

North Pole Refinery Technical Project Team
June 23, 2011
ADEC Fairbanks Offices - First Floor Conference Room
610 University Avenue
Fairbanks, AK

Technical Project Team Members in Attendance

Cindy Christian	DEC, Drinking Water Program, Compliance Program Manager
Ann Farris	DEC, Contaminated Sites Program, Project Manager
Brian Jackson	DEC, Prevention and Emergency Response Program (PERP)
Loren Garner	Flint Hills Resources Alaska, Groundwater Program Manager
Elizabeth Page	Reiss Remediation
Shannon Price	Flint Hills Resources Alaska,

Support Personnel in Attendance

Rebecca Andresen	Arcadis
Brian Angerman	Barr Engineering (via telecon)
Stephanie Buss	SPB Consulting, Toxicologist
Todd DeJournett	Barr Engineering (via telecon)
John Elliot	Johnson & Wright
Denise Elston	DEC, Contaminated Sites Program, Program Specialist
JoAnn Grady	Grady and Associates, Team Facilitator
Lisa Minnear	OASIS Environmental, Project Manager
Gary Rumble	Barr Engineering (via telecon)
Max Schwenne	OASIS Environmental, Project Manager
Rock Vitale	Environmental Standards Inc.
Eric Zentner	Boreal Communication Strategies

INTRODUCTIONS AND ACTION ITEM REVIEW

The meeting began at 9:00am as team members introduced themselves and reviewed the action items from the previous meeting. The team reviewed and approved the agenda for the upcoming meeting. In regard to Action Item One, Ms. Page said that Mr. Mark Lockwood of Shannon & Wilson can provide assistance in the event that team members encounter difficulties accessing information in the database. In accordance with Action Item Two, Mr. Garner will send Ms. Erben copies of the photos that have been approved by FHRA's management for display in project documents. The team determined that all other action items from the previous meeting had been completed.

ACTION ITEM: Mr. Garner will send Ms. Erben copies of the photos that have been approved by FHRA's management for display in project documents.

ANALYTICAL INTERFERENCE

The team agreed to adjust its agenda to allow Mr. Vitale to briefly describe the issue of analytical interference. Mr. Vitale explained that the project laboratories identify sulfolane in test samples by the distinct signature left by its mass ions. Certain natural and synthetic compounds such as fumigants can alter the ratio of the individual signatures of the ions used to quantitate sulfolane, causing false positives or inaccurately high results. In the event of such interference, chemists must use alternate ions to quantitate sulfolane. Mr. Vitale said that rather than add extensive guidelines to the SOPs addressing hypothetical instances of the aforementioned situation, the Chemistry subgroup decided that it would be best for the project labs to notify the subgroup when they encounter interference so that its members can apply their collaborative judgment to determine how it should be addressed.

Mr. Vitale said that such interference was recently discovered at one of the project laboratories and he asked the team to outline a notification process. The team discussed how notification should be provided to its members. The team decided that in the short-term, the project laboratories should first contact Shannon & Wilson, or the entity that submitted the sample to the lab, and Meg Michell at Environmental Standards Inc. (ESI). Ms. Michell will then forward the notification to Ms. Farris, Ms. Buss, Mr. Crapps, Ms. Page, and Mr. Garner to notify them of the recent detection (and all future detections) of interference in groundwater samples. ESI will attach to the email any information the Chemistry subgroup will need to determine how to address the interference event. The team agreed to continue its development of the long-term notification process in future meetings.

ACTION ITEM: Ms. Michell will send emails to Ms. Buss, Ms. Farris, Mr. Crapps, Ms. Page, and Mr. Garner to notify them of the recent detection (and all future detections) of interference in groundwater samples. Ms. Michell will attach to the email any information the Chemistry subgroup will need to determine how to address the interference event.

The team continued outlining the notification process for interference events. The team agreed that samples affected by interference should be flagged to indicate that they are in the process of being analyzed and will be issued separately after the rest of the data in the respective data packages so that the team is not delayed while the Chemistry subgroup determines how to address the interference. The team questioned whether it would be appropriate to apply the 5-day notification process specified in the SOP to samples from wells with reoccurring interference issues. The team agreed the subgroup will take up further consideration of the issue during its development of the long-term notification process.

THE SITE CHARACTERIZATION REPORT

Mr. Schwenne and Ms. Minnear gave a PowerPoint presentation outlining review comments to the Site Characterization Report (SCR). Mr. Schwenne said the presentation reflects his own comments as well as the key comments made by Dr. Barnes, Mr. Black, Ms. Paris, and Ms. Minnear after they each reviewed the sections of the report pertaining to their areas of expertise. Mr. Schwenne said he expects that many of the comments made by the group will be addressed as additional data is obtained. The team agreed to schedule a comment resolution meeting for July 11th.

WELL SCREENING

Mr. Schwenne said that the report did not provide justification for the screening depth of certain wells. He stated that the screening depth should be based on lithological data from the boring logs of drinking water and project wells when it is available. He suggested that FHRA characterize the top fifteen feet of the water table. Mr. Schwenne commented that only ten percent of the project wells were cross sectioned. He remarked that a more extensive cross section of the project wells would help the team understand how factors influencing the monitoring and drinking water wells are interrelated.

MONITORED NATURAL ATTENUATION

Mr. Schwenne commented that the protocol used to evaluate the potential for Monitored Natural Attenuation (MNA) at the site was designed to evaluate the MNA potential for BETX. He added that while others have adapted the protocol to evaluate other substances, he is not sure whether it can be applied to sulfolane. Mr. Schwenne suggested that FHRA determine whether site conditions are favorable for MNA by performing a treatability study to elucidate the metabolic pathway by which sulfolane degrades.

The team discussed various considerations associated with the evaluation of the potential for MNA at the site. Mr. DeJournett stated that, based on the existing data, they cannot determine the extent to which the decreasing trends observed in the down-gradient wells are a factor of MNA. He acknowledged that, at the present time, they cannot rule out the possibility that the decreasing trends are entirely product dilution. Ms. Farris emphasized that it is vital to understand the potential for MNA at the site since it will determine the technical options that are available for remediation. She suggested that FHRA work with Dr. Barnes and the University of Alaska Fairbanks (UAF) and discuss the possibility of conducting studies to further evaluate the potential for MNA at the site.

PERMAFROST

Mr. Schwenne recommended that FHRA develop a comprehensive hydrological assessment of the impact of permafrost on the migration of contaminants at the site. He said that he believes that there is more permafrost at the site than is represented by the cross sections in the SCR. Mr. Schwenne suggested that FHRA perform a more rigorous evaluation of the occurrence of permafrost at the project site and added that it may be useful to review information on the frozen zones in drinking water boring logs. He stressed that while the influence of permafrost on contaminant migration has definite implications for site modeling and the placement of monitoring wells, the SCR did not indicate how it was taken into account in the placement and screening of existing project wells.

DRINKING WATER

Mr. Schwenne suggested that FHRA collect and evaluate any additional lithology data that may be available from drinking water wells to more effectively link trends in the well logs of drinking water and monitoring wells. He recommended that FHRA update the cross sections presented in the CSM as future groundwater data is obtained and that they use drinking and monitoring well data to identify gaps and interrelationships to be used in the selection of monitoring well locations.

NON-AQUEOUS PHASE LIQUIDS

Mr. Schwenne remarked that while composition samples were used appropriately to determine the composition of the Non-Aqueous Phase Liquid (NAPL) elements of the site contamination, more analysis may be required to determine how key components of BETX and sulfolane partition within the NAPL plume. It is more appropriate to use discrete samples than composition samples to determine how key components partition from NAPL and the extent to which they can be recovered. Mr. Schwenne emphasized that in order to evaluate the efficacy of a given recovery system and estimate the time required to meet cleanup goals, it is vital to have an accurate estimate of the overall volume of the contamination, knowledge of the chemistry of different zones within the site, the partitioning factors, and the amount of recovery that is expected over time.

Since data from monitoring wells with submerged screening cannot be used to define the NAPL plume, the product thickness measurements in the horizontal delineation of the NAPL plume that were based on data from such wells is invalid. He suggested all data from wells with submerged screens be removed from the data set. Mr. Schwenne said that the report listed as a goal the estimation of the mass of NAPL at the site. He said that to meet this goal, it will be necessary to compare the vertical NAPL distribution, the degree of saturation, and an assessment of the horizontal distribution. Mr. Schwenne commented that the mass fraction assessment appeared to be based on values from literature as opposed to the observed partitioning of on-site NAPL.

DEEP ZONE

Mr. Schwenne said he believes that additional investigation of the deep zone is warranted since only three wells were sampled below the 90 foot range and since a sample from a well at about 90' indicated the presence of sulfolane. He said that it is particularly important to reconsider areas where the cross sections show deep wells in close proximity to the known sulfolane plume.

SOIL

Mr. Schwenne expressed concern over the limited amount of data on the concentration of sulfolane in the soil near the water table, particularly since the detection limits for existing soil data are above the standard for migration to groundwater. He said that it would be useful to know why certain samples were taken at their respective depths and how the depth of collection relates to gaps in the CSM. Mr. Schwenne suggested that FHRA develop a general plan to assess the presence of sulfolane in both on site surface soils and in the smear zone throughout the contaminant plume.

THE CAPTURE ZONE

Ms. Minnear stated that the data presented in the SCR did not clearly indicate whether the recovery wells are intercepting the majority of the dissolved phase of the plume. She said that the report should include a comparison of the groundwater flux rate and the recovery rate. Ms. Farris added that it is important that FHRA attain a thorough understanding of the groundwater flux so that they can establish hydraulic controls that anticipate the effect that pumping will have on the plume as well as the down-gradient fate of contamination.

SCREENING FOR CONTAMINANTS OF CONCERN

Ms. Buss said that she was not able to verify the list of Contaminants of Potential Concern (COPC) since the original set of reports for the list was not provided. She said that since the screening for groundwater was performed at the cleanup level rather than at 1/10 of the Table B/C values, there may be from 10 to 12 additional COPC on site. She added that additional issues may arise during the soil screening since the values for direct contact are lower than the cleanup levels. Ms. Buss said that the reporting limits for potential COPCs need to be evaluated to determine if they are adequate to perform screening. She added that select sites may need to be re-sampled using lower detection limits so that screening is adequately completed.

She added that since the historical spill reports and the lab ingredients list were either missing or inappropriately referenced, she was not able to tell how table 9 was developed.

SURFACE WATER

Mr. Schwenne recommended that the SCR include a plan to assess all potentially affected surface water bodies, particularly the on-site gravel pits. Rather than using water column samples, he suggested the contractors use pore water samples taken in close proximity to the surface water since it is typically the method preferred by ADEC to assess potential impact to surface water.

SPILL HISTORY

Ms. Minnear said that while the team previously discussed the need to develop a procedure for researching the site's spill history, no such procedure was mentioned in the report. The SCR should include a table or figure that identifies historical release locations and designates whether these areas will be investigated during the soil characterization phase. She acknowledged that while the report included references to spill documents, they would like them to be made more accessible and identifiable. Ms. Minnear added that the report should include a plan to investigate areas where releases are suspected to have had occurred.

SOURCE EVALUATION

Ms. Minnear said that it would be useful to have some information on the extraction process, especially as it relates to the management of sulfolane during turnaround events. She said that the SCR should include an overview of the preventative maintenance procedures that are in place to prevent sulfolane release from the extraction unit and the concentrations at which sulfolane enters the wastewater stream. Ms. Minnear said that the SCR should include some discussion on the management of out-of-spec wastewater.

HISTORICAL SULFOLANE CONCENTRATIONS

Ms. Minnear suggested the SCR include historical data on which fuels may have contained sulfolane as well as the estimated concentrations of sulfolane in those fuels. Mr. Schwenne added that such

information would be useful since it will allow the team to determine whether areas in the vicinity of historical spills should be investigated as a potential source of sulfolane.

TREND ANALYSIS

Mr. Schwenne said that non-detect results should not be assumed as zero when performing a Mann-Kendal trend analysis. A substitution program, such as contained in Pro-UCL, should be used to estimate the value of non-detect results. He pointed out that the results of the trend analysis of project wells did not change when Oasis used pro-UCL to reevaluate all the non-detect results, but he added that FHRA should nevertheless use a substitution program to conform to guidelines. Mr. Schwenne said that the effect of seasonal change on concentration trends remains largely unknown. While he acknowledged that the team does not have sufficient data to evaluate the effect of seasonality at most of the sites, he suggested that FHRA develop a plan to collect the data necessary to perform this analysis.

DATA QUALITY OBJECTIVES

Mr. Schwenne suggested the remainder of the data to be used in the report must go through a Data Quality Objective (DQO) process. He asserted that the usability of some of the data in the SCR, such as the surface water data presented in Appendix M, was not demonstrated in the data quality section. Mr. Schwenne and Ms. Farris emphasized that it will not be possible to completely review the SCR until all of the reports have received the appropriate data validation. Mr. Schwenne pointed out that there are still a few outstanding laboratory reports that require completion of the ADEC data quality checklist. He reiterated that the conceptual site model must be updated to reflect data that was rejected due to the high detection limit.

SCHEDULE

The team discussed the schedule for various project deliverables. Ms. Farris said that rather than dictate deadlines; she would rather the team work out a reasonable timeline based on its consideration of the aforesaid recommendations. She emphasized, however, that she would prefer to have actual dates scheduled at least a month in advance for the work plan, the work schedule etc. She emphasized that while these dates may be subject to change, it is important that an actual timeline be established.

The team continued its discussion of the schedule for the upcoming field season. Ms. Page requested, for the sake of prioritization, that Ms. Farris review the comments made to the SCR and, when appropriate, reference the specific regulatory requirements that pertain to them. Ms. Farris agreed to do so, and to designate which of the comments are required by regulation.

ACTION ITEM: Ms. Farris will review the comments made to the Site Characterization Report, and, when appropriate, reference the specific regulatory requirements that pertain to them. Ms. Farris will send a copy of the comments with references to Ms. Page and Mr. Garner.

ACTION ITEM: Mr. Schwenne will review the comments made to the SCR and eliminate comments that are no longer a concern. Mr. Schwenne will submit the revised comment list to Ms. Page and Mr. Garner through Ms. Farris before FHRA's all hands meeting scheduled for June 29th.

The team agreed to schedule the comment resolution meeting for 8:30 AM Alaska Time on July 11th. The team agreed to schedule the next TPT meeting for August 9th via teleconference. The September TPT is scheduled for the 14th.

The meeting adjourned at 11:30 Alaska Time as the team departed for an afternoon tour of the refinery.