

Prudence Island Water District
Minutes of meeting: May 13, 2006

Meeting was called to order at 1:05 p.m. Present were David Buffum, moderator; Patricia Richard, clerk; Robert Hanson and Phillip Brooks. Absent was Richard Brooks.

Approval of minutes for meeting held April 29, 2006. Phillip Brooks moved for approval, seconded by Robert Hanson, approved unanimously.

Administrative: RI Interlocal Risk Mgt Trust called to double-check figures for PIWD 2007 budget. Ms. Richard said that their annual report stated 2005 it was not a good year for the trust and that the board should expect their premiums to go up. Bank statement checking account balance is \$10,378. Mr. Buffum asked what the check written to him in February was for; Ms. Richard said that it was for web hosting purchase. Mr. Buffum said that he would destroy the check and consider the funds to be a donation to the district.

Technical: Land use and development. Phillip Brooks said a meeting would be taking place at the town hall in Portsmouth on Thursday, May 18 at 1:00 p.m. He said the agenda would probably set for a public meeting to be held on the island during summer.

Leak detection: Philip Brooks said that PIUC had repaired the leak found in Bristol Colony, and was addressing leaks on Gov. Paine Ave. He reported that the blowoff valve at Holbrook Ave had been replaced. Mr. Buffum asked if Mr. Brooks had an opinion on the cause of the leaks. Mr. Brooks said that the leaks were probably in plastic pipe that had reached the end of their useful life.

Pre-development engineering and environmental reports:
Tom Nicholson of C&E Engineering Partners attended the meeting to discuss the reports. He said that the goal of the reports was to get the district into the program of USDA grants. He noted that Echo Lake Water District, with whom he had worked, had been successful in obtaining a 71% construction grant for their water system. He said that when he met with Ms. Richard and Mr. Richard Brooks at the office of Hinckley, Allen and Snyder, the issue of water quality was identified as the most pressing need for the Prudence Island water system. Ms. Richard stated that the project had already been delineated at a board meeting in July, long before the meeting in September at special counsel' office.

He said that the engineering report recommended pilot testing of 2 types of treatment systems: Immersed membrane and diatomaceous earth. The reason these were chosen was to have a minimum of parasitic water usage.

Phillip Brooks asked why the treating the wells affected with iron-manganese contamination was considered the best option for improving water quality and why the option of shallower wells with slow sand filtration was not considered. He said that the deep rock wells might be at risk for saltwater intrusion and he did not believe that a long-term commitment to those wells might not be a good decision. Mr. Nicholson said that developing new well sources was problematic because USDA would not fund

exploration. He said that the engineering report was to address a project that was viable for funding. Mr. Brooks said that the district was hoping to partner with USGS to get a clearer picture of fresh water availability on the island. He said that he did not feel the deep rock wells were worth sinking a lot of money into.

Mr. Buffum asked if the Indian Springs dug well and the Army well could be remediated and added to the system to help ameliorate the problems with water quality. Mr. Brooks said that it would probably be better to sink wells on the west side of Mill Creek. Mr. Nicholson said that a surface water treatment plant would be necessary to utilize shallower wells, and that surface water was not in abundant supply on the island. He said that he did not have sufficient data to determine if shallow wells were capable of providing enough water to supply the island. He further stated that bringing the dug well online would be a permitting problem. Ms. Richard asked how it was determined whether a well was under the influence of surface water. Mr. Nicholson said a microbial analysis was necessary.

Ms. Richard asked Mr. Nicholson if submitting the current proposed project reports to USDA committed the district to carry out the projects. Mr. Nicholson said no, that the purpose of the reports was to outline a suitable project for USDA funding but did not obligate the district to proceed. He said that reports could also be amended as new information becomes available.

Mr. Buffum noted that the report stated that some characteristics of the water chemistry might render either system non-viable, and asked why testing had not been done to determine if the chemical composition of the water was suitable for the projects. Mr. Nicholson said that such testing was beyond the scope of a pre-development report. He said that the only way to establish viability is to actually run the systems as a pilot test. He said that in his opinion, the IM system had the best chance of working, but he decided to add the DE system to the report because it was so much cheaper to construct.

Philip Brooks said that he was concerned about long-term operation costs of the system. Mr. Nicholson said that operations costs were insignificant for a facility of the size of the Prudence Island system.

Ms. Richard said that she was not comfortable with the distribution system being characterized as in good condition. She said that while she understood that the project should be presented in a favorable light, describing the system as good was overly optimistic.

Mr. Buffum asked why mixing areas for treatment chemistries did not appear as part of the system design. Mr. Nicholson said that the chemistries to be used were not hazardous. Mr. Brooks said that potassium permanganate is a hazardous substance. Mr. Nicholson said that the quantities used were so small that they did not pose a serious threat, and that final design plans would take proper handling issues into account.

Mr. Brooks said that he had concerns about the viability of the proposed site because of the way in which the property had been used in the past. Mr. Nicholson said that the site should be evaluated in advance of the purchase from PIUC to make certain that it was suitable for a construction project.

Mr. Buffum asked if ultraviolet would be a suitable disinfectant strategy rather than using chlorine. Mr. Nicholson said that the system itself had to be maintained as a "hostile" environment to bacterial growth. Mr. Buffum asked why the system did not presently

require residual chlorine. Mr. Nicholson said that groundwater not exposed to air did not require disinfection.

Mr. Hanson asked about the presence of radon in the deep rock wells and if the district would be compelled to comply with state standards for radon. Mr. Nicholson said that at present only a draft rule existed and that complete parameters had not yet been established. He said that radon removal would be addressed through aeration, which was included as part of the IM system.

Mr. Nicholson said that chlorination was often a concern in water treatment because it affected the taste of the water, but a new alternative might be on the horizon that was being piloted in Westerly, RI. Called Miox, the system uses an electrolyzing unit and brine solution to create the required chlorine residual and results in improved taste over traditional chlorination methods. He said results from the pilot system were encouraging. He said that testing suggested that the treatment was also less corrosive to piping systems.

Mr. Buffum asked if chlorinating the system would contribute to corrosion of piping systems. Mr. Nicholson said that the effect was minimal, but that with iron pipe particulate was more noticeable because chlorine was an oxidizing agent. He said that the iron-manganese problem on the island was at the well itself and not the result of corroding pipes. Mr. Hanson said that to the best of his knowledge the only iron pipe left within the system was between the main storage tank and Pier Road.

Mr. Nicholson suggested that the district do a cost of service analysis and said that he could recommend firms that could help with that process. He noted that the treatment plant would fix water quality problems but that the district needed to have a financial plan for dealing with other improvements that would always be part of maintaining a community water system.

Ms. Richard said that Mr. Richard Brooks was currently in Florida but had been studying the reports and staying in contact. She said that one of his biggest concerns was the waste volume, because it would contain a certain amount of moisture; otherwise it would be a respiratory hazard. Mr. Nicholson described the DE vacuum/filtration system and the waste pit associated with it, saying that the pit might need to be cleaned once or twice a year. He then described the IM system waste removal. He said that at 2 parts per million, the system would generate minimal amounts of sludge. He said that the waste was not hazardous and could be sent to a landfill.

Mr. Nicholson noted that the report had to include a cost-per-household breakdown. Ms. Richard said that only construction cost had been addressed and that operation costs for the treatment plant were missing. She said that although one might consider operations costs to be minimal, a system the size of the Prudence water system would be impacted by even a small increase in operations costs. She noted that the building needed to be climate controlled and that energy costs would be increased. She said that construction of a plant would also affect the district's insurance premiums. She said that increased labor costs would also need to be addressed.

Mr. Buffum asked how involved cleaning of the DE system is and if there was any danger of damaging the system during the process. Mr. Nicholson said that the systems were well engineered and the cleaning process quite straightforward. He said that during winter it might be possible to clean the system only every 2-3 weeks because demand would be light. He said that as an operational history was developed it would be easier to

predict how often the system would need to be cleaned. He also said that seasonal variances in water chemistry might require periodic reconfiguration of the system. He said pilot testing would determine a lot of the operating parameters.

Mr. Brooks asked what the life expectancy of a membrane system would be. Mr. Nicholson said that the membranes would last 10-15 years.

Ms. Richard asked how the adjustment of pH is accomplished and if continuous monitoring is necessary. Mr. Nicholson said that pH is reasonably constant and testing is typically not done very often after the pH has been determined during pilot testing.

Mr. Nicholson stressed that the treatment system would not be a sinecure and that if it went out of spec it can take considerable time to get it running at peak efficiency again.

He speculated that if the storage tank were taken out of service a lot of sludge would be in the bottom of the tank. Mr. Buffum asked how a tank of that size would be cleaned.

Mr. Nicholson said that the tank would need to be drained and the residual pumped out, with the remaining contaminants removed with a wet vac.

Mr. Nicholson said that he would revise the reports based on the topics discussed and send electronic files to the clerk to be distributed to the board for another review.

Funding: No funding issues to discuss.

Correspondence. Trade magazines and newsletters.

No other business. Mr. Buffum moved for adjournment to executive session, seconded by Ms. Richard, approved unanimously.

Meeting adjourned at 2:25 p.m.

Patricia Richard, Clerk