

North Pole Refinery Technical Project Team
October 14, 2011
Via Teleconference

Technical Project Team Members in Attendance

Dr. Dave Barnes	UAF, Department Chair, Civil and Environmental Engineering
Cindy Christian	DEC, Drinking Water Program, Compliance Program Manager
Ann Farris	DEC, Contaminated Sites Program, Project Manager
Loren Garner	FHRA, Project Manager
Nim Ha	DHSS, Acting Program Manager, EPHP (via telecon)
Elizabeth Page	Flint Hills/Reiss Remediation
Shannon Price	Flint Hills Resources Alaska, Consultant

Support Personnel in Attendance

Rebecca Andresen	Arcadis
Brian Angerman	Barr Engineering (via telecon)
Stephanie Buss	SPB Consulting, Toxicologist
JoAnn Grady	Grady and Associates, Team Facilitator
Max Schwenne	OASIS Environmental, Project Manager
Jeanne Swartz	DEC, Environmental Program Specialist, PERP
Meg Michelle	Environmental Standards, Inc. (via telecom)
Eric Zentner	Boreal Communications

INTRODUCTIONS AND ACTION ITEM REVIEW

The meeting began at 10:00 Alaska time as team members introduced themselves and reviewed the action items from the previous meeting. The team agreed that Action Item 1, while still outstanding is not considered to be an urgent priority by either Flint Hills Resources Alaska (FHRA) or the Alaska Department of Environmental Conservation (ADEC). Ms. Farris said, in regard to Action Item 3, that an ADEC intern is currently working on updating the project's literature on sulfolane. Ms. Andresen added that Arcadis recently conducted a sulfolane literature review and have found nothing new. The team determined that all other action items from the previous meeting have been completed with the exception of Action Item 10, a review by OASIS of the monitoring of the Galena aquifer, which is still outstanding.

THE CHEMISTRY SUBGROUP

Ms. Buss reported on the recent updates within the Chemistry subgroup. The subgroup met during the previous week to address the naphthalene interference issue as well as other issues related to the Standard Operating Procedures (SOP) document for soil sampling. SGS worked with the ADEC's Environmental Health Laboratory to refine a separation procedure which effectively addresses the issue

of naphthalene interference. The Chemistry subgroup approved the procedure which specifies the use of an alternative ion for quantification. The subgroup agreed that in the event of a documented case of naphthalene interference, the labs may use the alternative ion without providing notification to ADEC provided that the other ions are within the ratio criteria for the quantification of sulfolane. Ms. Buss said that the SGS has made changes to their soil SOP concerning the solvent that it specifies for soil analysis. She said that ADEC has granted provisional approval of the change.

Ms. Mitchell updated the team on the validation and review of the project's level 4 data packages. Environmental Standards Incorporated (ESI) recently completed the review of all of the level 4 data that will be included in the 3rd Quarter Report. ESI is currently reviewing and revising level 4 data packages from the analysis of soil samples as well as from the data that is being generated as the project labs reanalyze samples associated with naphthalene interference using the improved separation procedure. ESI has not encountered any issues with the data from residential wells. She added that since all of the lab issues have arisen exclusively from project well data, ESI will formally request that the requirement of level 4 validation be suspended for the existing residential well data. Ms. Buss said that the Chemistry subgroup supports this proposal provided that they reserve the right to request level 4 data validation and that all new residential samples are subject to level 4 data validation.

THE TOXICOLOGY SUBGROUP

Ms. Buss updated the team on recent developments within the Toxicology group. The subgroup recently reviewed and provided comments on the draft Risk Assessment Work Plan (RAWP). She will provide a copy of these comments to FHRA. Ms. Buss remarked that, in general, the team is on track with the RA's schedule.

ACTION ITEM: Ms. Buss will provide FHRA a copy of the comments from DEC on the RAWP.

THE DEPARTMENT OF HEALTH AND SOCIAL SERVICES HEALTH CONSULTATION

Ms. Ha said that she recently sent Ms. Buss her completed draft of the Health Consultation to be released by the Alaska Department of Health and Social Services (DHSS). After review by Ms. Buss, the draft will be sent to the section chief at DHSS and then to the greater Technical Project Team (TPT). Ms. Ha said that she expects that the Health Consultation will likely be finalized at about the same time that the Environmental Protection Agency (EPA) releases the report on its Provisional Peer Reviewed Toxicity Value (PPRTV) for sulfolane. She said that the department will likely compose a fact sheet which will summarize the implications that the document will have for site cleanup and for the evaluation of possible risks to human health. The Risk Communication subgroup will consider whether the Health Consultation and the PPRTV fact sheet should be released concurrently, as separate documents, or released at different times. Ms. Ha added that the department and the subgroup will also discuss whether it would be appropriate to conduct another public forum to present the two reports to the community.

SITE CHARACTERIZATION UPDATE

The team transitioned to a discussion on the status of various site characterization efforts. Ms. Farris said that the field work outlined in the draft work plan is proceeding as planned and most of the major issues associated with the work plan were resolved during the site characterization work group session that was held on the previous Tuesday. Ms. Farris said that, with the exception of the comments related to the transducers, all of the other agreements will be sent to everyone that was present at the comment resolution meeting. The team briefly discussed the project model. Mr. Garner said that the model is being developed according to schedule and should be submitted to ADEC on time. Ms. Farris remarked that Dr. Barnes has been in consultation with GeoMega, the consulting firm hired to develop the model. She said that given the complexity of the model, the team will likely spend a significant amount of time reviewing it.

FIELD WORK UPDATE

Mr. Garner presented an overview of field work that is currently underway. He said that the 3rd Quarter groundwater monitoring data is nearly all in and on schedule to be submitted within the extension of the deadline. Shannon & Wilson has reported that the 4th Quarter groundwater monitoring is also nearly complete. FHRA is sampling the new project wells as they are being developed so that they will be able to incorporate as much data as possible into the 4th Quarter report. Mr. Garner said that Shannon & Wilson has been working on its search for records related to wells located north of the plume area. Of the 153 wells that they have identified to date, 74 have associated well depths but no well logs, 21 have well logs which indicate a depth of greater than 100 feet, and several of the logs indicate the presence of permafrost.

Mr. Garner continued his update on the project field work. He said that FHRA has added 35 additional delineation wells to the monitoring well network. Of the 19 LNAPL wells that were proposed, all have been installed except for a few which are expected to be completed in the next few days. Mr. Garner described the locations and depths of permafrost and other anomalies that were encountered during the installation of the LNAPL wells. He said that the depths and locations of the anomalies will be tagged and incorporated into the project maps.

Mr. Garner said that, to date, there have been 83 specific soil borings including the COPC borings that were conducted as part of the planned soil assessment. FHRA also took 8 undisturbed samples for the LNAPL studies to evaluate the recoverability and the mobility potential of the free product. Soil samples were also taken from the 19 LNAPL wells. At this point, 103 soil borings have been sampled in addition to the soil that was sampled to study LNAPL mobility. FHRA recently completed LNAPL bail down testing on a number of on-site wells. The data from these tests will be applied to the mobility assessment.

Mr. Garner briefly reviewed the status of recent efforts to characterize the microbiological conditions at the site. He said that the first round of data from the bio-traps that were deployed in September will be submitted to the lab on October 21st. The first phase of the stable isotope evaluation is also currently

underway. Mr. Garner said that the garden sampling will be conducted in conjunction with the 4th Quarter groundwater monitoring. He said that Mr. Zukowski has agreed to participate, but FHRA has had difficulty contacting the other participants from the previous study. Mr. Garner assured the team that FHRA would share the names of the final participants with the appropriate state agencies before they begin the garden sampling.

Mr. Garner reported that efforts to rehabilitate the project's LNAPL recovery wells have led to an increase in their recovery rates. Overall, FHRA is pleased with the recent performance of the remediation system. Mr. Garner informed the team that the project labs have just received the first sample showing a breakthrough of sulfolane in the Granulated Activated Carbon (GAC) vessels. The data collection for the capture zone has been completed and the analysis for the data is near completion. The preliminary results seem to indicate that endurance of the vessels, as indicated by the well curves, appears to have been underestimated.

Mr. Garner concluded his presentation by mentioning that the evaluation of the vertical concentration gradient will be further expanded by the installation of pressure transducers and additional well nests. He said that FHRA is proceeding with the development of the monitoring well transects. They are currently waiting for the arrival of the materials for the Continuous Multichannel Tubing (CMT) wells. FHRA is planning on installing 6 CMT wells along the proposed transect, each of these wells will allow the use a single bore hole to sample five locations.

RESEARCH ON THE ATTENUATION PARAMETERS WITHIN THE PROJECT AREA

Dr. Barnes described a proposed research program that he and his colleges at the University of Alaska Fairbanks (UAF) are currently considering. The program will be directed towards gaining a better understanding of the attenuation parameters within the project area in order to determine the extent to which monitored natural attenuation is a viable option for site remediation. Dr. Barnes explained that existing research has indicated that the degradation rates of sulfolane are largely dependent on the temperatures as well as the geochemical and microbiological conditions that exist in a given aquifer. Researchers at UAF are currently considering additional research to ascertain these parameters for the site as well as to attempt to understand the actual mechanism, whether physical and or microbial, by which sulfolane degrades.

Dr. Barnes said that, in addition to the biological parameters, the researchers are also interested in the extent to which the physical methods of dispersion and dilution will cause the concentration of sulfolane to decline within the plume area. He said that a detailed understanding of field parameters such as inputs and outputs from the sloughs, and particularly the effects of the Tanana River and the permafrost will be essential to understanding whether observed decreases in sulfolane concentration are due to the breakdown of the chemical or whether it is merely the temporal result of dilution and dispersion. The team thanked Dr. Barnes for his presentation. Ms Farris commented that it is crucial for the department to understand the field parameters and the degradation mechanisms if they are to have confidence in a given cleanup solution or an estimate of the time required to remediate the aquifer.

THE CHEMICAL OXIDATION STUDY

Ms. Farris informed the team the Mr. Brian House of Moran Environmental Recovery has offered to investigate whether there might be project application for a certain catalyst which increases the oxidation rates of reactions involving chemicals comparable to sulfolane. Moran Environmental has agreed to present the results of a treatability study that they will conduct on their own time, but they have requested that the team provide them with water, and possibly, soil matrix samples. Ms. Farris said she would provide Mr. House's contact information to Mr. Garner.

ACTION ITEM: Ms. Farris will send Mr. Garner the contact information for Mr. Brian House of Moran Environmental Recovery Inc.

DRINKING WATER UPDATE

Ms. Christian updated the team on the recent activities of the Drinking Water subgroup. She said that ADEC recently approved the water permit for the well installation at the Church at North Pole located on Peridot Street. Ms. Christian also informed the team that she just received the latest results from the Cheechako Well which were taken on September 22nd. She added that the results were all non-detect. Ms. Christian said that ADEC intends to sample the wells again at the beginning of the year and then transition to quarterly sampling if the results are non-detect.

Mr. Garner and Mr. Price presented an update on FHRA's efforts to resample wells using the new isotope dilution technique. Mr. Garner remarked that they have not had any surprises in the locations or concentrations of the wells where sulfolane was detected during the resample. He said that, for the most part, the resamples conducted on non-detect wells that were located near wells where sulfolane had been detected were consistent with previous results.

Mr. Price said that, to date, FHRA has tested 528 private wells and has provided long-term alternative water supplies to 219 homes and commercial locations. Of the private wells that have been tested, 247 have shown a concentration of sulfolane above 10 parts per billion. The levels detected in private wells range from 10 to 443 ppb, with 88 between 10 and 20 ppb, 29 between 20.1 ppb and 32 ppb, 39 between 32.1 and 70 ppb, and 92 over 70 ppb. Mr. Price added that, as a precautionary measure, FHRA is providing bottled water to over 200 additional homes where sulfolane was not detected.

THE RISK COMMUNICAITON SUBGROUP

Ms. Grady updated the team on the recent activities of the Risk Communication subgroup. She said that the online survey was recently posted to the project website. The subgroup has been collecting the responses which, for the most part, have been succinct and informative. Ms. Grady said that the subgroup will tally the responses and present them to the TPT. She added that the subgroup will attempt to incorporate the responses into its future communication strategies.

Ms. Grady said that the project newsletter is now in the final stages of the drafting process. It will be sent to the members of the Risk Communication subgroup and then to ADEC for its final review before it is published, hopefully within the week. Ms. Farris remarked that the newsletter represents an

important channel by which to present project information to all concerned stakeholders, local political representatives, and to the legislative delegation.

The team discussed the schedule of the upcoming TPT meetings. The team agreed that the next TPT meeting will be held in Anchorage on December 1st. The team tentatively agreed to schedule the following meeting for January 18th.

The meeting adjourned at 11:30 AM Alaska Time