**Lost Lake Sewer Committee Minutes**
**November 7, 2013**

Present: Dr. Horowitz, Board of Health; Thomas D. Orcutt, Water/Sewer Superintendent; John G. Petropoulos, Selectman; Jay Prager, Finance Committee, Michael Rosa, At Large

Meeting was called to order at 6:30

2 of the members had not read the minutes from the last meeting and so approval of minutes was put off to the next meeting.

The next meeting will be on November 14 at 6:30. The Committee determined that it would hold the meeting at Lost Lake Fire Station and that the meeting should be recorded.

The Committee began discussion of the CEI report. Mr. Petropoulos asked members for their overall impressions. Mr. Prager stated that he felt that the report tries hard to create a need for a sewer system. He gave examples such as the report's suggestion that measurements that did not show increases in contaminants or showed a lessening of contaminants were flagged in the report as warranting review again at a later time. He also questioned the practice of taking the small # of wells that have traces of Nitrites and scaling that up to represent all wells around the lake. Mr. Petropoulos concurred, observing that the small number of wells sampled was too small to be a representative sample and that they were also from well owners that had volunteered to have their wells tested and were therefore not randomly chosen.

Mr. Prager asked what the relevance of the phosphorous levels was. He observed that there was "not a lot of meat to tell us to be concerned. What is the reason for concern?"

Dr. Horwitz noted that Phosphorous was a big concern in the 89 study, that we asked CEI to replicate the 89 study as closely as possible, and that was the reason that it was noted here. She noted that a sewer may not be indicated next week (meeting with CEI) but it is inevitable at some time.

Mr. Prager noted that the projections in Table 17 do not put us in a eutrophic range and that we seem to have been stable since the 89 study.

Dr. Horwitz stated that there is going to need to be a sewer or correction of some kind. Mr. Petropoulos asked what led to that conclusion. Dr. Horwitz replied: "After reading the whole thing. Not necessarily after reviewing the charts." "Soils perk so well it is inevitable" "If septic systems continue as they are, my impression is that the lake will be eutrophic. Mr. Petropoulos asked where this information was contained in the report. Dr. Horwitz replied that it was not in the report but that it was her impression.

Mr.' Petropoulos noted that he did not see a discussion in the report about the way that Martin's Pond Brook contributed to the contamination of the lake. Specifically in the increasing contamination that was hypothesized to occur as the Brook moved past homes that were originally targeted for inclusion in the Sewer District. He indicated that, in his opinion, this was among the most important tests that was to be done and that if it was not done it would be a serious shortcoming of the study, and would validate his fear that we had rushed to testing without setting clear objectives and would represent a serious waste of taxpayer money. Mr. Prager noted that the Brook was already documented as the largest contributor to the lake water quality. Mr. Petropoulos asked the group if they agreed that we were clear that we wanted an answer to the incremental contribution of the Brook as it flowed past homes scheduled for inclusion in the District. Mr. Rosa indicated that this was his understanding.

Audience member Michelle Collette encouraged the Committee to attend Board of Health meetings to that they could see the difficulty that Lost Lake residents had in meeting title V requirements due to their lot sizes. Mr. Petropoulos acknowledged that it would be useful for Committee members to attend these meetings and that indeed it was agreed that Lost Lake residents had challenges imposed by their lot sizes. He reminded Ms. Collette that the purpose of tonight's meeting was to review the CEI study and that lot sizes and the challenges that they imposed were a different discussion.

Ms. Collette stated that that the CEI report was a validation of the work done by Woodard and Curran.

The CEI report noted that there was data on only 77 of the septic systems around the lake, 32 of which have been updated. Dr. Horwitz noted that it "Was pretty scary that we only know about 77 systems." Discussion suggested that this implied that there were a lot of failed systems around the lake, noting the CEI study's assertion that a very large number of systems had outlived their 20 to 30 year useful life. Mr. Petropoulos noted that the "20 to 30 year useful life" was really an average and that any individual system's actual useful life could be influenced by many things including soil conditions. He cautions jumping to conclusions as the perk conditions around the lake are so fast it is possible that systems around the lake could have a longer average life than systems in general.

Mr. Rosa stated that there are 3 categories of homes around the lake. Cottages, Converted Cottages and New Homes. Each may have a different level of contribution due to it size and to the quality of the wastewater disposal systems used. He indicated that he thought that the problem would get worse.

Mr. Orcutt's general impression of the CEI report was that it did not say that the Lake had gotten better. He was also surprised that Martins Pond Brook had not improved. Mr. Orcutt also had questions about CEI's hypothesis that water quality results had been affected by a "wet summer". He was interested in seeing the data that showed that the summer had been wetter than usual. Mr. Petropoulos noted that any reference to the affect of rainfall on test results for the '2013 study should also compare rainfall during the 1989 study.

Mr. Petropoulos referenced the projection of lake wide private well contamination based on testing done on 7 wells. Mr. Orcutt indicated that CEI used a random sampling of wells. Mr. Petropoulos noted that the tested wells were all from volunteers and that this meant that they were not random. Mr. Orcutt clarified that the well selection was indeed voluntary but that CEI had made an effort to assure that well sites were distributed all around the lake in order to provide a well rounded sample. He noted that the average age of a septic system on the lake is 52 years of age. Mr. Petropoulos asked what that implied. Mr. Prager noted: "As systems age further some contaminants could reach the well. This concerns me."

Mr. Petropoulos noted that the study reference "Internal Loading from the bottom of the lake" and asked if anyone knew what that meant. Mr. Orcutt thought that it might refer to the desktop modeling that CEI had done but wanted to ask what that modeling was and what it implied.

Mr. Prager indicated that a sewer would improve the water quality of the lake. He stated that this was irrefutable, but that the question was: "Is the quality so bad that it needs to be improved? To simply say that phosphorus is in the lake or even is increasing is trite" He noted that phosphorus is not, on its own, dangerous and asked Mr. Orcutt if some water companies didn't actually add phosphorous. Mr. Orcutt concurred.

Mr. Prager discussed his impression that the CEI study seemed to be advocating for a sewer rather than delivering a study on water quality. He noted the report's analysis of the cost of sewer vs. private septic. Mr. Petropoulos agreed and noted the report's reference to economic development and a sense of community. He felt that these things had no place in a study that was supposed to be an unbiased study of water quality.

Dr. Horwitz stated that 67 to 77% of septic systems around the lake had required a variance. Mr. Petropoulos asked if that variance was from state regulation or from Town regulation. Dr. Horwitz stated that it was both. Mr. Petropoulos stated that this was important and asked if the information was available to determine how many of the systems required a variance from state regulation. Dr. Horwitz stated that the information would be very difficult to obtain.

Mr. Prager asked why the CEI report contained a chart about drinking water contaminants, some of which were unrelated to wastewater. He suggested that it might have the effect of scaring people. Dr. Horwitz stated that she thought it was good information to have. Mr. Prager stated that it implies that these things are looming, though there was no evidence to suggest that this might be the case.

Resident Carrol Quinn (former member of the Lost Lake Sewer Advisory Committee) noted the figure on page 23 which showed the 100 foot radius from wells required to be free from wastewater disposal. She stated that this figure shows the problem that we are having. It showed how a ¼ acre lot could not comply with the regulation by having a private well 100 feet from a septic field. She also noted that the fact that emerging

contaminants had been found in the Town wells showed how wastewater contaminants were reaching public drinking water. Mr. Petropoulos noted that the radius was 100 feet and asked if this was a state or a town restriction. Dr. Horwitz confirmed that it was a town restriction and that the state restriction was 50 ft. Mr. Petropoulos noted that the diagram showed that a ¼ acre lot could comply with state regulations regarding distance of a septic field from a private well. Dr. Horwitz stated that the town does not give variances below 75 feet. Mr. Petropoulos asked if that meant that the answer to the earlier question about whether the 77 variance were for state or local regulations meant that they were all for local regulations. Dr. Horwitz confirmed that this must be the case. Mr. Petropoulos concluded that this means that even with the variances that we have had to give at 75 ft, all wells are 25 over the state limit of 50 feet.

Mr. Prager asked how much it would cost to install a reverse osmosis system in a home. Dr. Horwitz stated that it was $10 to $20 thousand. Mr. Prager said that sounded high.

Mr. Prager pointed out that the CEI study cautioned that it should be noted that "the die off of vegetation can lead to phosphorous recycling" Mr. Orcutt noted that Sonar had been applied in April, May and July. Testing was done in July. Mr. Petropoulos asked if he was correct in recalling that CEI had assured that the Sonar treatment would not affect test results. Members of the Committee confirmed. Mr. Orcutt noted that CEI had stated that the Sonar would not affect the test but had not stated that the die off of weeds caused by Sonar would not affect the test. Mr. Petropoulos noted that the study stated that CEI "did not know if the sonar treatment could have affected the chlorophyll tests. He stated that he would be quite concerned if that was the interpretation of the question about the effect of Sonar on test results. Mr. Prager suggested asking the question: "Could the test results have turned out differently if we had not used Sonar?"

Mr. Petropoulos asked if anyone understood the importance of the "Deep Hole testing"

Mr. Orcutt stated that he wanted to understand what the data in figure 7 and 8 meant. Mr. Prager noted that the visual representation of the graphing seem quite different than the impression created by the numeric data. He stated that it seemed to exaggerate the Nitrate levels which he noted were all at or below 'background' levels.

Mr. Prager was interested in understanding what caused phosphorous spikes in figure 12.

Mr. Prager noted that the CEI report summarized that the data suggests the effects of wastewater but qualifies this by saying that it could be caused by an alternative source. He questioned the value of the wastewater statement if it cannot be made with certainty.

Mr. Prager noted the projection that phosphorus was at a level of 40 today and that a sewer would reduce that to between 19 and 27. He stated that the question is: "Will the lake get so bad that it is an actual problem?" "Of course things will get better if we put in a sewer. The question is: "Do they need to get better?"

**Action Items**

Jack to email questions to Committee member and they will email back additions. All questions to be sent to CEI in preparation for the meeting next week.

Mr. Orcutt left the meeting at approximately 8:30 PM

Meeting adjourned at 9:00

**Questions for CEI:**

1. What is the relevance of phosphorous levels. What does it mean? What is too much? Is there growth and what would growth mean?
2. What is the reason for concern?
3. What is the statistical significance of using 7 non-randomly selected wells to extrapolate lake wide consequences?
4. What is our status in terms of trophic level and where are we headed and how strong is the data that demonstrates that?
5. What is the incremental contribution of Martin's Pond Brook as it moves through the proposed Sewer District? In other words: If the homes along the Brook are contributing to the pollution of the lake via the Brook, how do the test results demonstrate this?
6. Is the "useful life" of a septic system influenced by soil types?
7. Can you provide data around the precipitation that caused you to qualify test results as possibly being affected by a "wet summer"? How does this compare to the results from 1989 relative to precipitation?
8. What does the reference to "Internal Loading from the bottom of the lake" mean?
9. Please explain the "Desktop Modeling, what it implies, and the degree of confidence in the implications.
10. "Is the quality so bad that it needs to be improved? If not, what is the certainty that it will get bad enough to need improvement?
11. In the context of a study of water quality and its contributors, why did you include reference to the cost of sewer vs private septic, economic development, and sense of community?
12. What was the purpose of including the chart on Drinking Water Contaminants? Did all of these relate to possible outcomes of wastewater disposal?
13. What is the importance of Clorophyll testing and how could Sonar have influenced this?
14. Is ammonia, nigrogen or phosphorus created or influenced by decomposition?
15. Could the test results have turned out differently if we had not used Sonar?
16. What is the importance of "Deep Hole" testing?
17. Please explain the data in figures 7 & 8. These graphs as more dramatic than the impression created by the raw data. Are these all still really at background level?
18. What caused the phosphorous spikes shown in Figure 12?

19. If the test results could be attributed to wastewater but the assertion is qualified by saying that it could also be caused by something else, what should we take from the data?
20. Is there an actual problem with the lake today and how certain is it that it will get worse>
21. Sonar treatments were conducted on
    - April 24
    - May 22
    - July 9

    By June 30 Curly leaf and Eurasian milfoil were completely controlled in most areas, and Fanwort was highly chlorotic. Variable milfoil had not yet been affected.
    Pore Water tests were conducted by CEI on July 29th, roughly 3 months after the beginning of Sonar treatment and one month after a significant portion of weeds had been controlled and the remainder showed the effects of treatment. Deep hole tests were conducted on August 7th and on the 26th.

    What could be the impact of the Sonar treatment on measurements of Nitrogen in the water and how might or might not this have influenced the nitrates in the 2013 samples compared to the 1989 tests?
22. In section 1.2.6 what is meant by: "The calculations of loading rates of phosphorus as related to the septic systems that have been upgraded compared to those that have not, indicate that the total septic system load to the lake has still increased since 1989 and will continue to increase without sewering. "