



October 31, 2013

F. Thomas Lubozynski, P.E.  
Waste & Air Resource Programs Administrator  
Florida Department of Environmental Protection  
Central District  
3319 Maguire Boulevard, Suite 232  
Orlando, Florida 32803-3767

Subject: Work Plan – Groundwater Contamination Assessment  
J.E.D. Solid Waste Management Facility  
Osceola County, Florida  
Permit Nos. 0199726-023-SC-MM and SO49-0199726-022

Dear Mr. Lubozynski:

On behalf of Omni Waste of Osceola County, LLC (Omni), HDR is submitting this Work Plan to address volatile organic compound (VOC) detections in groundwater samples collected from select groundwater monitoring wells at the J.E.D. Solid Waste Management Facility (Facility) located at 1501 Omni Way, St. Cloud, Florida. Routine groundwater monitoring has at times detected Benzene in groundwater at levels slightly above the Primary Drinking Water Standard (PDWS) in samples collected from eleven shallow groundwater monitoring wells and vinyl chloride from three shallow groundwater monitoring wells located along the disposal boundary of the northern portion of the landfill. To evaluate these detections, Omni conducted several investigations which indicated the probable source of these VOCs was landfill gas migration beyond the lined disposal boundary. Omni subsequently implemented a Soil Vapor Extraction (SVE) pilot test study in March 2013. As discussed in a July 23, 2013 meeting with the Florida Department of Environmental Protection (Department) (and subsequent July 30, 2013 letter from Omni), based on the groundwater quality data collected since installation of the SVE pilot system Omni recommended that the SVE pilot test study be discontinued and instead focus continued efforts on proactively expanding the Landfill Gas Collection Control System (GCCS) within the landfill disposal footprint. Additionally, as summarized in an August 6, 2013 letter to the Department, Omni recommended preparation of a contamination evaluation Work Plan to delineate the extent of the impacts and predict the likelihood that water quality standards will be violated outside the zone of discharge (ZOD) (if any) and evaluate potential preventative methods.

### **Background**

Groundwater at the Facility is monitored in accordance with the Monitoring Plan Implementation Schedule (MPIS) of the current Permit to Operate (Permit Number SO49-0199726-022). The groundwater monitoring system currently

contains 63 groundwater monitoring wells. The VOC impacts to groundwater are limited to the northern part of the landfill along disposal Cells 1-8. There are thirteen nested groups of groundwater monitoring wells located along the perimeter of Cells 1 through 8. Each nested group consists of three wells, a shallow (A-zone), an intermediate (B-zone), and a deep (C-zone). MW-1A,B,C through MW-6A,B,C are designated background wells, and MW-7A,B,C through MW-13A,B,C are designated detection wells. Low level VOC detections have been detected in some A-zone wells (both background and detection) surrounding Cells 1 through 8 for approximately five to six years. Benzene has been detected in MW-1A, MW-3A, MW-4A, MW-5A, MW-6A, MW-8A, MW-9A, MW-10A, MW-11A, MW-12A, and MW-13A. Benzene has not been detected in B-zone or C-zone wells with the exception of MW-11B. Vinyl chloride has been detected in MW-1A, MW-9A, and MW-11A. Vinyl chloride has not been detected in B-zone or C-zone wells.

As previously noted, Omni believes landfill gas is the probable source of the VOCs detected in groundwater at the Facility. Historically, elevated levels of landfill gas have been detected in perimeter methane gas monitoring probes and in the headspace of shallow groundwater wells. Omni has taken proactive steps to enhance and expand the GCCS over the past few years and has successfully reduced or eliminated methane gas detection levels in several of the perimeter gas monitoring probes. However, the reduction in methane gas concentrations have not yet translated to reductions in VOC levels detected at groundwater monitoring wells, although some lag time would be expected before reductions would be apparent in groundwater.

### **Purpose**

This Work Plan was developed in substantial accordance with Chapter 62-701.510(6) FAC to determine if VOC impacts to groundwater remains within the zone of discharge. The rule requires that compliance wells are to be installed at the compliance line of the zone of discharge (100 feet from the edge of waste or property boundary, whichever is closest) and down-gradient of the affected detection wells. Three wells are proposed for installation at representative locations along the compliance line. These wells, MW-3A, MW-10A, and MW-11A, have consistently reported benzene with a recent increasing trend and represent typical groundwater water quality coverage at the perimeter area of Cells 1-8. Benzene trends are shown in Graph 1 and Graph 2. Graph 1 includes all thirteen A-zone monitoring wells surrounding Cells 1 through 8, and Graph 2 includes only MW-3A, MW-10A, and MW-11A. CW-1A is proposed for installation up-gradient of MW-3A (present gradient), CW-2A is proposed for installation down-gradient of MW-10A, and CW-3A is proposed for installation down-gradient of MW-11A (See Figure 1). Gradients are based on the most recent semi-annual water quality sampling event conducted at the Facility in May 2013 (Figure 2). Historically, the groundwater gradient along the west side of the

disposal boundary has been recorded at times as being in an east to west direction. This occurred when major dewatering activities were conducted in the neighboring Bronson soil borrow area. No major dewatering activities have occurred at the borrow area for the past few years and the gradient at MW-3A was reported in May 2013 at its normal direction (west to east/northeast). Samples will be collected from the evaluation monitoring wells and analyzed for the initial targeted parameter list.

### **Well Installation**

Three temporary groundwater quality evaluation monitoring wells are proposed for installation at the locations shown in Figure 1. The locations of compliance monitoring wells, by Florida Rule, are to be installed inside of the property boundary and no more than 100 feet down-gradient of the affected wells if possible. However, based on the site plan topography and to avoid interference with the perimeter stormwater conveyance system, the approximate locations will be as follows: CW-1A will be located 90 feet down-gradient (up-gradient at present) of MW-3A, CW-2A will be located 115 feet down-gradient of MW-10A, and CW-3A will be located 140 feet down-gradient of MW-11A. The final well locations will be determined by the onsite geoscientist during installation and will be within the property boundary. The proposed wells will be installed by a Florida Licensed Drilling Contractor using a drilling rig capable of turning a 4.25 inch ID hollow-stem auger to the following specifications:

- Borehole diameter of at least 6 inches
- 2 inch diameter Schedule 40 PVC well casing, flush joint
- 10 ft length of 2 inch diameter Schedule 40 PVC 0.01 slot well screen, flush joint
- 20/30 silica sand filter pack material
- 45/65 silica sand well seal material
- Surface seal consisting of Neat Portland Type I/II Cement
- Total Depth of 15 feet bgs
- Screened Interval extending from 15 feet bgs to 5 feet bgs
- Filter Pack Interval extending from 15 feet bgs to 3 feet bgs
- Fine sand seal extending from 3 feet bgs to 1 foot bgs
- Surface seal extending from 1 foot bgs to ground surface
- Locking compression caps will be installed after well completion and development
- Locking protective casings and pads will not be installed at this time, but can be upgraded in the future if the conversion to a more permanent well is warranted.

The wells will be installed in substantial accordance with Chapter 62-701.510 (3)(d) FAC and SOP PCS-006 Design, Installation, and Placement of Monitoring Wells (2005). All down-hole tools and supplies will be cleaned prior to use and between each well using high pressure steam. An experienced geoscientist will observe drilling and well installation activities and record the following information in the field:

- Drilling methodology
- Lithological data (based on auger cuttings)
- Well construction details
- Well construction materials and quantities
- Well development data

After installation, the wells will be surveyed by a Florida licensed Professional Land Surveyor to determine the horizontal (latitude/longitude), and vertical (NGVD 1929 or NAVD 1983) locations of each well. The surveyor will provide the top of casing elevation and the ground elevation for each well. A well completion report will be provided to the Department on form 62-701.900(30), with the lithological log and construction details attached.

**Well Development**

Each monitoring well will be developed to remove fine particles from the screen and filter pack. The development method used will be over pumping and surging. Turbidity will be measured during development until stability is reached, with a target level of less than 20 NTU.

**Well Sampling and Analytical**

Evaluation monitoring requires compliance wells to be sampled quarterly. It is understood that the analytical parameters required for the initial sampling event include those parameters listed in Chapter 62-701.510(7)(a) and (c), and the sampling parameters required for the remaining three quarters include those listed in Chapter 62-701.510(7)(a) only (see below).

**Chapter 62-701.510(7)(a)**

Field Parameters	Laboratory Parameters
Static water level before purge	Total ammonia – N
Specific conductivity	Chlorides
pH	Iron
Dissolved Oxygen	Mercury
Turbidity	Nitrate
Temperature	Sodium
Colors and sheens by observation	Total dissolved solids (TDS)

Those parameters listed in 40 CFR  
Part 258 Appendix I

Chapter 62-701.510(7)(c)

Those parameters listed in 40 CFR Part 258 Appendix II.

It is proposed to limit the initial sampling of compliance monitoring wells CW-1A, CW-2A, CW-3A to only those parameters listed in Chapter 62-701.510(7)(a) on the basis that Appendix II parameters have never been detected during previous sampling and analysis. The parameters of concern are benzene and vinyl chloride which are both listed in Appendix I. The results from the initial sampling event will be evaluated and a list of parameters to be analyzed during the remaining three quarterly events will be submitted to the Department with the Well Completion and Initial Sampling Report.

**Reporting**

The Well Completion and Initial Sampling Report mentioned above will be submitted to document well installation and development activities, and initial (Q1) sampling described in this Work Plan. Evaluation monitoring requires an initial sampling event followed by quarterly sampling and analysis. Omni will submit additional quarterly sampling reports (Q2, Q3, and Q4) to the Department following the initial (Q1) sampling event. The initial sampling report will provide a recommended parameter list for additional quarterly sampling. The Q4 sampling report will provide recommendations for appropriate follow up activities, e.g. to continue or suspend quarterly sampling based on evaluation monitoring results and/or proposed design and installation of a groundwater remediation system, if necessary.

**Schedule**

The installation of the evaluation monitoring wells will be initiated when approval is received from the Department. It is expected that well installation and development can be completed within 1 to 2 weeks after receiving approval of this Work Plan. The initial sampling will be scheduled as soon as possible thereafter, allowing approximately forty-eight hours after completion of well installation. If possible, sampling will be scheduled to coincide with the 2013 and 2014 semiannual sampling events, which are typically scheduled for November and May of each year.

Well Installation	Within 1 to 2 weeks of approval
Initial Sampling (Q1)	Dec 2013
Well Completion and Initial Sampling Report	End January 2014

Q2 Evaluation sampling	Feb 2014
Q2 Sampling Report	End Mar 2014
Q3 Evaluation sampling	May 2014
Q3 Sampling Report	End Jun 2014
Q4 Evaluation sampling	Aug 2014
Q4 Sampling Report	End Sep 2014

### Closing

HDR has prepared this Work Plan on behalf of Omni to maintain compliance with the Florida Water Quality Regulations. Thank you in advance for your review and we look forward to implementing the Work Plan as soon as possible. If you have any questions or comments, please contact either of the undersigned at (904) 598-8900 or Mr. Mike Kaiser at (904) 673-0446.

Sincerely,



John S. Catches, P.G.  
Sr. Project Manager



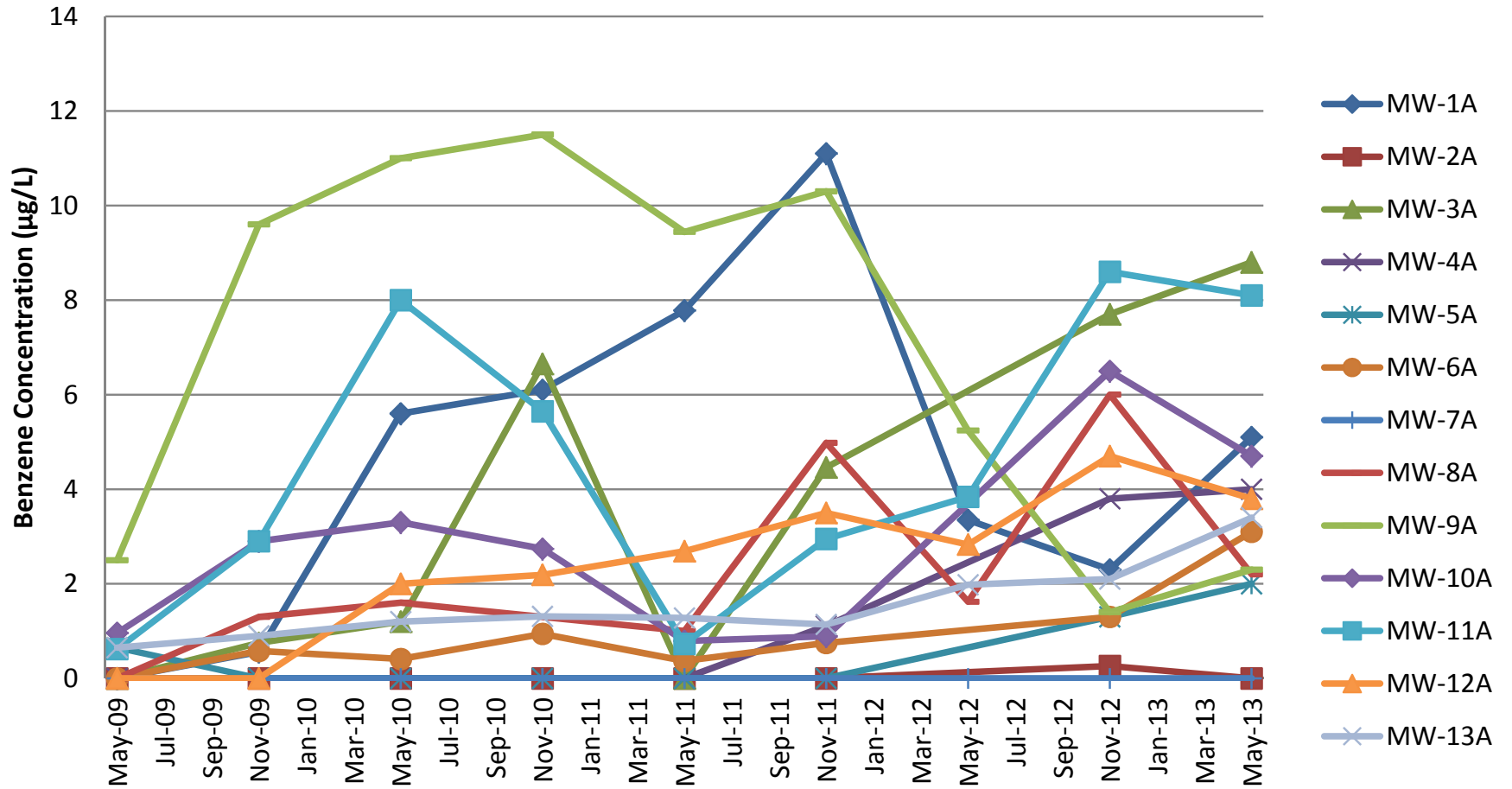
Brad Stone, P.E.

Vice President

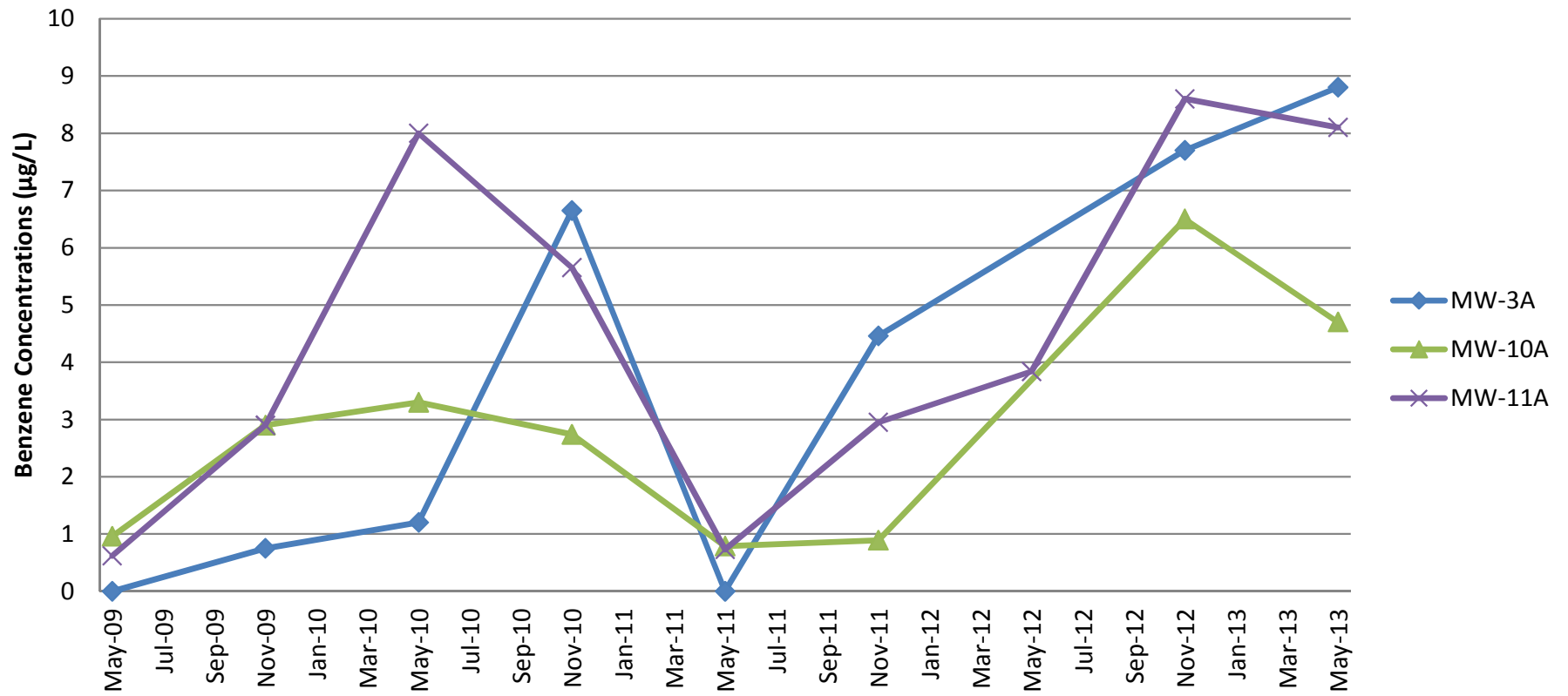
### Attachments

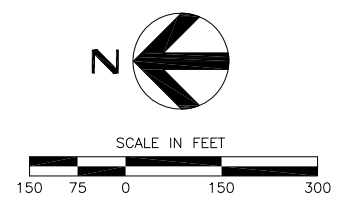
Cc: Mike Kaiser, Progressive Waste Solutions, Inc.

**Graph 1**  
**Groundwater Trend - Benzene**  
**May 2009 through May 2013**



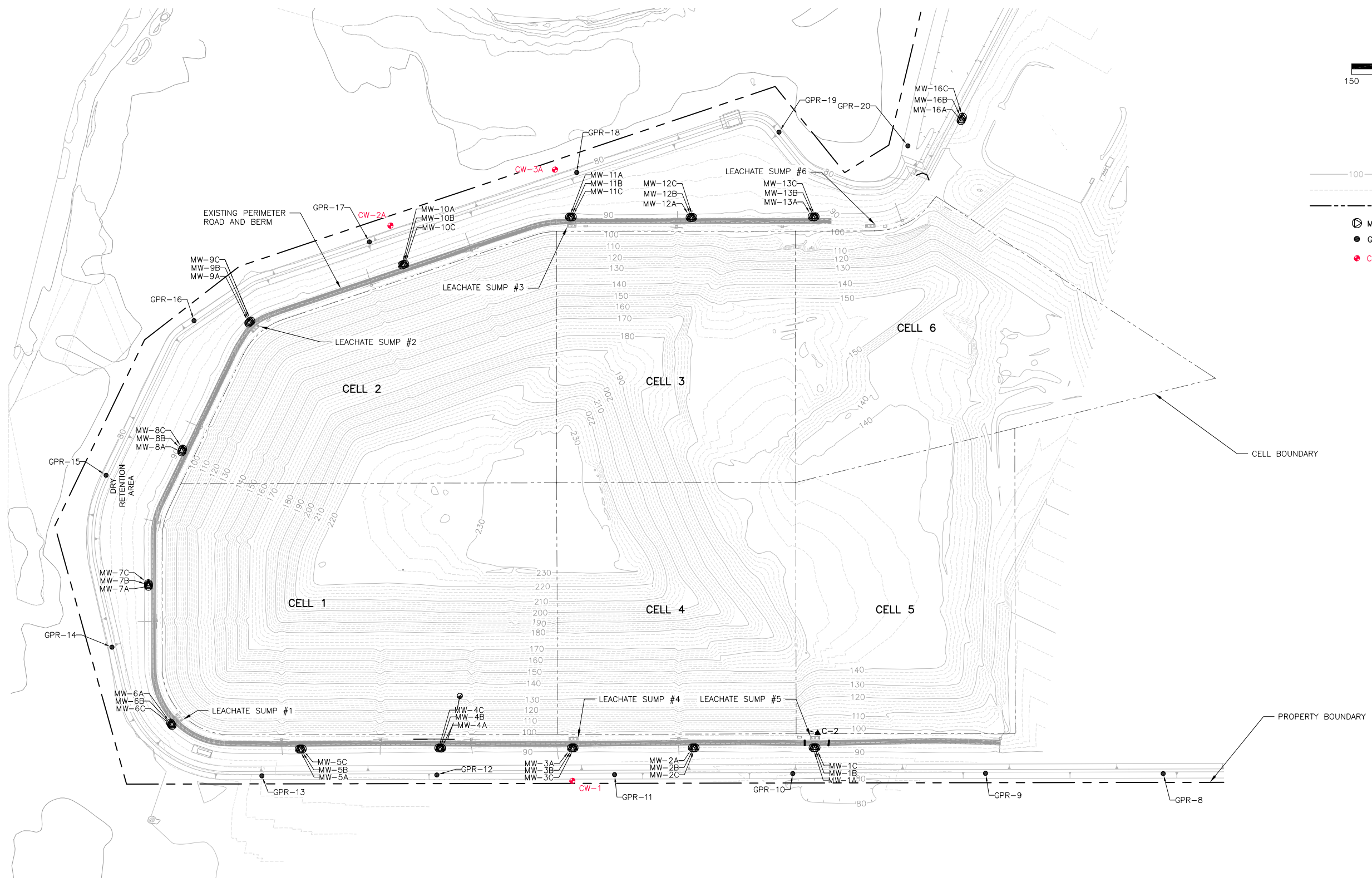
**Graph 2**  
**Groundwater Trends - Benzene**  
**May 2009 through May 2013**





LEGEND

- 100 EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- EXISTING CELL BOUNDARY
- MW-1A EXISTING MONITORING WELLS
- GPR-1 PERIMETER GAS MONITORING PROBE
- CW-1 PROPOSED COMPLIANCE MONITORING WELL



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	B. STONE, P.E.
DESIGN BY	C. KOENIG, P.E.
DESIGN BY	
CHECKED BY	B. STONE, P.E.
DRAWN BY	C. BREWER
PROJECT NUMBER	174075



J.E.D. Solid Waste Management Facility  
Omni Waste of Osceola County, LLC

1501 Omni Way St. Cloud, FL. 34773  
(407) 891-3720

2013 J.E.D. LANDFILL  
GROUNDWATER ASSESSMENT STUDY PLAN

FILENAME OOC-01.dwg  
SCALE AS SHOWN

SHEET  
Figure 1

