

New York State Department of Environmental Conservation

Environmental Permits, Region 8

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Joe Martens
Commissioner

28 April 2011

Via Email, Fax and US Mail

Kevin Bernstein, Esq.
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One Lincoln Center
Syracuse, New York 13202-1355

Dear Mr. Bernstein:

Re: dSEIS Review and Staff Comments

DEC Facility No. 8-4432-00085

Finger Lakes, LLC Underground LPG Storage Facility

Reading (T), Schuyler County

The Department of Environmental Conservation staff (DEC staff) have completed a preliminary review of the draft supplemental environmental impact statement (dSEIS) that we received on 15 March 2011. DEC staff have determined that the dSEIS is inadequate for public review pursuant to 6 NYCRR Part 617.9(2) and offer the following comments:

1. DEC staff recommend that Finger Lakes, LLC's (Finger Lakes) next submittal include copies of the revisions of specific narrative/text pages as needed. We will replace those pages and maps in our copies of the dSEIS received on 15 March 2011. Please include an index of the pages/maps/drawings, etc. to be replaced. Although the Department expects to place the dSEIS and associated application materials on its website after the dSEIS is determined to be adequate and when the application is complete, your client may want to consider also posting the documents on its website at that time. Please provide CDs with the contents of the entire dSEIS volumes and drawings, as Finger Lakes has done previously. Finger Lakes should be prepared to provide additional electronic and printed copies of the dSEIS when accepted and the Article 23 application when it is deemed complete for public review and comment.

dSEIS Comments

2. Sound Analysis. Based on DEC staff review, the sound analysis (Appendix I) is inadequate. Please address the following items:
 - a. DEC staff have determined that four 15-minute noise samples (one at each ambient monitoring location) inadequately characterized ambient sound levels at and near the proposed facility. A more thorough assessment is needed.
 - b. The truck and rail load facility is proposed to operate on a 24-hour basis. The noise survey included an analysis of daytime operation only. Please include nighttime operation in the analysis including an estimate of nighttime ambient sound levels. This consideration should also be made for the brine pumps, injection pumps, and compressors.

- c. The sound analysis for the truck and rail load facility included only noise impacts from rail load operations. Since rail activity will only impact receptors for two hours per day, truck sounds (engine noise, jake brakes, backup alarms, etc.) and loading activities must also be included in the sound analysis.
 - d. In the sound analysis (or in the project description), a more thorough description and consideration of rail car delivery and loading activity is needed, for example; when are empty rail cars delivered and loaded cars picked up and what additional movement of railcars is required as a result of loading/unloading activities, etc? A discussion of these issues should also be included, as necessary, in Train Operations on page 110.
 - e. In section 2.2 Rail/Truck Area – Surface Facility, on page 8; a run around rail track for delivery of railcars to this facility is proposed to be constructed north of the Route 14A overpass. More information is needed in terms of its function and operation and possible consideration in the sound analysis. A discussion of the run around should also be included, as necessary, in Train Operations on page 110.
 - f. An inspection of the aerial photography of the truck and rail load facility included in the report indicates what appears to be a residence, south of SR 14A, immediately to the west of the existing railroad track and adjacent to a pond. It is across SR 14A from receptor #3. If this is a residence, it should be included in the sound analysis and ambient sound levels provided in the report.
 - g. The Department's Policy (DEP-00-1, Assessing and Mitigating Noise Impacts) explains the benefits of using the equivalent Sound Level (L_{eq}) to evaluate noise impacts, however it does not rule out the use of $L_{(10)}$ and $L_{(90)}$ used in Finger Lake's study. Please also include L_{eq} sound measurements in this analysis that are obtained over sufficient time periods to accurately characterize daytime, evening, and night-time ambient noise levels.
 - h. In the sound analysis, sound measurements are described in terms of dB (decibels). Please clarify if the measuring equipment actually measured the preferred dB(A) (A-weighted decibel scale). dB(A) is the required method of measuring sound pressure levels noted in our guidance.
 - i. The discussion in the dSEIS on the train operation noise on pp. 110-112 is lacking. There is no reference to any objective noise measurements or Appendix I, and the discussion uses relative terms (e.g., "slight", "nothing significant", "excessive noise will not be produced", "very minimal") to state, without support, that the noise will not be significant. There is also no discussion of the timing of operations in this section. It would seem more appropriate to include the discussion of noise impacts in the relevant portions of Section 4.3, where the references to the noise study are included. If a summary statement on noise impacts is needed in Section 4.4, then it should be made with a cross-reference to the more detailed analysis in Section 4.3 and the use of subjective terms to describe potential noise impacts should be removed.
 - j. Please develop a post-construction noise monitoring plan that would confirm the adequacy of the current model and mitigation efforts.
3. DEC staff could not find an electronic copy of Figure 2, the Site Operations Plan.

4. In section 4.2.2.2 Potential Impacts, the section entitled Potential for Brine Pond Release on page 91, provides a mass balance model to calculate the concentrations of sodium and chloride that would result from an instantaneous worst-case catastrophic release of over 80 million gallons of brine into the lake from failure of the pond. DEC staff recommend that a mixing zone-type evaluation be performed since it is unlikely that the spill would mix rapidly with the entire volume (4.2 trillion gallons) of water in the lake and it is likely that density or temperature related stratification would limit mixing in the lake. The revised analysis should also update the proposed impacts on the Lake's aquatic organisms and nearby water intakes. You should also describe the operational procedures that would be used in the event that a large-volume, emergency drawdown of the brine pond became necessary when the caverns are full of LPG. If needed, as a safety measure to remove stored product from the caverns, can product from the storage galleries be routed to the flare? If "yes," how long would it take to flare all stored product in each proposed gallery assuming each is at maximum LPG capacity, and is the flare of adequate design to allow such a sustained flaring event. It is understood that the filling of rail cars and trucks, and the use of portable flares could also be employed should such an unlikely event be necessary but as a worst-case scenario assume none of these options are available.
5. In Brine Pond Alternatives (page 53), DEC staff recommend that consideration of two (or more) smaller (deeper, etc) ponds in different locations be considered in the analysis.
6. Will the brine pond be fenced or will the entire facility be fenced? There is a 6-foot chain link fence indicated on cross-sections 1 & 2 of the brine pond in Appendix F. However, it is not shown on the layout views provided in the other figures or brine pond layout view. Page 135 states "Physical Protection – Simple physical barriers at the site can easily prevent some very serious accidental releases. The nature of "serious releases", and the role of physical barriers in preventing them, should be more clearly explained.
7. In section 4.1.3 Underground Storage Caverns (page 56 and elsewhere in the dSEIS) reference to gallery wells identification numbers must be updated to reflect the current plans.
8. In the section entitled Geological Faults Analysis (page 67), the sentence "In conclusion, the way to determine the suitability of a cavern to store hydrocarbons is to test the cavern's pressure containment capability" appears out-of-place and should be revised as other ways of demonstrating suitability are included in the following sentence of the same paragraph. This paragraph should be corrected.
9. The section on Sonar Reports and Surveys (page 72) must be updated with the most recent sonar reports. Any cavern or well deficiencies that are identified by the reports should be discussed.
10. The section Rock Mechanics and Finite Element Analysis (FEA) on page 74 (last bullet comment that begins "Both well 58 and NYSEG...") should be updated based on the most recent Notice of Incomplete for the Underground Storage application.
11. Please add to Section 4.6, Impacts on Public Safety, a discussion of the type of accidents that may be typical at this type of facility based on past experience, including surface and subsurface blowouts, accidents involving truck and rail transport of LPG and the capabilities of local first responders to manage those incidents.

12. The portion of section 4.4 that address train traffic and operations should identify the nearest at-grade RR road crossings and discuss potential impacts at these crossings, if any, during rail car loading/unloading operations. There appear to be at-grade crossings approximately 1,500 meters to the north on Nye Road and 1,650 meters to the south on Abrams Road. The typical train lengths that will be used at the facility should be identified and any potential impacts at these intersections caused by changes in the pattern or volume of train traffic should be evaluated. In addition, the noise section of the dSEIS should indicate whether any signals (bells etc. if present) at these intersections could be triggered for an unduly long period by trains stopped at the proposed facility. If any safety improvements to either at-grade crossing are needed as a result of changes in the volume or pattern of train traffic caused by the facility they should also be identified (new signals, gates, etc.).
13. Please note that Russian Olive (*Elaeagnus augustifolia*) listed on Finger Lake's landscaping plans is considered a non-native invasive species. It should be replaced with a native species.
14. An on-site wetland delineation conducted in accordance with US Army Corps of Engineers methods must be performed on the brine pond site to adequately characterize the federally-regulated wetlands that may be present on the proposed brine pond and surface facilities sites. The need for federal approvals related to wetland impacts should be identified in the dSEIS. In addition, the results of the delineation should be factored into the alternatives analysis presented in section 5.0 and other relevant sections of the dSEIS.
15. We will also be providing, via email, a copy of the dSEIS text in an electronic format that identifies additional typos and other minor corrections that need to be addressed.

Engineering Report Comments

16. Liner Stability.
 - a. The plans show a gravel drainage blanket extending up the interior sideslopes of the brine pond for the collection of seeping groundwater. Experience over the past several years of landfill construction below the watertable has evolved away from the gravel blanket in favor of a geocomposite drainage blanket due to construction issues on sideslopes. Consideration should be given to the constructability of this drainage layer in the event of continued flow of groundwater complicating construction of the drainage layer.
 - b. Regarding liner system stability, the materials used in the calculations in Appendix H of the Engineering report conflict. The factor of safety stated on table 3 of page 17 of the report states 2.36 for the geocomposite over lower geomembrane (which should be the textured HDPE) while in the calculations the materials used are for a geocomposite overlying 45-mil rPP geomembrane.
 - c. Likewise, the factor of safety stated on table 3 of page 17 of the report states 1.53 for the lower geomembrane over geotextile, while in the calculations the materials used are 45-mil rPP geomembrane overlying geotextile wrap. There are not any layering combinations proposed with the 45-mil rPP over a geotextile, other than the use of a geocomposite on the sideslopes for the leak detection. This discussion needs to be clarified to avoid confusing the reader.

- d. Furthermore, the factor of safety calculation in Appendix H for the non-woven geotextile over the subgrade uses the weight of 2 feet soil cover which does not exist on the proposed brine pond's side slopes. The design engineer should explain why this analysis was not calculated similarly to the other geosynthetic material interfaces in Appendix H. Also the interface design calculations should include the analysis for saturated conditions which could exist at the site.
 - e. The design report fails to provide discussion and or the calculation of the double liner system's anchor trench design around the perimeter of the brine pond. These calculations are critical since the anchor trench is needed to hold the weight of the double liner system for all anticipated loading conditions and resulting anchor trench stresses that could result drawing down or filling the pond, including wind uplift forces that would be anticipated during periods when appreciable liner system area is exposed. On a related note regarding the anchor design and because the brine pond's design is using two different geomembrane polymers, it may not be possible to thermally weld the two geomembranes together in the anchor trench to seal off the leak detection layer. The designer needs to discuss in the report how the anchor trench design will prevent seepage from pore water in the soils in the anchor trench from infiltrating into the leak detection layer and obscuring the ability to monitor for the allowable operational leakage rate as prescribed by the design engineer (20 gpad).
- 17. The design plans failed to provide sufficient details for confirming the gravity drainage system being a free flowing system for the leak detection layer between the two liners. Added details should include submission of appropriate cross sections with invert elevations of the leak detection system from the brine pond to the 5,000 gallon storage tank as referenced in the design. These details should include the necessary valving and metering systems used to substantiate how the 20 gpad allowable leakage rate will be monitored and measured. These details should also include construction details and specifications for the 5,000 gallon tank and all incoming and outgoing piping for handling collected leakage from the brine pond.
 - 18. The design engineer should provide the basis and rationale for the prescribed 20 gpad allowable leakage rate for the double-lined surface impoundment. This upper liner operational performance threshold establishes a very high degree of constructed quality that will carry over into facility operations. The designer must also provide the maximum design capacity of leak detection layer in gpad to ensure that catastrophic leakage flows will be able to be measured and that a free flowing condition can be maintained for a worse case leakage scenario.
 - 19. Regarding closure, the design report should include a discussion that complies with the provisions of 6 NYCRR Part 360-6.6(c)(3) that would ultimately result in the impoundment being clean, closed, and the site being graded to blend with the surrounding topography.
 - 20. The design plans should include details of the stormwater diversion and subsurface seepage cutoff system (interceptor trenches) that is being proposed between Route 14 and the brine pond. These details should specifically detail how they will intersect the upgradient drainage patterns from the Route 14 culverts that are referenced on page 10 in the design report and include the locations and sizes of these culverts to demonstrate how the storm water diversion system will be capable of handling the combined flows from these culverts and the drainage areas between Route 14 and the brine pond.

21. The design report should provide the designer's rationale for use of a PVC pipe in the leak detection layer of the double-lined impoundment. Since this pipe will be penetrating the lower 60 mil HDPE geomembrane, the specification of an appropriately designed HDPE pipe would be able to be welded to the lower liner system reducing potential for leakage at the pipe penetrations.
22. The design report should provide the estimated temperature for the brine upon induction into the pond as referenced on page 21 of the report.
23. In Section 310519.17 for the textured HDPE geomembrane the list industry standards and specifications on page 02770-2 makes reference to GRI GM 17 – test methods for LLDPE which is not being proposed. This Section of the project specifications should be listing GRI GM 13 for the HDPE and GRI GM 18 for the fPP-r geomembrane. These same comments also apply to Section 310519.18 of the project specifications as well for fPP-r geomembrane. Furthermore, this later specification references installation of the fPP-r geomembrane on the subbase. This is contrary to the engineering plans which will not place fPP-r geomembrane in touch with any subbase soils except perhaps in the anchor trench. There are numerous places in the specifications where the fPP-r geomembrane and HDPE geomembrane placements are reversed. The specifications for the fPP-r geomembrane also reference "grinding" of the scrim reinforced geomembrane on page 02770-7. Industry standards do not typically recommend grinding scrim reinforced geomembranes since this action could expose the scrim which attributes to wicking of liquids into the scrim and could contribute to delamination.
24. The leak detection system receiving tank needs to be provided with an overflow prevention and detection system.
25. The leak detection piping proposed for below the east berm needs to be double walled. Both the leak detection and underdrain piping will need to be shown to be visually intact following construction of the berm and prior to the initial filling of the brine pond.
26. Groundwater Quality Monitoring (also dSEIS Section 4.1.2.3 Proposed Mitigation Measures and Alternatives, Groundwater Quality Monitoring, page 42).
 - a. The groundwater monitoring program must be able to detect leaks from the brine pond into the environment. The applicant must be able to demonstrate the ability to detect releases from the brine pond, as well as differentiating between leaks and possible seasonal contribution of road deicing along the upgradient highways. The initial groundwater quality analyses show possible impacts from seasonal highway salts where MW-3 shows the highest concentrations of sodium and chloride.
 - b. The applicant has not provided analyses of the brine or developed brine characterization that will be used to compare to background groundwater quality.
 - c. The Report has shown that the downward groundwater gradient is toward the east. Accordingly, the Engineering Report has planned for two (2) upgradient and three (3) down gradient monitoring wells. The regional structure of the bedrock consists of a gently tilted monocline toward the south and groundwater and potential leaks may preferentially flow along bedrock bedding surfaces. In addition to the proposed wells, an additional monitoring well should be designed to intercept potential down dip flow or fluid migration along the bedrock bedding planes.

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- d. Table C-5 Leachate Indicators; values given in the table for the concentration of chloride is expressed in mg/L, whereas the Standard/Guidance Value is listed in micro-grams/L.
- e. The unit of measure for the analytical results need to be represented on all Table C's of the Engineer's Report.
- f. In section 2.2.2 Overburden & Bedrock, the engineering drawings indicate the location of numerous monitoring wells within the footprint of the brine pond, however, there are no well abandonment procedures included in the project specifications. These monitoring wells should be abandoned following Part 360 (a)(8)(ii)(i)(vi) Abandonment of wells.

The application remains incomplete pending the receipt of a complete underground LPG storage application and acceptance of a draft Supplemental Environmental Impact Statement by the Department. As you are aware, the DEC will have 30 days to review the adequacy of the resubmitted draft of the dSEIS for public distribution and comment. Once you have reviewed these comments, DEC staff would be pleased to meet with you and your client or their consulting staff either in person or telephonically to resolve any questions related to our comments.

Please contact me at 585-226-5401 or email at dlbimber@gw.dec.state.ny.us if you have any question relating to the status of this application, the information discussed in this letter, or the environmental review process. Thank you for your time and assistance in this matter.

Sincerely,



David L. Bimber
Deputy Regional Permit Administrator
Division of Environmental Permits

cc: J. Nasca, Environmental Permits Division Director, DEC Albany (1750)
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