

ST. LAWRENCE ISLAND
RESTORATION ADVISORY BOARD MEETING FOLLOW-UP CALL
Meeting Minutes
30 January 2014, 10:30 – 12:45
Via Teleconference

ATTENDEES

Name	Affiliation
Janesse Brewer	The Keystone Center, Facilitator
Valerie Palmer	FUDS Project Manager, Corps of Engineers, Alaska District
Aaron Shewman	Project Engineer, Corps of Engineers, Alaska District
Lisa Geist	Project Scientist, Corps of Engineers, Alaska District
Curtis Dunkin	Project Manager, Alaska Dept. of Environmental Conservation
Mitchell Kiyuklook	Native Village of Savoonga
Paul Rookok, Sr.	Native Village of Savoonga, Council Member
Thor Noongwook	Native Village of Savoonga, Council Member
Casey P	Native Village of Savoonga, Council Member
Derek Seppilu	Native Village of Savoonga, Council Member
Merton Miluhook, Sr.	Native Village of Savoonga, Council Member
Robert Annogiyuk	Native Village of Savoonga - NALEMP
George Noongwook	RAB Community Co-Chair
Vi Waghiyi	RAB member, Alaska Community Action on Toxics
Pam Miller	ACAT
Ron Scrudato	TAPP Advisor, R&M Technologies

ACRONYM GLOSSARY

ACAT	Alaska Community Action on Toxins
ADEC	Alaska Department of Environmental Conservation
As	arsenic
BTEX	benzene, toluene, ethylbenzene, and xylenes
Bristol	Bristol Environmental Remediation Services, LLC
COE	Corps of Engineers
Cr	chromium
Cu	copper
DDE	Dichlorodiphenyldichloroethylene
DRO	diesel range organics
ECP	Electrochemical Peroxidation
FUDS	Formerly Used Defense Sites
HCB	hexachlorobenzene
Hg	mercury
Jacobs	Jacobs Engineering Group Inc.
MOC	Main Operations Complex
mg/Kg	Milligram per Kilogram
MNA	Monitored Natural Attenuation
NELAP	National Environmental Laboratory Accreditation Program
NALEMP	Native American Lands Environmental Mitigation Program
NVNC	Native Village of Northeast Cape
NE Cape	Northeast Cape
PCB	polychlorinated biphenyl
ppm	parts per million
ppb	parts per billion
Pb	lead
POL	Petroleum, Oil, Lubricants
POP	Persistent Organic Pollutants
RRO	residual range organics
RAB	Restoration Advisory Board
ROE	Right of Entry
Suqi River	Suqitughneq River
TAPP	Technical Assistance for Public Participation
TNT	trinitrotoluene
USACE	United States Army Corps of Engineers
WW2	World War II

Introductions (1040)

Lisa Geist from the USACE facilitated the conference call and welcomed everyone. The attendees on the phone introduced themselves and Lisa re-stated the names of the attendees for those calling in late. Lisa stated the goal of the call was to get clarification from Ron Scrudato on what his questions really were based on the ten items submitted to the RAB on 15 January 2014 (see attached).

Item 1: “Monitored Natural Attenuation (MNA) --- not decreasing concentrations”

Ron said he knows natural attenuation includes a combination of dilution and bacterial action, but the contamination has been there for more than 50 years. He asked how long are people using the site expected to wait for the site to clean up. Ron discussed the differences between aerobic and anaerobic processes. In particular, Ron stated that methane indicates anaerobic processes, which typically don't break down petroleum contaminants very well.

Pam advocated chemical oxidation to assist with microbial degradation. Pam wondered if the contaminants themselves are inhibiting the microbial community. ACAT is doing some collaboration with a UAA professor (Dr. Fred Rainey) to look into this.

Ron stated the bacteria are working, but they're anaerobic ones. He believes anaerobic ones are successful at removal of chlorinated solvents.

Lisa stated MNA sampling is ongoing, and reminded everyone that a large source removal has been done and should be completed this summer, which should help, too. Ron stated soil removal doesn't remove dissolved POL in the water. He believes it would be more successful to blow air in to remove the non-chlorinated contaminants and encourage aerobic processes. Ron firmly believes the monitored natural attenuation process requires aerobic conditions to work effectively. The sampling results he has reviewed don't show a statistically significant reduction.

Valerie stated getting people's opinion on the effectiveness of the current remedy is one focus of the Five Year Review process. She went on to say USACE will answer as many questions as possible today via phone and meeting minutes, but not all questions can be answered at this time because we have a Decision Document with remedies still being implemented.

Item 2: “Arsenic Monitoring”

Ron asked if there was an effective technology being used to remove arsenic in groundwater at the MOC. Lisa explained that, while she didn't have the data in front of her, she did not recall a significant arsenic concern in groundwater. She also mentioned that we are still sampling for it and we just received data from the 2013 sampling event. Ron mentioned there are technologies that can remove metals from the groundwater, such as Electrochemical Peroxidation (ECP), which is being used to remove arsenic from groundwater at a Chilean Mine.

Item 3: “Suqi Estuary Depositional basin – no sampling of soils, sediments, soils in recent years including migratory fish/aquatic organisms DESPITE results summarized in accepted journal publications”

Ron expressed the 2002 sampling (conducted by ACAT) data from sediment cores was limited, but acknowledged the results did not exceed state or federal standards. However, he still contends the Suqi estuary received a significant amount of contamination and acts as a settling basin for contaminants such as PCBs, mirex, DDE, HCB, and metals. Valerie asked to be provided the data since she’s not seen it in the year she’s been involved with the project. Pam offered to provide it to all on the call [Ref: Carpenter et al, Contaminants at Arctic formerly used defense sites. Journal of Local and Global Health Science, 2012:2]. Curtis recalls hearing about the data but does not recall receiving it. Ron explained that he had a difficult time taking sediment sample in the Suqi estuary due to large boulders and a lack of sediment. His main concern was that USACE never sampled for these contaminants of concern, even though ACAT’s research indicated their presence at low concentrations. Ron believes higher concentrations exist in either depositional areas or at deeper depths which they were unable to access.

Robert mentioned that last time they sampled under NALEMP at the NVNC they had several metal exceedances (arsenic, cadmium, chromium, and lead) in sediment samples from nearby streams. Robert stated some soil DRO results of 74,000 mg/kg, RRO of 300,000 mg/kg, and PCBs of 29 mg/kg from the previous NALEMP work. Robert also mentioned they planned to do soil removals this coming field season. Curtis confirmed there was sampling done and that soil removal was planned. Pam stated the levels of contamination were high and that she hoped the workers will have protection. Mitchell said the high PCB results concern him given the subsistence hunting and fishing in the area of NVNC.

Valerie circled back to the fact that sampling in the Suqi will be conducted after the remedial actions are completed – either the end of this coming summer or the following summer. Pam asked to be able to review and provide input on that sampling plan. Pam was concerned about adequate coverage so hot spots aren’t missed. Valerie explained that sampling plans are always reviewed and accepted by ADEC and are also sent to the information repositories for public review and comment.

Item 4: “Field and laboratory analysis – metals/organics detections limits wildlife the field and lab analysis”

Ron asked if Bristol was using the field lab to guide excavation and what was the detection limit of the field lab. Aaron explained the field lab was used to guide excavation of soil, but confirmation samples are sent to a fixed laboratory. No decisions to stop digging were based on a field lab sample result. To be conservative, the field lab sample result had to be 30% lower than the cleanup level before confirmation samples were collected for the fixed laboratory.

Aaron then explained this coming summer the field lab would be an ADEC-approved and NELAP-certified lab. This means the lab will need to follow the same certification requirements of a fixed laboratory and confirmation samples will be analyzed in the field lab only. Curtis also explained that part of the certification process was to run all of the same quality control tests as a

fixed lab. He asserted all media sampled and all analyses results were from a fixed lab before ADEC would approve either remedial investigations or remedial action decisions. Ron asked if samples from both surface and at depth were analyzed. Valerie explained when an excavation was started, then surface samples were collected and field lab results used to guide excavation. As the excavation continued, then samples were collected from various depths, which were no longer surface samples.

Item 5: “Analysis of PCBs, metals (Pb, As, Hg, Cr (valence), Cu, others)”

Ron asked if the 1 mg/kg cleanup level for PCBs was based on Aroclors. Curtis confirmed it was Aroclors required by the regulations. Ron stated that PCBs are actually comprised of a series of 209 separate congeners. Ron mentioned that congener specific analysis is much more sensitive. Ron also mentioned some congeners are more damaging to human health than others and that is why he is concerned. Ron knows the cleanup standards are set to Aroclors, and that there’s a big cost difference between the two analyses. He believes congener analysis is likely around \$1,000 each and Aroclor method is around \$300 each. Ron also referenced the article he sent regarding the difference between the two analysis methods (2001 Analysis of PCB Congeners vs. Aroclors in Ecological Risk Assessment). Curtis said he read the article, but the promulgated ADEC cleanup regulations are based on Aroclors for both soil and surface water. For water, the chronic aquatic exposure criteria applies. It’s still Aroclors, but at a very low detection. Curtis also stated that in general, congener analysis has been more typically used to characterize the type of Aroclor and/or differentiate between specific sources of contamination.

Ron stated he realizes Aroclors are the regulated contaminant. But he said the congener method would be more helpful to determine if we have a health issue. Ron went on to say if we look more closely at the congeners, we could determine which ones are more soluble or chlorinated, and more likely to move in the environment and not degrade. Ron suggested studying the Suqi estuary to see if there are major differences in PCBs, so a small number of samples could be analyzed for congeners for comparison between Aroclors and congeners. Ron gave an example: if the PCB Aroclor concentration is less than 1 ppm, the system could still be shedding congeners into areas impacted in the estuary and near shore Bering Sea. He said a portion of the overall investigation should focus on congener-specifics to see if they pose a health risk. Finally, Ron expressed that he knows this discussion, and that it won’t change the regulations, but he feels he would have a better feel for what was out at the NE Cape.

Valerie mentioned that under the FUDS program we must have a legal driver for the things that are done. Since the regulations require Aroclor data that’s the type of analysis we do. We only follow promulgated regulations.

Pam stated Ron’s point is valid and would be useful for health input. She believes we need to do everything possible for the people of St. Lawrence Island, and this is vital information for the understanding of potential health impacts. She asked if this can be posed to Headquarters from a scientific and health aspect. Pam also asked if a specific appropriation was needed.

Ron stated there is good evidence that a lot of PCBs are being deposited via the atmosphere across the globe, but we wouldn’t be able to see it with Aroclor analysis.

Paul then asked to make a statement. He mentioned the Suqi and drainage and related contamination. He asked where are the sources of the contamination. It's all running through the drainage system into the Suqi. He asked that we look from the standpoint of the people of the island and stated there has to be something done there. More testing is needed downstream. He asked if there was something upstream. Natural attenuation is something that "baffles" him. Birds and animals eat there, things eat plants, people eat the animals, and the contaminants stay in human tissue. Groundwater needs to be tested for contaminants. He wouldn't depend heavily on natural attenuation but eliminate contaminants by removing them until levels are safe.

Lisa thanked him for his statement and also mentioned that the USACE is conducting removal of the contaminants, and then samples will be collected from the Suqi River.

Ron mentioned they also collected samples in 2002 from plants that might be eaten. Rinsed and un-rinsed results were analyzed and they saw a big difference in results between rinsed and un-rinsed plants. He believes there was a significant amount of dust with contamination adhering to the plants. He's concerned about redistribution of contaminants. He said animals eat the plants, people eat the animals.

Mitchell mentioned that the reindeer at NE Cape eat that stuff and the fish go upstream to spawn so we need to be concerned about that.

Item 6: "Mirex, PCBs, HCB, dioxins, DDE, BTEX, POL, others – ALL found in the soils/sediments within and within and upgradient of the estuary; field and laboratory limitations (concentrations), non-detects???"

Ron asked how did mirex in particular, which is a highly stable compound that doesn't move around, get there. Pam asked if mirex can be added to the list of contaminants at the site. Lisa said we don't really have any evidence supporting military use there, and 2002 results were below regulatory levels. She said the answer is probably still no, but we can look into it. Pam said Mirex is not subject to long range transport, so it should be looked for in the next round of Suqi river sampling. She said it makes sense to analyze for these contaminants after this round of remediation is completed. Curtis mentioned he could take a look back and see if any contaminants of potential concern were missed and re-evaluate them after the remedial action is done. Curtis stated the previous RI work was done before he became the regulator and it would be a good review for him. Lisa mentioned the Five Year Review covers this type of review and would be the right place for input in this regard. Curtis said maybe this can be added via the 5-year review. He also asked if a work plan for future Suqi sampling could be looked at before the 5 year review was completed.

Item 7: "Radionuclides???"

Ron asked if there were any radioactive materials looked for at the site; particularly at Gambell. He wondered if any analysis has been done at either the Gambell or NE Cape site or if there was any evidence or records of radioactive materials being used there. Ron stated that nuclear weapons were being developed by the military during this timeframe and was curious if any were ever brought to Gambell or NE Cape. Lisa said we don't believe any radioactive

materials were used but we can check the historical use and past reports for the site. Pam also would like the USACE to look into this and said it was a valid issue to raise. Ron also mentioned a military site in New York State that he had worked on where they did find radionuclides leaking from a 10 acre area. The Lake Ontario Ordnance works near Buffalo is impacting the Niagara River, the military facility was started in WW2 and produced TNT, then started bring radioactive material to the site because they didn't know what else to do with it.

Someone mentioned hearing about a large explosion that charred the area. Vi mentioned she had heard the story from elders, too, and it needed to be looked into. They were concerned because of the importance of St. Lawrence Island during the Cold war. Curtis asked if the waste sampling included a test for radioactive material. Aaron confirmed it does not. Mitchell recalled elders talking about explosions in the 1950s, but no one had a camera to document it. He remembers (or heard stories of) thousands of dead walrus that were burned somehow in the Gambell area. They were found burned and dead and no one even wanted to touch them or harvest the ivory. Vi recalled it was Winnie James that told the explosion story. She thinks it's a big problem because of the cancer crisis in the Savoonga Community. She believes something must be out there.

Curtis said the reference about waste shipped and tested for radiation came from the June 2012 Remedial Action Report. Metal debris that was shipped off site in 2011 to a recycling location was tested by the trucking company with a standard radiation test, and they found levels exceeding their requirements, but the levels were considered natural. He attributed the radiation from soil fragments stuck to the debris. Vi asked if there were tests that could be done to determine if it was naturally occurring or not. Curtis said he was not familiar with the process either, but maybe could revisit sometime. Lisa said we would have to look into it.

Item 8: “Non-detect concentrations for all analysis and state/federal standards”

Ron asked about the varying compounds they detected in 2002 research (e.g., mirex, DDE, HCB, etc.) and where do they come from and what are the standards, and detection levels. Ron wondered if there was any reason to look for more material, what is the distribution of contaminants, and are they above or below detection levels. The USACE struggled to understand what exactly Ron was asking. Valerie explained that the detection limits for the analytes was presented in each lab report. Sometime detections limits are affected by matrix interference or dilutions factors, but the lab documents interference when it is encountered. Ron stated his concern was answered.

Item 9: “Contaminants surface and groundwater in soils, sediments”

Concerns for this item were covered under previously discussed Item 8.

Item 10: “POLs reduction by MNA – negative, despite the COEs contrary results”

Concerns for this item were covered by the discussion for Item 1.

Other Items:

Valerie stated the meeting notes from today's call would be summarized and sent out next week. The RAB Meeting minutes will also be sent out soon. The 2013 Remedial Action Report from last season is expected in this week and will also be distributed for review.

Ron was curious about the relative costs for in-situ activities compared to the costs of digging up all the soil and sending it offsite for disposal. Lisa referred him to the Feasibility Study which evaluated relative costs. Valerie stated the costs have been overcome by events, since all the soil has been excavated and disposed offsite. Ron stated the chemox process the USACE conducted was flawed and the contractor "goofed it" in his opinion. Ron said he made very pointed recommendations to bring samples to the lab before going to the field, and he never heard from anyone about why this was not done. His concern now is about the cost of more in-situ processes. Ron also appreciated everyone's efforts and said it was good round of discussions.

Vi expressed her concern with the Five Year Review being conducted. She gave a list of names to Jacobs for them to call, but was told Jacobs could not contact the people because it was out of scope. Vi feels the report will not be complete without input from those people. Jacobs offered to be available for the people to call, but Vi was concerned the people do not have the resources to call [i.e., no long distance service]. Vi was also concerned that Jacob's left Savoonga early because of the weather in her opinion. Valerie will follow up on this item.

Follow-up note: Valerie followed up with Vi on 31 January. A plan was developed to open a toll-free number with Jacobs for two occasions (2:00 – 4:00 February 4th and 10:30-12:30 February 6th) for additional opportunity to complete the questionnaire with Jacobs. Vi agreed to coordinate with the people on her list in the hopes of getting more input, and agreed that no additional times would be made available due to schedule constraints.

Valerie expressed her appreciation for everyone taking the time to have this discussion today, it was very productive.

Adjournment

The meeting was adjourned at 1245.