

Environmental  
Restoration  
Contractor

# **ERC Team**

## **Meeting Minutes**

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**SUBJECT** GROUNDWATER/VADOSE ZONE INTEGRATION PROJECT MEETING - AUGUST 7, 2000

**TO** Distribution

**FROM** Michael J. Graham, Groundwater/Vadose Zone Integration Project Manager

**DATE** August 16, 2000

**ATTENDEES**  
See Attached List

**DISTRIBUTION**  
Attendees  
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**NEXT GW/VZ INTEGRATION PROJECT OPEN MEETING:**

Next Meeting: Monday, August 21, 2000 – 1-3 p.m.  
Location: Bechtel Hanford, Inc., Assembly Room (Badging Required)  
Local Call-In Number: (509) 376-7411  
Toll Free Call-In Number: (800) 664-0771

**MEETING MINUTES:**

A Groundwater/Vadose Zone (GW/VZ) Integration Project Open Meeting was held on August 7, 2000, in Richland, Washington, at the Bechtel Hanford, Inc. (BHI) Assembly Room.

**TRAINING OPPORTUNITY (Mark Freshley)**

There will be a seminar by a well-known hydrology professor, Jacob Baer, from Israel, who has written several textbooks. He will be presenting a seminar, which is entitled “The Role of Models in Decision Making.” The seminar is Monday, August 14, 2000, at 12:00 p.m. in the Battelle auditorium. Everyone is invited. The auditorium is located in the main complex.

COMMENT: There is another seminar on August 14, 2000. Jay Wheeler will give a public address at 7:45 a.m. He is here with the Laser Interferometer Gravitational Observatory (LIGO) project. He will be speaking at the Laser Interferometer Gravitational Observatory at the Pacific Northwest National Laboratory auditorium.

**PROJECT REPORT:**

**INTEGRATED PROJECT SCHEDULE UPDATE (provided at meeting) (Dru Butler)**

We are no longer doing the Project Management Plan as originally shown on our schedule. As for the Detailed Work Plan (DWP) Review Schedule, Mike Thompson wants to talk about that. The DWP Scoping Statements cover from fiscal year 2001 to 2003.

QUESTION: What are the review times are for Groundwater/Vadose Zone and the Integration Project DWP?

DWP Management Reviews Meeting Schedule:

Tuesday, August 15, 2000

7:30 – 8:30 – ER Overview

8:30 – 11:30 – S/M&T

1:00 – 4:30 – RAWD

Wednesday, August 16, 2000

7:30 – 11:30 – D&D (233-S, Reactor ISS, Other D&D)

12:30 – 4:30 – PM&S

Thursday, August 17, 2000

7:30 – 11:00 – GW/VZ Integration Projects

Tuesday, August 22, 2000, and Wednesday, August 23, 2000

7:30 – 4:30 – Distributions, Indirects, Operating Centers

Tuesday, August 29, 2000

8:00 – 11:00 – Recap, Close Actions, Final Funding Agreements with Regulators

### **Groundwater Management (Greg Mitchem)**

#### **Resource Conservation and Recovery Act of 1976 (RCRA) Drilling Update**

We have 15 wells to complete. The Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) (TPA) milestone is between now and April 1, 2001. The drilling subcontractor proposed to do this work with three (3) drill rigs. As of July 27, 2000, we have completed the first well. We started the second well last Friday, August 4, 2000. The first 20 feet go a little slow, but as soon as we get through that, it goes a lot faster.

Dib Goswami, from the Washington State Department of Ecology (Ecology), would like to say something regarding the 15 wells.

DIB: When we signed the milestone to drill those 15 wells, Ecology had the understanding that there would be some characterization. Another issue was the waste management issue. We understand that characterization is missing because of some technology limitations. I want to ask Alissa Huckabee to explain what we had in mind and what we feel is missing.

ALISSA: During the M24 workshops and negotiations, the discussion and agreement centered around the number of RCRA wells installed. We finally agreed to 15 wells for the M24 milestone. Discussion about characterization of the wells during installation was secondary. For characterization, initial funding might allow for seven extended boreholes to be drilled 100 feet below the water table. As time progressed, the extended borehole and water sampling was dropped altogether. Ecology would like to identify that we value this characterization. We feel very strongly about characterization. We are seeking assurances from the U.S. Department of Energy (DOE) that DOE has evaluated the waste management options that are available. We want to try to affect characterization for this year. It wasn't done for the first five wells, and the contract can't be changed regarding those wells. But we are hopeful that the remaining wells to be put in this year and next year will include characterization.

DIB: Containment and management of the drilling waste is the big issue that Greg mentioned. Ecology will take every possible opportunity to cut time and make alternative waste management options happen,

even at this phase of drilling. We are pretty hopeful that we can make it happen for the remaining wells.

QUESTION: Are all these in the tank farms?

ANSWER: No, but they are adjacent to the farms.

QUESTION: Whose budget is funding these wells?

ANSWER: The U. S. Department of Energy, Richland Operations Office (DOE-RL) and the U. S. Department of Energy, Office of River Protection (DOE-ORP).

COMMENT: We particularly needed aquifer profiling at depth. We need to understand how far vertically and horizontally the contaminants have migrated.

The majority of the wells are monitored the first 25 – 30 feet of the unconfined aquifer. Vertical profiling of contaminants in groundwater is a deficiency. There is some justification, and there are studies that look at that. There are some contaminants that we should have more information about.

QUESTION: Is there a sufficient network of wells outside the tank farms to explore migration?

ANSWER: There are a lot of wells.

QUESTION: Are you measuring things somewhere outside, from which you might draw conclusions?

ANSWER: It's too general a statement to respond yes or no.

The tank farms are the most critical at this point. The regulations drive that. Regulations require that you chase the plume. We are far from doing that yet.

DIB: Ecology also requests that DOE have more discussions.

RESPONSE: We were thinking we could do that before the end of August, would that work for Ecology?

ANSWER: Yes.

RESPONSE: Okay, we will check with DOE and get back to you.

DIB: As for the waste management. The approach is good for DOE. It will bring a lot of cost savings.

QUESTION: Are the problems due to a lack of funding or technical disagreements?

ANSWER: A little of both, but more than anything it's the budget. The drill cuttings are managed as if they are RCRA waste, and that is very expensive. More than anything, it's the budget.

There are a couple of issues that we need to negotiate, but not in a public forum. We need to get agreement from all three agencies involved. We have to have a place to dispose of waste properly, and to do that we have to have agreement from DOE. If the effort is driven by RCRA purposes, it is managed by RCRA. There are benefits for getting information out of these holes. We need to do some work.

COMMENT: RCRA does provide some tools for managing the waste that we are strongly encouraging DOE to consider. There are tools we can implement to manage it alternatively. The waste during drilling can exit RCRA.

We need to get agreement.

ALISSA: This waste, once it exits RCRA, would be managed at low level burial grounds. Once it exits certain programs it can be managed accordingly.

QUESTION: The information at depth, are you referring to the bottom of hole or can you plug at various stations along the well?

ANSWER: Yes. I believe Ecology would like us to get samples below the level we normally monitor. It's a one-time thing.

The only opportunity is during drilling.

QUESTION: Is there a way to get hydrological data, you don't get that opportunity with the program you've described?

ANSWER: No, but there are ways to have stationary monitoring; to monitor different depths. With this particular characterization information we could design those multiple well scenarios.

### **ISRM Update**

We will be completing Phase I of the In-Situ operation this year. The process creates a permeable wall that converts chromium 3 to chromium 6. In this form it is non-toxic and not as mobile. Creating the barrier involves a chemical injection. There are 16 wells, 10 of which will be injected to form a barrier this year. Next year, we have 24 – 26 wells to do. We have finished one of the 10 and are starting the injection of the second well today. We should be injecting two wells per week for the next five weeks. We should be done ahead of schedule.

### **618-11 Burial Ground**

As for the tritium investigation at site 618-11, we started that last week. The first push at 618 was completed. We are trying to get sampling points. We are going to sample existing groundwater wells and vertical profiling samples in two weeks. We also put in a number of push points to get information on soil gas. The first push got refusal at 42 feet. Forty-two feet is a good depth for solid gas monitoring. That'll be positive.

### **RPP Assessments (Fred Mann)**

#### **SX-108 Drilling Update**

We have a slant borehole at SX-108. We have completed drilling. The length of the hole is 170 feet. The vertical depth is 149 feet. That position is 46 feet from the edge underneath the tank. Samples were taken

from under about two-thirds the diameter of the tank. Seventeen samples were attempted. The number two sample was lost. We have retrieved 16 samples from the borehole. All 16 samples are now in the 300 Area. In sample number three, we were unable to open the sampler. It was very hot and the threads were jammed. Rather than try to unthread it, we put it aside and opened everything else. In the end, we had to scrape the sample out of the sampler. We did field measurements of these before they left 200. We are starting to get preliminary cesium concentration levels from the lab. We have not yet done a cesium measurement of the hottest samples. We have found cesium concentrations approaching  $10^7$  pci/g. These are very hot. These numbers were expected. The lab and field measurements show a strong cut off at 85-90 feet. It's a rather sharp cutoff.

QUESTION: Does it correlate to the geology?

ANSWER: We haven't looked at that yet. As far as moisture measurements, they tend to be on the dry side. We are beginning the detailed measurements. We also finished the geophysical logging last week. We saw temperatures above 120°. At the very hottest position, it looks like a step. That is interesting to us. We don't have neutron moisture measurements in hand yet. Unfortunately, as we took the samples, the tube got contaminated. We are getting high gamma readings which we attribute to contamination inside the borehole produced during the drilling and sampling, in particular, the loss of sample #2.

QUESTION: You are getting high gamma readings on the rod with samples you know are clean?

ANSWER: Yes. We know we lost a sample. It's not surprising. We are not anticipating very useful gamma measurements.

The last logging was done today. A gyroscopic log, which will indicate the position of the hole as a function of depth. We hope to start decommissioning this afternoon. We are aiming to be out of the farm late this week or next week.

QUESTION: As you move vertically, you're also moving laterally. If there were a vertical zone of contamination, you would have passed through it laterally. Could it be that at a certain position, you might have tracked cesium?

ANSWER: We have a number of boreholes around this area. They are all showing the highest contamination between 70 and 90 feet, at the same vertical depth. The horizontal distribution is several hundred feet. Basically, we believe that we see a nearly horizontal zone of contamination.

COMMENT: The cesium data is not as important as the technetium concentrations. Technetium is the risk driver out of the tank farms generally.

QUESTION: Where is this zone of highest concentration relative to the tank wall?

ANSWER: About seven feet from the edge in toward the center. At a depth of 95 feet, 15 feet from the edge we see no gamma.

QUESTION: Where are the mobiles?

ANSWER: Just doing a hand-held gamma analysis outside the sample is only the tip of the iceberg. There will be a lot more information.

**System Assessment Capability (Bob Bryce)**

We have completed the software development for System Assessment Capability (SAC) Rev. 0. As each component was developed, testing was done. In all cases, the individual technical elements worked out with the exception of biotic transport. The river portion of this is new, especially biotic transport. It's the one piece that hasn't been tested successfully. We are linking them together. Once we complete this test as described in the design, we will be at the end of the fiscal year. We will begin history matching tests in October. We will run technical element simulations to see how well the results match field observations. Then, we will follow up with an assessment run around the first of December. We will also have data gathering completed by the end of the fiscal year.

QUESTION: Can you give us some presentation on matching?

ANSWER: As we get into it in the fall, sure. We've got to select contaminants for history matching for those which we actually have the data. We'll discuss those results as they become available.

**Upcoming Events (Dru Butler)**

QUESTION: Wade, what's going on with the Yakimas?

ANSWER: Nancy Peters and I are back on duty. Other members of the program have just been furloughed for the month. We are trying to get the accounting re-established. We got funding through DOE. We'll see what will happen. We have had to close our office and will be looking for a new office. We've been handed assignments and our plates are full. The tribal council has really taken an active role since the fire, giving us additional direction. We have asked other members in the technical community of the tribe to get involved. It's a positive step forward.

QUESTION: Can anyone interpret what the Tri-City Herald printed yesterday?

ANSWER: I think we'll decline that invitation.

Looking at the Public Calendar, there are a couple of changes, the Innovative Technology Remediation Demonstration (ITRD) Meeting scheduled for August 22-23, 2000, has been canceled. Please note that the NAS meeting is tentatively scheduled for September 6, 7 and 8, 2000. The next Integration Project Expert Panel (IPEP) Meeting is October 25-27, 2000. The Hanford Advisory Board – Environmental Restoration (HAB-ER) meeting is on August 10, 2000, and will be in the Bechtel Hanford, Inc., Assembly Room. It will probably be well attended.

**NOTES:**

GW/VZ Web Site location: <http://www.bhi-erc.com/vadose>

If you have questions or comments please contact Dru Butler (509-375-4669) or Alison Kent (509-372-9192).

**ATTACHMENTS:**

1) GW/VZ Integration Project Two Month Look Ahead Calendar

**ATTENDEES:**

Jeff Armatrout – BHI

Martin Bensky – Tri-Cities Caucus

Bob Bryce – PNNL

Dru Butler – BHI

Dirk Dunning - ODOE

Bryan Foley – DOE-RL

Mark Freshley – PNNL

John Fructer - PNNL

Dib Goswami – Ecology

Alissa Huckabee - Ecology

Kathy Huss - SAIC

Mary Harmon – DOE-HQ

Andy Hayes – ORP

Brenda Kaheel - Ecology

Alison Kent – BHI

Stuart Luttrell - PNNL

Fred Mann – FFS

Greg Mitchem – BHI

Wade Riggsby – Yakima Nation

Gordon Rogers - HAB

Steve Sautter – BHI

Stan Sobczyk - NPT

Mike Thompson – DOE-RL

Rob Yasek - ORP

*GW/VZ INTEGRATION PROJECT*  
**AUGUST 7, 2000 – OCTOBER 31, 2000**  
*THREE MONTH LOOK AHEAD CALENDAR*

<b>August 10</b>	HAB Environmental Restoration Meeting BHI, Room 2D01, 9:30 a.m. – 3:45 p.m.
<b>August 15-17</b>	Review ERC DWP with RL/BHI Management, Regulators, and DOE-HQ
<b>August 21</b>	GW/VZ Open Project Team Meeting BHI Assembly Room – 1-3 p.m. (Contact: Dru Butler)
<b>August 22-23</b>	ITRD Carbon Tet Meeting (Richland, WA) (Further details will be forthcoming)
<b>September 4</b>	CANCELLED DUE TO HOLIDAY: GW/VZ Project Open Meeting (1-3 p.m., BHI Assembly Room)
<b>September 6-7</b>	Tentative NAS Meeting (Richland, WA)
<b>September 7-8</b>	HAB Meeting (Seattle)
<b>September 12</b>	HAB Environmental Restoration Meeting BHI Assembly Room – 8 a.m. – 4 p.m.
<b>September 18</b>	GW/VZ Open Project Team Meeting BHI Assembly Room – 1-3 p.m. (Contact: Dru Butler)
<b>October 2</b>	GW/VZ Open Project Team Meeting BHI Assembly Room – 1-3 p.m. (Contact: Dru Butler)
<b>October 10</b>	HAB Environmental Restoration Meeting BHI Assembly Room – 8 a.m. – 4 p.m.
<b>October 16</b>	GW/VZ Open Project Team Meeting BHI Assembly Room – 1-3 p.m. (Contact: Dru Butler)
<b>October 23-24</b>	Oregon-Hanford Waste Board Hood River, OR
<b>October 25-27</b>	Integration Project Expert Panel Meeting BHI Assembly Room