

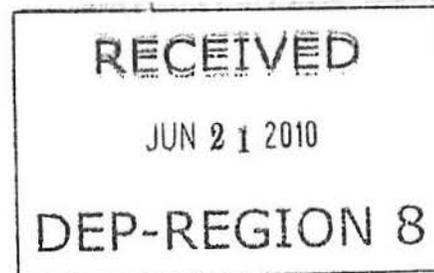


KEVIN M. BERNSTEIN  
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June 18, 2010

**VIA OVERNIGHT EXPRESS**

Roger McDonough  
Environmental Analyst  
New York State Department of  
Environmental Conservation  
Division of Environmental Permits  
6274 East Avon-Lima Road  
Avon, NY 14414-9519



Re: *SEQR Review*  
*Inergy Midstream LLC / Finger Lakes LPG Storage LLC*  
*DEC Facility ID 8-4432-00085*  
*Liquefied Petroleum Gas Storage Facility*  
*Town of Reading, Schuyler County*

Dear Mr. McDonough:

As you are aware, our client, Finger Lakes LPG Storage, LLC (“Finger Lakes”) is proposing the construction of a multi-cycle LPG storage system with a pipeline connection and rail and truck load/unload racks in the Town of Reading, Schuyler County (“the Project”).

In response to your letter dated May 26, 2010 requesting additional information to our April 27, 2010 submission and to assist in your review under the State Environmental Quality Review Act (“SEQRA”), we are submitting the following information for your review.

**DEC Comment:**

- 1) Detailed design plans for the proposed brine impoundment for evaluation. These must be certified as adequate and sufficient for the intended purpose, site, and lifetime of the impoundment by the NY State Licensed Professional Engineer responsible for the structural design. The need to evaluate impoundment design and stability was indicated in the Department's February 9, 2010 letter. The Town of Reading has expressed concerns regarding the stability of the impoundment structure in the location proposed.

Based on information available to date, it is likely that we would compare the structure to a Large Class B dam. The design engineer should also recommend a hazard class and provide justification for that recommendation.

- a) Plans must be complete and sufficient for review by Department staff, and incorporate applicable sections of the Department's Guidelines for Design of Dams, as well as any additional design considerations due to the nature of the contained brine, which must be prevented from any possible overflow, seepage, or contact with either surface or ground waters.
- b) The proposed brine pond must be designed to a reasonably high standard to prevent overtopping. The pond must have a means to remove excess volume due to precipitation, at a similar rate to that which a spillway system would provide in the case of a surface water impoundment for a Large Class B Dam. The analog to a spillway in the case of a brine pond would involve a discharge, either to surface waters (requiring a SPDES Permit), or to some other use, process, or disposal, which must be specified (and may or may not require a permit).
- c) An inspection and maintenance plan for the brine pond must be provided.

***Finger Lakes Response:*** *Accompanying this letter is a complete set of design plans (consisting of 12 sheets) and an Engineer's Report for the proposed brine impoundment signed by a Licensed Professional Engineer (PE) with C.T. Male Associates, P.C. (CT Male). These plans and report provide information pertaining to the design and stability of the impoundment structure. The calculation results are summarized in the Engineer's Report.*

*In addition, CT Male has performed an evaluation of the appropriate hazard classification as if the impoundment structure were to be reviewed as a dam (even if it is not regulated as such). As a result of this assessment, CT Male's design engineer agrees with Staff's assessment that, if the pond were regulated, its appropriate hazard classification would be "Class B".*

- a) *The impoundment was designed in accordance with applicable sections of the NYSDEC "Guidelines for the Design of Dams", assuming it was viewed as equivalent to a Class B dam. The brine pond has more than sufficient capacity (2.19 million barrels) to store the maximum anticipated amount of brine while providing 3 feet of elevation difference between the normal high operating water level and the top of the impoundment. The brine solution will be contained in the pond by the installation of a geo-membrane liner which will safeguard against seepage. In addition, there are under-drains under the geo-membrane that discharge at known locations downhill of the impoundment that can be sampled to detect any possible brine leakage that may occur.*

- b) *It is the opinion of the design engineer that providing three (3) feet of elevation difference between the normal high operating level and the top of the impoundment provides a reasonably high standard to prevent overtopping. The elevation difference of 3 feet was arrived at by adding the design storm event (40% of the PMF) to two (2) feet of freeboard – i.e. the design criteria for new Class B Large dams.*
- c) *The inspection and maintenance plan will consist of utilizing the enclosed inspection checklist on a periodic basis with regard to the brine pond. The frequency of inspection is proposed to be once per month between April 1 and December 1, and after any rainfall that exceeds 2 inches in an hour. In addition, there will be routine maintenance of the embankment crest and downstream slope to include mowing of grass cover and removal of tree growth. All trees and shrubs will not be allowed to grow on the embankment.*

**DEC Comment:**

- 2) The Department disagrees that 24 inches of freeboard is sufficient to permanently contain volume increases in the brine pond due to precipitation and other operations at this facility. This was indicated previously in the letter dated March 19, 2010. Maintenance of an adequate freeboard is critical for wind and precipitation events, and the structural integrity of the impoundment. Freeboard must not be relied upon as space to store fluids on either a temporary or permanent basis. The following issues, based on your letters dated February 26 and April 27, 2010, must be addressed:
  - a) According to the figures provided, a 24 inch freeboard will be overtopped by “average”/precipitation in 8 years. A large storm event could shorten this time frame considerably.
  - b) The claim that “no multi-year increase is expected because the pond will be drained each winter “ignores the fact that the volume of brine removed from the pond to displace stored LPG can be no greater than the volume of LPG stored, which displaced its own volume of brine from the caverns to the pond. This does not account for the inevitable increase in pond volume due to precipitation, well workovers, and equipment flushing, none of which displace brine from the caverns. In order to claim that the pond can be drained completely, you must indicate how and to where the brine volume in excess of the stored LPG volume will be drained.
  - c) The claim that “Cavern expansion will take up any rainfall that does not evaporate.” is not possible. Cavern expansion will produce brine in addition to

the brine volume increase indicated above. The volume of brine produced by cavern expansion will exceed the additional cavern volume increase. Note that it is not physically possible for a given volume of water to dissolve an equivalent volume of salt.

***Finger Lakes Response:*** *As noted above, the pond has been designed with 3 feet of freeboard, which exceeds what is necessary under Department guidance for the design of dams.*

**DEC Comment:**

- 3) The following should also be provided:
  - a) The pipeline route for the connection from the Plant to the TEPPCO pipeline. Note that the Stormwater Pollution Prevention Plan did not show this route. From the properties identified by tax maps, it appears this will cross Route 14.
  - b) Pipeline routes for the additional new pipelines proposed. Road crossings should be indicated.
  - c) Anticipated noise levels from rail operations at the transfer station.
  - d) Hours of transfer station operation. Indicate hours for weekdays, weekends, and legal holidays.

***Finger Lakes Responses:***

- a) *The pipeline route for the connection from the plant to the TEPPCO pipeline was shown to the point where it intersects with an existing pipeline that already crosses underneath NYS Route 14. The only work to be done in this area will be to remove the existing pipes under the State highway and install new pipe. We have confirmed this with JESS Engineering, who has communicated with Jessica Verrigni, who reviewed the SWPPP for the Department. We understand that Ms. Verrigni has talked to you about this issue. Prior to construction, the SWPPP will be updated to (1) more clearly identify the pipeline as it intersects the existing TEPPCO pipeline on the east side of NYS Route 14; and (2) reflect the changed configuration of the brine pond.*
- b) *The attached centerline survey/plan and profile drawing prepared by CT Male shows the pipelines to be constructed.*
- c) *It is not anticipated that there will be any additional noise from the rail cars while they are placed on the siding to be used as part of the operation or placed back*

*into the main line. A trackmobile will not be used. Moreover, there are no at grade crossings at this location so no additional whistle noise will be generated.<sup>1</sup>*

- d) *Finger Lakes plans on operating 12 hours a day, 5 days a week. There may be times during the year when there will be operations occurring 24 hours per day.*

**DEC Comment:**

- 4) Please indicate if the applicant has submitted any project-related materials to the New York State Public Service Commission (PSC). If a submission to PSC was made, please provide copies. If materials have not yet been sent, please indicate when they will be sent to PSC and provide copies for our staff.

***Finger Lakes Response:*** *Nothing has been submitted to the PSC at this time. A notification will be made to PSC's gas division at least 30 days prior to the start of construction as required under 16 NYCRR Part 258.*

As you reference in your May 26 letter, we submitted a response to the Notice of Incomplete Application on the Underground Storage Permit on May 14, 2010. While we understand that review is ongoing, it relates to the geological integrity of the two galleries proposed for LPG storage. In our view, a SEQRA determination can be made based on the information provided herein, while still allowing for additional technical review by the Department of the Underground Storage Application. Inergy and Finger Lakes is willing to take the financial risk of constructing the aboveground facilities (i.e., rail siding, truck and rail rack area, brine impoundment, and plant area building); of course, operations could not commence until receipt of an Underground Storage Permit. These above-ground facilities are being constructed on property Inergy or its subsidiaries own or are under contract to acquire. No other property owners are affected. Without the ability to start construction on these aboveground facilities this summer, there is no possible way this facility could be operational by Spring 2011 and provide much needed propane storage and winter supply next winter.

However, the only way for us to proceed is for the Department to complete its SEQRA review. This would allow coverage to commence under the SPDES General Permit for Discharges Associated with Construction Activity and the 5-acre waiver obtained by Finger Lakes.

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<sup>1</sup> Even if there were at grade crossings, the railroad is regulated by the Federal Railroad Administration (FRA) and the FRA does have regulations regarding train horns at highway-rail grade crossings for safety purposes.

Roger McDonough  
June 18, 2010  
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If you have any questions, or need clarification regarding any information contained in this letter, please call. Thank you.

Sincerely,

BOND, SCHOENECK & KING, PLLC



Kevin M. Bernstein

Enclosures

cc: P. Briggs, NYSDEC (w/enclosures)  
A. Dominitz, NYSDEC (w/enclosures)  
J. Maglienti, Esq., NYSDEC (w/o enclosures)  
P. Lent, NYSDEC (w/o enclosures)  
L. Collart, NYSDEC (w/o enclosures)  
R. Nemecek, NYSDEC (w/o enclosures)  
N. Rice, NYSDEC (w/enclosures)  
C. Hardison, NYSDEC (w/o enclosures)  
P. D'Amato, NYSDEC (w/o enclosures)  
G. Wright, Town of Reading (w/enclosures)  
K. Jones, SCOPED (w/o enclosures)  
B. Moler, Inergy (w/o enclosures)  
B. Cigich, Inergy (w/o enclosures)  
M. Armstrong, Inergy (w/o enclosures)  
M. LeRose, Inergy (w/o enclosures)

C.T. MALE ASSOCIATES, P.C.

BRINE POND INSPECTION CHECKLIST

<b>NAME OF FACILITY:</b>	Finger Lakes Brine Pond	<b>INSPECTOR:</b>	
<b>FACILITY OWNER:</b>	Finger Lakes Storage, LLC	<b>INSPECTION DATE:</b>	
<b>FACILITY LOCATION:</b>	NYS Route 14A, Town of Reading, NY	<b>WEATHER CONDITIONS:</b>	
<b>MAXIMUM STORAGE VOLUME:</b>	2.19 Million Barrels	<b>EMERGENCY CONTACT:</b>	
<b>REQUIRED FREEBOARD:</b>	Three (3) Feet	<b>TELEPHONE NUMBER:</b>	

INSPECTION ITEMS	Y	N	NA	REMARKS
1. General Conditions				<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><b>RECEIVED</b></p> <p>JUN 21 2010</p> <p>DEP-REGION 8</p> </div>
a. Entry Gate Locked Upon Arrival for Inspection ?				
b. Signs of Vandalism to Gate or Perimeter Fence ?				
c. Access Road Open for Vehicle Access?				
d. Recent High Pond Level Marks?				
2. Upstream Slope (Pond Side)				
a. Ripped or Torn Liner?				
b. Liner Anchoring Intact?				
c. Rodent Damage to Liner?				
d. Underlying Slope Movement, Settlement or Bulges?				
3. Crest				
a. Erosion Present?				
b. Tree Growth?				
c. Rodent Holes?				
d. Cracks or Settlement?				
e. Adequate Grass Cover on Reinforced Access Road?				
4. Downstream Slope				
a. Erosion Present?				
b. Tree Growth?				
c. Rodent Holes?				
d. Cracks, Settlements, Sloughing or Bulges?				
e. Seepage or Boils?				
5. Perimeter Diversion Swale				
a. Erosion/Undermining of Rock Lining?				
b. Stable Side Slopes?				
c. Vegetative Growth?				
d. Blockage by Fallen Trees or Other?				
e. Outlet Basins Free of Sediment & Debris?				
f. End Sections of Outlet Basins Clogged?				

OPERATION & MONITORING ITEMS				
1. Pond Levels				
a. Level Measured?				Water Level Below Crest @ ?
2. Flow Monitoring of Underdrains				
a. Intercept Drain Flow Measured?				Flow Rate South End Equals ?
				Flow Rate North End Equals ?
b. Liner Underdrain Flows Measured?				Flow Rate @ ES6 Equals ?
				Flow Rate @ DMH 2, South Underdrain Equals ?
				Flow Rate @ DMH 2, North Underdrain Equals ?
				Flow Rate @ ES2 Equals ?

**NOTE:**

1. Required Frequency of Inspections: Once per month between April 1 and December 1, and after any rainfall that exceeds 2 inches in an hour.

2. Routine maintenance of embankment crest and downstream slope to include mowing of grass cover and removal of tree growth. Height of grass shall not exceed 6 inches. All trees and shrubs of any diameter shall not be allowed to grow on embankment.

June 18, 2010



Preliminary Engineer's Report  
for  
**"FINGER LAKES STORAGE  
BRINE POND"**

Town of Reading  
Schuyler County, New York

*Prepared for:*

**Finger Lakes Storage, LLC**



*Prepared by:*

C.T. MALE ASSOCIATES, P.C.  
50 Century Hill Drive  
Latham, New York 12110  
(518) 786-7400  
FAX (518) 786-7299

*C.T. Male Project No: 08.8696  
Related Drawing No: 10-0317*

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## 1.0 INTRODUCTION

The project site is located immediately east of the intersection of State Route 14 and State Route 14A in the Town of Reading, Schuyler County, New York. Due east of the site (less than ½ mile) is Seneca Lake and the Village of Watkins Glen is located approximately 3 miles to the southeast.

Finger Lakes Storage, LLC is currently proposing to construct a surface water impoundment that will contain a brine solution. The brine solution will be removed from nearby subsurface caverns to develop storage volume for liquid petroleum gas. The amount of brine solution in the "brine pond" will be dependent on the amount of gas that is being stored in the underground caverns. In the fall the brine ponds will be at their fullest because the gas storage is maximum in anticipation of the winter heating season. Conversely, the water surface elevation in the brine pond will be the lowest in the spring when much of the gas has been pumped out of the caverns to satisfy the winter heating demands.

The pond site was chosen due to its close proximity to the caverns. The existing land surface at the site of the brine pond is sloped downward to the east at an average slope of approximately 6-8 percent. In order to create an impoundment it will be necessary to excavate on the uphill side of the brine pond and construct an impoundment on the downhill side of the pond. To contain the brine solution within the constructed pond it is proposed to line the pond bottom with a geomembrane.

The project sponsors have indicated that the brine pond needs to have a minimum volume of 2.1 million barrels (88.2 million gallons) in order to meet the anticipated gas storage/demand.

## 2.0 DESIGN ELEMENTS - BASIS OF DESIGN

The following elements are part of the design of the brine pond impoundment.

Pond Volume - the required minimum desired storage was 2.1 million barrels. The pond is designed to hold 2.19 million barrels at the maximum operating pool of 837.0'.

Embankment - in order to create the necessary storage and to balance the cut and fill on the project site it is necessary to construct an impoundment on the downhill side of

the brine pond. The top of this embankment is at elevation 840.0' and the downhill toe of the embankment is at elevation 786.0'. This creates an embankment that is 54' high and 19' wide at the top.

Hazard Classification - assuming that this embankment needs to be designed to meet DEC Dam Safety criteria it is first necessary to establish the appropriate hazard classification. The hazard classification is established by examining the area downhill from the dam with regards to the expected losses that would occur in the event of a failure of the embankment. In the case of this dam, there are no residential areas or major roadways between the impoundment and the lake but there is a minor railroad that would likely be damaged in the event of an embankment failure. Consequently, if this impoundment structure were regulated as a dam it is our opinion that the appropriate hazard classification is "Class B". Due to the height of the impoundment (greater than 40') it would be classified as a "Large Class B" dam.

Embankment Stability Analysis - as indicated in Section 9.2 of the DEC publication "Guidelines for Design of Dams", the global stability of the inside and outside slopes was analyzed in accordance with the method of analyses outlined by the U.S. Army Corps of Engineers publication EM 1110-2-1902, *Slope Stability*. Seven (7) load cases are listed in the USACE publication as being applicable to new earth and rock-fill dams. As the Finger Lakes Storage Brine Pond does not have a spillway, only four (4) of the load cases were deemed to be applicable to this project. A description of each of the loading conditions and the slopes analyzed, and the minimum required factors of safety are shown in Table 1 below.

**Table 1: Required Minimum Factors of Safety**

Case No.	Loading Condition	Pool Elevation	Slope Requiring Analysis	Required Factor of Safety
I	End-of-Construction	837.0'	Inside & Outside	1.3
II	Long-Term with Steady Seepage and Maximum Storage Pool (including design rainfall event)	837.8'	Outside	1.5
IV	Rapid Drawdown	837.0'	Inside	1.3
VII	Earthquake - Case II with Seismic Loading	As Noted Above	Inside & Outside	1.0

The stability of the embankments was analyzed using the computer program GEOSLOPE, Version 5.0. Soil properties for each of the soil layers encountered were conservatively estimated based upon past experience with soils of these types. As noted in the aforementioned Corps publication, soil properties for the embankment at End-of-Construction are based upon a total stress analysis using undrained strength parameters. For the remaining load cases, long-term ("drained") strength parameters were utilized in the analysis. The peak ground acceleration utilized in Load Case VII was obtained from the USGS Interactive Hazard Deaggregation website for a seismic event with a 2-percent chance of exceedence in 50 years.

Based upon our analysis, the computed factors of safety for the embankments under each of the loading conditions is in excess of the minimum required factor of safety.

Freeboard - per the NYSDEC Guidelines for Design of Dams 1988, the minimum required freeboard for a Class B dam is 2.0' during the spillway design flood which is 40% of the Probable Maximum Flood (PMF). The PMF is caused by a Probable Maximum Precipitation (PMP) event which includes approximately 25-inches of rainfall for this region of New York State. For the purposes of this report, it was assumed that 40% of the PMF would result when the rainfall was approximately 40% of the PMP, which equates to 10-inches of rainfall at the project site. This amount of rainfall added to the minimum required freeboard of 2.0' results in a minimum required freeboard of 34-inches. The impoundment as designed provides 36-inches of freeboard (840.0' - 837.0') exceeding this element of the dam safety design criteria.

Diversion Channels - the pond will interrupt the flow in four existing drainage swales. These swales convey stormwater runoff from existing culverts under State Route 14. The watershed for these culverts was determined using USGS quadrangle sheets and some design plan information obtained from NYSDOT. The diversion channels were sized to convey the runoff from up to and including a 100-year frequency of return storm event. The resulting diversion channels and pipe systems discharge into the existing swales downstream of the pond immediately upstream of an existing gravel road. Since the pipes under Route 14 and under the gravel road were designed to carry the runoff from a much lesser storm they have much less capacity than the proposed diversion swale and piping.

Interceptor Trench - examination of the soil boring logs reveal that approximately the upper 7 to 10 feet of soil is relatively loose compared to the deeper soils. The interceptor trench is designed to intercept groundwater flow that may be seasonally perched and flowing downhill on top of the denser soils. The intercepted groundwater will be collected in the interceptor trench and conveyed by gravity to discharge into the diversion channels.

Geomembrane Liner Stability - a stability analysis was conducted for the polyethylene geomembrane liner system to determine its factor of safety against sliding failure. In the analysis the interface friction angle between the liner and the overlying/underlying soil layers is required. Based upon published literature, the critical interface friction angle for the liner system was between the polyethylene geomembrane and cushion sand, which ranged between 26 to 30 degrees based upon the degree of saturation of the granular soil. For purposes of these analyses, it was assumed that the granular soil was in a "wetted" condition and that the lower interface value of 26 degrees would apply.

Using estimated physical properties and strength parameters for the soils and the above mentioned interface friction angle (neglecting the potential for apparent adhesion), the minimum factors of safety for this liner section was calculated. For this interface friction angle, these values are approximately equal to or in excess of the generally accepted minimum factor of safety of 1.5.

Under Drains - there is a drainage layer under the geomembrane that is designed to collect groundwater that bypasses the interceptor trench and/or that seeps out of the dense soils or underlying bedrock. The under drains consist of perforated pipe in a layer of crushed stone.

Sampling Locations - the perforated under drains transition to solid pipe and drain by gravity into proposed drainage manholes on the west (uphill) side of the gravel road. The under drain pipes will be accessible either in the drainage manhole or at the discharge location. The under drains are planned to be 8-inches in diameter. Larger diameter under drains will be installed if groundwater seepage at the time of construction is judged to be in excess of the pipes conveyance capacity.

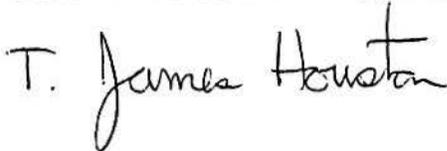
Access Drive - the design includes an access drive from the existing gravel drive to the top perimeter drive. These surfaces will be grassed and will consist of geo-cells filled with topsoil. Since the final cover is a grassed surface it is not required to treat the runoff from this surface to be in compliance with the NYS Stormwater Management Design Manual.

Visual Buffer - the proposed landscaping plan includes a vegetated berm on the uphill side of the brine pond. This berm and the plantings on it will provide a visual screen to the passers-by on the exit ramp from Route 14 north to Route 14A north.

The above referenced criteria were used as the basis of design for the proposed brine pond. Provided that the impoundment is constructed in conformance with the accompanying design plans and its condition maintained in a safe operating condition, the impoundment should provide a design life in excess of 50 years. Periodic inspections should be performed by operating personnel trained in dam safety and erosion and sediment control. A licensed professional engineer should be consulted in the event the personnel identify conditions that warrant a more detailed evaluation.

Respectfully submitted,

C.T. MALE ASSOCIATES, P.C.

A handwritten signature in black ink that reads "T. James Houston". The signature is written in a cursive style with a large, prominent initial "T".

T. James Houston, PE  
Senior Civil Engineer

