

## HLWYM HEmails

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**From:** Miriam Juckett  
**Sent:** Thursday, February 15, 2007 5:44 PM  
**To:** Xihua He; English Percy; Bradley Werling; James Prikryl; Roberto Pabalan; James Myers; David Pickett; Paul Bertetti; Jude McMurry; Lietai Yang  
**Subject:** RE: Last Change: A237, January 24, at 3:00 pm

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Thanks, Xihua and English.

I spoke with Charles Bryan at Sandia yesterday by phone. He provided me with the following information:

LLNL is currently doing two deliquescence related experiments. One is degassing experiments of  $\text{CaCl}_2$  at elevated temperatures. This is to confirm earlier results from which other studies conflicted. They do not expect to get different results, but are doing the experiments anyway. They are also doing experiments under nitrate rich conditions above 160C. The two contacts on these experiments are Joe Rard(?) at 925-422-6872 and Jim Blank(?) at 702-295-5316. Sandia is primarily focusing on corrosion experiments, especially exploring consumption processes and stifling. Contact is Dave Enis at 505-844-2071.

Charles talked quite a bit about the current expectations for the repository. He personally does not place much stock in the current dust evaluations, because he estimates that in about 50 years after the repository is opened, the primary source of dusts will not be tunnel dusts, but ventilation dusts, which have a much higher salt content. He disagrees with some of the EPRI experimental conclusions, primarily because they used a fixed system where the pH did not change and was held constant, with acid remaining high rather than evolving acid gasses that results in lower pH. Regarding the five questions, Charles restated that the brines are expected to form and perhaps persist, but question #3 is the primary LLNL focus, the 4<sup>th</sup> question is concentrating on scale limitations, and that the 5<sup>th</sup> relies on the immensely small amount of chloride present.

Charles also sent me information about a work plan document for the deliquescence experiments, which I have to request through "proper channels." Currently working on getting that.

Cheers-  
Miriam

**Miriam Juckett**, Research Scientist  
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-----Original Message-----

**From:** Xihua He [mailto:xhe@cnwra.swri.edu]  
**Sent:** Thursday, February 15, 2007 12:26 PM  
**To:** mjuckett@cnwra.swri.edu; epearcy@cnwra.swri.edu; 'Bradley Werling'; 'James Prikryl'; 'Roberto Pabalan'; 'James Myers'; 'David Pickett'; 'Paul Bertetti'; 'Jude McMurry'; 'Lietai Yang'  
**Subject:** RE: Last Change: A237, January 24, at 3:00 pm

All,

Both of Bobby and me could not find the source of the critical figure that DOE used to support their argument on nitrate. The figure appears in Neil Brown's NWTRB presentation (September 26, 2007), Slide 12, and Joe Payer's presentation, Slide 21. I attached the figure in the email.

English,

Please proceed to ask Dave Brook at NRC to go through the right channel to ask DOE for the source of this figure.

Thanks,  
Xihua

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

**From:** Miriam Juckett [mailto:mjuckett@cnwra.swri.edu]

**Sent:** Wednesday, February 14, 2007 1:26 PM

**To:** mjuckett@cnwra.swri.edu; epearcy@cnwra.swri.edu; 'Bradley Werling'; 'James Prikryl'; 'Roberto Pabalan'; 'James Myers'; 'David Pickett'; 'Paul Bertetti'; 'Jude McMurry'; 'Lietai Yang'; 'Xihua He'

**Subject:** RE: Last Change: A237, January 24, at 3:00 pm

All-

Wanted to touch base on the "to do" items at the end of this list.

I have checked with Zell, who informs me that he is unaware of any further deliquescence research. Samples cannot be reanalyzed from Div.01 as they were discarded. New samples are being procured.

Anyone else?

Thanks-  
Miriam

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

**From:** Miriam Juckett [mailto:mjuckett@cnwra.swri.edu]

**Sent:** Thursday, January 25, 2007 12:59 PM

**To:** 'epearcy@cnwra.swri.edu'; 'Bradley Werling'; 'James Prikryl'; 'Roberto Pabalan'; 'James Myers'; 'David Pickett'; 'Paul Bertetti'; 'Jude McMurry'; 'Lietai Yang'; 'Xihua He'

**Subject:** RE: Last Change: A237, January 24, at 3:00 pm

Notes from Wednesday's meeting:

The deliquescence topic was addressed, including discussions on experimental work at the Center, programmatic relevance, DOE's screening of deliquescence, the NWTRB perspective, and related issues such as corrosion.

David Pickett questioned the amount of dust to be present in the drifts. The group determined that further calculations and a review of DOE calculations is necessary to determine how much dust may or may not actually be present on the waste package surfaces. Current ventilation plans were also questioned.

Xihua noted that corrosion occurred on steel samples despite the capillary effects that DOE determined may keep brine solution from contacting the waste package. She recommends more studies using Alloy 22 and higher temperatures to determine whether the capillary effects would in fact keep the brines from contacting the packages. Xihua also raised questions about the accuracy of the Vaisala probes at higher temperatures (these accuracy questions may also account for some of the "strange" results at higher temperatures in the Center single salt tests), the film thickness needed for corrosion to occur, and whether or not the corrosion would be stifled.

Lietai noted that further degassing experiments may be useful in determining whether HNO<sub>3</sub> or HCl is evolved as a gas and in what quantities. In previous experiments, it is possible that some of the gas refluxed rather than collecting in the condensers.

Bobby explained that the CNWRA position currently relies on the nitrate-to-chloride ratio for the TPA code. Bobby noted the need for explanations on why the Ca/NO<sub>3</sub>/Cl solutions did not have a clear deliquescence point, and an account for the differences between experimental and calculated single salt DRH values. He also discussed the potential difficulties in calculating MDRH values when a eutonic point is not present or when it is more complicated, such as in the case of a quaternary system.

Questions were also raised about the necessary dust/brine ratio for deliquescence or corrosion to occur, the “certainty” in the Center’s answers to DOE’s five questions, and what the best course of action may be to determine future work.

Actions determined at the meeting:

- Miriam will check with Dave Brooks to see if direct contact with DOE/USGS people is Kosher; if so, will contact Z. Peterman to find out if any further deliquescence experiments are being conducted and current plans for the dust samples being taken. Will also try to obtain cuts of samples held by USGS. Will also get notebook data to Bobby for calculations based on experimental data.
- Bobby will do calculations from aforementioned point.
- Xihua will get sources for DOE data she mentioned at the meeting.
- The corrosion group meets today to discuss future experiments. Someone will contact the rest of us with the results of that meeting
- Unassigned: determining the amount of dust present in the drifts

That’s about all I have... does anyone have anything else to add?

Thanks-  
Miriam

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

**From:** English Percy [mailto:[epearcy@cnwra.swri.edu](mailto:epearcy@cnwra.swri.edu)]  
**Sent:** Wednesday, January 24, 2007 11:31 AM  
**To:** epearcy@cnwra.swri.edu; 'Bradley Werling'; 'Miriam Juckett'; 'James Prikryl'; 'Roberto Pabalan'; 'James Myers'; 'David Pickett'; 'Paul Bertetti'; 'Jude McMurry'; 'Lietai Yang'; 'Xihua He'  
**Subject:** Last Change: A237, January 24, at 3:00 pm  
**Importance:** High

All:

Last change: Same Date and Time, **Back in A237.**

Courtesy of Wes/Sitakanta releasing A237 from which our reservation had been booted, the meeting will be (again)

**January 24, at 3:00 pm in room A237.**

English

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

**From:** English Percy [mailto:epearcy@cnwra.swri.edu]

**Sent:** Tuesday, January 23, 2007 4:29 PM

**To:** epearcy@cnwra.swri.edu; 'Bradley Werling'; 'Miriam Juckett'; 'James Prikryl'; 'Roberto Pabalan'; 'James Myers'; 'David Pickett'; 'Paul Bertetti'; 'Jude McMurry'; 'Lietai Yang'; 'Xihua He'

**Subject:** NEW LOCATION: BLD. 61, 2nd floor VTC, January 24, 3:00 pm

All,

NOTE: Same Date and Time, **NEW LOCATION: Building 61, 2<sup>nd</sup> floor VTC.**

English

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

**From:** English Percy [mailto:epearcy@cnwra.swri.edu]

**Sent:** Friday, January 19, 2007 10:11 AM

**To:** epearcy@cnwra.swri.edu; 'Bradley Werling'; 'Miriam Juckett'; 'James Prikryl'; 'Roberto Pabalan'; 'James Myers'; 'David Pickett'; 'Paul Bertetti'; 'Jude McMurry'; 'Lietai Yang'; 'Xihua He'

**Subject:** NEW DATE AND TIME: 1st ISI Seminar, January 24, 3:00 pm A237

All:

NOTE: this meeting has been rescheduled to **January 24, at 3:00 pm in room A237.**

Thank you for your patience.

English

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

**From:** English Percy [mailto:epearcy@cnwra.swri.edu]

**Sent:** Friday, January 05, 2007 3:13 PM

**To:** epearcy@cnwra.swri.edu; Bradley Werling; Miriam Juckett; James Prikryl; Roberto Pabalan; James Myers; David Pickett; Paul Bertetti; Jude McMurry

**Subject:** 1st ISI Seminar

All:

We will have our first ISI Seminar on January 19th at 2:00 pm in room A237.

Our discussion leader will be Miriam Juckett. The topic will be delinquescence. The scope of the discussion will include:

- Technical overview of the topic
- FEPs that are important to the topic
- Risk significance of the topic
- Significant uncertainties
- How it fits with other topics, other ISIs, other TPA abstractions...

- What the DOE is doing/changing [experiments, process modeling, TSPA abstractions]
- What NRC/CNWRA is doing [experiments, process modeling, TPA abstractions]
- What else we should be doing [if anything]

And such.

My original email on this subject is repeated below. The next seminar will be led by Jim Prikryl (topic and date TBD).

Please plan to participate.

English

**Hearing Identifier:** HLW\_YuccaMountain\_Hold\_EX  
**Email Number:** 769

**Mail Envelope Properties** (01be01c75152\$bb762a00\$12c8a281)

**Subject:** RE: Last Change: A237, January 24, at 3:00 pm  
**Sent Date:** 2/15/2007 5:43:37 PM  
**Received Date:** 2/15/2007 5:43:00 PM  
**From:** Miriam Juckett

**Created By:** mjuckett@cnwra.swri.edu

**Recipients:**

"Xihua He" <xhe@cnwra.swri.edu>  
Tracking Status: None  
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**Post Office:** cnwra.swri.edu

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MESSAGE	10812	2/15/2007 5:43:00 PM

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