

# Hanover

Engineering Associates Inc

June 26, 2013

JUL - 1 2013

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

RE: Joint Municipal Landfill Committee  
Minutes of June 20, 2013 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 1:00 PM on June 20, 2013. Attending the meeting were:

Ms. Priscilla deLeon  
Ms. Donna Louder  
Mr. Allen Schleyer  
Mr. Christopher Taylor, PG, HMI

## AGENDA ITEMS

### I. Status of Waste Activities

Monthly Tonnages:

	<u>March</u>	<u>April</u>	<u>May</u>
Municipal Solid Waste (total)	25,297.30	25,499.40	24,957.00
Construction and Demo (total)	8,877.00	10,334.80	6,482.40
Residual Waste (total)	3,108.30	1,255.40	1,062.90
Asbestos	[ 6.80]	[47.20]	[80.80]
Out of state-total (percentage)	[26,282.10](70%)	[24,325.90](66%)	[19,382.70](60%)
<b>TOTAL</b>	<b>37,282.60</b>	<b>37,089.60</b>	<b>32,502.30</b>
Recycled Tonnage (percent from Lower Saucon Twp.)	23.50 (83%)	40.80 (81%)	1.10 (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.

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

<u>Form U Submittals</u>	<u>Waste</u>	<u>Approval Date</u>
Penn Engineering	Plant trash/oily waste	05/06/13
Lehigh County Authority	Spent blast media	05/06/13
Cyclechem	ACM	05/20/13
NOVA Dev Group	ACM	05/14/13
Hudson Eagle	ACM	06/04/13
Newark Ave Realty	ACM	06/04/13

II. Annual Groundwater Trend Analysis

- The Annual Groundwater Trend Report is due June 30, 2013.

Ms. deLeon asked if the trend analysis goes back to December 2012. Mr. Schleyer responded yes. Ms. deLeon asked if the new residential well is included. Mr. Schleyer responded yes. Ms. deLeon asked if the results for that well were still okay. Mr. Schleyer responded yes and provided a brief explanation of minor exceedances for aesthetic parameters such as iron.

III. Correspondence and Reports

- Form U Submittals to PA DEP and Lower Saucon Township
- Abatement System Report
- Minor Permit Modification – re-grade contours 2013 - correspondence
- First Quarter 2013 Groundwater Report

IV. Landfill Operations

- Department of Environmental Protection Inspections
  - May 6, 2013 – S. Ripple: stormwater inspection
  - May 9, 2013 – S. French: Engineer's meeting
  - May 16, 2013 – S. Ripple: stormwater inspection report
  - May 29, 2013 – W. Govern: site inspection
  - June 4, 2013 – B. Easley: air quality inspection
  - June 10, 2013 – W. Govern, A. Faulch, R. Laczi, M. Lucsky: WHIP Trashnet
  - June 17, 2013 – S. French, J. Spaide, D. Evans: Engineer's meeting

Mr. Schleyer stated that WHIP is the truck inspection program. Ms. deLeon asked if any violators were caught. Mr. Schleyer responded that he thought that three (3) were, but that he hadn't seen the paperwork yet.

- Host Municipal Inspection
  - May 2, 2013 – Chris Taylor
  - May 16, 2013 – Chris Taylor
  - June 6, 2013 – Chris Taylor
  - June 17, 2013 – Scott Brown

- 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.

May 17, 2013	Turbine startup	10:23	
	Flare shutdown	10:59	Manual shutdown – BRE startup
	Turbine shutdown	11:07	Protective shutdown
	Turbine startup	11:28	Duration 21 min
	Turbine shutdown	12:11	Protective shutdown
	Turbine startup	13:10	Duration 59 min
	Turbine shutdown	13:31	Protective shutdown – BRE remained shutdown
May 22, 2013	Flare startup	14:23	Duration 52 min
	Flare shutdown	08:39	Manual shutdown maintenance on Blower 104
	Flare startup	08:44	Duration 5 min
	Flare shutdown	11:05	Blower 104 maintenance
	Flare startup	12:05	Duration 1 hr
	Flare shutdown	13:30	Blower 104 maintenance
	Flare startup	16:11	Duration 2 hr 41 min
	Flare shutdown	16:16	Low temperature on start up
May 30, 2013	Flare startup	16:22	Duration 6 min
	Flare shutdown	10:15	Maintenance – louver motor replacement
	Flare startup	10:52	Duration 42 min
	Flare shutdown	13:01	Maintenance
	Flare startup	13:12	Duration 11 min

All shutdown information is provided to the PA DEP.

Mr. Schleyer clarified that the BRE plant did a startup/shutdown on May 17, 2013 only in order to “exercise” the plant components. During the inspection following the meeting, Mr. Taylor confirmed that the BRE plant was not operating.

Ms. Louder asked what caused the protective shutdown. Mr. Schleyer provided a detailed explanation of the various conditions that can cause a protective shutdown, and a brief discussion followed. Ms. Louder stated that all the shutdowns were on their (BRE’s) end. Mr. Taylor asked for confirmation that the listed items involving “turbine” related to the BRE plant, while the items involving “flare” related to IESI’s landfill flare. Mr. Schleyer responded that this was correct.

- 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.

During the inspection following the meeting, Mr. Taylor confirmed that the landfill flare was operating at 2,454 scfm at 1617 degrees F.

- Well Sampling

- Mr. Schleyer stated that the 2nd Quarter 2013 Quarterly Groundwater Monitoring sampling was started on Monday June 17, 2013. He stated that they were sampling groundwater today from the wells on the north slope.

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

Flow rates continue to be monitored and reported.

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 1<sup>st</sup> 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 PA DEP 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 PA DEP 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 PA DEP documenting the Township's concerns with elevated flows in the leachate detection zone.
- September 2012: The recent secondary flow readings in LMC-8 were reviewed and found to be generally higher than for the previous month.
- October 2012: The recent secondary flow readings in LMC-8 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 secondary flow readings in LMC-8 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.
- December 2012: The recent secondary flow readings in LMC-8 were reviewed and the last four (4) weeks were found to be high, apparently due to high rainfall amounts.
- January 2013: The recent secondary flow readings in LMC-8 were reviewed and the last four (4) readings were found to be very high, apparently due to high rainfall amounts. Mr. Schleyer noted that the reported flow rates jumped up for several weeks. Ms. deLeon asked were there storms? Mr. Schleyer responded yes, several rain events.
- February 2013: The recent secondary flow readings in LMC-8 were reviewed and found to be very high. Mr. Taylor noted that there currently was a very long stretch of readings well in excess of 100 gallons per acre per day, dating back to October 5, 2012, and stated that the Township was not happy about this situation.
- March 2013: The recent secondary flow readings in LMC-8 were reviewed and found to be very high, continuing the unbroken stretch of readings well in excess of 100 gallons per acre per day (g/a/d) which began October 5, 2012.
- April 2013: The latest secondary flow readings in LMC-8 were reviewed and found to still be in excess of 100 g/a/d. Mr. Schleyer commented that the weather's been drier, that LMC-8 is showing a downward trend in flow.
- May 2013: The latest secondary flow readings in LMC-8 were reviewed and found to still be in excess of 100 g/a/d, which began October 5, 2012. Mr. Schleyer noted that the reading for the last week was lower.

The most recent secondary flow readings in LMC-8 were reviewed and found to be below 100 g/a/d for the last five (5) weeks. Mr. Schleyer noted that the recent weather has been fairly dry and predicted that the flows will fluctuate with the weather (precipitation).

- Radiation Monitoring.

- May 3, 2013: TC-99M
- May 8, 2013: TC-99M

All are Level 1 isotopes and disposed of on site.

- Phase IV Construction Activities

- Constructing Cell 4E – Stage 2.
- Cell 4-D Stage 1/Stage 2 is the current active disposal area.

Mr. Schleyer stated that they were starting to put down the subbase in Cell 4E Stage 2, and that clay material was coming in to the site for this purpose. Mr. Taylor asked where the clay material was coming from. Mr. Schleyer responded that he believed the supplier was Hanson

Materials. Mr. Taylor asked how it was tested. Mr. Schleyer responded that it is sent to a laboratory, and is also tested on site with a nuclear densometer. He stated that they may start placing the liner next week.

During the inspection following the meeting, Mr. Taylor observed garbage being disposed of in Cell 4D Stage 2, with two (2) trucks dumping and three (3) trucks waiting. Wind screens were observed in place at the working face. The placement of clay subbase material was observed in Cell 4E Stage 2.

- Complaints

- May 2, 2013 – A neighbor spotted a tractor trailer going left on Applebutter Road from the landfill. The truck or company name was not identified. IESI contacted all the tractor trailer haulers to remind them to only make a right turn from the landfill.
- June 17, 2013 – A neighbor called and stated that a tractor trailer crossed the yellow line at the curve in Applebutter Road. The truck driver and company were warned.

- Miscellaneous

Mr. Taylor stated that the area experienced a heavy rainstorm the evening of June 6 into June 7. Mr. Schleyer stated that they had some seeps, which were repaired. He stated that on the lower bench, they lost seed in a few washouts and had to backdrag these areas, and they will reseed this area. Mr. Taylor asked if there any washouts onto the access driveway or road. Mr. Schleyer responded no, and that all flows were contained in swales and basins.

Mr. Taylor noted that Ms. Ripple from the DEP conducted a stormwater inspection on May 6, 2013 and prepared a stormwater inspection report on May 16, 2013. Mr. Taylor asked if that report ever got distributed. Mr. Schleyer responded that he believed that Ms. Ripple distributed it. Mr. Taylor asked about the nature of the report, and if it revealed any problems. Mr. Schleyer responded that it was the follow-up to the annual inspection report regarding stormwater basins and risers. Mr. Taylor asked if it was a comprehensive inspection of all stormwater facilities. Mr. Schleyer responded yes. Mr. Taylor asked if the DEP provided any feedback during the inspection, or made known any problems. Mr. Schleyer responded no, everything was fine.

Ms. Louder asked if a bid for the perimeter fence repair work along Applebutter Road was received. Mr. Schleyer responded yes, and that the contract has been awarded, but the work has not been completed yet. He added that three (3) sections of perimeter fence along the north slope road will also need to be replaced.

Ms. deLeon asked if the DEP is aware of the western wall issues. Mr. Schleyer responded yes. Ms. deLeon asked what do they say about that. Mr. Schleyer responded that the DEP has indicated that it's not an excessive amount of movement or loss of material and that, if there were, IESI would have to follow the measures in the minor permit modification. Ms. Louder asked why don't you do that now. Mr. Schleyer responded that we're kicking that around, and monitoring the situation.

During the inspection following the meeting, the following was noted in addition to the items mentioned above:

- No trash, odors, or litter were observed along Applebutter Road, along the entrance driveway to the landfill, or at the trailer.
- No litter was observed in the trees within the landfill perimeter.

- The lower part of the south face (the lower bench) had been regraded and re-topsoiled to address erosion in an area of intermediate cover. Tim Walters arrived on site and prepared to hydroseed this area.
- The west high wall was observed. No new slope failures were evident.
- The adjoining parcel to the west (commonly called the "Fox property") was observed from the landfill site. No earthmoving activity was evident on this property.
- At the time of this inspection, the wind was blowing from the south at an estimated five to ten miles per hour (5 – 10 mph). A patrol of Steel City was performed. No landfill-related odors or noises were observed.

V. Commercial Waste Vehicles

	<u>March 2013</u>	<u>April 2013</u>	<u>May 2013</u>
Total Trucks	2,877	2,942	2,776
Overweight	40	55	38
Warnings	25	34	23
Suspensions	15 (4>3%) 4-TT	21 (5>3%) 5-TT	15 (7>3%) 6-TT, 1-RO

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

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.





IESI BETHLEHEM LANDFILL

	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
541		TIME	Phase IV PS-2 (Secondary Flows)				Phase IV PS-2 Primary Flow						
542		(days)	TOTALIZER	GALLONS	FLOW (gpd)	g/ac/day		TIME	TOTALIZER	Gallons	FLOW (gpd)	g/ac/day	
543													
544	12/28/2012	41271	5595	5595	0	0.0			10573007	10573007	256	24	28.2"
545	1/4/2013	7	5595	0	0	0.0			10823461	-50454	7208	680	32.7"
546	1/11/2013	7	5595	0	0	0.0			10648572	25111	3587	338	23.4"
547	1/18/2013	7	5595	0	0	0.0			10668955	20383	2912	276	32.0"
548	1/25/2013	7	5595	0	0	0.0			10689573	20618	2945	278	26.7"
549	1/31/2013	6	5595	0	0	0.0			10701707	12224	2037	192	33.3"
550	2/8/2013	8	5595	0	0	0.0			10726538	24741	3093	292	33.5"
551	2/15/2013	7	5595	0	0	0.0			10748423	21885	3126	285	32.2"
552	2/22/2013	7	5595	0	0	0.0			10776700	28277	4040	381	35.0"
553	3/1/2013	7	5598	3	0	0.0			10790487	13787	1967	188	34.8"
554	3/8/2013	7	5603	5	1	0.1			10822950	32483	4640	438	24.4"
555	3/15/2013	7	5603	0	0	0.0			10848802	25852	3893	348	23.8"
556	3/21/2013	6	5637	34	6	0.8			10849029	17227	2871	271	25.5"
557	3/29/2013	8	5637	0	0	0.0			10849029	18575	2322	219	26.1"
558	4/5/2013	7	5637	0	0	0.0			10858317	7288	1041	98	24.8"
559	4/12/2013	7	5637	0	0	0.0			10918172	61885	8836	834	42.3"
560	4/19/2013	7	5638	1	0	0.0			10986110	67938	9705	918	28.2"
561	4/26/2013	7	5638	0	0	0.0			11039037	52927	7561	713	35.8"
562	5/2/2013	6	5638	0	0	0.0			11083935	44898	7483	706	32.2"
563	5/10/2013	8	5638	0	0	0.0			11142848	58713	7339	692	34.3"
564	5/17/2013	7	5638	0	0	0.0			11155815	12967	1852	175	34.8"
565	5/24/2013	7	5638	0	0	0.0			11201308	46691	6527	618	31.2"
566	5/31/2013	7	5638	0	0	0.0			11240032	38726	5532	522	32.4"
567	6/7/2013	7	5638	0	0	0.0			11284386	44354	6336	598	36.4"
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608\* = estimated flow rate due to flow meter malfunction.



