Restoration Advisory Board (RAB) Meeting
Officers' Club,
U.S. Army Soldier Systems Center
May 1, 2003
Meeting Minutes

I. Attendance

RAB Members Present

Joel McCassie, Co-Chair	Environmental, Safety, and Health Office, U.S. Army SSC
Robert Campbell	Massachusetts Department of Environmental Protection (MADEP)
Dr. Charles Czeisler	Community Member
James Fitzgerald	Community Member
Marco Kaltofen, Co-Chair	Community Member
John McHugh	Restoration Officer, U.S. Army SSC
Kelly McQueeney	Community Member
A. Richard Miller	Community Member
Leo Pessin	Community Member
James Straub	Department of Environmental Management (DEM), Lakes & Ponds
Dr. Harlee Strauss	Community Member
Dr. Kannan Vembu	Representative of Natick Board of Selectmen
Christine Williams	U.S. Environmental Protection Agency (EPA)
Pam Winters	Community Member

RAB Members Absent

Lisa M. Allen	Representative of Natick Board of Selectmen
Anthony Doheny	Community Member
Sidney Gantman	Community Member
Marilyn Lourandos	Community Member
Stephen Lubic	Representative of Natick Board of Selectmen
Elizabeth McCoy	Employee Member, Natick Research, Development, and Engineering Center

Others in Attendance

Marc Bellaud	Aquatic Control Technologies (ACT) Inc.
Michelle Bonanca	U.S. Army SSC
Anne Marie Desmarais	Environmental Insight
Nicholas Given	Recorder, Peg Peterson & Associates
Mike Kipp	U.S. Army Environmental Center
Brian McPherson	Community Member
Carolyn McPherson	Community Member
Jill Miller	Community Member
Anne Monnelly	Department of Environmental Management (DEM), Lakes & Ponds
Neill Osgood	Community Member
Kevin Palaia	Environmental Consultant, ICF Consulting
Jay Peters	Environmental Consultant, Harding ESE
Jeff Pickett	Environmental Consultant, Harding ESE
Harold Prebensen	Environmental, Safety and Health Office, U.S. Army SSC
Rod Rustad	Environmental Consultant, Harding ESE
Gerald Smith	ACT Inc.
Kathleen Thrun	Environmental Consultant, ICF Consulting

II. Handouts

- Proposed Site Investigation Activities: Buildings 2 and 45 Area

III. Meeting Minutes

Mr. McCassie called the meeting to order at 7:06 pm.

Mr. McCassie introduced four new RAB members, including Kelly McQueeny, Steven Lubic, Dr. Kanaan Vembu, and Lisa Allen. He also introduced Mike Kipp from the U.S Army Environmental Center.

Mr. McCassie asked for comments on the January 2003 RAB meeting minutes.

Mr. McCassie commented that one correction to the minutes was that Leo Pessin was present at the January 2003 meeting.

Mr. Miller requested that text at the bottom of page 12 be changed to “would the data help?”.

The minutes were accepted as amended.

General Comments

Mr. Miller wanted to know if any of the RAB members knew if the time of the Conservations Committee meeting began at 8:25, or if it had been extended.

Mr. McCassie then introduced the members of the Massachusetts Department of Environmental Management (DEM) for an informational presentation on the herbicidal treatment of Lake Cochituate.

Massachusetts DEM - Herbicidal Treatment of Lake Cochituate

Mr. Straub discussed the brief history of Lake Cochituate, stating that in May of 2002 invasive Eurasian millfoil was detected in South Pond. Subsequently, the DEM put together a short-term and long-term management plan to resolve the issue. The issue was put out to bid, and responses from select consultants were reviewed.

Mr. Straub introduced Gerald Smith and Marc Bellaud of Aquatic Control Technologies, Inc., the firm selected to perform the short-term and long-term management of the millfoil. He stated that Mr. Smith had over 30 years experience in aquatic plant management. He stated that the DEM selected ACT because of their extensive history in dealing with this specific type of lake management.

Mr. Bellaud stated that the main objective this year was to control the spread of millfoil in South Pond. He indicated on a display map the shoreline infestation in the littoral zone of South Pond. He stated that it extended 100 to 200 feet out from the shoreline. He stated that they had proposed a spot treatment of the shoreline areas in South Pond with Reward, or diquat dibromide, a contact acting herbicide that is particularly effective in controlling millfoil. He added that in low concentrations, it was capable of quickly asserting control over such invasive plants.

Mr. Bellaud stated that the actual procedure would consist of a pretreatment inspection to find out the amounts and location of the infestations. They would then take boats out sometime in the mid

part of June to apply the herbicide subsurface (below the lake surface) through weighted hoses. He said that it is a concentrated herbicide that dilutes in the water and works quickly to eliminate and control existing millfoil. He added that the herbicide generally degraded in the water column within one to two days. He said any diquat remaining that was not diluted would bind to the sediment. He stated that after 1 to 2 weeks, there would be very little chance of detecting any chemical concentration in the water.

Mr. Bellaud stated that the application rate was between 1 to 2 gallons per surface acre, and that the maximum service rate was 2 gallons. He stated that residents would be notified in advance of the application, and that the only subsequent water use restrictions in relation to the herbicide were a 3-day restriction on drinking water, a 3- to 5-day restriction on water use for irrigation, and a one-day restriction for watering livestock. He added that there was no restriction on swimming, but that the DEM had suggested that there be no swimming on the day of the treatment.

Mr. Bellaud stated that the only other treatment proposed for the area during the current year was the Lake Cochituate State Park beach area in Middle Pond. He stated that millfoil had been growing there, along with some native species that had densely populated the area. He stated that there was the possibility of swimmer entanglement. What had been proposed was a spot treatment of 2 acres, pending the pre-treatment inspection. He stated that they would also be using the Reward herbicide in this area. He stated that the other proposed treatment agent was Aquathol-K, with the active component, dipotassium endothall. He stated that the same restrictions would be used with either herbicide, with an extended irrigation restriction, along with a 3-day fishing restriction.

Mr. Bellaud then stated that there would also be a proposed long-term management plan, including comprehensive pre- and post-treatment inspections to map vegetation, including millfoil and other species. He stated that they would use that data to exhaust all other options to prevent a reliance on using herbicides. Mr. Bellaud added that there would be an education component to the program for lake users and residents, involving monitoring procedures and hand pulling techniques.

Mr. Straub added that the primary mode for these plants to spread was fragmentation as a result of boat motors. He stated that North Pond currently had no invasive non-native weeds. He stated that the immediate action to be undertaken was to prevent the spread of such weeds. Mr. Straub stated that DEM was not planning on doing another herbicide treatment within the next 30 years, but that during the upcoming recreational season, they wanted to get a handle on the this rapid growth. He stated that last May they had found millfoil in and outside of Pegan Cove. By the fall of that year, it had been detected throughout South Pond.

Mr. Smith assured the RAB members that use of such herbicide had been established in a number of precedents and added that there were a number of ponds throughout Massachusetts and the rest of the nation that made use of such EPA certified chemicals.

Dr. Vembu asked about any alternate methods of suppressing the spread of millfoil.

Mr. Smith stated that they had received the request for proposals, which asked of them to develop a long- and short-term management plan to deal with the issue, and that a spot treatment using this particular herbicide seemed best.

Mr. Straub added that a number of options had been considered. He stated that the DEM had done a cost benefit analysis of options provided by ATC ranging from doing nothing, to full-scale chemical treatments, to shutting down the pond entirely. He stated that the herbicidal treatment seemed to be the most beneficial.

Dr. Czeisler asked for clarification on the use of 2 gallons of Reward for the entire lake, which had been indicated in earlier discussions.

Mr. Straub clarified that they had proposed to use 1 to 2 gallons per surface acre.

Mr. Bellaud stated that they estimated a maximum of 50 acres to be treated, at a gallon and a half per acre.

Mr. Straub stated that they would be using less than l00 gallons for the entire lake.

Dr. Czeisler expressed his concern that between 50 to 75% of the town of Natick's well water was coming from the lake, and he wanted to know what extent the treatment facility would help to monitor the wells should the chemicals fail to bind entirely to the sediment.

Mr. Smith stated that the Massachusetts Department of Research and Standards had indicated that the diquat herbicide could be used in lake water that recharges public water supply wells.

Dr. Czeisler stated that he still had concerns because of the subsequent restrictions on water use.

Mr. Smith stated they would take lake water samples in 5- and 14-day intervals post-treatment in the areas that had been treated. He stated that those samples would be analyzed for the presence of herbicides. He added that those areas in New Hampshire that had been treated were in close proximity to wells, and that samples taken from these areas were clean. In those areas treated, there were no concentrations of diquat.

Dr. Czeisler stated that his concern over one particular well has such a high volume of water drawn and its close proximity to the lake. He stated that area, according to their display map, would be treated. He stated that according to reports issued by the state of Washington, Lake Mendoda had concentrations up to detected 65 days after treatment, as opposed to the standard 3 days. He stated that the reports indicated that the result of this was because of high concentrations in the sediments.

Mr. Smith stated that they could not find the reference that Dr. Czeisler was referring to specifically, though they had searched reports looking for that information. Mr. Smith stated that they had proposed a notice of intent within a 100- to 200-foot set back distance from the town well as an initial safeguard. He added that testing the well water would be something that the town may want to consider. He stated that they should look at low treatment buffer distances.

Mr. Kaltofen asked if the diquat dibromide is found in the sediment.

Mr. Smith stated that it is tightly bound to the sediments but that it is not biologically available.

Mr. Kaltofen stated that at 1½ gallons per acre, that would be 300 micrograms per centimeter, based on his own calculations, and that's well within the range of the ecological risk assessment. He asked if the diquat would interfere with the pesticides already in the sediments. Mr. Kaltofen stated that the biological availability of certain pesticides varied in different species. He expressed concern that adding the diquat would add further variables to the ecological risk assessment.

Mr. Palaia stated that he was not familiar with the specific toxicity/bioavailability of diquat and its interaction with the pesticides already present in the sediment, and would therefore prefer not to speculate on the issue.

Mr. Kaltofen stated that he was concerned about the background activity of the Army with regards to

cleanup efforts.

Ms. Thrun stated diquat dibromide is not a contaminant associated with the areas of the lake impact by the Army's activities.

Mr. Kaltofen stated that he was concerned about introducing new chemicals after the initial ecological risk assessment.

Mr. Smith stated that the herbicide in question was EPA registered.

Mr. Kaltofen stated that he was more concerned with making sure that the consultants from ACT were familiar with the previous work done in terms of the chemicals evaluated in the previous ecological risk assessment.

Mr. Smith reiterated that the product in question was not biologically available after it was bound to the sediment.

Mr. Kaltofen stated that before addressing the issue, the consultants from ACT might want to review the ecological risk assessment in question.

Dr. Vembu asked about the safeguards put into place with regards to drinking water and livestock.

Mr. Smith stated that such restrictions applied to livestock and not pets. He commented on the restrictions on drinking water, stating that notification would be done prior to treatment and that printed posters would be posted at various intervals.

Dr. Vembu asked if there would be physical barriers blocking access to the lake.

Mr. Smith stated that they would block off the boat ramp on the day of treatment.

Mr. Straub stated that they would be looking at the times of low use for beaches and shoreline areas, and the treatment would be done during low-use periods, such as midweek. He stated that the boat ramp would be closed and that nets would be secured, and that homeowners would receive notification via mail and email.

Dr. Vembu asked if notifications would include instructions on how to treat persons who were exposed to the water despite all prior notifications.

Mr. Straub deferred the question to Mr. Smith.

Mr. Smith stated that their company's name and contact information would be posted on all public notifications for further information and reiterated that the application of such herbicide had a very good track record.

Mr. Osgood asked about the millfoil concentration in Middle Pond and whether or not there was a plan to address this.

Mr. Smith stated that the majority of the treatment would take place in South Pond. He added that the state beach was located in Middle Pond, where they planned to treat 2 acres of scattered millfoil.

Mr. Straub added that the area where South Pond met Middle Pond, they had discovered some millfoil growth.

Dr. Strauss asked if diquat's only loss mechanisms were absorption into the sediment, whether or not there must be more than degradation. She was concerned that the absorption into the sediment would indicate that the diquat residues would remain there. She also stated that she was aware that water temperature would make a difference.

Mr. Bellaud stated that there are other pathways according to the available literature. He stated that hydrolysis did not play a major role. He stated that what was not absorbed by the plant would bind to the sediment. He stated that there would be microbial breakdown of diquat once it was in the sediment, and that over time, the concentration would dissipate, but that the time required for this does vary greatly depending on the lake bottom type. He stated that they had not looked specifically at the bottom type of Lake Cochituate, but that it would be investigated during the pre-treatment inspections. He stated that Mr. Smith had done some preliminary investigations that indicated that Lake Cochituate had a fairly typical bottom, with a fair amount of organic mud.

Dr. Strauss asked that at 350 ug/L, would residues still be there 10 years from now.

Mr. Smith stated that he had not done the math, but that diquat residues may still be detected, although they would not be biologically available.

Dr. Czeisler stated that he was aware of a technique where the lake could be drawn down allowing the cold temperatures to freeze the plants and kill them. He stated that this might not have been an option because of the current contaminants in the sediment and the risk of exposure. He asked if they might comment on whether or not this could be considered an option. Dr. Czeisler stated that his second question was whether or not they had looked into the distribution of the millfoil in a systematic manner. He stated that he had taken approximately 20 samples and at the time of the release of the request for proposals, one of the two firms stated that it wasn't present all around the lake, but concentrated in certain areas. He stated that he had learned that in almost all cases, concentrations were primarily found around the boat ramp area. He asked if they had looked into how this infestation started.

Mr. Smith stated that they had not done an extensive enough investigation at the present time to say for sure. He added that detailed plan assessments had not yet been completed.

Mr. Campbell asked for the name of the second herbicide.

Mr. Smith stated that the name of this second herbicide was Aquathol-K, with the active component, dipotassium endothall.

Mr. Campbell asked about the application of the herbicide and how deep they would go if in fact they would be applying it below the lake surface.

Mr. Smith stated that they would be going 2 to 3 feet below the lake surface.

Mr. Campbell asked if they were going to inject at the outbound side towards the shore.

Mr. Smith stated that they had a pump and boom system with two weighted hoses on either side.

Mr. Campbell asked if invasive millfoil was a particularly resilient species.

Mr. Smith stated that it was actually very susceptible to the herbicide.

Mr. Campbell asked what other plant species the herbicide is effective against.

Mr. Smith stated that they had looked at some of the other plants and that they were fairly certain that at the dose that's been proposed, the herbicide should not have a significant impact on the native community. He stated that in past experience, the two herbicides have not done any significant damage to the native community of species in similar areas.

Mr. Campbell asked about the herbicides' inorganic reactivity.

Mr. Smith stated that he was not aware of any of those specifics, but that they could look into such a matter.

Mr. Campbell stated that this would be an important thing to know.

Mr. McHugh expressed his concern regarding hand pulling the millfoil. He stated that the Army currently had two outfall areas under study with contaminated sediments. He did not believe those areas had been evaluated and that they may not want to hand pull those areas.

Mr. Straub stated that he was familiar with those areas and that he agreed that they may not want to conduct hand pulling there. He stated that they were mostly focusing on Middle Pond for hand pulling and benthic matting for two reasons. The first was because of the easy access and secondly, because of the relatively small patches.

Mr. Smith stated that they were going to have to file a site-specific permit with the state, which meant that they would have to supply information such as target species, doses, etc. He stated that this would be done prior to any application.

Mr. Fitzgerald asked if there should be instructions on how to properly hand pull millfoil.

Mr. Straub stated that there would be an extensive training course, and that the DEM had adopted a management technique from New Hampshire.

Mr. Fitzgerald stated that it would be worthwhile to indicate this on posted notifications to not pull the millfoil. He then asked what the expected goal of this process is.

Mr. Straub stated that a lot of the long-term control of the millfoil would have to depend on volunteer work in and around the lake. He stated that he did not believe millfoil had ever been eradicated. He stated the goal of this process was to manage the small patches of millfoil and to prevent it from spreading. He stated that the immediate chemical treatment is for short-term goals, and then they would put together a long-term management plan.

Mr. Fitzgerald asked about the effectiveness of the initial application.

Mr. Straub stated that the initial application would not prevent the spread of the millfoil from boats and other similar means.

Mr. Fitzgerald expressed concern over the rapid way in which boats could spread the millfoil throughout the lake.

Mr. Straub stated that although such a concern was valid, the initial application would help dispose of much of the millfoil in the 50 acres proposed for treatment. He stated that they would provide information at the Lake Cochituate clean-up/picnic day to inform residents about the program,

including shoreline training and plant mapping training. Mr. Straub stated that although he did not believe that they could completely eradicate millfoil from the lake, he did think that with the help of the community and volunteers, they could keep the millfoil population from spreading significantly.

Dr. Czeisler asked if the fifty acres of millfoil would just re-grow after treatment.

Mr. Smith stated that it most likely would re-grow. He stated the best control that they have seen was with another treatment after 2 years with an additional three years of control.

Dr Czeisler asked about the use of systemic herbicides rather than contact herbicides.

Mr. Smith stated that even with a systemic herbicide, it does not always kill the root, and that it would still require 3 to 4 years of control.

Mr. Kaltofen asked if there were any more questions from RAB members.

Mr. Miller stated that his major concern was what would happen if the herbicide didn't work according to plan. He stated that they were talking about drinking water on one side, and recreational uses on the other side. He stated that he was concerned about the Conservation Commission moving on these decisions on an emergency basis, and 3 things contributed to this. For years there were no attempts to keep weeds from entering the lake, and there had been no control system installed to manage this. He stated that upon discovering the presence of millfoil, that it was located in a small limited area and the shallow areas in Pegan Cove. He stated that they had waited an entire summer before putting up a net to control the drifting fragments. He stated that they had kept a water ski slalom course in the area. He stated that this was astonishing mismanagement of the issue. He stated that they were informed that they would have a consultant firm by September, but that this did not occur until late March. He wanted to emphasize that he was concerned about the time in which they had left to move on this. He stated that he wanted to know what the long-term affect of a typical Natick resident would be. He expressed concern over recreational users ingesting diquat-rich water while using the lake near the Springvale Well Field. He asked if this new sediment contamination would up the background count, and what could it do to adversely affect the cleanup.

Mr. Kaltofen then asked if there were any questions from the audience.

Ms. Miller asked what the known breakdown products of diquat were and the level of their toxicity.

Mr. Bellaud stated that this information was available in the Washington state environmental reports.

A member of the community inquired about the cost of the contract with ACT.

Mr. Smith stated that the arranged cost of their contract was $45,000, for a period of 18 months, and included the immediate and long-term management.

Ms. Miller asked what would happen if the diquat dibromide got into the water supply.

Mr. Smith stated that he was not sure what the results of such an occurrence would be.

Ms. Miller stated that over 50% of Natick's drinking water was derived from the lake water, and asked whether or not they would have to cut off the water supply in the event of contamination.

Mr. Smith stated that there was very little chance that the herbicide would get into the water supply. He stated that such contamination had never occurred in any lake or pond throughout the country,

and there was no reason to suspect that it would occur during this treatment.

Ms. Miller stated that she had assumed that they would be testing for diquat and not any of its breakdown products.

Mr. Smith stated that this was correct.

Ms. Miller asked whether or not the diquat would combine with other metals. She also asked whether or not it would combine with other existing contaminants.

Mr. Kaltofen introduced the next item on the meeting agenda, the Draft Work Plan for Buildings 2 and 45.

Draft Work Plan for Buildings 2 and 45

Mr. McHugh stated that they had done a previous investigation of the SSC drinking water supply wells (approximately 5 years ago) and that during that time they came across volatile organics in ground water. He stated that at that point of the investigation they wanted to identify if these buildings were potential sources.

Mr. Rustad identified Buildings 2 and 45 on the display map. He stated that Building 2 was a climatic chamber and that Building 45 was a support services building.

He explained that Building 2, the climatic chamber, was constructed from 1952 through 1955, and contains tropic and arctic test chambers for testing food, clothing, and equipment. He stated that there were three 1,000-gallon tanks in crawl space used for trichloroethene (TCE) storage until the mid-1980s. He was not sure whether the tanks had ever been used for other contents.

Mr. McHugh stated that the contents were replaced.

Mr. Rustad identified the locations of the three tanks. He stated that the use of TCE was discontinued in the mid- to late-1980s, and it had been used as a heat transfer fluid. He stated that the TCE was eventually replaced with Dowtherm J. He added that in the mid 1990's, a containment liner was installed in the crawl space.

Mr. Kaltofen asked what Dowtherm J was.

Mr. Rustad stated that it was a mixture of isomers and alkylated aromatics, and also known as diethyl benzene.

Mr. Pessin asked about the nature of the material.

Mr. Rustad stated that this would be part of the historic record search that they would conduct as part of the site investigation.

Mr. Campbell asked if they were going to discuss diethyl benzene releases that occurred.

Mr. Rustad stated that he would.

Mr. Kaltofen asked about the plumbing of the tanks.

Mr. Rustad stated that they would look into this as part of the site investigation.

Dr. Strauss asked whether or not this was a closed system and if the TCE was used as a heat transfer fluid.

Mr. McHugh stated that it was used for heating and cooling.

Dr. Strauss asked if some other heat transfer fluids were used prior to that.

Mr. Rustad stated that he was not aware of any other than Freon.

Mr. Pickett stated that there were some surface and subsurface soil samples collected prior to the installation of the liner under the building.

Mr. Rustad stated that the record search at this point indicated that no spills had occurred at Building 2.

Mr. Pessin asked how they filled the tanks.

Mr. McHugh stated that a tanker truck filled them originally, but after that small amounts were added by drum.

Mr. Rustad stated that Building 45, the Support Services building, was constructed in the late 1960's. He stated that it was a 2-level building and contains a parachute research and development area in the basement, and administrative and facilities maintenance on the first floor. He stated that there was an historic septic tank on a drawing located under the northern portion of the building, with a note stating that it was going to be removed. They went looking for it using ground penetrating radar, but did not discover anything. He stated that there were no documented spills or releases, including any TCE spills, at Building 45.

Mr. Campbell asked if this was after the replacement of Freon with the Dowtherm J.

Mr. McHugh stated that Dowtherm J replaced the TCE. He stated that the Freon had been replaced as well.

Dr. Vembu asked if as part of the historic study, if they would investigate what kinds of work were done at the machine shop.

Mr. Rustad stated that they would be looking into it.

Dr. Vembu wanted to know what was used in the machine shop.

Mr. Rustad stated that they would be looking into the historic practices of the building.

Mr. Rustad stated that in 1989-1990 soil gas sampling was performed around Building 2, and he presented a map of the ion flux results of the study. He stated that the letter "A" on the map represented the TCE flux, and that there was a relatively high flux along the southern wall.

Mr. Rustad then displayed a map showing the surface and subsurface soil sampling location from a 1991 study. He stated that there were low levels of TCE and Freon detected in the range of 5 ug/kg for TCE and 7 ug/kg for Freon, but nothing indicative of a source area. He stated that these were found at Location 3, 4, and 8 on the map.

Dr. Strauss asked if the samples were from underneath the crawl space, and if the crawl space was dirt or concrete at that time.

Mr. Rustad stated that this sampling took place underneath the crawl space, and that it was dirt at that time. He added that there were areas that were paved in the crawlspace and that there was no roof over these paved areas.

Dr. Strauss asked if it was like a platform with an open perimeter.

Mr. Rustad indicated which areas were closed and which were opened on the map.

Mr. McHugh stated that the area was like a courtyard.

Mr. Picket stated that the courtyard areas have storm drains in them, so when rain falls in these areas, it was isolated from the crawl space.

Dr. Vembu asked if they have a TCE concentration for sampling location 6.

Mr. Rustad stated that at location 6, TCE was less than 3.8 ug/kg. He stated that methylene chloride was detected at locations 3, 4, 5, and 8 also. He stated that the highest concentration of methylene chloride was 72 ug/kg, and at location 6 it was less than 5.7 ug/kg.

Mr. Kaltofen asked if the groundwater data from the 1997 Water Supply Well RI had been validated.

Mr. Rustad stated that the monitoring well data was validated, but the small diameter well was not.

Mr. Campbell stated that the 1991 soil data was collected before the response action to deal with the Dowtherm J spills. He stated a good deal of the crawl space was excavated to remove contaminated soil from that spill. He stated that whatever soil was there was probably no longer there.

Mr. Kaltofen asked how many cubic yards of soil was removed.

Mr. McHugh stated that the amount was somewhere between a dozen and 100 cubic yards, and that it was mostly surface soil from the crawl space area.

Mr. Rustad stated that the Water Supply Well RI in 1997 was instituted to investigate the groundwater quality near the SSC supply wells. He stated that they had done some small diameter well screening as part of the RI, and as they began to move west, they detected TCE farther to the northwest than they had intended to go. They installed 23 small diameter wells and three monitoring wells, which had been incorporated into the quarterly groundwater monitoring program.

Mr. Rustad stated that surface water and sediment sampling was also performed as part of the historic outfall sampling program conducted by ICF Consulting.

Mr. Rustad then displayed a figure that helped to show the large amount of small diameter well screening that was performed in the Building 2 and 45 area. He stated that there was also a monitoring well triplet, which meant a water table monitoring well, a monitoring well screened below that, and a monitoring screened well below that all within the same general area.

Mr. Rustad stated that as a result of the water supply RI, the data showed that the primary contaminant in the ground water was TCE. He stated that no source area was identified. He stated that the highest observed concentration was 140 ug/L in small diameter well EB-111, at a depth of

28 feet below ground surface. He indicated that a lower concentration (15 ug/L) was found in the mid-level monitoring well, MW103A*4. He stated that currently the concentration in this well has gone down and fluctuates between non-detect to less than 2 ug/L.

Mr. Rustad then presented a representation of the study area, including the bathymetry of the lake, the bedrock surface, and the explorations from the Water Supply Well RI.

Mr. Kaltofen asked what the general direction of groundwater flow was.

Mr. Rustad stated that the flow of the ground water was radial, flowing toward and into the lake. Mr. Kaltofen wanted to know if they knew if the ground water communicated with the wells on the opposite shore of the lake.

Mr. Rustad stated that he couldn't say definitively at this point, but based on the regional groundwater flow, he did not think so.

Mr. McHugh stated that he believed that they had observed drawdown in wells across the lake during a pump test on the facilities supply wells, but that the facilities wells are no longer in operation.

Mr. Kaltofen asked which wells on the opposite shore had the highest levels of TCE.

Mr. Rustad indicated that they were small diameter wells and a well pair installed as part of the Water Supply Well RI. He stated that there were low concentrations of TCE detected sporadically. He stated that PCE was detected more consistently in those small diameter wells.

Mr. Kaltofen asked about the wells farthest south and west.

Mr. Rustad stated that they never had a detection.

Mr. Rustad then presented a representation of the TCE in ground water. The representation showed the small diameter well data. He indicated that the cut off for these wells was 5 ug/L. Mr. Rustad stated that the varying shades on the display indicated the higher concentrations within the plume.

A community member asked if the display indicated that there were detections in the lake.

Mr. Rustad stated that since those groundwater detections were at the lakeshore, it was possible that there might be some detections in the lake. However, Mr. Rustad indicated that the area where ICF Consulting collected 2 surface water and 2 sediment samples had come up with non-detects.

Mr. Pickett asked when were pumping wells shut down

Mr. McHugh stated that they were shut down in 1995.

Mr. Pickett stated that this data was collected in 1997. He indicated that the pumping wells on the peninsula were not in operation at this time, and that they were no longer affecting the groundwater flow.

Dr. Strauss asked whether they had done testing for chlorinated solvents during the small diameter well assessments.

Mr. Rustad stated that they had done tests for all chlorinated VOCs on site and did a more definitive

analysis at an off-site laboratory.

Dr. Strauss asked if TCE was all that they had found.

Mr. Rustad stated yes and that this was addressed in the Water Supply Well RI. He stated that for this area, there may have been low-level detections of PCE and that this information was provided in the Water Supply Well RI.

Mr. Campbell asked if the highest concentration detected was 140 ug/L.

Mr. Rustad stated that this was correct. He commented that they had installed the monitoring well triplet right through the heart of the highest detections with the screened interval of the mid-level well right in the middle of where the contamination was defined. He said when they first started sampling that well it had a concentration of 15 ug/L. Later on, it was at 5.5 ug/L. He stated the concentrations fluctuated from non-detect to 2 ug/L. He stated that they would need to look further up gradient to see if they could specifically define a source and lock down what's happening at the lakeshore and near shore area.

Mr. Rustad then presented the goals for the Buildings 2 and 45 SI. He stated that they would like to further characterize the nature and distribution of contaminants in ground water, soil, surface water, and sediment. He stated that he would like to install additional monitoring wells to support human health and ecological risk assessments.

Dr. Vembu asked if he had any idea of a schedule.

Mr. Rustad stated that he would like to institute field work this summer.

Mr. Rustad stated that specific activities of the SI would include: a historical records search, a geophysical survey, passive vapor diffusion sampling south of Building 45 in the areas where they had detections in the small diameter wells, and depending upon the results of the vapor diffusion sampling, there would be a potential to do a surface water sediment sampling. He stated that they plan to install five deep overburden wells and three water table groundwater monitoring wells, and collect up to 18 subsurface soil samples for VOC analysis. He stated that they would perform four rounds of groundwater sampling at the new and existing site monitoring wells, and the results would be incorporated into the quarterly groundwater monitoring programs.

Mr. Rustad then identified the locations of the proposed monitoring wells on a map, and displayed a map showing the proposed vapor diffusion sampling area.

Mr. Kaltofen asked how many of the existing monitoring wells and other investigations actually got deep enough to get non-detects.

Mr. Rustad stated that many of the small diameter wells got deep enough to return non-detects.

Mr. Campbell asked if the vapor diffusion samples were going to be difficult to obtain during high recreation time.

Mr. Rustad stated that this was not necessarily the case because that particular area was very shallow.

Mr. McHugh stated that the area is not that far out. He then asked at what depth in the sediment they planned on positioning the vapor diffusion samplers.

Mr. Rustad stated that they would be placed at a depth of about six inches into the sediment substrate itself.

Dr. Strauss wanted clarification on the location of the PCBs in the sediment.

Mr. Rustad stated that they were located in the cove, south of Building 22.

Dr. Strauss expressed her concern regarding whether the TCE was coming from the Building 2 TCE tanks, and if the site history shows whether PCBs were ever used as the heat transfer fluid prior to TCE.

Mr. Rustad stated that this was highly unlikely.

Mr. McHugh stated that the historical records would show that TCE was installed as a heat transfer fluid in 1954.

Dr. Strauss stated that if they found that this is not the case, then they should institute some PCB sampling.

Mr. Rustad stated that such a sampling would take place if the records deemed it necessary.

Mr. Kaltofen commented that at the time, PCBs were used as a heat transfer fluid.

Mr. Pickett stated that he had not seen any such evidence in the records.

Mr. Rustad stated that he could not speak to the original practice, but that he was not familiar with this happening.

Dr. Strauss stated that she would like to see them maintain flexibility in the sampling program to account for such an occurrence.

Ms. Thrun stated that they had done sampling and analysis for PCBs in the surface water and sediment samples collected during the historic outfall study and the Tier III risk assessment.

Mr. McHugh stated that in terms of the normal sweep analysis, if they would be sampling for PCBs as part of the vapor diffusion sampling.

Mr. Rustad stated that he did not believe so.

Dr. Strauss asked if PCBs were detected.

Mr. Kaltofen stated that he thought levels were detected but at levels below the Main Outfall.

Mr. Rustad stated that they had also been detected at low levels at the Boiler Plant cove area.

Dr. Strauss stated that she was concerned with the monitoring wells and not the passive vapor diffusion samplers.

Mr. Kaltofen asked if there were PCB transformers at the facility.

Mr. McHugh stated that there were transformers containing PCBs at the facility in the past.

Ms. Williams asked that if PCBs were used as a heat transfer fluid, would they have to heat the tanks. Ms. Williams stated that with heavier fuel oils, they would need to heat the tanks and asked if this was necessary to have the PCBs flow.

Mr. Kaltofen stated that it would be unnatural for the tropic climate.

Dr. Vembu asked what the source was for the historic records.

Mr. Rustad stated that sources consisted of archives on site at the facility and records available at the U.S. Army Corps office in Concord.

Dr. Vembu asked if there were any interviews planned.

Mr. Rustad stated that this would likely be a part of the investigation, but couldn‘t say definitely.

Mr. Pessin asked if there was a change in policy regarding distribution of documentation, and whether this kind of information would no longer be public.

Mr. Campbell stated that the new members of the RAB were not currently on the distribution list.

Mr. Rustad stated that the Building 2 and 45 documents would be part of all public repositories

Public Comment Period

Mr. Kaltofen asked if there were any other questions from RAB members or the general public.

Mr. McCassie stated that tonight would be Ms. Winters last meeting. Mr. McCassie wanted to thank her for her participation and wish her well.

The meeting was adjourned at 9:04 pm.

Action Items

1. Mr. Campbell asked about the herbicides’ inorganic reactivity.

   Mr. Smith stated that he was not aware of any of those specifics, but that they could look into such a matter.

   Mr. Campbell stated that this would be an important thing to know.