Countywide Recycling and Disposal Facility
Weekly Progress Report
03/20/09

This Weekly Progress Report is prepared by Countywide and submitted to the OEPA weekly by the close of business on each Friday. This meets the requirement of Order No. 5 of the December 31, 2007 Findings and Orders to provide updates on progress of field activities.

In addition, this report provides updated presentations of data being collected. All information presented in this report originates from the publicly-available data being gathered as part of the normal operational requirements of the facility or as part of the Director's Findings and Orders. **This report covers the period March 14, 2009 to March 20, 2009.**

PROGRESS ON FIELD ACTIVITIES TOWARD DECEMBER 31, 2007 ORDERS

See the attached **Table 1**.

DATA PRESENTATION

Bold font in comments column means updated version included with this report.

Attachment	Attachment No.	Comments
Wellhead Temperature Graph	1	**Updated March 20, 2009**
Downhole Temp. Graph	2	**Updated March 20, 2009**
FBMP Max. In-Situ Temp. Graph	3	**Updated March 20, 2009**
Leachate Sump Temperature. Graph	5	**Updated March 20, 2009**
LCS Temperature Graph	6	**Updated March 20, 2009**
Weekly Cumulative Sett. Graph	7	**Updated March 20, 2009**
Quarterly Cumulative Sett. Graph	8	**Re-presented March 20, 2009**
CO Graph	9	**Updated March 20, 2009**
Leachate Volume Graph	10	**Updated March 20, 2009**
Leachate COD Graph	11	**Updated March 20, 2009**
Leachate TDS Graph	12	**Updated March 20, 2009**
Odor (Nasal Ranger) Readings	13	**Updated March 20, 2009**

Appendices (transmitted separately)	Appendix No.	Comments
Wellhead Temperature Zone Map	A	**Updated March 20, 2009**
4-Week Cumulative Sett. Front Map	B	**Updated March 20, 2009**
Carbon Monoxide Zone Map	C	**Updated March 20, 2009**

AMBIENT AIR SAMPLING ACTIVITIES LOG

See attached **Table 2**.

COMMENTARY ON DATA (SEE ATTACHED)

Compiled Data Graphs/Drawings and Commentary on Data
March 20, 2009

1. Well Temperatures

Average wellhead temperatures within the 88-acre area show a continued slight upward trend (see Attachment 1), while average downhole temperatures within the reaction area (area with wellhead temperature greater than 150 deg. F) show a slight downward trend. The portions of the 88-acre area that have wellhead temperatures greater than 150 deg. F can be seen on the Appendix A map.

Wellhead temperatures and downhole temperatures provide a good overall picture of the area that has been impacted by the reaction. Generally, maximum downhole temperatures are 10 deg. to 30 deg. higher than the wellhead temperature.

Downhole temperature profiles are not considered better indicators of the horizontal or vertical extent of area impacted by the reaction because the measured column is heavily influenced by gas flowing upward in the column and/or influx of ambient air during measurement. Also, the lower portion of each downhole temperature profile is usually taken in liquid which tends to average those areas.

Both wellhead temperature and downhole temperature are limited by the depth over which they can measure (typically 80'-100' maximum bucket auger depth).

2. In Situ Temperatures

Thermocouples buried in the waste mass provide a more direct measure of temperature and can be installed with drill rig to greater depths than the gas wells. Plots of maximum readings are provided on Attachment 3. Very steady, or slowly increasing trends are common—just as for wellhead temperatures. One exception is FBMP 1R which shows a rapid rise of about 60 deg. F over a period of two months. However, wellhead temperatures have also exhibited this phenomenon when a reaction front or steam front approach and move through.

3. Leachate Collection System Temperatures

Graphs are provided for temperatures in the leachate sumps (Attachment 5) and from leachate collection pipes deep in the landfill just over the liner system (Attachment 6). These graphs provide information about the environment at the bottom of the landfill and how it is impacted by the reaction. No significant increases or decreases have been observed since monitoring began.

Significantly, some areas with very elevated wellhead, downhole, and in situ temperatures are hardly affected at the bottom of the landfill (see Cells 6A, 5A, and 5B). This corroborates the observation made in the in situ temperatures.

4. Settlement Volume and Location

We believe that the rate and location of settlement is the best direct evidence of the intensity and location of the reaction. All waste tends to compress and settle, but the reaction of the aluminum dross causes heat, which in turn causes increased decomposition, pyrolysis, and volume reduction within the heated waste mass, which is then observed as higher-than-normal settlement. The updated Attachment 7 shows that the amount of settlement (as weekly volume reduction) continues to trend downward as indicated by the dashed trendline. This is supported by Attachment 8 which goes further back in time to the onset of the reaction and looks at settlement volume on a quarterly basis.

Since the 3rd quarter of 2006, the quarterly volume of settlement has decreased by 50% (from 180,000 cubic yards per quarter to 90,000 cubic yards per quarter).

In addition, the settlement data suggests that the area affected by the rapid settlement is decreasing as indicated by the lines on Appendix B. The locus of reaction-caused, higher-than-typical settlement is moving. It is significantly retracting from the east and is moving slowly to the north/northwest. In addition, the area affected by settlement appears to be contracting and splitting into two smaller, active areas.

5. Carbon Monoxide

Attachment 9 shows that the average carbon monoxide concentration in the reaction area has been very steady. The maximum appears to fluctuate and is highly dependent on one or two wells that may have been newly involved in reaction in any given month.

The distribution of carbon monoxide values is shown on Appendix C drawing. Highest values are located adjacent to, but toward the outer slopes where higher gas permeability allows the carbon monoxide to migrate.

6. Leachate Volume and Quality

Prior to adding 50 more gas well pumps in November and December, the volume of leachate collected in the 88-acre area was decreasing. Updated Attachment 12 clearly shows the effect of adding dewatering pumps to the gas wells, and has resumed a decreasing trend. Attachments 11 (generally decreasing COD) and Attachment 12 (generally increasing TSS) may be showing that the capping has had the effect of allowing the leachate to concentrate and age, likely resulting from the reduction of the rainfall infiltration contribution to the leachate volume.

TABLE 1

WEEKLY PROGRESS REPORT FOR DECEMBER 31, 2007 F&Os
COUNTYWIDE LANDFILL
WEEK ENDING 03-20-09

Work Item	Units of Measure	Estimated Required or Goal*	Previously Completed	Completed This Period	Total Completed to Date	Est. to be Completed Next Week	Comments
Install Vertical Relief Wells	ea.	4	4	0	4	0	RW-4 is currently not pumping, and is in an actively settling area; this situation is under assessment to determine if this well can be maintained.
Install Perm. Dewatering Pumps and Infrastructure	ea.	44	44	0	44	0	
Install 4-inch HDPE Liquid Discharge Line	l.f.	3000	3000	0	3000	0	
Install 2-inch HDPE Air Supply Line	l.f.	10500	10500	0	10500	0	
Install and Test Compressors	ea.	3	3	0	3	0	
Relocate Flares from Top of Landfill	ea.	1	1	0	1	0	
Install New Gas Wells	ea.	37 (original goal was 10)	37	0	37	0	
Replace Compromised Wells	ea.	23 (original goal was 12)	23	0	23	0	
Install Perm. Dewatering Pumps in New and Replacement Gas Wells	ea.	20	18	0	18	0	
Install 4-inch HDPE Liquid Discharge Line for new gas wells	l.f.	2000	2500	0	2500	0	
Install 2-inch HDPE Air Supply Line for new gas wells	l.f.	2000	2500	0	2500	0	
Measure Achievable Drawdown	ea.	73	73	0	73	0	
Establish Baseline Flow	ea.	1	0	0	0	0	

* The estimate of "required" or "goal" items may change as project progresses.

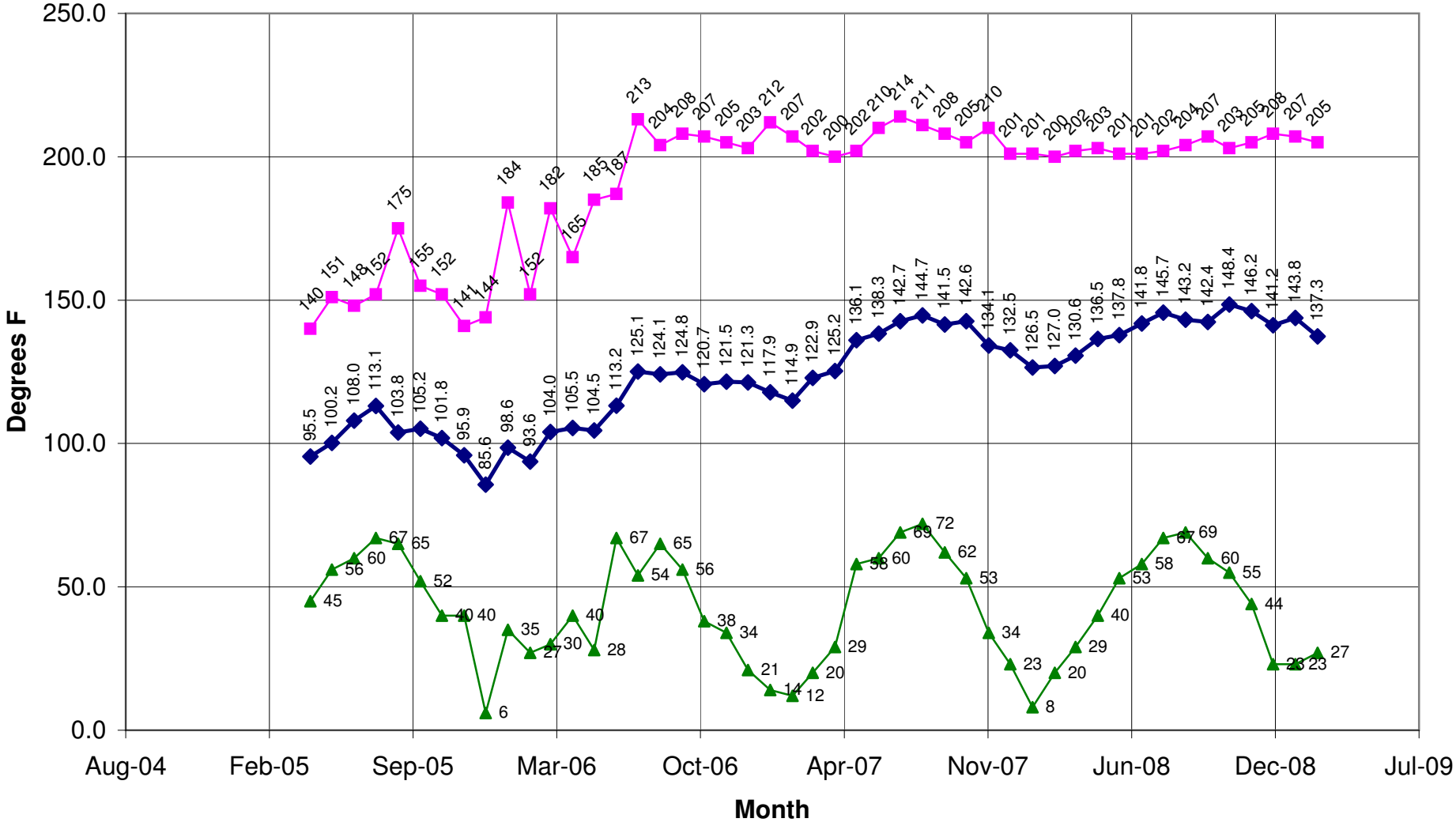
Note: This table presents one-time field activities and does not address recurring activities such as liquid level measurements, downhole temperature profiles, liquid sampling, etc.

Table 2

Log of Field Activities and Conditions
Per Order No. 2.B of Feb. 7, 2008 Orders

Date	Approx. Time	Contractor	Location	Field Activity or Potentially Odor-Causing Incident.
3/8/09	NA	NA	NA	No activities monitored.
3/9/09	7:30 - 17:30	Beaver/ET	Area "D"	Area "D" deep trench excavation
3/9/09	7:30 - 16:00	Beaver	Cell 5/7	Iso Break south slope West transfer line excavation
3/9/09	7:00 - 17:00	AEG	88 acres	Blackhawk pump maintenance and O&M leachate sampling
3/10/09	7:30 - 17:30	Beaver/ET	Area "D"	Area "D" deep trench excavation
3/10/09	7:00 - 17:00	AEG	88 acres	Blackhawk pump maintenance and O&M leachate sampling
3/11/09	7:00 - 17:00	AEG	88 acres	Blackhawk pump maintenance and O&M leachate sampling
3/12/09	7:30 - 17:30	Beaver/ET	Area "D"	Area "D" deep trench excavation
3/12/09	7:30 - 16:00	Beaver	Cell 5/7	Iso Break south slope West transfer line excavation & LFG/leachate and undercap excavation
3/12/09	7:00 - 17:00	AEG	88 acres	Blackhawk pump maintenance and O&M leachate sampling
3/13/09	7:30 - 17:30	Beaver/ET	Area "D"	Area "D" deep trench excavation
3/13/09	7:30 - 16:00	Beaver	Cell 5/7	Iso Break south slope LFG/leachate and undercap excavation
3/13/09	7:00 - 17:00	AEG	88 acres	Blackhawk pump maintenance and O&M leachate sampling
3/14/09	7:00 - 12:00	AEG	88 acres	Blackhawk pump maintenance and O&M leachate sampling

Initial Wellhead Temperatures in the 88-acre Area

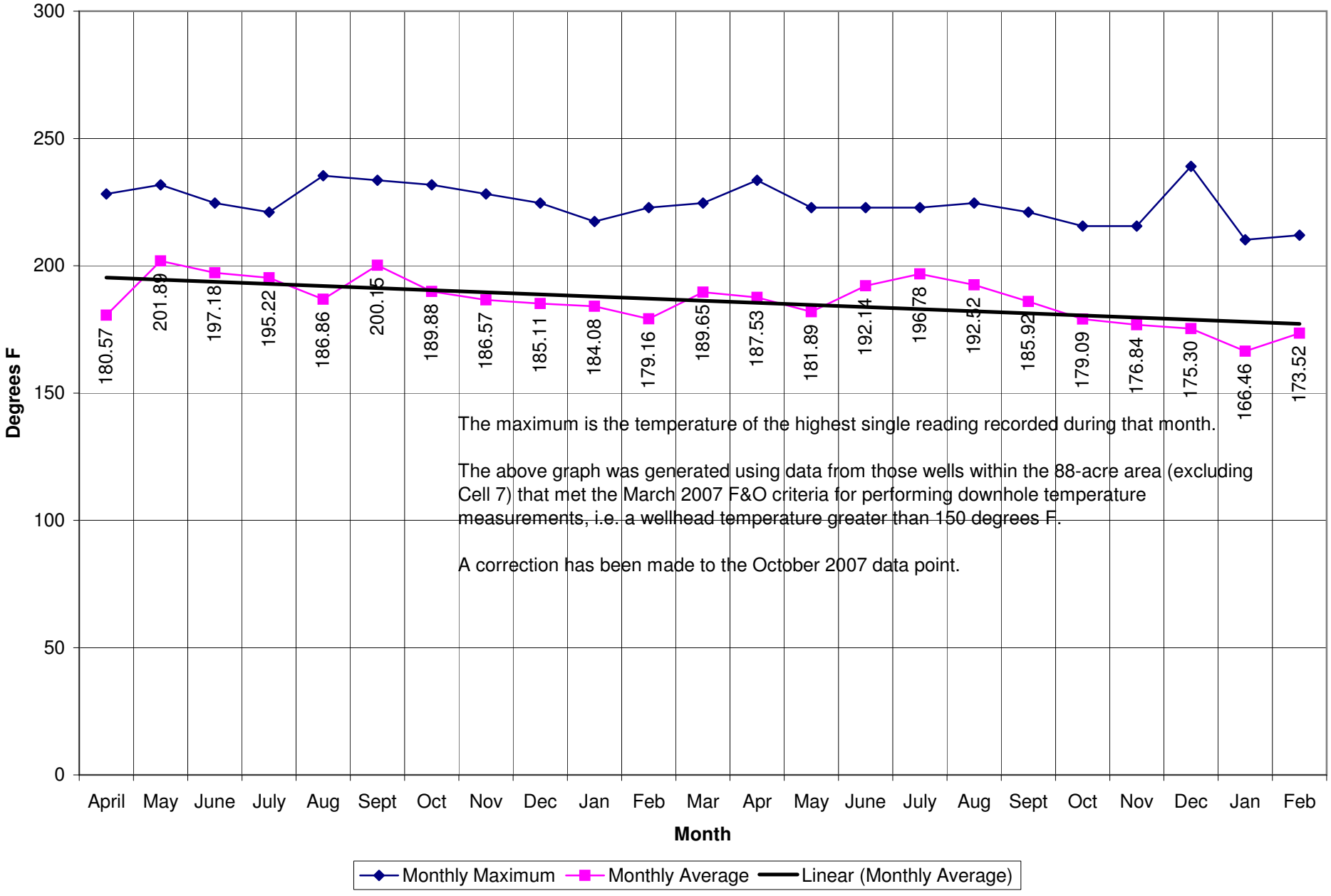


All Cell 7 wells excluded except PW-315.
Anomalous readings from PW-147 excluded for June 2008.

Monthly Average — Monthly Maxiumum — Monthly Minimum

ATTACHMENT 1

Downhole Temperatures
Monthly Maximums and Averages



The maximum is the temperature of the highest single reading recorded during that month.

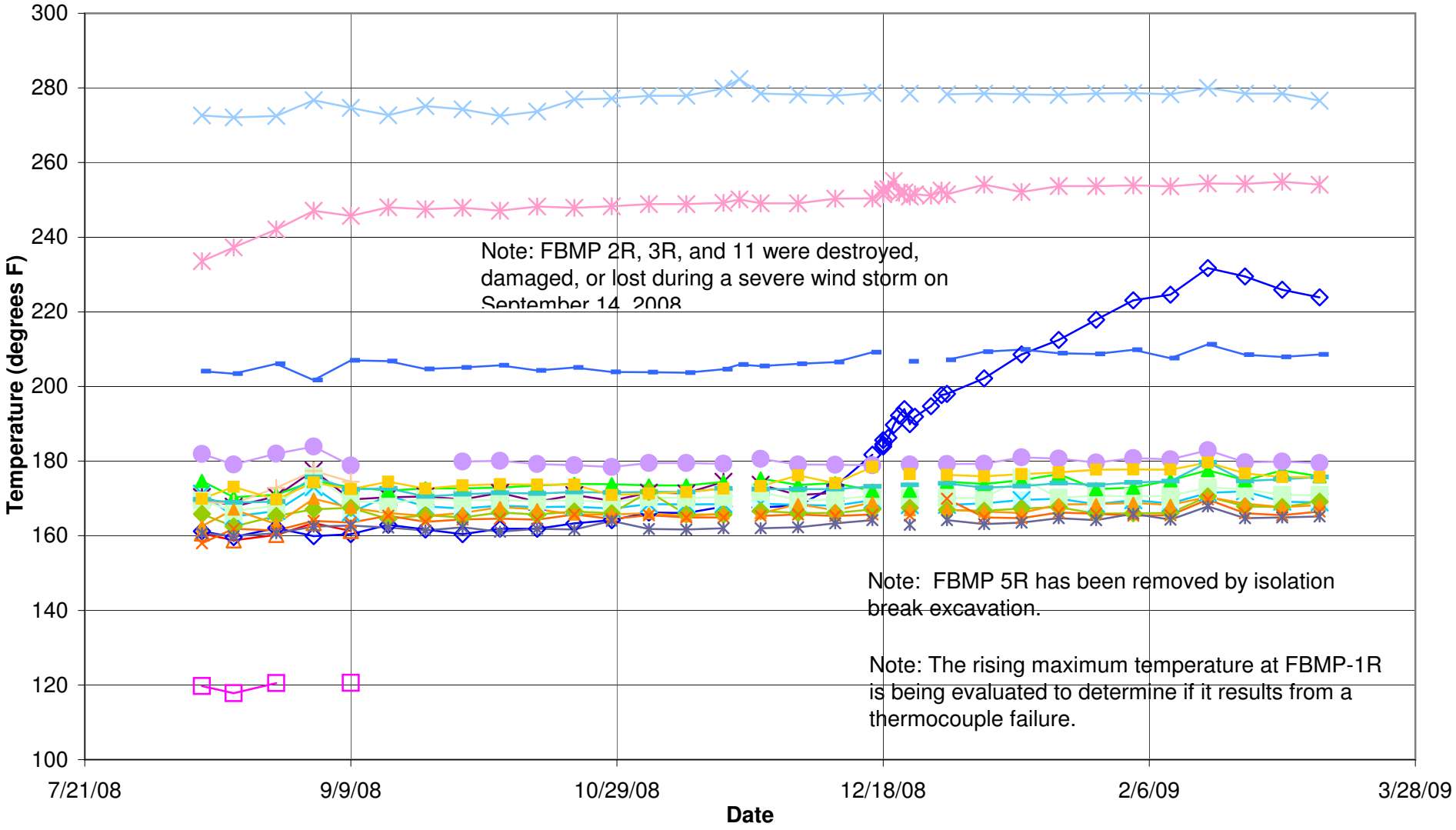
The above graph was generated using data from those wells within the 88-acre area (excluding Cell 7) that met the March 2007 F&O criteria for performing downhole temperature measurements, i.e. a wellhead temperature greater than 150 degrees F.

A correction has been made to the October 2007 data point.

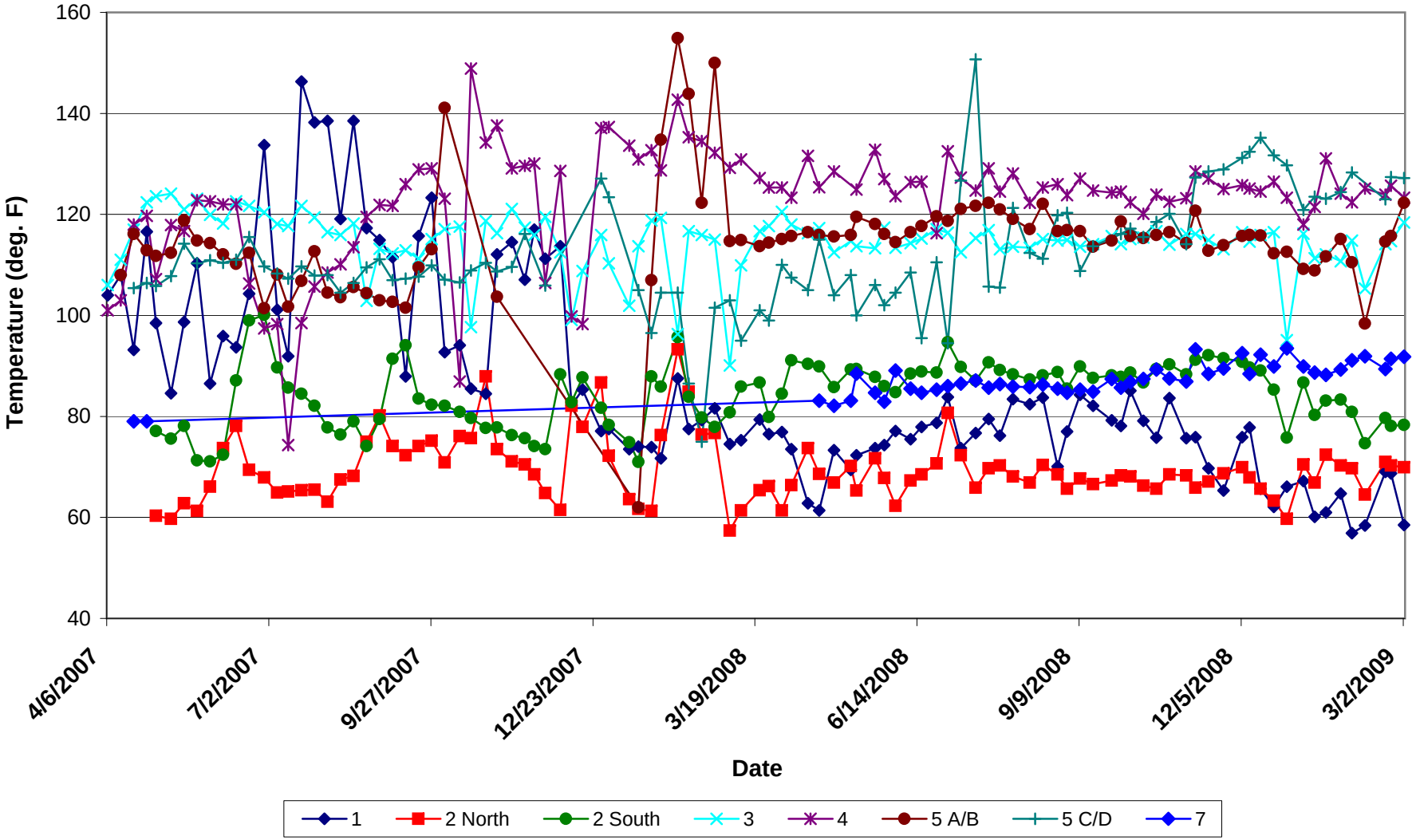
ATTACHMENT 2

ATTACHMENT 3

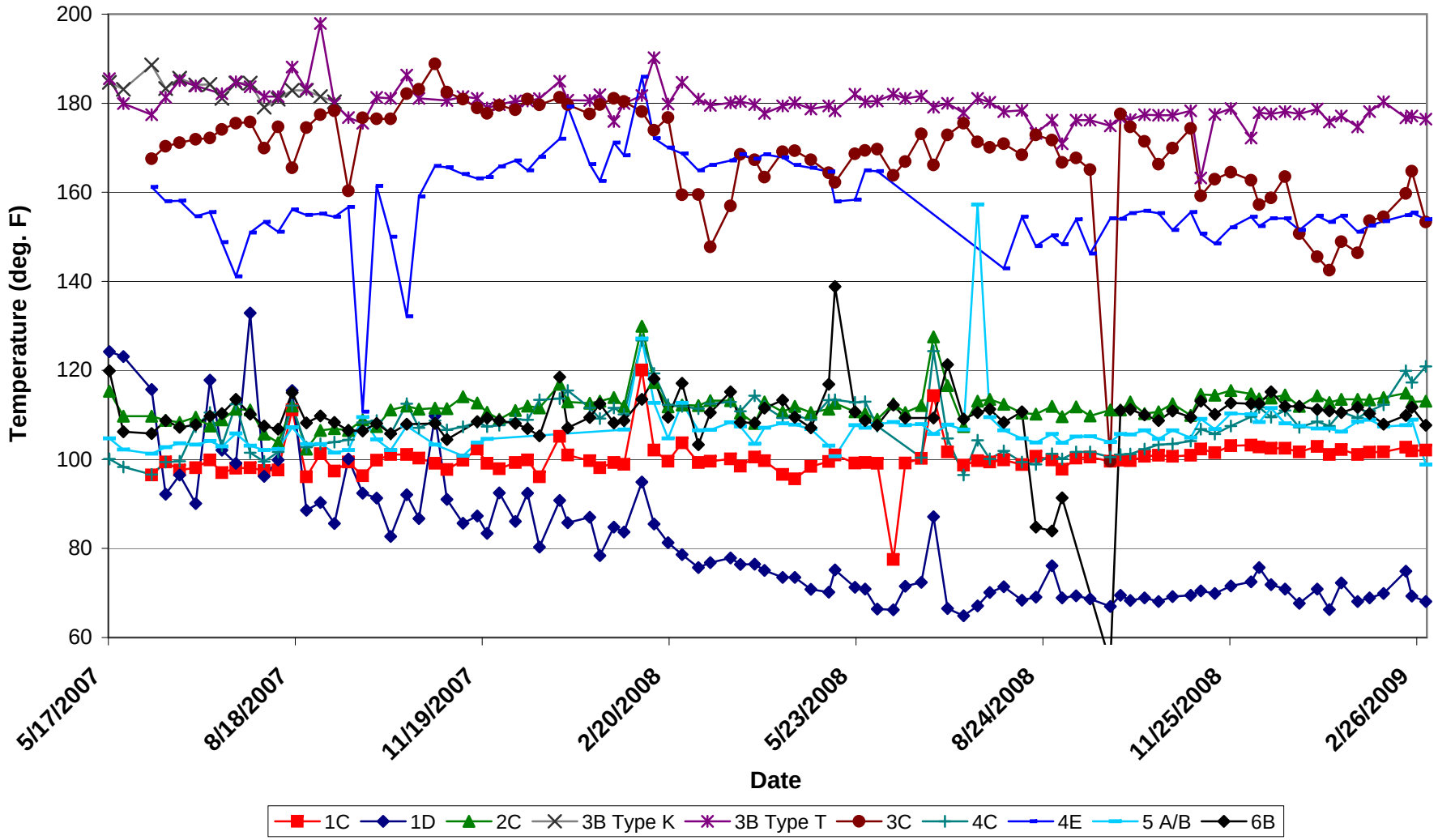
In-situ Temperatures
Maximum Readings per Date per FBMP Boring



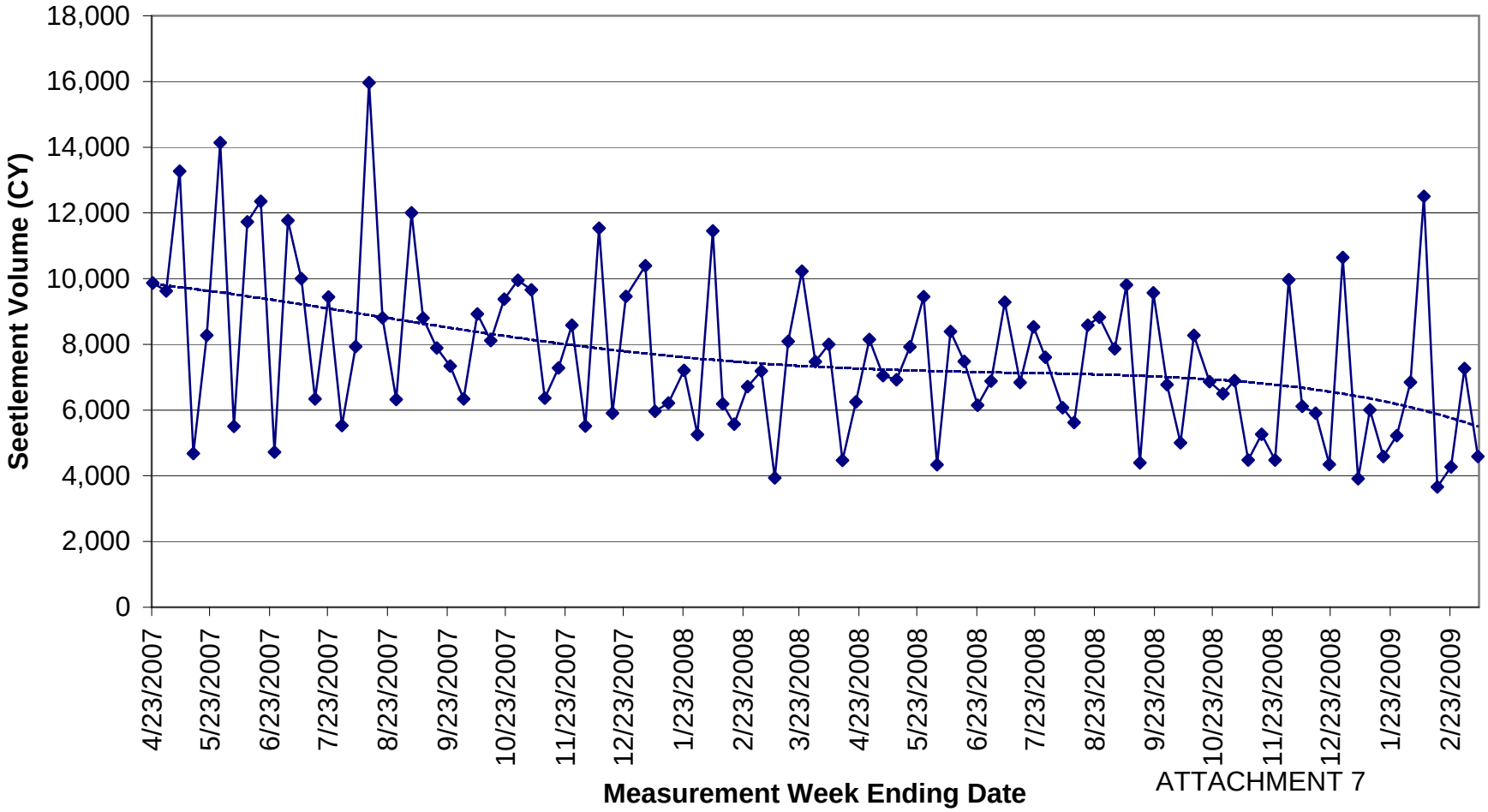
Weekly Leachate Temperatures in Cell Sump



Weekly Leachate Cleanout Riser Temperatures



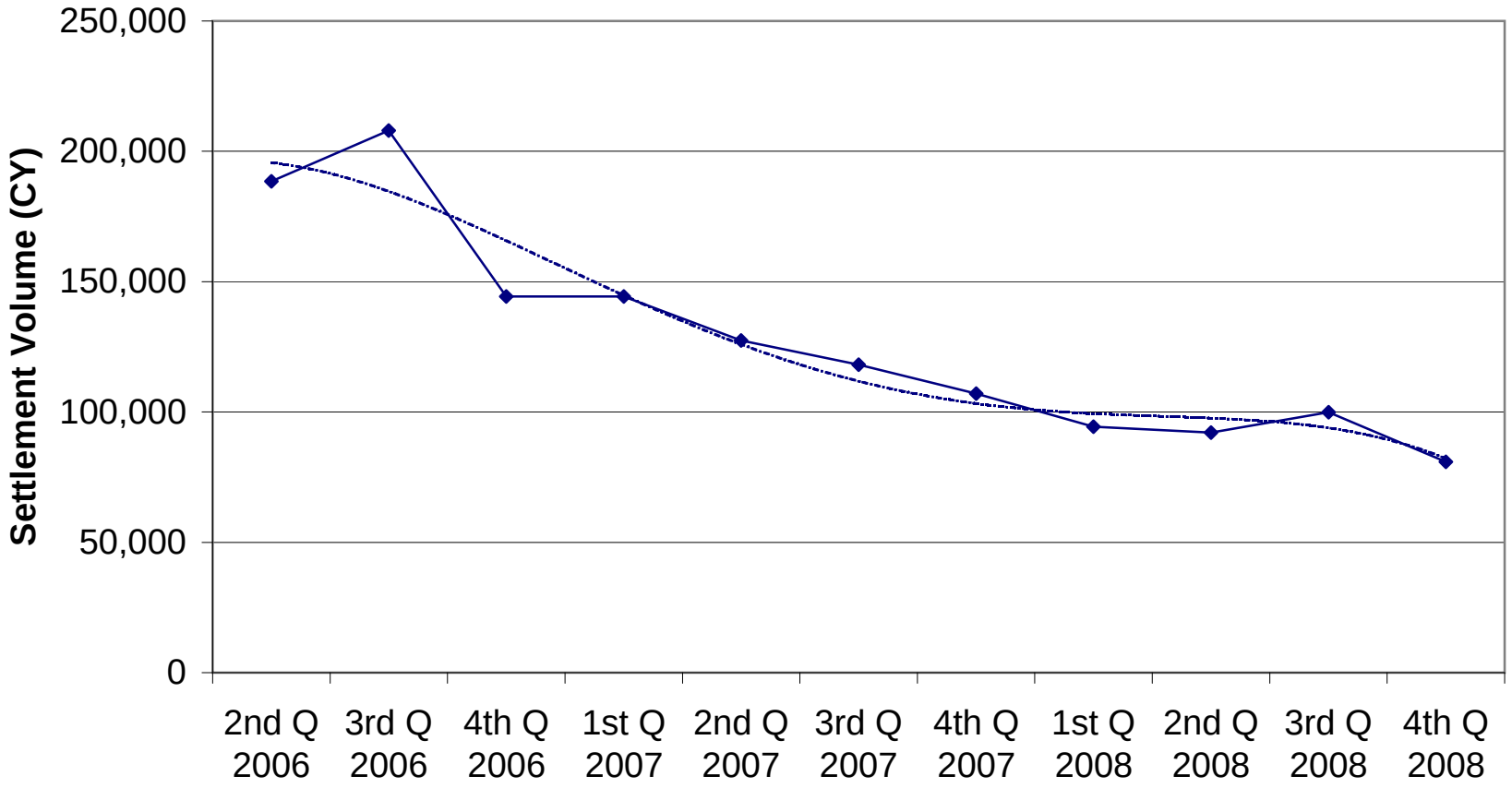
Weekly Settlement Survey
in "Reaction Area"
Countywide Landfill



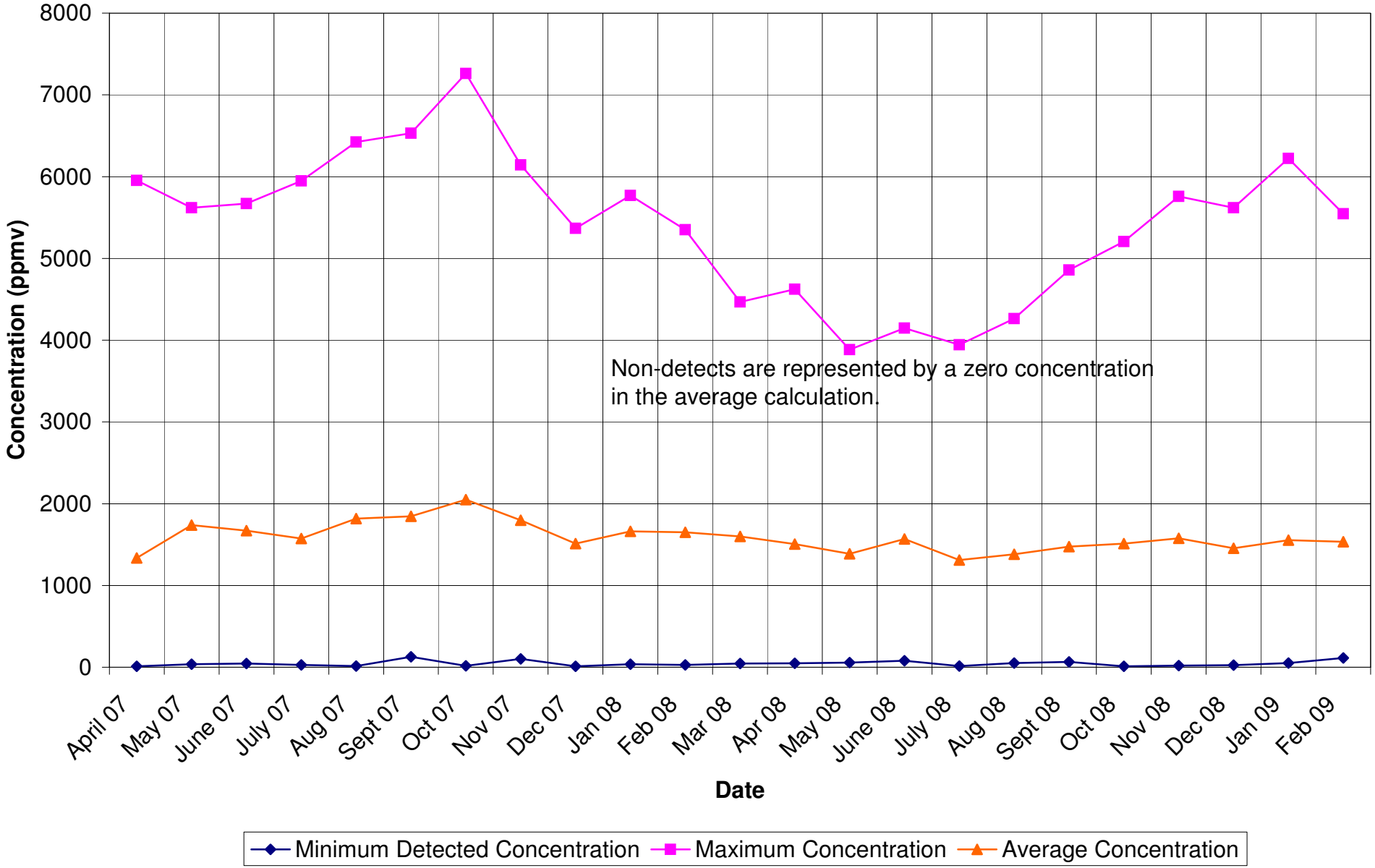
ATTACHMENT 7

Quarterly Volume of Settlement in "Reaction Area" Countywide Landfill

ATTACHMENT 8



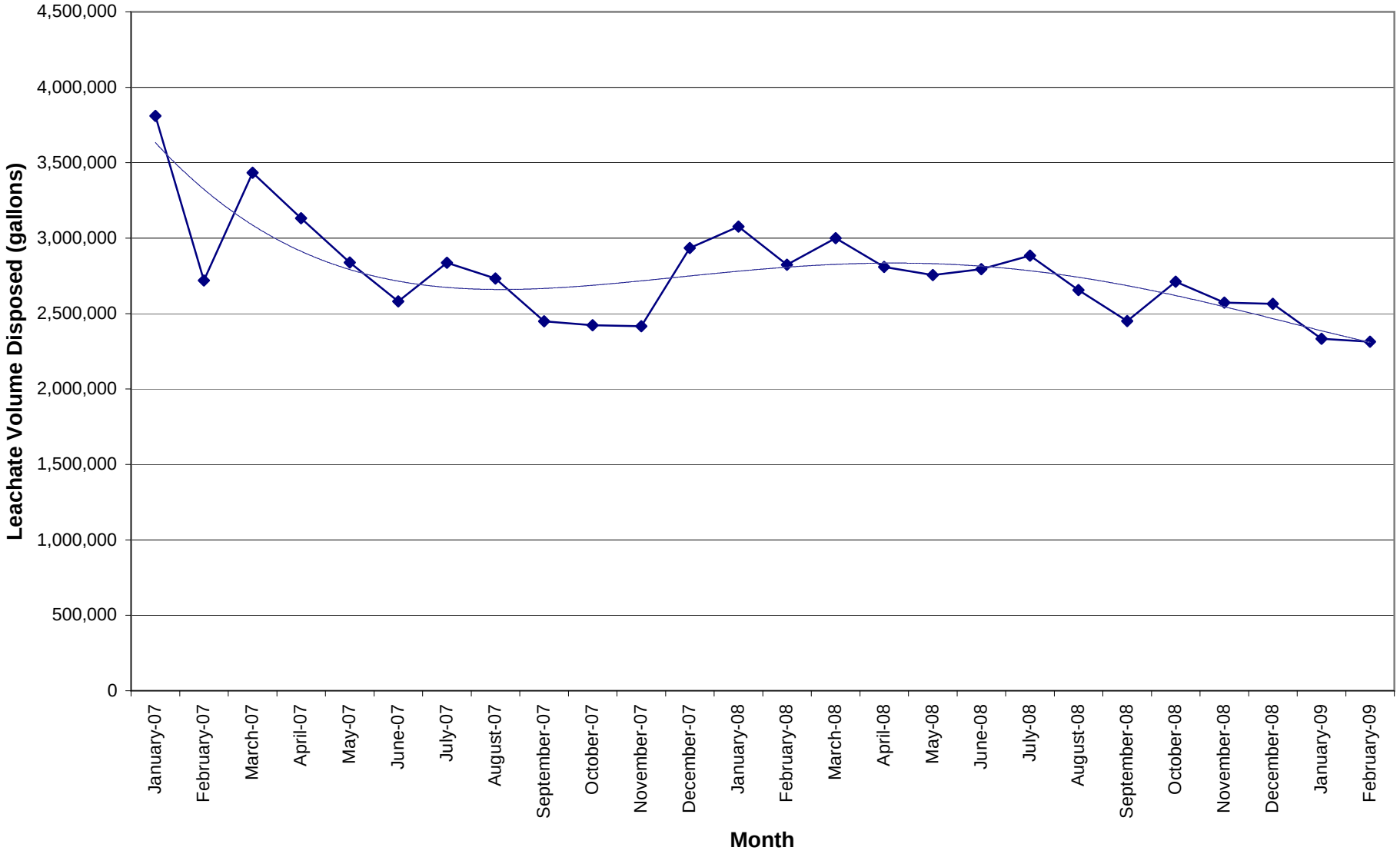
Carbon Monoxide Concentrations
(Excluding Invalid Sample Results)



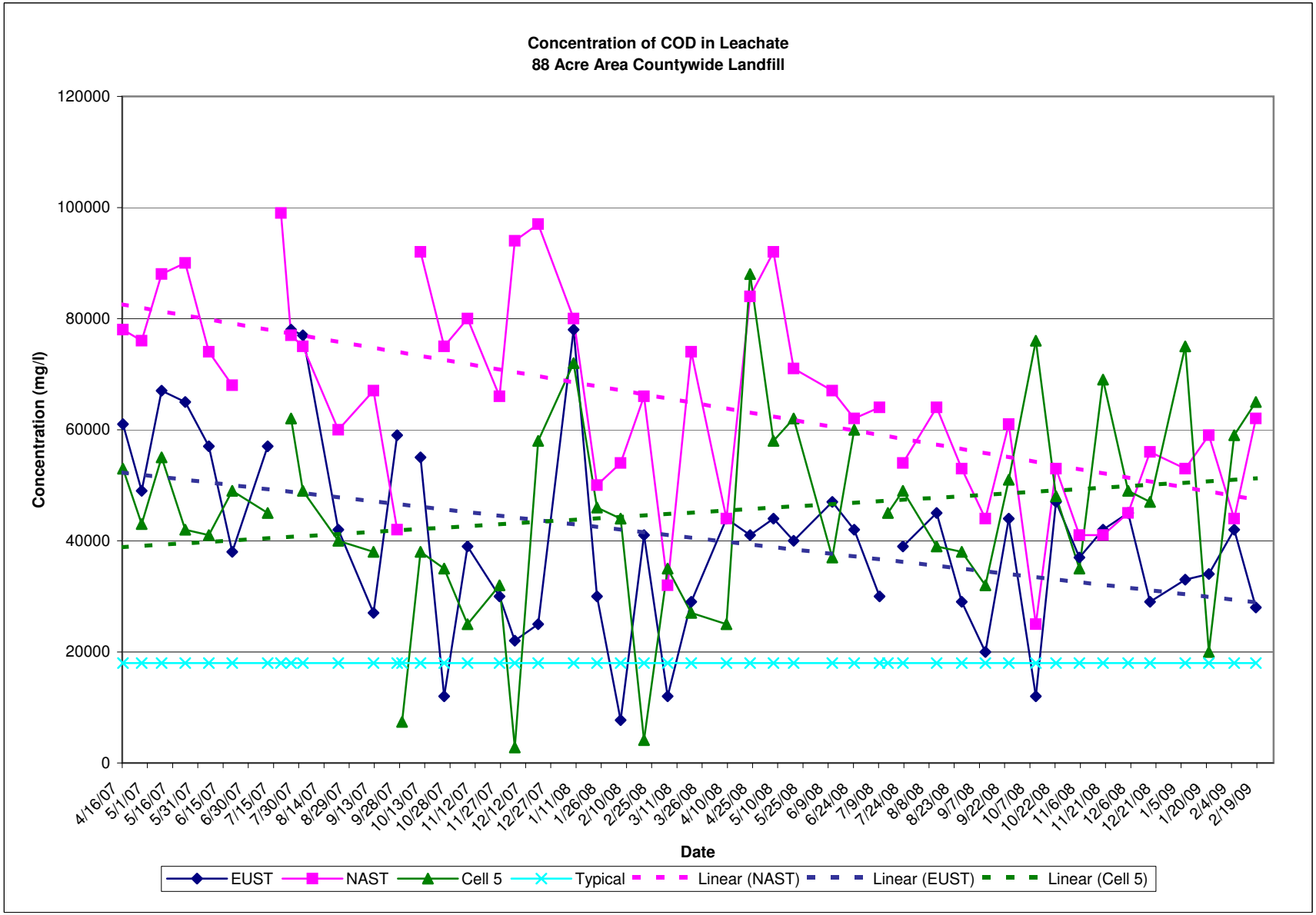
ATTACHMENT 9

ATTACHMENT 10

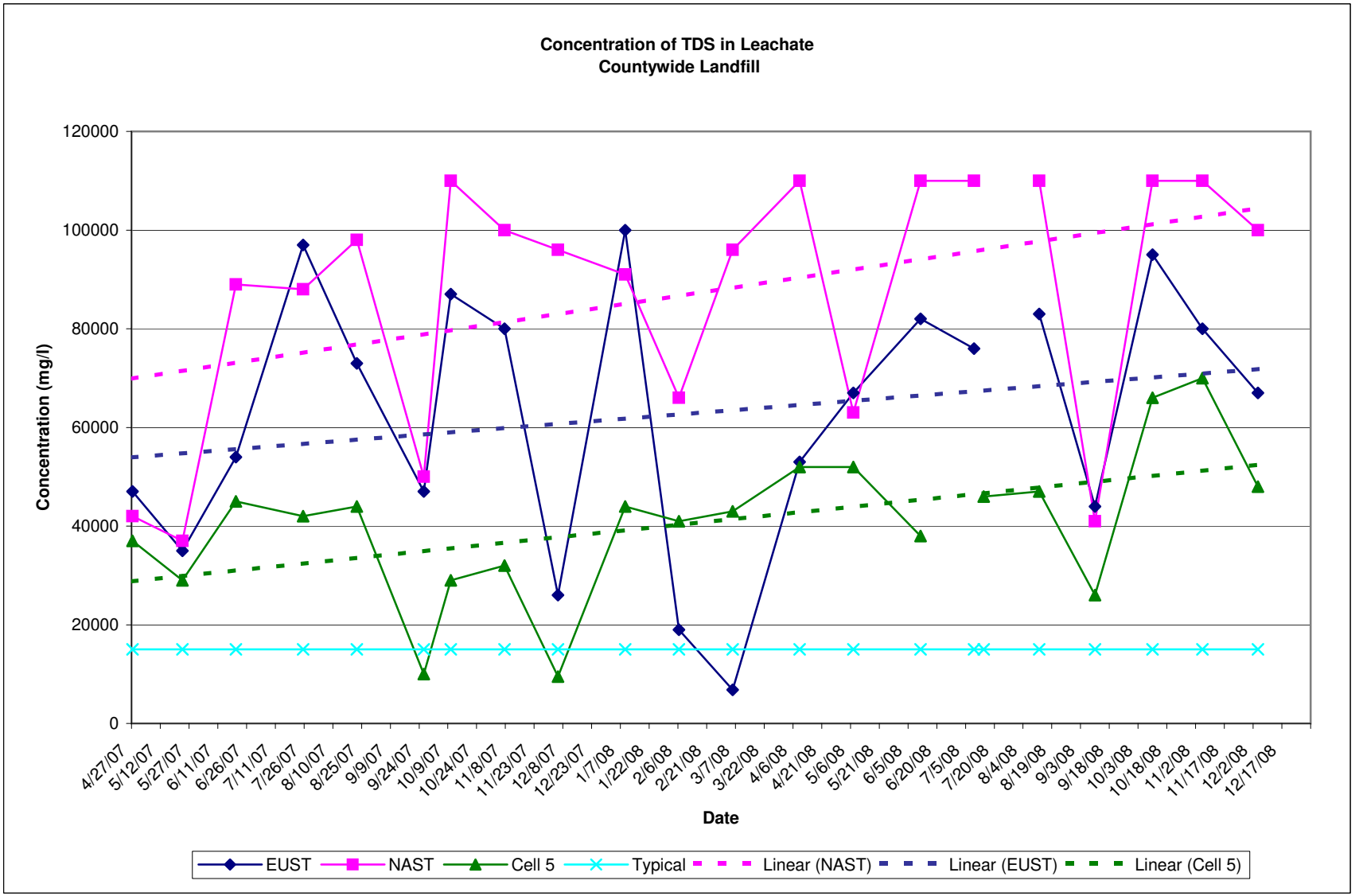
Monthly Leachate Flow from 88-Acre Area
Countywide Landfill



ATTACHMENT 10



ATTACHMENT 11



ATTACHMENT 12

WELL TEMPERATURE
COLOR LEGEND

Temp Zone(°F)

- Greater Than 131 (10.17 Acres)
- Greater Than 150 (6.63 Acres)
- Greater Than 170 (18.44 Acres)
- Greater Than 200 (0.07 Acres)

N
W E
S

Scale: 1 in. = 300 ft.

0' 300' 600' 900'

Graphic Scale

COUNTYWIDE RDF

SCALE: 1" = 300', CTR = 2'		REVISIONS
SURVEYED:		
DRAWN: CRH	3/6/09	
CHECKED: BWS	3/6/09	
REVISED DATE:		

PROJECT: GAS CONTROL COLLECTION SYSTEM

SHEET TITLE: INITIAL WELL TEMPERATURES FEBRUARY 2009

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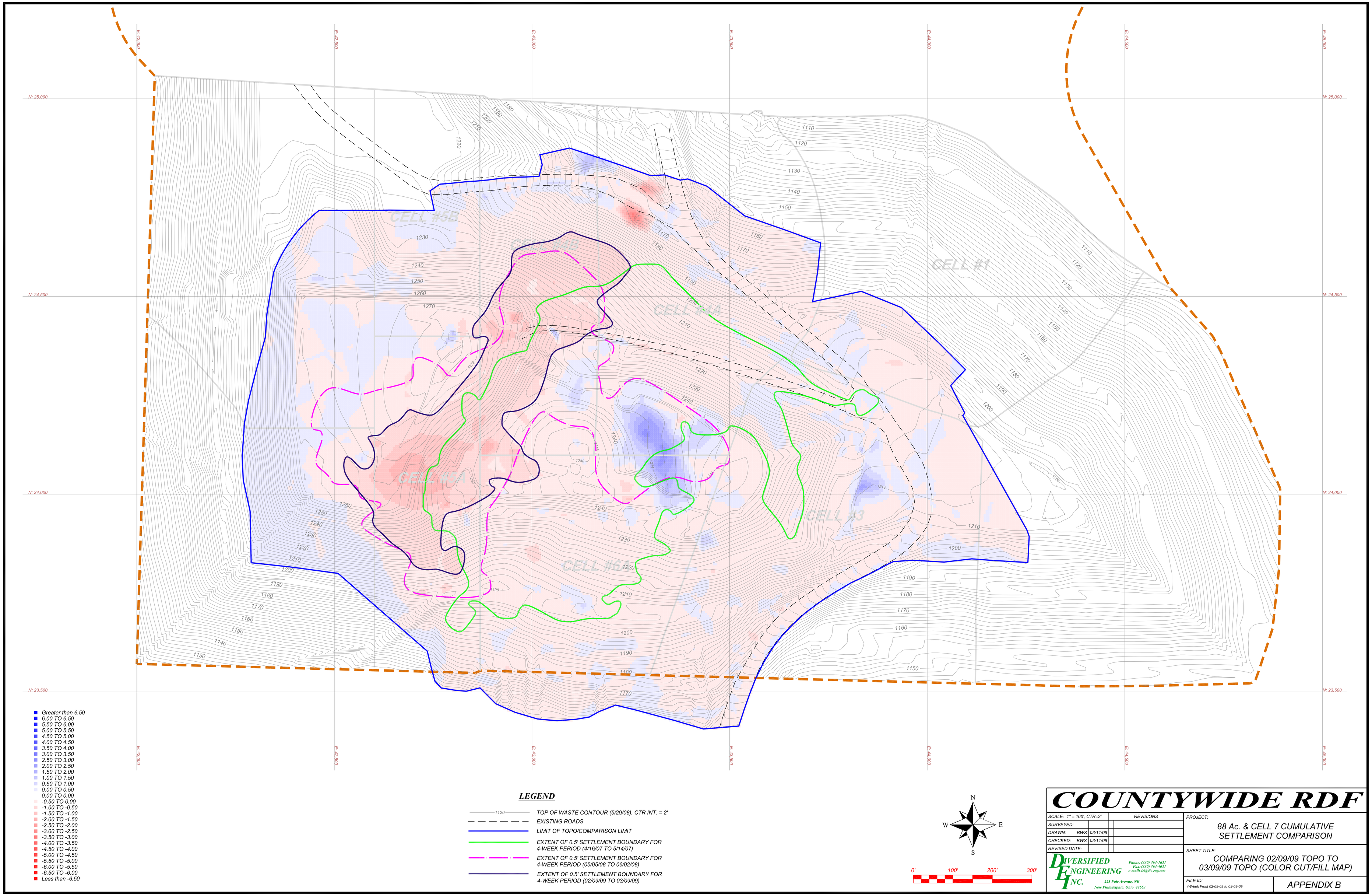
FILE ID: Well Temperature Map February 2009.dwg

SHEET 1 OF 1



COUNTYWIDE RDF

SCALE: 1" = 100', CTR=2'			REVISIONS
SURVEYED:			
DRAWN:	BWS	03/11/09	
CHECKED:	BWS	03/11/09	
REVISED DATE:			

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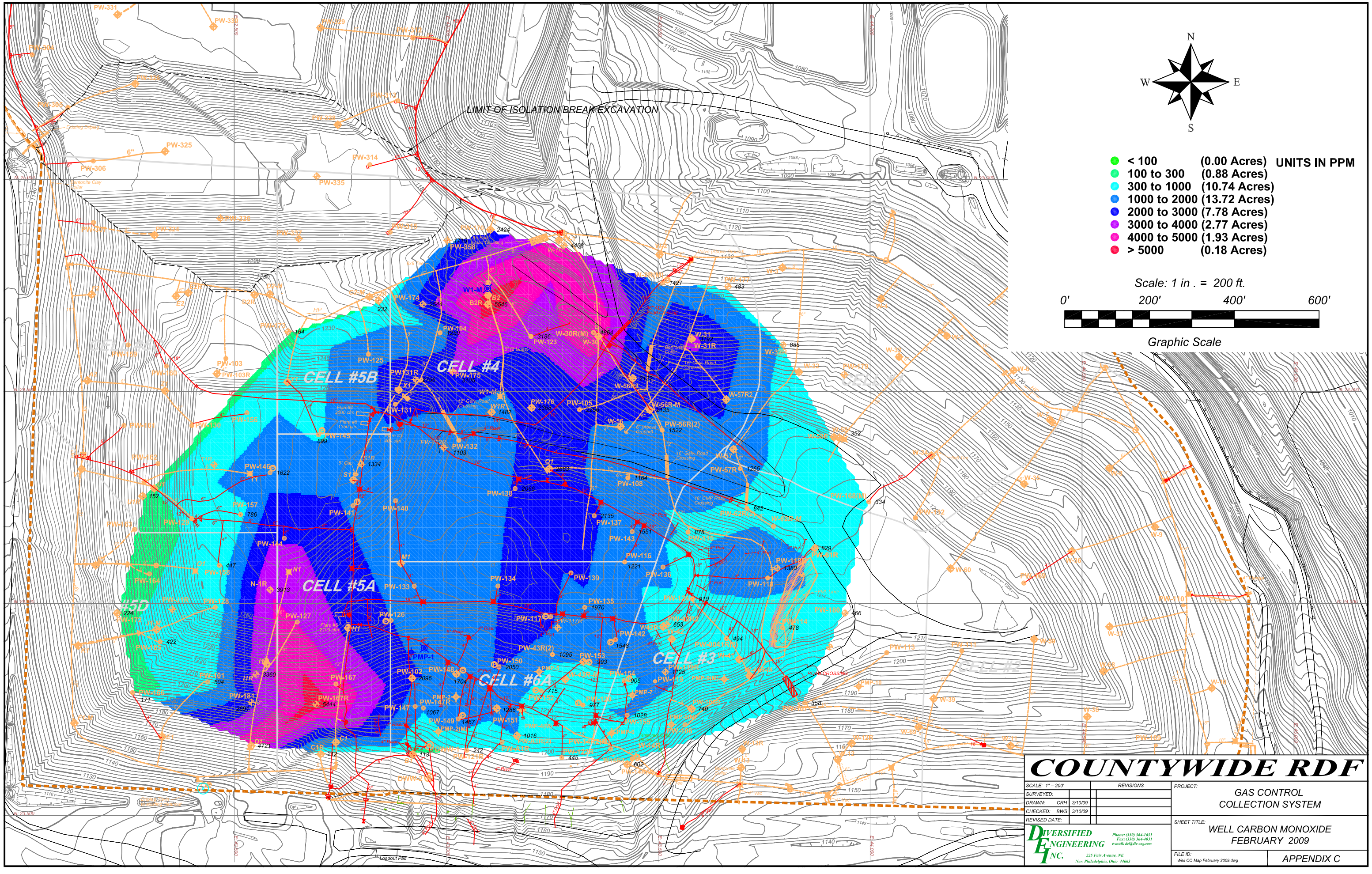
PROJECT:
88 Ac. & CELL 7 CUMULATIVE SETTLEMENT COMPARISON

SHEET TITLE:
COMPARING 02/09/09 TOPO TO 03/09/09 TOPO (COLOR CUT/FILL MAP)

FILE ID:
4-Week Front 02-09-09 to 03-09-09

APPENDIX B



COUNTYWIDE RDF

SCALE: 1" = 200'		REVISIONS	
SURVEYED:			
DRAWN: CRH	3/10/09		
CHECKED: BWS	3/10/09		
REVISED DATE:			

PROJECT: GAS CONTROL COLLECTION SYSTEM

SHEET TITLE: WELL CARBON MONOXIDE FEBRUARY 2009

FILE ID: Well CO Map February 2009.dwg

APPENDIX C

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