SMITH+GARDNER
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November 8, 2013

Ms. Elizabeth Werner
NCDENR – DWM Solid Waste Section
Hydrogeologist
217 W. Jones Street
Raleigh, NC 27699-1646

RE: Revised Request for Corrective Action Evaluation
Dunn-Erwin Closed MSW Landfill
Harnett County, North Carolina

Dear Ms. Werner:

As we discussed on October 4th, Smith Gardner, Inc (S+G) is in the process of assuming engineering and hydrogeological consulting duties for Harnett County at the above mentioned site. At this time, we are evaluating historic and recent groundwater quality while preparing a revision to the Water Quality Monitoring Plan (WQMP). The revised WQMP will be submitted under separate cover for your review.

During our initial water quality evaluations, it has become evident that during the most recent water quality monitoring event monitoring wells MW-9 and MW-10 were no longer impacted with volatile organic constituents above the groundwater standards (15A NCAC 2L.0100 et seq.). It should be noted that these wells had historically shown volatile organic impact and are located very close to the compliance boundary (250 feet from waste). It should be noted that the property line is located approximately 1300 feet downgradient at its closest point. A site map is included as **Figure 1** for your review.

The Revised Corrective Action Plan (CAP) for this site was submitted in October 9, 2009 by C.T. Clayton Sr. P.E. Inc (CTC). This plan included two phases of Phytoremediation, Phase 1 being planted closest to the closed MSW landfill, and Phase 2 being planted further from the landfill, as well as an approximately 1500 foot trench for groundwater collection and treatment installed immediately downgradient of the landfill.

Of the corrective action items listed above, only Phase 1 of the Phytoremediation portion of this plan has been installed at this time, however, there appears to be some groundwater quality improvement at the compliance boundary, specifically in wells MW-9 and MW-10 which historically had shown detectable constituents above the groundwater standard (15A NCAC 13B.2L.0100 et seq.), however, during the most recent sampling event samples from these wells had non-detectable concentrations of organic constituents.

Based upon the potential improvement of groundwater quality by corrective measures already taken at the site, as well as the significant cost of installing the proposed groundwater recovery trench, we request to postpone the installation of the groundwater recovery trench at this time so that further groundwater quality evaluation may take place.

Specifically, we request an evaluation period of two years (four water quality monitoring events) to further determine the trend of water quality at this site. At that time, a report will be submitted that further summarizes the trend of water quality at the site and provides recommendations for further action should it be required.

During the evaluation, the following actions will be taken to ensure optimum performance by the existing Phytoremediation planting:

- Mow between the rows of trees in November 2013;
- Mow between the rows of trees once per month between April and August of each year; and
- Monitoring of foliage for signs of stress during monitoring events.

A section will be added to the semi-annual monitoring report to discuss observations of the phytoremediation trees made during monitoring events.

We appreciate your review of this request. Please contact us by e-mail (below) if you have any questions or need any additional information.

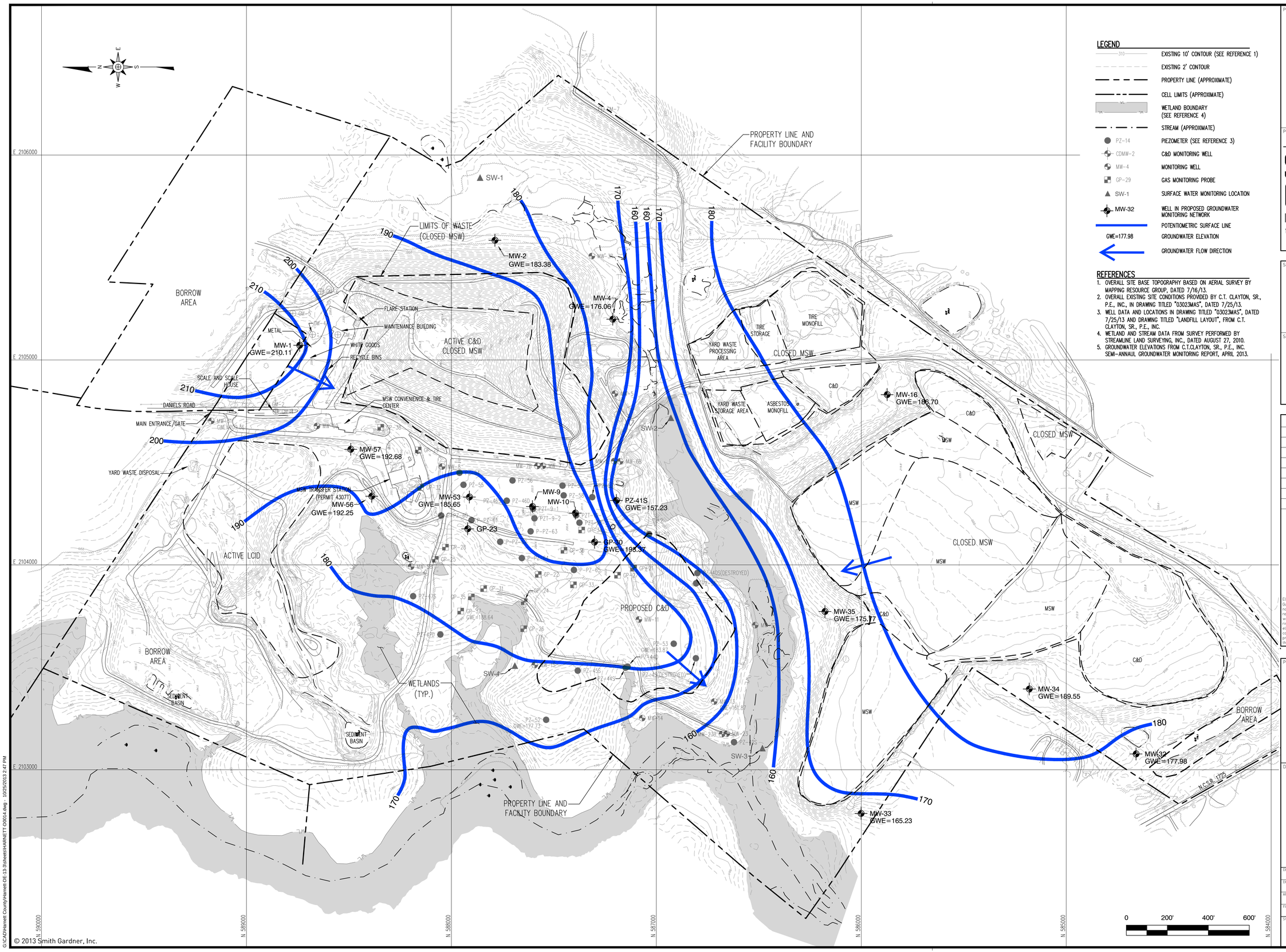
Sincerely,
SMITH GARDNER, INC.

Madeline German, P.G.
Project Geologist
madeline@smithgardnerinc.com

Joan A. Smyth, P.G.
Senior Hydrogeolgist
joan@smithgardnerinc.com

Attachments

Cc: Amanda Bader – Harnett County
Randy Smith – Harnett County
Pieter Scheer, P.E. – Smith Gardner, Inc.
Robert Hearn - NCDENR



LEGEND

310	EXISTING 10' CONTOUR (SEE REFERENCE 1)
	EXISTING 2' CONTOUR
	PROPERTY LINE (APPROXIMATE)
	CELL LIMITS (APPROXIMATE)
WL	WETLAND BOUNDARY (SEE REFERENCE 4)
	STREAM (APPROXIMATE)
PZ-14	PIEZOMETER (SEE REFERENCE 3)
CDMW-2	C&D MONITORING WELL
MW-4	MONITORING WELL
GP-29	GAS MONITORING PROBE
SW-1	SURFACE WATER MONITORING LOCATION
MW-32	WELL IN PROPOSED GROUNDWATER MONITORING NETWORK
	POTENTIOMETRIC SURFACE LINE
GWE=177.98	GROUNDWATER ELEVATION
	GROUNDWATER FLOW DIRECTION

REFERENCES

1. OVERALL SITE BASE TOPOGRAPHY BASED ON AERIAL SURVEY BY MAPPING RESOURCE GROUP, DATED 7/16/13.
2. OVERALL EXISTING SITE CONDITIONS PROVIDED BY C.T. CLAYTON, SR., P.E., INC., IN DRAWING TITLED "03023MAS", DATED 7/25/13.
3. WELL DATA AND LOCATIONS IN DRAWING TITLED "03023MAS", DATED 7/25/13 AND DRAWING TITLED "LANDFILL LAYOUT", FROM C.T. CLAYTON, SR., P.E., INC.
4. WETLAND AND STREAM DATA FROM SURVEY PERFORMED BY STREAMLINE LAND SURVEYING, INC., DATED AUGUST 27, 2010.
5. GROUNDWATER ELEVATIONS FROM C.T.CLAYTON, SR., P.E., INC. SEMI-ANNAUL GROUNDWATER MONITORING REPORT, APRIL 2013.

PREPARED FOR:

HARNETT COUNTY
NORTH CAROLINA

PREPARED BY:

NC LIC. NO. C-0828 (ENGINEERING)
SMITH+ GARDNER
ENGINEERS
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REV.	DATE	DESCRIPTION

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PROJECT TITLE:

DUNN-ERWIN LANDFILL
HARNETT COUNTY
NORTH CAROLINA

DRAWING TITLE:

PROPOSED WATER QUALITY MONITORING NETWORK

DESIGNED: M.M.G.	PROJECT KID: HARNETT-DE-13-3
DRAWN: K.C.B.	SCALE: AS SHOWN
APPROVED:	DATE: OCT. 2013
FILENAME: HARNETT-D0014	
SHEET NUMBER:	DRAWING NUMBER: **FIG. 1**

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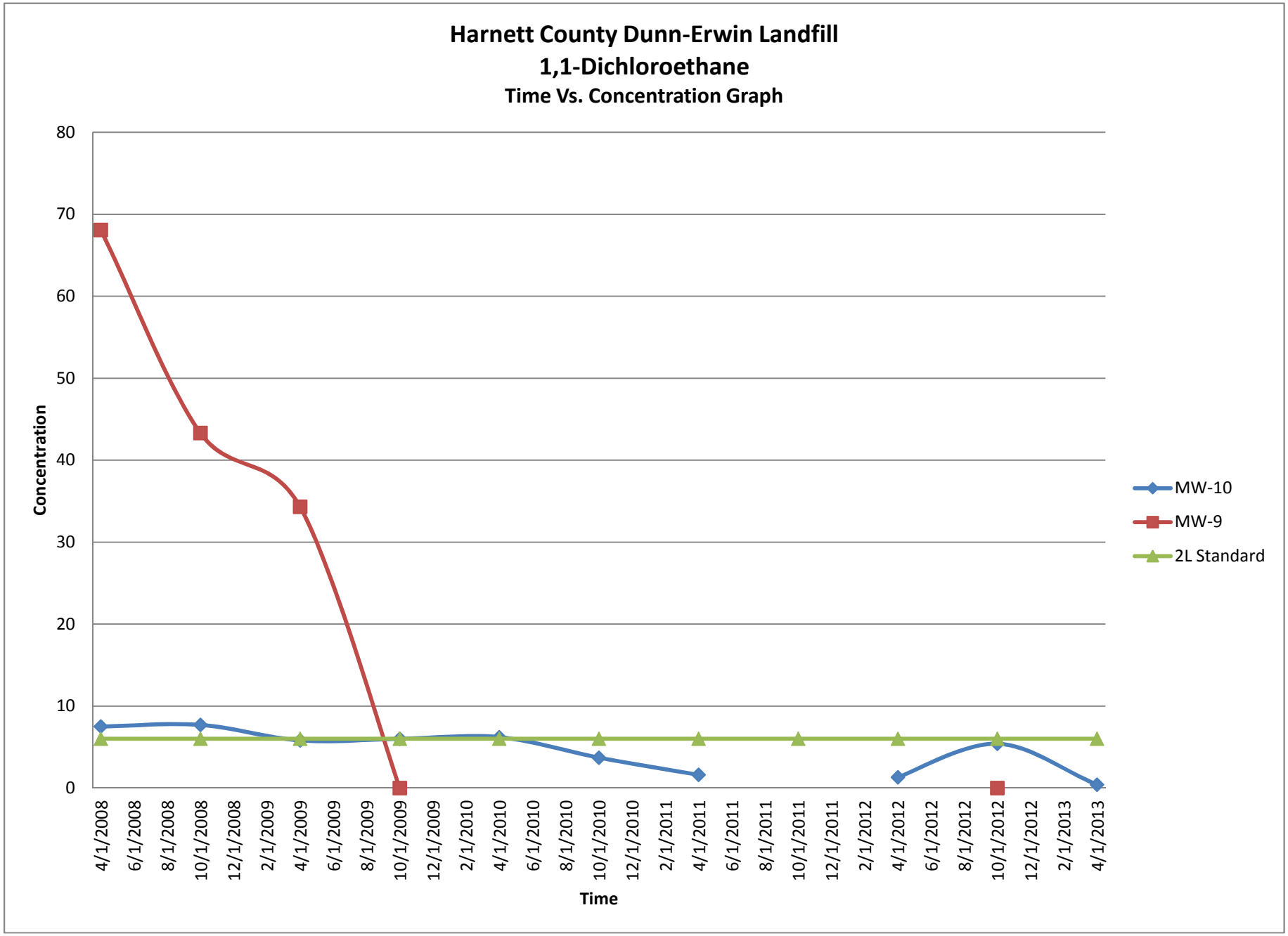
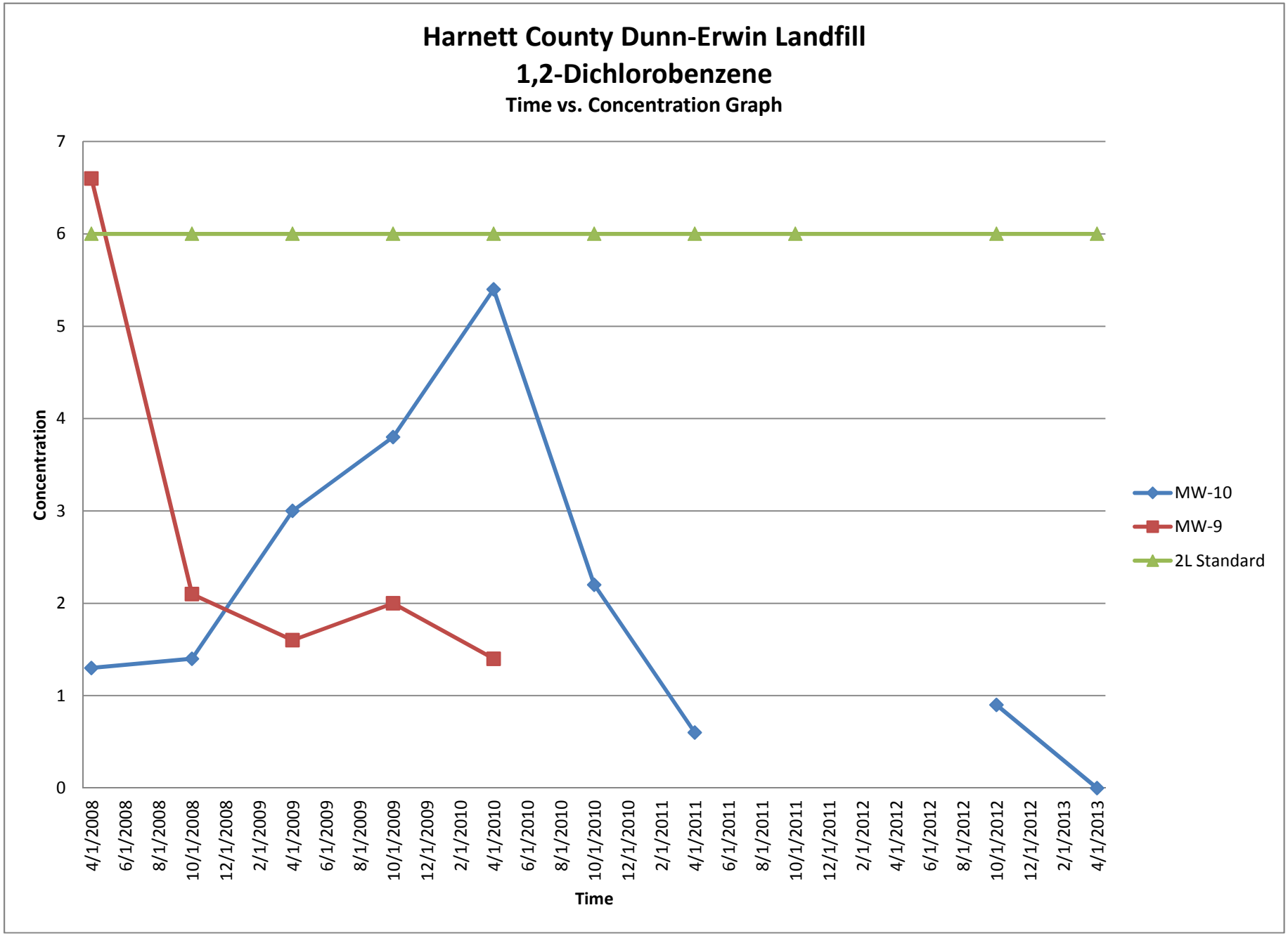
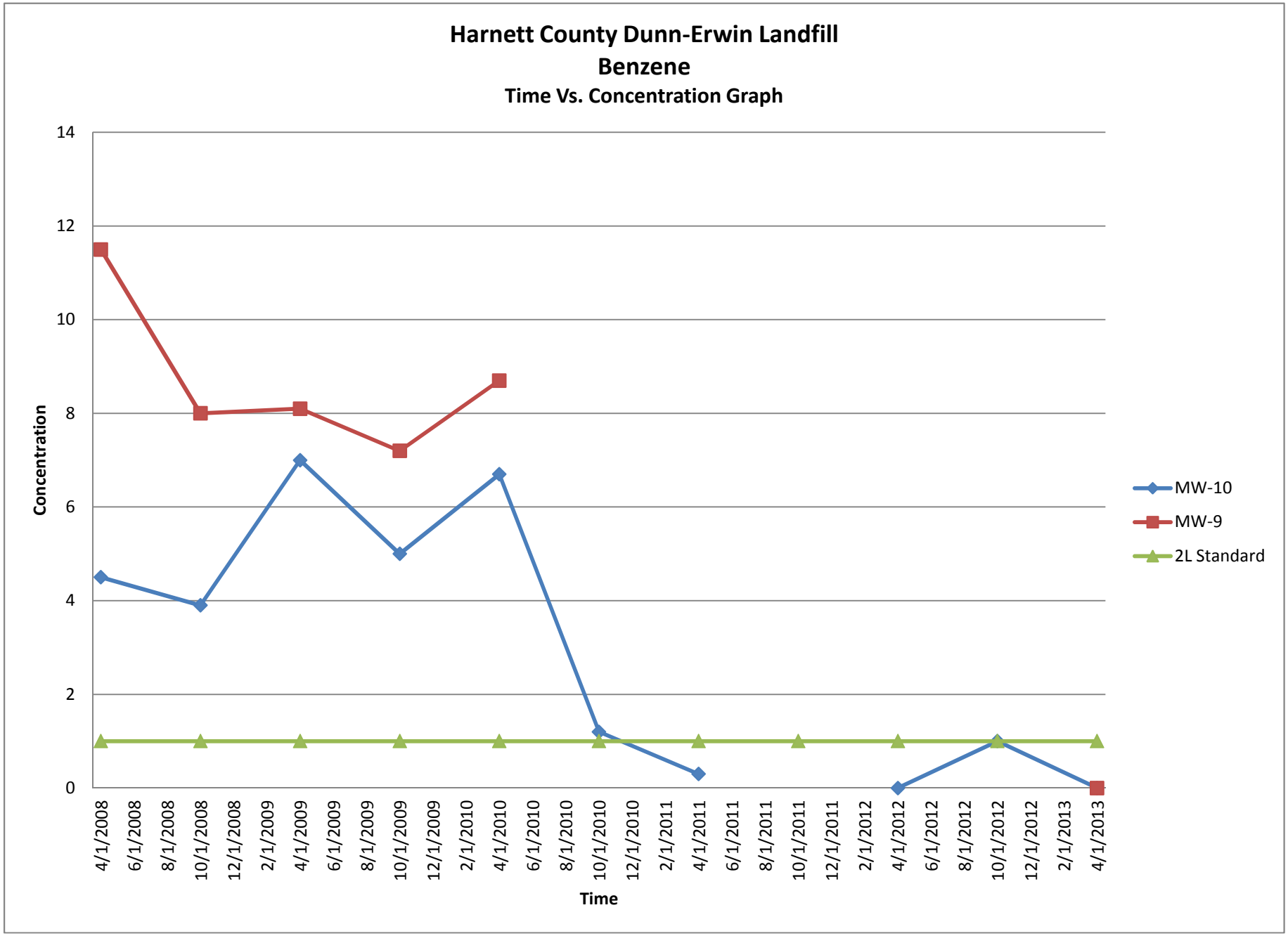
G:\CAD\Harnett County\Harnett-DE-13-3\Sheets\HARNETT-D0014.dwg - 10/25/2013 2:47 PM

Attachment 1


Harnett County Dunn-Erwin Landfill
1,1-Dichloroethane
Time Vs. Concentration Graph
Concentration
80
70
60
50
40
30
20
10
0
4/1/2008
6/1/2008
8/1/2008
10/1/2008
12/1/2008
2/1/2009
4/1/2009
6/1/2009
8/1/2009
10/1/2009
12/1/2009
2/1/2010
4/1/2010
6/1/2010
8/1/2010
10/1/2010
12/1/2010
2/1/2011
4/1/2011
6/1/2011
8/1/2011
10/1/2011
12/1/2011
2/1/2012
4/1/2012
6/1/2012
8/1/2012
10/1/2012
12/1/2012
2/1/2013
4/1/2013
Time
MW-10
MW-9
2L Standard


Harnett County Dunn-Erwin Landfill
1,2-Dichlorobenzene
Time vs. Concentration Graph
Concentration
0
1
2
3
4
5
6
7
4/1/2008
6/1/2008
8/1/2008
10/1/2008
12/1/2008
2/1/2009
4/1/2009
6/1/2009
8/1/2009
10/1/2009
12/1/2009
2/1/2010
4/1/2010
6/1/2010
8/1/2010
10/1/2010
12/1/2010
2/1/2011
4/1/2011
6/1/2011
8/1/2011
10/1/2011
12/1/2011
2/1/2012
4/1/2012
6/1/2012
8/1/2012
10/1/2012
12/1/2012
2/1/2013
4/1/2013
Time
MW-10
MW-9
2L Standard


Harnett County Dunn-Erwin Landfill
Benzene
Time Vs. Concentration Graph
Concentration
14
12
10
8
6
4
2
0
4/1/2008
6/1/2008
8/1/2008
10/1/2008
12/1/2008
2/1/2009
4/1/2009
6/1/2009
8/1/2009
10/1/2009
12/1/2009
2/1/2010
4/1/2010
6/1/2010
8/1/2010
10/1/2010
12/1/2010
2/1/2011
4/1/2011
6/1/2011
8/1/2011
10/1/2011
12/1/2011
2/1/2012
4/1/2012
6/1/2012
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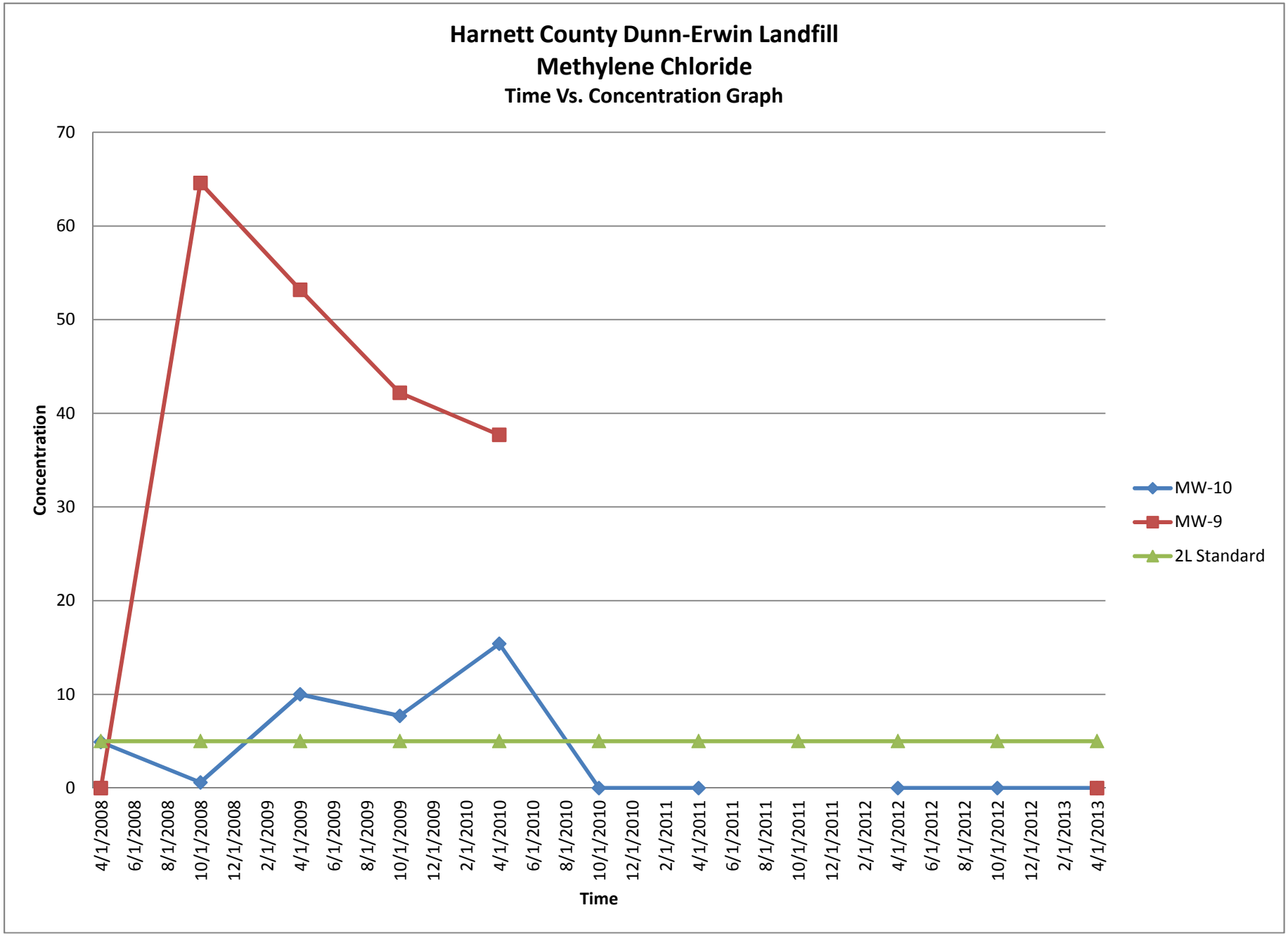
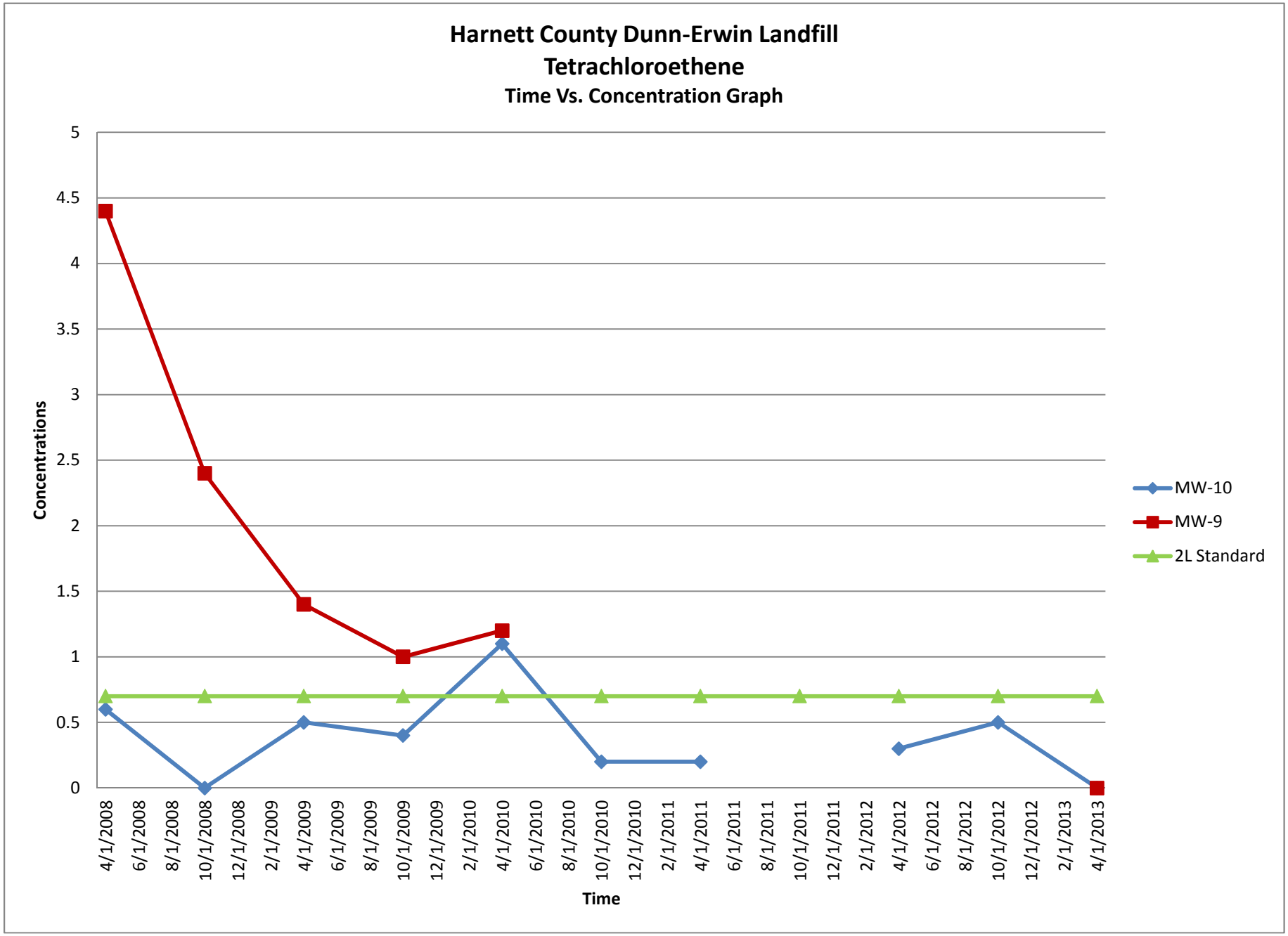
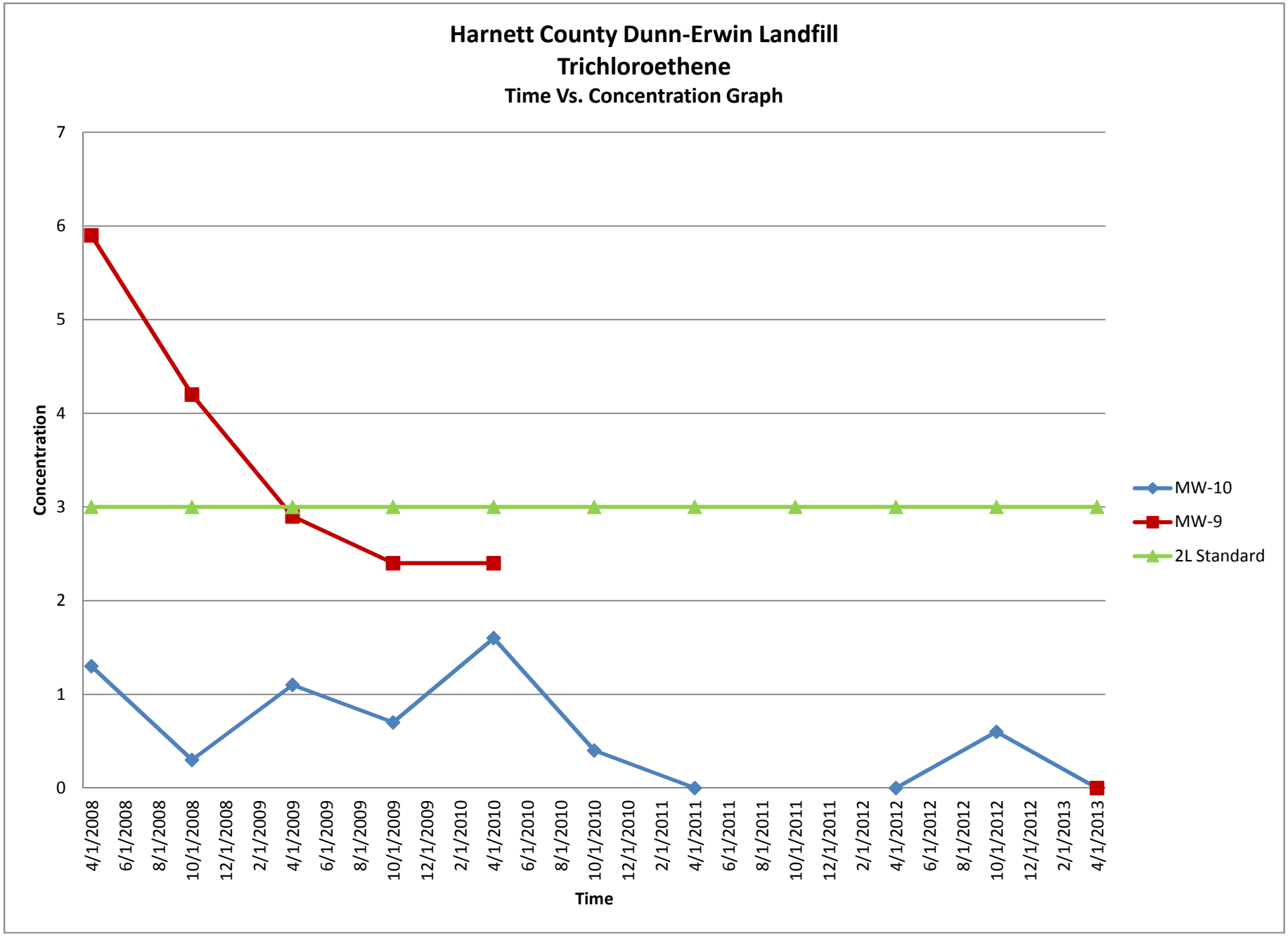
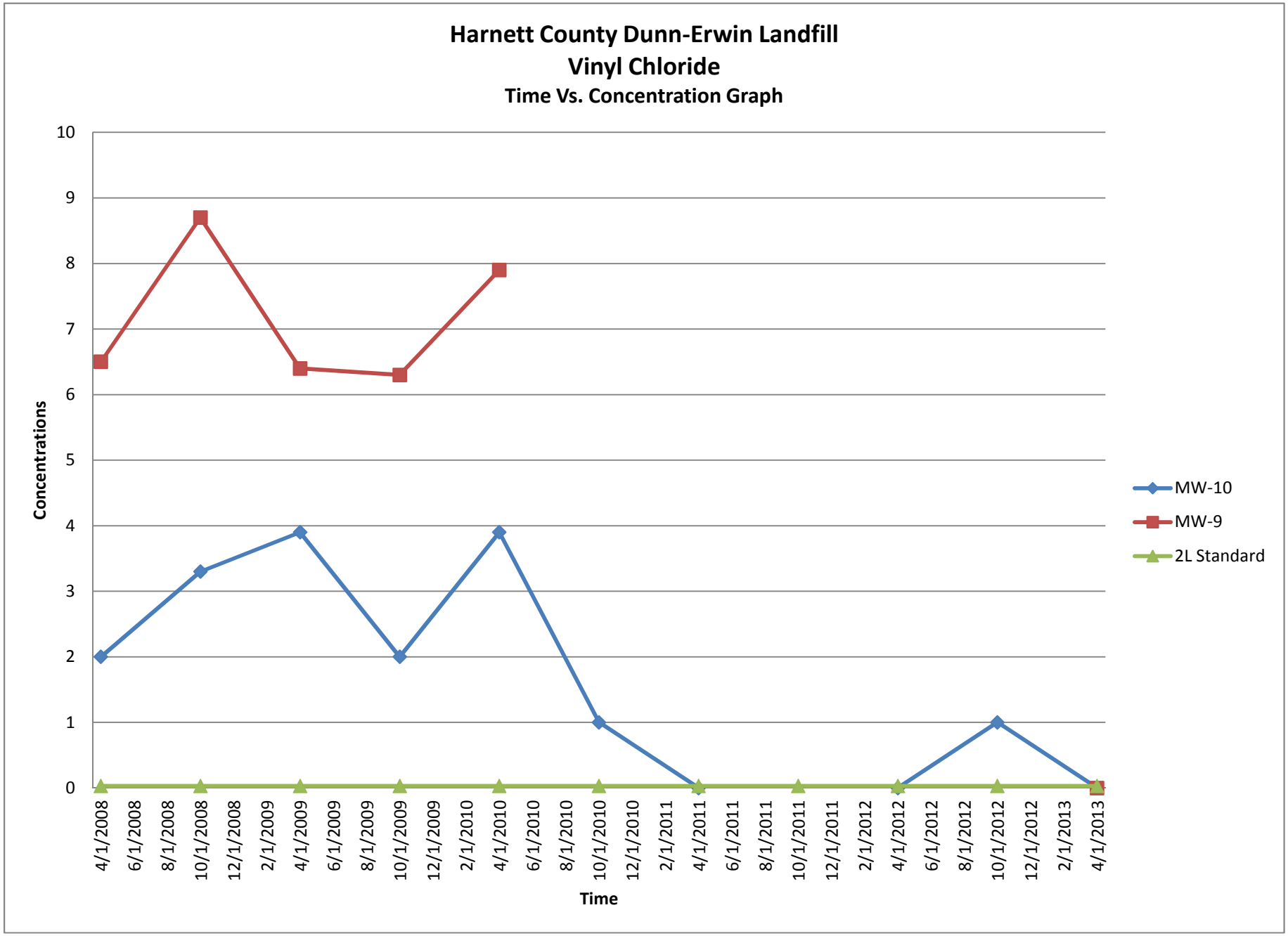
2/1/2013
4/1/2013
Time
MW-10
MW-9
2L Standard


Harnett County Dunn-Erwin Landfill
Methylene Chloride
Time Vs. Concentration Graph
Concentration
70
60
50
40
30
20
10
0
4/1/2008
6/1/2008
8/1/2008
10/1/2008
12/1/2008
2/1/2009
4/1/2009
6/1/2009
8/1/2009
10/1/2009
12/1/2009
2/1/2010
4/1/2010
6/1/2010
8/1/2010
10/1/2010
12/1/2010
2/1/2011
4/1/2011
6/1/2011
8/1/2011
10/1/2011
12/1/2011
2/1/2012
4/1/2012
6/1/2012
8/1/2012
10/1/2012
12/1/2012
2/1/2013
4/1/2013
Time
MW-10
MW-9
2L Standard


Harnett County Dunn-Erwin Landfill
Tetrachloroethene
Time Vs. Concentration Graph
Concentrations
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
4/1/2008
6/1/2008
8/1/2008
10/1/2008
12/1/2008
2/1/2009
4/1/2009
6/1/2009
8/1/2009
10/1/2009
12/1/2009
2/1/2010
4/1/2010
6/1/2010
8/1/2010
10/1/2010
12/1/2010
2/1/2011
4/1/2011
6/1/2011
8/1/2011
10/1/2011
12/1/2011
2/1/2012
4/1/2012
6/1/2012
8/1/2012
10/1/2012
12/1/2012
2/1/2013
4/1/2013
Time
MW-10
MW-9
2L Standard


Harnett County Dunn-Erwin Landfill
Trichloroethene
Time Vs. Concentration Graph
Concentration
7
6
5
4
3
2
1
0
4/1/2008
6/1/2008
8/1/2008
10/1/2008
12/1/2008
2/1/2009
4/1/2009
6/1/2009
8/1/2009
10/1/2009
12/1/2009
2/1/2010
4/1/2010
6/1/2010
8/1/2010
10/1/2010
12/1/2010
2/1/2011
4/1/2011
6/1/2011
8/1/2011
10/1/2011
12/1/2011
2/1/2012
4/1/2012
6/1/2012
8/1/2012
10/1/2012
12/1/2012
2/1/2013
4/1/2013
Time
MW-10
MW-9
2L Standard


Harnett County Dunn-Erwin Landfill
Vinyl Chloride
Time Vs. Concentration Graph
Concentrations
10
9
8
7
6
5
4
3
2
1
0
4/1/2008
6/1/2008
8/1/2008
10/1/2008
12/1/2008
2/1/2009
4/1/2009
6/1/2009
8/1/2009
10/1/2009
12/1/2009
2/1/2010
4/1/2010
6/1/2010
8/1/2010
10/1/2010
12/1/2010
2/1/2011
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6/1/2011
8/1/2011
10/1/2011
12/1/2011
2/1/2012
4/1/2012
6/1/2012
8/1/2012
10/1/2012
12/1/2012
2/1/2013
4/1/2013
Time
MW-10
MW-9
2L Standard