MEETING MINUTES for Revision of RPP-9937		
Date of Meeting: 7/10/2013	Location: Ecology/Room 3A	
Preparer: A.G. Miskho, WRPS	Time: 2:00 – 4:00	
Attendees: Jim Alzheimer, Ecology Jared Mathey, Ecology Jeff Lyon, Ecology Nancy Uziemblo, Ecology	Jeremy Johnson, ORP Tony Miskho, WRPS John Guberski, WRPS Susan Eberlein, WRPS	

Meeting minutes:

Miskho stated the minutes from the last meeting were reviewed and comments were received. The minutes from 6/26/2013 were approved by Ecology and ORP at the meeting and are ready to be entered into the next project manager meeting.

Action item Discussion (See list at the end of the minutes for a description of the action):

2013-06-12-1: OPEN: list is still in development.

2013-06-12-2: OPEN: To be kept action open pending outcome of action 2013-06-12-1.

2013-06-12-3: **(Closed 7/7/2013)** No discussion needed. The M-26-26 deliverable (June 7, 2007, DOE letter #: 07-TOD-049) satisfied the request.

2013-06-26-1: (Open) Goal to have discussion in smaller group setting.

2013-06-26-2: (Open) Goal to have completed prior to tank waste subcommittee which meets on 8/7/2013.

Dry Well Logging Discussion

Eberlein presented information concerning dry well logging and does not believe small leak monitoring is appropriate.

Most tanks have dry wells around them. About 778 dry wells exist from when the tanks were constructed or sometime after construction, mostly 1940s and 1950s.

Two fundamental approaches today: (1) spectral gamma and (2) moisture logging.
All dry wells can be used for spectral gamma.
Some wells have concrete as part of completion. Impossible to detect moisture in these wells.

In the past, Gross gamma was used in the 1940s. Gross gamma gives a signal, but no differentiation between gamma emitters.

Alzheimer, reported that Caggiano (ECY) thought spectral was good for a baseline, and then gross can be used after that.

Eberlein said let's talk through what gamma can do first.

Big gamma emitters for tank waste are cesium (30-year half-life) and cobalt (5-year half-life). Cobalt is getting to the end of its ability to be detected.

Cesium binds with the soil. Cobalt is more mobile. A salt solution is needed to get cesium to move again. Experience is once cesium is stabilized, you see the cesium signal in the same place, except for the slow decay.

For cobalt, you can see it moving with the water and the site has used it in the past to give an idea how fast waste migrates through the soil. Cobalt moves normally with the water except a few forms that are less mobile. The problem now is that we have gone through 10 or more half-lives. For old leaks, the leak has gone past the bottom of the dry well.

All dry wells were systematically logged to late 1980s early 1990s. The last few years, logged wells in the T and TY farms to check on barrier performance.

Mathey: Water in wells: Can't you pump the water out of the wells? Is this water contaminated?

Eberlein: Yes the water can be pumped, just has not been a priority and a good reason has not been identified. The water would have to be pumped out and transferred to the Effluent Treatment Facility for treatment. It can be done if it will be a benefit. The water that ran into the wells is treated as contaminated water, because it came from surface water.

We also logged dry wells at C farm. The cesium has been staying put. The cobalt, if detectable, has been moving. At well #30-08-02, from C-108, cesium has moved a little within small pico curies. The Nez Pierce personnel interpreted this to say migration has occurred. The well was re-logged and there is no further change.

After re-logging 100 or so wells after 10 years, there is no real change except for noise. Not a good indicator because there is lack of change.

Mathey stated on a well on C-108, in the TWRWP, Rev 3, it identified no change.

Eberlein: Said the moisture and gross results saw no change. Stoller was brought in for spectra gamma, and there was a small but detectable change. TWRWP could have criteria that were not tripped to indicate there was a leak.

We are not able to get much more information, we might have a small leak but it is hard for the small leak to reach the dry well.

In order to reach a dry well, you need enough lateral migration of the leak to reach the dry well. Dry wells are 7-11 feet away from the tank. Only big leaks will get to there to the dry well and in that case dry wells would be useful, but big leaks are not likely anymore after interim stabilization.

For something like T-111, where the leak is 200-300 gallons, if you went over enough time to the 10,000-20,000 gallons size leak range, the in tank levels would be indicating sooner.

Mathey: So in general, dry well logging is not the best tool to use for leak detection but is better for tracking leaks?

Eberlein: For tracking a new leaks, if there are any wells nearby to go check.

Uziemblo: What is radius for detection?

Eberlein: The radius is about 18 inches. For moisture logging, it is usually less. We know that 13,000 gallons does not get to dry well 17 feet away. We don't have other data. Moisture is transient so you need to perform a log quickly. Once a year is not a good idea.

C-farm logging. Neutron logging is fairly frequent. The gross gamma is done where there are questions to address. Stoller comes in if there are more questions and does spectral gamma.

Mathey: What is the cost, does the work get sub contracted out?

Eberlein: Stoller has the expertise and is subcontracted out. They can come in and give us moisture and spectral gamma for about $8,000 a well. Plus other costs, is about $15,000 per well.

Johnson: For the 100 or so recently, all we have seen is the movement of cobalt and pretty soon we can't see them.

Mathey: Are there other radionuclides that can be tracked, *e.g.*, Technetium?

Eberlein: Technetium is a beta emitter and there are no others. I do not think there is enough liquid in a single shell tank to support detecting a leak. If we sluiced a tank that we did not know it was a leaker, we might be able to see the leak. I can't think of a configuration that would be a useful monitoring.

Mathey: For operations and maintenance of a dry well, if we don't maintain them properly, how do we make sure they are useful when we retrieve the waste.

Eberlein: A dry well is a steel metal pipe in the ground. Some have had water. We have an inspection plan that requires operators to inspect them annually. We get a map and verify that the cap is in place and intact. Cracks are reported. Caps have been replaced and the process is done quickly. The inspection plan has been going on for about 4-5 years now since WRPS took over the contract.

Mathey: What types of metals are the dry wells constructed of? Carbon Steel?

Eberlein: New wells ones are stainless steel, but don't know the old ones. Purpose of drywell is to provide access to the soils.

Mathey: So have all of the drywell caps been replaced?

Eberlein: Yes, through the drywell maintenance program, all broken drywell caps have been replaced with new ones.

Mathey: Would it be practical to put a one-time package together to pump out the water from the dry wells? That way, under the current maintenance program, this would keep the wells dry and enable them to be used in the future.

Eberlein: It could be practical, but then it has to be factored into the list of priorities of what ORP wants to do. The other function is for leak detection during retrieval. We use the dry well as an electrode. It does not matter if the pipe is intact or not. Hook up an electrical connection, and put an electrode in

the waste in the tank. New leaks in the process of retrieval can detect a new connection in the soil between the electrodes. This approach provides 2 dimensional high resolution. Can provide 3 dimension monitoring. In the last couple years for vadose zone during pushes, we have left discrete electrodes. A wire exists with different depths. In C-farm, it can give us depth and start to get a 3 dimensional picture. Just finished data collection in U farms and areas next to the CR vault.

Mathey: So there is an initial cost and then how much it is.

Eberlein: We put 4 deep electrode strings in the C-200 area, for vadose monitoring under M-45-61. Set up is the big cost. There are ongoing data analysis costs.

Mathey: If dry wells are not logged, is a simple HRR cost effective?

Eberlein: From a cost benefit, I need to know what the benefit for looking for a small leak. From a technical feasible standpoint, it is the best technology to be able to detect a small ongoing leak. Can detect a change in time over data. If you have reasons to believe you have an ongoing leak, you could see if the leak has been stabilized.

Mathey: We have dry well and HRR as possible ex-tank leak detection technologies. We have a lot of people asking about it. Interested in knowing about it and the maintenance of the dry well caps.

Johnson: We want to propose with this document, that we have confidence in the in tank equipment. In some cases such as T-111, in tank monitoring is giving us an indication. In a case like this, it could make sense to characterize the leak some more. We have not rolled it out yet, but WRPS is working on a proposal to install HRR at T-111 to see what level of information that will give us. If it turns out that this works for application of small leaks, and can be definitive, we can entertain whether it will go beyond T-111.

Mathey: The current permit says all dry wells to be logged within around the first 5 years of permit issuance, and in 10 year cycles thereafter.

Eberlein: With the current truck, 30 wells a year, 1 million a year. For all the wells, bring another truck online, another million dollars.

Guberski: we can't get a LOW van and a dry well van in the farm at the same time.

Mathey: We are looking at SSTs as a long term thing. Dry wells may not be as good, of a tool for purpose of leak detection, but they are used as part of the retrieval process and need to be maintained. The dry well cap maintenance program is a good thing and I did not know about it, but if dry wells have water in them, which could cause them to be less useful in the long run, I think it is important that the water be pumped from them so they can be used in the future. Ex-tank monitoring in certain circumstance is needed and should be part of RPP-9937.

Johnson: We are in the initial phases. The evaluations we are getting is showing that the instrumentation in the tank is relatively good.

Alzheimer: I learned a lot today and I think Ecology has to get together and get back with Caggiano (ECY). It may not be as valuable as we thought it was. We want to spend monitoring money the best

way we can. With liquids having been removed [through interim stabilization], it appears difficult to detect new leaks. For waste leaked out in the vadose zone, it could be a different discussion.

Eberlein: RPP-9937 is not the vehicle to understand what is happening to what is already in the environment. M-45-56 gives you a tool for this.

Johnson: RPP-9937 is the trigger mechanism for how there are areas to point to that another document/program will take over.

Mathey: We could put in HRR as a trigger so when things like T-111 happens, people will know what is going on.

Miskho: But then what you do with the data?

Mathey: You get knowledge of what is going on outside the tank. You understand if the tank is leaking or if the cause is an inside tank issue. You get information needed for closure, you can use the information to implement things like putting an evaporator on the tank to dry it out, or if you need to put a barrier on top to slow the movement of contamination to groundwater. You can even find out where the leak is occurring on the tank.

Johnson: As the time increases for storage in SSTs, it becomes more important to understand what is going on.

Eberlein: To be most constructive, RPP-9937 is a monitoring tool. Ask the question are there indicators to use ex-tank monitoring, or whether there is more of a systematic plan such as use of exhausters and drying to properly spend money.

Mathey: We could require that instead of using dry well logging, that we implement a long term use of HRR. But this costs lots of money, which takes money away from people's jobs and cleanup of the site. It also can impact the implementation of other activities on-site such as catholic protection. A balanced and broad approach is appropriate.

Eberlein: If you spend a lot of money getting information and you can't do anything, we need to ask questions why we are collecting the data.

Alzheimer: Ecology to take an action to determine path forward on ex-tank monitoring

Johnson: We do not have enough experience yet on using HRR.

Eberlein: The 'continuing-to-leak' question is a big open question. The resistivity work with 3-D electrodes takes a snap shot. We have not gone back to take another snap shot to see a change.

Johnson: For RPP-9937, HRR can be a tool in the tool box.

Miskho: For when we agree to do something we don't currently have in place, has Ecology thought about how to implement them: compliance schedules or TPA interim milestones?

Mathey: Need to think about it.

Alzheimer: We anticipate using in-tank monitoring until WPT comes on line.

Mathey: For the next T-111 what do we do?

Lyon: I hope we open RPP-9937 and it tells us what we do.

There are two things: 1) response, and 2) we are trying to avoid permit conditions that are onerous and ineffective. RPP-9937 has to reflect a decision to get approval so that we have the right response.

Alzheimer: Ecology will stick with the in-tank monitoring and may require using dry well logging when there is a leak. I don't see Ecology requiring use of HRR in -9937.

Mathey: I fundamentally disagree with Alzheimer's statement in part. Ecology has to talk about it more.

Lyon: WA attorney will want to know answers to permit conditions. We hope to come to solutions here in these discussions and not have the attorneys help us. I need to satisfy the people that are saying 'no tolerance for tank leaks.' Everyone in the office except for Mathey and Alzheimer think that dry well logging will help. We should talk about dry well logging in RPP-9937 as to why it does not help. If there is a way of evaluating options and a decision tree we consider, and then decide actions, we have solved a variety of issues.

Eberlein: I like the idea of a decision tree.

Mathey: Are we going to have a problem with catch tanks?

Lyon: I think we are ok with catch tanks but you will have to come to your own conclusion.

Mathey: Can we put HRR around catch tanks?

Alzheimer: I really don't want to focus on catch tanks.

Eberlein: From the catch tank work a few years ago, there might be one catch tank we should look at.

End of discussion.

RPP-9937 section handout

Johnson handed out the new draft section for RPP-9937 and stated the electronic file will be sent over when Miskho sends the minutes for today.

Miskho: The points from the 2001 inspection are addressed. The daily inspection violation is the only regulatory provision proposed to be addressed in the document. We are asking if Ecology thinks there should be other regulatory requirements that we cannot meet addressed in the document

Lyon: We would like to talk about interim stabilization.

Miskho: There is a discussion on the history of interim stabilization criteria in the file but not a discussion

on the current status.

Guberski: I anticipate that much of the history would be included in an appendix to the document. We are requesting that Ecology use an RCR form to document comments to talk about at the next meeting.

Mathey: I think it is fine that history is discussed in RPP-9937, however, I do not want the history to rule the future of what -9937 needs to become.

Actions:
2013-06-12-1: ORP: **(OPEN)** Come with a list of tanks beyond the 100 and 200 series tanks that should be within the scope of -9937 for discussion.
2013-06-12-2: ORP: **(OPEN)** is there a better way to describe what is excluded from RPP-9937 than using the term "past practice."
2013-06-12-3: **(CLOSED 7/10/2013)** Ecology and ORP: Look at history of M-023-26 (Changed from M-023-25) for the basis of the one-time inspection.
2013-06-26-1: **(OPEN)** ORP to set up a more detailed briefing on neutron probe data analysis and how it is converted to interstitial liquid levels for: T-111, SX-106, BY-105, and BY-109 to discuss data interpretation.
2013-06-26-2: **(OPEN)** ORP provide a repeat presentation to Ecology/HAB Single Shell Tank Liquid Monitoring from April. Include video on how ENRAF works.
2013-07-07-1: Ecology to determine path forward on ex-tank monitoring.

Decisions made: None.

Next Meeting:
Every two weeks, Wednesday afternoon 2-4pm (Next July 24th)
Agenda: Meeting minutes, Action items, RPP-9937 section comments