

Hanover

Engineering Associates Inc

JAN -2 2014

April 25, 2013

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

RE: Joint Municipal Landfill Committee
Minutes of April 18, 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 April 18, 2013.

Attending the meeting were:

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

AGENDA ITEMS

I. Status of Waste Activities

Monthly Tonnages:

	<u>January</u>	<u>February</u>	<u>March</u>
Municipal Solid Waste (total)	23,938.40	22,168.30	25,297.30
Construction and Demo (total)	9,671.00	8,677.90	8,877.00
Residual Waste (total)	2,068.10	1,944.90	3,108.30
Asbestos	[96.40]	[45.30]	[6.80]
Out of state-total (percentage)	[22,936.90](64%)	[22,682.50](69%)	[26,282.10](70%)
TOTAL	35,677.50	32,791.10	37,282.60
Recycled Tonnage (percent from Lower Saucon Twp.)	23.30 (79%)	0.00 (77%)	23.50 (83%)

ROUTING

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

- 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.

website
2ml 04-18-13

<u>Form U Submittals</u>	<u>Waste</u>	<u>Approval Date</u>
Harsco Minerals	Sand Blast Grit	03/07/13
ATEK Remediation	ACM	03/20/13
Borealis Compounds	Plant Trash	04/03/13
Fibermark	Contaminated soil	04/03/13
NYS R. Clemente State Park	ACM	04/03/13
GI Holdings	ACM	04/11/13
Custom Particle Reduction	Plant Trash	submitted 04/08/13
NOVA Dev. Group	ACM	submitted 04/17/13

II. Annual Groundwater Trend Analysis

- The 1st Quarter 2013 Quarterly Groundwater Report sampling was completed during the week of March 18, 2013.

III. Correspondence and Reports

- Form U Submittals to PA DEP and Lower Saucon Township
- Abatement System Report
- Minor Permit Modification – re-grade contours 2013
- Title V Permit
- Operating Permit 100020 renewal permit

IV. Landfill Operations

- Department of Environmental Protection Inspections
 - March 14, 2013 – S. French, D. Evans: Engineers meeting
 - March 19, 2013 – B. Bham: groundwater monitoring
 - March 21, 2013 – B. Bham: groundwater monitoring
 - March 26, 2013 – B Easley: Air Quality inspection
 - March 28, 2013 – W. Govern: inspection
 - April 11, 2013 – S. French, J Kunkle: Engineers meeting.
- Host Municipal Inspection
 - March 8, 2013 – Chris Taylor
 - March 21, 2013 – Chris Taylor
 - April 12, 2013 – Chris Taylor
- 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.

Mar 15, 2013 Flare shutdown 11:20 Power outage

	Flare startup	14:15	Duration 2 hr 55 min
Mar 27, 2013	Flare shutdown	16:51	Manual shutdown for maintenance
	Flare startup	16:59	Duration 8 min
Apr 9, 2013	Flare shutdown	16:00	Maintenance – switch blowers
	Flare startup	16:15	Duration 15 min

All shutdown information is provided to the PA DEP.

Mr. Schleyer stated that he had not heard any more on the status of the BRE plant.

- 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 2,410 scfm at 1692 degrees F.

- Well Sampling

- The 1st Quarter 2013 Quarterly Groundwater Monitoring sampling was completed during the week of March 18, 2013.

Mr. Taylor asked, regarding the spike in several parameters that was revealed in the last round of groundwater sampling in TW-9A, do we have results from the latest sampling yet? Mr. Schleyer replied not yet, and that they will look at this issue and address it when the groundwater report comes in.

- North Slope

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

During the inspection following the meeting, it was confirmed that the north slope road was open and accessible. Several areas along the road where drainage is an issue were reviewed and solutions were discussed.

- 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.

Mr. Schleyer stated that the Abatement Well 8 pump had a short in the wires and that a contractor will come out to replace it. Mr. Taylor asked Mr. Schleyer if he had to adjust the pumping rate in the adjacent abatement wells to make up for the lost pumpage from Well 8. Mr. Schleyer responded no, that the other wells would maintain the trough of depression in

the groundwater table at their current pumping rates for the short time that Well 8 was off line.

- 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 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 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.

The latest flow readings 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.

- Radiation Monitoring

- March 9, 2013: Tc-99M
- March 12, 2013: I-131
- March 18, 2013: I-131
- April 10, 2013: I-131
- April 15, 2013: I-131
- April 15, 2013: I-131

All are Level 1 isotopes and disposed of on site.

- Phase IV Construction Activities

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

Mr. Schleyer stated that they are building benches across the southern slope between cells 4E and 4D. This work was observed during the inspection following the meeting.

During the inspection following the meeting, Mr. Taylor observed garbage being disposed of in this area, with two (2) trucks dumping and three (3) truck waiting. Wind screens were observed in place at the working face. It was observed that cover soil was being hauled from the north end of Cell 4E to the working face and spread over the garbage after compaction.

- Complaints

- No reported complaints for March 2013.

- Miscellaneous

- Ms. Louder expressed concerns with the lack of Township involvement/oversight with BRE's operation of the energy plant, and stated her opinion that this inspector should be conducting inspections of that facility as well. An extensive discussion of the regulation and operation of the BRE plant followed. Mr. Taylor stated that he is trained and certified by the state of Pennsylvania to inspect the landfill, but that he has no such training or certification to conduct inspections of a gas to energy facility such as the BRE plant. He continued that, without such training and proper knowledge of the facility, any inspections he conducted could have negative rather than positive results, such as not recognizing problems that actually exist, or imagining problems that don't actually exist. Mr. Taylor theorized that any "inspection" role would be limited to a simple check of documents that the facility has promised to maintain, such as periodic inspection reports. Mr. Taylor concluded by saying that this issue should be taken up with the Township, as he feels he has no standing or authority to enter the BRE facility unless specifically directed to do so.
- During the March meeting, the committee had asked about seismograph readings during blasting events, and had expressed concerns that vibrations from blasting may be affecting the road bed of Riverside Drive in the narrows. The committee asked if there was a report of seismograph readings. During the mid-meeting inspection on April 12, Mr. Taylor discussed the seismograph placement with Mr. Schleyer and reviewed the seismograph data. No seismographs are placed in the Narrows or in that direction, due to the absence of citizens or structures in this area. The nearest seismograph is placed on the base of the Lower Saucon Authority water tank on the landfill property. The data and report from this seismograph was reviewed, and it indicated that the vibrations generated by the latest blast (which was only about three hundred feet (300') away) were detectable here, but were very slight and below the level required by regulations. Based upon this, Mr. Taylor, at this April meeting, reviewed the relative locations of the blasting, the seismograph, and the Narrows with Ms. Louder and offered his opinion that vibrations from blasting are not travelling nearly enough distance to reach the Narrows and have any effect on the road bed here.
- During an inspection preceding the meeting, a patrol of Steel City was performed. The wind was blowing from the north at approximately 10 to 20 miles per hour. No landfill-related odors or noises were observed.
- During the inspection following the meeting, no vultures and no seagulls were observed at the landfill (few if any birds of any kind were observed).

V. Commercial Waste Vehicles

	<u>Jan 2013</u>	<u>Feb 2013</u>	<u>March 2013</u>
Total Trucks	2,870	2,542	2,877
Overweight	35	35	40
Warnings	23	23	25
Suspensions	12 (3>3%) 3-TT	12 (4>3%) 4-TT	15 (4>3%) 4-TT

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

VI. Correspondence

- Correspondence from Department of Environmental Protection
 - Mr. Schleyer stated that IESI received both their Title V Permit and their Operating Permit yesterday. He stated that the Title V Permit is a five (5) year permit and the Operating Permit is good for ten (10) years.
- 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 May 16, 2013 at the Landfill Facility Office.

END OF MINUTES

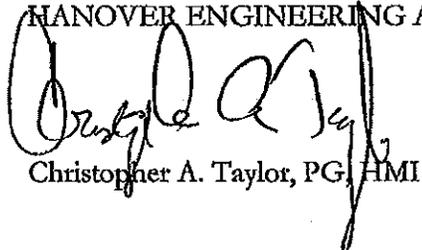
Mr. Jack Cahalan, Manager
Lower Saucon Township

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April 25, 2013

Respectfully,

HANOVER ENGINEERING ASSOCIATES, INC.



Christopher A. Taylor, PG, HMI

cat:cat/dad

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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. Lauressa 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

March 2013

<u>Location</u>	<u>Total gallons</u>
LMC-6	11,838
LMC-7	49,184
LMC-8	41,269
LMC-10	2,036,000
PS-1	300,996
PS-2	96,245
PS-3	53,124
Phase-IV	450,365

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.

Total Discharge

LMC-10	2,036,000
Phase IV	450,365
TOTAL	2,486,365 gallons

Total Leachate

Leachate	329,916
Phase IV	450,365
TOTAL	780,281 gallons

LMC-10 Flow – Abatement System Flow = Leachate System Flow (gallons).
Abatement System Flow = 1,706,084 gallons (Neptune Flow meters)

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	258	24	28.2"
545	1/4/2013	7	5595	0	0	0.0			10623461	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	275	32.0"
548	1/25/2013	7	5595	0	0	0.0			10689573	20918	2945	278	26.7"
549	1/31/2013	6	5595	0	0	0.0			10701797	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	21886	3126	295	32.2"
552	2/22/2013	7	5595	0	0	0.0			10776700	28277	4040	381	35.0"
553	3/1/2013	7	5595	3	0	0.0			10790467	13767	1967	186	34.8"
554	3/8/2013	7	5803	5	1	0.1			10822950	32483	4640	438	24.4"
555	3/15/2013	7	5803	0	0	0.0			10848802	25852	3693	348	23.8"
556	3/21/2013	6	5837	34	6	0.8	*		10849029	17227	2871	271	25.5"
557	3/28/2013	8	5837	0	0	0.0	*		10849029	18575	2322	219	26.1"
558	4/5/2013	7	5837	0	0	0.0			10856317	7268	1041	98	24.8"
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* = estimated flow rate due to flow meter malfunction.

