

Meeting Notes
Potential Evaluation(s) for Past Tanks Leaks in support of WMA C PA

Date: Tuesday, August 20, 2013

Location: Ecology Offices, Room 3B

Purpose: Discuss potential evaluation of past tank leaks in the planned PA effort. This meeting was requested after last Ecology WMA C PA monthly status meeting

Attendees: Mike Barnes, Joe Caggiano, Jeff Lyon, Beth Rochette, Marysia Skorska (Ecology), Marcel Bergeron, Susan Eberlein, Kristin Scott (Washington River Protection Solutions - WRPS) Alaa Aly, Matt Kozak, Sunil Mehta (Intera, Inc.), Mike Connelly (Freestone), Vicky Freedman, (PNNL)

The following topics were discussed:

- Marcel Bergeron opened the meeting and asked Joe Caggiano for some opening remarks
- Joe Caggiano indicated that, with past tank leaks in WMA C, everything is an estimate. Given the volumes of the leaks that have been estimated, it was suspected that a lot of the leaks would be retained in the vadose zone. However, from observations in groundwater monitoring wells, we know this is not the case and that we have breakthroughs of tank waste-related contaminants into the underlying groundwater. The likely cause is additional artificial recharge that occurred during the period of operations. What he was looking for in the PA effort was an analysis or a demonstration that a reasonable model could be used to show the observed results.
- Mike Barnes asked Matt Kozak if he had the chance to look at the really big leaks that have occurred in other tank farms. Matt (Kozak) indicated that he had not. The analysis that he had done to support the WMA C scoping sessions consisted of some initial calculations using a simple system model that showed that with hydraulic properties being considered in the models planned for use in the PA, existing estimates of recharge (e.g. 100 mm/yr) could be used to explain observations at UPR-82. However, some added recharge beyond this level during the operational period was needed to explain the general breakthroughs of contaminants observed in ground water. Matt did indicate that this initial scoping made use of some simplifying flow assumptions and suggested that we should consider performing the same set of analyses with the more sophisticated model of WMA C based on the STOMP so that other factors could be evaluated.
- Mike Connelly indicated that there are wide variations in past leaks and the small leaks associated with UPRs likely did not go very far. Leaks were clearly not uniform over the farm.
- Marcel Bergeron asked Joe Caggiano to comment on the leak estimates that had been made in the leak assessment process and Joe indicated that the leak volume information developed was uncertain (e.g. C-101 leak vol. could range for 0 to 36,000 gal) and that a proposed past leak analysis should consider increased volumes of the

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leaks that would be required for them to reach ground water in the time frame observed. There is also the possibility of slow pipeline leaks could be having some impacts.

- It was suggested that the actual detailed STOMP being developed for the PA be used for the analysis. The previous scoping calculations were based on unit gradient and one-dimensional flow assumptions and a more detailed model that could address the effects of wetting fronts, different flow conditions, and capillary forces that would cause lateral spreading of a set of leaks.
- Marysia Skorska – Analysis could also consider impacts of preferential pathways
- Joe Caggiano – mentioned a raw water study that was a number of years ago where 30 to 40 % of volume that went into the 200 area system could not be accounted for
- Jeff Lyon - Asked Joe to repeat back plan for analysis. Matt Kozak has 1/2D simple models. PA working on STOMP model. EIS has developed a model. We have leak loss report inputs. How do we pick variables to evaluate?
- Joe Caggiano – Jeff missed prelude. Given estimates of natural recharge may not be enough to drive things to groundwater, what else could be the driving factor. Analysis should considered incremental additions of recharges to see what it takes to match general observations.
- Jeff Lyon asks what would constitute success.
- Mike Barnes – Target would be to match Tc, CN, and NO3 but those impacts are very localized
- Matt Kozak - Matching groundwater observations may require a lot more sources that we don't know about. Observations could be the result of sum of many sources. But for testing, try to match local area (e.g. UPR-82) where we have some information and can establish basic confidence. Then look at larger leaks to figure out additional differences needed to match what we observe in groundwater.
- Marcel Bergeron - Our approach is that we will start with a model adapted the EIS model that we intend to use in the PA effort.
- Jeff Lyon - Could we just use the EIS model as is for UPR-82
- Alaa Aly - Wetting front & moisture characteristic curves mostly calibrated to drier side of the profile. Not sure if the EIS parameters can match the wetter side of the profile.
- Jeff Lyon - Asked what we are doing differently than the EIS. He has translated the difference into "level of detail"
- Mike Connelly - Gave a concrete example of one of the big differences between the EIS and the PA. We will need to include our current interpretation of characterization data and information from direct pushes, dry wells, and groundwater wells that identified 5 hydrogeologic units and backfill. EIS only really uses two separate units and does not include backfill. Also have an agreement from the scoping sessions to use conceptual models based on hydrogeologic surfaces interpreted by Stan Sobczyk (Nez Perce) at WMA C. We will sharing the details of this specific updates to the EIS model and others in next month or so.
- Marcel Bergeron - Closed the meeting by reiterating the consensus in the group that the PA effort will develop and implement a task that will use the model(s) developed for the PA effort to perform some scoping calculations to evaluate factors that could explain the

observed local-scale impacts in groundwater from past waste releases. Will develop a plan and share it with Ecology before it is implemented.

Action Items:

- WRPS and CH-PRC/Intera staff will develop a plan for performing a scoping analysis of past tanks leaks as a part of the WMA C PA scope for next year and share it with Ecology before it is implemented.

Concurrence:

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| <u>RDouglas H: Hebrand</u> | <u>[Signature]</u> | <u>10-1-2013</u> |
| DOE Project Manager (print) | DOE Project Manager (signature) | Date |
| <u>Jeffery J Lynn</u> | <u>[Signature]</u> | <u>9-30-13</u> |
| Ecology Project Manager (print) | Ecology Project Manager (signature) | Date |

