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**MINUTES OF RESTORATION ADVISORY BOARD (RAB)  
MEETING**

To: NSB-NLON RAB Meeting Attendees and RAB Members (See attached Distribution list)

From: Corey Rich 

Date: December 17, 1998

Subject: RAB Meeting Minutes – November 4, 1998  
Installation Restoration Program  
Naval Submarine Base - New London (NSB-NLON)  
Groton, Connecticut

**Attendees of the Meeting**

Jeffery Sullivan	NSB-NLON
Richard Conant	NSB-NLON
Mark Evans	Navy
Greta Deirocini	Navy
Kymerlee Keckler	EPA
Jim Murphy	EPA
Corey Rich	Tetra Tech, NUS
Mark Jonnet	Tetra Tech, NUS
Matt Bartman	Tetra Tech, NUS
Pete Nimmer	EA Engineering
Mike Battle	EA Engineering
Charles McLeod	EA Engineering
Greg Tracey	SAIC
Shannon Behr	SAIC
William Niering	Connecticut College
Susan Orrill	RAB Co-Chair Member
Larry Gibson	RAB Member
Deborah Downie	RAB Member
Felix Prokop III	RAB Member
Noah Levine	RAB Member
Bart Pearson	RAB Member
Norm Richards	Mohegan Tribe

The attendance sheet is included as Attachment 1.

## Welcome and Introduction

Jeff Sullivan opened the meeting at 6:30 p.m. He reviewed the prior meeting minutes.

Bart Pearson asked what is the impact of the current budget on the programs that you are doing under Superfund. Is it impacting on you? Are these projects funded?

Mark Evans stated that the budget for the IR program for Subbase has stayed steady for the last few years and it should continue that way, but there have been some reductions.

*Greg Tracey, SAIC, gave a presentation on the sediment analysis for Goss Cove and he reviewed the sampling results.*

Kymerlee Keckler asked how the total organic carbon data looked.

Greg Tracey stated that the total organic carbon is very high in the cove. It runs up to ten percent. The sediments are very organic and sulfidic. They smell like sulfur because of the biological decay. The carbon buffers the chemicals and keeps particles from going into the water to affect the animals.

Norm Richards stated that in the previous slide you showed the acid volatile sulfides. Was that test run on the same material?

Greg Tracey stated, yes.

Norm Richards asked if it was aerated. What were the conditions of the test?

Greg Tracey stated that we take some samples for testing. We mix that up and take careful splits to get exactly the same material for toxicity tests and analyzing for chemistry and as part of that test, the material is put into a jar about a couple of inches deep and is filled up to 900 milliliters with seawater. The animals are then added, and there is a very gentle aeration of the surface water but not enough to re-suspend any of the sediments in the jar. The sediment is supposed to retain its essential characteristics of its condition in the field.

Norm Richards asked if there is a possibility of stripping the volatile sulfides.

Greg Tracey stated, no, because the AVS is so high that it would take an enormous amount of oxidation to bring it down to absent levels.

Sue Orrill asked where would the ammonia be coming from.

Greg Tracey stated that it's due to the decay of organic matter. There are various forms of bacteria that deal with oxygen environments. Ammonia production is the first step

with bacteria and after that a different kind of bacteria called sulfide reducing bacteria can live on sulfur but produces sulfide as a result.

Jeff Sullivan asked if the higher ammonia levels would make a difference in the pH.

Greg Tracey stated, yes. There is a slight pH affect to changing ammonia. It's more of an issue in freshwater. Saltwater has a heavy buffering capacity and therefore it is less likely to see changes in pH. The pH could have an effect on the availability of other chemicals, particularly copper, which again is a reason to have a lot of chemistry to back up the results.

Norm Richards asked what is the pH tolerance range of the amphipod. What would you expect would be the affect if you changed the pH and added the same test?

Greg Tracey stated that for a system that is pH sensitive, like freshwater, if you took copper from the sediment, and it is a freshwater system going from a pH of 7.5 to a pH of 6.5, you could turn a sample from completely non-toxic to toxic. It has nothing to do with the change of the copper but everything to do with the form in which the copper was found in the sediment.

Norm Richards asked in the case of ammonia, what would the affect be in changing the pH?

Greg Tracey stated that the unionized is pH sensitive. It's a calculated number. We measure total ammonia and based on the temperature, salinity, and pH of the water we calculate the available unionized form of ammonia, which is the toxic form. pH is the most sensitive parameter.

Norm Richards asked in the case where you ran your test, what was the pH of the test conditions, and what form was ammonia in at that pH.

Greg Tracey stated that he couldn't quote the pH number, but pHs in marine sediments are 7.6 to 7.8. He does overlying water pH during the test and he has it tracked. He doesn't expect that the laboratory test has a much different pH than the field sediment mainly because the sediment has a larger buffering capacity and will resist changes in pH because it's saltwater, which contains bicarbonates.

*Dr. Niering, a professor at Connecticut College, gave a presentation on the functions and values assessment of Goss Cove.*

Dick Conant stated that there have been some discussions internally and with the regulators about opening the cove to better circulate with the river. He'd like to get Dr. Niering and Greg Tracey's opinion on whether or not there is some wisdom to that or whether you think we could see some real improvements in the cove if we did such a thing. What affects would that have on the sediments there?

Dr. Niering stated that Greg Tracey's analysis would be important to answer this question. He didn't talk about this in the report because he was too afraid of not knowing what was in the sediment analysis. There's no question, if it could be opened, he thinks this could help a great deal. On the other hand, the sediments that are now in bed could be in recirculated and he questions if this is good or is it better to keep them in bed, especially those contaminants that seem to be at relatively low levels.

Greg Tracey stated that relative to sulfur, the actual metals that are in the sediment in the form that would be available to cause toxicity are fairly low. Removing the sulfur would not increase toxicity due to metals. The organics that are in the sediments are already tightly bound to the organic matter. As long as there was not a lot of stirring up and mass transport of suspended solids, it would probably stay in place. Because of increased biological activity, turnover is more likely to occur. He thinks the system could clean itself out over a period of time so opening the cove would have positive aspects to it.

Greg Tracey stated that his analysis data is remarkably cleaner than the sediment at the surface. Any contamination that presently existed is only a couple feet thick. It's not hundreds of feet deep full of toxic soup. It's a very thin layer on the surface.

Greg Tracey stated that they did not evaluate how much erosion would occur in the case of a culvert.

Jeff Sullivan asked what the value of poison ivy is.

Dr. Niering stated that it's fruit for wildlife. It's listed in wildlife books as having high value for wildlife.

Jeff Sullivan asked if Greg Tracey could expand on the concentrations and bioavailability of the PCBs that were detected from the mink's perspective.

Greg Tracey stated that how likely is a chemical to move from sediment into the tissue of a fish is an interest to him. It's controlled by the organic content in the sediment and the fat content of the animal. The carbon content of the sediment is high so it retards the propensity for PCBs to leave the sediment and move into fish. If it were clean sand with PCBs and that concentration, you would have a much bigger problem. Presently, with the carbon content being so high, he would predict the accumulation of PCBs in fish would not be very significant.

Norm Richards asked about the ribbed mussel. Weren't there caged mussel studies done two years ago or was that just in the river for this particular study?

Dick Conant stated that just in the river we set up south of Nautilus a couple cages on the quay wall and another north of DRMO. There was nothing put into Goss Cove.

*Corey Rich, Tetra Tech NUS, gave a presentation on the environmental GIS for Subase, New London. Mark Jonnet, Tetra Tech NUS, showed an example web page for another activity that Tetra Tech has worked on for the Navy (See Attachment 2).*

Norm Richards asked if the RAB members have access to the web page.

Matt Bartman stated that you could have different levels of security for access to meeting minutes. You could build another level of access so that only RAB members can get into and review the meeting minutes.

Corey Rich stated that the web page that they created is not for Subase, New London. Tetra Tech could supply Subase with a web page in the future if it is desired.

(Mark Evans asked who had availability to the Internet, and the majority responded yes.)

*Mark Evans gave a presentation on the Area "A" Landfill, Site 2, Groundwater Monitoring Plan (See Attachment 3).*

Sue Orrill asked if the wells existed, or do they have to be put in.

Mark Evans stated that just the three up gradient wells exist. The wells down gradient will have to be installed, and they are going to be shallow wells.

Sue Orrill asked if they were monitoring wells that were installed in the landfill.

Mark Evans stated that we have a couple in the landfill, but we know what's there. It's not meeting our objective to sample those wells. We want to know if the cap is working.

Sue Orrill stated that they want to find out over time what the change in those wells would be.

Mark Evans stated that there are a few monitoring wells that are left in the landfill. That might be something we want to look at later. Right now, we want to know if any of the contaminants are leaving the landfill.

Deborah Downie stated that you said you're going to start with quarterly. Are you going to drop down if you're not finding anything?

Mark Evans stated that in the monitoring plan we have a decision tree. After each year of sampling, we're going to put together a report and have discussions with the regulators on whether we can eliminate some contaminants of concern and maybe change the frequency of sampling.

#### **Future Meeting Date/Time**

Next meeting will be February 3, 1999 at 6:30 p.m.

**Meeting Adjourned**

Meeting adjourned at 8:00 p.m.