

Hanover

Engineering Associates Inc

AUG - 2 2012

August 1, 2012

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

RE: Joint Municipal Landfill Committee
Minutes of July 19, 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 1:00PM on July 19, 2012. Mr. Thomas A. Dittmar, Environmental Conservation Coordinator for the County of Northampton, was welcomed to the meeting as a guest attending at the request of Ms. deLeon.

Attending the meeting were:

Ms. Priscilla deLeon
Ms. Donna Louder
Mr. Allen Schleyer
Mr. Hazem Hijazi, PE
Mr. Christopher Taylor, PG, HMI
Mr. Thomas Dittmar.

AGENDA ITEMS

I. Status of Waste Activities

Monthly Tonnages:

	<u>April 2012</u>	<u>May 2012</u>	<u>June 2012</u>
Municipal Solid Waste (total)	28,870.90	29,075.60	23,197.10
Construction and Demo (total)	4,266.70	6,345.10	7,404.10
Residual Waste (total)	2,823.70	3,136.80	2,117.40
Asbestos	[28.00]	[12.40]	[70.00]
Out of state-total (percentage)	[24,225.30(67%)]	[23,862.40(62%)]	[15,871.00(48%)]
TOTAL	35,961.30	38,557.50	32,718.60
Recycled Tonnage (percent from Lower Saucon Twp.)	8.10 (82%)	6.50 (82%)	0.00 (74%)

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
 Asst. Mgr.
 Zoning
 Finance
 Police
 P. Works
 P/C
 P & R
 EAC
 Engineer
 Solicitor
 Planner
 Landfill
 EMC
 Other

The 'Out of state-total' tonnage figures were not provided on the original meeting notes distributed by Mr. Schleyer at the July 19, 2012 meeting. Mr. Schleyer provided them in an e-mail to Mr. Taylor on July 31, 2012 in response to an inquiry from Mr. Taylor into how the out of state percentage figures were calculated.

<u>Form U Submittals</u>	<u>Waste</u>	<u>Approval Date</u>
SunOpta	Plant trash	06-11-12
BASF	PCB contaminated debris	06-11-12
Power Component System	ACM	06-11-12
Cast-Pac	Plant trash	06-11-12
Ametek	ACM	06-20-12
V&T Painting	Spent blast media	07-10-12
City of Newark – Hayes Park	Non-petroleum contaminated debris	07-11-12 (submitted)

There was a general discussion and explanation of the Form U submittal and review procedure for the benefit of Mr. Dittmar.

II. Annual Groundwater Trend Analysis

- The 2nd Quarter 2012 Quarterly Groundwater Report sampling was completed the week of June 18, 2012.
- The Annual 2011 Groundwater Trend report was due June 30, 2012.

The report was issued in June and was distributed by Lower Saucon Township under transmittal cover dated June 25, 2012.

III. Correspondence and Reports

- Form U Submittals to PADEP and Lower Saucon Township
- Abatement System Report
- Revised tonnage graph for 1Q12 report
- Annual Groundwater Trend analysis

IV. Landfill Operations

- Department of Environmental Protection Inspections
 - June 5, 2012 – B. Bham: inspection
 - June 6, 2012 – B. Bham: inspection
 - June 12, 2012 – R. Laczi, D. Golobek, M. Lucsky, A. Faulch, D. Fisher, W. Govern: Trashnet
 - June 12, 2012 – W. Govern: site inspection
 - June 14, 2012 – S. French: Engineer's meeting
 - June 18, 2012 – B. Bham: groundwater monitoring
 - June 19, 2012 – B. Bham: groundwater monitoring
 - June 20, 2012 – R. Croll, A. Gomes: inspection of Radium 226 radioactive waste
 - June 20, 2012 – B. Bham: groundwater monitoring

- June 21, 2012 – S. French: Engineer’s meeting
- June 29, 2012 – S. French, W. Craft, Cell construction inspection
- Host Municipal Inspection
 - June 8, 2012 – Chris Taylor
 - June 21, 2012 – Chris Taylor
 - June 22, 2012 – Chris Taylor, Jake Schray, Kerry Hahn
 - July 11, 2012 – Chris Taylor

Mr. Taylor explained that on June 22, 2012, he was present at the landfill as part of the survey crew that was doing work for the Lower Saucon Authority (LSA) pursuant to the proposed relocation of the LSA elevated water storage tank, and that his visit was not a regular inspection.

- Bethlehem Renewable Energy (BRE) and Flare Operations

The following is an update to the Gas Turbine Generator/Flare activity. We had the following LFG shutdowns at Bethlehem Landfill. Auto-valves closed as designed for each shutdown of the flare. No odors were noted or odor complaints received by Bethlehem Landfill during the outage events. BRE is currently shutdown for equipment repairs. The flare is currently the primary gas collection control system.

June 3, 2012	Flare shutdown	18:04	High temperature
	Flare startup	19:35	Duration 1 hr 31 min
June 29, 2012	Flare shutdown	13:44	Maintenance
	Flare startup	14:50	Duration 1 hr 6 min

All shutdown information is provided to the PADEP.

Mr. Taylor asked what the status of the BRE plant was. Mr. Schleyer responded that it looks like it would be a few more weeks before they start up. Ms. deLeon provided a brief history of the recent events surrounding the BRE plant for the benefit of Mr. Dittmar. Ms. deLeon stated that Dan Miller of Hanover Engineering called Karen Dancho of the Bethlehem Waste Water Treatment Plant and was told that BRE now has their own permit, but that they are now dealing with a generator problem. Mr. Schleyer stated that IESI has now moved their sampling point one (1) manhole upstream to separate it from BRE’s sampling point. Mr. Taylor asked Mr. Schleyer to confirm that he would have to change his landfill gas management when the BRE plant is brought back online. Mr. Schleyer responded yes, and provided a general explanation of landfill gas management. Mr. Taylor asked Mr. Schleyer if BRE was coordinating their re-start with him and communicating with him to his satisfaction so that he can plan his gas management adequately. He responded yes, they were. Mr. Taylor asked Mr. Schleyer to inform him if he felt he was not getting adequate cooperation from BRE.

Ms. deLeon asked if the BRE power plant is covered under IESI’s air permit. Mr. Schleyer responded that they have their own permit. Ms. deLeon asked for confirmation that that means two (2) separate permits. Mr. Schleyer responded yes.

- Well Sampling
 - The 2nd Quarter 2012 Quarterly Groundwater Monitoring sampling is scheduled to take place the week of June 18, 2012.

Mr. Taylor asked if any of the wells were dry at the time that sampling occurred. Mr. Schleyer responded that there were dry wells, but that he didn't know the well numbers off the top of his head. He added that that information would be in the report.

During the inspection following the meeting, Mr. Schleyer pointed out the location of a new upgradient monitoring well to the north of Cell 4E. He stated that there is also a new downgradient monitoring well to the south of Cell 4E.

- 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.

Mr. Taylor asked if wells Ab-2 and Ab-3 are losing yield. Mr. Schleyer responded that they dry out pretty quick, that some wells, such as 2 and 3, are lower than others. Mr. Taylor asked if the wells are still performing as they need to, as designed. Mr. Schleyer responded yes, and added that they trend down during drier conditions. Mr. Schleyer then provided a general explanation of the function of the abatement wells.

- Gas Collection
 - The Bethlehem Renewable Energy plant is currently shut down and the landfill flare is the primary gas collection and control system.

During the inspection following the meeting, Mr. Taylor confirmed that the landfill flare was operating.

- 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 Mieser 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 reconstricted. 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.

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.

- Radiation Monitoring

- July 6, 2012: I-131 Level 1
- July 17, 2012: I-131 Level 1

Level 1 isotopes were disposed of on site.

Ra-226 Construction and Demolition material continues to remain in the isolation area until directed from PADEP for off-site transport.

- Phase IV Construction Activities

- Phase IV D-Stage 3, Cell 4-B, and Cell F are currently the active disposal areas. Cell E Stage 1 is currently under construction.

Mr. Schleyer stated that Cell 4E Stage 1 construction is well under way, that the actual liner construction is done, and that they are putting the protective stone down.

- Complaints

- 06/06/12: Trash trucks not following designated route.
- 06/07/12: Trash trucks not following designated route. Hauling companies notified to tell drivers to follow the designated entrance route.
- 06/11/12: Lower Saucon Township, J. Birdsall, C. Taylor; LST received complaints of trash trucks not following designated approach route. Sam responded and notified haulers that drivers would be suspended if they didn't follow the designated approach route.
- 06/14/12: Neighbor on Skyline Drive called in an odor complaint. IESI investigated and could not detect odors at the house or west of the landfill. Neighbor stated it smelled like bottled gas.
- 06/15/12: Neighbor complained that a tractor trailer cut him off on Applebutter Road. Driver was given a warning.
- 06/18/12: Neighbor complained that a trash truck did not follow designated approach route. Driver received written warning, hauling company enforced additional driver penalty.
- 06/18/12: Neighbor on Steel City side complained about loud noise. IESI investigated and determined it was from the topsoil offload. Tailgate from dump truck made the noise.
- 07/09/12: A neighbor complained of a truck that made a left out of the landfill. The neighbor made the truck turn around and exit per the approved route. The driver received a warning.
- 07/10/12: A Steel City resident called Lower Saucon Township to complain he heard heavy equipment noise and back up alarms before 7:00 am. A return call to the resident was made, providing an explanation that IESI operating hours are from 6:00 am to 6:00 pm; and also that IESI was looking into an alternate OSHA approved back-up alarm for their equipment. Later IESI personnel went to the Steel City address and did not hear any noise from the landfill. It was noted that a contractor in the area was operating a skid-loader that had a back-up alarm. On 07/11/12 IESI personnel went to the resident's area and instructed the bull dozer to back up to the edge of Cell F. The alarm could be heard faintly.

A general discussion on Mr. Schleyer's response to the July 10 noise complaint took place. Mr. Schleyer stated that they are going to purchase a low-audible back-up alarm.

- Miscellaneous

- Ms. deLeon stated that at the last meeting there was discussion on the scale issue, and that the state is supposed to come in and inspect the scale annually. She stated that she is uncomfortable, asked is the scale right or not right, and stated that we have all of these overweight trucks. A general discussion on this issue followed. Mr. Taylor observed that IESI is taking it upon themselves to check the scale every six (6) months, and that PADEP must be comfortable with the accuracy of the scale, since they're issuing citations to overweight drivers based on the scale readings. Ms. deLeon stated that she will continue to try to get the state to inspect the scale

annually as required. Mr. Taylor stated that this was a worthwhile undertaking, as it would provide a check of the private inspection that IESI is now obtaining, and suggested that this issue be added to the tracking list.

- Ms. deLeon stated that the truck accident that occurred on the landfill site (involving the run-away dump truck) should be reflected in the minutes. Mr. Schleyer explained that the accident involved a subcontractor who was working on part of the Cell 4E construction, and not a garbage truck. A general discussion of this incident followed.
- Ms. deLeon asked when a car comes in to recycle, do they have to cross the scale. Mr. Schleyer responded yes, they must pass through the radiation monitor, but that there is no charge for bringing in recyclables.
- Ms. deLeon stated that a resident told her that IESI will be demolishing buildings along Applebutter Road. Mr. Schleyer responded yes. Mr. Hijazi asked if there was an historic property along there. Mr. Schleyer responded yes.
- Mr. Taylor asked all Committee members for permission to move the August meeting from the normally-scheduled third Thursday of the month back one (1) week to August 23 due to a conflict with his schedule. All members present stated that they had no conflicts or problems with this re-scheduling.

V. Commercial Waste Vehicles

	<u>April 2012</u>	<u>May 2012</u>	<u>June 2012</u>
Total Trucks	3,027	3,221	2,942
Overweight	38	41	30
Warnings	28	32	20
Suspensions	10 (2>3%) 1-TT, 1-RO	9 (2>3%) 2-TT	10 (6>3%) 6-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
 - 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.

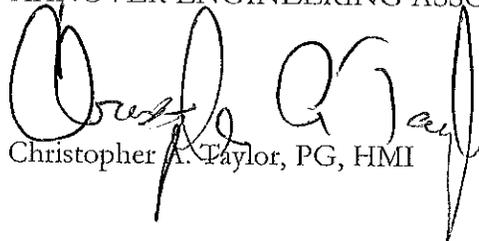
VIII. Establish Time for Next Meeting

1:00 p.m. August 23, 2012 at the Landfill Facility Office.

END OF MINUTES

Respectfully,

HANOVER ENGINEERING ASSOCIATES, INC.



Christopher A. Taylor, PG, HMI

cat:bls/rfr

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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. Thomas Dittmar (via e-mail)
Mr. Allen Schleyer (via e-mail)
Ms. Laressa 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)

BETHLEHEM LANDFILL
LEACHATE DEMAND REPORT

June 2012

<u>Location</u>	<u>Total gallons</u>
LMC-6	8,897
LMC-7	9,092
LMC-8	85,742
LMC-10	1,450,000
PS-1	339,645
PS-2	191,028
Phase-IV	530,673

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

Total Discharge

LMC-10	1,450,000
<u>Phase IV</u>	<u>530,673</u>
TOTAL	1,980,673 gallons

Total Leachate

Leachate	235,572
<u>Phase IV</u>	<u>530,673</u>
TOTAL	766,245 gallons

LMC-10 Flow - Abatement System Flow = Leachate System Flow (gallons).
Abatement System Flow = 1,214,428 gallons (Neptune Flow meters)

IESI BETHLEHEM LANDFILL

473	A	B	C				D		E		F	H	I	J	K		M	N	O
		TIME (days)	TOTALIZER	GALLONS	FLOW (gpd)	g/ac/day		TIME	TOTALIZER	Gallons	FLOW (gpd)	g/ac/day							Sump Level
474																			
475	12/30/2011	40907	225335	469	67	3			20146806	171752	24536						1031	12.5'	
476	1/6/2012	7	225609	274	39	2			20241943	95137	13591						571	22.1	
477	1/13/2012	7	225889	280	40	2			20365489	123546	17649						742	22.1	
478	1/20/2012	7	226169	280	40	2			20478132	112643	16092						676	21.2'	
479	1/27/2012	7	226503	334	48	2			20618373	140241	20034						842	18.9'	
480	2/3/2012	7	226872	369	53	2			20787532	169159	24166						1015	19.1'	
481	2/10/2012	7	227093	211	30	1			20877618	90086	12869						541	22.7'	
482	2/16/2012	6	227261	178	30	1			20952699	75081	12514						526	14.2'	
483	2/24/2012	8	227503	242	30	1			21044854	92155	11519						484	20.8'	
484	3/2/2012	7	227746	243	35	1			21126496	81642	11663						449	23.8'	
485	3/9/2012	7	227981	235	34	1			21213120	86624	12375						476	23.4'	
486	3/16/2012	7	228269	288	41	2			21318994	105874	15125						582	23.6'	
487	3/23/2012	7	228535	266	38	1			21411515	92521	13217						508	21.2'	
488	3/30/2012	7	228823	288	41	2			21509600	98085	14012						539	23.8'	
489	4/6/2012	7	229131	308	44	2			21611815	102215	14602						562	14.4'	
490	4/13/2012	7	229420	289	41	2			21710217	98402	14057						541	19.5'	
491	4/20/2012	7	229684	264	38	1			21800600	90383	12912						497	18.5'	
492	4/26/2012	6	229999	315	53	2			21913246	112646	18774						722	21.7'	
493	4/30/2012	4	230213	214	54	2			21965567	52321	13080						503	22.5'	
494	5/4/2012	4	230391	178	45	2			22010373	44806	11202						431	23.2'	
495	5/11/2012	7	230748	357	51	2			22097316	86943	12420						478	20.6'	
496	5/18/2012	7	231087	339	48	2			22179489	82173	11739						452	23.6'	
497	5/23/2012	7	231419	332	47	2			22258261	78772	11253						433	20.8'	
498	6/1/2012	7	231789	370	53	2			22338573	80312	11473						441	21.0'	
499	6/8/2012	7	232034	245	35	1			22422882	84309	12044						463	23.8'	
500	6/15/2012	7	232277	243	35	1			22508696	85814	12259						472	21.7'	
501	6/21/2012	6	232506	229	38	1			22581521	72825	12138						467	24.8'	
502	6/29/2012	8	232776	270	34	1			22678218	96697	12087						465	21.2'	
503	7/7/2012	8	233050	274	34	1			22772001	93783	11723						451	17.4'	
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*3/2/12 Added Cell F acreage to G/A/D

