fee invoice for approved FDO Award Fee Determination

The Contract will receive two separate Award Fee evaluation ratings – one rating for Incentive B.1 *Project Management Incentive* and one rating for Incentive B.2 *Cost Incentive*. Each rating is independently applied to the available Award Fee pool for that incentive element. The total available award fee for this Evaluation Period 2010-A is:

Incentive B.1 Award Fee – Project Management Incentive	$ 2,000,000
Incentive B.2 Award Fee – Cost Incentive	$ 4,300,000

DOE's expectation is that the Contractor will solve the External Flowsheet Review Team M3 Inadequate Mixing Issue no later than June 30, 2010. M3 is the most critical technical issue remaining on the project, and its resolution is vital to the WTP project schedule. Therefore, in the event the Contractor fails to achieve formal closure of M3 (as defined in 24590-WTP-PL-ENG-06-0013, Rev 3, Issue Response Plan for Implementation of External Flowsheet Review Team (EFRT) Recommendations – M3 Inadequate Mixing System Design; and further clarified in 24590-WTP-RPT-ENG-10-001, Rev 0, Integrated Pulse Jet Mixed Vessel Design and Control Strategy) by June 30, 2010, DOE reserves the right to reduce the available award fee for the PEMP 2010-A performance period by up to 80% prior to making the award fee determination. If a reduction is made as provided herein, the award fee determination (for the remaining award fee) shall be made in accordance with the PEMP 2010-A and resolution of M3 shall not be further considered in evaluating the Contractor's performance.

From: Russo, Frank M (WTP)
Sent: Monday, April 19, 2010 12:59 PM
To: Veirup, Anton
Subject: Re: WTP 2010-A Performance Evaluation and Measurement Plan (PEMP), Revision 1, Ready for BNI Signature

Accept

From: Veirup, Anton
To: Russo, Frank M (WTP)
Cc: Bradford, Richard; Futrell, Guy; Grover, Nicolina; Mayson, Elizabeth
Sent: Mon Apr 19 15:39:25 2010
Subject: FW: WTP 2010-A Performance Evaluation and Measurement Plan (PEMP), Revision 1, Ready for BNI Signature

Frank - Here is the latest PEMP "proposal" from ORP. If we don't make M3 by June 30, 80% of the fee pool for the period goes away.

100% of M3

Please let me know how you want me to respond.

thx,
tv

From: Champlain, George F [mailto:George_F_Champlain@RL.gov]
Sent: Monday, April 19, 2010 12:25 PM
To: Veirup, Anton
Cc: Dawson, Ronnie L; Girard, Guy A; Barrett, Michael K
Subject: WTP 2010-A Performance Evaluation and Measurement Plan (PEMP), Revision 1, Ready for BNI Signature
Importance: High

Tony,

Attached is the final version of the 2010-A PEMP, Revision 1, resulting from recent discussions between DOE and BNI, and other direction from DOE HQ. I've included a marked up copy with the changes (in yellow), a clean MS-Word document, and a .pdf copy.

There are several changes resulting from Revision 1:

1. The WTP FPD has been appointed as FDO.
2. A new Performance Evaluation Board Chair has been appointed.
3. Page 5, paragraph C. Process & Schedule: A paragraph has been added putting fee at risk if M3 is not formally closed by June 30, 2010.
4. The document has been updated to include the latest Performance Evaluation Monitor changes.
5. Attachment D has been updated to reflect actual fee earned in period 2009-B.

Please have Mr. Russo sign the cover page, and return the original to ORP AMD by Thursday April 22, 2010. Subsequent to the FDO signing the document, I will return one fully executed copy for your files.

Sincerely,
George Champlain
Contracting Officer
Acquisition Management Division
DOE Office of River Protection
(509)376-6678

From: Russo, Frank M (WTP)
Sent: Sun May 02 23:01:06 2010
To: 'ines.triay@em.doe.gov'
Subject: Re: CPR
Importance: Normal

We can get out of M3 if we are willing to take some risk. BNI with input from URS and PNNL and Dickey have put a paper together that is based on data (vs opinion) and would allow us to proceed on the non Newtonian side now. I told Greg I want other fluids experts to look at the paper this week. I believe it will provide the basis to proceed. It would require that we stand up to critics. It uses test data from here and SRS to deal with apparent viscocity questions.

Our answer to critics would be:

' the current design will safely perform. We have until 2016 to have TOC, us and others look at operational protocols to either improve how we operate before the non Newtonian vessels or how we manage within the vessels to manage apparent viscocity. We have spent over 600 million and 10 years studying this project (all issues) 147 million alone on non Newtonian fluids. Theories are inetresting but at this phase of the project, they are too expensive and disruptive to delay design. Study is fine for better understanding, but it must be off line/off project personnel. Hot commissioning of PT is 2018 cold 2016. BNI as design authority stands behind the science and engineering of the design. URS stands behind the operational capablilties. There is risk but more testing will not prove any more than we already know.

As soon as a I have the BNI paper vetted. Greg, Craig Mylar and I will take this position along with URS experts.
Frank

From: Triay, Ines <Ines.Triay@em.doe.gov>
To: Russo, Frank M (WTP)
Sent: Sun May 02 18:20:20 2010
Subject: RE: CPR

Great job by Kacich. Please let him know. The M3 issues are a serious problem Frank. Ines

From: Russo, Frank M (WTP) [mailto:frusso@Bechtel.com]
Sent: Friday, April 30, 2010 4:04 PM
To: Triay, Ines
Subject: CPR

Ines,

We are ready. Kacich has given them everything they could want and more.

M3 is closing on the Newtonian side. We still have issues on the recently resurected non Newtonian side. I asked my best science and engineering people to sit with ORP counterparts in a symposium type setting to work out disagreements without me or Guy in the room. If they have different positions after true understanding of the positions then they will document those differences very specifically and clearly. Then and only then can we make management decisions on path forward.

Hope you are well. I just heard that DNFSB language has been removed from HASC authorization.

From: Ashley, Gregory
Sent: Wed May 19 13:27:27 2010
To: Russo, Frank M (WTP)
Subject: Re: Shirley is trying to reach u
Importance: Normal

Frank, I talked to Shirley last night. She and Guy want us to work with TF to see what can be done to help close M3 (particularly) with new NN issues. Clearly they are concerned that Alexander and Gilbert are not going to back off of their issues. Told her we would engage with them this PM. Good news, they're with us. I'll talk to you when I get in this PM.

Sent from my BlackBerry Wireless Device

----- Original Message -----
From: Russo, Frank M (WTP)
To: Ashley, Gregory
Sent: Tue May 18 20:28:39 2010
Subject: Shirley is trying to reach u
Says its important. 8 30 pm your time.

From: Ogilvie, J
Sent: Wed May 19 18:13:51 2010
To: Rocha, Michael; Russo, Frank M (WTP)
Cc: Walker, David
Subject: Re: CPR
Importance: Normal

Mike,
What are we going to do with the extra 45mm in 2011?
I saw your note that this will address the 4 month schedule issue (at least get it started) but can you specify the additional activities or purchases that we will perform in 2011 with the extra 45mm ?

From: Rocha, Michael
To: Russo, Frank M (WTP); Ogilvie, J
Sent: Fri May 07 16:19:33 2010
Subject: RE: CPR

Below is the proposed funding profile which we looked at with construction to recover the 4 months of schedule we slipped based on the funding profile guidance received by DOE. This profile allows for craft ramp up in FY11 with continued ramp up in FY12, which the DOE provided profile did not accommodate.
Attached is a comparison of the profile presented to the CPR team this week and the proposed profile.
<<Proposed Profile.xls>>
Please let me know if you need any additional information
Regards,

Mike Rocha
Vit Plant
Manager of Project Controls
371-2144
430-8229 (Cell)
mfrocha@bechtel.com

From: Russo, Frank M (WTP)
Sent: Friday, May 07, 2010 12:47 PM
To: Ogilvie, J
Cc: Rocha, Michael
Subject: RE: CPR
Yes...Michael, send Scott the analysis asap.

From: Ogilvie, J
Sent: Friday, May 07, 2010 12:45 PM
To: Russo, Frank M (WTP)
Subject: RE: CPR
Very nice!
Do you have my number for 2012?

See below.

From: Ashley, Gregory
To: Russo, Frank M (WTP)
Cc: Robinson, Michael K (WTP)
Sent: Sat May 22 23:37:37 2010
Subject: M3 Briefing Paper

Frank,
Just went through another round of edits to the briefing paper. It is going back to tech pubs for revision. We won't have a final draft out tonight. We are convening at 7AM tomorrow at Sterlings for final review/edit. Targeting final draft by 9AM. You are welcome to joins us at Sterlings if you want. If not, we will send to you around 9AM.

Greg Ashley, P.E.
WTP Technical Director
(509) 371-3418
(509) 420-3394 cell
(509) 371-3506 fax
grashley@bechtel.com

From: Olinger, Shirley J
Sent: Sun May 23 16:28:03 2010
To: Russo, Frank M (WTP)
Cc: Ashley, Gregory
Subject: Re: M3 Briefing Paper
Importance: Normal

Pls ensure Chuck and Rutland support this position too. You know I do.
Txs! Sjo

From: Russo, Frank M (WTP) <frusso@Bechtel.com>
To: Olinger, Shirley J
Cc: Ashley, Gregory <grashley@Bechtel.com>
Sent: Sun May 23 09:25:50 2010
Subject: Re: M3 Briefing Paper

PNNL has been running for the hills. I have asked Scott to call Jeff Wadsworth CEO of Battelle to push him. Also, we have SRNL (EM lab) working on a position of support for our position.

We also did an illustrative run in 4 ft tank that does not support the ZOI theory some of your folks believe. Rob witnessed it.

Our position is threefold...
1) Condition will not exist
2) Even if it did, heal removal and Rheology control would manage it within parameters of mission
3) As design authority, we are done with M3. Design will meet objectives with reasonable risk. If DOE wants, we would support TOC doing some additional work to understand protocols for Rheology control and operational techniques for heal control.

Greg, please issue paper. It will get better with SJO input.

Frank

Frank

From: Olinger, Shirley J <Shirley_J_Olinger@RL.gov>
To: Russo, Frank M (WTP)
Sent: Sun May 23 12:13:00 2010
Subject: Re: M3 Briefing Paper

I'll look it over @ 9am. Have you been able to get PNNL mgmt to support a position?
Txs! Sjo

From: Russo, Frank M (WTP) <frusso@Bechtel.com>
To: Olinger, Shirley J
Sent: Sun May 23 09:09:56 2010
Subject: Fw: M3 Briefing Paper

From: Russo, Frank M (WTP)
Sent: Mon May 24 02:29:20 2010
To: Ogilvie, J
Subject: Re: M3 Testing and Heel Dilution Strategy Update WhitePaper
Importance: Normal

I will send you a short brief tomorrow. Basic point. PNNL did all non Newtonian testing in 2005 and 2006. 147 mil for this work alone. Now they are not sure they got it right. Maybe, but more tests would be a good thing. I don't thing so and neither does URS or Ashley.

From: Ogilvie, J
To: Russo, Frank M (WTP); Walker, David
Cc: Ashley, Gregory
Sent: Sun May 23 21:55:13 2010
Subject: Re: M3 Testing and Heel Dilution Strategy Update WhitePaper

Frank , I have the general gist of the subject but it would be helpful if you could give a couple of specifics /talking points for when I see Wadsworth in about two weeks or so.

From: Russo, Frank M (WTP)
To: Ogilvie, J; Walker, David
Cc: Ashley, Gregory
Sent: Sun May 23 21:02:41 2010
Subject: Fw: M3 Testing and Heel Dilution Strategy Update WhitePaper

Fyi. I advised Leo today that he needs to sign off on this. He will. SRNL will also sign off in a week or so. PNNL is running to the hills after over 200 million to Battelle and PNNL for research. May be time to calibrate Wadsworth on the concept of standing behind their work.

Frank

From: French, Robert (WGI)
To: French, Robert (WGI); 'leo.sain@wgint.com' <leo.sain@wgint.com>; 'kent.fortenberry@wgint.com' < kent.fortenberry@wgint.com>
Cc: Gay, William (URS); Russo, Frank M (WTP); Hayes, Dennis; Wells, Kenneth R (WTP); Matis, George (WTP)
Sent: Sun May 23 13:55:40 2010
Subject: RE: M3 Testing and Heel Dilution Strategy Update WhitePaper

All
Here is what we just provided to Shirley Olinger for sending along to Ines...due to our short fuse in putting it together it has not been through ANY ORP collaboration during development...so there is some chance they may decide to not actually forward it or desire further distribution.
<<INES TRIAY Brief 5_24_10 v005.pdf>>
Thx
Bob French
WTP Deputy Plant Operations Manager
(509) 420-6267

From: Walker, David
Sent: Wed May 26 02:00:24 2010
To: Ogilvie, J; Russo, Frank M (WTP)
Subject: Re: wtp
Importance: Normal

Do not know about Papay. I got it back door from Sandra. She had no insight

---

From: Ogilvie, J
To: Russo, Frank M (WTP)
Cc: Walker, David
Sent: Tue May 25 19:44:12 2010
Subject: wtp

I just got an earful from Ines.....we should talk before your meeting.

Issues: tech panel, M3 closure, HPAV, more help for you!

She we will be happy about Larry Papay.....how did that end up working out?

From: Russo, Frank M (WTP)
Sent: Tue May 25 19:57:08 2010
To: Ogilvie, J; Walker, David
Cc: St Julian, Joseph M
Subject: Re: Ines
Importance: Normal

I see her tomorrow night at 5:30. Will discuss the new subcommittee and how she expects us to interact. We can treat it like a Citizen advisory board aka ...they could be useful if managed. Also, I will continue to push the need for Bernie to be involved. Finally, how does she now view Governance model we discussed.

Also want her real feelings about Dale K and his direct line to Poneman.

Then will discuss my and Leo visit with DNFSB. Path forward on M3 and HPAV

You need to know that BNI is recommending closure of M3. Newtonian all passed testing and is on schedule for 6/30 paperwork complete. We made our case on nonNewtonian and have support of URS at tank farm and SRNL. May need PNNL as well and that is where we may need your help with Wadsworth. I will work it with Dale first then see if we need you big guns.

Frank

From: Ogilvie, J
To: Russo, Frank M (WTP); Walker, David
Cc: St Julian, Joseph M
Sent: Tue May 25 15:09:26 2010
Subject: Ines

Guys,

I have a general call into Ines.....anything I need to be aware of?

To: Knutson, Dale E
Cc: Girard, Guy A
Sent: Tue May 25 17:25:11 2010
Subject: FW: WTP 5/24/10 EM-1 Briefing Slides
Dale,
This is the briefing and position paper that BNI was going to present to Ines this week to reach a decision on M3 (vessel mixing). Guy had requested that Ines engage in helping to understand the risk. Guy's engineering staff disagree with BNI's position and Guy recommended that Ines receive this briefing before a final federal decision is made. I support BNI's recommendation that allows moving forward without additional testing.

Let me know if you would like to reevaluate this decision before we raise it to Ines.
Txs, Shirley

Shirley J. Olinger
Ph: 509-372-3062
Cell: 509-539-3229
From: French, Robert (WGI) [mailto:rffrench@bechtel.com]
Sent: Monday, May 24, 2010 12:22 PM
To: Olinger, Shirley J; Girard, Guy A
Cc: Robinson, Michael K (WTP); Ashley, Gregory; Russo, Frank M (WTP)
Subject: WTP 5/24/10 EM-1 Briefing Slides

Mike Robinson asked I send these to you.
<<EM-1 5-24-10r3.pdf>>
Thx
Bob French
WTP Deputy Plant Operations Manager
(509) 420-6267

From: Olinger, Shirley J
Sent: Wed May 26 01:01:56 2010
To: Russo, Frank M (WTP)
Subject: FW: WTP 5/24/10 EM-1 Briefing Slides
Importance: Normal

fyi

Shirley J. Olinger
Ph: 509-372-3062
Cell: 509-539-3229
From: Olinger, Shirley J
Sent: Tuesday, May 25, 2010 5:46 PM
To: Knutson, Dale E
Cc: Girard, Guy A
Subject: RE: WTP 5/24/10 EM-1 Briefing Slides

I support this position based on discussions with TF contractor and good idea to get SRNL's take since they have years of experience supporting DWPF. Will let Ines know we will wait until SRNL indep validation is completed.
Txs, sjo

Shirley J. Olinger
Ph: 509-372-3062
Cell: 509-539-3229
From: Knutson, Dale E [mailto:dale.knutson@pnl.gov]
Sent: Tuesday, May 25, 2010 5:37 PM
To: Olinger, Shirley J
Cc: Girard, Guy A
Subject: Re: WTP 5/24/10 EM-1 Briefing Slides

I reviewed this today and asked Frank Russo what he has done to address "assurance" on these conclusions. His response was to conduct a chief engineers review independent of the project team and have a secondary independent validation check performed by Savannah River (not complete yet). I believe that upon receiving the Savannah River results we would have sufficient basis to make the call and move on. I do not believe we need more research on this topic - just clarity on operational constraints the solution may introduce.

Two cents

Dale

From: Olinger, Shirley J

From: Olinger, Shirley J
Sent: Wed May 26 14:20:11 2010
To: Russo, Frank M (WTP)
Subject: Re: VTC
Importance: Normal

Great! Sjo

From: Russo, Frank M (WTP) <frusso@Bechtel.com>
To: Olinger, Shirley J
Sent: Wed May 26 07:18:17 2010
Subject: Re: VTC

That will happen. Just hung up from call with Paul Deason, Lab director. He was on my team at LLNL. He and his scientist seem comfortable with our position.

From: Olinger, Shirley J <Shirley_J_Olinger@RL.gov>
To: Russo, Frank M (WTP)
Cc: Tornow, Betty
Sent: Wed May 26 10:09:57 2010
Subject: Re: VTC

Yes I agree and once SRNL agrees w/your technical position that we can move on.
Txs! Sjo

From: Russo, Frank M (WTP) <frusso@Bechtel.com>
To: Olinger, Shirley J
Cc: Tornow, Betty <BTORNOW@Bechtel.com>
Sent: Wed May 26 07:02:35 2010
Subject: VTC

I understand that HQ wants to delay M3 VTC. I think we should delay. I think Dale's preference is to put onus on BNI (good if factual) and I will know more after today's meetings with DNFSB and Ines.

If you agree, let's delay.

Frank

From: Russo, Frank M (WTP)
Sent: Sat May 29 21:50:01 2010
To: 'dae.chung@em.doe.gov'
Subject: Re: WTP
Importance: Normal

Meeting was good. I came by your office Wednesday afternoon but you were out. We have a path forward on M3. We will get SRNL on board and Ogilvie will tell Wadsworth (CEO of Battelle) that after over 200 mil to PNNL and Battelle they damn well better be on board. Before that card is played, I will talk with Dale. That would be easier. We also told DNFSB that our M3 plan is defense in depth with heal dilute/extract as depth and cold commissioning as assurance. We will go see them before 6/30 to get Peter, Jack and Jessie. Will try for Brown and Joe as well. I think we can get enough acceptance, that we can close M3 and let TOC do some additional work to help plan cold commissioning.

Enjoy your weekend

Frank

----- Original Message -----

From: Chung, Dae <Dae.Chung@em.doe.gov>

To: Russo, Frank M (WTP)

Sent: Sat May 29 14:17:36 2010

Subject: WTP

Frank,

How was your mtg with the dnfsb?

Are we going forward with M-3 - were you able to get PNNL buy-in? Thanks.

From: Ogilvie, J
Sent: Fri Jun 11 17:28:38 2010
To: Russo, Frank M (WTP)
Subject: Re: Checking in
Importance: Normal

Wadsworth appreciated the feedback.....and definitely got it.

From: Russo, Frank M (WTP)
To: Ogilvie, J
Sent: Fri Jun 11 13:27:26 2010
Subject: Re: Checking in

Thanks.

From: Ogilvie, J
To: Russo, Frank M (WTP); Walker, David
Cc: Weaver, Craig
Sent: Fri Jun 11 13:23:29 2010
Subject: Re: Checking in

Good!
BTW, I spoke to Jeff Wadsworth (batelle) on monday. Gave him the background and told him we need pnnl support not individual backtracking.

From: Russo, Frank M (WTP)
To: Ogilvie, J; Walker, David
Cc: Weaver, Craig
Sent: Fri Jun 11 13:17:43 2010
Subject: Re: Checking in

Myler was just on VTC with project and SRNL non newtonian review team. He is doing WTP work. I have a meeting with Ashely Monday (after Poneman visit) to discuss his and Craigs travel.

From: Ogilvie, J
To: Russo, Frank M (WTP); Walker, David
Cc: Weaver, Craig
Sent: Fri Jun 11 13:04:30 2010
Subject: Re: Checking in

I just saw Craig Myler walk by my window so you need to really make sure he's working WTP.

Thanks for the update. I agree with your last point.
If you have time I'll give u a call when I'm heading home.
Scott

From: Meyer, Perry A
Sent: Fri Jun 11 16:04:03 2010
To: Tamosaitis, Walter
Subject: Re: IMPORTANT -- Clarification
Importance: High

Thanks for the head's up- No call from him
Do you know when they are delivering their findings?
Perry

On 6/10/10 4:34 PM, "Tamosaitis, Walter" <wltamosa@bechtel.com> wrote:
Perry-
I ran into Bill and he started talking about how
the scaling for non-Newtonian tanks had changed.
I tried to explain it to him and then sent him
this. He is overwhelmed with all the info he has
heard.
Anyway, if he calls you, you will know why.

Your buddy--
W
-----Original Message-----
From: Tamosaitis, Walter
Sent: Thursday, June 10, 2010 3:14 PM
To: 'bill.wilmarth@srnl.doe.gov'
Subject: IMPORTANT -- Clarification
Importance: High
Bill-
The equation of Perry's you showed me is for settling solids in a
non-Newtonian AFTER you scale the yield
stress. This is his theoretical approach. It has
yet to be proven. He and Art Etchells discussed it.
So for a non-Newtonian with no settling solids, to get equal cavern
height you scale the PJM velocity using an exponent of zero (factor of
1),ie, velocity at small scale = velocity at full scale.
For a non-Newtonian with settling solids you would scale the yield
stress as he indicates and then scale the velocity using .33.
Got all that!?! I suggest getting him back if your team is confused.
W
-----Original Message-----
From: Meyer, Perry A [mailto:perry.meyer@pnl.gov]
Sent: Thursday, May 20, 2010 7:56 AM
To: Tamosaitis, Walter; Damerow, Frederick (WGI); Truax, John; Barnes,
Steven M (WGI)

Cc: Kurath, Dean E; Minette, Michael J
Subject: Re: Non-Newtonian Test Recs

On 5/20/10 7:54 AM, "Meyer, Perry A" <perry.meyer@pnl.gov> wrote:
> Attached is the draft letter on non-Newtonian scaling for you review
> prior to the meeting.
> Thanks,
> Perry
>
> ------ Original Appointment
>
> From: wltamosa@bechtel.com
>
> When: 11:30 AM - 12:30 PM May 20, 2010
> Subject: Updated: Non-Newtonian Test Recs
> Location: MPF Lobby
>
> Time change due to conflict brother Meyer has.
>
>
>
> ------ End Of Original Appointment
>

From: Edwards, Richard E (WGI)
Sent: Wed Jun 16 18:00:37 2010
To: Robinson, Michael K (WTP); Gay, William (URS)
Cc: Ashley, Gregory
Subject: RE: Latest PNNL Draft
Importance: Normal

Based on my discussions with Greg, below is the note I plan to sent to Walt to document our direction relative to this issue. Need any comments ASAP.

Walt,

I want to be sure that if we are receiving it we follow our project review process for receiving technical reports from suppliers based on the scope of work we provided to them. I also want to be sure we are not spending money for something we don't need. We have a basis for the non-Newtonian work in the testing that was performed, the vessel analysis and process control analysis that was performed, and now the results and recommendations of the independent review team. This should be sufficient basis for closure w/o the need for more testing and negates the need for the subject document from PNNL. At this point, the project direction is to receive the draft letter report with no further work from PNNL. The project will review the PNNL draft letter report.

Richard

-----Original Message-----

From: Robinson, Michael K (WTP)

Sent: Tuesday, June 15, 2010 3:20 PM

To: Edwards, Richard E (WGI); Ashley, Gregory

Subject: FW: Latest PNNL Draft

This is what I sent to Bill. Mike

-----Original Message-----

From: Robinson, Michael K (WTP)

Sent: Tuesday, June 15, 2010 1:53 PM

To: Gay, William (URS)

Subject: FW: Latest PNNL Draft

Bill, attached is a draft of the PNNL study to support potential Non Newtonian testing. Please read the last paragraph carefully....as I read it, we asked them to help up put together a test plan and they provided us with a document that says we can't provide you what you want without additional testing and data. As far as I am concerned we wasted our money and should not spend any more to get a final report....your thoughts?? Mike

-----Original Message-----

From: Edwards, Richard E (WGI)

Sent: Monday, June 14, 2010 3:27 PM

To: Robinson, Michael K (WTP)

Subject: FW: Latest PNNL Draft

I have read it. Russell has read it. If issued to us it will cause significant problems with the current Newtonian vessels.

-----Original Message-----

From: Edwards, Richard E (WGI)

Sent: Monday, June 14, 2010 1:50 PM
To: Robinson, Michael K (WTP); Kuhlen, Phillip; Daniel, Russell
Subject: FW: Latest PNNL Draft

I have not ready the latest version, but I assume from Walt's remarks below that PNNL has a different view on Poreh.

-----Original Message-----
From: Tamosaitis, Walter
Sent: Monday, June 14, 2010 10:17 AM
To: Edwards, Richard E (WGI)
Subject: Latest PNNL Draft
Attached is the latest. Sorry for sending you the wrong one. This has PNNLs view on Poreh in it.
Again, this report represents their thoughts on HLP-27 testing should we have to do it.
We can get Perry over here to discuss it if you want.
W

From: Edwards, Richard E (WGI)
Sent: Wed Jun 16 21:38:46 2010
To: Robinson, Michael K (WTP); Gay, William (URS); Ashley, Gregory
Subject: Fw: Latest PNNL Draft
Importance: Normal

Fyi.
----- Original Message -----
From: Tamosaitis, Walter
To: Edwards, Richard E (WGI)
Sent: Wed Jun 16 17:30:32 2010
Subject: RE: Latest PNNL Draft
10-4. This was not for M3 closure.
No testing or further work is planned.
W
-----Original Message-----
From: Edwards, Richard E (WGI)
Sent: Wednesday, June 16, 2010 2:26 PM
To: Tamosaitis, Walter
Subject: RE: Latest PNNL Draft

Walt,
I want to be sure that if we are receiving it we follow our project review process for receiving technical reports from suppliers based on the scope of work we provided to them. I also want to be sure we are not spending money for something we don't need. We have a basis for the non-Newtonian work in the testing that was performed, the vessel analysis and process control analysis that was performed, and now the results and recommendations of the independent review team. This should be sufficient basis for closure w/o the need for more testing and negates the need for the subject document from PNNL. At this point, the project direction is to receive the draft letter report with no further work from PNNL at this time. The project will review the PNNL draft letter report.
Richard

Richard Edwards
Chief Process Engineering Manager
Process Engineering & Technology Department Waste Treatment Plant (WTP) Project
MPF.2.E221
MS4-E2
office: 509-371-3579
cell: 509-392-9506

-----Original Message-----
From: Tamosaitis, Walter
Sent: Tuesday, June 15, 2010 8:37 AM
To: Edwards, Richard E (WGI)
Subject: RE: Latest PNNL Draft
Richard-
This sounds a bit like: "I don't like what it says so it shouldn't be issued". Certainly that is not the message. That

would not sit well with many. I don't think you want your name associated with that.

Gay asked that we prepare for a HLP-27 NN test.

PNNL was chartered to give us input on all aspects.
That is what they have done. We (WTP) can choose to do what we want with it as Engr has with Dickey's report.
What they put into vessel assessments is up to Engr.
Also, the opinions (I don't think they are opinions) are no different than those expressed by Keuhlen et al, in his writeup on NN testing. He has "no" data at all to support that paper so it is essentially extrapolation and opinion.

Let's discuss.

W

-----Original Message-----

From: Edwards, Richard E (WGI)

Sent: Tuesday, June 15, 2010 8:06 AM

To: Tamosaitis, Walter

Subject: Re: Latest PNNL Draft

This will need to be reviewed by the project prior to issue, this is especially important If we keep the recently added sections with opinions that I mentioned below. At this point I don't see a reason to spend the money to review and issue it.

----- Original Message -----

From: Tamosaitis, Walter

To: Edwards, Richard E (WGI)

Sent: Mon Jun 14 19:48:33 2010

Subject: Re: Latest PNNL Draft

Yes. Who knows what the future will hold. It also confirms the NN testing.

----- Original Message -----

From: Edwards, Richard E (WGI)

To: Tamosaitis, Walter

Sent: Mon Jun 14 18:22:04 2010
Subject: RE: Latest PNNL Draft

This newer version has a lot of "opinions" about items on the current Newtonian program including scaling bottom clearing and scaling pump down.
Given that we don't intend to do additional testing of the non-Newtonian vessels under Newtonian fluid conditions, why do we still need this letter analysis from PNNL ?

-----Original Message-----

From: Tamosaitis, Walter

Sent: Monday, June 14, 2010 10:17 AM

To: Edwards, Richard E (WGI)
Subject: Latest PNNL Draft
Attached is the latest. Sorry for sending you the wrong one. This has PNNLs view on Poreh in it.
Again, this report represents their thoughts on HLP-27 testing should we have to do it.
We can get Perry over here to discuss it if you want.
W

From: Graves, William (WTP)
Sent: Mon Jun 14 15:31:29 2010
To: Edwards, Richard E (WGI)
Cc: Hazen, Haukur R; Tamosaitis, Walter
Subject: RE: Non-Newtonian Vessel Scaling | Perry Meyer draft
Importance: Normal

Richard,

Walt has the draft and will respond to you.

Bill

Wm. L. (Bill) Graves, Jr.

WTP R&T Subcontract Coordinator

Phone (509) 371-3363 Cell 430-2204

mailto:wlgraves@bechtel.com

From: Edwards, Richard E (WGI)
Sent: Saturday, June 12, 2010 10:30 AM
To: Barnes, Steven M (WGI); Hazen, Haukur R
Cc: Tamosaitis, Walter; Robinson, Michael K (WTP); Daniel, Russell
Subject: Non-Newtonian Vessel Scaling
Importance: High

Steve / Hazen,

During the non-Newtonian Vessel Independent Review Team meetings last week, we asked Perry Meyer of PNNL to answer questions that the team had concerning the non-Newtonian vessel scaling done by PNNL in report WTP-RPT-113 issued in March 2005. Perry answered their concerns but also provided a partial draft of a "letter" that appears to be addressed to WTP, specifically, Mr Hazen. The draft letter from Perry maintains, consistent with WTP-RPT-113, that for non-Newtonian vessel scaling and for the scale factors of interest to us, testing at a smaller scale with 12 m/s (WTP design velocity) is conservative with respect to full scale. But the draft letter also, was trying to improve the scaling correlations related to H/D and yield reynolds number.

A couple of questions:

A) Has this letter been provided officially to WTP ?

B) Are we paying for this work or is Perry doing this on his own nickel ?

C) Do we have any doubts with the statement "testing at a smaller scale with 12 m/s (WTP design velocity) is conservative with respect to full scale" for the non-Newtonian range of operation ?

D) Do we believe an improved scaling correlation is necessary to support vessel assessments for the non-Newtonian range of operation ?

For questions C&D, I am only asking about non-Newtonian operation in the range of 6Pa to 30Pa yield stress.

Thanks,

Richard

From: Tamosaitis, Walter
Sent: Tue Jun 15 22:34:26 2010
To: 'Meyer, Perry A'
Cc: Damerow, Frederick (WGI)
Subject: FW: HLP27 letter
Importance: Normal
Attachments: RPP-MOA-PNNL-00507 scaling draft_rev2.doc

The letter with my changes. No tech items.
My changes are aimed at smoothing.
If you are OK with it, mod it, and issue.
W

-----Original Message-----
From: Meyer, Perry A [mailto:perry.meyer@pnl.gov]
Sent: Tuesday, June 15, 2010 12:23 PM
To: Kurath, Dean E; Minette, Michael J; Tamosaitis, Walter; Damerow, Frederick (WGI); Barnes, Steven M (WGI)
Subject: HLP27 letter

Letter attached
Please provide final comments- I'll then take care of them, remove the disclaimer, and get it issued as soon as possible which should be today
I have meetings for the next couple of hours so I won't see email
Perry

Scaling "Bottom Clearing"

As part of this review, ~~the WTP organization requested that we look at~~ bottom clearing scaling was reviewed to ~~and~~ determine if the current scaling approaches used during the phase 2 Newtonian PJM testing would be applicable to the proposed n~~N~~on-Newtonian testing. This was reviewed because the prior non-Newtonian testing did not include off bottom suspension of settling particles. Also, non-Newtonian materials exhibit both a yield stress and shear strength which are not present in Newtonian materials.

The WTP M3 Test Program has utilized a "bottom clearing" mixing mode for testing with non-cohesive simulants. In this mode, individual jets (or small groups of jets) are operated to create clearing patterns on the bottom of the vessel. A velocity scale exponent of 0.18 has been used for these tests. Using a scale-up exponent of 0.18 allows the PJMs to be operated at higher velocity in the small-scale test vessel than using a value of 0.33, thus improving the observed clearing behavior.

~~If the project wishes to~~ For determining ~~examine~~ bottom clearing velocities, we suggest the ~~same~~ scaling approach presented previously in this letter, that is, ~~r. Namely,~~ the use of ~~by using~~ a velocity scale-up exponent of 0.33 together with a properly scaled yield stress. This approach will result in a lower scaled test nozzle velocity and the results will be more conservative than if a scale up exponent of 0.18 is used. Even with this approach caution is in order and marginal mixing results should be avoided due to uncertainty with how the "bottom clearing" phenomenon scales.

Our primary concern is that use of the 0.18 scale exponent for "bottom clearing" could lead to non-conservative test results. The basis of these concerns are outlined here:

The origin of the 0.18 scale-up exponent is apparently the work of Poreh (1967), who measured the floor shear stress from a high-speed air jet impinging normally to a flat plate as a function of jet velocity, nozzle diameter, and radial distance. The tests where carried out for a fairly small range of jet Reynolds numbers. The data were then correlated non-dimensionally. From this correlation, for a given jet velocity and nozzle size, the floor shear stress versus radial distance can be obtained. By performing the thought experiment of equating the floor shear stress to a "critical bed shear stress" of a sediment, one can estimate the zone of influence (ZOI) of a thin solids layer of a given critical shear stress for erosion. When this is done, it is found that the velocity must scale up with an exponent of 0.18 to achieve the same ZOI/d.

We are concerned about the applicability of the Poreh correlation to bottom clearing in PJM-mixed vessels with Hanford waste for the following reasons:

- The Poreh data was generated from ~~only applies to~~ steady-state clearing patterns. Many of the conditions in M3 testing suggest transient clearing patterns. The scale-up of the transient clearing is unanalyzed.
- The data are from ~~re only applicable to~~ normal jet impingement on~~with~~ a flat surface. The PJM jets include angled and normal impingement. ~~do not generally impinge normal for the vessel bottom.~~

This preliminary data is provided at BNI's request. Since PNNL has not performed the required technical and QA reviews, this data is provided as advanced, unverified information.

- The data are~~-~~ derived from ~~only applicable to~~ Newtonian fluid (air) jets. The effect of significant solids loadings and and/or non-Newtonian rheology can ~~greatly~~ impact the floor shear stress.
- The applicability of a floor-shear/ critical shear stress type model developed from single-phase measurements is limited to the incipient motion of thin solids layers.
- The applicability of the model appears generally ~~is~~ limited to uniform thickness solids layers. With PJM operation, each jet (or group of jets) pushes solids near adjacent jets (forming sludge banks), setting a new initial condition for each ~~once these~~ jets operatione.
- The ~~applicability of the~~ model appears generally to apply ~~is limited~~ to situations where there is no solids deposition/refill~~settling back~~ into the cleared area between or during pulses. M3 tests with broad particle size distributions have continued deposition during jet operation.
- The model does not address temporal cohesive effects of the settled sediment layer. Actual waste, once settled between pulses, will develop a shear strength that increases with time. While this shear strength may be small, even a small amount of cohesion can affect the off-bottom suspension characteristics of the sediment, and hence affect the ZOI. Since small scale testing involves much shorter re-fill times, full-scale operation ~~will likely~~ may exhibit larger cohesive forces in the settled layers.

In addition to the limitations previously stated, there is also a question regarding the value of the scale-up exponent obtained by Poreh. A similar correlation presented in Rajaratman (1976) gives a scale-up exponent of 0.37. Also, a correlation of the MCE Annex test data reported in Thomson (2010) gives a scale-up exponent in the range of ~ 0.9 – 1.0 (see Attachment 2). While this value appears exceedingly high, it further brings into question the use of 0.18 for bottom clearing.

Hence, given the uncertainty in published values of floor shear stress scale dependence, the assumption that the fluidic mechanisms of movement and particle lift can be clearly separated, and the limitations of applying fluid-only jet results to the solid/liquid flows in the WTP vessels, the use of a ~~a~~ scale-up exponent of 0.18 for "bottom clearing" observations is not recommended, however, we understand that other information may exist that when combined could support the use of the 0.18 exponent. ~~,~~Due to the complexities associated with non-Newtonian material testing, w~~W~~e suggest using the ~~same~~ scaling approach presented previously in this letter; a velocity scale-up exponent of 0.33 together with a scaled (reduced) yield stress.

From: Tamosaitis, Walter
Sent: Thu Jun 17 20:05:57 2010
To: Edwards, Richard E (WGI); Robinson, Michael K (WTP)
Cc: Damerow, Frederick (WGI); Graves, William (WTP); Truax, John; Barnes, Steven M (WGI)
Subject: PNNL NN Test Considerations Letter
Importance: Normal

Even though we heavily edited this letter and I feel it would be viewed as only one opinion on complex subject, I have asked PNNL to hold it and not issue it pending the determination of the NN test. The letter contains info we need for a NN test such as how to scale the yield stress and what rheology levels should be tested. If we go forward with the test, we can then have it issued as we really don't need it until then.
W

From: Robinson, Michael K (WTP)
Sent: Thu Jun 17 16:35:24 2010
To: French, Robert (WGI); Daniel, Russell; Barnes, Steven M (WGI); Keuhlen, Phillip; Duncan, Garth M; Tamosaitis, Walter
Cc: Edwards, Richard E (WGI); Ashley, Gregory; Russo, Frank M (WTP); Gay, William (URS)
Subject: FW: Friday meeting re: M3
Importance: Normal

As you can see from the email below we are going to have to make a presentation to ORP/Contractor Senior Management on our status of M-3 and why we should be able to close it. Everyone should start thinking of the key points we want to make and discuss. We'll schedule a meeting later to start developing. thanks, Mike....send this to anyone I missed.

From: Russo, Frank M (WTP)
Sent: Thursday, June 17, 2010 9:15 AM
To: Ashley, Gregory; Robinson, Michael K (WTP)
Cc: Tornow, Betty
Subject: FW: Friday meeting re: M3

We need to meet on this.....We will have to present our position on M3 next week. Fee is in play in a big way. We can recommend scale test. It is outside of M3. Let's meet tomorrow or Monday the latest.

From: Knutson, Dale E [mailto:Dale_E_Knutson@RL.gov]
Sent: Thursday, June 17, 2010 9:06 AM
To: Olinger, Shirley J
Cc: Noyes, Delmar L; Brown, Thomas M; Klein, Keith A; Russo, Frank M (WTP)
Subject: Friday meeting re: M3

Hi Shirley,

Finally had a chance to close with Frank this morning regarding your question to me on BNI's readiness to discuss an M3 technical recommendation tomorrow. Frank and I both agree that we are not ready for tomorrow but that early next week would be appropriate (Tues/wed). If we can reschedule accordingly that would be helpful

Sorry for the delay

Dale

From: Knutson, Dale E
Sent: Mon Jun 21 16:01:47 2010
To: Russo, Frank M (WTP); Chung, Dae
Cc: Ogilvie, J; Ashley, Gregory; Walker, David; Triay, Ines
Subject: RE: M3
Importance: Normal

Hi Dae,
I appreciate the proactive questions and response from Frank. There have been a significant series of conversations and technical interchanges taking place regarding this topic. To date, these interchanges have been singular meetings that address discrete technical topics. When we see the fully integrated package from BNI/URS and have a chance to agree with the conclusions and the integrated thoughts regarding this approach we will be in a position to agree or disagree with the finished product. While I personally think Frank is dead on, we have yet to see the integrated solution set. Until we do, decisions and discussions by email need to remain focused on status and information exchange to prevent misperceptions and misunderstandings.
Thanks for your help in keeping all the pieces moving in one direction.
Dale

-----Original Message-----
From: Russo, Frank M (WTP) [mailto:frusso@Bechtel.com]
Sent: Monday, June 21, 2010 8:42 AM
To: Chung, Dae
Cc: Ogilvie, J; Ashley, Gregory; Walker, David; Knutson, Dale E; Triay, Ines
Subject: RE: M3
Good morning Dae,
Newtonian vessels analyses are complete and we have received ORP comments on all of the Newtonian vessels. We are closing these comments from ORP and will complete Newtonian paperwork before 6/30. We will close M 3 on or before 6/30.
The revisited Non Newtonian questions are also wrapped up from BNI/URS perspective as Design Authority. We have a report from SNRL that recommends that we use the ample capabilities of the WTP process to never allow our Non Newtonian vessels to go to into a Newtonian condition. SRNL's operating experience is clear that by controlling rheology we never come close to the shearing event that some predict. DWPF has comparable rheology controls to WTP and the SRNL team is very comfortable holding yield stress above 6 pascals. They strongly recommended that our operating requirement stay at or above 6 pascal. We agree with this position.
Also, although PPNL (Mike Kluse and Terry Walton) has not stayed current with recent non newtonian events, Mike Kluse has asked Walton to get up to speed this week and they see no reason why they would disagree with the SRNL rheology argument. We expect a positive or at worst a neutral position by PNNL on non newtonian and they have agreed to work directly with Greg Ashley and the TOC to document operating protocols to control

rheology in the feed and plant.
The BNI/URS design authority position is that Non Newtonian needs to be bound with a lower value of 6 pascal and that we will have the operating protocols to maintain that yield stress. Those protocols are known and understood. Under that control, non newtonian will also re-close next week even though it was previously closed several years ago.
The only remaining academic issue is 'scale up'. While we expect some resistance on non newtonian reclosure, we expect significant angst regarding scale up for newtonian conditions. (Remember the 2004 testing for non newtonian was already at half scale). Our engineers and scientists do not believe newtonian scale up is necessary. However, in anticipation of scale testing being the next area of concern by external regulators, we are evaluating 4 future options for a scale test.
Ashley is certain that doing an integrated scale test with truly representative simulants will demonstrate that WTP vessels mix better than the M3 closure documentation demonstrates. This because all newtonian simulants were conservative and it was this conservatism that drove the non newtonian debate.
Scale testing is currently being evaluated under 4 scenario's....option 1...during cold commissioning use a commission protocal that proves mixing. This is our preferred option but may be deemed too late by those who will demand proof before the plant is completed. Option 2.... Using the 10' tank that was used for previous non newtonian testing in 2004. We still have this vessel. This would generate a 3rd scale data point (bench, 4' and 10') but again may leave skeptics with questions that would only be answered at full scale 3) setting up a test with a UFP vessel before installation. We can do this test at the site before we install the vessel. This would probably satisfy all parties and fully answer internal geometry questions that scale testing answers but not to everyone's (external groups) satisfaction. 4) Using TOC physical assets to run a scale up test.
Again, BNI/URS does not think this is necessary to complete the design and construction. We will therefore proceed with final design and construction without additional testing. However, a scale up could be useful to future plant operators understanding of the control system processes and protocols for rheology control and batch mixing management.
Our confidence is such that we would not start any of this scale testing for at least a year. It will take that long to agree on simulants and test protocols and to work with TOC to set up the required test stand. There is no scenario with appropriate rheology control in which vessels internals would change as a result of a scale test. The results would simply establish the operating conditions that would require use of heal dilution and or removal capabilities that we now building into the

plant.
Frank

-----Original Message-----
From: Chung, Dae [mailto:Dae.Chung@em.doe.gov]
Sent: Monday, June 21, 2010 5:25 AM
To: Russo, Frank M (WTP)
Cc: Ogilvie, J
Subject: Re: M3
Frank,
Any update to this... What is the 6/30 outlook for M3 closure? Thanks.
Dae
----- Original Message -----
From: Russo, Frank M (WTP) <frusso@Bechtel.com>
To: Chung, Dae
Cc: Ogilvie, J <sogilvie@Bechtel.com>
Sent: Tue Jun 08 10:44:52 2010
Subject: RE: M3
Dae,
We have made our case within BNI and URS and have Bechtel Fellow Craig Mylar (Bechtel corporate Fellow) and Tom Patterson endorsement. This week an independent review team is at WTP to also endorse the position. This is the visit that has the DNFSB staff so interested. We have already worked this visit through Paul Deason who is SRNL lab director. This team is led by SRNL and has representatives from ORNL, LANS, Dupont and INL. PNNL is not on the team. I have met with Knudson on this obvious absence and I have a meeting scheduled with Mike Kluse today to ensure that PNNL understands that we now need to benefit of the 10 years of study and $200 million of intellectual investment that we have made with this local national lab. Dale (while needing to recluse himself) understood the need.
Also, now that we have Dale's knowledge and right after my Kluse meeting, Scott is standing by to discuss this with Wadsworth, CEO of Battelle. We decided to wait until I worked the subject with Dale and Kluse. As I mentioned in the past, when Kluse wrote his letter to the other lab directors, he seemed not to be fully aware of just how much WFO his lab has completed for WTP. Before Scott has to take the issue to Wadsworth, we want PNNL local leadership to have already concluded that PNNL endorsement is the appropriate outcome of 10 years of effort.
Frank
-----Original Message-----
From: Chung, Dae [mailto:Dae.Chung@em.doe.gov]
Sent: Tuesday, June 08, 2010 5:53 AM

To: Russo, Frank M (WTP)
Cc: Ogilvie, J
Subject: M3
Frank,
Have you made the case for M3 with sufficient endorsement from PNNL?
Thx,
Dae

From: Meyer, Perry A
Sent: Tue Jun 22 19:12:03 2010
To: Tamosaitis, Walter
Cc: Kurath, Dean E; Minette, Michael J
Subject: HLP27 Potential Testing Recommendations
Importance: Normal
Attachments: RPP-MOA-PNNL-00507.doc

Walt,

The final version of the letter is attached. A signed copy will be formally transmitted later today or tomorrow.

Thanks for the opportunity to provide this input on the potential testing.

Perry

From: Tamosaitis, Walter
Sent: Thu Jun 24 13:42:01 2010
To: Gay, William (URS)
Subject: Re: Tech Issues
Importance: Normal

Will do. Again the 2010 items are in draft (rough-rough) form. Will be better by next week. Tks.

W

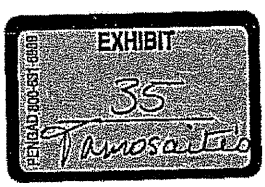
From: Gay, William (URS)
To: Tamosaitis, Walter
Sent: Wed Jun 23 19:30:22 2010
Subject: RE: Tech Issues

Walt,that is quite a list you sent me of loose ends. I would appreciate if you could come see me next week for two hours and we go down the list. Some of my questions will be:
1.The items that have a Prime Owner-do they agree and is it in a tracking system under their name?
2.What does the symbols under "Status" mean?
3.What does High Priority mean?
Thank you for providing the list,

William W. Gay III
Assistant Project Director
Quality, Safety & Operations

PH: 509.371.2389

From: Tamosaitis, Walter
Sent: Tuesday, June 22, 2010 1:50 PM
To: Pegram, Linda (WGI); Gay, William (URS)
Subject: Tech Issues
Bill -
Attached is a draft of the revised issues list that you discussed in your staff meeting. The 2010 issues were identified in this year's meeting and the ones below are from last year. It gives you an idea of tech issues that may exist.
Thought you might want to look at it as you think about startup and commissioning and do planning. There is a lot that can be done to improve our startup performance and fee making capability.
Linda - pls print this out in large enough font so that it is readable.
Bill - You only need to look at **columns C, D, and E** to get an idea. The other columns are numbering and details.
Tks.
Walt



BNI00085992

<< File: Pot Task List 2010 June 22.xls >>

June XX, 2010

Ms. Shirley Olinger, Manager
U.S. Department of Energy
Office of River Protection
P.O. Box 450 MSIN: H6-60
2440 Stevens Center Place
Richland, WA 99354

RE: CRESP Review Team Letter Report 7

Dear Ms. Olinger:

The CRESP Review Team[1] for issues related to the Waste Treatment Plant (WTP) has been asked to provide on-going support to the Department of Energy (DOE) Office of River Protection (ORP) through review of the technical resolution by DOE and its contractors of several of the External Flowsheet Review Team (EFRT) major issues. This letter report addresses the EFRT issue M-3 Pulse Jet Mixer (PJM) performance, stated as

> "Issues were identified related to mixing system designs that will result in insufficient mixing and/or extended mixing times. These issues include a design basis that discounts the effects of large particles and of rapidly settling Newtonian slurries. There is also insufficient testing of the selected designs." *Comprehensive Review of the Hanford Waste Treatment Plant Flowsheet and Throughput*, CCN 132846, Page v. (See CCN 132846 for a complete presentation of the issue.)

The scope of this review is to evaluate responses to the EFRT M-3 and related pulse jet mixing concerns with respect to closure of M-3, remaining uncertainties and risks, and recommendations for future actions to reduce uncertainties and risks.

The M-3 closure criteria have been defined by ORP as (24590-WTP-PL-ENG-06-0013, Rev 003):

1. PJM vessel mixing requirements are currently documented in 24590-WTP-ES-PET-08-002 (*Determination of Mixing Requirements for Pulse-Jet-Mixed Vessels in the Waste Treatment Plant*). The PJM vessel mixing requirements are updated following completion of the PJM technology testing and analysis program required to support closure of EFRT Issue M-3, Inadequate PJM Mixing.

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during a DBE, "The top layer is a gas-saturated Newtonian layer, where gases generated in the liquid layer are assumed to be released into the headspace and swept away by the headspace purge/exhaust. 'Any gas found in the liquid waste is considered transient and is not considered as trapped or retained gas'". This neglects the possibility that gas can be trapped on small particles (micron to sub micron) that remain in suspension during a DBE. It is possible that bubbles can attach to the surfaces and even create enough buoyancy to maintain the particles in suspension.

Criterion 9 (10)
There is considerable concern that the basis for scale-up has not been validated with near full-scale testing using a vessel configuration prototypic of WTP vessels, nor over the operating range of any single vessel (See Appendices C and F).

Furthermore, there is considerable concern about the sampling procedure used to monitor the process and the ability to use these samples for process control (HLP-27A).

Summary and Overall Evaluation

Overall, the Review team recognizes the substantial progress that DOE and BNI have made in understanding PJM vessel performance since the CRESP Letter Report 6 (December 2009). Furthermore, WTP represents a first of a kind application of PJM vessels because of the vessel size and waste characteristics. There are several important PJM vessel design uncertainties and definitions of operating requirements that remain, including revision of the criticality controls, validation of scale-up relationships for PJM zone of influence, integrated validation of vessel performance, recovery from a DBE, and viable sampling strategies that result in PJM vessel performance and programmatic risks. The greatest risk is that the actual ZOI during WTP operations is smaller than predicted by the current design basis and therefore solids accumulation may require more frequent cleanout than predicted. Experimental programs that validate scaling relationships for the ZOI and the integrated vessel performance at full-scale or near full-scale systems are needed. However, none of these uncertainties fundamentally indicate that WTP will not function provided that there is enough flexibility in PJM operation, although resolution of these issues may result in the pretreatment process operating at lower waste throughput rates than currently projected.

We hope you find these comments helpful in your evaluation and are available to discuss any questions you may have regarding this review.

Sincerely,

CRESP team signatures (Kosson, Gekler, Powell, Sandler)

Attachments: Appendices A-F [Appendix A is not included with the FAR Draft]

Pacific Northwest
NATIONAL LABORATORY
Tel: (509) 375-4373
Fax: (509) 375-2550
gordon.beeman@pnl.gov

June 25, 2010

Mr. Haukur R. Hazen
Bechtel National Inc.
2435 Stevens Center Place, MSIN: H4-02
Richland, WA 99352

WTP/RPP-MOA-PNNL-00507

Dear Mr. Hazen:

Subcontract No. 24590-QL-HC9-WA49-00001, Project No. 55753 (WA-028) Test Considerations for the Potential Engineering-Scale HLP-27 Test

The purpose of this letter is to summarize some key factors to be considered for the potential engineering scale HLP-27 testing in support of the M3 PJM program. The review was performed at the basic research quality assurance technology level.

Introduction

As requested by BNI-PETD-R&T, this letter provides guidance on testing considerations for the potential engineering-scale testing of vessel HLP-27. At the time of this request it is not known if this testing will be required. However, in preparation for that potential testing, this review comments on simulants, scaling, air sparging, test protocol, and test measurements. Also, the scaling of mixing with cohesive, settling slurries that exhibit both a Bingham plastic-type non-Newtonian rheology and larger particles that can stratify or settle under the force of gravity is reviewed. The scaling basis of the previous non-Newtonian Test Program (2003-2005) is reviewed and updated. Phase 1 results from the M3 Test Program for mixing non-cohesive solids are reviewed and applied to the current problem. A brief discussion of air sparger scaling is also presented. Also included are recommendations for scaling "bottom clearing" and pump-down in the potential tests.

Basics of Scaled Testing with Pulse Jet Mixers

Scaled testing should employ geometric similarity for all key mixing system features. With geometric similarity, all important length scales, L, are reduced by the scale factor, SF in the test-scale model:

$$SF = L_L/L_S \quad (1)$$

where the subscripts S and L refer to small-scale and large-scale respectively. Additionally, scaled testing should employ kinematic similarity. For pulse jet mixing, this implies that the pulse volume fraction (PVF) and duty cycle (DC) are the same in both test-scale and full-scale. These are defined as follows:

$$PVF = V_p/V_{ref} \quad V_{ref} = \pi/4D^3 \quad (2)$$

$$DC = t_D/t_C \quad (3)$$

where V_p is the total pulse volume, V_{ref} is the vessel reference volume, D is the vessel diameter, t_D is the pulse drive time, and t_C is the pulse cycle time.

By matching these two parameters irrespective of the jet velocity, kinematic similarity will be preserved.

Scaled testing should also employ appropriate dynamic scaling. By appropriate, we mean the important or dominant dynamic processes. Strict dynamic similarity is rarely achievable because of multiple forces involved and practical limitations on the physical properties of test materials. The following sections propose a method for addressing the important dynamic processes.

Scaled Testing with Non-Settling, Non-Newtonian Slurries

An extensive test program for the mixing of non-Newtonian non-settling materials was conducted for WTP in 2003-2005. The WTP Non-Newtonian Test Program established a conservative scaling basis for testing PJM systems with non-settling, non-Newtonian slurries (Bamberger 2005). Non-settling non-Newtonian slurries represent one important idealized limiting rheological behavior of Hanford waste at higher concentrations. By non-settling, we mean that actual settling rates are very slow compared to any important mixing or process time scale.

The test program established that for Bingham plastic rheology, the yield Reynolds number (or yield number) was the important dynamic similarity parameter governing slurry mobilization and mixing cavern formation. The yield Reynolds number is defined as:

$$Re_\tau = \frac{\rho u^2}{\tau} \tag{4}$$

where ρ is the slurry density, τ is the yield stress (or shear strength), and u is the jet velocity.

The program demonstrated that conservative test results would be obtained in small-scale testing if the yield Reynolds number was held constant:

$$Re_{\tau S} = Re_{\tau L} \tag{5}$$

If the fluid density and yield stress were also constant, then the conservative scale law became:

$$u_S = u_L \tag{6}$$

The reason Eq. (6) gives conservative results is that the jet Reynolds number is greater at large scale, and the corresponding increase in turbulence intensity results in greater mixing (greater slurry mobilization and/or increased cavern size). The jet Reynolds number is given by

$$Re_d = \frac{\rho u d}{k} \tag{7}$$

where k is the infinite shear consistency and d is the nozzle diameter.

This effect was experimentally verified by testing a 4-PJM configuration at three different test scales with two different simulants. Figure 1 shows central mixing cavern height of the central up-well

versus yield Reynolds number measured in the three vessels for laponite simulant (Bamberger et al 2005). From the curve fits of the data it can be seen that the cavern size increases with test scale.

From the data shown in Figure 1, as well as measurements of up-well velocity and surface "breakthrough," it was established that the constant yield Reynolds number approach to small scale tests provided conservative results. To explicitly demonstrate the magnitude of the conservatism, the test data shown in Figure 1 can be correlated with both yield Reynolds number and jet Reynolds number to obtain

$$H_c/D = 0.083 Re_\tau^{0.37} Re_d^{0.07} - 0.56 \quad R^2 = 0.86 \tag{8}$$

For constant H_c/D Eq. (8) gives the following scale relation

$$Re_\tau Re_d^{0.19} = \text{constant} \tag{9}$$

or

$$Re_{\tau S} = Re_{\tau L} (Re_{dL}/Re_{dS})^{0.19} \tag{10}$$

For constant slurry properties Eq. (10) becomes

$$u_S/u_L = SF^{0.09} \tag{11}$$

The original work conservatively assumed that for equal cavern height in non-settling, non-Newtonian materials, the exponent in Equation 11 would be 0, giving the equivalent of Eq. (6). The exponent of 0.09 provided by this analysis demonstrates the degree of conservatism in jet velocity used in the prior scaled testing. For example, with a scale factor of ~7 (the nominal value for vessel HLP-27 tested in the MCE 43-inch vessel) and design velocity of 12m/s, Eq. (11) suggests that test-scale velocity should be about 14.3 m/s. Hence by testing at 12m/s [using Eq. (6)] a conservatism of approximately 20% in velocity was maintained.

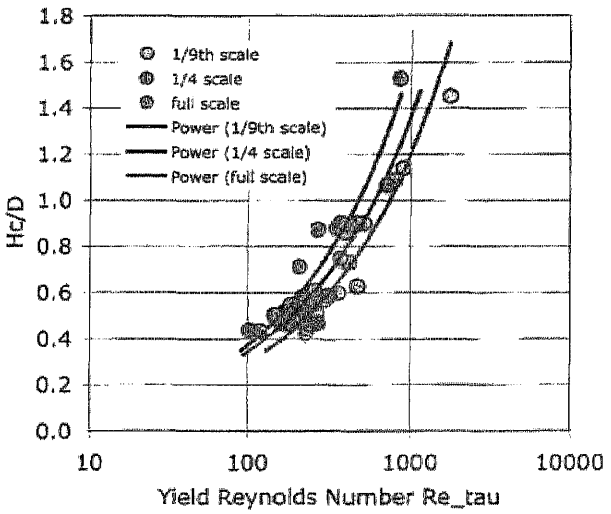

Figure 1. Cavern Height Versus Yield Reynolds Number for Tests at Three Scales

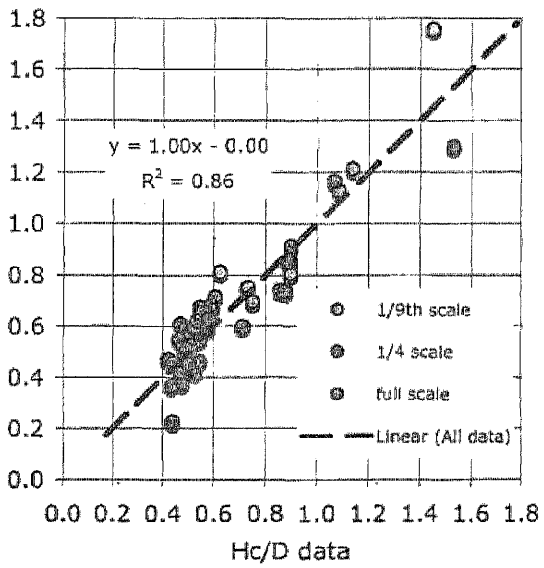

Figure 2. Correlation of Cavern Height Given by Eq. (8) Compared with Data.

Scaled Testing with Settling, non-Cohesive Slurries

In addition to non-Newtonian behavior, Hanford waste can also exhibit gravitational settling behavior. The WTP M3 Phase 1 Test Program established a scaling basis for testing PJM systems with Newtonian, settling slurries (Meyer 2009). Settling Newtonian slurries represent another important idealized limiting behavior of Hanford waste at lower solids concentrations. For Newtonian settling behavior, particle sizes and densities are important, as are agglomerated particle characteristics.

Parametric testing at three scales with various geometries, operational parameters, and particle properties established that the gravitational settling number (or power number) was an approximate dynamic similarity parameter governing particle off-bottom suspension and vertical solids distribution[1]. The settling number is defined as:

$$N_s = \frac{u^3}{(s-1)g\phi_s D u_t} \tag{12}$$

where s is the solid/liquid density ratio, g is the gravitational constant, ϕ_s is the solids volume fraction, D is the vessel diameter, and u_t is the settling velocity of the particles. The settling ratio represents one measure of the power input to the vessel relative to power dissipated by gravitational settling[2].

The program demonstrated that similar test results would be obtained in small-scale testing if the settling number was held constant:

$$N_{sS} = N_{sL} \tag{13}$$

For constant slurry properties, Eq. (13) provides a scale-law for velocity:

$$u_S / u_L = SF^{-\alpha} \quad \alpha = 0.33 \tag{14}$$

The scaling given by Eq. (13) was extensively used by the WTP for testing in the later phases of the M3 Test Program. The M-3 Phase 1 Test Program established a best-fit value for the scale-up exponent $\alpha = 0.28 \pm 0.05$ for measurement of off-bottom suspension with non-cohesive simulants. Hence Eq. (13) is consistent with the upper bound of what was measured. However, there is some indication that the absence of prototypic PJM refill may have resulted in a reduction in the value of scale-up exponents. The impact of this non-prototypic refill on PJM performance and scale-up exponents is discussed in Meyer (2010). The potential impact of non-prototypic PJM operation on scale up exponents has not been tested.

Additionally, for solids vertical distribution (specifically maximum solids cloud height), the Phase 1 testing found $\alpha = 0.33$ is reasonable for velocities near (at or slightly above) the off-bottom

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1 Data for off-bottom suspension and solids cloud height were correlated by various means. The settling parameter approximately represents the measured behavior.

2 A more complete form of the settling number is presented in Meyer (2009) in Eq. (7.28) which accounts for pulsation and the number and size of the pulse jets.

suspension value. However, to obtain equal cloud heights across different test scales, an $\alpha = 0.5$ is a reasonably conservative value for scaling velocities.

Scaled Testing with Cohesive, Settling Slurries

Real waste generally exhibits both gravitational settling and non-Newtonian behavior. Both behaviors may be important, especially if mixing system designs allow significant solids stratification within a vessel. The previous testing with non-Newtonian materials and non-cohesive gravitational settling slurries involved different scaling approaches in order to match the important dynamic processes. This section addresses a scaling methodology for mixing problems where both non-Newtonian and gravitational processes are important.

For non-Newtonian mixing, the conservative scale law was derived from Eq. (5) which requires the yield Reynolds number be maintained at both scales. For gravitational settling, the scale law was provided by Eq. (13) which requires the settling number be maintained at both scales.

For the mixed non-Newtonian, settling problem, it is reasonable to require both constant yield Reynolds number and settling number. Mathematically, Eq. (5) and Eq. (13) can be solved simultaneously only if the slurry properties are allowed to change. In principle this could involve changing any combination of consistency, particle density, settling velocity, or yield stress. Allowing the yield stress to change is a straightforward choice since the previous non-Newtonian test program established that yield stress and jet velocity were essentially interchangeable.

Allowing for the yield stress to be scaled, Eq. (5) and (14) results in the:

$$u_S / u_L = SF^{-\alpha} \qquad \alpha = 0.33$$

$$\tau_S / \tau_L = SF^{-(1-\alpha)} \qquad 1-\alpha = 0.67 \tag{15}$$

The scaling in Eq. (15) assumes the settling velocities are the same at both scales. Although little is known about actual particle settling velocities in non-Newtonian slurries, in general one expects the settling velocity to be a function of the yield stress (Tabuteau 2007) and consistency. However, by reducing the yield stress (while holding consistency constant[3]) at small scale, the settling velocity would increase which should result in a slight conservatism in small-scale testing.

Table 1 provides examples of how full-scale yield stress values would be reduced at small scale assuming a geometric scale factor $SF = 7$. The corresponding test-scale jet velocity corresponding to a full-scale value of 12m/s is 6.3m/s.

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[3] An alternative approach to constant consistency involves scaling the consistency to keep particle Reynolds number (based on particle size and settling velocity) constant. However, it is then necessary to scale the particle in order maintain similarity. Keeping the consistency constant and using a scale law for velocity and yield stress is more consistent with the generally accepted empirical scaling approach, and adds a degree of conservatism in that settling velocities should be slightly higher than full-scale values.

Table 1. Examples of Scaled Yield Stress Values for SF = 7 and α = 0.33

Full-scale yield stress (Pa)	1	2	5	10	15	20	25	30	50	100
Test-scale yield stress (Pa)	0.27	0.55	1.4	2.7	4.1	5.5	6.8	8.2	13.7	27.3

Scaling Air Spargers

Scaling recommendations for air-sparger operation for the scaled HLP-27 testing will be provided in a separate letter report (Rassat 2010). A few notes on sparge scaling are presented here.

The bulk mixing induced by air sparging has two main components. First, the sparge bubbles themselves rise through the lower jet-mixing cavern into the otherwise stagnant material in the upper part of the vessel. The rising gas in this "region of bubbles" (ROB) yields this upper material and keeps it in a state of agitation. Further away from the ROB is a "zone of influence" (ZOI) where laminar down-flow exists where fluid and entrained particles are moved downward. Hence, the spargers, to a certain degree, act like individual air-lift circulators.

In terms of particle transport, the primary transport mechanism is in the wake of the bubble which is a region of fluid which transports vertically with the bubble. Material around the bubble is merely displaced as the bubble passes by. Hence the sparge bubbles in principle can improve the vertical distribution of solids. However, the direct effect of the sparge bubbles on off-bottom suspension is thought to be small, with possibly minor local effects near the sparge nozzles.

The scaling of air spargers is intrinsically nonlinear and the principle of geometric similarity is not practical to apply as the sparge tubes and individual air flow rates become very small. A reasonable approach to sparge scaling involves attempting to match the superficial air flow rate (sparge flow rate per unit area) while reducing the number of sparge tubes. Because of sparge bubble expansion, the superficial air velocity in the full-scale vessel varies by about a factor of two from the bottom of the vessel (at the sparge nozzles) to the waste surface. Hence it is reasonable to match some vessel-average superficial velocity. One reasonable average is that which corresponds to the same sparge power per unit volume. The sparge power is the power associated with the expanding gas bubbles, which is very much larger than the power associated with kinetic energy of the air jets. A derivation of sparge power per unit volume is shown in Attachment 1 of this letter report. For nominal conditions, the analysis suggests that equal power per volume is achieved when the superficial velocity in the test-scale (at sparger depth) is about 30% higher than in plant. A more conservative scaling approach is to match the superficial air velocity at the sparge tube outlet. This approach results in the lowest air flow rate in the scaled test vessel.

Given the dissimilarities with sparge scaling it would be prudent to vary air flow rates within a range to determine the sensitivity of observed solids behavior.

Approach to Simulants

Actual waste can exhibit both Newtonian gravitational settling behavior and non-Newtonian rheology. In general, non-Newtonian effects depend on concentration in a nonlinear way. Gravitational effects cause solids to stratify, increasing the concentration in the lower part of the vessel. Hence it is possible, if not likely, that a gradient in yield stress occurs. This state is illustrated in Figure 3. Generally, the dependence of yield stress on concentration is nonlinear, so that a linear

concentration gradient results in a nonlinear yield stress gradient, with potentially large values of yield stress at high concentration.

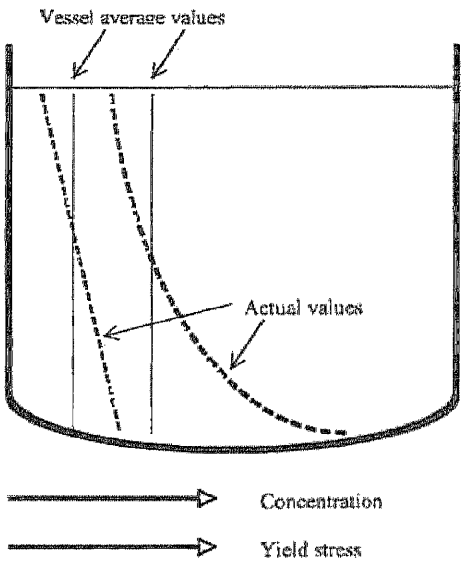

Figure 3. Illustrating a Yield Stress Gradient Due to Gravitational Effects (solids stratification)

Ideal simulants used in testing would have the following characteristics:

- Some of the solids readily settle under the effects of gravity. This would be the case for a mixed state, also possibly for an unmixed suspension consistent with observations of actual waste behavior.
- The increase in yield stress as a function of solids concentration is strongly nonlinear. This is illustrated in Figure 4.

This type of settling, cohesive behavior is not well understood, and a significant developmental activity would likely be required to achieve properties consistent with observed Hanford waste behavior.

A simpler surrogate for a settling cohesive slurry involves the use of solid particles mixed with clay slurries. The clay slurry is essentially non-settling, and provides the non-Newtonian rheology. The particles are large enough to settle. Whether a mixture of cohesive clay and non-cohesive particles exhibit sufficient non-linear yield stress dependence on concentration is not clear. Caution is in order if these types of simulants are used exclusively for testing.

In designing a simple clay/particle simulant that represents actual waste, there must be a basis for determining the concentration of settling solids. An approximate way of determining the fraction of settled solids is to consider the design basis particle size distribution of actual waste. This is

illustrated in Figure 5. Particles less than a certain cut-off size (or size-density combination) are presumed to be non-settling, contributing only to non-Newtonian rheology. Particles above the cut-off are considered to be non-cohesive. The actual cut-off size is imprecise, but a value in the range 5-10 microns is probably reasonable. The concentration of non-cohesive particles is the fraction of particles above the cut-off size multiplied by the total solids fraction. For 20wt% total solids, typical values[4] would be on the order of 10wt% total non-cohesive solids, with the remaining 10wt% replaced with clay. The concentration of clay would be freely adjusted to achieve the desired rheology.

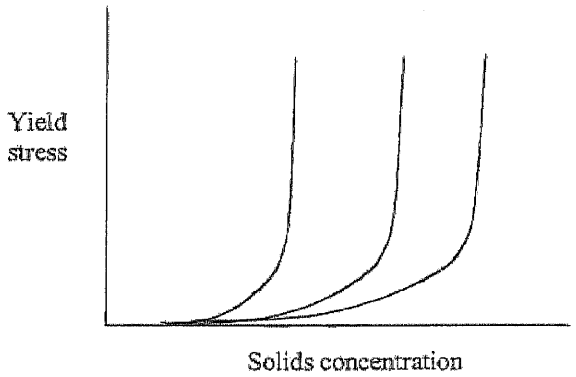

Figure 4. Illustrating Strongly Non-Linear Dependence of Solids Concentration on Yield Stress. The knee in the curves shown can occur at different concentrations and is waste-type dependent.

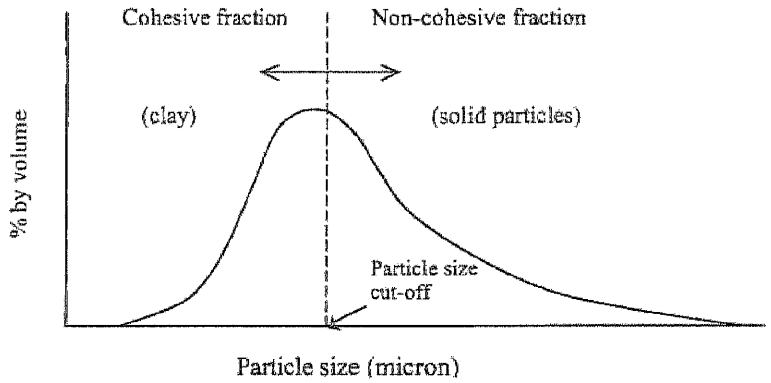

Figure 5. Illustrating a Particle Size Cut-Off for Determining the Concentration of Settling Solids in a Clay/Particle Simulant

Scaling "Bottom Clearing"

The WTP M3 Test Program has utilized a "bottom clearing" mixing mode for testing with particulate simulants. In this mode, individual jets (or small groups of jets) are operated to create clearing patterns on the bottom of the vessel. A velocity scale exponent of 0.18 has been used for

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4 Based on a typical Hanford waste PSDD where $d_{50} = \sim 6$ microns.

these tests. Using a scale-up exponent of 0.18 allows the PJMs to be operated at higher velocity in the small-scale test vessel than using a value of 0.33, thus improving the observed clearing behavior.

As part of this review, the scaling approach for "bottom clearing" used for the phase 2 Newtonian PJM testing was evaluated to determine if it would be applicable to the proposed testing for HLP-27.

For determining bottom-clearing velocities, we suggest the scaling approach presented previously in this letter, that is, the use of a velocity scale-up exponent of 0.33 combined with a properly scaled yield stress. This approach will result in a lower scale test nozzle velocity and the results will be more conservative than if a scale up exponent of 0.18 is used. Even with this approach caution is in order and marginal mixing results should be avoided due to uncertainty with how the "bottom clearing" phenomenon scales.

Our primary concern is that use of the 0.18 scale exponent for "bottom clearing" could lead to non-conservative test results for tests in HLP-27. The basis of these concerns is outlined here:

The origin of the 0.18 scale-up exponent is apparently derived from the work of Poreh (1967), who measured the floor shear stress from a high-speed air jet impinging normally to a flat plate as a function of jet velocity, nozzle diameter, and radial distance. The tests where carried out for a fairly small range of jet Reynolds numbers. The data were then correlated non-dimensionally. From this correlation, for a given jet velocity and nozzle size, the floor shear stress versus radial distance can be obtained. By performing the thought experiment of equating the floor shear stress to a "critical bed shear stress" of a sediment, one can estimate the zone of influence (ZOI) of a thin solids layer of a given critical shear stress for erosion. When this is done, it is found that the velocity must scale up with an exponent of 0.18 to achieve the same ZOI/d.

We are concerned about the applicability of the Poreh correlation to bottom clearing in PJM-mixed vessels with Hanford waste for the following reasons:

- The Poreh data was generated from steady-state clearing patterns. Many of the conditions in M3 testing suggest transient clearing patterns. The scale-up of the transient clearing is unanalyzed.
- The data are from normal jet impingement on a flat surface. The PJM jets include angled and normal impingement on curved surfaces.
- The data are derived from Newtonian fluid (air) jets. The effect of significant solids loadings and/or non-Newtonian rheology can impact the jet turbulence structure and subsequently the floor shear stress.
- The floor shear/critical shear stress type model developed from single-phase measurements is limited to the incipient motion of thin solids layers. How it applies to thicker solids layers is unclear. Also, the applicability of the model appears generally limited to uniform thickness solids layers. With PJM operation, each jet (or group of jets) pushes solids near adjacent jets (forming sludge banks or mounds), setting a new initial condition for each subsequent jets operation.

- The model generally applies to situations where there is no solids deposition into the cleared area between or during pulses. M3 tests with broad particle size distributions have continued deposition during jet operation, and the jet itself is particle laden.
- The model does not address temporal cohesive effects of the settled sediment layer. Actual waste, once settled between pulses, will develop a shear strength that increases with time. While this shear strength may be small, even a small amount of cohesion can affect the off-bottom suspension characteristics of the sediment, and hence affect the ZOI. Since small scale testing involves much shorter re-fill times, full-scale operation may exhibit larger cohesive forces in the settled layers.

In addition to the limitations previously stated, there is also a question regarding the value of the scale-up exponent obtained by Poreh. A similar correlation presented in Rajaratnam (1976) gives a scale-up exponent of 0.37. Also, the Mid-Columbia Engineering (MCE) Annex test data reported in Thomson (2010) appears to exhibit a different scaling[5].

Therefore, given the uncertainties associated with applying fluid-only steady jet results to unsteady solid/liquid flows in the WTP vessels, the use of a scale-up exponent of 0.18 for "bottom clearing" observations is not recommended for testing cohesive, settling slurries in HLP-27. We suggest using the scaling approach presented previously in this letter; a velocity scale-up exponent of 0.33 together with a scaled (reduced) yield stress.

Scaling Pump-Down

PJMs operate at higher velocity at low fill levels. Consequently, the project has utilized lower tank levels in MCE testing and achieved acceptable mixing performance that may not be achieved at full vessel levels. As part of this review, we looked at scaling of transfer systems to determine if the current scaling approaches used during the phase 2 Newtonian PJM testing would be applicable to the proposed testing.

While pump-down appears straightforward, upon examining the matter we believe the scaling of pump-down for unsteady jet mixing is quite complex, and much more difficult than previously envisioned by the project. Ideally one must match vertical and temporal concentration gradients, suction Froude number, deposition and suspension velocities, as well as kinematic conditions (vessel turnover). Not only is it not possible to match all the important processes, it is not clear which processes, if any, dominate the scaling.

Given these complexities in scaling pump-down solids removal, a straightforward scale law for the suction inlet conditions cannot be determined without a focused effort based on testing. In the absence of actual scale-up data for the pump-down problem, a parametric approach is recommended whereby the suction inlet conditions (velocity and diameter) are varied. By collecting solids removal data for these conditions, it may be possible to find suction inlet conditions that can be presented as conservative for the small-scale tests. In the absence of such data and supporting argument, test results involving pump-down should be used with caution.

---

5 We recommend the project re-examine the ZOI scale-up behavior in the MCE ANEX testing. Our brief analysis of this data set is available to the project upon request.

The following is additional detail on some of the issues related to pump-down scaling:

Solids vertical distribution: If the solids vertical distribution is different in the test scale than in the plant scale, pump-down test results will also be different. Phase 1 of the M3 Test Program found considerable uncertainty in the scale-up of solids peak cloud height, which is an indicator of solids vertical distribution. Also, it was shown in Meyer (2010) that time-averaged solids vertical distributions scale inconsistently. Additionally, the time-varying concentration profiles are important to the pump-down operation, and little is known about how these scale. Hence there is considerable uncertainty in pump-down results associated with solids vertical distribution.

Non-isokinetic sampling effects: There is a large body of literature related to the isokinetic sampling problem. In general, it is found that the solids concentration in a sample line differs from the local solids concentration in the vessel due to kinematic effects associated with particle trajectories relative to fluid trajectories. The suction line in the PJM vessels will have a bias relative to the time-averaged concentration. How this bias changes with scale is important. Ideally for steady mixing, by keeping the ratio of suction velocity to settling velocity the same, the isokinetc bias should be the same at both scales. It is not clear if this result holds for sampling from an unsteady solids concentration field.

Suction Froude number. Dynamic scaling of the suction requires the suction Froude number be maintained. The appropriate Froude number which accounts for a stratified solids vertical distribution is:

$$F_s = \frac{v^2}{g'b} \tag{16}$$

where v and b are the suction inlet velocity and diameter, respectively, and g' is the modified gravitational constant given by

$$g' = -\frac{g}{\bar{\rho}}\frac{d\rho}{dz}b \tag{17}$$

In Eq. (17), $\bar{\rho}$ is the average slurry density and $d\rho/dz$ is the vertical density gradient. For a linear solids vertical distribution, the density gradient is related to the solids cloud height by

$$\frac{1}{\bar{\rho}}\frac{d\rho}{dz} \approx (s-1)\phi_s / H_c \tag{18}$$

Hence Eq. (16) can be written approximately as

$$F_s \approx \frac{v^2}{(s-1)\phi_s}\frac{H_c}{b^2} \tag{19}$$

For constant Froude number suction scaling, Eq. (19) gives

$$v_S / v_L = (b_S / b_L)(H_{CL} / H_{CS})^{1/2} \tag{20}$$

For constant relative cloud height Hc/D, $H_{CL}/H_{CS} = SF$ so eq. (20) becomes

$$v_S/v_L = (b_S/b_L)SF^{1/2} \quad (21)$$

Equation (21) gives a relationship between suction velocity and nozzle size in order to match the suction Froude number. Given additional practical constraints on suction nozzle size and velocity, together with consideration of properly scaled suction flow rates, it is not clear that the suction Froude number can be matched, and scale related bias in pump-down concentrations will exist.

Suction-induced off-bottom suspension. Due to the close proximity of the suction line to the vessel bottom, some solids off-bottom suspension will occur as a result of the suction-induced flow field near the suction inlet (typically within a few diameters of the suction inlet). Whether this local off-bottom suspension scales with power-per-volume ($\alpha = 0.33$) or something else is unknown. Hence there may be considerable uncertainty with the entrainment of the heaviest solids on the floor near the suction inlet.

Given these complexities in scaling pump-down solids removal, a straightforward scale law for the suction inlet conditions cannot be determined. In the absence of actual scale-up data for the pump-down problem, a parametric approach is recommended whereby suction inlet conditions (velocity and diameter) are varied. By collecting solids removal data for these conditions, it may be possible to find suction inlet conditions that can be argued to be conservative for the small-scale tests. In the absence of such data and supporting argument, test results involving pump-down should be used with caution.

Summary of Recommendations for Testing Cohesive, Settling Slurries in Tank HLP-27
If the non-Newtonian testing proceeds, we suggest the following recommendations be considered as starting points for test planning:

- We recommend using a velocity scale exponent of 0.33 for testing along with a reduced yield stress (keeping the yield Reynolds number constant). This exponent is recommended for all testing, including potential "bottom clearing" modes and pump-down operations.
- The scaling of the transfer conditions (inlet diameter and velocity) is complex. We recommend parametric testing whereby the conditions are varied in order to understand how sensitive the results are to the suction inlet conditions.
- We recommend the air spargers be operated as a part of testing. As there is no direct scaling approach for sparge flow rate, we suggest the flow rate be varied within the range of superficial velocities expected in the full-scale vessel.
- It is not known in advance how the system will behave during testing. Therefore it will be prudent to operate the system and make initial observations. It is recommended to start with an initially well-mixed slurry, and then operate the system long enough for the solids to have the opportunity to fully redistribute. Given a characteristic settling time (the time required for the average particle to settle from the top to the bottom of the vessel), it may be necessary to operate for as long as 10 times this value or more.
- Visual observations at the bottom may prove useful; however having some instrumentation may be necessary. Stationary particle layers at the bottom of the vessel can form in two different ways, the first being individual heavy particles that are not transported by the clay,

analogous to observations with non-cohesive simulants. The second type of stationary layer could be a clay/solids mixture which has strengthened due to higher solids loading. This type of layer could be very difficult to observe visually. One way to look for a stagnant layer would be to initially coat the bottom of the vessel with a very thin material layer that is highly distinguishable from the clay slurry (such as a black clay slip).

- It may also prove useful to have the capability to sample and analyze the vessel at various levels in order to determine the degree to which solids stratify and/or segregate.
- A parametric approach to simulants and test conditions is recommended. Table 2 shows examples of physical property combinations (blanks indicate no additional values are recommended).

Table 2. Range of Rheological and Physical Properties Suggested for Testing

Range	Low Low	Low	Mid	High	High High
Yield Stress (Pa)	0	1	5	10	30
Consistency (cP)	1		5	10	30
Solids loading (wt%)		5		20	

The scaling of unsteady jet mixing of cohesive, settling slurries and air spargers represents a very challenging technical problem. To our knowledge, this type of scaled testing has never been performed. The methods presented here are an attempt to provide a best-basis starting point for approaching scaled tests. As with any complex scaling problem, it is prudent to validate the scaling laws by performing tests at multiple scales.

In the absence of validated scaling laws, it is prudent to employ sufficient conservatism in the conduct of the tests and any potential resulting design modifications. In establishing conservatisms, however, it is first necessary to establish the characteristics of the mixing behavior, and which parameters are most important. For example, it may be that mixing is degraded for an intermediate value of yield stress. In this example, neither low nor high values of yield stress would produce conservative test results. Hence it is important to some degree to parametrically vary both simulant characteristics and mixing system operational parameters to establish a conservative test.

If the testing proceeds, we would be happy to provide more specific details for test planning and execution as well as working with you. If you have any questions, please feel free to contact Perry Meyer on 375-6694.

Sincerely,

Gordon H. Beeman, Manager
RPP-WTP Support Program

GHB:c[2]

Attachements (3)
cc: MJ Minette
Project File/LB

Attachment 1: Power Per Volume Scale-Up for Air Sparger Operation

- Assume isothermal sparge bubble expansion (analysis can also be done for polytropic expansion)
- Assume ideal gas
- Neglect water vapor in sparge bubbles (assumes low temperature operation)
- Neglect gas jet kinetic energy
- Assume quasi-steady air flow in vessel
- Assume constant slurry density (no solids stratification)

The specific work (work per unit mass) for an ideal gas expanding isothermally between two states is:

$$w_{1-2} = \int_1^2 v\,dp = \int_1^2 \left(\frac{RT}{p}\right) dp = RT\ln(p_2/p_1)$$

Take state (1) at the sparger nozzle and state (2) at the surface

The total power is

$$P = \dot{m} w_{1-2} = p_1 u_1 A_s \ln(p_2 / p_1)$$

$$PPV = \frac{p_1 u_1 A_s \ln(p_2/p_1)}{A_T H}$$

Superficial velocity: $V = \frac{uA_s}{A_T}$

Therefore: $PPV = p_1 V_1 \ln(p_2/p_1)/H$

Notice: $p_1 = p_2 + \rho_l g H$

Define: $\Pi = \frac{\rho_l g H}{p_2}$, then $p_1 = p_2(1+\Pi)$

$$PPV = p_2 V_1 (1+\Pi)\ln(1+\Pi)/H$$

Define: $SF = H_L/H_s$

For PPV = constant $V_{IS}/V_{IL} = \frac{1}{SF}\frac{(1+\Pi_L)\ln(1+\Pi_L)}{(1+\Pi_S)\ln(1+\Pi_S)}$

SF~7, $\Pi_S \sim 0.14$, $\Pi_L \sim 0.98$ therefore $V_{IS}/V_{IL} \sim 1.3$ = const PPV scaling

Attachment 2: References

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Meyer PA, CW Enderlin, BE Wells, PA Scott, GL Smith, MS Greenwood, EBK Baer, M White, BG Amidan, JA Bamberger, JA Fort, SK Sundaram, MJ Minette, CA Burns, GP Morgen, SF Snyder, GF Piepel, A Heredia-Langner. 2009. *Pulse Jet Mixing Tests with Noncohesive Solids.* PNNL-18098, WTP-RPT-182, Pacific Northwest National Laboratory, Richland, WA.

Meyer PA. 2010. Reconciling Differences in Phase 1 and Phase 2 Test Observations for Waste Treatment Plant Pulse Jet Mixer Tests with Non-Cohesive Solids. Draft, Pacific Northwest National Laboratory, Richland, WA.

Poreh M. et al. 1967. "Investigation of a Turbulent Radial Wall Jet Journal of Applied Mechanics." June 1967.

Rajaratnam N. 1976. Turbulent Jets, Vol. 5 of "Developments in Water Science." Elsevier, 1976.

Tabuteau et al. 2007. "Drag force on a sphere in steady motion through a yield-stress fluid." Journal of Rheology, 51(1), pp. 125-137.

Thomson S. and A Edmondson. 2010. "WSU Radial Flume Test Data Study." 24590-WTP-ES-PET-10-001, Rev A (Draft).

Rassat SA. 2010. *M3 Support for the Scaling of Air Spargers in the Engineering-Scale HLP-27 Test Vessel.* WTP/RPP-MOA-PNNL-508 (Draft), Pacific Northwest National Laboratory, Richland, WA.

From: Russo, Frank M (WTP)
Sent: Wed Jun 30 22:31:14 2010
To: Walker, David
Subject: RE: M3 Status
Importance: Normal

Short answer.....we made the newtonian milestone that was the basis of the 80/20. All signed off and blessed by DOE. Non newtonian was not part of the fee agreement and Dale and Shirley are well aware of this. I also told them that a clear way to kill momentum within the project and with congress re funding would be to declare m3 as not complete.....they get that as well Dale's words to me today were...BNI has met it's M3 obligation, we (DOE) need some time to review and fully understand the non newtonian risks.
My guess is we get a favorable disposition on the 80/20 fee because we actually earned it. If not, I will personally raise bloody hell.
Frank

From: Walker, David
Sent: Wednesday, June 30, 2010 3:15 PM
To: Russo, Frank M (WTP)
Subject: RE: M3 Status

How will the "Award Fee" be evaluated relative to this progress?
DW

From: Ashley, Gregory
Sent: Wednesday, June 30, 2010 5:02 PM
To: Russo, Frank M (WTP)
Cc: Walker, David; Myler, Craig; French, Robert (WGI)
Subject: M3 Status

Frank,
The TSG has concurred with closure of all vessels except for the 5 non-Newtonian vessels. The FRP vessel package was just signed; therefore all closure criteria are satisfied for 33 of 38 vessels. We have issued the vessel assessment for the non-Newtonian vessels that demonstrates that they meet the mixing requirements. This assessment addresses the concerns raised by DOE in the April time frame. The closure package for these vessels will not be fully executed by TSG until DOE has completed their review (a draft of this package was the subject of independent reviews by SRNL and CRESP). DOE communicated at the TSG meeting just concluded that they have accelerated their delivery of comments on this vessel assessment to 7/9. This is consistent with Dale Knutson's statement in our earlier meeting (that he is pushing his guys to finish). If we receive DOE's comments by 7/9 we are targeting TSG concurrence on the final M3 closure record by 7/16.

Greg Ashley, P.E.
WTP Technical Director
(509) 371-3418
(509) 420-3394 cell
(509) 371-3506 fax
grashley@bechtel.com

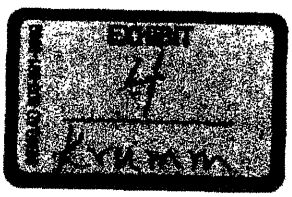
From: Hayes, Dennis
Sent: Thu Jul 01 00:21:23 2010
To: Ashley, Gregory
Subject: Re: Emailing: Changes in the Process Engineering and Technology Organization Part 5.doc
Importance: Normal

I'm good.

----- Original Message -----
From: Ashley, Gregory
To: Edwards, Richard E (WGI); Hayes, Dennis
Cc: Gay, William (URS); Russo, Frank M (WTP)
Sent: Wed Jun 30 20:19:36 2010
Subject: FW: Emailing: Changes in the Process Engineering and Technology Organization Part 5.doc
<<Changes in the Process Engineering and Technology Organization Part 5.doc>> Minor tweak. Decided highlighting M3 testing wasn't necessary. Rich, you and I discussed this but we left it in. If Dennis is OK we will release this as soon as Janice comes in in the AM.

Greg Ashley, P.E.
WTP Technical Director
(509) 371-3418
(509) 420-3394 cell
(509) 371-3506 fax
grashley@bechtel.com
-----Original Message-----
From: Edwards, Richard E (WGI)
Sent: Wednesday, June 30, 2010 5:09 PM
To: Ashley, Gregory
Cc: Hayes, Dennis
Subject: Emailing: Changes in the Process Engineering and Technology Organization Part 5.doc

Changes per my discussions with Greg.



Changes in the Process Engineering and Technology (PE&T) Organization

Consistent with the closure of the remaining EFRT issue and increased emphasis on the completion of engineering and focus on startup and commissioning, the following organizational changes will be made effective July 6, 2010. These changes continue to align the organization to meet our critical needs as we move toward project completion.

Richard Edwards, current Manager of PE&T, has accepted a URS project engineering management position at Savannah River Remediation, LLC. I would like to thank Rich for his significant contributions to the WTP project.

Garth Duncan becomes the Manager of Process Engineering and Technology. The Process Engineering & Technology department will consist of the current Process Engineering group, managed by John Olson, and the Process Flowsheet & Modeling group managed by John Mahoney. With the shift from technical issue resolution, it is expected that over the next several months these two groups will be further consolidated, respectively, into the core Design Engineering and Plant Engineering organizations.

With the completion of the overwhelming majority of the baseline R&T work, ~~and the recent successful completion of the M3 PJM closure testing,~~ the R&T organization within PE&T and their remaining scope will be consolidated into a newly formed Operations Technical Group within the Plant Operations organization and report to Dennis Hayes. *Dr. Walt Tamosaitis* will manage this group to be staffed by members of the existing R&T organization in alignment with scope completion. Consistent with the focus to complete design activities and better prepare for startup and commissioning activities, this group will focus on technical activities necessary to address operational risks in preparation for cold commissioning.

Dr. Dan Herting, WTP Chief Chemist, will report to Walt Tamosaitis, Operations Technical Group, and will be matrixed to Garth Duncan, Process Engineering & Technology.

From: Knutson, Dale E
Sent: Thu Jul 01 22:20:05 2010
To: Russo, Frank M (WTP)
Subject: Re: It's Closed
Importance: Normal

Got it. Thank you

----- Original Message -----

From: Russo, Frank M (WTP) <frusso@Bechtel.com>

To: Knutson, Dale E

Sent: Thu Jul 01 15:18:52 2010

Subject: Re: It's Closed

I just hung up with Kosson. He was not offended by my note to the team. In fact, he understood its purpose and expressed appreciation for how much things have changed since January.
That said, he and I are livid about the string of emails Walt has sent in the last 2 days. He is URS. I directed URS to get Walt out of here 2 weeks ago after meeting with Mike Kluse. Today I told Gay that Walt will no longer be paid by WTP. He did get an assignment at Sellafield and leaves next week.
This guy had the whole M3 hosed up for a year. He was taken out of the lead role in January. It got done without him. His ego can't accept that and he is lashing out.

Frank

----- Original Message -----

From: Knutson, Dale E <Dale_E_Knutson@RL.gov>

To: Russo, Frank M (WTP)

Cc: Meyer, Carrie C <Carrie_C_Meyer@orp.doe.gov>

Sent: Thu Jul 01 18:11:48 2010

Subject: FW: It's Closed

Frank,
If this shows up in the press we will be sticking to our previous comment. Walt does not speak for DOE, nor does your appreciation note contradict the expectation that DOE will understand the residual risk and mitigation strategy before drawing its final conclusions. Deliberate haste will be our approach. Please use this message as you see fit to accelerate staffing changes or to "color" your conversations with Scott Olgivie.

Regards,

Dale

From: Tamosaitis, Walter [wltamosa@bechtel.com]

Sent: Thursday, July 01, 2010 8:26 AM

To: d.dickey@mixtech.com; Meyer, Perry A; etchells3@aol.com

Subject: It's Closed

As the message indicates below, M3 is now essentially closed. I anticipate the NN test will go by the way side since SRNL and CRESP have indicated that no test is needed.

So, no matter what people tell you, what you hear at conferences, what the Poreh papers may say or not say, refereed or not refereed, etc, CRESP has bought into the solutions so paperwork has been signed and things are closing. If Calabrese had concerns he apparently was

over ridden, or, maybe he really had none.
On other fronts, a larger scale demo is still being talked about -- we will see what happens. At this time there is no money to do the test (est at $50-100M) but hopefully it will be found.
The last of the 28 EFRT issues now comes to a close after several years of effort. Dave/Art: remember the first meeting on October 16, 2005?
Have a big bang on July 4th to celebrate.
W

From: French, Robert (WGI)
Sent: Wednesday, June 30, 2010 6:03 PM
To: Allison, Janice S; Barnes, Steven M (WGI); Bradford, Richard; Burk, Robert (Robb) (WGI); Busche, Donna (URS); Chapman, Chris (WGI); Cook, John (WGI); Damerow, Frederick (WGI); Daniel, Russell; Duncan, Garth M; Edmondson, Albert (WGI); Edwards, Richard E (WGI); Gier, Donna; Gillespie, Barbara; Groves, Kevin; Hall, Matthew; Hanson, Robert L; Harper, Darrell; Harshfield, Alan R; Herting, Daniel (WRPS); Huckaby, James; Julyk, John L; Keuhlen, Phillip; Lehrman, Scott; Markillie, Jeffrey; Matis, George (WTP); McAdoo, Robert (WGI); Meehan, Jennifer L; Miller II, Charles (Ted) (ARES); Moon, Anna; Muto, Randy (URS); Olson, John W; Omel, Peter; Papp, Ivan; Platt, John; Ramsey, Darin; Rusinko, Barbara; Rustad, Gregory (URS); Simpson, Duane (Dave); Clossey, Kimberly; Tamosaitis, Walter; Thomson, Scott; Troutman, Tyrone; Truax, John; Voke, Robert; Wells, Kenneth R (WTP); Wilson, Ryan; Wand, Aaron; Vo, Douglas; Sundar, Parameshwaran S; Schaefer, Michaela; Parker, Michelle; Niemeyer, Rick (WGI); Mauss, Jerid; Jensen, Chris; Homer, Lou; Hall, Mark N; Graves, William (WTP); Gebhardt, Matthew; Dingeldein, Mike; Carpenter, Jayson (URS); Campbell, Theresa; Foote, Baden; Myler, Craig; Fant, Brian; Lindberg, Benjamin; Wyman, Russell; Rajagopalan, Prabhu; Berkoe, Jonathan; Oliver, Diane; Eaton, Page; Nolaud, John (Pat); Coyle, Michael (WGI); Siler, Joel (URS); McLane, Laura; Hayes, Dennis; Slaathaug, Eric; Jones, Glen (WTP); Perks, Marshall; Ryan, Tracey B; Harshfield, Alan R; Klein, Dennis; Kacich, Richard; Lee, Ernest D (WTP); Tornow, Betty; Grover, Nicolina; Grazzini, Janice; Kaanapu, Faith; Monahan, Jeffrey; Wilson, Toby
Cc: Tornow, Betty
Subject: M3 Appreciation From WTP Project Director

All
Please see Frank Russo's note of appreciation for all your great work and extraordinary effort in support of M3 ...
Thx
Bob French
M3 Issue Closure Manager
WTP Deputy Plant Operations Manager

From: Russo, Frank M (WTP)
Sent: Wednesday, June 30, 2010 5:15 PM
To: Ashley, Gregory; French, Robert (WGI)
Cc: Bradford, Richard; Gay, William (URS); Rusinko, Barbara; Patterson, Thomas; Ogilvie, J; Walker, David
Subject: M3.

Please share this note with everyone who has worked on M3..... I do not want to miss anyone! I already called DOE TSG members to thank them.
M-3 team members and team mates....
Today is June 30th. A day of reckoning. I reckon you all did extraordinarily well..... Your achievement exceeds my

expectation for where we would be on this date. And, I had very high expectations. Even so, I couldn't have imagined back in January when we had no agreement with DOE on simulant, testing criteria, vessel assessment formats etc. etc. etc., that all these hurdles would be behind us and that all of the Newtonian vessels would be fully approved by DOE. Even more impressive is that the non Newtonian curve ball has been so well managed. Our non Newtonian position is solid, backed by SRNL and accepted by CRESP. This could not have been moved so far so quickly by anyone but the WTP M-3 team.

The outstanding results you achieved as a team could only have happened because each and every one of you worked longer, harder, faster and smarter than any project director has the right to expect. And as previously stated, I expect a lot. You were outstanding in your effort and outstanding in the result. You came through at a time that any other result could have destroyed DOE and stakeholder confidence in the entire WTP project. My sincere appreciation to every one of you.

Now on to the next phase.....let's get it designed and built and into operation.

Frank

From: Walker, David
Sent: Thu Jul 01 21:32:20 2010
To: Russo, Frank M (WTP)
Cc: Ogilvie, J
Subject: RE: M3
Importance: Normal

Nice improvement.
DW
-----Original Message-----
From: Russo, Frank M (WTP)
Sent: Thursday, July 01, 2010 5:27 PM
To: Walker, David
Cc: Ogilvie, J
Subject: Fw: M3
A more positive tone.
----- Original Message -----
From: Meyer, Carrie C <Carrie_C_Meyer@RL.gov>
To: Russo, Frank M (WTP); Knutson, Dale E <Dale_E_Knutson@orp.doe.gov>; Heaston, Suzanne
Sent: Thu Jul 01 17:24:04 2010
Subject: Re: M3
Frank and Dale
I just spoke with Mike and they will write that it appears BNI has resolved the issues and DOE is reviewing. Next story will be marking DOE acceptance.
----- Original Message -----
From: Russo, Frank M (WTP) <frusso@Bechtel.com>
To: Knutson, Dale E; Meyer, Carrie C; Heaston, Suzanne <SMHEASTO@Bechtel.com>
Sent: Thu Jul 01 14:10:17 2010
Subject: M3
Dale,
I really think that you statements to Narker need to be somewhat positive. Not...all is done , but " the contractor has provided all required data. The EFRT questions have been answered. We learned from the process and will now continue efforts to reduce risks optimize plant performance. WTP will adequately mix and make on spec glass. " Otherwise WCM will spin the issue that we are not done and congress will kill the 50 mil. Narker already told Suzanne Heaston that it seems clear, we are not done.
Frank

From: Russo, Frank M (WTP)
Sent: Thu Jul 01 16:14:04 2010
To: Ogilvie, J; Walker, David
Subject: RE: M3 Status
Importance: Normal

Yes...I already made the argument to Dale and Shirley that they would be absolutely crazy to not accept that we are finished with M-3. Congress is just looking for a reason to put Hanford money in other States....our $50 million is still in play. Declare failure and high probability that the $50 mil goes away. $50 mil goes away.....12.263 and 2019 are in major peril.....major peril and S1 is again running day to day management of WTP. Why would they want to do this??? Especially since we did in fact finish M3 as defined by EFRT. Shirley agrees. I believe that Dale does as well but rightfully wants to proceed with caution since he needs S2 agreement and we all need to keep DNFSB from overreacting.

This all said, I repeat , they are DOE.....and they often do things that make no basic sense.

From: Ogilvie, J
Sent: Thursday, July 01, 2010 9:04 AM
To: Russo, Frank M (WTP); Walker, David
Subject: Re: M3 Status

Thanks.....so at least we have a decent fee argument.

From: Russo, Frank M (WTP)
To: Ogilvie, J; Walker, David
Sent: Thu Jul 01 11:52:54 2010
Subject: Re: M3 Status

I don't think so. But this is DOE and several months ago they wanted us to defer fee so I am not comfortable on how they will react in fee space. Factually M3 was for both non newtonian and newtonian vessels. Non newtonian was completed by in 2006. Since last year all we were working on was Newtonian vessels. When Girard and HQ pushed for the 80/20 fee pool this half of 2010 it was for Newtonian. All Newtonian is complete and DOE has signed off on all Newtonian vessels. No argument that we are done on Newtonian. However, in April 2010 one of DOE's consultants reopened non Newtonian. He had theories about non Newtonian sheering and solids dropping out when the fluid sheered. We used PNNL, SRNL and our own folks to take this theory off the table. We have accomplished this. Non Newtonian will not sheer if we keep its rheology above 6 pascal and 6 centipoid. We can do this and SRNL is doing it. We submitted our Non Newtonian package yesterday. Dale indicated that he will eventually approve it (even though some of his folks will resist). Full approval yesterday would have only put the DNFSB in high gear. So, we are proceeding with design without holds and DOE issued a press release (I sent it to you yesterday) saying we submitted everything we had to submit and that they were reviewing it.

Even with M3 finished, there will be follow up actions over the next several years. None will change vessel internal design nor heal removal design. The actions should be primarily funded by TOC (tank farm)

because they will help better understanding of long term operating protocols.

Frank

From: Ogilvie, J
To: Walker, David
Cc: Russo, Frank M (WTP)
Sent: Thu Jul 01 11:29:31 2010
Subject: Re: M3 Status

Doesn't this mean we missed the date?

From: Walker, David
To: Ogilvie, J
Sent: Wed Jun 30 18:14:53 2010
Subject: FW: M3 Status

M3 Update. Good progress but not quite done?
DW

From: Ashley, Gregory
Sent: Wednesday, June 30, 2010 5:02 PM
To: Russo, Frank M (WTP)
Cc: Walker, David; Myler, Craig; French, Robert (WGI)
Subject: M3 Status

Frank,
The TSG has concurred with closure of all vessels except for the 5 non-Newtonian vessels. The FRP vessel package was just signed; therefore all closure criteria are satisfied for 33 of 38 vessels. We have issued the vessel assessment for the non-Newtonian vessels that demonstrates that they meet the mixing requirements. This assessment addresses the concerns raised by DOE in the April time frame. The closure package for these vessels will not be fully executed by TSG until DOE has completed their review (a draft of this package was the subject of independent reviews by SRNL and CRESP). DOE communicated at the TSG meeting just concluded that they have accelerated their delivery of comments on this vessel assessment to 7/9. This is consistent with Dale Knutson's statement in our earlier meeting (that he is pushing his guys to finish). If we receive DOE's comments by 7/9 we are targeting TSG concurrence on the final M3 closure record by 7/16.

Greg Ashley, P.E.
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grashley@bechtel.com

Sain, Leo

From: Gay, William (URS) [wwgay@bechtel.com]
Sent: Monday, July 05, 2010 5:07 PM
To: Leo.Sain@wgint.com
Subject: Fw: It's Closed

This e-mail was the straw that.....I will talk with Walt tonight in a hopefully neutral but honest fashion. My HOUR director will be present. I will deal with the fallout tomorrow. This action was initiated by Dale Knudsen probably not knowing the sensitivity.
Bill

----- Original Message -----
From: Russo, Frank M (WTP)
To: Gay, William (URS)
Sent: Thu Jul 01 19:08:13 2010
Subject: RE: It's Closed

Thanks

-----Original Message-----
From: Gay, William (URS)
Sent: Thursday, July 01, 2010 4:01 PM
To: Russo, Frank M (WTP)
Subject: Re: It's Closed

Dennis has called.He will be gone tomorrow.

----- Original Message -----
From: Russo, Frank M (WTP)
To: Gay, William (URS)
Sent: Thu Jul 01 18:20:50 2010
Subject: Fw: It's Closed

Walt is killing us. Get him in your corporate office today.

----- Original Message -----
From: Knutson, Dale E <Dale_E_Knutson@RL.gov>
To: Russo, Frank M (WTP)
Cc: Meyer, Carrie C <Carrie_C_Meyer@orp.doe.gov>
Sent: Thu Jul 01 18:11:48 2010
Subject: FW: It's Closed

Frank,

If this shows up in the press we will be sticking to our previous comment. Walt does not speak for DOE, nor does your appreciation note contradict the expectation that DOE will understand the residual risk and mitigation strategy before drawing its final conclusions. Deliberate haste will be our approach. Please use this message as you see fit to accelerate staffing changes or to "color" your conversations with Scott Olgivie.

Regards,

Dale

From: Tamosaitis, Walter [wltamosa@bechtel.com]
Sent: Thursday, July 01, 2010 8:26 AM
To: d.dickey@mixtech.com; Meyer, Perry A; etchells3@aol.com
Subject: It's Closed

As the message indicates below, M3 is now essentially closed. I anticipate the NN test will go by the way side since SRNL and CRESP have indicated that no test is needed.

So, no matter what people tell you, what you hear at conferences, what the Poreh papers may say or not say, refereed or not refereed, etc, CRESP has bought into the solutions so paperwork has been signed and things are closing. If Calabrese had concerns he apparently was over ridden, or, maybe he really had none.

On other fronts, a larger scale demo is still being talked about -- we will see what happens. At this time there is no money to do the test (est at $50-100M) but hopefully it will be found.

The last of the 28 EFRT issues now comes to a close after several years of effort. Dave/Art: remember the first meeting on October 16, 2005?

Have a big bang on July 4th to celebrate.

W

From: French, Robert (WGI)
Sent: Wednesday, June 30, 2010 6:03 PM
To: Allison, Janice S; Barnes, Steven M (WGI); Bradford, Richard; Burk, Robert (Robb) (WGI); Busche, Donna (URS); Chapman, Chris (WGI); Cook, John (WGI); Damerow, Frederick (WGI); Daniel, Russell; Duncan, Garth M; Edmondson, Albert (WGI); Edwards, Richard E (WGI); Gier, Donna; Gillespie, Barbara; Groves, Kevin; Hall, Matthew; Hanson, Robert L; Harper, Darrell; Harshfield, Alan R; Herting, Daniel (WRPS); Huckaby, James; Julyk, John L; Keuhlen, Phillip; Lehrman, Scott; Markillie, Jeffrey; Matis, George (WTP); McAdoo, Robert (WGI); Meehan, Jennifer L; Miller II, Charles (Ted) (ARES); Moon, Anna; Muto, Randy (URS); Olson, John W; Omel, Peter; Papp, Ivan; Platt, John; Ramsey, Darin; Rusinko, Barbara; Rustad, Gregory (URS); Simpson, Duane (Dave); Clossey, Kimberly; Tamosaitis, Walter; Thomson, Scott; Troutman, Tyrone; Truax, John; Voke, Robert; Wells, Kenneth R (WTP); Wilson, Ryan; Wand, Aaron; Vo, Douglas; Sundar, Parameshwaran S; Schaefer, Michaela; Parker, Michelle; Niemeyer, Rick (WGI); Mauss, Jerid; Jensen, Chris; Homer, Lou; Hall, Mark N; Graves, William (WTP); Gebhardt, Matthew; Dingeldein, Mike; Carpenter, Jayson (URS); Campbell, Theresa; Foote, Baden; Myler, Craig; Fant, Brian; Lindberg, Benjamin; Wyman, Russell; Rajagopalan, Prabhu; Berkoe, Jonathan; Oliver, Diane; Eaton, Page; Noland, John (Pat); Coyle, Michael (WGI); Siler, Joel (URS); McLane, Laura; Hayes, Dennis; Slaathaug, Eric; Jones, Glen (WTP); Perks, Marshall; Ryan, Tracey B; Harshfield, Alan R; Klein, Dennis; Kacich, Richard; Lee, Ernest D (WTP); Tornow, Betty; Grover, Nicolina; Grazzini, Janice; Kaanapu, Faith; Monahan, Jeffrey; Wilson, Toby

Cc: Tornow, Betty
Subject: M3 Appreciation From WTP Project Director

All

Please see Frank Russo's note of appreciation for all your great work and extraordinary effort in support of M3 ...

Thx
Bob French
M3 Issue Closure Manager
WTP Deputy Plant Operations Manager

From: Russo, Frank M (WTP)
Sent: Wednesday, June 30, 2010 5:15 PM
To: Ashley, Gregory; French, Robert (WGI)
Cc: Bradford, Richard; Gay, William (URS); Rusinko, Barbara; Patterson, Thomas; Ogilvie, J; Walker, David
Subject: M3.

Please share this note with everyone who has worked on M3..... I do not want to miss anyone! I already called DOE TSG members to thank them.

M-3 team members and team mates....

Today is June 30th. A day of reckoning. I reckon you all did extraordinarily well.....

Your achievement exceeds my expectation for where we would be on this date. And, I had very high expectations. Even so, I couldn't have imagined back in January when we had no agreement with DOE on simulant, testing criteria, vessel assessment formats etc. etc. etc., that all these hurdles would be behind us and that all of the Newtonian vessels would be fully approved by DOE. Even more impressive is that the non Newtonian curve ball has been so well managed. Our non Newtonian position is solid, backed by SRNL and accepted by CRESP. This could not have been moved so far so quickly by anyone but the WTP M-3 team.

The outstanding results you achieved as a team could only have happened because each and every one of you worked longer, harder, faster and smarter than any project director has the right to expect. And as previously stated, I expect a lot. You were outstanding in your effort and outstanding in the result. You came through at a time that any other result could have destroyed DOE and stakeholder confidence in the entire WTP project. My sincere appreciation to every one of you.

Now on to the next phase.....let's get it designed and built and into operation.

Frank

From: Ashley, Gregory
Sent: Wed Jul 07 13:50:18 2010
To: Gay, William (URS); Hayes, Dennis
Cc: Barnes, Steven M (WGI); Patterson, Thomas; Russo, Frank M (WTP); Keuhlen, Phillip
Subject: RE: Tank Mixing CRESP Report
Importance: Normal

Bill, I would like for Phil Keuhlen to take the lead on preparing this matrix. This matrix needs to be a crosswalk among three sources (M-3 closure packages, SRNL review report and CRESP review report) . Taking precedence are the M-3 closure packages. For the most part, they have captured the residual risks and mitigating actions that have been identified in the SRNL and CRESP reports. The matrix should identify any gaps. Bob French already put the M-3 closure actions into a matrix. That is a good starting point. Phil I will forward to you (if you don't already have). Let's schedule a call to discuss the formation of a team that will begin the planning for addressing the residul risks and uncertainties. Dale Knutson is looking for a high level plan by August 4.

Janice, please set up a call. Required attendees are Bill Gay, Dennis Hayes, Steve Barnes, Phil Keuhlen

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From: Gay, William (URS)
Sent: Tuesday, July 06, 2010 7:36 PM
To: Hayes, Dennis
Cc: Barnes, Steven M (WGI); Patterson, Thomas; Ashley, Gregory; Russo, Frank M (WTP)
Subject: Tank Mixing CRESP Report

I am putting the CRESP document on your desk. When you are ready I would like to discuss between the three of use {Barnes} who has the R2 for each of the recommendations. There will be many fingers in the pie to make this happen including WRPS. That is further compounded by the remaining M3 issues. Putting them into a spread sheet would help. Linda?

I would think that this would be a November CPR deliverable.

Thank you,

William W. Gay III
Assistant Project Director
Quality, Safety & Operations

PH: 509.371.2389

From: Russo, Frank M (WTP)
Sent: Mon Jul 12 20:14:53 2010
To: Bradford, Richard; Ashley, Gregory; Troutman, Tyrone
Subject: Re: Heads Up - Emergent Task Team Assignment
Importance: Normal

I am aware of it. It is part of managing residual risk. And that risk is to long term operations so it should be tank farm scope. Our role to work with the tank farm to bring them up to speed and assist them in planning a large scale test should be minor work. It is scope change since we don't need it but it need not take more than 2 or 3 weeks and doesn't need more than a handful of people. Your call regarding scope trend or not. However, this must remain a small task and not become son of M3.

Re the V&V of CFD , that should already be in the M3 trend. It is not new.

Frank

From: Bradford, Richard
To: Russo, Frank M (WTP)
Sent: Mon Jul 12 16:01:29 2010
Subject: FW: Heads Up - Emergent Task Team Assignment

Frank, see notes below. I assume you are on board with this? If so, any discussion on how we pay for it? Contract change as Ty suggests?

From: Veirup, Anton

Sent: Monday, July 12, 2010 12:52 PM

To: Troutman, Tyrone; Bradford, Richard

Cc: Futrell, Guy; Gifford, Brian

Subject: RE: Heads Up - Emergent Task Team Assignment

This is the first I've heard of it.

tv

From: Troutman, Tyrone

Sent: Monday, July 12, 2010 12:49 PM

To: Bradford, Richard

Cc: Futrell, Guy; Veirup, Anton

Subject: FW: Heads Up - Emergent Task Team Assignment

Importance: High

Are you guys aware of this???? Smells like contract scope change to me??

From: Keuhlen, Phillip

Sent: Monday, July 12, 2010 11:22 AM

To: Barnes, Steven M (WGI); Matis, George (WTP); Hanson, Robert L; Ryan, Tracey B; Olson, John W; Damerow, Frederick (WGI)

Cc: Ashley, Gregory; Gay, William (URS); French, Robert (WGI); Daniel, Russell; Busche, Donna (URS); Duncan, Garth M; Eager, Kevin

Dunkirk, Jean

From: Russo, Frank M (WTP)
Sent: Monday, July 12, 2010 8:38 AM
To: Dunkirk, Jean
Subject: FW: Process Engineering Technology

Started the process in April.

From: Gay, William (URS)
Sent: Wednesday, April 21, 2010 4:18 PM
To: Ashley, Gregory; Rusinko, Barbara
Cc: Russo, Frank M (WTP); Hayes, Dennis
Subject: Process Engineering Technology

I will support whatever vision Bechtel desires for the future of process engineering. The two issues that worry me is the full scale test and all the ancillary testing under that umbrella plus the follow on EFRT scheduled for this summer. I have confirmed that WRPS will ,for the most part , take the individuals. Buying back by the drink maybe easier said than done with the testing that WRPS has lined up which is notable scope.
Lets talk when you have time. I will start the transfer process when I understand your desires.

Thank you,

William W. Gay III
Assistant Project Director
Quality, Safety & Operations

PH: 509.371.2389

From: Edwards, Richard E (WGI)
Sent: Wednesday, April 21, 2010 10:53 AM
To: Gay, William (URS)
Cc: Ashley, Gregory
Subject: FW: Departure Window for Rich Edwards

Bill,
With respect to the organizational piece associated with my departure, I discussed this with Greg Ashley late last week and the following path forward is proposed for the three groups which makeup the PETD organization formed in 2006/7 to primarily address project technical issues (EFRT, TRA, etc):

1) R&T under Walt Tamosaitis - execute the plan started last fall to move this group to WRPS and buy back services from WRPS for completion of the remaining work scope. This is consistent with the high percentage completion (99%) of the work scope associated with this group. This would involve the movement of 5 to 8 additional individuals to WRPS - for information two individuals (Thorson/Sherwood) not in the 5 to 8 estimate were moved over to WRPS earlier this year. I believe the timing should be aligned with M3 test/closure completion - Greg and I discussed early June as a target date. Initial funding from WTP would be from the remaining non-design impacting work budgeted in R&T today and future PJM full-scale testing work.

Some specific drivers/advantages and opportunities associated with this move are as follows:

Drivers / Advantages
- Supports stronger integration of WTP and WRPS
- Strong signal that WTP project design impacting R&T is complete
- Provides expertise for near-term WRPS acceleration initiatives (includes testing and associated personnel needs in Terry Sams organization within WRPS)

7/12/2010

- Consistent with the plan to have a joint test facility for both organizations to support WRF and full-scale PJM testing

Opportunities
- Convince ORP to fund WRPS for remaining WTP Process Limits Work currently being performed by R&T with project funding (potential to return of $5M to MR)

2) Process Engineering under John Olson - move organization back into the core of the Process Engineering folks under Engineering (Barbara Rusinko). This was the original plan when PETD was formed and is consistent with the engineering re-plan of about 2 years ago. It also is necessary to augment this organization to complete the design changes coming as a result of technical issue resolution.

3) Flowsheet Modeling under John Mahoney (John's PSR ends 9/2010) - move organization under Plant Engineering and integrate deliverables with operations. There is an opportunity to share modeling resources with WRPS, but with contract deliverables and a considerable amount of scope remaining to update the models to the final and now changing design, the recommendation is to keep these resources at WTP until around 1/2013 when their work is essentially complete and then integration into WRPS is a stronger business case. Funding for this remaining scope up to 1/2013 is being resolved with BCP-4031.

In my discussion with Greg, there may be a need to phase the moves above, with the timing of the Item 1 above being early June and the timing of items 2 &3 following in late August or early September.

Please let me know how you would like to proceed with respect to the proposed path forward.

Thanks,
Richard

From: Edwards, Richard E (WGI)
Sent: Friday, April 02, 2010 8:29 AM
To: Ashley, Gregory
Cc: Gay, William (URS)
Subject: FW: Departure Window for Rich Edwards

Greg,

I would like to meet with you as soon as possible to discuss this - It looks like our schedules have us here at different weeks - I will be out next week (starting today) and will be back on Saturday, 4/10 PM with no trips planned thru the remainder of April. I believe you are out the week of 4/12 - 4/16, so I will get something on your calendar for the week of 4/19. I believe you know the status of the majority of the items mentioned below, but I have included a synopsis below as well.
Richard

EFRT - all closed last fall except M3 which is as you know on track for 6/27

Item 1 below - I'll setup a meeting to discuss with you during the week of 4/19; the funding for the FM part of PEFM is being addressed with TN/BCP 4031 which is now essentially complete (we met on this previously) and will go to CCB on 4/15 - I plan to present it myself. Garth / Olson are working the PE part of PEFM with a significant amount of new scope coming from MAR/HPAV, CXP solids resolution, and M3 process changes

Item 2 below - TN/BCP 4031 will correct the error / omission with the funding for the FM group thru 12/2012 - I maintain a spreadsheet with release dates for all the URS individuals by name in PETD along with their planned new "homes" - I will update and re-issue it to URS HR towards the end of April after we meet. As you know a number of folks have already left the project in the last 6 months.

Item 3 - Garth has been filling this role for ICD-19; let's discuss the senior representative piece (I believe Rick Kacich already has this responsibility especially as it relates to WRPS Clin 3.2 activities).

Richard

From: Gay, William (URS)
Sent: Friday, March 19, 2010 1:04 PM
To: Ashley, Gregory; Krumm, Cami (WTP)
Cc: 'Sain, Leo'; 'Hollan, Dave'; Edwards, Richard E (WGI); 'Spencer, Chuck'
Subject: Departure Window for Rich Edwards

Greg, I met with Rich Edwards and told him he could leave for his next assignment at SRS(URS) once the EFRT issues are closed and:

1. His relief is identified and trained and voiced "ready to relieve" including satisfaction with the funding profile for the organization
2.Proposal on the path forward with the modeling group by individual name
3.A replacement individual to be the senior representative interface with WRPS including the ICD-19 member

The above requirements should be completed by June 27,2010. Cami will ensure the transition window for the SRS assignment covers that release date.

Let me know if you have any additional completion items before he leaves,

Thank you,

William W. Gay III
Assistant Project Director
Engineering, Quality, Safety & Operations

PH: 509.371.2389

From: Ashley, Gregory
Sent: Fri Jul 30 00:52:20 2010
To: Keuhlen, Phillip
Subject: FW: Vulnerabilities
Importance: Normal
Attachments: PNNL_Input_to_WTP_vulnerabilities.6-30-10 prb.doc

Phil, sorry for late add, but you need to bounce this list off of the matrix you are developing. Many of these may be from PNNL not being current with the program, but we need to ensure that we have thoroughly scrubbed all sources.

Greg Ashley, P.E.
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grashley@bechtel.com

From: Russo, Frank M (WTP)
Sent: Tuesday, July 06, 2010 3:49 PM
To: Ashley, Gregory; Duncan, Garth M
Subject: FW: Vulnerabilities

Please review and call me tomorrow.

From: Walton, Terry L [mailto:Terry.Walton@pnl.gov]
Sent: Tuesday, July 06, 2010 3:44 PM
To: Russo, Frank M (WTP)
Cc: Kluse, Michael
Subject: Vulnerabilities

Frank,
Mike Kluse and I appreciated the opportunity to meet with you on June 17, 2010. In response to your request, attached for your information is a summary of the Waste Treatment Plant technical vulnerabilities from PNNL's perspective. All but the most recent concerns have been previously provided to BNI staff in reports, letters, white papers, document reviews, presentations and discussions.
The list is provided with the following background:

- The attached list of vulnerabilities does not constitute a complete and comprehensive review by PNNL staff b P ut rather should be considered as some examples of risks that staff are aware of as a result of their involvement with various WTP efforts.
- BNI staff are aware of and working many of these issues. Designs and operating conditions for

several vessels are being reevaluated as a result recent phase 2 testing and PNNL staff may not be aware of the complete suite of actions that BNI is taking to address vulnerabilities.

- In some cases there are legitimate differences of technical and engineering opinions between the PNNL and BNI staff.

At the highest level, PNNL believes the vulnerabilities to the current Waste Treatment Plant design and operating plans are as follows:

Mixing Systems: The recent Newtonian vessel phase 2 testing has resulted in modified vessel mixing designs and operating conditions for mixing that "just meets" the minimum tank performance requirements. While solids uniformity is not necessary, the current designs allow solids to remain on the bottom during normal operations and allow solids stratification resulting in high concentrations near the bottom of the vessels and the pump suction lines. This will impact the ability to obtain representative samples and increase solids concentrations in the transfer lines. Given the considerable uncertainties in the properties of the waste feeds, mixing data and scale-up the lack of a significant design margin is a vulnerability that could lead to inadequate mixing and line plugging.

Solids Transport and Pumping: The pumps and transfer lines are likely to experience solids deposition and could potentially plug, especially given the stratified layers of solids that are expected in some of the vessels. Suction side priming failures due to inadequate net positive suction head (NPSH) and pipe plugging are also an increased risk at higher solids concentrations given the long suction line lengths.

Plant Processes: The many recent changes to the pretreatment process based on lessons learned from PEP testing M3, and M6 have significantly impacted the flow sheet of the WTP and are likely to negatively impact the flow rates, plant operations and the resulting product out of the WTP. The complicated control scheme to avoid precipitation in the filtrates has not been demonstrated and was not part of the PEP testing. The caustic leaching temperature has been reduced to address vessel corrosion concerns but this, combined with efforts to limit caustic additions to control precipitation, may limit the amount of Boehmite that can be leached and will lead to a significant increase in the number of HLW canisters produced.

Gas Retention and Release: The information currently available to determine the gas retention of Hanford Tank Wastes in the PJM vessels may not be sufficient. The risk is that actual rheological conditions of materials being sent to the WTP from tank farms might not mix in the receipt vessels and would build to strengths and thicknesses that could not be handled in the design basis event.

Greg Ashley call last week to communicate that the M-3 mixing issues have been closed with some residual risks. Although we have not yet had the chance to engage beyond the voice mail exchanges, Greg has made it very clear that he would like PNNL participation in resolving the residual risks. We look forward to further discussions on M-3 issues or broader discussions regarding the above mentioned vulnerabilities.

Regards,

Terry

Terry L. Walton
Director of Energy and Environmental Programs

Energy & Environment Directorate

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Technical Concerns related to the WTP Plant

At the highest level, PNNL believes the vulnerabilities to the current Waste Treatment Plant design and operating plans are as follows:

Mixing Systems: The recent Newtonian vessel phase 2 testing has resulted in modified vessel mixing designs and operating conditions for mixing that "just meets" the minimum tank performance requirements. While solids uniformity is not necessary, the current designs allow solids to remain on the bottom during normal operations and allow solids stratification resulting in high concentrations near the bottom of the vessels and the pump suction lines. This will impact the ability to obtain representative samples and increase solids concentrations in the transfer lines. Given the considerable uncertainties in the properties of the waste feeds, mixing data, and scale-up, the lack of a significant design margin is a vulnerability that could lead to inadequate mixing and line plugging.

Solids Transport and Pumping: The pumps and transfer lines are likely to experience solids deposition and could potentially plug, especially given the stratified layers of solids that are expected in some of the vessels. Suction side priming failures due to inadequate net positive suction head (NPSH) and pipe plugging are also an increased risk at higher solids concentrations given the long suction line lengths.

Plant Processes: The many recent changes to the pretreatment process based on lessons learned from PEP testing, M3, and M6 have significantly impacted the flow sheet of the WTP and are likely to negatively impact the flow rates, plant operations and the resulting product out of the WTP. The complicated control scheme to avoid precipitation in the filtrates has not been demonstrated and was not part of the PEP testing. The caustic leaching temperature has been reduced to address vessel corrosion concerns but this, combined with efforts to limit caustic additions to control precipitation, may limit the amount of Boehmite that can be leached and will lead to a significant increase in the number of HLW canisters produced.

Gas Retention and Release: The information currently available to determine the gas retention of Hanford Tank Wastes in the PJM vessels may not be sufficient. The risk is that actual rheological conditions of materials being sent to the WTP from tank farms might not mix in the receipt vessels and would build to strengths and thicknesses that could not be handled in the design basis event.

Additional details of each of these vulnerabilities or concerns are provided in the following pages.

Mixing Vessel Concerns (M3)

- Phase 1 of the Newtonian vessel testing (WTP-RPT-182 *Pulse Jet Mixing Tests with Noncohesive Solids*) that examined the Newtonian vessels, provided examples showing that vessels FRP-02A/B/C/D, HLP-22, PWD-15/16, PWD-33, PWD-44, TCP-01 and UFP-01A/B were substantially under-powered and would not provide bottom clearing using the September 2007 designs. Vessels FEP-17 A/B and TLP-09 A/B were shown as marginal.

- Phase 2 testing conducted at Mid-Columbia Engineering's Facilities modified the vessel designs and operating conditions (solids concentrations, nozzle velocities, number of PJMs, bottom clearing sequence) for HLP-22, UFP-01, FEP-17 and FRP-02 with the goal of showing the minimum tank requirements for bottom material movement, post-design basis event (DBE) restart, and non-accumulation of solids during pump out could be achieved. The changes to the mixing systems in the vessels appear to "just meet" the minimum tank mixing requirements during the testing. This "Razor's Edge" approach means than any small change in a key testing element could result in a vessel that does not work at full scale in the plant. Engineering choices during the phase 2 testing that cause significant concern (due to designing on the "Razor's Edge") are:

  - The simulants used in the testing are not sufficiently bounding of the tank waste properties that are currently documented for the Hanford Waste Tanks (WTP-RPT-153 *Estimate of Hanford Waste Insoluble Solid Particle Size and Density Distribution*, WTP-RPT-154 *Estimate of Hanford Waste Rheology and Settling Behavior*, and WTP-RPT-177 *An Approach to Understanding Cohesive Slurry Settling, Mobilization, and Hydrogen Gas Retention in Pulsed Jet Mixed Vessels*).

  - The Plutonium oxide simulant particle use in phase 2 testing for HLP-22 and FEP-17 was sized to be 10 micron (using a 12 micron sieve cut) where in actual waste images, 4 of the 18 Pu particle photos (WTP-RPT-153) displayed particles that were over 10 microns (with one being a 23 micron sphere).

  - The design basis event (DEB) simulant formulation required a layer of solids at a concentration of ≈ 67% solids concentration to achieve the "reasonable minimum upper bound" of 200 Pa shear strength within 24 hours. This simulant did not exhibit cohesive properties which is different from many of the actual waste sludge materials which do exhibit cohesive behavior. The non-cohesive simulant means the post-DBE simulant is expected to behave differently in mixing and mobilization tests than highly cohesive simulant (WTP/RPP-MOA-PNNL-00494 *Recipes for Simulant Strengths*).[1]

  - The phase 2 of the Newtonian testing program established the nozzle velocities for Pulse Jet Mixers (PJM) by using scaling factors to adjust from the test vessel size to the full vessel diameter in the WTP. The scaling factor used for the zone of influence bottom movement tests was based on the Poreh (1967) work that conducted testing under significantly different conditions. The use of the Poreh scaling factor resulted in much higher PJM velocities in the test tank than had been recommended in the Phase 1 (WTP-RPT-182). Recent analysis by PNNL for potential non-Newtonian tank testing for WTP (WTP/RPP-MOA-PNNL-00507) have identified significant technical weaknesses in using Porch (1967) based scaling factors for the testing conditions being used at the MCE test facility.

  - The transfer/sampling system used at MCE's test facility is not geometrically scaled and functionally prototypic. The technical basis (or even the sampling bias) for using the system to

collect data (that prove that solids do not accumulate during vessel pump-outs) has not been developed. The scaling of the transfer system and the related concerns are in WTP/RPP-MOA-PNNL-00507 (*Test Considerations for the Potential Engineering Scale HLP-27 Test*).

- The mixing systems in the non-Newtonian vessels were developed with some design margin but testing was directed at what was thought at the time to be the most challenging mixing requirement: that is the mixing of non-Newtonian slurries with rheological properties at the expected upper bound. Recently some concern has been raised by others that the vessels may at times contain slurries that exhibit Newtonian rheology. Limited data was obtained in the non-Newtonian test program with glass beads in water to assess the solids suspension capabilities of the mixing systems in the non-Newtonian vessels. It is unclear at this time if this data set is sufficient to form a design basis for the non-Newtonian vessels.

- PJM Technology: There has been a fundamental misperception about the maturity of PJM technology. This is new technology which is unproven for applications involving significant amounts of solids. This combination of new technology and solids was noted as particularly challenging at a work shop on Slurry Retrieval, Pipeline Transport & Plugging and Mixing.[2]

Solids Transport and Pumping (M1)

- Technical Issues Related to Post Pump Lines

  - To the best of our knowledge, results of the M-1 Pipe line plugging studies (WTP-RPT-175 *Deposition Velocities of Newtonian and Non-Newtonian Slurries in Pipelines*, WTP-RPT-178 *A Qualitative Investigation of Deposition Velocities of a Non-Newtonian Slurry in Complex Pipeline Geometries*, and WTP-RPT-189 *Deposition Velocities of Non-Newtonian Slurries in Pipelines: Complex Simulant Testing)* have not been incorporated into the WTP plant design guide. Given the Hanford Tank Wastes and the WTP plant processes, the design guide must be robust enough to consider both the Newtonian and Non-Newtonian material transport challenges. Also the 30% factor in the design guide is not an engineering margin but a factor to cover the data scatter related to the correlation so the inclusion on additional margins would be needed to be conservative.

  - PNNL is unaware of a design guide (as of February 2010) for pumping of Non-Newtonian materials. Use of the Newtonian design guide will under predict critical suspension velocities for slurries carrying dense particles.

  - The stability map developed inWTP-RPT-175, identified the three boundary conditions (Laminar, Transitional and Turbulent Critical) that must be evaluated for each transport pipe to assure transport of the wastes do not result in partial or total (plugging) deposition. We do not believe the three part evaluation has been added to the design guide. Depending on the planned pumping mode, pipe lines from vessels FPR-02A, FEP-17A to B, Process drains for HLP-22 and FRP systems, HLP-22 transfer pump 21, and the transfer pump 17 for HLP-27 and HLP-28 all have actual velocities of below 4 feet per second as of the February 2010 design.[3] The results documented in WTP-RPT-175 highlight the need to reevaluate these and other lines looking at all three boundary conditions. Given the nature of the materials being transported, the analyses are important to reduce the risk of pipe plugging.

  - The Bismuth Phosphate wastes have shown that they can gel (WTP-RPT-166 in the CUF Run), Crystallize (with significant temperature changes) and precipitate when exposed to high sodium levels. Wastes containing relatively high concentrations of phosphate have the potential to plug lines and disrupt the mixing process. Laboratory tests with actual waste samples show that these wastes settled rapidly (≈ 1 hr). Shear strength measurements indicate that the shear strength after 72 hours could range as high as 1500 Pa (WTP-RPT-167, Characterization and Leach Testing for PUREX Cladding Waste Sludge (group 3) and REDOX Cladding Waste Sludge (Group 4) Actual Waste Sample Composites) which is well above the 200 Pa shear strength targeted in recent Phase 2 mixing tests.

- Technical Issues Related to Suction Lines (M1)

  - High concentrations of solids in the suction lines cause much higher line losses (several times those provided in WTP-RPT-189) than are incorporated in the current design guide. This problem has increased as the need to fully mix the high concentration waste receipt vessels has been removed and much higher suction pipe input concentrations are now expected. The long suction pipe lengths make this problem critical.

  - The slow suction line velocities (resulting from the high line pressure loss) are expected to cause

inline deposition of high concentration materials.

- The design of positive displacement or Moyno® progressing cavity pumps on long suction lines with high line loses must evaluate the pressure at key points in the suction pipe. With the receipt vessels being at atmospheric pressure (~30 inches Hg), a pressure drop in the suction pipe to 2 inches Hg (or lower including vacuum) will allow the slurry to boil at plant temperatures (~80 degrees F). The creation of vapor in the suction lines has long been identified in slurry handbooks as the point where positive displacement pumps may not prime. If vacuum conditions are developed anywhere along the pipe, piping must be designed to handle the vacuum.[4]

- Air entrainment at the pump inlet was observed at the PEP ultrafiltration loop at levels that limited pump performance (WTP-RPT-197 *Pretreatment Engineering Platform Phase 1 Final Test Report*). The entrained air degraded the ability of the pumps to meet the flow requirements.

Plant Processes Concerns (M6/M12)

- Post Filtration Precipitation – WTP has proposed a revised flow sheet to deal with the potential for post filtration precipitation. This new flow sheet relies upon a complicated control scheme to maintain the solutions below the solubility limit. In addition, temperature control at elevated temperatures (the objective is to increase the solubility) is a significant part of this control scheme. This control scheme has not been demonstrated and was not part of the pilot scale PEP demonstration. There is a significant risk that this control scheme won't work or will be too complicated to allow a reasonable production rate.

- Ion Exchange operating Temperature – As part of the above temperature control, the WTP has increased the cesium ion exchange temperature from 25 C to 45 C. Testing at ORNL has suggested that the resin may not have sufficient stability at 45 C. Testing is currently planned at PNNL to assess this impact, however there is a significant chance that these test results will challenge the design basis for the ion exchange system.

- Leaching Performance – Due to vessel corrosion concerns, the leaching temperature is limited to 85 C for the caustic leaching process. At this temperature, the leaching of the Al in the mineral phase of boehmite will be significantly limited. Boehmite leaching has a relatively large activation energy (~ 120 kJ/mole) and as such is very temperature sensitive. Limiting the temperature to 85 C will significantly limit the quantity of boehmite that can be leached. This is compounded by the recent changes for post filtration control which aim to limit the quantity of caustic used. This limitation in caustic will also significantly impact the quantity of boehmite that can be leached. Taken together, these two changes may severely limit the leaching of boehmite – which represents up to 50% of the leachable aluminum in the tank farms. This will result in a significant increase in the number of HLW canisters produced with the resulting increase in plant operating time.

- Precipitation in Permeate (i.e. filtrate) Streams from Ultrafilters - Many permeates have been found to precipitate solids following the ultrafiltration process (WTP-RPT-197 and WTP-RPT-200 Rev 1, *PEP Support: Laboratory Scale Leaching and Permeate Stability Tests*). The solids are mainly (but not limited to) sodium oxalate and sodium phosphate. These precipitates cannot be sent forward in the process to ion exchange since the ion exchange columns will plug. The precipitates are either recycled back to the head end of the pretreatment process or dissolved with additional water. In either case the efficiency of the pretreatment process is impacted.

- Process Control – The WTP will also rely upon a process control scheme that includes very limited sampling after waste has left the feed tanks. This lack of process control input will lead to a very conservative approach to process operations. In particular, the control of process rheology will be a significant challenge. Small variation in process performance can produce significant swings in process stream rheology. The proposed rheology control strategy has not been demonstrated and was not part of the PEP demonstration.

- Process Stream Recycle - The WTP process involves a significant number of recycle streams that have the potential to recycle problem components. Known problem components include: Technetium (Tc), oxalate and glass forming chemicals. These components may buildup in the recycle streams causing various process difficulties.

  - Some of the Tc is volatilized in the melters (both LAW and HLW) into the melter off-gas systems. The off-gas streams are scrubbed to remove the Tc (and other components) which is recycled back to the pretreatment facility. Since both melters volatilize the Tc, the Tc will buildup in the process system. Glass forming chemicals that are recycled may form insoluble sodium alumino silicates in the evaporators in the pretreatment facility. This is an issue that has occurred at SRS as part of the DWPF processing. Sodium oxalate is sparingly soluble and preciptitates in the filtrates from the ultrafiltration process. If the precipitates are not dissolved with excess water they are recycled back to the head end of the pretreatment process.

- Systems Engineering Update needed - Potential system impacts of changing processes and equipment indicate that a complete systems engineering review is needed to ensure integrated performance and to compare projected performance to processing requirements.

  - For example, in response to the identification of a caustic corrosion issue, the leaching temperature has been dropped from 100 °C to 85 °C. This impacts the rate at which Boehmite is leached. To offset the lower leach temperature, the processing time can be extended, more caustic can be added or a lower extent of leaching can be accepted (potentially increasing the amount of HLW produced). Another example is the proposed lower rheological operating limit of 6 Pa for yield stress (raised from 1 Pa) in the UFP-2 vessels. This increased limit is being considered to address an uncertainty associated with mixing of settling solids in the "Non Newtonian" vessels and may be achieved by operating at a higher solids concentration limit. This will impact the leaching, washing and filtration operations in the UFP-2 vessel.

Gas Retention Concerns (M3)

- There are significant uncertainties associated with a lack of quantitative results for PJM mobilization of settling cohesive slurries, and other uncertainties are associated with a lack of information for waste properties needed for quantifying PJM performance and gas retention. (See WTP-RPT-177 *An Approach to Understanding Cohesive Slurry Settling, Mobilization, and Hydrogen Gas Retention in Pulsed Jet Mixed Vessels*.) The vulnerability that results from these uncertainties is that the PJMs have not been shown to have adequate performance with cohesive solids which could lead to buildup of cohesive solids in the bottom of the vessels that could retain up to 20-30% flammable retained gas.

  - The first category is Technical Uncertainties for PJM Behavior with Settling Slurries

  - There is a scarcity of testing data for PJM performance on settled or stratified cohesive layers, and it is unclear if the existing correlations developed for vessels without layers can be used for settling waste. While the previous studies on PJM mixing of uniform non-Newtonian materials quantified many aspects of the PJM performance, data to quantify the roles of important operational parameters (jet velocity, pulse size, and duty cycle) and geometry (number of PJM tubes, nozzle size, bottom shape) are absent.

  - The second category is Technical Uncertainties for Waste Characterization.

  - The most significant uncertainty is that the existing models and data on settling dynamics and the strength of settled layers have not included experimental testing to confirm the scaling behavior or to determine the increasing strength with depth into a settled layer. It is expected that a sound understanding of settling dynamics will be needed to design, or to determine the operating limits of, a mixing system capable of managing the strength and thickness of settled layers.

[1] It was noted by the DNFSB (J Mansfield to I Triay, January 6, 2010, attachment 1) that simulants with bounding cohesive properties are likely to be more difficult to suspend than noncohesive simulants.

[2] Presentation by Dr. David A. Gottschlich, Independent Project Analysis, Inc, Titled *New Technology and Solids: A difficult Combination*, January 17, 2008 in Appendix A.4 of Smith et al, July 2009, Slurry Retrieval, Pipeline Transport & Plugging and Mixing Workshop, PNNL-18751.

[3] A key message from a work shop sponsored by the US Department of Energy's Office of Engineering and Technology Office of Environmental Management was that laminar-flow regimes should be avoided in the design of slurry pipelines (Smith et al, Slurry Retrieval, Pipeline Transport & Plugging and Mixing Workshop, Vol 1, July 2009, PNNL-18751)

[4] A concern with the available net positive suction head (NPSH) was also noted by the DNFSB (J Mansfield to I Triay, January 6, 2010, attachment 4).

From: Russo, Frank M (WTP)
Sent: Wed Jul 14 21:15:22 2010
To: 'Dale_E_Knutson@orp.doe.gov'
Cc: Ashley, Gregory
Subject: Fw: Heads Up
Importance: Normal

With all due respect, fishing for issues (and Donna helping create one) will not help anyone. Ashley is the voice of the entire Technical organization and if a critical question isn't asked or vetted by him, then it just doesn't count. Greg, from our side, you need to get this type of churn under control.
Frank

----- Original Message -----
From: Russo, Frank
To: Russo, Frank M (WTP)
Sent: Wed Jul 14 16:23:38 2010
Subject: FW: Heads Up

-----Original Message-----
From: Busche, Donna (URS)
Sent: Wednesday, July 14, 2010 1:56 PM
To: Ashley, Gregory
Cc: Russo, Frank; Gay, William (URS); Patterson, Thomas
Subject: Heads Up
G

Quick heads up on a conversation in 2440 a few minutes ago related to mixing.
We had a meeting first thing this am to discuss WTPs resent response plan to the CSSG report sent to ORP. During that mtg I communicated our plan to systematically conduct a high level hazop to address the changes from mixing. My input was consistent with the plan and input provided to Jeff Monahan in the trend. Meeting went well and the ORP attendees agreed with our path forward to align the license (PDSA) and update the CSER.
Subsequent to that mtg, I received a call from Gary Brunson and Rob Gilbert. They had received feedback from the morning mtg and had questions and concerns. I circled back by Gary's office to conduct the discussion in person. They asked very direct questions related to the ENS involvement and buyin to the vessel summary reports, heel cleanout studies, impact assessments to PSA and PVP etc..... My response seemed to differ from discussions they have had with you and others from engineering. Specifically, I communicated that ENS had been involved at a cursory level, and reiterated our trend input that realigns the PDSA starting with a hazop. They were under the impression that we had a more active involvement had concurred/approved of the path forward.
Gary indicated his frustration and indicated he would call. I tried to soften after his reaction and confirmed our commitment to deliver a compliant 3009 DSA that is implementable in the field. I also reminded him that this is an iterative process. With that said, it is clear that I inadvertently stirred up the customer.
I will be back after a quick lunch. I just pulled off the road to type quickly (hopefully) before the phones started ringing.
D

Krumm, Cami (WTP)

From: Downing, Katie (WGI)
Sent: Thursday, July 15, 2010 10:19 AM
To: Krumm, Cami (WTP)

Attachments: During a meeting with Bill Gay last Wednesday 7.doc

During a meeting with Bill Gay...

Katie Downing
WG Business Services
(509) 371-8362
kadownin@bechtel.com

[redacted]

During a meeting with Bill Gay last Thursday 7/8/10, Frank Russo came into Bill Gay's office and told him that Walt Tamosaitis was not allowed back on the WTP project. Frank stated that he tried to work a different solution but discussed this with the Federal Project Director whose response was any costs incurred for Walt Tamosaitis would be considered unallowable. Frank stated, the Federal Project Director was not going to respond to threats of whistle blowing.

From: Olinger, Shirley J
Sent: Fri Jul 16 15:05:52 2010
To: Russo, Frank M (WTP)
Subject: Re: Heads up
Importance: Normal

That is good. Dale should have Keith K help him thru this if Don A gets involved. Let me know if you need help w/David K or HQs.
Txs, sjo
----- Original Message -----
From: Russo, Frank M (WTP) <frusso@bechtel.com>
To: Olinger, Shirley J
Sent: Fri Jul 16 07:52:57 2010
Subject: Re: Heads up
Yes. Very aware. He was equally concerned when Kosson had one of Walt's emails forwarded to him. Kosson was not happy. Brunson was the one who told me about Kosson concerns. Who knows how he plays into this.
----- Original Message -----
From: Olinger, Shirley J <Shirley_J_Olinger@RL.gov>
To: Russo, Frank M (WTP)
Sent: Fri Jul 16 10:49:12 2010
Subject: Re: Heads up
Is Dale aware of both Walt and possibility of Don A?
----- Original Message -----
From: Russo, Frank M (WTP) <frusso@Bechtel.com>
To: Olinger, Shirley J
Sent: Fri Jul 16 07:36:25 2010
Subject: Fw: Heads up
Fyi re Walt.
----- Original Message -----
From: Triay, Ines <Ines.Triay@em.doe.gov>
To: Russo, Frank M (WTP)
Sent: Thu Jul 15 19:41:19 2010
Subject: Re: Heads up
Thanks Frank for this communication. I truly appreciate it.
Ines

----- Original Message -----
From: Russo, Frank M (WTP) <frusso@Bechtel.com>
To: Triay, Ines
Sent: Thu Jul 15 19:07:34 2010
Subject: Heads up
Walt Tamositis (URS) had lost focus after we put Mike Robinson in charge of M3. Towards the end, he became disruptive and sent emails out that caused CRESP and others concern. I asked URS to transfer him and gave then a couple of months to do it. When he sent one email to many, I told URS that he had to leave because he was undermining M3. He left the project 6/30 but still remains a URS employee. He is very annoyed because he intended to retire off of the project. That was never an option. Heads up, he is now going to the differing professional opinion process to try to call into question the very work he led for several years. I asked pethick and Leo to manage him the

best they can given the rights we all have re differing professional opinion. But I suspect Walt intends to make trouble. We are ready for it and have all necessary answers and documentation. Just wanted you to hear it from me.
Frank

From: Gay, William [/O=WGIEMAIL/OU=FIRST ADMINISTRATIVE GROUP/CN=RECIPIENTS/CN=GAYWW844]
Sent: Wednesday, July 28, 2010 1:46 PM
To: Pegram, Linda
Subject: FW: Walt Tamosaitis Job Assignment

From: Wright, Todd
Sent: Fri 7/23/2010 3:30 PM
To: Gay, William
Subject: RE: Walt Tamosaitis Job Assignment

This is unfortunate.....we look forward to the August meeting.

From: Gay, William
Sent: Fri 7/23/2010 2:44 PM
To: Wright, Todd
Cc: Sain, Leo
Subject: RE: Walt Tamosaitis Job Assignment

Todd,
I am sad to report that Walt has made disparging comments and initiated letters that have made allegations against WTP. I am not sure where it will end up. I doubt that the Walt-Sellafield temporary assignment will come to pass. I do want to thank you for trying to help in this area.
As it currently stands, the trip to Sellafield is still on schedule.
Thank you
Bill Gay

From: Heaston, Suzanne
Sent: Tue Jul 27 17:16:16 2010
To: Kennedy, Daniel E; Bohne, Jason; Ashley, Gregory
Subject: Conference call for DNFSB issue
Importance: Normal

All:
Can you be available at 10:30 for a conference call to discuss strategic communications to address the Walt T. letter? Jason has provided questions that we need answered to develop messages.
Greg: We'll need you for questions one and two.
We've learned that Senator Murray's office, appropriators and authorizers have the letter. Jamie Shimek contacted Dan and Erik Olds. Jamie reiterated the need for a response so that she can assist with disseminating our messages.
Carrie Meyer informed me that DOE-HQ (Ines?) contacted DNFSB Chair Peter Winokur as part of their regular process for letter disposition. He did not seem overly concerned. However, Carrie also said that DNFSB's Badar has an "urgent" call into Dave Brockman, ORP manager---we don't know the subject.
Suzanne

From: Bohne, Jason

Sent: Tuesday, July 27, 2010 9:11 AM

To: Heaston, Suzanne

Subject: DNFSB issue

Suzanne,

Thanks again for the conversation. As we discussed, it seems there are three areas we need to have the facts on:
1. Technical issues he raised -- What areas? Did we resolve? What reviews have occurred to back up our response? Is there a basis for further review?
2. WTP processes for collecting and resolving technical issues -- Are they used (how often)? Were they followed here? Is DOE generally involved? Does WTP really have a culture of suppressing safety and technical concerns?
3. URS process for moving him -- was there something out of the ordinary? Is it typical for URS to move senior technical people while job is still going on? Does DOE management typically get involved when a senior person moves?

Jason

Jason Bohne
Public Affairs manager
Bechtel National, Inc.
5275 Westview Drive
Frederick, MD 21703
240/379-3149 (office)
240/344-1616 (cell)

jbohne@bechtel.com

From: Ogilvie, J
Sent: Tue Jul 27 18:54:07 2010
To: Russo, Frank M (WTP)
Subject: Stuff
Importance: Normal

How's vacation?

Walt T is now an official WB.....??

What action or inaction were taken by urs/wgi with regard to walt T ? Did they do as requested by you?

What would u like me to do?

Linda Rakow- she has annouced that she will retire and go to work at SLAC. Miller is in a panic and will pay her anything to stay. I have never been impressed by Linda and wanted to get your opinion.

Other than Maureen who would u propose as a replacement?

Scott

From: Heaston, Suzanne
Sent: Tue Jul 27 17:16:16 2010
To: Kennedy, Daniel E; Bohne, Jason; Ashley, Gregory
Subject: Conference call for DNFSB issue
Importance: Normal

All:
Can you be available at 10:30 for a conference call to discuss strategic communications to address the Walt T. letter? Jason has provided questions that we need answered to develop messages.
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Suzanne

From: Bohne, Jason

Sent: Tuesday, July 27, 2010 9:11 AM

To: Heaston, Suzanne

Subject: DNFSB issue

Suzanne,

Thanks again for the conversation. As we discussed, it seems there are three areas we need to have the facts on:
1. Technical issues he raised -- What areas? Did we resolve? What reviews have occurred to back up our response? Is there a basis for further review?
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3. URS process for moving him -- was there something out of the ordinary? Is it typical for URS to move senior technical people while job is still going on? Does DOE management typically get involved when a senior person moves?

Jason

Jason Bohne
Public Affairs manager
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5275 Westview Drive
Frederick, MD 21703
240/379-3149 (office)
240/344-1616 (cell)

jbohne@bechtel.com

From: Walker, David
Sent: Wed Jul 28 17:05:09 2010
To: Ogilvie, J; Russo, Frank M (WTP)
Subject: RE: WTP Tomasitis Event/Update on WMAB Technical Committee
Importance: Normal

I talked with Ines. She had talked with Leo earlier this AM. We had pretty much the same message. Her fundamental question(unanswered) is why/how did we handle WT's move/departure so poorly. What was communicated by whom to whom and what were we thinking. She believes from DK feedback that we will manage through the technical issues and DNSB investigation part satisfactorily although at cost of significant disruption/time etc. Need to be sure "Hill" get covered and protect the $50 million.

Told her I met with Bernie. He is not allowed to be fully forthcoming under his Agreement and Ines knows that. What BM told me and I relayed to Ines: Expect that team will conclude plant will function but may they have a few improvement ideas-they are chemistry and process plant people. He thinks group will advocate more that project needs more effective transition plan from EPC to SU/operations; maybe operators working now or soon with more details-not new thought but group may have some ideas on how and what. The group will meet with WTP team and Ines for update next week. Tentative public meeting set for September 15th.

DW

-----Original Message-----
From: Ogilvie, J
Sent: Wednesday, July 28, 2010 12:15 PM
To: Russo, Frank M (WTP); Walker, David
Subject: Re: WTP Tomasitis Event

Thanks

----- Original Message -----
From: Russo, Frank M (WTP)
To: Ogilvie, J; Walker, David
Sent: Wed Jul 28 11:35:59 2010
Subject: Re: WTP Tomasitis Event

Yes. She, Poneman and Dale stated that they understand reason for Walt's departure and support BNI management. They are not happy with URS handling.

But this could all change. DOE can't be seen as involved.

----- Original Message -----
From: Ogilvie, J
To: Walker, David; Russo, Frank M (WTP)
Sent: Tue Jul 27 14:58:32 2010
Subject: Re: WTP Tomasitis Event

Frank, have u briefed Ines?

----- Original Message -----

From: Russo, Frank M (WTP)
Sent: Wed Jul 28 16:15:19 2010
To: russo10@llnl.gov
Subject: FW: WTP Tomasitis Event
Importance: Normal

From: Ogilvie, J
Sent: Wednesday, July 28, 2010 9:15:17 AM
To: Russo, Frank M (WTP); Walker, David
Subject: Re: WTP Tomasitis Event
Auto forwarded by a Rule
Thanks
----- Original Message -----
From: Russo, Frank M (WTP)
To: Ogilvie, J; Walker, David
Sent: Wed Jul 28 11:35:59 2010
Subject: Re: WTP Tomasitis Event
Yes. She, Poncman and Dale stated that they understand reason for Walt's departure and support BNI management. They are not happy with URS handling.
But this could all change. DOE can't be seen as involved.
----- Original Message -----
From: Ogilvie, J
To: Walker, David; Russo, Frank M (WTP)
Sent: Tue Jul 27 14:58:32 2010
Subject: Re: WTP Tomasitis Event
Frank, have u briefed Ines?
----- Original Message -----
From: Walker, David
To: Ogilvie, J
Sent: Tue Jul 27 14:56:44 2010
Subject: WTP Tomasitis Event
This is the letter Tomasitis sent to DNFSB. It is alive and growing. DNFSB has allegedly ordered an investigation. This may not have been a well orchestrated separation-getting the details- and therefore this could be an unfortunately messy event.
DW
-----Original Message-----
From: Heaston, Suzanne
Sent: Tuesday, July 27, 2010 10:28 AM
To: Walker, David
Cc: Ashley, Gregory; Bradford, Richard
Subject: David Walker requests confidential letter
David:
Attached please find the WT letter. Rick Bradford has asked me to phone you about a potential Hill communications strategy. I will do that shortly after speaking with Dan Kennedy who is on hold on the telephone right now.

Thank you.
Suzanne

-----Original Message-----
From: Asliley, Gregory
Sent: Tuesday, July 27, 2010 7:21 AM
To: Heaston, Suzanne
Subject: David Walker
Suzanne, David would like a copy of the letter.

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON

IN AND FOR THE COUNTY OF BENTON

WALTER L. TAMOSAITIS, PHD, an individual, and SANDRA B. TAMOSAITIS, representing the marital community,	)	
Plaintiffs,	)	
vs.	)	Case No. 10-2-02357-4
BECHTEL NATIONAL, INC., a Nevada Corporation, URS CORPORATION, a Nevada Corporation, FRANK RUSSO, an individual, GREGORY ASHLEY, an individual, WILLIAM GAY, an individual, DENNIS HAYES, an individual, and CAMI KRUMM, an individual,	)	
Defendants.	)	

DEPOSITION OF DONNA BUSCHE

Taken at the instance of the Plaintiffs

Monday, May 16, 2011

1:31 p.m.

1030 North Center Parkway

Kennewick, Washington

BRIDGES REPORTING & LEGAL VIDEO
Certified Shorthand Reporters
1030 North Center Parkway
Kennewick, Washington 99336

BE IT REMEMBERED that the deposition of DONNA BUSCHE, was taken in behalf of the Plaintiffs pursuant to the Washington Rules of Civil Procedure before Kimberly Keith, certified Shorthand Reporter for California, Nevada and Washington, on Monday, May 16, 2011, at 1030 North Center Parkway, Kennewick, Washington, commencing at the hour of 1:31 p.m.

* * *

APPEARANCES:

For the Plaintiffs:	JOHN P. SHERIDAN, ESQ. The Sheridan Law Firm, P.S. Attorneys at Law Hoge Building, Suite 1200 Seattle, Washington 98104 (206) 381-5949
For the Defendants, URS Corporation, William Gay, Dennis Hayes, Cami Krumm:	TIMOTHY L. LAWLOR, ESQ. Witherspoon*Kelley Attorneys at Law 422 West Riverside Suite 1100 Spokane, Washington 99201 (509) 755-2027 tml@witherspoonkelley.com
For the Defendants, Bechtel National, Inc., Frank Russo, Greg Ashley:	JOSH PREECE, ESQ. Corr Cronin Michelson Baumgardner & Preece, LLP 1001 Fourth Avenue Suite 3900 Seattle, Washington 98154-1051 (206) 625-8600 jpreece@corrcronin.com

(DONNA BUSCHE, called as a witness by the Plaintiffs, being first duly sworn to tell the truth, the whole truth and nothing but the truth, was examined and testified as follows:)

EXAMINATION

BY MR. SHERIDAN:

Q Okay. Please state your full name for the record.

A Donna Marie Busche.

Q And what is your address?

A [redacted] Richland, Washington.

Q All right. And with whom are you employed?

A URS Corporation.

Q And how long have you worked for them?

A Approximately five and a half years.

Q Okay. And what's your job title?

A Manager of Environmental and Nuclear Safety.

Q And how long have you had that position?

A Approximately two and a half years.

Q What did you do before that?

A I worked for an LLC within URS down at the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

Q And what did you do there?

A I was the chief nuclear engineer and manager of

nuclear safety.

Q All right.

A I'm not on camera.

Q Right.

Could you describe for us what does it mean -- what is environmental and nuclear safety in lay terms?

A In lay terms. And I'll respond to that with what I believe my fundamental responsibilities are. Okay.

Q Thank you.

A For environmental and nuclear safety, both regulations governing those areas require preparation of the documents. If it's an environmental, I'm responsible for the coordination and preparation of the dangerous waste permit, for the waste treatment facilities.

On the nuclear safety side, I'm responsible for developing and coordinating the safety basis documents that will be used to license the five facilities that we have.

Q Okay. And what is your expertise? What's your educational background?

A Bachelor of Science from Texas A&M University in nuclear engineering. And I have a Master's of Science in health physics from Texas A&M University.

Q Okay. All right. And with regard to the Waste Treatment Plant, basically for the last two and a half

THE WITNESS: Some are very formal requests; some are very informal requests. It depends on the form in which the issue is raised.

BY MR. SHERIDAN:

Q Okay. And in this meeting that we were talking about that the document referred to as the choke on the cherries meeting, did you raise the issue of a hazards analysis?

A I don't believe I raised an issue. I just communicated -- it may have been surprise to many people in the room -- that we were planning to do a systematic evaluation of hazards. It was already on my radar screen, there were technical issues in the document that we have today, and I was already in the process of planning that.

So when I was looking at Walt's list, my personal reaction was "Huh." It was just one of, "Oh, my heavens, I haven't seen this" -- "I haven't seen these before," but also processing, I'm obligated to address these. All right? So --

Q All right. Can you tell us, is it typical for you to not have seen that 50 items list before?

A Oh, yeah.

Q Oh, okay. So that wasn't out of the ordinary?

A No.

Q All right. Can -- did you have an exchange with Barbara Rusinko regarding your intent to do this hazards analysis?

A I believe we did have a brief dialogue, but it was -- I think her and I were more in the -- "the meeting is not being constructive, because of the technical debate going on," and it wasn't a technical debate meeting. It was "We need a disposition and get this to the customer" meeting.

I remember her asking me, "When are you going to do this?" something along those lines.

Q Do what?

A The hazards analysis.

Q And what did you say?

A And I says, "We're in the planning phase, and some" -- I don't want to speculate, but it was more along the timing of when was I going to do that, and I'm, like, "I'm in the planning phase."

Q Is it true that she said something to you along the line that "You need to do it fast" or words to that effect?

MR. PREECE: Object to the form.

MR. LAWLOR: Same objection.

THE WITNESS: I don't -- I don't recall those specific words, but I do -- I do -- there -- there was --

there is a lot of pressure for us to do it quickly, but I don't remember if she made those exact -- stated those exact words.

BY MR. SHERIDAN:

Q All right. Is it fair to say that she -- that from what you heard, you heard that that was her intent, whether you remember the specific words?

MR. PREECE: Object to the form.

THE WITNESS: I -- I don't believe I interpreted her words to mean do it fast or do it quick. I -- I actually interpreted the -- the questions more as to "Why do you need to do this hazards analysis?"

BY MR. SHERIDAN:

Q Okay. And did you respond to that?

A No, I didn't, because at this point in time I don't need her permission to do that, so I wasn't going to --

Q Okay.

A It wasn't a debate that I was even willing to entertain.

Q Okay.

A Okay?

Q And at that time, within the chain of command, was she a peer of yours, was she higher, lower?

A She was a peer of mine, but she was acting for

Greg Ashley, so in the context of the meeting, she was a supervisor.

Q All right. Okay.

(Plaintiffs' Exhibit 1 was marked for identification.)

BY MR. SHERIDAN:

Q Okay. You have in front of you now what has been marked Exhibit 1 for identification, and it should -- it has what we call Bates stamps on it. If you look at the lower right-hand corner, you see a "WLT" and then "1933," and it goes up to 1944. Would you just first verify that you have all those pages.

(Witness complies.)

(Witness examines document.)

THE WITNESS: Yes, I do.

BY MR. SHERIDAN:

Q All right. And is -- do you recognize this to be a copy of the -- the 50 items issues list that Dr. Tamosaitis presented at that meeting with you and Ms. Rusinko and others?

A This list appears -- this list does not appear to be the exact list that was handed out in the meeting. I remember it being a Microsoft Excel spreadsheet.

Q Okay.

A This appears to be -- and I -- I won't -- I

won't speculate as to where it came from. But it looks like a follow-on activity of that list.

Q Okay. So it looks like a printout.

Do you -- if we go through some of the items, will you be able to -- do you have a memory of the items that were on the list to some degree?

A I'm -- it will -- it will depend.

Q Okay. All right. I want to first bring your attention to Item No. 3.

A Okay.

Q And it says on the title "Non-Newtonian Mixing Test."

Do you know what that is?

A The non-Newtonian mixing test was one of the technical issues raised by the External Flowsheet Review Team is my understanding.

Q Okay. Now, you said that -- I heard you use the phrase "nuclear safety issue."

A Uh-huh.

Q Is that a nuclear safety issue?

A Yes.

Q And why is that?

A It's a nuclear safety issue in the context that for non-Newtonian vessels, in -- in the nuclear license for the pretreatment facility, I will -- I will have to --

our team will have to document the control strategy. So we have to be able to demonstrate the requirements of how to mix, how frequently to mix, and provide the technical basis that it is mixed.

Q Okay.

A So it's nuc- -- it's a nuclear -- nuclear safety issue.

Q All right. Let me turn the page now to the second page of the exhibit, Bates-stamped 1946, and ask you to look at Item --

A 1946?

Q Yes, so it's Bates-stamped 1946 on the second page.

A 1934 is my second page.

MR. PREECE: 1934 is my second page.

MR. SHERIDAN: Oh, oh, my mistake. I gave you mine. I'll go with you guys. Okay. It's 1934.

THE WITNESS: Okay.

BY MR. SHERIDAN:

Q And on the second page, take a look at Item 10, and I'm trusting it's the same.

Does it say "Heat Pump-Out Demo"?

A "Heel Pump-Out Demo."

Q "Heel Pump-Out Demo."

And is that a nuclear safety issue?

MR. LAWLOR: I'm going to object to the form of the question, "a nuclear safety issue."

BY MR. SHERIDAN:

Q Is that -- is that the wrong way to phrase that?

A I understand. I believe what you're asking. But I won't -- I won't speculate.

Q All right.

A So when you say "nuclear safety issue" to me, here's what I interpret that to mean.

Q Please.

A Okay. Am I required or obligated to address whatever's in this column in the safety basis document. Okay?

Q Yes.

A Okay. That's -- that's the way I'm interpreting the question.

Q And that's how we'll --

A Okay?

Q -- our definition from here forward.

A And so when -- when I would say Item No. 10 is for Heel pump-out and demo, okay, I would say yes, it will be addressed in the safety basis document and it will have a safety function specific to the removal of solids from the vessel.

Q Okay. All right. How about Item No. 12, and go ahead and read that into the record.

A "Sampling Process Limits and System Operating Review."

Q Uh-huh.

A Oops. Let me turn off my phone. Sorry.

Q Yeah.

A I would have to respond, I think, looking at the "Other Description and Comments" column, that -- okay. Let -- let me back up.

We have known performance issues with respect to the sampling system in the pretreat facility vessels. Okay?

Q Okay.

A And the technical issue that I am resolving, and I don't know if this is -- summarizes it here, is relative to the performance and the ability to obtain a representative sample from the vessel. Okay? So when it says "System Sampling Process Limits and System Operating Review," I'm not really sure what context that that's written -- written there.

Q All right.

A Okay.

Q So -- so you -- just looking at that line, you really can't tell?

A Sampling, I know what that -- I mean, individually I have -- yeah, I have some -- some -- some thoughts with respect to the nuclear safety issues, but combined, I'm not really understanding the context.

Q Okay. I'm going to just read you a sentence and ask if that -- this provides any context. "Because of the inadequate mixing resulted in nonhomogeneous mixtures, added samples will be needed to ensure the process remains within safe operating limits."

Does that provide any context that's helpful?

A I am -- what are we reading from?

Q My own notes.

A Oh, your own notes?

Q Yes.

A Oh, okay. Yes.

Q And --

A And so when I say "representative sample" --

Q Yes.

A -- okay, one of the -- one of the technical issues associated with the pulse jet mixers and spargers, okay, for non-Newtonian vessels with the ability to get a homogeneous mixture going in the vessel so that when the sampling system took a grab sample, it actually got a representative sample. So I think we're saying, although

worded differently, they're --

Q In that context, would you call it a nuclear safety issue?

MR. LAWLOR: Object to the form.

THE WITNESS: I would say it's undetermined at this time. We have no performance issue. So --

MR. SHERIDAN: Okay.

THE WITNESS: -- at this point I don't know if the current sampling system will be able to provide a safety function.

BY MR. SHERIDAN:

Q Okay. How about Item 14, "PT Samplers Demonstration"?

MR. LAWLOR: Is that a question?

MR. SHERIDAN: Yes.

MR. LAWLOR: I'm going to object to the form.

BY MR. SHERIDAN:

Q Is that a nuclear safety issue?

MR. LAWLOR: Object to the form.

MR. SHERIDAN: Okay.

THE WITNESS: I would say that this, to me, is very much along the same lines as Item No. 12. Okay?

BY MR. SHERIDAN:

Q Meaning you can't tell from the context?

A No. From -- from the sampling systems overall,

there are known technical issues with the performance of the design. So until the known technical issues get addressed by engineering --

Q Okay.

A -- I don't know how to disposition a nuclear in the licensing document.

Q Okay. Did you receive a copy of the 50 item list at that meeting that we've been discussing?

A Yes, yes.

Q What, if anything, did you do with the list?

A I provided that to Mark Metzger, who is my lead supervisor for the pretreatment facility --

Q Okay.

A -- and said, "Make sure you address this in your hazards analysis."

Q All right. And so it's your understanding that assuming that this -- this constitutes the same list that was at the meeting --

A Uh-huh.

Q -- that Mr. Metzger has -- has reviewed these items or his people?

A Correct.

Q All right. And when you said that there are still unresolved issues, you mean issues that -- you mean that as we sit here today, there are technical issues that

are still unresolved that make it impossible for you to decide whether that you would -- that would make this a nuclear safety issue?

MR. PREECE: Object to the form of the question.

MR. LAWLOR: Join.

MR. SHERIDAN: Now you can respond.

THE WITNESS: The nuclear safety issue that I -- the documents and the license have to address are where are the solids. Okay?

MR. SHERIDAN: Okay.

THE WITNESS: Simple issue.

The sampler system should be able to provide technical information by taking a sample. We have known performance issues that engineering is addressing, so I would say I need sample information ultimately to be addressed in the license. I do not have an adequate technical basis today.

MR. SHERIDAN: Okay.

THE WITNESS: And this is not uncommon for a design/construct build. It's an unresolved issue today.

BY MR. SHERIDAN:

Q All right. So -- so some of these issues that were -- that Dr. Tamosaitis presented on June 30th, 2010, have still not been resolved today?

A To my knowledge, that is true.

Q All right. How about Item 15, if -- is that a nuclear safety issue?

MR. LAWLOR: Object to the form.

MR. SHERIDAN: And if you guys want, we can make a standing objection that whenever I say "nuclear safety issue," you object. Is that okay?

MR. LAWLOR: That's fine with me.

MR. SHERIDAN: All right.

THE WITNESS: Okay. Rheology control demonstration --

MR. SHERIDAN: Yes.

THE WITNESS: -- that -- that will be addressed in the license, okay, in that it will go -- I believe M3 provided very valuable information to start that dialogue, right, is the next step of my iteration. I've taken the output, we're evaluating it, and that the large scale integrated test will help refine that control, so.

BY MR. SHERIDAN:

Q Okay. So -- so, again, the answer is "We don't know yet, but" -- "but at least here we have the large scale integrated test we think is going to provide that answer"?

A I know what I know, the large scale integrated test will inform it further.

Q Okay. How about looking at Item 16, "Weight Percent Control Demonstration." Is that a nuclear safety issue?

A In -- in my vernacular, I would call that an initial condition that resulted from M3 testing. So it's a reality. It's -- it's what we know today, but it is one of those that is -- it will be a key input or assumption in the nuclear safety analysis.

Q Okay. How about No. 18, "PU Control Plan"?

A Yes. That is a nuclear safety issue directly related to inadvertent criticality.

Q All right. And would you explain in lay terms? What are you talking about?

A In lay terms, when there is fissile material present -- plutonium is fissile material -- we are required to evaluate the form, the quantity, and the distribution of the plutonium -- plutonium in the facility, not just the vessels; and we have to be able to demonstrate that either criticality is credible or incredible, and write a control strategy based on whatever the answer -- that's not a right or wrong answer. It's either credible in the plan or incredible. And the control strategy follows.

Q Has that analysis been done?

A We have a criticality safety evaluation report,

so -- that has -- that was issued prior to M3 testing, based on the results of -- and I call it the interim testing, which was done in September of -- I want to say '09, okay, so there was two phases to the M3 testing --

Q Okay.

A -- that the sample results communicated to me by the engineers indicated that the document that we coordinated, which is a criticality safety evaluation, assumes a sample accuracy of 95 percent, okay. So I've got an uncertainty of 5 percent. So that was an assumption in the criticality safety evaluation.

The M3 initial phase before the -- the final push demonstrated we couldn't meet that efficiency. So since a sampler system couldn't meet it, I can't credit the control. So that's why it's a technical issue with respect to the sampling system.

Q All right. And is that the case today?

A They -- yes. They are working on test objectives for the large scale integrated test to understand the performance of the sampling system.

Q So at the time of the M3 closure, you were not able to say -- meaning June 30th, 2010, you were unable to say that this -- that this criticality was incredible --

MR. LAWLOR: Object to the form.

///

BY MR. SHERIDAN:

Q -- as a risk?

A I would say at the time that M3 closed, I had a document that said it was incredible. The results of M3 made that document inconclusive, so not abnormal in a design/construct build.

I have documents that go through -- I'm evolving the criticality analysis, at the same time evaluating -- excuse me, evolving the safety basis document. And those two at the end have to line up, but I had a technical input as a result of M3 that said criticality was questionable.

Q Okay.

A Okay?

Q And that technical input as a result -- when you say "as a result of M3," do you mean that somewhere before June 30th, 2010, or on June 30th you made that conclusion -- reached that conclusion?

A Okay. My understanding of EFRT M3 response is the initial path at the test concluded around the September/October time frame of '09 --

Q All right.

A -- okay, or that's when I started going to plan-of-the-day meetings, so the date is not hard and fast in my brain.

The final test objectives, okay, prepared for the M- -- the final phase of the M3 testing. My organization did prepare a document that said we need to go evaluate -- excuse me. We established a testing criteria for the final phase of M3 to address criticality. So we addressed that there shall be no accumulations of solids, okay --

Q Okay.

A -- and that you have to be able to -- I'll just leave it at that. No accumulation of solids was the fundamental requirement. Okay?

Q All right. And did you have any role in the M3 closure?

A No.

Q Okay. So -- so that was simply input you gave to your management, that there -- that in the future, the design has to be there will be no accumulation of solids?

A No, that was actually in a formal report --

Q Okay.

A -- that was issued to the M3 testing team and subsequently the Department of Energy. Okay, it's not uncommon. I provide input to the designers and the testers, so that's -- we did that. At -- at -- when the testing was completed, the vessel closure packages were

then provided to my organization for further evaluation into the nuclear safety document.

Q Okay. All right. Okay.

A So I didn't provide it to management, because I believe I am the manager responsible to do the analysis.

Q Got it.

A Okay?

Q This list that we've marked as Exhibit 1, did you have any discussions with your management chain of command after you received it?

A About the list, no.

Q Okay. How about the -- some of the issues we've been discussing?

A I did have a discussion with Greg Ashley with respect to the hazards analysis.

Q Would -- please tell me about that.

A And he indicated that I didn't need to do the hazards analysis, that Walt was being reassigned, and that I, in my authoritative voice, says, "I'm obligated to do the hazards analysis." And he reiterated, "You don't need to do it." And I said, "I have to do it," and then I left his office.

Q How -- when did that meeting take place with Greg Ashley?

A Oh, I believe it was the day after the June 30th

meeting with Ms. Rusinko.

Q All right.

A But I would have to confirm my calendar.

Q All right. And did -- when Mr. Ashley told you that Walter Tamosaitis was being reassigned, did he tell you why?

A No.

Q Okay. Did he -- did he in his conversation link the fact that Walter Tamosaitis was being transferred to the argument that you didn't have to do the hazards analysis?

MR. LAWLOR: Object to the form.

MR. PREECE: Object to the form of the question.

MR. SHERIDAN: You can answer.

THE WITNESS: I don't believe he inferred. It was just a simple statement, "You don't need to do the hazards analysis. Walt is being reassigned." So I didn't care what the reason was after the -- because of the comma.

MR. SHERIDAN: Okay.

THE WITNESS: It was I was obligated to do that.

BY MR. SHERIDAN:

Q All right. And so you left his office basically having told him that you're obligated to do the analysis?

A Sure.

said, "This is inadequate," and the company has said, "Well, we're going forward"?

MR. LAWLOR: Object to the form of the question.

THE WITNESS: I will tell you that the nature of my job is to challenge engineering and operations, and I will say we routinely have spirited debates. Okay? At this point in time, I am still responsible to produce the nuclear safety document, and so I have -- we're in the iterative process. So "no" is not an uncommon word on both sides of the table, but at the end of the day, my job is to hold the line.

BY MR. SHERIDAN:

Q Okay. And --

A Object to the form of the answer. I don't know, but --

Q Have -- have you done this particular job at other places?

A Yes.

Q Have you ever been fired from your job?

A I have been removed from my position, yes.

Q Have you been removed because of taking a stance like we've been discussing?

A Yes.

Q Was it while employed with URS?

A Yes.

Q When did it happen?

A At the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

Q Tell us what happened.

A There was an issue with receiving a waste drum from the State of Idaho, the advanced -- no, excuse me, from Hanford. It was actually a Hanford drum. It was then placed in the facility. Just for the record, the facility is where transuranic waste is finally disposed of under a RCRA permit. Okay.

Q Transuranic.

A Transuranic. Okay.

There are two forms of waste that are authorized to be disposed there: contact-handled and remote-handled transuranic waste.

MR. SHERIDAN: Okay. You got it?

THE WITNESS: I'll slow down.

We received a drum from Hanford. Okay. The drum was in place in the mine. Okay. It read 270 millirem neutron per hour on contact.

MR. SHERIDAN: Okay.

THE WITNESS: Okay.

BY MR. SHERIDAN:

Q When you say "it read," you mean somebody measured it?

A The instrument. The instrument read 270 millirem per hour neutron. That's the source of the radiation on the contact -- on contact of the drum. That would exceed the waste acceptance criteria for that facility. Okay. It was -- so that's an environmental issue.

Q Right.

A That's not necessarily a nuclear safety issue, but that same RCRAirement was also in the safety basis document. It was in a technical safety requirement that says you cannot dispose of waste greater than 200 millirem per hour as contact-handled. Okay? There is a different packaging requirement for remote-handled.

So -- and as the issue was resolved, in my world, in nuclear safety space, I did an unreviewed safety question determination and concluded it's safe -- it's safer to leave it in place. It's clearly a RCRA issue, go deal with the state, but that we had a TSR violation. So we convened what we call the Plant Review Committee. We notified the Department of Energy that we had violated our TSRs.

Q Could you say what's a TSR?

A Technical Safety Requirement. Sorry.

And life went on. Approximately --

Q Did you notify the state too?

A I don't know if they did.

Q Okay.

A That wasn't my job there.

Q Okay.

A Six to eight weeks later, I -- I had recently just finished up an update to the DFA. Okay? So in the -- in the context you asked the question. I was asked to go to a meeting. When I walked in, it was a pretty furious meeting between the Rocky Falls -- excuse me, the -- the DOE -- the senior DOE manager there and the senior URS manager there. And I concluded relatively quickly they wanted to overturn the reporting of the TSR.

Q Meaning not report?

A Rescind the report, correct.

Q When you say "resend," you mean resend and modify?

A Close -- okay. The way you report in the Department of Energy system is you prepare an occurrence report. So it's formally in their occurrence reporting system, and so you can close or you can -- you can cancel the occurrence reporting system, and there is a process -- the report in the system.

And so they were looking for my buy-in several weeks after the fact, six to eight, to change the designation that it was a TSR violation. And so I held

the ground, and it ended up probably not as professionally as I would like, where I said, "If you want a different answer, get a different chief nuclear engineer." And the following Monday I was told that I was being reassigned.

Q All right. And did you come here after that?

A After a period of about two to three months, yes.

Q Okay. Were any of the people who were in your management chain at that facility -- are they in your management chain here?

A At the corporate level, yes.

Q And what level -- what persons would that be?

A Leo Sain.

Q And to your knowledge, did Leo Sain have anything to do with your being transferred out of that position?

A I can't speculate. I would suspect he would.

Q Okay.

A I was key personnel on the contract, so.

Q All right. And would you just state for the record what it means to be key personnel?

A Key personnel means you're actually a named individual in the contract that has specific

responsibilities identified in the statement of -- statement of work.

Q And doesn't it also mean that you can't be removed without DOE approval?

A That is correct.

Q Who was the DOE person that was dealing with this particular issue at that site, if you recall?

A The senior DOE person in the room was Dr. Dave Moody.

Q And who -- who else was in the room?

A Oh, it was a room full of people. I don't know if I can remember that.

Q Anyone involved in the Waste Treatment Plant?

A No.

Q Okay. All right. And when you -- so this happened about two and a half years ago?

A It was prior to me -- that was my last assignment before coming here.

Q All right. Since you've been here, have you had any concerns that the positions you're taking might lead to the same result?

MR. LAWLOR: Object to the form.

MR. PREECE: Object to the form.

THE WITNESS: I have expressed concerns on what

Safety class – required for protection of Public

Safety Significant – required for protection of collocated worker.

----- The impact of on nuclear safety is indeterminate until completion of Large Scale Integrated Testing, Potential impact (if known) is annotated. DRS 5/16/11

WTP POTENTIAL OPEN ISSUES TASK LIST
Research and Development
30-Jun-10
Original list prepared July 9, 2009

NOTES - The Project has just over $200M at risk for startup and operations
The following list of 2010 items has not been screened and is not prioritized.
Prime owner shown for task is estimate by WLT
Issues listed are intended to: 1- improve plant ops, 2- reduce S & C risk, 3- reduce dollars.
Issues that were again brought up but first identified in 2009 are shown bolded in the 2009 list below.

—— Technical issue is required to be resolved for final development of the nuclear safety basis document (10 CFR 830, Subpart B)

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner	Where is it Listed and/or Tracked?	If Dispositioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments

The following tasks were identified in the 2010 process review.

2010 TECHNICAL ISSUES -

1	N/A	Improved Efficiency HLP-22 PJM Array	On-hold?	Improve the efficiency of the HLP-22 PJM array thereby reducing Engr and fab costs while improving mixing robustness. This would provide cost savings and risk reduction.	The design changes made to HLP-22 are inefficient and therefore require excess PJMs. A center array should be tested. This was suppose to be part of post M3 closure optimization.	Engr & Ops Process Tech (R&T)						
2	N/A	Improved Efficiency UFP-1 PJM Array	On-hold?	Improve the efficiency of the UFP-1 PJM array thereby reducing Engr and fab costs while improving mixing robustness. This would provide cost savings and risk reduction.	The design changes made to UFP-1 are inefficient and therefore require excess PJMs. A center array should be tested. This was suppose to be part of post M3 closure optimization.	Engr & Ops Process Tech (R&T)						
3	N/A	Non-Newtonian Mixing test	Being evaluated by the TSG	Demonstrate adequate mixing and bottom clearing with settling solids in a non-Newtonian slurry. Especially needed under 6- 10 Pa.	Special review team chaired by Dr. Wilmarth, SRNL, was brought in to evaluate this topic.	Engr/Process Ops Tech (R&T)						
4	N/A	PJV Capacity Evaluation	?	Evaluate the adequacy of the PJV system to handle PJM exhaust. Need review of the complete air system.	Does continous mixing mean continous or is air flow stopped at times to enable other tanks to mix. Is this part of M3 post closure activities? When is report to be issued?	Engr						
5	N/A	PJM air use strategy and operating plan review	?	Need to review the PJM air use plan to ensure all tanks are mixed adequately and consistently.	Have PJM operational restrictions been established due to limited air capacity?	Engr						

UNKNOWN the ability of the pulse jet mixers to adequately mix vessels is a credited safety function to prevent hydrogen detonation due to a release of hydrogen. Efficiency and performance of pulse jet mixers required during Large Scale Integrated testing

Safety class mixing is required for protection of the public

the exhaust of hydrogen from the headspace of the vessel is a safety class function.

required to be addressed in chapter 4 of safety basis document to demonstrate system performance

EXHIBIT D. Bache 1 5/16/11 RR

WLT001933

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner	Where is it Listed and/or Tracked?	If Dispositioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments
6	N/A	Air System Review for Accumulator capacity	?	Are more accumulators needed in the air system? Can the air system provide what is needed with the many changes that have been made?	Should be part of the air system review.	Engr						
8	N/A	Temp and Molarity Impacts on RF Resin	Data being analyzed	Analyze RF test data for temp/molarity impacts on RF life and capacity. Recent test data as part of M6 process limits indicates a reduced operating range at higher temps and molarity.	Need to access for throughput and cost impact if resin life is reduced.	Ops Process Tech (R&T)						
9	N/A	PT M6 Process Limits Evaluation	Scheduled to start in July	Conduct M6 Process Limits review for PT process. PT process limits assessment was not done pending resolution of the flowsheet	With leaching now targeted for UFP-2 and all the CNP/CXP changes, the process limits review must be done. Cooling may also be needed.	Ops Process Tech (R&T)						
10	N/A	Heel Pump out Demo	Part of large scale demo?	Demonstrate performance of heel pumpout system. Do it now vs startup and reduce S/U time and risk. Include test of boroscope and camera.	How many tanks are impacted? What do in tanks which do not have it? Include as part of large scale demo.	Ops Process Tech (R&T)						
11	N/A	Process Control and pipe hangers design review	Being worked?	Process Control and pipe hangers design review based on higher than 1.5 spg pumped out of tanks initially. Due to marginal mixing, the tanks will have a skewed concentration gradient with much heavier concentrations at the bottom of the tanks. This will initially impact pumpout.	If spg limits are established as part of process control, impact on ops and thoughput must be accessed.	Engr						
12	N/A	Sampling, Process limits and Systems Operating Review	?	A systems review is needed of the WTP process to examine for the practicality of operations with all the process requirements.	A step by step walk-through is needed to examine if the proper samples, lab time, instrumentation, etc enable the plant to be adequately operated.	Ops						
13	N/A	Process control and product quality review	?	Sampling and lab time could exceed allowable time. Can process be kept within limits with current controls?	Is more or alternate lab space and support needed?	Ops						
14	N/A	PT samplers Demonstration.	Part of large scale demo?	Sampling streams with solids and settling solids is difficult especially with non homogeneously mixed vessels. Need to determine accuracy and bias of samplers with several feeds. Reduces startup risk.	Test (P9) of Vit system samplers resulted in several changes and that stream was homogeneous. The PT stream is not homogeneous. Demo in the large scale test.	Ops Process Tech (R&T)						
15	N/A	Rheology Control Demonstration	Part of large scale demo?	Define and demonstrate PT rheology control scheme to keep yield strength within limits especially if it needs to be controlled within specific limits to prevent settling. Need to account for dilutions,flushes, etc. Evaluate additives and margins.		Engr						
16	N/A	Weight percent control Demonstration	?	How control weight percent?	Needed for several tanks	Engr						

same as item 5

No known nuclear safety impacts at this time

CXP/CNP are safety class systems currently in redesign

control/removal of solids from vessel has several inputs into the hazards analysis and will be included in the safety basis document for both criticality safety and release of hydrogen.

piping is a safety significant design feature. the ability of pipe supports to "support" the pipe throughout normal, abnormal, and accident conditions is required in Chapter 4 of the safety basis document

same - all related to sampling

impacts / supports several hazards analysis currently under evaluation of Rhodia performance issues

Currently required to ensure that the PJMs can adequately mix (i.e. release hydrogen and prevent accumulation of solids)

vessels are a safety class design feature wt % is an initial condition that must be controlled to ensure the vessels provide credited safety function

WLT001934

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner	Where is it Listed and/or Tracked?	If Dispositioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments
17	N/A	Product Quality in a Timebased Control System	Fall back if other control schemes are inadequate	Lack of adequate samples, inadequate level detection, and bubbler ops problems means a timebased system may be implemented.	The rheology of materials is time dependent. If uesd, how will this be factored into the control scheme for safety and processing?							
		sampling - same as above										
18	N/A	Pu Control Plan		While Pu with adsorbers may not be an issue, if the PuO2 crit limit of 200 grs/vessel is to be protected, will all incoming samples have to be analyzed for this? How? Where?								
		required by criticality safety evaluation report (in revision) and DOE-STD-3013										
19	N/A	CNP Mass Balance Assessment	?	Review CNP mass balance. It appears that the the CNP evaporator will use more nitric than it recovers.		Engr/Ops						
		hazards analysis of CXP/CNP redesign underway										
20	N/A	Nitric Acid addition in Caustic Tank Evaluation	?	Review the safety of adding nitric acid to to the caustic HLP27/28 tanks. An exothermic reaction will occur. Has the exothermic reaction been evaluated or will another nuetrallizing process step be added?	Has this been reviewed? Is cooling or other measures needed?	Engr						
		will be evaluated in hazards analysis of HLP system										
21	N/A	LAW HEPA LIFE Evaluaiton	?	With the scrubbers removed, the LAW HEPA life appears to be less than a month. Frequent maintenance and change out will reduce throughput.	What is projected HEPA life?	Ops						
		no known issues or impact to nuclear safety at this time										
22	N/A	Large Particle Dispostion	?	Define how large particles will be dispositioned in every tank. Will particles be ignored, pumped out, assumed not to come, etc?? Define the plan.		Engr/Ops Tech (R&T)						
		directly relate to PJMs and their performance — ability to provide credited safety function										
23	N/A	Contract, R&T Plan, and Addendums Scrub	Will start in July	Review, list, and provide dispostion of each issue listed R&T have been dispositioned.	This will need to be done as part of an MSA for the ORR.	Ops Process Tech (R&T)						
		N/A										
24	N/A	Melter Gas Addition Evaluation	?	Evaluate materials of melter riser material due to addition of Argon gas (causes reducing environment). Argon gas has been added to help prevent foaming in the riser and improve pour control but this creates a reducing environment which can negatively effect platinum. Platinum is only good in an oxidizing environment.	Use another gas?	Engr						
		for HLW facility										

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25	N/A	System descriptions Upgrades	?	With the many changes to the flowsheet (UFP-2 leaching, CNP/CXP, temp changes, etc), the system descriptions need a thorough review. Need to ensure that Ops Tech (Ops Tech (Ops Tech (R&T))) process knowledge and recs are included.	A PIER in 2009 required R&T to review process description sections. This has not been done to any great extent. Process descriptions not only capture knowledge but also provide input for operating procedures.	Ops Process Tech (R&T)						
26	N/A	Review all materials of construction especially in pumps and control valves. Rubber used in many places.	?	The transfer pump to HLP-27/28 has rubber casing liner which will not be suitable in a rad environment. Need to check all similar and associated equipment.	Rubber does not hold up in rad environment.	Engr						
27	N/A	CXP 4 tank system control demonstration	?	Need confirmation of control scheme to ensure no precipitation or throughput restraints exist. Mitigates startup risk and problems.	Test in PEP?	Engr/Ops Tech (R&T)						
28	N/A	Inline or at-line process control evaluation	?	Added sampling and process knowledge requirments have grown as the process has been worked on. Inline or atline sample analysis and controls can reduce lab work and improve controls.	This could greatly aid operations, throughput, and quality.							
29	N/A	Interface and WAC sample Analysis Requirements	Active	Need to ensure all needs are met. Need to evaluation RDQO, ICD-19, M-1, M3, prequal, etc to ensure appropriate samples taken and analysis done.	Need WRPS involvement	Ops						
30	N/A	LAW canister decon demo.	Been discussed before. Final decision not made.	Identified as an issue in the TMP/TRA.	How representative is the data to actual conditions?	Ops						
31	N/A	LAW lid attachment.	Been discussed before. Final decision not made.	Change design to welded LAW lids so that contamination potential is reduced. Replace push in lids with welded lids. Why take a chance with contamination? Identified as an issue in the TMP/TRA.	Data indicated that one in five canisters had leaking head issues. This will impact throughput.	Engr						
32	N/A	Expanded Waste Characterization	On-hold pending RDQO and non-Reg DQO	Improve waste characterization data on particle size, solubilities, settling velocities, etc. This will greatly aid plant operations and feed planning.	Include data needs in sample analysis planning (RDQO, ICD, crit samples)	Ops Tech (R&T)						
33	N/A	Filter Cleaning with Oxalic Acid.	?	Define filter cleaning steps and how oxalic acid will be used. Nitric acid in PEP was not very effective in PEP. Oxalic acid was. Need to ensure this is added to the plant process and properly reviewed.	Oxalic works best on iron. If oxalic acid was needed in PEP why does the plant not have it permanetly installed?	Engr/Ops						
34	N/A	Caustic Use Optimization	?	Review and optimize caustic useage inlight of lower leaching temp. Part of contract stretch incentive fees.	Lower temps will impact boehmite leaching. Why add caustic for it? Need to work on plans for stretch incentives.	1 (Ops Tech (Ops Tech (Ops Tech (R&T))))						

All changes to design are evaluated for impact to Safety basis.

transfer pumps required to be addressed in Ch 4 of the safety basis document. Material properties directly relate to system performance

hazards analysis of CXP/CND redesign underway

if implemented would require evaluation

Environmental (i.e. RCRA) issue

no known issues at this time

no known issues at this time

potential hazardous conditions to be addressed in hazards analysis

No known issues at this time

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35	N/A	Recycled Permanganate Evaluation	?	Review impact of recycled MnO4 on process rheology and precipitation. Recycled NaMnO4 could cause precipitation due to being a	Will peroxide be added to nuetralize the permanganate? If so, how much? Should Cr be underleached?	s Tech (Ops Tech (Ops Tech (R&T)))						
		potential hazardous condition to be addressed in hazards analysis		part of contract tech incentives.								
36	N/A	Waste Loading Improvements	DOE had program in 2009. Need update and definition of our role.	Improve LAW and HLW waste loading with respect to Cr, waste, and crystal formation (liquidus temp). Will improve throughput.	Part of stretch challenges. ORP has waste loading programs underway?	Ops Tech (Ops Tech (R&T))						
		N/A										
37	N/A	Technicium Effuent Evaluation	Been discussed but no action outlined.	Evaluate Tc limits, recycle, and disposition as it appears that Tc exceeds ETF limits. Tc removal was eliminated from the flowsheet due to the assumption that the Tc would go into glass. This has been shown to be an inaccurate assumption. Needs evaluation and approval for disposition.	Expand ETF, reintstiute Tc removal?							
		not a WTP issue, impact could be on ETF safety basis document										
38	N/A	Filter Fouling	?	Develop procedures to prevent biological induced fouling and corrosion of the filters. This was a problem in PEP.	Needed for both startup and layup	Ops Process Tech (R&T)						
		N/A										
39	N/A	Filter startup and cleaning procedure.	?	The PEP startup demonstrated what will happen with residual materials in the system. Guarding against this and outlining cleaning procedures are needed. Also need to consider having no filters inplace during parts of startup and commissioning.	See PEP experience	Ops						
		N/A										
40	N/A	Effect of Air Temps on PJMs	?	Evaluate thermo heating and cooling within PJMs and the effect on buildups and structural integrity. Internal air temps will vary greatly due to compression and expansion. This could impact deposition as well as structure.	Need an evaluation	Engr						
		directly relate to DJM Performance & ability to provide credited safety funct.										
41	N/A	Startup and Commission Simulant Program	To start in July	Defining requirements, developing the simulants, vendor tests, vendor quals, transportation and disposition all need to be defined. Also how to minimize amount and synergy with other testing needs definition.	This is a complicated program that needs much planning. Could involve one or multiple simulants.	Ops Process Tech (R&T)						
		~~Not to be Shown~~ N/A										
42	N/A	Suction/dilution test demo	Part of large scale demo?	Dilution in sucdtion lines is a common practice, however, controlling rheology and process sampling requirments are special additions.	Reduces startup test time and risk.	Engr & Ops Process Tech (R&T)						
		same as hot dilution and cleanout										
43	N/A	Particle Size Reduction	Nothing planned at this time?	Provide particle size reduction into WTP to provide for more robust plant	Can be done by mechanical means ahead of HLP-22 or by using HLP-22 as a separations tank. West Valley did it and SRS is planniyg to do it.	Engr & Ops Process Tech (R&T)						
		N/A										

WLT001937

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44	N/A	Particle Size Definition	?	Clearly define what is the basis of the particle sizing used in all phases of design so that it can clearly be evaluated should future work change the particle size.		Engr						related to all hazards analysis and system performance
45	N/A	Large Scale Demo	Part of M3 Closure follow tasks	Conduct large (full) scale vessel test to confirm scaling, sampling, and PJM controls	Need to demonstrate process control, sampling, and scale up mixing adequacy.	Engr & Ops Process Tech (R&T)						results of LSIT will be evaluated for impacts into the safety basis document
46	N/A	Pu and Am Dissolution	?	Based on the decisions for CXP solids resolution, it may be necessary to do additional studies/testing of oxidative leaching for prevention of dissolution of Pu and Am. The solution to prevent solids precipitation includes performing filtration, washing, etc at elevated temperatures of about 45 deg. C. Most testing of oxidative leach has been done at 25 C. However there	Suggested by E. Lee. Needs to be examined in the Haz Ops review.							CXP/CNP currently in redesign will be evaluated in the ongoing hazards analysis

The following issues were identified in 2009 as needing attention. The bolded issues were again identified in the 2010 review. They are separated into 3 groups

2009 Technical Issues - Engineering

1	5	Provide capability to change out the Demister Pad in the blackcell (gray cell)		Could have major impact on design. Need to meet with AREVA.	Part M6-CNP Program.	E			CS	N	X	Major item if it needs to be done before plant is operated.
2	6	**Evaporator Nozzle life extension**		Nozzles need 40 year life or backup plan (spare inplace nozzles?)	Relates to the demister pad changeout issue	E			CS	N	X	Relates to pad change out. Address before startup
3	7	**Improved IX column design so that air is not trapped below the bottom screen.**	WTP engr disagrees with Guz Benz on the need for the change.	resin cap, screen angle to prevent bubble entrapment	Impacts vendor design. Need to resolve potential for trapped air with Gus Benz.	E			CS	Y	X	Need to ensure robust design - col change out is difficult. May be done. Items include potential to trap air, riser location and design, and
4	42	**Validate IX H2 Venting System and verify no impacts on IX operations**		Might work but will disrupt the IX column. Part of CNP/CXP program.	Need to confirm system integration	E			CS	Y	X	H2 system could have impacts on IX.
5	8	Post Filter/Pre IX Precipitation Resolution	Design action being taken with CNP/CXP changes.	Could have major impact on design	Part of M6 CXP. Design changes most likely needed.	E			CS	Y	X	M-12 Lessons Learned
6	15	**Prevention of Suction Line Air Entrainment especially the UFP line**	Much more important now that flowsheet has been changed to UFP-2 leaching.	PEP operation highlighted the concern of air entrapment affecting the NPSH of the UFP suction line. This issue is not limited to just this line.	Need to reevaluate NPSH on critical lines.	E			CS	Y	X	M-12 Lessons Learned
7	16	Prevention of Air Entrainment in filter loop connectors.		The potential to suck air in through PUREX type connectors as well as HPAV vents should be evaluated.	Would lead to pumping issues	E			CS	Y	X	M-12 Lessons Learned. Purex connectors typically leak and therefore will leak air.

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8	20	**Define Filter Tube Manufacturing process and vendors.**		Filter flush program found cracked tubes as a result of manufacturing. Need to assign a tech lead to ensure filters are made crack-free.	Cannot put the ball solely in the vendor's court due to impact on us.	E			CS	Y	X	Need to clearly work with vendor on manufacturing process.
9	21	**NH4NO3 Stack Emissions Ports evaluation: do enough exist?**		Review if stacks have ample sampling points to detect formation	Need for qualification	E			CS	Y		
10	24	Film Cooler Design Validation		New design has not been tested. Design was changed after half scale testing was complete.	Need to review new design and decide on testing.	E			R	Y		Both WV and SRS had problems. WTP tested at half scale and then made design changes.
11	30	**HLP-22 Mixing changes**	Closed as part of M3.	Need to define mixing needs. Current design can be significantly improved.	M3	E			CS	Y	X	The M3 program
12	32	**Improved level control especially at low Tank Levels**		PJM operation and return flows disturb bubble tube ops	Level control is key operating parameter	E			CS	Y	X	M-12 Lessons Learned. Level control at low levels in PEP was a problem.
13	43	Define UFP Steam Ring Injector Design		How prevent erosion and plugging?	40 year life needed	E			CS	Y	X	M-12 lessons learned. Plugging and erosion a problem.
14	47	**Review Criticality Control Measures**		Pu will precipitate during Nitric acid concentration. Review criticality scenarios and mitigation.	Does Cr leaching impact Pu and can NaOH be kept at <.25M. This issue may be closed.	E			CS	Y	x	Relates to Myler memo. Testing with real wastes may be needed.
15	49	Define Fate of Second Phase Organics		Define where second phase goes, ex, antifoam in blend	Are decomposition products soluble? Blend and lag	E			WL	N		Are all decomposition products soluble?
16	50	**Evaluate potential for Cracking Induced by Hg**		Hg can induce meterials cracking in offgas piping	Has this been looked at?	E			R	N		Did material specs take cracking into account or only corrosion? Review design. CS if not addressed.
17	52	Improve UFP-2 Temperature control and Response Time		UFP2 response times in PEP were too slow	Need to move thermocouples? Different thermocouples?	E			CS	Y	X	M-12 Lessons Learned.
18	53	Improve Permeate flow measurement		As demo'd in PEP, improved meters needed	What meter is used? May be none issue.	E			R	Y		M-12 lessons learned. Does meter read in units that Ops will use?
19	56	Rad contamination of the steam system via a leak		Captured here for completeness	Being reviewed	E			CS	Y	X	Active item.
20	57	Rad contamination of the chilled water system		Similar to the steam sys issue (#56) but lower chance	Should be reviewed	E			R	Y		Sister item to previous item. Maybe a ghost but ought to be looked at.
21	59	TLP Evap to LAW line pluggage		Is line pluggage a possibility? Mitigation measures?	Does M1 address or is this a separate issue?	E			R	Y		
22	69	Demonstration of Melter Power supply system		Alternate wave form to be supplied	Is control demo needed? Refers to power wave form to melter.	E			R	Y		Is demonstration of power wave needed?
23	70	**Vessel ventilation system balance and impact on operations**		the limited building ventilation prevented some vessel mixing changes due to limited capability	Has the system been reviewed now that several years have passed and many changes made?	E			R	Y		System needs a review of sizing and capability
24	73	Melter feed Radar Level improvement		Radar level monitoring was greatly impacted by foam.	Is a backup to bubblers needed?	E			R	Y		Single Bubbler to be used in addition to radar.
25	76	Recovery of IX distributor nozzles.		If IX feed distributors plug, how will they be recovered?	Removing the whole column for just this is a major time consumer but this is a high prob point of pluggage.	E			CS	Y	X	Relates to fines and precipiate. How keep clean or clean if plugged?
26	78	**Post filter precipitation detection**	Part of CNP/CXP changes??	Maybe needed despite mitigation approaches	Plugging the IX column is a bad day	E			CS	Y	x	M-12 Lessons Learned. Don't need if actions taken to address solids.

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27	79	**Precipitation detection in the CNP system**	Part of CNP/CXP changes??	Maybe needed despite mitigation approaches	solids are an issue	E			CS	Y	x	
28	93	**Evaluate possibility for Sodium aluminate silicate formation due to glass formers in recycle**		SRS plugged an evaporator with NaAlSi and entrapped 3 critical masses of U when a aluminum rich stream was mixed with a silica rich stream. Relates to task 82.	Need to closely examine all recycles especially those involving glass formers.	E			CS	Y	x	Initial modeling results show the formation of aluminosilicates
29	82	Cs Entrapment in Sodium Alumino silicates		Could form after the filter	Impact LAW?	E			CS	Y	x	
30	83	RFD pump demo to show M1 performance		Will an RFD meet the line flow requirements?	M1 looked at continuous flow. RFDs are pulse flow. Risk mitigator.	E			R	X		M1 did not investigate line plugging & deposition with pulse flows.
31	98	**M-1 Closure. The Project has never accepted reports #175 and #189.**		In many cases the pipeline design has no margin due to incorrect assumptions and underprediction by the design guide. A fixed Reynolds # cannot be used. The 30% referred is base design,not an optional safety factor.	PNNL-WTP debate on basis for line design	E			CS	Y	X	
32	19	**Establish Leaching temperature and Margin for Control**	Testing underway. Test matrix may make temp differenentiation difficult.	Safety and basis for 90C max leaching needs to be verified	Current max is 90C. Lower temp could lead to TP impacts and increased HLW canister count	E			CS	Y	X	Could impact Al dissolution if temp has to be lowered. Also need to set control point.

TECHNICAL ISSUES - ENGINEERING/OPERATIONS -

1	1	**Define control of LAW Melter Feed Rheology**		Feed can exceed Pascal limits for mixing and pumping	Was recommended for M6 but not approved. Could dilute feed	Ops			R	Y		Dilute feed; use prequal test to identify. Could affect throughput
2	2	**Define Control of HLW Melter Feed Rheology**		Feed can exceed Pascal limits for mixing and pumping	Was recommended for M6 but not approved. Could dilute feed	Ops			R	Y		Dilute feed; use prequal test to identify. Could affect throughput
3	3	**Review route and disposition of IX Resin Fines**				Ops			R	Y		reduces filter life
4	4	**Impact of GFC in Recycles - effect rheology and precipitation?**		GFC can recycle back to PT via recycles	Impact on filter	Ops			R	Y		reduces filter life
5	9	**Define UFP Process Limits Eval (part of EFRT M6)**		Need to do after flowsheet is finalized.	M6 Phase II	Ops			CS	Y	X	
6	11	Oxalate Recycle Buildup Impacts on Throughput	Addressed in CNP/CXP changes	Oxalate will enter our plant saturated and with solids. The solids will build up in the recycle and reduce throughput	Oxalate and other sodium salts will reprecip in the evaporator and be fed back to the front end of PT. They will build up and reduce throughput.	Ops			CS	Y	X	Could have major TP impact
7	12	Phosphate Handling	Addressed in CNP/CXP changes	Phosphates will gel which could cause pluggage problems in many areas	Operating plans to handle Phosphate feeds need to be developed. Possibly additional cleanout ports could be needed	Ops			CS	Y	X	Could have major TP impact IF plugging occurs. Dilute feeds?

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8	14	Clean Out Port Review	Part of M3 closure. Which tanks will have it? Is is practical? What will it really be used for?	Settling solids, phosphates, and process upsets could cause line plugging. Need to review system design to ensure ample cleanout and flushing ports.	Without these, opeations could be severly hampered.	Ops			CS	Y	X	M-12 Lessons Learned
9	31	Line Plugging Recovery Planning		Need to resolve potential for line plugging and identify if sufficient cleanout ports exist	Related to M1resolution	Ops			CS	Y	X	Relates to cleanout ports -- Issue #14.
10	17	Expanded Glass Compositions-Waste loading during		Need to define glass compositions for feeds between current min glass loading and max Al	End points are known but not intermediate formulations	Ops			WL	N		Part of Na Reduction program.
11	23	Waste Qual - Plant Ops Needs integration to ensure scope is		Identify what testing must be done to validate and verify Waste qual approach	Need to include in test program	Ops			R	Y		
12	27	GFC Supply Confirmation		Need to confirm availability of all GFCs to meet our criteria	Some may not available	Ops			R	Y	X	Need to initiate supply line confirmation
13	65	Define how operator knows concentration point has been reached		Needed for operations	relates to sample and control issue	Ops			R	Y	X	Relates to task 40 - how will ops control the plant? Is operating by a calc good enough?
14	66	Define how operator knows when water goes forward or backwards, ie, when at the 3.5M point?		Needed for operations	relates to sample and control issue	Ops			R	Y	X	Relates to task 40 - how will ops control the plant?
15	95	Melter Operation Demonstration		Demonstrate operation without looking into it and standing next to it.	Relates to plant controls	Ops			R	Y		How well can operators operate the melters remotely?
16	80	How determine eluate and acid purity?		Needed to ensure no Cs in acid or contamination.	Does current sampling plan address this?	Ops			R	Y	x	Another control question
17	64	Cr Mass Balance		Are impacts of NaOH, acid, MnO4 etc evaluated for Cr.	May be closed issue	Ops			R	N		M-12 Lessons learned
18	51	Define Cr Leaching Sample plan		More samples may be needed than planned	Goes with sampling question. Can Ops really operate the plant	Ops			R	Y	x	M-12 Lessons learned
19	28	WTP Sampling Plan Definition		Samples needed for operation and diagnostics need to be reviewed.	Do enough exist to operate and trouble shoot hot ops?	Ops			R	Y	X	M-12 Lessons Learned.
20	40	Evaluate and Define Instrumentation and Control Measures for Operators		Does enough exist to run the plant based on what we saw in PEP? Can't put your ear next to the tanks to tune the PJMs.	Goes with sampling question	Ops			R	Y	X	M-12 Lessons learned. Operators cannot go into the plant the way we did with PEP. Relates to #28 and #40.
21	77	Reevaluate laboratory capacity if added samples or faster turnaround times are needed		Lab could be plant holdup	ID other lab sources and how to use them to support routine plant ops.	Ops			R	Y	X	Need to evaluate in light of samples needed, prequal, etc.
22	29	Initiation of RF Resin and seed Procurements	Underway??	We only own tech for seed to bead manufacture, not seed manu. Microbeads at risk of going out of business	Need to buy seeds and beads now to mitigate risk of vendor shutdown. This is a high priority	Ops			CS	Y	X	Definite high priority. Microbeads survival endangered. We do not own seed technology.
23	33	Define Prequal testing	"Prequal tests" are being used as capture point for everything.	EFRT Issue M5 defined the need for Prequal feed testing. Need to spec out complete plan. Needs and scope could be bigger than expected.	What will be done, how much feed is needed, where to test, when it is needed, and what to test for has not been defined.	Ops			CS	Y		Comprehensive testing needed with early batches.

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24	67	Where do Prequal testing prior to plant turnover		Plan was to use 222 Lab but recent BNI decision indicated COI	Can PNNL support? Cost?	Ops			WL	N		Will current COI prevent use of the 222 Lab?
25	34	**Improved Filter Cleaning and Microbe control**		Need to define cleaning and layup procedures. Need to test with different feeds and sequences	M-12 Phase II	Ops			CS	Y		M-12 Lessons Learned. Especially important as filters are turned over to Ops from construction.
26	36	**Review and confirm LAW Canister Sealing Method**		Press, Weld or Glue? Was defined as < TRL 6. Per DOE data indicate that 20% of canisters will require rework	Need to finalize. .	Ops			WL	Y		Closed issue??? Need to confirm.
27	39	Evaluate water flush frequency in OR model (include HPAV deadleg flushing)		Need to define how water additions, dilutions, and flushes effect throughput	Need final numbers and assumptions to model. Comment of dilute it, flush it, purge it, etc with water are made with little consideration for TP impact.	Ops			WL	Y	X	Water and oxalate could have big TP impact.
28	41	**Commissioning Feed Development**		Need to define how many feeds are needed and to accomplish what	Can they be reused or recycled?	Ops			CS	Y		
29	44	**Confirm Commissioning Simulant Supply**		How obtain amount, store, remix, etc	Relates to development issue	Ops			R	Y		Need to address shipping, aging, etc.
30	45	**Outline Commissioning Sim Disposal Plan**		Make into glass?	other?	Ops			R	N		
31	48	Verify Carbon Bed Performance		Verify performance of carbon by new vendor	Vendor switched after spec'd	Ops			R	N		Need to consider to ensure MAC limits met.
32	54	Backpulse system optimization		Need to define.	M-12 Phase II	Ops			R	Y		M-12 Lessons learned. M-12 Phase II rec.
33	55	**Need systems engineering review of systems to ensure integrated performance**		Systems have largely been looked at as stovepipes or individual systems. H2 removal system perf on IX is good example.	Was part of M6 Phase II but got dropped out. Most plant problems are at the interfaces, not within the parts.	Ops			CS	Y	X	To date, equipment has been looked at as a stove pipe. Need to do systems interaction review. This is more than process limits. Was dropped out of M-6. Needs to be
34	58	PWD tank capacity review		Are tank volumes large enough with all the planned water additions?	Throughput impact	Ops			WL	N		
35	61	**RF radiation durability**		Determines life	To be done at Oak Ridge in M6 Phase II	Ops			CS	N		Part of M6 CNP/CXP program. Being done at Oak Ridge
36	62	**RF durability in higher caustic**		NaOH operating range exceeds testing validation range for RF. Hydroxide	Tested up to 2M OH. Plant will run at 5M free OH.	Ops			CS	N		Part of M6 CNP/CXP program IF we can modify contract via ORP.
37	62A	**RF resin kinetics affected by viscosity (Na)**		Testing done 4-6M Na. Need to test wider range (3-7M Na).		Ops			R	N		Part of M6 CNP/CXP program IF we can modify contract via ORP.
38	63	**RF durability at high temps**		Resin tested at 25C. Need testing at higher temps (45C). Will test at up to 70-80C.	Especially needed if heating chosen to address post filter precipitation.	Ops			CS	N		Part of M6 CNP/CXP program IF we can modify contract via ORP.
39	81	Test for the impact of Organics and their decomp products on RF resin life and		Has previously been suggested.	Goes with rad and temp testing	Ops			CS	N		Funding exists in planning packages. Was delayed due to uncertainity with antifoam selection.
40	81A	RF line pressure if acid form exposed to		A resin plug could develop very high wall pressures if it	Review potential.	Ops			WL	Y		Need to evaluate.
41	68	Potential for GFC supply line pluggage		Was this fully mitigated in earlier testing? What do if plugs occur?	Closed?	Ops			WL	Y		Does prior testing put this to rest?

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner	Where is it Listed and/or Tracked?	If Dispositioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments
42	72	Compile Lessons Learned from the 242A Evap startup		The TF had much difficulties starting up this evaporator which is the "same' as ours.	What were the problems?	Ops			CS	Y		TF had issues starting up the evap again. Let's learn from them.
43	74	Key Rad Equipment Removal demo's		Should removal of key systems such as IX and filtration be demonstrated via remote ops during cold commissioning? EFRT also questioned this.	Maybe in the plan?	Ops			R	Y		Need to do for critical equipment. Maybe part of startup plan.
44	75	Full Scale IX Demo needed		After all the discussion and debate on the IX column, should ops be demonstrated with a phosphate feed or other and include all operating	Would be great risk mitigator. Was suggested years ago.	Ops			WL	Y		Prior agreements were made that the column would be tested full size. Is that still needed?
45	84	Nitric acid vs NaOH addition protection.		Adding the wrong chemical can have grave results	How is this controlled to prevent it?	Ops			R	Y	x	Safety and ops issue. Must be part of ops training program.
46	85	**Develop Simulant of first Hot feed and test it.**		Risk Miligator similar to cold simulant test	Needed especially if hot feed very different from cold simulant	Ops			WL	Y		Is a simulant test of the first hot feed needed? M-12 phase II rec.
47	86	**Characterize waste (esp. Gibbsite, boehmite) kinetics, solubilities,and other parameters**		Improves models	aids planning. Included as M-12 Phase II rec.	Ops			R	Y		M-12 Phase II rec
48	88	Improve sulfur leach factors		removing sulfer helps melters	Sulfate removal was once part of the process. Part of M-12 Phase II.	Ops			R	Y		Are the factors correct?
49	89	Test Aluminum solubility enhancers		aid Al removal	addresses post filter precip and other issues. Could reduce Na. Part of M-12 Phase II.	Ops			WL	N		Could be part of Na reduction program.
50	90	Test impact of Noble metals on leaching processes		Could impact	Closed? Part of M-12 Phase II	Ops			WL	N		Complete? No effects seen in lab tests.
51	94	Confirm first hot feed tank and glass composition		Relates to tasks 1,2, 18, 19, and 38	First tank will most likely change from current plan	Ops			WL	Y		Goes with Systems 4A plan involvement below.
52	96	Demo hot repeditive tasks to ensure ALARA is maximized.		Need rad test demo facilities		Ops			R	Y		
53	37	**Canister Decon Validation**		Was defined as < TRL 6	Need to demo to mitigate risk?	Ops			CS	Y		
54	22	**Tc Effluent and Reduction**		Tc from WTP will exceed ETF capability requiring expanded capability	Identify what can be done with Tc in the WTP process. Consider reinstating the Tc column.	Ops			CS	Y	X	Need to confirm the tankfarm's ability to handle WTP Tc.

TECHNICAL ISSUES - OPERATIONS - OTHER

1	97	Sulfate removal to LAW		Sulfate has inverse solubility. Do kinetics support removal when washing?	Scoping tests indicate that this is not an issue	Ops			Closed	Y		Closed. Scoping test showed quick dissolution of sulfate solids.
2	35	Define Evap Capacity		Water addition, caustic changtes,solids, all impadct evap performance	Need to define capacity	Ops			Closed			Closed. Modeling shows ample capacity even with added water.
3	13	G2 Model Resolution		***N/A for this listing.*** OngoingNeed to upgrade to include latest Glass composition, UFP operation, and NaOH concs	Will identify pinch points and TP restraints	Ops			Ongoing			Ongoing

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner	Where is it Listed and/or Tracked?	If Dispositioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments
TECHNICAL ISSUES OTHER -- TANK FARM AND TPRA												
1	18	Expanded Glass Compositions - Mission		Broader formulations are needed to ensure feeds can be handled as the Tankfarm revises the waste delivery	Tank order and sequence are likely to change thereby impacting operation is year after SU	TPRA			WL	N		
2	26	K3 Melter Refractory Supply		K3 is now obsolete. Need to identify how it can be obtained. Melter design life is 5 years.	K3 is key to current melter design. May need to develop alternate materials.	TPRA			R	N		Longer term issue. Issue includes bubbler tube material also.
3	38	Evaluate TF Systems Plan 4A Revision on WTP		Need to evaluate how it might impact our ability to make $$	need to work with the TF as feed changes and timing could impact WTP start up earnings capability	TPRA			R	Y		Ensure first hot feed tank composition does not change.
4	46	Evaluate LiOH impacts on WTP		Evaluate impact on LAW	New Process. TF has the ball but WTP needs to stay informed so we are not blindsided.	TF			WL	N		
5	60	Need for front end solids removal on WTP		Guards against large solids being sent which could settle. Would also address M-1 and M-3 issues	Cyclone? Grinder?	TPRA (TF)			WL	Y		TF must meet WTP feed spec requirements
6	67	Demo Spintek Filter		Backup for crossflows	Part of M-12 Phase II	TPRA			R	N		M-12 Phase II rec. Tankfarm can consider it. Optimization.
7	71	Melter Bubbler Placement Optimization		Added bubblers were installed in the melter but optimization (flow,multiple heads, etc) was not considered.	Could provide for improved melter capacity and throughput. Want to do before melters go hot.	TPRA			WL	N		Optimized bubbler placement to be studied with next gen melter.
8	90A	Test other simulants on PEP		Use PEP as is and do other tests	Several reports written	TF			R	Y		PEP being transferred to TF. WTP needs to maintain involvement.
9	91	Expand PEP and do integrated testing		TF will own PEP. See report	Focus on tech issues	TF			WL	N		PEP being transferred to TF. WTP needs to maintain involvement.
10	92	Expand PEP, make more prototypic, and do integrated testing.		TF will own PEP. This requires higher investment. See report	Focus on tech and training issues.	TF			WL	N		PEP being transferred to TF. WTP needs to maintain involvement.
OTHER												
1	25	SSJ process and 60 Day Process time for New Task > $600K Needs improvement		Administratium will slow down schedule especially in time of crisis	***N/A to this listing.*** Schedules need ot incorporate this timing need. Preplanning for crisis situation needs to be	Other						Not a tech program but can have big impact on tech.
2	10	EPD Closure		***N/A to this listing.*** Need to resolve final cost and ID funds	N/A to this listing.Could cost an additional $1-2M	Other						$1.5M allegedly owed.

THE WITNESS: No one individual tried to influence mine or anyone's testimony prior to the hearings.

MR. SHERIDAN: Okay.

THE WITNESS: There were a series of meetings that we called murder boards. Inez Triay, EM1 was in town, and the intent was to prepare for anticipated questions that the DNFSB and/or attorneys would ask us.

BY MR. SHERIDAN:

Q Okay. So this was the DOE -- the head of the DOE at Hanford --

A Uh-huh.

Q -- was holding meetings where -- basically helping coach the witnesses that would be called by the DNFSB?

MR. PREECE: Object to the form of the question.

MR. LAWLOR: Object to the form. I got to -- I'm going to need to ask her a couple questions about this before --

MR. SHERIDAN: Oh, oh. Attorney/client privilege ones?

MR. LAWLOR: Yeah, I don't know exactly --

THE WITNESS: No, this one's okay.

MR. LAWLOR: No attorneys were there?

THE WITNESS: No, this was -- this was a public meeting. This one's okay.

MR. LAWLOR: Okay.

MR. McPHERSON: Are you talking about the murder board?

MR. LAWLOR: Talking about the murder board. Great name, by the way.

THE WITNESS: Jeanne Dunkirk was in the room and --

MR. LAWLOR: Let's -- let's go off the record.

MR. SHERIDAN: You guys want to take it outside?

MR. LAWLOR: I want to go out and talk for a second.

MR. SHERIDAN: Why don't you take it outside. We're off the record.

(Recess taken.)

MR. SHERIDAN: Okay. Counsel, what did you determine there on the murder boards? You claiming privilege?

MR. LAWLOR: You're -- no, you're okay.

BY MR. SHERIDAN:

Q All right. Okay. So let's talk about what you've talked about as murder boards.

What happened?

A Murder board is a classic term that we use in

preparing technically for what we anticipate to be a tough series of questions. Okay? And the reason we call it a murder board is we want to be as tough as we can on ourselves, right, give ourselves critical scrutiny, but -- before we were going in for our opportunity with the Defense Board in this case.

Q Okay. Time frame would have been October of 2010?

A It would have been the -- right before, so it was probably like the 4th or 5th. The first part of the week prior to the public testimony.

Q All right.

A Public hearing.

Q And -- and who -- who ran that -- was it more than one meeting or one meeting for the murder boards?

A It was -- I think it was two and a half days, right?

Q Okay. And who -- who basically ran the meeting?

A Inez was predominantly in the driver's seat for the flow of the meeting, the discussion, making sure she understood the technical issues, okay. During the course of that two-and-a-half-day, approximately, prep se- -- prepar- -- prepar- -- preparation sessions, she did ask us to develop themes, okay, and discuss how we, as a panel,

were going to respond to questions.

So as an example, if something came up that was in my area, the panels were to defer to me. If it was something that was in an area that was engineering, we were to defer to Greg Ashley. Okay?

Q So --

A So -- yes. But we did develop themes, right, as to what we want to make sure are addressed and our responses to whatever it was.

Q Okay. What did you understand the DNFSB's hearing would be talking about?

A Their public testimony, they actually published their questions in the federal register. We -- we, the project, provided written responses to questions. When you break them down, there was approximately 400 questions.

So I believe we were there to address the Defense Board's underlying safety concerns for the -- for the pretreatment facility on the waste product -- waste -- WTP.

Q Okay. Did Inez identify any weaknesses that needed to be addressed?

A I don't recall.

Q Okay. Did -- did she talk specifically about what people should -- what the party line should be

regarding M3 closure?

MR. PREECE: Object to the form.

MR. LAWLOR: Same objection.

THE WITNESS: I don't believe M3 was even discussed other than in passing.

BY MR. SHERIDAN:

Q Okay. All right. And then -- and then you gave testimony at the DNFSB hearing, right?

A Yes.

Q And what type of questions were you asked?

A I was asked questions specifically on the nuclear safety, the licensing, technical adequacy of various parameters in the calculation, how I, as the -- the person in charge of nuclear safety, would disposition a particular item. Okay.

Q Okay. And after you gave the testimony, did anyone criticize your testimony?

A Yes.

Q Tell -- tell us about that.

A Immediately after the Thursday session, we walked to the tri-deck, which is right across from the convention center. And I was late in getting over there. I had been stopped by Roy Castorf, who is a defense board staff member.

When I walked into the room, Inez looked at me

directly and said, "Where is Chip?" as in Chip Langdon. I tried to make a joke, which I do frequently. I responded with something along the lines, "I think he's mad at me. He's probably out returning my Christmas card, ha-ha," which doesn't read well.

And she -- the way it -- from -- from my perspective, because of the Whip incident, I immediately said -- oh, wait, take it back. She responded, "If your intent was to piss people off, you did a very good job. You've pissed everyone off." So that's what I heard. I don't know if that's exactly what she said. But that's what I heard.

I will say I believe I went into somewhat survival mode, right, started backing towards the door, because she was very agitated at the -- my answers to questions in the Thursday night testimony.

Q Okay. Who was present at -- at that --

A Oh, again, this is 40 to 50 people in the room. I remember relatively close to her was Ms. Olinger, Greg Ashley, Frank Russo; they were all genuinely within her sphere. Okay?

Q Okay.

A But there's multiple conversations going on in the room. I just locked directly onto her.

Q Okay.

A Because she spoke to me, and I responded. So what others were saying, what they were doing, where they were standing, I was paying no attention; locked.

Q All right. And then what happened next?

A My deputy, Grant, sent me a BlackBerry and says, "We should leave now." So we did. We slowly backed off, and we went to a local pub just to de-stress a little bit, because it was a long day for me.

Q Okay. And did anyone have any con- -- discussions with you subsequently regarding your testimony?

A Prior to the Friday morning, I did not go, did not go to the preparation sessions. Predominantly I had -- I worked with Shirley and Inez in the past, and when they're agitated, it's not constructive. So I chose to go into my Friday testimony calm. So I just didn't go to the prep sessions.

I received numerous e-mails, "Where are you? Are you okay?" from Grant, because individuals were quizzing him. When I arrived in time to be escorted over, I was approached by Frank Russo, who asked me if I was okay, and I was. I was approached by Leo Sain, who asked me if I could answer the questions differently, and I said, "No." And it wasn't asked in a threatening -- it was just a conversational tone. I said, "Nope," and he

said, "Okay." And then we all walked into the final panel session.

Q All right. Can you tell me what testimony you gave at the DNFSB hearing that was apparently controversial?

MR. LAWLOR: Object to the form.

MR. PREECE: Object to the form.

THE WITNESS: Okay. My understanding, through feedback from others, the two areas that the Department of Energy did not -- I should say were surprised by my testimony or disagreed technically were on the topics of deposition velocity. And I took a position that was contrary to the chief of nuclear safety, Chip Langdon, who reports to Secretary Ponemon's undersec- -- office run by -- yeah, excuse me, S2, which is Ponemon.

BY MR. SHERIDAN:

Q Is that DOE, Chip?

A Yes.

Q He's a DOE employee?

A Yes.

Q And he reports to whom?

A The undersecretary's office, Ponemon.

Q All right.

A And I don't know what his first name is. I just know Ponemon.

Q All right. And what was the other thing besides deposition velocity?

A The use in the application of the quantitative risk analysis.

Q All right. And what was the difference in your testimony?

A I asserted that it was a design tool that was not complete. I needed to evaluate the design tool and that, in my professional opinion, it -- it would complicate the operations of the facility and require more controls than were currently in the design.

I also took a position that was contrary to the Department's ongoing response to a recommendation on risk analysis.

Q What was that?

A I think it was -- I don't know the exact number, but the Defense Board actually wrote a recommendation to the secretary of energy based on WTP's development of this tool, quantitative risk analysis. Okay. And their recommendation to the Department was you don't have a policy statement on risk, and you don't have a process to do what WTP is doing technically. You don't have a -- you don't have a standard, you don't have a requirement, right, so --

Q You mean big picture?

A They don't have it, correct. So it is -- I took a position that even though it's not formally transmitted yet to the Defense Board, it is contrary to the interworkings of the Department of Energy.

And I will add, although not -- not to belabor the point, that no one at the working level in DOE should have been surprised, because that's an example where I said no the first time, I disagreed, I have numerous cases where I've told them why it was a difficult tool, and as professionals, we just agreed to disagree.

Q Okay. What you described about the meeting that occurred with Inez after your DNFSB testimony, it sounded like she was sort of on a different side than the government.

Has it been your experience, in working in this industry, that the DOE may be more advocates than overseers?

MR. PREECE: Object to the form.

MR. LAWLOR: Object to the form.

THE WITNESS: My experience would say that every site I've worked at, it's been different. Okay? DOE is the owner and the regulator, and they're responsible to do oversight. For this particular project, I will say my -- my understanding is it's a more collaborative environment where the oversight is not being done by the

Department of Energy.

BY MR. SHERIDAN:

Q Did you --

A It's my professional opinion.

Q Did you -- did you tell anyone at the DNFSB that that was your professional opinion?

A Yes.

Q Okay. Were you interviewed by the DNFSB regarding -- I don't know -- safety culture or anything like that?

A That, I can't talk about.

Q Okay. And that's based on -- you can't talk about it because the DNFSB told you you can't talk about it?

A The chief counsel, Richard Azarro. That was subject to a closed hearing, and I can't discuss that.

Q Okay. Okay. Have you talked to anyone at URS about what happened at that closed hearing?

A No.

Q Okay.

MR. LAWLOR: For the record, that includes counsel.

MR. SHERIDAN: I assumed it did.

THE WITNESS: Yeah.

MR. SHERIDAN: I assumed it did.

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON

FOR THE COUNTY OF BENTON

WALTER L. TAMOSAITIS, PHD, an individual, and SANDRA B. TAMOSAITIS, representing the marital community, Plaintiffs, vs. BECHTEL NATIONAL, INC., a Nevada corporation, URS CORPORATION, a Nevada Corporation, FRANK RUSSO, an individual, GREGORY ASHLEY, an individual, WILLIAM GAY, an individual, DENNIS HAYES, an individual, and CAMI KRUMM, an individual, Defendants.	Case No. 10-2-02357-4

DEPOSITION OF CAMI KRUMM

Taken at the instance of the Plaintiffs

June 22, 2011

1:30 p.m.

1030 N. Center Parkway

Kennewick, Washington

BRIDGES REPORTING & LEGAL VIDEO
Certified Shorthand Reporters
1030 North Center Parkway
Kennewick, Washington 99336
(509) 735-2400 - (800) 358-2345

(CAMI KRUMM, called as a witness by the Plaintiffs, being first duly sworn to tell the truth, the whole truth and nothing but the truth, was examined and testified as follows:)

EXAMINATION

BY MR. SHERIDAN:

Q. Please state your full name.

A. Cami Sue Hatch Krumm.

Q. And what is your address, Ms. Krumm?

A. It is [redacted] Richland.

Q. And with whom are you employed?

A. I'm employed with URS.

Q. In what capacity?

A. I'm a Human Resource Manager at the WTP Project in Richland.

Q. Okay. And how long have you held that position?

A. Five years, one-and-a-half months.

Q. What did you do before that?

A. Before that I was a Human Resource generalist with Welch's, the grape juice company.

A. Okay.

Q. All right.

MR. SHERIDAN: Would you mark this, please, Bill.

(Deposition Exhibit Number 1 was marked for identification).

Q. (BY MR. SHERIDAN:) I have handed you what's been marked as Exhibit 1 for identification. And it's Bates stamped URS 456 through 462.

Did you recognize this?

A. Yes.

Q. What is it?

A. It appears to be my running notes on the issues that surrounded Walt during the process that I went through.

Q. All right. Did you author these notes?

A. Yes.

Q. Okay. And have they been edited by any third person?

A. I haven't read this word-by-word, but it doesn't appear to be so.

Q. All right. And could you tell me how you went about creating these notes?

A. Quite frankly, I type faster than I write by hand, and, so, when I have a situation or discussion with

any employee, and I want to remember certain facets of it, I type up notes.

Q. All right. On these notes we have sort of entries that usually have a month or more than one month, and a year. If we take an example of the August-September 2009 note, which is on page 1, which is URS 456, can you tell us when that note was made?

(Pause in the proceedings).

A. I can tell you it was during the August and September time frame. I might have typed up one or two sentences, and then as time went by, added to it. That's normally how I would do it.

Q. Okay. So, this note may have been -- Is it possible that aspects of this note may have actually been created in 2011?

A. No.

Q. Okay.

A. No.

Q. So, how about the January 10th note? Is that a note that was created in January -- Strike that.

How about the January 2010 note? Is that a note that was created in January 2010, or some other time, or don't you know?

A. It was created in January 2010.

Q. All right. And these notes, were they typed

part.

Q. Oh, house. Yeah. Let me ask the question again.

A. Sorry I didn't spell check my document.

Q. That's okay. So, Mr. Sain told you that Dr. Tamosaitis had told him that "his main concerns were for his position in the community, his family," his wife's, "status in the community, the fact that he had a new house and that he had seven years with the WTP," right?

A. That's what he said to me.

Q. All right. And Mr. Sain also "said that the options for him," meaning Dr. Tamosaitis, "were to go to the Northwest office and have him find another job for himself, have Chuck Spencer take him at WRPS or that he go back to the WTP."

Is that what he told you?

A. Those were options. And at that time I knew that I had already entertained numerous times with Chuck Spencer, you know, having those discussions, trying to place Walt.

Q. Right now I'm just trying to establish what Leo Sain said to you. It's true, is it not, that Leo Sain said to you on July 7th "that the options for" Dr. Tamosaitis "were to go to the Northwest office and have him find another job for himself, have Chuck Spencer take

him at WRPS, or that he go back to the WTP," right?

A. Correct.

Q. All right. And then Leo Sain stated that he was concerned about this situation, right?

A. Correct.

Q. Is there anything else that Leo Sain said during this meeting that's not written down here?

A. Not that I can recall.

Q. Okay. And then also on the 7th you were called up to Bill Gay's office, right?

A. Uh-huh.

Q. That's yes?

A. That's correct. Sorry.

Q. And Bill Gay said during your meeting "that he had managed to work out a deal with Frank" Russo "that would allow Walt" Tamosaitis "to come back to the project," right?

A. Correct.

Q. He told you that "the following conditions would apply to his return." The first being that "Walt would go to Sellafield for a short-term assignment to obtain valuable knowledge on the PJMs," right?

A. Right.

Q. He also told you the second requirement, that Walt Tamosaitis "would be given a specific scope with

deliverables and at the end of that time frame be evaluated," right?

A. Correct.

Q. And that he would "be given scope in a technical arena and would be an individual contributor"?

A. Correct.

MR. LAWLOR: Objection. You misstated what he said.

MR. SHERIDAN: Which one?

MR. LAWLOR: That he would not --

MR. SHERIDAN: Got it. Let me say it again.

Q. Okay. So, we are still on the second qualification. That Dr. Tamosaitis "would not be given scope in a technical arena and would be an individual contributor."

A. Correct.

Q. And then the third requirement was that Dr. Tamosaitis "would not receive an apology from Frank Russo. Further, if Frank heard Walt's name in a negative connotation, he would be gone from the project. He would have to maintain a low profile."

Is that right?

A. Correct.

Q. Were there any other conditions that you were

aware of?

A. There is another one at the top of the next page.

Q. Thanks. Good. And 4, "When Walt returned from Sellafield, he would be evaluated, along with the Sellafield manager, and Walt would also be involved in determining the best place for him at the WTP."

Is that right?

A. Correct.

Q. All right. So, as of, is it fair to say that as of July 7, you thought this would be the plan?

A. Yes.

Q. All right. And then you were also told by Bill Gay that if Walt Tamosaitis "agreed to the terms set forth, he would allow him back on the project. If not, then Frank" Russo "would not allow him to return," correct?

A. Correct.

Q. Then on July 8th you were in Bill Gay's office in the mid-morning of Thursday, July 8, with Katie Downing.

Is that right?

A. Yes.

Q. And who's Katie Downing?

A. She's the accounting manager. She works for

Daryl Miyaski.

Q. And it's true at that time that you were going over the status of Bill Gay's non-reimbursable fund and the upcoming expenses when Frank Russo walked in the door, right?

A. Correct.

Q. And then Frank Russo apologized for interrupting, right?

A. Correct.

Q. But he also said that he had just been with Dale Knutson, correct?

A. Yes.

Q. And who's Dale Knutson?

A. He is the DOE counterpart, the head of the project for DOE.

Q. Okay. And then at that time Russo said "that the M3 process had the management oversight of a PVP," namely, Robinson, "technical reports from SRNL and PNNL, DOE buy-in, and the non-newtonian issues resolved, looked at and conceded to," right?

A. Correct.

Q. Did you understand what he was saying when he said that?

A. For the most part, yes.

Q. Okay. And then Russo said that Dale Knutson

said that Walt "could go blow the whistle," right?

A. Correct.

Q. Did you have any context as to why "blow the whistle" was being raised?

A. No.

Q. Okay.

A. And I couldn't get it from Walt either.

Q. Okay. So, did you ask during this meeting why they were talking about whistleblowing?

A. They were going off my report to them, mainly to Bill Gay, what Walt had said in conversation that I had with him on the 5th of July.

Q. Okay.

A. When I was trying to dig and find out from Walt what the issue was.

Q. Okay.

A. And I was unsuccessful at that.

Q. Okay. So, if we go back to your notes for the July 5th meeting, you're now talking about the part where you said Walt told me "he felt like a whistleblower," is that right?

A. That's correct.

Q. So, apparently you gave that information to someone?

A. I gave that information to my superior, Bill

Gay.

Q. When did you give it to him?

A. The first working morning, I believe that would be the 6th of July.

Q. Okay. Now, it sounds like you think that when the words whistleblower were used in this July 8th meeting when Frank Russo walks in the door, you're thinking it's because you told Gay about the July 5th statement by Tamosaitis, right?

A. Yes.

Q. What makes you think that?

A. Because during this time our communication was flowing. Anything that I would go and advise Bill, Bill would advise Frank, and so on and so forth.

Q. Okay. So -- But is it fair to say it's an assumption on your part that this whistleblower statement is connected to your report to Gay?

A. Yes.

Q. Okay. Because nobody said at the meeting, thanks for, you know, thanks for letting us know that he used the word, that Tamosaitis said he felt like a whistleblower, at this meeting.

A. No. The concern was mine, when he talked to me about it.

Q. Got it. So, also, now back to the meeting

where Russo walks in the door on July 8th. Russo then said, "We will not pay for" Tamosaitis "on this project." Right?

A. Correct.

Q. And he said, "If" Tamosaitis "works, it will be unallowable cost." He said that, right?

A. Yes.

Q. And that was Russo?

A. Yes.

Q. What does it mean, an unallowable cost, if you know?

A. It means that if we brought Walt on, his payroll would come out of Bill Gay's non-reimbursable fund.

Q. And --

A. It's not billable to the customer.

Q. So, if Tamosaitis continued to work at WTP, it would not be billable to the customer?

A. Right. Basically, we couldn't afford it.

Q. Okay. You don't actually know whether URS could afford it, do you?

A. I know it's in Bill Gay's non-reimbursable fund.

Q. Okay. But you're not a manager of that fund, right?

A. No, I'm not a manager of that fund.

Q. Okay. Then Frank Russo also said at this meeting that "they would warn Pondeman and anyone else."

Who's Poneman?

A. That's a misspell.

Q. How should it be spelled?

A. P-O-N-E-M-A-N.

Q. How do you say it?

A. Poneman.

Q. Poneman. Who's Poneman?

A. At that time I had no idea.

Q. Do you know now?

A. I believe he is a DOE person.

Q. Okay. So, you were just writing down what you heard. You didn't necessarily understand all the references?

A. That's correct.

Q. All right. So, they would warn Poneman and anyone else. Did you understand who "they" was?

A. Well, I would have to surmise. And that would be --

Q. Russo . . .

A. It would be Mr. Russo, Mr. Knutson.

Q. Okay. All right. And Russo then stated "he would be willing to go to a dinner with his group to 'ease

the guy's pain' and personally congratulate him and wish him well on his new assignment."

Is that a reference -- He did say that, right? Russo said that?

A. Correct.

Q. Is it your understanding he was referring to Tamosaitis?

A. Correct.

Q. And when he said "his group" --

A. R & T Group.

Q. Thanks. So, then it's also true that on the 8th, after Frank Russo left, you discussed that the conditional return was obviously not going to work.

A. Correct.

Q. And that's a conversation you had with Mr. Gay, right?

A. That's correct.

Q. Anyone else?

A. No.

Q. Okay. And then after discussion with Leo Sain, you determined you would need to have a meeting with Tamosaitis when he returned from South Carolina, right?

A. Correct.

Q. So, did you actually talk to Leo Sain on the 8th?

A. Bill Gay did.

Q. All right. And what did he tell you Sain said?

A. It had to do with the meetings that were going on between Dr. Tamosaitis and Leo and Dr. Tamosaitis and Dave Hollan, in that context.

Q. Okay. And that was going to happen on July 12th, right, the meeting with Dr. Tamosaitis?

A. Correct.

Q. All right. And then on the 8th Bill Gay asked you to draw up a script indicating the efforts that had been made, that URS had made, and that due to the e-mail being the straw that broke the Camel's back and his bad-mouthing Bechtel, he would not be coming back to the project, right?

A. Correct.

Q. And that's what Gay told you, correct?

A. Correct.

Q. All right. Had you ever used a script before in an employee personnel action?

A. Personally?

Q. Yeah.

A. Yes. But not with URS.

Q. Okay. How many years had you worked for Bill Gay at this point?

A. I believe about a year-and-a-half.

Q. Okay. And he also said that "We," I guess URS, "also needed to note that" Dr. Tamosaitis "was already aware of our" URS's "efforts to place him on other projects as his department's scope was winding down," right?

A. Correct.

Q. That's what Gay told you?

A. Well, I also knew that to be factual for myself, because Walt and I had interacted together about trying to find a placement for him. It was something that we were doing prior. This was, like, May, June time frame.

Q. But that's what Gay told you, right?

A. Uh-huh.

Q. Yes?

A. Yes.

MR. LAWLOR: You have to say yes.

THE WITNESS: Sorry.

Q. (BY MR. SHERIDAN:) Leo Sain also wanted you and Mr. Gay to advise Dr. Tamosaitis to take some time off, like a week or two, to cool off and think about what he was doing and what was going on, right?

A. Correct.

Q. And you and Dennis Hayes basically put

together this script for Bill Gay and left it for him to review over the weekend?

A. Yes.

Q. All right. And then on July 12 at 7 a.m. you met with Bill Gay, Dennis Hayes and Dr. Tamosaitis in Duane Schmoker's office in the URS building in downtown Richland, right?

A. Correct.

Q. Mr. Gay began reading the script, but it was a script that was different from the one you provided him before the weekend, is that right?

A. Correct.

Q. Okay. It was one that he had handwritten on yellow lined paper but had paragraphs cut and pasted onto the paper portions of the script that you had written, right?

A. Correct.

Q. And at no time during the conversation did Bill Gay refer to Dr. Tamosaitis as being terminated, is that right?

A. Correct.

Q. Okay. Now, was it your understanding that he was supposed to say that, or not, that he follow the script?

MR. PREECE: Object to the form of the

question.

MR. LAWLOR: Join.

THE WITNESS: I need you to restate that, please.

Q. (BY MR. SHERIDAN:) Okay. So, what I'm trying to understand is the script you and Patrick had -- or you and Dennis Hayes had originally drafted, did it include the word terminated?

A. No.

Q. Okay. So, the fact that he did not say the word "terminated," was unimportant to you, right? You didn't expect him to?

A. I wanted to make sure that he did not.

Q. Okay.

A. Because that was not the case. He was not terminated. He was transferred.

Q. Okay. I guess I'm wondering why you would write down a negative, if it wasn't an issue.

You know, I mean, you don't put "probably didn't say that the sky is red." Why would you --

What made you write that down in your notes?

A. It was important --

MR. PREECE: Object to the form of the question.

Q. (BY MR. SHERIDAN:) Go ahead.

A. It was important to me that Walt understood that he was not terminated, that he was transferred, that it was not a termination, that his employment with URS had not ended. That's important to me, that he understood that.

Q. Were you concerned that Dr. Tamosaitis might not understand that?

A. No. It was more I think an emotional thing for me, to make sure that he was aware of that. That was important to me emotionally, for whatever reason.

Q. Okay. And Dr. Tamosaitis interrupted Bill Gay during the reading of the script, is that right?

A. Correct.

Q. And the first time Bill Gay spoke over Dr. Tamosaitis, right?

A. Correct.

Q. And the second time Bill Gay stopped and started answering Dr. Tamosaitis' questions, right?

A. Correct.

Q. And one of the questions he asked was whether or not Dr. Tamosaitis' attitude was any worse than Bill Gay displayed, right?

A. Correct.

Q. And Bill Gay responded no?

A. Correct.

Q. All right. And Bill Gay told Dr. Tamosaitis "that both Russo and Knutson from ORP were involved in the decision that Walt's services were no longer needed at the WTP project," right?

A. Right.

Q. The group at the meeting discussed who Walt's supervisor was, is that right?

A. Correct.

Q. And that you interjected between Bill Gay and Walter Tamosaitis, discussing the matter and told them that Richard Edwards' transfer date was July 10th, is that right?

A. Correct.

Q. And other than that, you stayed out of the discussion?

A. Correct.

Q. Okay. And Dr. Tamosaitis at the meeting tried to question Dennis Hayes but Dennis Hayes stated that he was there as an observer and did not have to answer Dr. Tamosaitis' questions, right?

A. Correct.

Q. And Dennis Hayes also said that Dr. Tamosaitis was not in control of the conversation, right?

A. He did.

Q. All right. And it was your observation that

Dennis Hayes' demeanor was matter of fact and professional?

A. Correct.

Q. Dr. Tamosaitis asked you "for a written statement as to why he was terminated from the project and for the decision-maker to sign it," is that right?

A. Right.

Q. And you advised Dr. Tamosaitis that "he was not terminated, he still had a job, as evidenced by the badging process that was about to take place, and that" you "would take his request under consideration and would get back to him," correct?

A. Correct.

Q. Dr. Tamosaitis "mentioned that over the weekend that two WTP employees had contacted him and asked him what would happen if they 'brought issues forward' as if" Dr. Tamosaitis "was being accusatory."

Is that right?

A. Correct.

Q. Could you elaborate a little on that? What did you understand was being reported to you?

MR. LAWLOR: Object to the form, calls for speculation.

You may answer.

Q. (BY MR. SHERIDAN:) I just want your

Notes from Cami Krumm

August - September, 2009
Bill Gay advised that Marshall Miller, Dennis Hayes, Richard Edwards, Walt Tamosaitis and myself were charged with the downsizing of the R&T group. Walt prepared a spreadsheet and write-up with possible positions for each candidate. We were moving forward as directed by Bill Gay up to the point that we were starting to move people (September 23, 2009) when Richard Edwards told me that no one would be released without his further approval, and that M3 testing was to take priority. At that point the group stopped active placement, with the exception of a few employees that transferred to WRPS over the winter. (Robert Disselkamp - 9/10/2009, Vijay Jain 11/14/2009, Murray Thorson 1/7/2010 and David Sherwood 3/4/2010)

January, 2010
Bill Gay advised me that he was having some issues with Walt and that he would be having a discussion with him. When I inquired as to the issues, I was advised that he wasn't being a team player. We discussed a write-up, but Bill did not want to give someone at Walt's level and tenure a write-up, but that he would have coaching and counseling sessions with him. I advised Bill that he should document the conversations he has with Walt when those issues are addressed.

April 2010
In Early April Bill Gay advised that M3 would be wrapping up in June. I was to refresh my efforts regarding placement of the R&T staff that were taken back in September. We discussed that WRPS (Chris Burrows and Richard Garrett) wanted some employees specifically. Bill advised that he had engaged in conversations with Walt about future assignments. I was instructed to contact my HR counterparts to see if there was a position available for Walt.

June 2010
I was instructed to contact Todd Wright about a possible 12 to 18 month assignment for Walt in Sellafield, Chuck Spencer for a position at WRPS, Duane Schmoker for business development opportunities and Dannis Hayes for a position to develop simulants for the test runs. I sent Walt's resume to James Smith of WSMS and also sent an email to John McKibbin at West Valley. I was not able to find a new position for Walt, although Dr. Wright advised he may have something of a temporary nature for Walt, and would communicate that in the future. Note that in an email to me on June 16 Walt states he sent the same list (of potential future positions) to Bill on June 3 - one of the items on the list is a short term assignment in Sellafield.

On June 23, 2010, Bill Gay called me to his office, and advised me to prepare a write-up for Walt Tamosaitis. He asked that it be focused on his lack of teamwork and customer relations. He told me that Walt had "demonstrated a lack of leadership and responded in immature fashion in public settings when his ideas were not received well. He advised that he displayed negative attitude towards Bechtel engineering and was demeaning to Bechtel management. He instructed me that for the next year, Walt was to get quarterly

feedback from his manager in writing, and had to continue meeting with Julie Exton, SOMA Director, as Bill had set up early in the year to help mentor Walt. He had to treat all employees the way he would want to be treated and that it was imperative that he remain calm, even when someone disagreed with him. Bill told me that there was no rush to complete the write-up, but I knew that I would be leaving for Fort Worth, Texas the next week and needed to get it done. I completed it that afternoon and took it to Bill that evening. Bill advised that he hadn't decided whether he would give it to him or when.

July 1, 2010

Bill Gay called me at about 5:10 p.m. (I was in Fort Worth, Texas). He advised me that Walt Tamosaitis wrote an email to one of the M3 reviewers an email that was not complimentary to either of our two customers. He advised that Frank Russo was extremely angry and was removing him from the project. I asked him if he had seen the email and he advised me that he had. I asked him if the email was bad. He told me that it was bad enough. He then went on to tell me that Dennis would meet with him about it. He told me that Dennis would be calling me.

Dennis Hayes called me next. He told me that he was informed by WTP (Bechtel) counsel, Jean Dunkirk, that Frank wanted Walt removed from the project, and that Frank had already had Walt's email turned off. Dennis advised me that he would need to have Patrick present during the conversation he would have with Walt on Friday morning. He then told me that his instructions were to take his badges and make arrangements to get his personal belongings with HR at a later date. Dennis advised me that he had spoken with Leo Sain and Leo requested that Dennis tell Walt to meet Leo in Aiken, SC that next Tuesday morning (Monday was the July 4 holiday). I asked Dennis if he had seen the email, and he advised me that he had not.

I next contacted Patrick Ellis, and advised him that he would need to sit in the next morning with Dennis Hayes and Walt Tamosaitis, and that Dennis would speak with Walt and Patrick's responsibility would be to obtain his badges and technology.

July 2, 2010

I received a call from Patrick Ellis at about 9:30 a.m., while I was at the airport in Dallas. He advised me that Dennis had spoken with Walt, and that he had obtained Walt's technology and badges. He advised me that Walt was understandably upset, but that there was no incident.

July 4, 2010

Bill Gay called me at about 2:00 p.m. He advised me that he would be returning to the Tri-Cities the next day, July 5, and asked that I contact Walt to see if he would meet with Bill and myself at Bill's apartment to discuss the events of the week prior. I advised him that I would.

July 5, 2010

I contacted Walt Tamosaitis and asked him to meet with Bill and myself that evening at 5:30 p.m. Walt was upset. He wanted to know why this was happening. I told him that my understanding was that he sent an email to a member of the M3 review team that was not complimentary towards our Bechtel customer, nor to our DOE customer. He told me he didn't know what I was talking about. I told him that I had not seen the email myself, but that was what I was told by Bill Gay. He told me that he would not make himself available for any meetings unless and until he received a written notification of his termination by the decision-maker. I advised him that he was not terminated, that he still had a job with URS, it was just not on the WTP project. He advised me that he was flying to Aiken, SC the next day (Tuesday July 6) and would be meeting with Leo Sain the next day, Wednesday July 7. Walt told me that he felt like a whistleblower. I asked him if he felt like he was in a whistleblower situation, and if so, why. He stated "no comment". I further pressed Walt for about five minutes, trying to get some kind of information from him regarding his statement. He finally stated, "I am not going to say anything about the situation to you or anyone else."

July 7, 2010

Leo Sain called and advised me that he had spoken with Walt for about four hours. He told me that Walt's main concerns were for his position in the community, his family (wife's) status in the community, the fact that he had a new hours and that he had seven years with the WTP. He said that the options for him were to go to the NW Office and have him find another job for himself, have Chuck Spencer take him at WRPS or that he go back to the WTP. Leo stated that he was concerned about this situation.

I was then called up into Bill Gay's office. Bill said that he had managed to work out a deal with Frank that would allow Walt to come back to the project. He said that the following conditions would apply to his return:

1) Walt would go to Sellafield for a short term assignment to obtain valuable knowledge on the PJMs

2) He would be given a specific scope with deliverables and at the end of that time frame be evaluated. He would not be given scope in a technical arena and would be an individual contributor.

3) He would not receive an apology from Frank Russo. Further, if Frank heard Walt's name in a negative connotation, he would be gone from the project. He would have to maintain a low profile.

4) When Walt returned from Sellafield, he would be evaluated, along with the Sellafield manager, and Walt would also be involved in determining the best place for him at the WTP.

If Walt agreed to the terms set forth, he would allow him back on the project. If not, then Frank would not allow him to return.

July 8, 2010

I was in Bill Gay's Office in the mid-morning of Thursday, July 8, 2010 with Katie Downing. We were going over the status of Bill Gay's non-reimbursable fund and the upcoming expenses when Frank Russo walked in the door. He apologized for interrupting, but said that he had just been with Dale Knudsen. Frank said that the M3 process had the management oversight of a PVP (Robinson), technical reports from SRNL and PNNL, DOE buy-in, and the non-newtonian issues resolved, looked at and conceded to. He said that Dale said that Walt could go blow the whistle. We will not pay for him on this project. If he works, it will be unallowable cost. The Federal Director was not going to respond to threats of whistle blowing. They would warn Pondeman and anyone else. Frank stated that he would be willing to go to a dinner with

his group to "ease the guy's pain" and personally congratulate him and wish him well on his new assignment.

After Frank left, we discussed that the conditional return was obviously not going to work. After discussion with Leo, we determined we needed to have a meeting with Walt when he returned from SC. That would be Monday morning, July 12. Bill requested a script be drawn up indicating efforts we had made and that, due to the email being the "straw that broke the camel's back" and his bad-mouthing Bechtel, he would not be coming back to the project. We also needed to note that Walt was already aware of our efforts to place him on other projects as his department's scope was winding down. Leo also wanted us to advise Walt to take some time off - a week or two - to cool off and think about what he was doing and what was going on. Dennis Hayes and I devised the script and left it for Bill to review over the weekend.

July 12, 2010

at 7:00 a.m. I met with Bill Gay, Dennis Hayes and Walt Tamosaitis in Duane Schmoker's office in the URS building in downtown Richland. Bill began reading a script that was different than the one provided to him before the weekend. It was one that he had hand-written on yellow lined paper, but had paragraphs cut-and-pasted on to the paper of portions of the script that I had written. At no time during the conversation did Bill refer to Walt as being "terminated". Walt interrupted Bill during his reading of the script. The first time Bill spoke over him. The second time, Bill stopped and started answering Walt's questions (as to whether or not Walt's attitude was any worse than what he (Bill) displayed. Bill said "no"). Bill did tell Walt that both Russo and Knudsen from ORP were involved in the decision that Walt's services were no longer needed at the WTP project.

We did discuss who Walt's supervisor was. I interjected between the two of them discussing the matter and told them that Richard Edwards' transfer date was July 10. Other than that I stayed out of that discussion.

Walt did try to question Dennis Hayes in the meeting, but Dennis stated that he was there as an observer, did not have to answer Walt's questions, and that Walt was not in control of the conversation. His demeanor was matter of fact and professional.

Walt asked me for a written statement as to why he was terminated from the project and for the decision maker to sign it. I advised him he was not terminated, he still had a job, as evidenced by the badging process that was about to take place, and that I would take his request under consideration and would get back to him.

Walt mentioned that over the weekend that two WTP employees had contacted him and asked him what would happen if they "brought issues forward" as if Walt was being accusatory. This was the first time I had heard of this, other than the discuss I had on the phone with Walt on July 5. I asked who they were. He stated "no comment". I knew if I

launched into a question pattern, he would shut me down. I immediately replied "They should bring any issues to me or the various other ways available on the project to bring issues forward".

Shortly after that, Bill finished, and got up and left, with Dennis following him. I discussed the badging that would occur that day that would allow him to get into the Fluor building downtown Richland where he would be working. The conversation ended and I drove to my office.

I was called from my office at about 9:15 that morning, to go to Vanita Johnson's office. When I got there, Jean Dunkirk was also there. Jean started the conversation that Bill had visited her right after he reached the office from having the conversation with Walt. Jean told me that Bill advised her that he "went off script and said some things he shouldn't have." At that point, I knew that they were referring to the part where Bill told Walt that it was Frank and Dale's decision to remove him from the project. Jean wanted to make sure that I was aware that she was not "our" (URS') attorney. I advised her that I was aware that she was Bechtel counsel that was located here on the project to assist the project. She shook her head and was visibly relieved, and suggested that I make Bill understand that as well. I advised her that I would.

She then asked me about efforts we had been making to place R&T employees. I told her that we had started efforts this time around in approximately April. She showed me an email string that had been during that month that included Frank and Greg Ashley. The email was primarily about the efforts Richard Edwards was making to allow him to be released to begin his new assignment in Aiken, South Carolina. I advised Jean that our first efforts had started back in August of 2009, to begin placement. When M3 became an issue, we mostly backed off, but that several R&T employees had been placed at the Tank Farm throughout the last year. I explained that we wanted to try to place them before a lay-off was necessary, and to try to place them locally so we could use their services in the future, because we were sure that we would need some of them at certain points in the operations process.

She advised me that we needed to take the stance that Walt's position was no longer required on the project. That M3 was done and that we had already been looking to place him somewhere else. She asked if we could get "someone he trusted" to talk to him about the issue and make him understand. I advised her that I would look into the matter. I thanked them and went back to my office.

July 20, 2010

At approximately 10:15, I left my office to go see one of the Bechtel HR generalists. I returned at 10:20. On my chair, face down, was a small stack of documents. I determined later that they came from Bill Gay. The documents were written summaries by Walt Tamosaitis. This was the first time that I had seen the documents, although I knew some of them existed by conversations with Dave Hollan and Leo Sain. The first one was dated July 7, 2010. The document showed a cc: Cami Krumm at the end.

Please note I had never received a copy of this document. In this document it stated that there was a list of 150 issues provided by Walt to Greg Ashley, at Greg's request. It stated that Donna Busche was also present at the meeting and that she told the group she needed to do a Haz Ops Review on the issues. Walt further states that the parties had a discussion and that after the general meeting Dona Busche and Greg Ashley had a rather "direct" discussion about the matter.

I contacted Donna Busche at 2:35 p.m. I asked her about a meeting on July 1, 2010 with Barb Rusinko, Brant Morowski and Walt Tamosaitis. She explained that there was a "clean out your desk" request made by Gred Ashley to all in his department to get all of the issues on the table to be reviewed. There were a great number of issues, and discussions were held about how to handle them. Mr. Morowski made the determination that all issues were to stand and remain on the list. Donna told the group that she would need to do a Haz Ops Review on the issues and received some push back from Barb Rusinko, but Donna advised them that she had to do her job.

Donna told me that she spoke with Greg Ashley later in the day, sometime after 4:30 p.m., but that the conversation was simply that she had to do her job. I asked her if this had been a calm, rational discussion and Donna said "Absolutely. Greg questioned me about the Haz Ops Review and I told him that I had to do one. End of issue".

I asked what the status of the issues were. She told me that at the time of the meeting some of the issues may had been resolved, some had resolutions proposed, and some needed to be looked at. She told me at that time that issues would be worked, but that it would take much longer than the two weeks that had passed since then. I asked her if she would advise me if there were problems with the issues being resolved and she said "no problem.":

July 22, 2010

I prepared to start an interview process to question all of the R&T department. My focus was to determine whether or not the group felt they could raise safety and technical issues freely, whether or not they felt they were in a hostile environment or a chilled environment. All of these allegations were made by Walt in his summary. I intended to schedule the employees over the weekend and start interviewing them when they returned from the weekend. I expected the interviews to be about a half an hour each, and would take about two days total.

On Friday, July 23, I was contacted by Bill Gay. He advised me that Walt wrote a letter to Dr. Peter Winokur of the DNFSB. He told me that an official investigation would be conducted. He advised the company would likely start an official internal investigation the next week.

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON

IN AND FOR THE COUNTY OF BENTON

WALTER L. TAMOSAITIS, PHD, an individual, and SANDRA B. TAMOSAITIS, representing the marital community, Plaintiffs, vs. BECHTEL NATIONAL, INC., a Nevada Corporation, URS CORPORATION, a Nevada Corporation, FRANK RUSSO, an individual, GREGORY ASHLEY, an individual, WILLIAM GAY, an individual, DENNIS HAYES, an individual, and CAMI KRUMM, an individual, Defendants.	Case No. 10-2-02357-4

VIDEOTAPE DEPOSITION OF FRANK RUSSO

Taken at the instance of the Plaintiffs

Wednesday, April 20, 2011
9:31 a.m.
1030 North Center Parkway
Kennewick, Washington

BRIDGES REPORTING & LEGAL VIDEO
Certified Shorthand Reporters
1030 North Center Parkway
Kennewick, Washington 99336
(509) 735-2400 - (800) 358-2345

BE IT REMEMBERED that the deposition of FRANK RUSSO, was taken in behalf of the Plaintiffs pursuant to the Washington Rules of Civil Procedure before Kimberly Keith, certified Shorthand Reporter for California, Nevada and Washington, on Wednesday, April 20, 2011, at 1030 North Center Parkway, Kennewick, Washington, commencing at the hour of 9:30 a.m.

* * *

APPEARANCES:

For the Plaintiffs:	JOHN P. SHERIDAN, ESQ. The Sheridan Law Firm, P.S. Attorneys at Law Hoge Building, Suite 1200 Seattle, Washington 98104 (206) 381-5949
For the Defendants, URS Corporation, William Gay, Dennis Hayes, Cami Krumm:	TIMOTHY L. LAWLOR, ESQ. Witherspoon Kelley Attorneys at Law 422 West Riverside Suite 1100 Spokane, Washington 99201 (509) 755-2027 tml@witherspoonkelley.com
For the Defendants, Bechtel National, Inc., Frank Russo, Greg Ashley:	KEVIN C. BAUMGARDNER, ESQ. Corr Cronin Michelson Baumgardner & Preece, LLP 1001 Fourth Avenue Suite 3900 Seattle, Washington 98154-1051 (206) 625-8600 kbaumgardner@corrcronin.com
Also present:	Walter L. Tamosaitis, Ph.D. Greg Glover - Videographer

(FRANK RUSSO, called as a witness by the Plaintiffs, being first duly sworn to tell the truth, the whole truth and nothing but the truth, was examined and testified as follows:)

THE WITNESS: I do.

EXAMINATION

BY MR. SHERIDAN:

Q Please state your full name for the record.

A Frank M. Russo.

Q What's your address, Mr. Russo?

A [redacted] Kennewick, Washington.

Q And with whom are you employed?

A Bechtel National.

Q And how long have you held a position with Bechtel National?

A With Bechtel National, approximately ten years.

Q All right. And what did you do before that?

A I worked for other elements of Bechtel.

Q All right. Mr. Russo, you are not an engineer; is that true?

A That's true.

Q And you are not a scientist?

A That's true.

Q Is it true that your educational background is basically political science?

A History, political science. Yes.

Q You have a four-year degree?

A Yes.

Q Okay. And you have no special training in engineering or science, do you?

A Other than 38 years of experience in it.

Q Well, you've been working as a manager in the field of, what, nuclear power?

A I started in nuclear power, did 14 years in nuclear power.

Q Okay.

A Fourteen years in chemical processing and then ten years with the Department of Energy.

Q But you wouldn't presume to give, for example, an engineering opinion?

A No.

Q Nor would you presume to give an opinion that would require scientific background; correct?

A Correct.

Q All right. And your current job at Hanford is what?

A Project Director for the Waste Treatment Plant.

Q All right. Do you -- do you know whether he had an engineering or science background?

A I don't know.

Q All right. Can you tell me what brought about your coming to Hanford in January 2010?

A It was at the request of the Department of Energy.

Q Anybody in particular?

A I believe Ines Triay was the one who was expressing that.

Q Okay. Did you understand when you came that there was a -- there were challenges, specific challenges that you may have the qualifications to address?

A I -- I felt I was uniquely qualified to --

Q In what -- in what way?

A Fourteen years of nuclear power plant construction, 14 years of chemical processing, and ten years of Department of Energy work.

The Waste Treatment Plant is a chemical plant inside of a nuclear facility for the Department of Energy.

Q Uh-huh.

A So as you look across our organization and many that have that particular set of experiences.

Q Right. But I guess what I'm asking is, had you

no additional risk.

Q Right.

A We just change the contract.

Q So the bottom line here though, would you agree, is that there was scientists at both DOE and within your own program that had concerns about the way that you were going forward on the non-Newtonian testing?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: And there were scientists who were at SRNL who thought it was manageable.

BY MR. SHERIDAN:

Q Okay. But you -- since you are not a scientist and not an engineer, you picked a side and went with it; correct?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: I listened to all the various inputs and acted as a catalyst to my customer so that they understood those inputs and how I interpreted those inputs.

They also asked for the interpretations of many other people, including CRESP and PNNL.

BY MR. SHERIDAN:

Q But it's fair to say though -- and PNL -- PNNL didn't agree with you; true?

A PNNL at the time had disengaged from the

project. There's a series of e-mails that talks to that, and I was working to find out why they had disengaged from the project.

Q Well, what -- didn't they tell you they disengaged because they were frustrated with how BNI was managing the process?

A No.

Q Didn't they tell you that they were frustrated that BNI was trying to pressure them into changing their opinions?

A No.

Q And that you were trying to do that?

A No. What they told me was that Walt Tamosaitis was trying to do that.

Q I see.

It was Walt -- so Walter Tamosaitis was the person who was trying to get PNNL to change its position; is that right?

A Well, I met with Mike Kluse and Terry Walton on June 16th or 17th, and did not expect to hear Walt's name at all. But when I asked them why had they disengaged at this critical moment, their answer was that they, to represent the branding of PNNL, wanted to use their peer processes and their tools to opine on the various positions and that Walt wanted someone that he could put

in his organization and direct.

And my answer to them was -- because I thought this to be true at the time, that if that is your issue, it's not a concern because I understand that Walt is going to Sellafield.

Q Okay. So -- so now we're talking about mid June; are we not?

A That's when I found out that PNNL was -- why PNNL was disengaged.

Q Well, wasn't -- didn't PNNL actually tell you something different? Tell me if they told you this. And your meeting was with who?

A Mike Kluse and Terry Walton.

Q All right. And they had never met you before this face-to-face meeting; correct?

A That's correct.

Q All right. And it's true that they expressed to you that they were wrapping up work on the project and was seriously consider walking -- considering walking away, or words to that effect?

A The original conversation was that we were using Battelle and PNNL, and in using Battelle, they were giving us a discount on their billing rate, and that they had stopped doing that, and that we were now using people from PNNL and they did not want to continue under that model.

MR. SHERIDAN: I'm going to move to strike. I'm going -- and I'll ask the court reporter to read back my question and just ask you to answer the question.

(The requested portion of the record was read by the reporter.)

BY MR. SHERIDAN:

Q Yes or no?

A No.

Q Okay. And they told you that they were unhappy with Bechtel; did they not?

A No.

Q They said that they were -- basically they -- they were mad at the way you did business?

A Yes.

MR. BAUMGARDNER: Object to the form.

BY MR. SHERIDAN:

Q They said that? They said that they -- that you ignored their scientific input, or words to that effect?

A Well, again, my recollection of that conversation was they were talking about Walt.

Q Okay. But did they say that you ignored their scientific input?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: They said that Walt was ignoring

their scientific input.

BY MR. SHERIDAN:

Q All right. Did they say that the design wouldn't work, or words to that effect, meaning M3?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: They acknowledged that they had been disengaged for some period of time and so they did not know all the changes that were taking place between January and that period of time, which was in June, but that based on what their previous detailed knowledge was, they had grave concerns.

BY MR. SHERIDAN:

Q All right. And you knew this in mid June; right?

A Yes.

Q All right. So they weren't speaking with one voice, were they?

A At that moment?

Q Right.

A No.

Q All right. And as a matter of fact, you subsequently threatened them and told them they'd made hundred of millions of dollars and they better fall in line, or words to that effect; true?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: I would never say that to Mike Kluse or Terry Walton.

BY MR. SHERIDAN:

Q All right. Did they also complain that BNI -- BNI tried to suppress data on PNNL reports, or was it that they complained Walt did, as you said?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: I actually don't recall that conversation at all.

BY MR. SHERIDAN:

Q All right. Okay. To your knowledge, did the technical staff have a good working relationship with Dr. Tamosaitis?

A Which technical staff?

Q PNNL's?

A I don't have knowledge of that.

Q All right. Do you know, what role did Dr. Tamosaitis play on behalf of BNI in relationship to PNNL?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: Dr. Tamosaitis would want access to their expertise to help validate positions that we were finding within the testing.

BY MR. SHERIDAN:

Q All right. It's true, is it not, that by mid

June, you had wanted to get rid of Dr. Tamosaitis?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: I had never wanted to get rid of Dr. Tamosaitis. I was told by URS that Walt was in the process of being transferred off the job as early as the March/April time frame, and I had told them that that was acceptable.

And by June, they told me that Walt was on the way to Sellafield any day now.

BY MR. SHERIDAN:

Q Well -- and so this -- his being moved off the project, the WTP project had nothing to do with you?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: No.

BY MR. SHERIDAN:

Q All right. And -- and how about on his last day, did you have a role in moving him off the project then?

A Yes.

Q And what role did you play?

A I had provided a professional courtesy to both Walt and to URS because when Walt's assignment was winding down, and it had been winding down for quite a while, the typical thing that happens on a project is people go to their next assignment.

Since URS had told me they were working on Walt's next assignment, and Bill Gay told me that regularly, and I -- recognizing that high paid professionals take longer than journeymen engineers to place, I gave them a very reasonable amount of time to place Walt in a new assignment.

After the conversation with Walt and Kluse where I was surprised to hear Walt's name even come up in the conversation, I immediately went back to Bill and said, what's going on with Walt, because I told them he's on an airplane to Sellafield, which is what Bill told me.

Q Bill -- Bill --

A Bill Gay.

Q All right.

A Bill said, well, there's paperwork, it's going to take another week or two. And I said, fine, let it take another week or two, but this has gone from just routine, Bill, to if Walt really is in some way deterring the kind of transparency we're looking for, you got to make this move.

Q So, you mean that that conversation you've just described to us was based on what you state has happened during your meeting with PNNL?

A With Mike Kluse and Terry Walton. Terry did most of the speaking, but Mike was there.

Q What did Terry Walton specifically say about Walt?

A That he was the primary reason that they had moved away from their relationship with the project.

Q All right. And did they say he was a challenge to work with?

A I believe that's true.

Q All right. And they said more than just a challenge to work with?

A I got the impression -- because I don't remember all the words, but I got the impression that they would have preferred not to work with Walt given the opportunity.

Q So it's your understanding, or it's your testimony anyway, that -- that the reason PNNL was walking away from the WTP was because of Dr. Walter Tamosaitis?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: It is my understanding that when I asked them why we weren't seeing them, that was the conversation.

BY MR. SHERIDAN:

Q That it was all because of Walter Tamosaitis?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: You know, they -- there may have been other things they discussed. They certainly

the only thing that would have you leave is funding.

At an EPC Project when assignments end, people leave, and if you try to keep them for an assignment beyond their pay grade or below their pay grade, you can find yourself in trouble with the IG for waste fraud and abuse.

BY MR. SHERIDAN:

Q So what was your authority to send Walter Tamosaitis off the project?

MR. BAUMGARDNER: Object to the form. Asked and answered.

THE WITNESS: My authority was based on what Bill Gay's telling me, that he was being transferred, and what I exercised was the authority to have him transferred from the cooperate office.

My contract with URS provides that authority, as does the Department of Energy's contract with me.

BY MR. SHERIDAN:

Q Your -- you think that you have the authority to remove personnel from the -- from -- from the Hanford site?

A I have --

MR. BAUMGARDNER: Object to the form.

THE WITNESS: I have the responsibility to make sure as custodian of taxpayer dollars that when an

assignment is complete, the person leaves.

In Bechtel it happens all the time. I've transferred -- well, since I've been on the job, I've transferred at least 75 people to different assignments.

BY MR. SHERIDAN:

Q So basically what you're saying then is you interpreted Walter Tamosaitis's status as being his project has ended, he's no longer authorized to be here?

MR. BAUMGARDNER: Object to the form.

BY MR. SHERIDAN:

Q Correct?

A I interpreted Walt's status as I was providing a professional courtesy to Walt and Bill while they found him his next assignment, and that that professional courtesy expired on July 1st.

Q Because of the e-mails?

A Because he was being transferred.

Q To where?

A I was told Sellafield.

Q And it was your understanding that he had based -- that URS had basically initiated paperwork to transfer him on July 1st?

A I was of the understanding that that had been ongoing since June 15th or 17th.

Q Let me ask you this: So if Dr. Tamosaitis's

job responsibility ended on July 1st, then certainly so did his team's; right?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: No, that's not correct.

BY MR. SHERIDAN:

Q Well, when did his -- you didn't have his team escorted off the property on July 1st, did you?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: Again, in an engineering procurement and construction project, for example, civil engineering finishes, but you still have -- so most of your civil engineers leave, but you still have some civil engineers that stay behind to do follow-on work.

BY MR. SHERIDAN:

Q Well, besides Walter Tamosaitis, what other members of his team left on July 1st because the work was done?

A Mike Robinson and Edwards.

Q Edwards left before that; right?

A But as part of a -- Walt was supposedly leaving before that, too.

Q I see.

A Part of a transition to another phase of the job.

Q What about everybody else?

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON

IN AND FOR THE COUNTY OF BENTON

WALTER L. TAMOSAITIS, PHD, an individual, and SANDRA B. TAMOSAITIS, representing the marital community, Plaintiffs, V. BECHTEL NATIONAL, INC., a Nevada Corporation; URS CORPORATION, a Nevada Corporation; FRANK RUSSO, an individual; GREGORY ASHLEY, an individual; WILLIAM GAY, an individual; DENNIS HAYES, an individual; and CAMI KRUMM, an individual, Defendants.	No. 10-2-02357-4

DEPOSITION OF MIKE KLUSE

Taken at the instance of the Plaintiffs

August 31, 2011

10:30 a.m.

1030 North Center Parkway

Kennewick, Washington

BRIDGES REPORTING & LEGAL VIDEO
Certified Court Reporters
1030 North Center Parkway
Kennewick, Washington 99336
(509)735-2400 - (800)358-2345

BE IT REMEMBERED that the deposition of MIKE KLUSE was taken in behalf of the Plaintiffs pursuant to the Washington Rules of Civil Procedure before Patricia E. Bute, Certified Shorthand Reporter for Washington and Oregon on Wednesday, the 31st day of August, 2011, at Bridges Reporting & Legal Videography, 1030 North Center Parkway, Kennewick, Washington, commencing at the hour of 10:30 a.m.

* * *

APPEARANCES:

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markbartlett@dwt.com

(Cont'd)

current business model, and I thought it was in both of our best interests if we got together and talked about it.

Q. All right, and that's what resulted in the June meeting?

A. Yes.

Q. All right. And at the June meeting, was there any discussions about Dr. Tamosaitis between the three of you? And we should say, for the record purposes, Mr. Walton was in attendance, too?

A. Terry Walton was in attendance. Towards the end of the meeting, Dr. Tamosaitis's name came up.

Q. Who brought it up and what was said?

A. It came up in the context of Frank Russo was new to the project. He had asked Terry, asked us both, for that matter, I need to understand what some of the issues and challenges have been because we've got to keep this project moving forward.

He said, I want to know about the technical challenges and I want to know about any issues with people. And Terry proceeded, at a high level, to talk about technical challenges.

And Frank, again, said, what about people. And at that point, and we talked about the business model in that context as well, and at that point,

Dr. Tamosaitis's name came up as being somebody that was challenging to deal with.

Q. All right, and what was discussed in that regard, as far as you can recall?

A. Well, it was really in the context of the business model, in that we were clear with Frank, we needed, we needed and wanted to, stop staff augmentation, and for those staff who weren't in an augmentation role but were there to support the project, that we could not any longer tolerate an environment where there were issues and these people were expected to drop what they were doing and respond immediately.

Q. All right, and when you say people, you mean that PNNL people are being asked to drop what they're doing and respond immediately?

A. Yes, PNNL staff.

Q. And was there any criticism of Dr. Tamosaitis at that meeting in which someone from PNNL suggested that he needed to be off the project?

A. No.

Q. Was there any suggestion by anyone from PNNL that the reason you were walking away was because of Dr. Tamosaitis?

A. No.

Q. All right, so let me take you back, now, to

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON

FOR THE COUNTY OF BENTON

WALTER L. TAMOSAITIS, PHD, an individual, and SANDRA B. TAMOSAITIS, representing the marital community, Plaintiffs, vs. BECHTEL NATIONAL, INC., a Nevada corporation, URS CORPORATION, a Nevada Corporation, FRANK RUSSO, an individual, GREGORY ASHLEY, an individual, WILLIAM GAY, an individual, DENNIS HAYES, an individual, and CAMI KRUMM, an individual, Defendants.	Case No. 10-2-02357-4

DEPOSITION OF TERRY WALTON

Taken at the instance of the Plaintiffs

June 22, 2011

10:30 a.m.

1030 N. Center Parkway

Kennewick, Washington

BRIDGES REPORTING & LEGAL VIDEO
Certified Shorthand Reporters
1030 North Center Parkway
Kennewick, Washington 99336
(509) 735-2400 - (800) 358-2345

BE IT REMEMBERED that the deposition of TERRY WALTON was taken in behalf of the Plaintiffs pursuant to the Washington Rules of Civil Procedure before William J. Bridges, Certified Shorthand Reporter for Washington, Oregon and Idaho, on Wednesday, the 22nd day of June, 2011, at the offices of Bridges Reporting & Legal Video, 1030 N. Center Parkway, Kennewick, Washington, commencing at the hour of 10:30 a.m.

* * *

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tml@witherspoonkelley.com

Q. All right.
A. And there were several other staff I'm sure.
Q. Do you know to whom those two reported in the PNNL matrix?
A. You're right. It's a matrixed organization. So, I do not know exactly who they report to.
Q. Okay. All right. Let's jump forward to June 2010 time frame. Did there come a time that you had a meeting with Mr. Russo from BNI?
A. Yes.
Q. Could you tell us what brought about the meeting?
A. The meeting was organized by -- as a result of I believe e-mail exchanges between Mike Kluse and Frank Russo.
Q. And what's your -- Could you summarize for us your understanding of what was in those e-mail exchanges?
MR. PREECE: Object to the form of the question.
THE WITNESS: The context of the meeting was one of several months of ongoing dialogue with BNI around how PNNL was engaged in support of the WTP Project and fundamentally was an issue associated with a staff augmentation, rent-a-scientist role.
Q. (BY MR. SHERIDAN:) Okay. And, so, could you

give us sort of PNNL's side of that discussion? What did PNNL want or expect, if you know?

A. We wanted to ensure that consistent with the agreement in 2007, was that we were not just providing our staff to someone else, but in fact were in a position to understand the scope of work that we were engaged in, and stand behind the products we were delivering.

Q. All right. And, so, did you attend a meeting in which Kluse, Russo and yourself were present to discuss that?

A. Yes.

Q. All right. And did you take notes at the meeting?

A. No.

Q. Did you create any kind of summary at the end of the meeting?

A. No.

Q. Okay. And tell us, at the meeting, tell me everything you recall that happened. And let's begin with who began the meeting. Who began speaking?

A. Mike Kluse started the meeting, with what you might expect as a normal pleasantries.

Q. And where did the meeting take place?

A. It was in our lab director, Mike Kluse's office.

A. The problem that we were trying to address at that time had been percolating along for several months associated with staff augmentation.

Q. Okay. Did you or anyone from PNNL at that meeting raise any concerns about specific employees that were BNI employees or URS employees?

A. When we talked about the forward lean, there were several things discussed there. Mostly bridging the gap between our engagement in 2009 to the present time, whereby Frank had asked if we would review the work that had been done at Mid-Columbia Engineers as part of the Phase II testing.

And I said, no, I didn't think that was the best use of our resources.

Q. I'm sorry. Could you just restate what it is that you said? I couldn't keep up with you on, Frank asked if you would review what?

A. The status of what I would call Phase II, I think he called it Phase II. He may not have said Phase II. But at least the Mid-Columbia Engineers testing.

Q. All right. And your response was that you would not?

A. Probably not that direct. But the point was that I didn't think that was an appropriate use of our time, because there had been a lot -- and I did say

exactly, that there had been a lot of water under the bridge since then, and this is probably a better place for us to pick up the baton going forward. I probably didn't say "baton," but you get the idea.

Q. Okay. All right. And what happened next?

A. Frank responded, that he understood that, appreciated that. Frank, his next -- the discussion was either before or after the Mid-Columbia, and I don't remember the order of that, but the discussion about the technical risks. Frank termed those vulnerabilities. And he requested a summary, PNNL's perspective of the vulnerabilities.

Q. Now, are we talking about vulnerabilities about a particular aspect of WTP?

A. Generally. Just PNNL's perspective of what are the remaining technical issues.

Q. All right. What happened next?

A. Well, we agreed -- I agreed that we would produce a list of those vulnerabilities and get those to Frank.

Q. Okay. And then what happened?

A. Then further discussion about working together.

Q. Okay. And what was that about? Tell us the details that you recall, please.

A. So, the context of that was, once again, in this forward lean, around the vulnerabilities, and how we best worked together.

He said -- he asked me a question about, "How about working with our staff? Is there anyone on our staff that you have concerns about?"

Q. Okay. And then what happened?

A. I said that working with Walt was a challenge.

Q. Okay. What happened next?

A. He said, "Walt's gone. I put him on a plane yesterday."

Q. Okay. What happened next?

A. He asked, he mentioned someone else that I don't recall the name, it was not a name I recognized --

Q. Uh-huh.

A. -- that would be taking over the interface with PNNL.

Q. Okay. Do you recall that name?

A. I was told the name. It was not someone that I recognized or knew.

Q. All right. And what happened next?

A. I think there was kind of this general feeling that, you know, we have got the right path here. There was then agreement on the vulnerability report, and I think the meeting just pretty much ended with an agreement

that we would provide the report, and we'd have a follow-on meeting with their staff. He probably said Greg Ashley, but I'm not sure, because there was introduction of this other name.

But in any case, we would agree to get our technical staff together --

Q. Okay.

A. -- and begin to reengage around a path forward.

Q. All right.

A. Now, I think it's really important to put in context the timing of the discussion around, and my comments about Walt. I've known Walt for almost 20 years. The context with that was associated with staff augmentation.

I think you can go back and see the e-mails, the undercurrent around the PNNL role. My issue with Walt was not with Walt. I've known Walt for a long time.

Q. Let me just ask you, what was your issue with Walt?

A. My issue was, he had a job to do, I had a job to do. He wanted staff augmentation, and I didn't.

Q. Okay. And when you say he wanted staff augmentation, that's going back to our discussion before where you were saying that BNI basically wanted to have an

engineer-for-hire to pluck out of PNNL and use them when they needed him?

A. Right.

Q. And this staff augmentation piece, that was a BNI piece, not a Walt Tamosaitis piece, right?

MR. PREECE: Object to the form of the question.

Q. (BY MR. SHERIDAN:) Do you know what company Walter Tamosaitis was working for at the time?

A. I know who Walt works for.

Q. Okay.

A. But within that environment, it's the WTP Project. It's not a distinction between who somebody works for. It's around the how come.

Q. All right. With regard to Dr. Tamosaitis and your relationship, did you at any time in the meeting ask Russo, ask him if you could not work with Walt Tamosaitis in the future?

A. No.

Q. Okay. So, did you ever advocate that Dr. Tamosaitis be removed from the project?

A. No.

Q. Okay. Was that your intent at any time?

A. No.

Q. All right. And, so, what else, if anything,

was said regarding Dr. Tamosaitis at that meeting, besides what you have already told us?

A. Nothing.

Q. All right. Did you respond or have any further discussion after Russo said to you that "Walt's gone and I put him on a plane yesterday"? Did you have any further discussion in that regard?

MR. PREECE: Object to the form of the question.

THE WITNESS: Not that I recall.

Q. (BY MR. SHERIDAN:) How was your working relationship with Dr. Tamosaitis?

MR. PREECE: Object to the form of the question.

Q. (BY MR. SHERIDAN:) And let me ask you, what was challenging about your working relationship, as expressed to Mr. Russo?

A. I believe I already stated, it was around staff augmentation.

Q. Okay.

A. And his desire to have PNNL staff directly supporting his functional role within the project.

Q. Got it. All right. With regard to the vulnerabilities report, did you ultimately issue, did PNNL ultimately issue one?

A. Yes.

Q. Okay. I will take that back. All right. Going back for a minute to the meeting that happened with you, Mr. Kluse, and Mr. Russo that you have been discussing.

At any time did you or Mr. Kluse say during this meeting that Dr. Tamosaitis was ignoring PNNL's scientific input?

A. No.

MR. SHERIDAN: Let's have this marked as the next exhibit.

(Deposition Exhibit Number 3 was marked for identification).

(Pause in the proceedings).

Q. (BY MR. SHERIDAN:) Have you had a chance to review what's marked as Exhibit 3?

A. Yes.

Q. Do you recognize this document?

A. Yes.

Q. And what is it?

A. I believe this is the package that is supporting M3 closure.

Q. All right. Did there come a time that you were asked, you as PNNL, were asked to basically sign off your approval of this document?

process is issue the report in draft, you get comments back. Those written comments would I guess fit in the category that you would say is objections.

Q. (BY MR. SHERIDAN:) Okay.

A. But it's just the normal process of closing out scope.

Q. Okay. So, it's fair to say it happened with M1, and it was part of the normal process?

A. Yes.

Q. All right. I may have misspoke before in my question.

Is it fair to say that in the April/May 2010 time frame PNNL, did PNNL communicate to BNI its intent to withdraw from staff augmentation?

MR. PREECE: Object to the form of the question.

THE WITNESS: Yes.

Q. (BY MR. SHERIDAN:) All right. And was that done by letter or e-mail?

A. I know there is e-mail traffic around that, but it would have been our key participants in the project, which would be Loni Peurrung, our product line manager, Paul Bredt, who I mentioned earlier as the relationship manager, and probably one or two of our technical staff.

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON

IN AND FOR THE COUNTY OF BENTON

WALTER L. TAMOSAITIS, PHD, an individual, and SANDRA B. TAMOSAITIS, representing the marital community,	)	
Plaintiffs,	)	
vs.	)	Case No. 10-2-02357-4
BECHTEL NATIONAL, INC., a Nevada Corporation, URS CORPORATION, a Nevada Corporation, FRANK RUSSO, an individual, GREGORY ASHLEY, an individual, WILLIAM GAY, an individual, DENNIS HAYES, an individual, and CAMI KRUMM, an individual,	)	
Defendants.	)	

VIDEOTAPE DEPOSITION OF DENNIS L. HAYES

Taken at the instance of the Plaintiffs

Thursday, April 21, 2011

9:33 a.m.

1030 North Center Parkway

Kennewick, Washington

BRIDGES REPORTING & LEGAL VIDEO
Certified Shorthand Reporters
1030 North Center Parkway
Kennewick, Washington 99336

BE IT REMEMBERED that the deposition of DENNIS L. HAYES, was taken in behalf of the Plaintiffs pursuant to the Washington Rules of Civil Procedure before Kimberly Keith, certified Shorthand Reporter for California, Nevada and Washington, on Thursday, April 21, 2011, at 1030 North Center Parkway, Kennewick, Washington, commencing at the hour of 9:33 a.m.

* * *

APPEARANCES:

For the Plaintiffs:	JOHN P. SHERIDAN, ESQ. The Sheridan Law Firm, P.S. Attorneys at Law Hoge Building, Suite 1200 Seattle, Washington 98104 (206) 381-5949
For the Defendants, URS Corporation, William Gay, Dennis Hayes, Cami Krumm:	TIMOTHY L. LAWLOR, ESQ. Witherspoon*Kelley Attorneys at Law 422 West Riverside Suite 1100 Spokane, Washington 99201 (509) 755-2027 tml@witherspoonkelley.com
For the Defendants, Bechtel National, Inc., Frank Russo, Greg Ashley:	KEVIN C. BAUMGARDNER, ESQ. Corr Cronin Michelson Baumgardner & Preece, LLP 1001 Fourth Avenue Suite 3900 Seattle, Washington 98154-1051 (206) 625-8600 kbaumgardner@corrcronin.com

Ashley.

THE VIDEOGRAPHER: Would the court reporter please swear in the witness.

(DENNIS L. HAYES, called as a witness by the Plaintiffs, being first duly sworn to tell the truth, the whole truth and nothing but the truth, was examined and testified as follows:)

THE WITNESS: I do.

THE REPORTER: Thank you.

EXAMINATION

BY MR. SHERIDAN:

Q Good morning.

A Good morning.

Q Please state your full name for the record.

A Dennis L. Hayes.

Q What's your address, Mr. Hayes?

A I live at [redacted] Richland, Washington.

Q And with whom are you employed?

A URS.

Q And how long have you been there?

A I guess I've been an employee of URS through various acquisitions for a total of 33 years.

Q All right. And how much of that has been here

at Hanford?

A I came to Hanford in August of 2008.

Q 2000- what?

A -8.

Q Okay. And to whom do you currently report?

A Bill Gay.

Q And how long have you reported to him?

A Bill Gay came on project in March or April of 2009.

Q Okay. And before Bill Gay's arrival, to whom did you report?

A George Clare. George Clare.

Q And what is -- what is your job title now?

A I'm the WTP Plant Operations Manager.

Q Okay. And were you -- is that the same job title you had in 2010?

A Yes.

Q And how about 2009?

A I've had that job title since I arrived on the project.

Q All right. And that was when?

A August of 2008.

Q Okay. And do you have direct reports?

A Yes, I do.

Q In 2010, who were your direct reports?

Q Okay. Was Rich Edwards basically the sort of person leading this --

A Yes.

Q Okay. Now, did you have any discussions with Greg Ashley about the notice?

A No.

MR. BAUMGARDNER: Object to the form.

(Plaintiffs' Exhibit 9 was marked for identification.)

BY MR. SHERIDAN:

Q You've been handed what's been marked as Exhibit 9 for identification. And it's Bates-stamped 1541 through 43.

And I'm going to ask you to take a moment to look at this, and then we'll talk about it.

(Witness examines document.)

THE WITNESS: I'm ready.

BY MR. SHERIDAN:

Q All right. And do you recognize this e-mail string?

A I recognize Page 21542.

Q Okay. And that's basically the -- the draft except it's got the tweak from Mr. Ashley; correct?

A Correct.

Q And this is the -- basically this is a proposed

-- or this is the -- the announcment that was going to go out regarding the reorganization; true?

MR. BAUMGARDNER: Object to the form.

THE WITNESS: Yes, that is correct.

BY MR. SHERIDAN:

Q Okay. And look at -- let's just start from the back and work forward.

We have an e-mail from Greg Ashley to you and Ed Richard -- Richard Edwards where he basically -- the subject line is, "Changes in the Process Engineering and Technology Organization Part 5.doc."

And then he writes: "Minor tweak: Decided highlighting M3 testing wasn't necessary. Rich, you and I discussed this, but we left it in. If Dennis is okay, we will release this as soon as Janice comes in in the a.m."

Do you know who Janice is?

A No.

Q Okay. And it was -- and this is dated June 30th, 2010; is it not?

A That is correct.

Q So was it your understanding that this announce -- this announced organizational change was supposed to go out the next day on July 1st?

MR. LAWLOR: Object to form.

THE WITNESS: I wasn't certain when they were

going to issue the form.

BY MR. SHERIDAN:

Q Okay. You have no reason to believe that the -- the statement that, "If Dennis is okay, this" -- "we'll release this as soon as Janice comes in in the a.m.," you have no reason to think that statement is not accurate; correct?

A No, I do not.

Q Okay. Then looking up here, there's an e-mail -- we're on the third page, 1543, from you where you're writing in the same e-mail chain, "I am good."

Does that mean we're -- you're in agreement with the organizational announcement?

A My comment before, I recall seeing this document, and I had concerns over Dan Herting

Q Uh-huh.

A -- being assigned to this organization.

Q Okay.

A And I can't remember the dynamic of expressing that to Rich Edwards. But for those other issues that are on there, yes, I was fine with them.

Q Okay. All right. Now let's turn to the second page, which is 1542.

And this is, in fact, the announcement, is it not, except it's got the lineout?

MR. BAUMGARDNER: Object to form.

MR. LAWLOR: Same.

THE WITNESS: Yes.

BY MR. SHERIDAN:

Q Okay. So I -- I want to look down here. It says -- it -- basically it says, "Consistent with the closure of the remaining EFRT issue and increased emphasis on the completion of engineering and focus on start-up and commissioning, the following organizational changes will be made effective July 6th, 2010. These changes continue to align the organization to meet our critical needs as we moved forward towards project completion."

Did you have anything to do with the drafting of that particular language?

A No.

Q All right. Is there anything about that paragraph that you think nis a misstatement of facts?

A No.

Q All right. And then -- then the announcement says, "For Richard Edwards, currently manager of PENT, has accepted a URS Project Engineering Management position at Savannah River & Mediation, LLC. I would like to thank Richard for his significant contributions to the WTP project."

And was your understanding, in fact, consistent

with what's written there, that he was leaving and was going to Savannah River?

A Yes.

Q Okay. Then it announces, "Garth Duncan becomes the manager of Process Engineering and Technology."

And was that your understanding as well?

A Yes.

Q And what chain of command was that? Process Engineering and Technology reported --

A Within the Engineering organization.

Q Okay. And at the time, that Engineering organization was headed by whom?

A Greg Ashley.

Q Okay. And it says, "The Process Engineering & Technology Department will consist of the current Process Engineering Group managed by John Olson, and Process Flowsheet and Modeling Group managed by John Mahoney.

"With the shift from technical issue resolution, it is expected that over the next several months, these two groups will be further consolidated respectively in the core Design Engineering and Plan Engineering organizations."

Was that consistent with your understanding of the reorg?

A Yes.

Q Okay.

A I mentioned before on that where the Modeling Group was going to go. This finally brought that to the conclusion.

Q Okay. And for the next paragraph, there's a crossout of "the recent successful completion of M3/PJM closure testing."

I'm going to just read you this assuming that that was deleted. All right?

A (Witness nods head.)

Q So this next paragraph says, "With the completion of the overwhelming majority of the baseline R&T work, the R&T organization within PENT and their remaining scope will be consolidated into a newly formed Operations Technical Group with the Plant Operations organization and report to Dennis Hayes.

"Dr. Tamosaitis" -- "Dr. Walt Tamosaitis will manage this group to be staffed by members of the existing R&T organization in alignment with the scope completion. The scope completion consistent with the focus to complete design activities and better prepare for start-up.

"The commissioning activities, this group will focus on technical activities necessary to addressing operational skills in preparation for cold commissing."

And was that your understanding as well?

A Yes.

Q Okay. Then with regards to Dan Herting, you've already said you had some reservations that were basically stated separately; true?

A No scope, no dollars.

Q Okay. Do you know, where did Dan Herting wind up?

A Right now he reports to John Olson.

Q And who -- I mean, how is he funded?

A By Engineering.

Q Okay. So this particular section says, "Dr. Dan Herting, WTP Chief Chemist, will report to Walter Tamosaitis, Operations Technical Group, and will be matrix to Garth Duncan, Process Engineering & Technology?

And that didn't work out?

A They made the decision not to do that.

Q Okay. And the funding was through -- was Engineering funding his position?

A Correct.

Q Okay. All right. And then now we're on the first page, which appear to, in fact, perhaps be -- it looks like it's really just another copy of the -- the thing that we've already gone over on the last page. So maybe -- maybe in terms of how it was produced in discovery, maybe it's not -- maybe it's just a double.

Dr. Tamosaitis at this point?

A Correct.

Q All right. And you had said that you had a meeting scheduled for Friday with Dr. Tamosaitis?

A Yes.

Q What was the purpose of that meeting?

A The purpose of the meeting was to review the scope and budget and who specifically would transfer from -- over to the Plant Operations organization.

We still had not reached agreement, and I wanted more detail on the specific deliverables.

Q Okay. And meaning scope and money?

A Correct.

Q Okay. And was it your intent to talk with him about Dan Herting at that time?

A No, I -- I believe that that issue had been resolved. At least in my mind in my conversation with Rich Edwards, that that issue had been resolved, but --

Q Yeah, okay.

All right. And then -- and up until the meeting you had with Russo and the lawyer, it was your understanding that basically the -- the organization -- the reorganization, as had been announced in the -- the notice that we've been talking about, was going to be implemented; correct?

MR. BAUMGARDNER: Object to form.

MR. LAWLOR: Object to form.

THE WITNESS: Yes.

BY MR. SHERIDAN:

Q Okay. All right. And then so I gather -- have you told us everything pretty much that happened at the meeting with Mr. Russo?

A Yes.

Q And I gather that there were three of you present?

A Yes.

Q And one was the lawyer and the other was Russo and you?

A Yes.

Q All right. All right. So -- so you left the room.

What happened next?

A Well, let me go back. I did remember one other thing. Frank did mention that he was upset over an e-mail, okay, and he had discussed that with Bill Gay.

I told him I would talk to Bill and get back with him.

Q Okay.

A I immediately went to my office, and I called Bill Gay on his cell phone.