

Hanover

Engineering Associates Inc

December 17, 2012

Mr. Jack Cahalan, Manager
Lower Saucon Township
3700 Old Philadelphia Pike
Bethlehem, PA 18015

RE: Joint Municipal Landfill Committee
Minutes of December 13, 2012 Meeting
Hanover Project LS90-07

Dear Mr. Cahalan:

The Joint Municipal Committee between IESI Bethlehem Landfill and Lower Saucon Township met at the Landfill Office at 12:00 Noon on December 13, 2012. The meeting was moved from the usual third Thursday of the month due to a conflict with Mr. Taylor's schedule.

Attending the meeting were:

Ms. Priscilla deLeon (departed at 12:50 to attend to a pressing matter)
Ms. Donna Louder
Mr. Hazem Hijazi, PE
Mr. Allen Schleyer
Mr. Christopher Taylor, PG, HMI

AGENDA ITEMS

I. Status of Waste Activities

Monthly Tonnages:

| | <u>September</u> | <u>October</u> | <u>November</u> |
|---|------------------|------------------|------------------|
| Municipal Solid Waste (total) | 24,540.50 | 26,109.10 | 32,011.60 |
| Construction and Demo (total) | 6,509.30 | 8,451.70 | 10,375.10 |
| Residual Waste (total) | 1,857.90 | 1,798.70 | 2,077.20 |
| Asbestos | [18.40] | [36.60] | [1.00] |
| Out of state-total (percentage) | [19,558.10](59%) | [22,081.00](61%) | [30,419.00](68%) |
| TOTAL | 32,907.70 | 36,359.50 | 44,463.90 |
| Recycled Tonnage (percent from Lower Saucon Twp.) | 4.50 (79%) | 0.00 (85%) | 5.00 (78%) |

NOTES:

1. The tonnage for 'Asbestos' is included in the tonnage for 'Residual Waste (total)' and is therefore shown in brackets.
2. The 'Out of state - total' tonnage figure has now been consolidated to include total tonnage from all waste categories, and is shown in brackets because it is included in the tonnage for the other categories.

ROUTING

- Council
- Manager *Orig*
- Asst. Mgr.
- Zoning
- Finance
- Police
- P. Works
- P/C
- P & R
- EAC
- Engineer
- Solicitor
- Planner
- Landfill
- EMC
- Other

Website

| <u>Form U Submittals</u> | <u>Waste</u> | <u>Approval Date</u> |
|--------------------------|----------------|----------------------|
| Ford Motor Co. | Petroleum soil | 11/06/12 |
| Borough of E. Rutherford | ACM | 11/06/12 |
| Kings Point Gate Assoc. | ACM | 11/19/12 |
| Key Interiors | ACM | Withdrew |

Ms. Louder asked about the latest Form U Review for sanitary sewage contaminated soil (not yet listed above) and expressed concern regarding the human health hazards that might be associated with this material.

II. Annual Groundwater Trend Analysis

- The 4th Quarter 2012 Quarterly Groundwater Report sampling is scheduled to take place during the week of December 17, 2012.

III. Correspondence and Reports

- Form U Submittals to PADEP and Lower Saucon Township
- Abatement System Report
- LFG well construction notification
- 3Q12 Groundwater report

IV. Landfill Operations

- Department of Environmental Protection Inspections
 - November 8, 2012 – S. French, W. Craft: Engineers meeting
 - November 29, 2012 – B. Bham: site visit
- Host Municipal Inspection
 - November 1, 2012 – Chris Taylor
 - November 15, 2012 – Chris Taylor
 - November 21, 2012 – Chris Taylor
 - December 7, 2012 – Chris Taylor

Mr. Taylor clarified that the inspection conducted on November 21, 2012 was performed solely for the purpose of evaluating the effects of the rock blasting that took place that day. Therefore, a full inspection was not performed on this date.

- Bethlehem Renewable Energy (BRE) and Flare Operations

The following is an update to the Bethlehem LFG Flare activity. We had the following LFG flare shutdowns at Bethlehem Landfill. The auto-valve closed as designed for each shutdown of the flare. No odors were noted or odor complaints received by Bethlehem Landfill during the outage events. The BRE power plant is currently shut down since September 19, 2012.

| | | | |
|--------------|------------------|-------|--|
| Nov 3, 2012 | Flare shutdown | 13:45 | Protective shutdown |
| Nov 4, 2012 | Flare startup | 12:15 | Duration 22 hrs 30 min – PPL power on |
| Nov 7, 2012 | Flare shutdown | 13:05 | High temperature |
| | Flare startup | 13:44 | Duration 39 min |
| Nov 9, 2012 | Flare shutdown | 13:52 | Low temperature – maintenance |
| | Flare startup | 14:55 | Duration 1 hr 3 min |
| Nov 12, 2012 | Flare shutdown | 15:43 | Maintenance replace N2 |
| | Flare startup | 15:59 | Duration 16 min |
| Nov 19, 2012 | Flare shutdown | 02:13 | High temperature |
| | Flare startup | 15:53 | Duration 13 hr 40 min |
| Nov 29, 2012 | Flare shutdown | 09:13 | Manual shutdown for pipe header tie-in |
| | Flare startup | 10:03 | Duration 50 min |
| | Flare shutdown | 12:43 | Manual shutdown for pipe header tie-in |
| | Flare startup | 13:45 | Duration 1 hr 2 min |
| Dec 4, 2012 | Turbine startup | 15:15 | Startup for maintenance run |
| | Flare shutdown | 15:52 | Manual shutdown to run BRE plant |
| | Turbine shutdown | 17:23 | Duration 11 min to flare startup |
| | Flare startup | 17:34 | Duration 11 min |

BRE operated the turbine for maintenance.

All shutdown information is provided to the PADEP.

- Gas Collection

- The Bethlehem Renewable Energy Plant is currently shut down for further pretreatment evaluation. The flare is the primary landfill gas collection and control system. Additional LFG wells are under construction in the 4-D area. Connections to the cleanout piping in the Cell F area and extension of the gas collection header pipeline are ongoing for November and scheduled to be completed in December 2012.

Mr. Schleyer stated that BRE ran their plant on December 4 for a few hours (two and one-half) to try to keep parts in working order in an attempt to avoid restart problems.

Mr. Hijazi asked if Mr. Schleyer could expand on gas collection, asking that as you're going into new cells, do you have a design plan for where wells will go, do you have an idea of where wells will go in new areas? Mr. Schleyer responded yes, and provided a detailed explanation of the gas well siting process. Mr. Hijazi asked how do you decide which areas need more wells due to more gas generation in some areas relative to others? Mr. Schleyer described the well monitoring process and how gas monitoring data is used to determine where an extra well would be warranted. Mr. Schleyer further described the air monitoring process and the gas detection process.

During the inspection following the meeting, Mr. Taylor confirmed that the landfill flare was operating at 2,180 scfm at 1615 degrees F. During the inspection, it was observed that the installation of gas well connecting lines was continuing on the western face.

- Well Sampling

- The 4th Quarter 2012 Quarterly Groundwater Monitoring sampling is scheduled to take place during the week of December 17, 2012.

Mr. Taylor asked if Mr. Schleyer had expedited the sampling of the private well for the resident living in the Narrows who had requested that their well be tested. Mr. Schleyer responded yes, explaining that he had talked directly to Benchmark Analytics (the testing laboratory) and had put them in touch with the resident by providing all of the necessary contact information. He added that it was up to Benchmark and the citizen to coordinate the site visit for the sampling event. Ms. Louder stated that the citizen had sent her an e-mail on December 7 stating that she had not yet been contacted.

- North Slope

- The North Slope sedimentation traps are functional.
- The North Slope perimeter road is accessible.

Mr. Schleyer stated that the tree felled by Hurricane Sandy had been cleared and that the road was open and ready for the groundwater sampling event next week.

- Abatement System Operations

- The abatement system continues to operate and discharge to the Bethlehem Waste Water Treatment Plant. Intermittent malfunctions of the well pumps and controls are repaired or replaced as needed. IESI replaced heaters in AB well pump houses as needed.

- Leachate Collection

Flow rates continue to be monitored and reported. Flow rates for the LMC chambers will be estimated during the power outage resulting from Hurricane Sandy.

Following is a summary of the work history and developments:

- IESI submitted the report from Meiser and Earl, Inc. on December 23, 2008, to DEP and Lower Saucon Township evaluating the various tests that were performed to locate the source of the elevated detection zone flows as outlined in their May 7, 2008 Work Plan. Lower Saucon Township has forwarded their comments on the December 23, 2008 report to DEP.
- IESI has completed welding of approximately 1,200 L.F. of the secondary line to the primary liner along the northern end of Cell 3-D while the anchor trench was open and prior to completing the weld, a 2½-inch rain event occurred. A spike in the leachate collection/detection flow may be observed.
- IESI will retest the gabion stormwater channel over Cell 3-C and discharging into sedimentation Pond 4 for possible infiltration into the detection zone by flooding the channel on September 24, 2009.
- The capping of the remaining five (5) acres of Phase III has been completed.
- IESI provided an updated report on their LMC investigation to DEP and Lower Saucon Township November 2009. The reports in part indicated that:
 1. LMC 7 does not appear to be affected by rainfall since the northern Cell 3 anchor trench cap/liner welding occurred.

2. LMC 8 still spiking from rainfall events.

- The next investigation will be to the integrity of the liner under gabion channel in Cell 3-C which will occur in the 1st Quarter 2010. IESI is looking for a seven to ten (7-10) day window with no rain for a meaningful evaluation. IESI received authorization for the Gabion Channel Work Plan from DEP on December 22, 2009.
- The investigation of the integrity of the liner under the gabion downchannel located in Cell 3C began April 10, 2010. The southern-most end of the gabion channel was excavated down to the anchor trench as well as to the east and west of the channel along the anchor trench. Toe drains above the primary liner were replaced and the primary and secondary liners were welded together in the excavated areas. The gabion channel and piping leading to Basin 4 were reconstructed. IESI will continue to monitor the LMC flows and prepare a report on the latest work performed.
- To date the flows into LMC-8 appear to have been substantially reduced since the repair in the first week of April 2010.
- As of this date the data appears to indicate that the repairs to the southern end of the gabion downchannel leading to Sedimentation Pond 4 and the toe drains running east/west at the southern most end of the gabion channel have caused a substantial reduction in the detection zone of LMC-8.
- The LMC-8 Detection Zone flow rate continues to be monitored. Existing data continues to show a substantial reduction in the flow rate.
- September/October 2010 -- the recent rain events have shown influence on LMC-8. The committee is recommending that IESI investigate and consider extending the toe-drain, which was replaced in April along the toe of the southern slope and above Sedimentation Pond 4, to the east and west. Mr. Schleyer provided a summary of the remedial work completed to date to alleviate the high leachate flows being recorded in LMC-8. He reviewed the recent flow data, and stated his opinion that the remedial work has helped to reduce the overall flows. He stated his opinion that the flow data for 2010 indicates that the "response time" between a storm event and high flows observed in LMC-8 is less, and that the flows are of a shorter duration, since the work has been completed. He stated that he is monitoring the flow data and planning out the next step in the process, but is currently concentrating his efforts on the methane gas problem experienced at the residence at 2293 Applebutter Road. Ms. deLeon stated that Lower Saucon Township is very concerned about the high leachate flows, since these could indicate a tear in the landfill liner or other serious problem.
- February 2011: Discussion regarding monitoring results, as provided in the Third Quarter 2010 Quarterly Facility Report, revealed that samples taken from the leachate detection zone provided very similar chemical analyses to samples taken from the leachate collection zone. Mr. Schleyer indicated that IESI had recognized this correlation, and noted it in their cover letter for the report. Mr. Schleyer provided further explanation with regard to how the report is prepared, and noted that the drainage area for LMC-8 is Phase 3, Cell C, which was completed prior to IESI's ownership of the facility.
- March 2011: Mr. Schleyer stated that rainy weather is necessitating working on erosion control, but that the toe-drain work is still at the forefront of his work plan. Ms. deLeon asked "What's going on there" in reference to the high leachate flows documented in the leachate demand report. Mr. Schleyer stated that "stormwater is still getting in" and that they have an "open cell; rainwater is going directly in there". Ms. deLeon stated that leachate flows jumped up starting February 11, 2011. Mr. Schleyer attributed this to a neighboring cell "filling up and overtopping" the short barrier between cells. He stated that LMC-8 serves Phase 3 Cell C, and that when this cell "fills up" with leachate, it causes the high flows documented in LMC-8, but also causes leachate to overspill to the adjacent Phase IV, causing high flows there also.

- April 2011: Mr. Schleyer noted that flows recorded in LMC 6 increased starting March 18, 2011, but that he is not sure exactly why other than to say it is stormwater-related. Mr. Schleyer stated that it is "the same scenario" as last month, with heavy rains every week that has his crews busy repairing leachate seeps and erosion rills.
- May 2011: Additional toe-drain drainage piping was constructed during the beginning of May. A final report will be completed and submitted to the PADEP and Township.
- June 2011: Mr. Taylor asked if the toe drains have been carrying water to daylight (i.e. – has water been flowing out of the new outlets installed in May). Mr. Schleyer responded that there have been a few flowing out.
- July 2011: Ms. deLeon asked what the PADEP says about the LMC 8 work that was completed. Mr. Schleyer stated that they're okay with it, and that it's "everything we said we'd do". Mr. Taylor commented that we'll probably need up to one (1) year of data to evaluate the effectiveness of the work.
- August 2011: Mr. Schleyer confirmed that that he is still collecting leachate flow data. He stated that he is taking LMC 8 detection zone readings every other day to see if the recent heavy rain causes a "bump" in the data. He indicated that the flow data during rain events should be a good tell-tale sign of whether the toe drains are working. He stated that he wants to collect more data, through the wet season.
- September 2011: Mr. Schleyer acknowledged higher detection zone flows during the monitoring period reported herein. He stated that the toe drains are functioning, because he has seen water flowing from them, and noted the extreme rainfall conditions that occurred during this monitoring period.
- October 2011: Mr. Schleyer stated that the flows in LMC 8 still bounce up when it rains. Ms. deLeon asked if anyone has any other ideas (to remediate this problem). Mr. Schleyer responded no. During the inspection following the meeting, I observed water flowing from each of the toe drain outlets. It had just rained in the last twenty-four (24) hours preceding the inspection.
- November 2011: Mr. Taylor asked what specific steps IESI is taking to identify the source of the inflow creating high flows in LMC 8. Mr. Schleyer responded that they are monitoring flow rates versus rainfall.
- December 2011: Mr. Schleyer stated that, as part of the construction of new cell 4F, the anchor trench along the north side of adjacent Cell 4B was exposed in order to "attach" the old cell to the new cell. He stated that this exposure allowed water from rain events at that time to run right into the collection and detection zones, which caused a spike in the flow numbers for those zones in both LMC 7 and LMC 8. He stated that he expects the numbers to come down. Mr. Taylor asked if everything was buttoned up now (i.e. – no continuing exposure to stormwater). Mr. Schleyer responded that, yes, it was.
- January 2012: Mr. Taylor noted that secondary leachate flows continue to exceed 100 gallons per acre per day (G/A/D) through LMC-8, and are also elevated above normal levels for LMC-6 and LMC-7. Mr. Taylor asked Mr. Schleyer if he is still attributing these higher leachate flows to Cell F being open. Mr. Schleyer stated that, yes, he was.
- February 2012: Mr. Schleyer stated that the high leachate flow numbers are, in his opinion, still due to Cell F being open.
- March 2012: Mr. Schleyer stated that there was a misunderstanding between himself and Mr. Taylor, and that what he meant to say was that there was only one (1) week

where the connection between Cell 4F and the adjacent cells were open, in order to fuse the liners together, and that there was a large rain event that week. He stated that in no way did he mean this condition was the continuous cause of high flows in LMC-8 (over many weeks).

- April 2012: Mr. Taylor noted that leachate flows are down overall, including secondary flows in LMC-8. Ms. deLeon asked if, regarding the leachate totals, did it help that it didn't rain much lately. Mr. Schleyer responded yes, and noted that LMC-8 is now down to 15 gallons per acre per day (secondary flows).
- May 2012: Mr. Taylor addressed the issue of secondary leachate flows in LMC-8 as one of the issues that is being tracked by him at the monthly landfill committee meetings, and reminded Mr. Schleyer that this is still an issue of concern with the Township. Mr. Taylor noted that flows were up in the last two (2) weeks due to increased rainfall, but still just under one-hundred gallons per acre per day in the last week of reporting.
- July 2012: Mr. Schleyer provided a description, using landfill plans, of which areas LMC 6, 7, and 8 drain. Mr. Schleyer stated that, in regard to LMC 8, that they've significantly reduced the infiltration into it, but it's not one-hundred percent. He stated that they've determined that stormwater is getting into the system, but that it still all gets collected and sent to the Wastewater Treatment Plant. Mr. Schleyer provided an explanation of work completed to date, including the toe drain work, re-sealing the liner and cap system, and installing clay as a sealer. He stated that a quick rain will give a little bump in the flow numbers, and that a soaking rain will cause a broad increase. Mr. Taylor stated that elevated secondary leachate flows in LMC-8 is an issue that is being tracked by him, and is still an issue of concern with the Township.
- August 2012: In accordance with direction received at the technical committee meeting on August 21, 2012, Mr. Taylor advised Mr. Schleyer that the Township Council had authorized the issuance of a letter to the PADEP documenting the Township's concerns with elevated flows in the leachate detection zone.
- September 2012: The recent flow readings were reviewed and found to be generally higher than for the previous month.
- October 2012: The recent flow readings were reviewed and the last two (2) weeks reported were found to be significantly higher, apparently due to higher rainfall amounts.
- November 2012: The recent flow readings were reviewed and the last four (4) weeks were found to be very high, apparently due to high rainfall amounts. Mr. Schleyer stated that there were still spikes in the LMC-8 detection zone, which drop off after a rain.

The recent flow readings were reviewed and the last four (4) weeks were found to be high, apparently due to high rainfall amounts.

- Radiation Monitoring

- November 6, 2012: I-131
- November 17, 2012: I-131
- November 19, 2012: TC-99m
- November 20, 2012: I-131
- November 21, 2012: TC-99m

All are Level 1 isotopes and disposed of on site.

- Phase IV Construction Activities

- Cell 4E Stage 1 is the current active disposal area.

Mr. Schleyer noted that he forgot to report in the typed meeting notes that they are currently working on the final capping of about two (2) acres in Phase IV.

During the inspection following the meeting, it was again observed that final capping is proceeding on the southern face of Phase IV, in the form of soil being placed on the synthetic material to complete the final cap. The placement of garbage in Cell 4E was observed to be taking place in a lift above the "fluff layer".

- Hurricane Sandy Events

IESI experienced a complete power outage resulting from Hurricane Sandy from Monday October 29, 2012 at 19:00 until Friday morning November 2, 2012 for the office and Phase IV operations, and until Sunday November 4, 2012 for the flare, Phase 3, and groundwater abatement wells. The flare and office were operated by separate generators until PPL electric power was restored. Post storm inspections observed no breach of sedimentation basins, stormwater channels, or in-place stormwater controls. Although there was an extended power outage for the flare, no off-site odors were detected. No release of leachate from any disposal cell or piping was observed. Phase III leachate continued to gravity-drain to the Bethlehem WWTP and Phase IV leachate flow resumed after power was restored. Leachate and detection zone flow rates are estimated for the time period of the power outage. Estimates are based on measured rates prior to and after the outage caused by Hurricane Sandy. Currently emergency waste disposal operations are in place to remove accumulated debris from the affected areas in Pennsylvania, New York, and New Jersey. This includes some fee waivers and Act 90 registration waivers for waste disposal trucks hauling "storm related debris". There are no waivers for overweight vehicles, and each truck and driver will comply with the IESI Bethlehem Landfill Transportation Compliance Plan.

- Complaints

November 1, 2012 -- A neighbor saw a front loader and a tractor trailer heading east bound on Applebutter Road past the landfill. During the power outages from Hurricane Sandy, the Route 412 area was gridlocked and those trucks exited left onto Applebutter Road to leave. Both trucks were informed to follow the approved truck routes.

December 6, 2012 -- A neighbor called to inform IESI that tractor trailer trucks were speeding on Applebutter Road. IESI called the trucking company dispatch to warn all drivers to obey the speed limit.

- Miscellaneous

- Mr. Schleyer stated that he is getting quotes for wiring control boxes to allow hooking up a generator in case of future power outages.
- Ms. Louder stated that citizens on Easton Road told her that vultures are causing damage on their property, that this has been an ongoing problem since they've lived there (year 2000). They stated that they believe the vultures are coming the landfill. Ms. Louder gave them Mr. Schleyer's contact information.

During the inspection following the meeting, it was observed that about two dozen vultures were present at the landfill.

During the inspection following the meeting, Mr. Schleyer stated that the low area that is ponding water on the western edge of cell 4E (outside of the lined area) will be regarded when cell construction is further along.

V. Commercial Waste Vehicles

| | <u>Sept 2012</u> | <u>Oct 2012</u> | <u>Nov 2012</u> |
|--------------|-------------------|-----------------|---------------------|
| Total Trucks | 2,757 | 3,008 | 3,202 |
| Overweight | 37 | 54 | 57 |
| Warnings | 27 | 33 | 23 |
| Suspensions | 10 (1@5%) 1-TT | 21 (0>3%) | 34 (22>3%) 22-TT |

FL = front loader, RO = roll off, TT = tractor trailer, RL = rear loader,
DT = triaxle dump truck

Mr. Schleyer noted the twenty-two (22) trucks more than three percent (3%) overweight and explained that when New Jersey had allowed trucks carrying storm related debris from Hurricane Sandy to weight up to 90,000 pounds, PADEP at first said they would just request overweight truck information and that facilities could use their discretion. But they then decided that they weren't going to provide an exception for storm debris loads. Mr. Taylor asked for clarification. Mr. Schleyer stated that PADEP finally decided that they won't accept storm debris trucks as an allowable overweight, and instructed IESI to enforce their Transportation Compliance Plan. Mr. Taylor noted that suspensions outnumbered warnings in November.

VI. Correspondence

- Correspondence from Department of Environmental Protection
 - No discussion.
- Correspondence to Department of Environmental Protection
 - No discussion.
- Other Correspondences
 - No discussion.

VII. Township Activities/Township Staff Meeting Update

- Township correspondence to the Department of Environmental Protection
 - No discussion.
- Council Meeting IESI Issues
 - No discussion.

- Miscellaneous
 - No discussion.

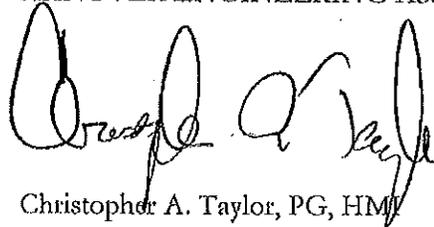
VIII. Establish Time for Next Meeting

1:00PM January 17, 2013 at the Landfill Facility Office.

END OF MINUTES

Respectfully,

HANOVER ENGINEERING ASSOCIATES, INC.



Christopher A. Taylor, PG, HMI

cat:bls

S:\Projects\Municipal\LowerSaucon\000-Landfill\2012\HESI landfill report of Dec 13, 2012 mfg.doc

Enclosure(s)

cc: Ms. Priscilla deLeon (via e-mail)
Mr. Hazem Hijazi, PE (via e-mail)
Ms. Donna Louder (via e-mail)
Mr. Allen Schleyer (via e-mail)
Ms. Laouressa J. McNemar, PE (via e-mail)
Mr. James B. Birdsall, PE (via e-mail)
Mr. Scott J. Brown, HMI (via e-mail)
Mr. Jacob A. Schray, HMI (via e-mail)
Mr. Rich Sichler (via e-mail)
Ms. Leslie Huhn (via e-mail)
Ms. Diane Palik (via e-mail)
Ms. Susan French (via e-mail)

BETHLEHEM LANDFILL
LEACHATE DEMAND REPORT

November 2012

| <u>Location</u> | <u>Total gallons</u> |
|-----------------|----------------------|
| LMC-6 | 12,060 |
| LMC-7 | 13,547 |
| LMC-8 | 128,562 |
| LMC-10 | 1,646,000 |

* LMC-6, 7, 8 and 10 are estimated flows based on measured flow totals and estimate for flow meter power outage from Hurricane Sandy.

| | |
|--------|---------|
| PS-1 | 397,394 |
| * PS-2 | 181,254 |
| * PS-3 | 83,388 |

Phase-IV 662,036

Total LMC-10 Flow = LMC-6, 7, 8, Abatement Well System, Phase I and II, and LFG condensate. Phase-IV total from PS-1, PS-2 and PS-3.

* PS-3 online 11/9/12 when Cell 4-E stage 1 was used for disposal.
 PS-2 is an estimate due to flow meter sensor malfunction.

Total Discharge

| | |
|-----------------|--------------------------|
| LMC-10 | 1,646,000 |
| <u>Phase IV</u> | <u>662,036</u> |
| TOTAL | 2,308,036 gallons |

Total Leachate

| | |
|-----------------|------------------------|
| Leachate | 286,540 |
| <u>Phase IV</u> | <u>662,036</u> |
| TOTAL | 948,576 gallons |

LMC-10 Flow - Abatement System Flow = Leachate System Flow (gallons).
 Abatement System Flow = 1,359,460 gallons (Neptune Flow meters)