

October 17, 2012

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

Subject: Installation and Initial Operation Report – Soil Vapor
Extraction Pilot Test Study
JED Solid Waste Management Facility
Osceola County, Florida
Permit Nos. SC49-0197726-017 and SO49-0199726-022

Dear Mr. Lubozynski:

On behalf of Omni Waste of Osceola County, LLC (Omni), HDR is submitting this installation and initial operation report for the Soil Vapor Extraction (SVE) pilot test study at the JED Solid Waste Management Facility (Facility) in accordance with the Pilot Test Work Plan for Soil Vapor Extraction System dated January 27, 2012. Implementation of the work plan was approved by Ms. Kim Rush of the Florida Department of Environmental Protection (FDEP) by e-mail dated February 6, 2012.

In accordance with the work plan, the SVE Pilot Test system consists of a vertical SVE system located at the Cell 5 sump area near groundwater monitoring wells MW-1A/B/C and a horizontal SVE system located along the west side of Cell 1 near groundwater monitoring wells MW-4A/B/C. As-built drawings of the Pilot SVE systems are provided in Attachment C. The vertical and horizontal pilot SVE systems were constructed/installed in general accordance with the approved work plan. The vertical SVE and Vadose Zone Aeration (VZA) wells were installed by National Environmental Technology, Inc. Drilling Services near the Cell 5 leachate sump area on March 16, 2012. The four SVE wells and one VZA well were installed to a total depth of 14.0 - 14.66 feet below ground surface. Each well was constructed with 2-inch diameter schedule 80 PVC. The well screen of each well consisted of a 10-foot length of 0.01 inch slotted screen. The boreholes for the SVE and VZA wells were installed utilizing a 8.25 inch diameter Hollow Stem Auger. During drilling the cuttings consisted of sandy grey fill consistent with those utilized in the perimeter road construction. The installation depths were confirmed with on-site groundwater sampling

personnel to maintain a minimum of 2 feet separation between the bottom of the SVE wells and seasonal high groundwater table. Boring and well installation logs are provided in Attachment A.

The piping connecting the vertical SVE wells to the existing Gas Collection and Control System (GCCS) was installed on April 9 to 13, 2012 by Equipment with Experience (EWE). Solid 4-inch diameter high density polyethylene (HDPE) piping was installed in trenches excavated near the SVE wells and connected to each well via a 2-inch diameter Landtec wellhead and flex hose. An 8-inch diameter HDPE vertical condensate sump was installed near well SVE-4 to collect any condensate generated in the piping network and provide a mode for removal. Solid HDPE piping was installed upslope from the sump to GCCS extraction well GW-85. A Landtec wellhead and flexhose was installed at the connection location to GW-85 and labeled as SVE Main. The Landtec wellheads installed at each SVE well and GCCS tie-in location allow proper vacuum control and gas quality and flow measurements. The additional Landtec wellhead installed near GW-85 provides overall vacuum control to the entire vertical SVE system and allows for gas quality and flow measurements to be collected from the entire system.

The horizontal SVE system was also installed adjacent to the disposal limits of Cell 1 and connected to the GCCS during this timeframe by EWE. An approximate 8 foot deep by 3 foot wide trench was excavated along the inside edge of the perimeter road between the waste limits and groundwater monitoring wells MW-4A/B/C as shown on Sheet 00C-04 (in Attachment C). Non-calcareous stone (1-inch to 3-inch in diameter) was placed in the trench surrounding a perforated 4-inch diameter HDPE pipe. An 8-inch diameter HDPE vertical condensate sump was connected to the horizontal trench pipe just outside the limits of waste and the liner anchor trench. Solid 4-inch diameter HDPE piping was installed upslope from the condensate sump to GCCS extraction well GW-16. A Landtec wellhead and flexhose were installed at the connection location to gas extraction well GW-16 and labeled as SVE-HZ01.

Upon completion of installation of the SVE system and final connection to the GCCS, well field tuning and Radius of Influence (ROI) testing was initiated. ROI testing was conducted from May 15 to June 22, 2012. Due to uncertainty of the ROI testing results, additional ROI testing is planned once operational testing of the system is completed. HDR performed a brief evaluation of impacts to the gas quality at the GCCS flare station with all four vertical SVE wells in operation and landfill gas collected from the sump area from June 23 to June 25, 2012. The SVE system was fully operational on approximately July 19, 2012, which is the date we determined the SVE system tuning period was complete.

Since the time the vertical SVE system has been placed in full operation, gas quality has been routinely monitored at the SVE wells, nearby gas probes, gas extraction wells and sump tie-in locations. Gas monitoring data is provided in Attachment B. Operation and monitoring of the horizontal SVE system has not occurred due to the presence of water within the perforated area that continues to flood the vertical sump, impacting the ability to apply a constant vacuum to the system. The horizontal SVE well was installed beneath the flow line of the perimeter road drainage swale and found to be impacted by infiltration of storm water during precipitation periods. HDR and Omni are continuing to evaluate the horizontal system to determine if an alternative location can be found that would not be impacted by storm

water infiltration or the idea of a horizontal system should be abandoned altogether. As shown on the gas monitoring data provided in Attachment B, an initial operating vacuum of approximately 10 inches of water column was applied to the SVE wells. After a two week period the vacuum was increased to approximately 15 inches of water column. A noticeable decrease in methane readings were observed at the vertical SVE wells, gas probes and groundwater monitoring well headspace when the vacuum was increased to 15 inches. Further increases in vacuum were made to the SVE system in the past few months to the present operating vacuum of approximately 20-35 inches. Decreasing trends of methane were also noted with these increases in vacuum. It was also noted that during rain events the soils in the surrounding perimeter berm become partially saturated which appears to be slightly reducing the efficiency of the SVE system in maintain decreased methane levels at certain monitoring points for short periods of time. The second quarterly progress report will include a more thorough evaluation of the monitoring data and initial assessment of the SVE system performance

As indicated in the workplan, additional groundwater sampling is specified at wells MW-1A and MW-4A. Initial background groundwater sampling was conducted on May 8, 2012. Monitoring well MW-4A was dry during the May 8, 2012 sampling event. Benzene was detected at 3.25 ug/L at MW-1A during the May 2012 background sampling event. This concentration is lower than recent historical measurements. The initial quarterly groundwater sampling at MW-1A and MW-4A was conducted on August 6, 2012 at which time Benzene was detected at 2.5 ug/L at MW-1A and 4.04 ug/L at MW-4A, consistent with previous monitoring events. Additional sampling of groundwater is required to further evaluate the efficacy of the pilot test system and a more detailed evaluation of groundwater quality will be included in the next quarterly progress report. We anticipate the second quarterly progress report to be submitted in approximately 3 months (by January 15, 2013). A final report with recommendations for future course of action to fully mitigate the landfill gas migration and groundwater impacts will be submitted after fully understanding the operational efficiency of the systems. This is expected to occur within 180 – 270 days of initial operation.

Closing

Operation and monitoring of the pilot SVE system will continue for the next 90 days and a quarterly progress report will be provided by January 15, 2013. In the meantime, please feel free to contact either of the undersigned at (904) 598-8900 or Mr. Mike Kaiser at (904) 673-0446 if should you have any questions.

Sincerely,



Brad M Stone, P.E.
Sr. Project Manager



Cliff Koenig, P.E.
Environmental Engineer

Attachments: A: Boring Logs and Daily Logs
B: Gas and Groundwater Data
C: Record Drawings

Cc: Caroline Shine, FDEP Division of Air Resource Management

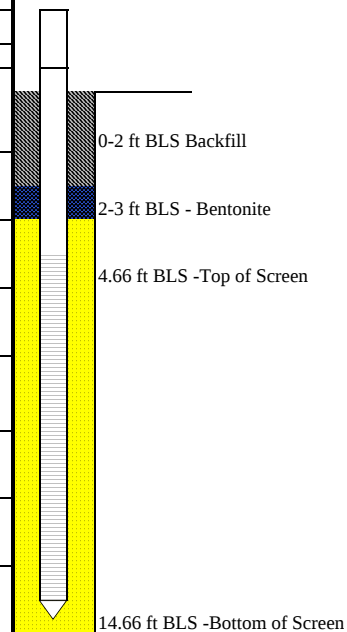
Attachment A

Boring Logs And Daily Logs

HDR

DATE STARTED: 3-16-12 DATE COMPLETED: 3-16-12

ON-SITE ENGINEER: *Cliff Koenig*

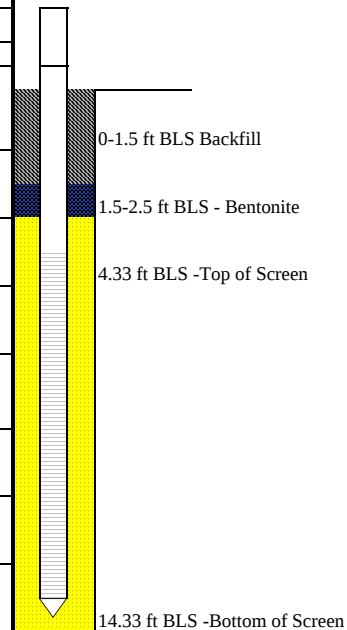
[illegible]

HDR

DATE STARTED: 3-16-12	DATE COMPLETED: 3-16-12
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SVE-2

ON-SITE ENGINEER: *Cliff Koenig*

[illegible]

Soil Boring Log	
DRILLER: National Environmental Technology, Inc.	
DRILLING METHOD: H.S.A.	
DATE STARTED: 3-16-12	DATE COMPLETED: 3-16-12

HDR

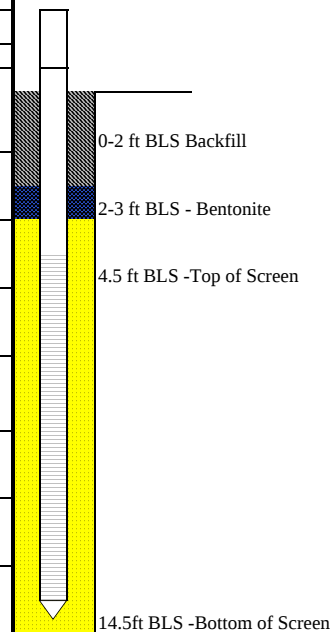
BORE LOCATION: *Directly east of MW-1A*

BORING/WELL ID NO.	APPROX. LAND SURFACE ELEVATION: 95.2 ft
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WZA	GROUNDWATER Elevation: At MW-1A it is 75.8 ft
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	ON-SITE ENGINEER: <i>Cliff Koenig</i>
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VZA

[illegible]

Soil Boring Log DRILLER: National Environmental Technology, Inc. DRILLING METHOD: H.S.A. DATE STARTED: 3-16-12 DATE COMPLETED: 3-16-12	
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H&R

LOCATION: St. Cloud, FL

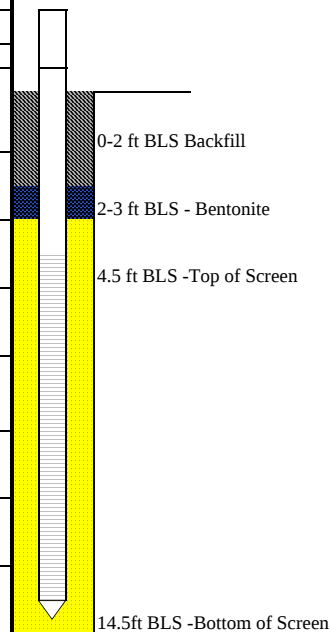
BORE LOCATION: N1355795.8, E623932.3, south of MW-1A

BORING/WELL ID NO.	
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BORING/WELL ID NO.	APPROX. LAND SURFACE ELEVATION: 95.3 ft
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SVE-3

DEPTH TO GROUNDWATER: NA

ON-SITE ENGINEER: *Cliff Koenig*ON-SITE ENGINEER: *Cliff Koenig*[illegible]

Soil Boring Log **HDR**
DRILLER: National Environmental Technology, Inc.

Soil Boring Log **HDR**
DRILLER: National Environmental Technology, Inc.

DRILLING METHOD: H.S.A.

DATE STARTED: 3-16-12 DATE COMPLETED: 3-16-12

DEPTH	SAMPLING	CH4	CO2	O2	Bal.
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LOCATION: St. Cloud, FL

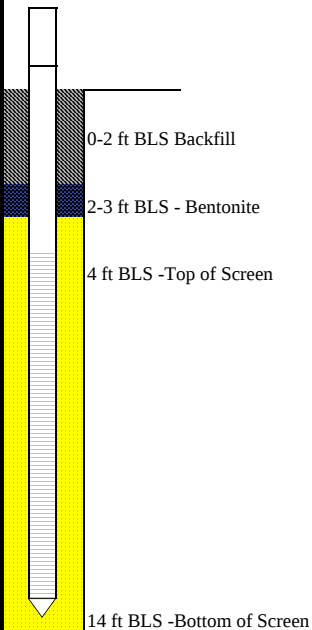
BORE LOCATION: N1355767.5, E623957.2, south of Cell 5 leachate pump risers

BORING/WELL ID NO.	APPROX. LAND SURFACE ELEVATION: 95.3 ft
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SVE-4	DEPTH TO GROUNDWATER: NA
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SVE-4	
	ON-SITE ENGINEER: <i>Cliff Koenig</i>

	SAMPLE DESCRIPTION/COMMENTS	

[illegible]



Daily Field Report

Project Name: JED Pilot SVE Installation	Date: 03/16/2012	Day: Friday
Project Site: JED Landfill	Contractor: National Environmental Technology, Inc. Drilling Services	
Project Location: St. Cloud, FL	On-site Engineer: Cliff Koenig (HDR)	

Weather Conditions:

Temperature		Weather (85 F at 11:00 AM)		Precipitation: none
Max.	Min.	Morning	Afternoon	None
85 F	70 F	Sunny/Clear	Sunny/Clear	

Contractor's Employees / Title		Equipment Used/ On Site
Greg	Driller	CME-750 Drill Rig
Randy	Assistant	

Work Performed:

Arrived on-site at 0830. Coordinated with Keith Lunsford on drilling locations. Keith previously uncovered liner extents in area of SVE installation. Keith and I used his GPS to stake out the 4 SVE well locations and the 1 VZA locations. Driller arrived on site at 0900. Joe Terry recommended drilling to the 81 foot elevation just in case seasonal high groundwater table got a little higher. All drilling would thus be 14-15 feet deep with a 5-6 foot riser pipe.

Keith discussed electrical and leachate line for SVE1 in corner of Cell 5 sump area. Keith re-verified SVE 1 drill location and we commenced drilling while Keith and I observed. SVE drilling concluded with no observed issues. We continued drilling the other wells. A gas odor was present at SVE-1 located near the leachate pump electrical panel. Removed caps to allow SVE wells to vent until wells are connected to GCCS. Placed caps in Keith's office along with tape measure, mallet and wooden stakes.



Project Name: JED Pilot SVE Installation	Date: 04/9/2012	Day: Monday
Project Site: JED Landfill	Contractor: Equipment with Experience	
Project Location: St. Cloud, FL	On-site Engineer: Cliff Koenig (HDR)	

Weather Conditions:

Temperature		Weather (85 F at 11:00 AM)		Precipitation: none
Max.	Min.	Morning	Afternoon	None
82 F	65 F	Sunny/Clear	Sunny/Clear	

Contractor's Employees / Title		Equipment Used/ On Site
Tom	Supervisor	Mini-backhoe IHI 28N
David	Operator/Fuser	
Amel	Operator	
Luke	Fuser	

Work Performed:

Arrived on-site at 0830. Equipment with Experience (eWe) on-site at 11 AM. Mike Kaiser had questions: ROI probe pulled, was it sealed up with a liner patch. Any limerock – separate out material to put back in trench. Keith Lunsford staked out the liner limits via GPS. Approximately 125 feet of piping at Cell 5 SVE wells @ 2% slope = 2.5 feet of depth change. Mike observed surging in the gas collection lines for the Cell 5 leachate risers. These pipes have slight belly. Keith stated that he had the gas collection lines for the leachate risers closed and condensate collected since the header above still had gas collection. Mike asked that Mr. Koenig take photos before, during and after construction.

SVE-1 : ambient air observed

SVE-2 : 8% CH₄ decreasing with 1.5%CO₂

SVE-3 : 0.1%CO₂, 19.2 O₂, 80.7% Bal

SVE-4 : 15.5%CH₄ decreasing, then stabilized to 0.1% CO₂, 20.6% O₂, 79.3% Bal.

eWe still getting equipment from 12:30 to 1 PM.

Mr. Koenig went to lunch from 1:10 to 1:50.

eWe began trenching at 1:45 PM with Keith Lunsford observing. Mr. Koenig back on-site at 1:50 PM. At 2:05 found bits of geonet scraps. Trenched to 4 feet deep at SVE-3 corner of liner limits. Did not appear to hit any liner in trench from SVE-1 to SVE-3. Reviewed 4-inch diameter HDPE pipe. SDR 11 and SDR 17 pulled from boneyard. Mr. Koenig instructed eWe to use SDR 17 (thinner wall pipe) for the SVE wells closest to MW-1A on road edge. Road edge is less likely to be run over by heavy equipment and crush pipe. At 3:10 mini-backhoe track came off. At 3:25 had track back on and continued trenching. Scraped soil off liner near SVE-4. Found liner about 2 feet deep. Does not appear to be much of an anchor to liner edge. Mike Kaiser ordered 30 feet of steel casing for the road crossing at SVE-1 to SVE-2. Casing should arrive Tuesday morning. Put up caution tape around trench. Left site at 4:50. eWe scheduled to be on-site at 7:30 on Tuesday.



Project Name: JED Pilot SVE Installation	Date: 04/10/2012	Day: Monday
Project Site: JED Landfill	Contractor: Equipment with Experience	
Project Location: St. Cloud, FL	On-site Engineer: Cliff Koenig (HDR)	

Weather Conditions:

Temperature		Weather (85 F at 11:00 AM)		Precipitation: none
Max.	Min.	Morning	Afternoon	None
82 F	65 F	Sunny/Clear	Sunny/Clear	

Contractor's Employees / Title		Equipment Used/ On Site
Tom	Supervisor	Mini-backhoe IHI 28N
David	Operator/Fuser	
Amel	Operator	
Luke	Fuser	

Work Performed:

Arrived on-site at 0730. Equipment with Experience (eWe) showed up to Cell 5 area around 8:45. eWe stated they had to go through boneyard for an hour to find more 4 and 6 inch pipe. eWe stated they had to fuse 6-inch pipe near boneyard since WSI would not let them take the 6-inch fusion machine. Resumed trenching from SVE-3 to SVE-4. Found geonet at 0945 about 2.5 ft deep and 3 ft southwest of SVE-4. Excavated and hand dug carefully. No liner present and could dig under geonet to other side. Appears to be a scrap piece of geonet. We cut the geonet to allow digging deeper. Piping will extend from condensate sump near SVE-4 to EW-85 to connect to GCCS. Sump to be placed near SVE-4 at 7 feet total depth. Mike Kaiser asked why trench was so deep. We don't need to be 2.5 deep at SVE-1 if we have pipe protection. Mr. Koenig stated that since at time of trenching we did not know if we would get adequate pipe protection, that the trench was instructed to be dug 2.5 feet deep. We will backfill 1-foot and tamp soil. Trench to be 1.5 deep at SVE-1 and 4 feet deep at SVE-4 giving us 2% slope over 125 ft of trench.

Cap liner stops just north of Cell 5 Sump area. Thus we don't need to worry about liner for trench to EW-85. We offset 3-4 feet north of EW-85 to avoid 6-inch lateral. We trenched only 1.5-2 feet deep due to waste encountered and to avoid the 12-inch header which is located about 25-35 feet east of the liner limit markers. Talked with Keith and Mike about shallow trench to EW-85. Keith stated he would get 2-inch PVC to place in the trench to mark shallow buried pipe.

Steel casing will only be used on SVE-1 to SVE-2 road crossing. The two 10-foot sections of steel pipe shall be placed in the trench with as little as a gap as possible. Steel casing provided by WSI (previously used, rusty).

Lunch from 12:33 to 1:23 PM. eWe dragged 6-inch pipe upslope to EW-85. Mike and Keith reviewed trench to EW-85 and want it 1-foot deeper. Mr. Koenig relayed it to eWe. Put trash off to side and back on top of pipe in trench as best as possible. eWe brought SVE sump next to SVE-4. Sump is 8-inch diameter pipe with 4-inch inlet and outlet. Approximately 3-feet of liquid storage below cross and rise extends 3-feet above original grade with blind flange. Risers for SVE-3 and SVE-2 are offset by 6 feet south of 2-inch PVC SVE well risers. eWe will cut and add another section of 4-inch to re-align the 4-inch riser pipes. eWe set sump in the trench and backfilled to 4-feet BLS.

Only one steel casing can be used. The other three steel casings have centering rods in the middle of the casing which the 4-inch HDPE cannot pass thru. Steel casing to be installed 2-3 feet west of leachate sump wall in middle of road.



Project Name: JED Pilot SVE Installation	Date: 04/11/2012	Day: Monday
Project Site: JED Landfill	Contractor: Equipment with Experience	
Project Location: St. Cloud, FL	On-site Engineer: Cliff Koenig (HDR)	

Weather Conditions:

Temperature		Weather (85 F at 11:00 AM)		Precipitation: none
Max.	Min.	Morning	Afternoon	None
82 F	65 F	Sunny/Clear	Sunny/Clear	

Contractor's Employees / Title		Equipment Used/ On Site
Tom	Supervisor	Mini-backhoe IHI 28N
David	Operator/Fuser	Excavator
Amel	Operator	
Luke	Fuser	

Work Performed:

Arrived on-site at 0730. Equipment with Experience (eWe) showed up to Cell 5 area around 8:03 AM. Resumed work on Cell 5 piping. Mini-backhoe tread came off at 9:40 AM, back on by 10:10 AM. Ready to take survey on 4-inch piping. Keith brought 2 (4-inch) and 2 (8-inch) electrofuse couplings. And 2-inch tees and 2 6x2 fernco. Keith took te pipe shots and relayed to Mr. Koenig that 2% slope was achieved except for a short section which was 1.5%. Mr. Koenig was observing the excavation for the 4-inch pipe upslope to EW-16 above the cap liner. 10:45 to 11:20 AM. Geocomposite was observed three times. No liner was observed. Found anchor trench and cap liner at bottom of slope. Horizontal trench to be dug 30 ft south of sump location and 70 ft north of sump location. Luke utilized the min-tamper to compact backfill on top of 4-inch pipe for Cell 5 SVE area. Observed slight LFG odor in horizontal trench when 6 feet deep and at sump location 8 feet deep. Soil in trench is grey/brown sand with coarse grains throughout most of trench. Lunch from 12:05 to 12:50. Keith stated we could use limerock near the 3 faded blue trailers for the last 10-inches of backfill of the road. eWe tamped limerock. Tom showed up on-site at approximately 1 PM.

Update Mike Kaiser on progress. Mr. Kaiser asked that I update him at end of the day on whether Mr. Koenig's CQA services would be needed. Filling horizontal well with stone from 3 to 4 PM. 1 foot of stone placed in bottom of trench. Some stone had some sand mixed. eWe stated they would attempt to get stone with minimal sand mixed in it. Other loads of stone were observed to have barely any sand.

At 4 PM Tom drove with condensate sump for the horizontal well. Tom and Luke started welding 4-inch perforated pipe at 4:05 PM. Keith stated we could work until 5:30 PM. 10-12 inches of stone in bottom of trench with a couple spots slightly higher. Taped off trench with caution tape at 5:05 PM and set the mini-backhoe and wheeled excavator at each end of the trench. Left horizontal area at 5:28 PM. Offsite at 6:02 PM. Mr. Koenig to be back on-site to oversee sump and piping fusion to EW-16 per Mr. Kaiser's request.



Daily Field Report

Project Name: JED Pilot SVE Installation	Date: 04/12/2012	Day: Monday
Project Site: JED Landfill	Contractor: Equipment with Experience	
Project Location: St. Cloud, FL	On-site Engineer: Cliff Koenig (HDR)	

Weather Conditions:

Temperature		Weather (85 F at 11:00 AM)		Precipitation: none
Max.	Min.	Morning	Afternoon	None
82 F	65 F	Sunny/Clear	Sunny/Clear	

Contractor's Employees / Title		Equipment Used/ On Site
		Mini-backhoe IHI 28N
David	Operator/Fuser	Excavator 310G John Deere
Ricky	Operator	
Luke	Fuser	

Work Performed:

Arrived on-site at 0730. Equipment with Experience (eWe) showed up to horizontal trench at 8:15 AM. Luke and David started fusing horizontal well sump to perforated pipe. Ricky showed up at 9 AM. Ricky stood sump up with 310G excavator/dozer. Luke and David kept sump vertical and welded 90 degree elbow to sump 4-inch cross. Added 3 foot riser to elbow and duct taped end. Added 4 foot section of 4-inch pipe to horizontal well and then fused to other side of condensate sump cross by setting sump in trench and moving edge of cross to trench edge in line with 4-inch. Sump then lifted and set into 8 foot deep hole at 10:30 AM. Tee for horizontal well is slightly higher than the rest of the perforated pipe. This should reduce potential for vacuum blockage by liquids in stone pack. Backfilled to keep sump in place without spoiling soil into sump riser. Ricky getting more stone. Access road is very dusty with very fine grain light grey/near white particles.

Mr. Kaiser called and asked if truck dropped off stone. Truck had not dropped off stone and Mr. Kaiser stated he would get truck over to stone pile. Ricky went to stone pile and waited for truck. Articulated truck brought stone to trench at 11:50 AM. Ricky began filling stone on top of perforated pipe. Approximately 2/3 filled and Mr. Koenig asked Mr. Kaiser if we could get another ½ truck load of stone. Mr. Koenig stayed at horizontal trench. 2 WSI employees near trench, but avoided getting near deep trench. Finished dropping stone in trench by 1:28 PM. Mr. Koenig took lunch at 1:30 – 2:20 PM. Added a little more stone to trench to even it out. Luke and David installed 4-inch solid pipe upslope and connected to 6-inch pipe upslope to EW-16 (no more 4-inch pipe in boneyard). About 100-feet of 6-inch pipe used with 4x6 inch reducer about 20 feet upslope from sump. At 3:06 PM finished placing fabric on top of stone. Began backfill of trench. Sump has 2-foot riser above grade at end of backfill. Mr. Kaiser operated the 310G backhoe/dozer from 3:45 to 4:05 PM to demonstrate to eWe how to grade and compact horizontal trench. Mr. Kaiser directed Luke to flatten out trench area and Mr. Kaiser would get a another employee to finish the stormwater swale grading. Mr. Kaiser will have someone else complete above grade connections for wellheads for Cell 5 and horizontal well trench. Mr. Koenig covered pipe risers with duct tape and added the blind flange to the Cell 5 SVE sump (bolts did not have enough threading to secure flange, relayed concern to Keith via phone 4-13-2012). eWe grading horizontal trench area and road. eWe offsite by 5:59 PM.



Daily Field Report

Project Name: JED Pilot SVE Installation	Date: 05/15/2012	Day: Tuesday
Project Site: JED Landfill		
Project Location: St. Cloud, FL	On-site Engineer: Cliff Koenig (HDR)	

Weather Conditions:

Temperature		Weather (85 F at 11:00 AM)		Precipitation: none during day , 1" Tuesday night
Max.	Min.	Morning	Afternoon	None
89 F	69 F	Sunny/Clear	Sunny/Clear	

Work Performed:

Arrived on-site at 0815. Mr. Koenig met with Mr. Lunsford and they proceeded to the flare station to begin background monitoring for the Pilot SVE system ROI study. See monitoring logs for gas quality and pressure measurements. Items of note are:

Vacuum was observed at SVE-1 during the background measurement prior to starting the ROI study. The Cell 5 Sump risers had the following vacuum North riser = -25.0, middle riser = -33.8 and south riser = -37.8. Once the Cell 5 risers gas collection valves were closed, SVE-1 showed 0 pressure. The Cell 5 sump risers will remain closed for the ROI study and can be opened once we have the necessary data for ROI calculations. It should be noted that the Cell 5 2-inch well was left on at -1.9 and later had a pressure of +5.3. The Cell 5 sump 2-inch well is left slightly open and should not impact the results for the ROI study. However, there appears to be influence from the Cell 5 sump risers on SVE-1 when significant vacuum is applied. We can take more readings on this after the ROI study to confirm.

SVE-4 valve was not closed at the beginning of the ROI study. Valve was closed at 1:58 PM. Mr. Koenig took several digital manometer readings 30 minutes after the SVE-4 valve was closed.

Well ID	Pressure ("w.c.) at 2:40 to 2:41 PM	Pressure (" w.c.) at 2:43 to 2:45 PM
SVE-1	-0.21	-0.33
SVE-2	-9.42	-9.43
SVE-3	-0.49	-0.51
SVE-4	-0.26	-0.21

Pressure readings should be taken first with the digital manometer prior to utilizing the GEM-2000 for the gas quality measurements (we noted that the GEM-2000 would place a vacuum on the SVE wells which were closed and it would take a while for the pressure to normalize).

No vacuum was detected at MW-4A near the SVE horizontal well. Mr. Koenig and Mr. Lunsford installed a 2-inch PVC probe approximately 3 feet deep with gravel and cap at approximately 7 feet from the south end of the horizontal well trench and on the upslope of the stormwater swale near the anchor trench.

Mr. Lunsford added well IDs "calibrate" (GEM-2000 calibration ID), "SVE-Main" (the connect point for the vertical SVE wells at the GCCS located near EW-85), and SVEHRZpb (the 2-inch probe installed south fo the horizontal well trench) to the GEM-2000 monitoring list.

Mr. Lunsford and Mr. Koenig will coordinate further on adjustments.

Attachment B

Gas and Groundwater Data

JED Solid Waste Management Facility

Monitoring Data - Soil Vapor Extraction System Pilot Test Study

ID Point	5/16/12		5/22/12		6/18/12		6/22/12		6/29/12		7/2/12		7/6/12		7/13/12		7/16/12	
	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	SP (In.)	SP (In.)	CH ₄ (%)	SP (In.)
SVE-1	1.3	-12.1	0.8	-25.1	0.8	-10.1	1.3	-10.4	1.2	-9.6	1.6	-11.5	1.4	-10.0	0.0	-14.5	0.1	-14.5
SVE-2	0.0	-26.3	0.0	-0.3	0.0	-10.1	0.1	-11.8	0.1	-12.1	0.1	-9.9	0.1	-10.2	5.8	0.2	0.0	-14.6
SVE-3	0.0	-18.3	0.0	-1.0	0.0	-10.3	0.0	-9.4	0.1	-12.6	0.1	-10.1	0.1	-10.3	17.3	-14.8	0.0	-15.1
SVE-4	4.4	-4.3	0.5	-6.2	0.0	-9.2	0.1	-10.3	0.2	-10.9	0.2	-10.7	0.1	-12.0	0.2	-15.0	0.0	-15.0
VZA	16.6	-43.1			0.0	0.4	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1
GPR-10					8.7	0.5	15.3	0.3	0.1	0.4	0.1	0.2	0.1	0.3	0.0	0.2	0.1	0.2
TGP-1					0.0	1.0	0.0	0.8	0.1	0.2	0.1	0.3	0.1	1.0	0.1	0.2	0.0	0.2
MW-1A	21.6	0.6	57.6	3.2	0.0	-2.1	0.1	-0.8	0.1	-0.6	0.2	-0.2	0.2	-0.1	24.2	1.3	1.9	-1.3
SVE Main	0	-32.3	0	-43.3	0	-41.3	0.1	-41.1	0.2	-40.3	0.2	-41.1	0.2	-46.7	0.6	-42.2	0.3	-42.1
Cell 5 Sump					21.5	-23.5	56.8	8.1	25.6	-24.5	58.8	-14.5	26.6	-9.7	42.1	-4.7	0.7	-10.7
Cell 5 2" GW	58.0	13.9			57.6	-12.6	59.0	1.3	58.1	-22.1	55.3	-5.5	59.4	-9.0	55.0	-2.2	60.0	-9.1
Flare			54.6	1.4	51.3	3.1	51.5	2.5	50.4	3.0	53.6	2.6	54.1	2.9	57.6	2.9	55.2	2.4

SVE-1 – Soil Vapor Extraction Well

VZA – Vadose Zone Aeration Well

GPR – Perimeter Gas Monitoring Probe

TGP – Temporary Perimeter Gas Monitoring Probe

MW – Water Quality Monitoring Well

GW – Landfill Gas Extraction Well

SP – Set Pressure

SVE Main – Soil Vapor Extraction System Main Header Pipe Connection at GW-85

Cell 5 Sump – Vacuum Connection at Cell 5 Leachate Sump Manholes

Cell 5 2" GW – 2-inch Dia. Gas Extraction Well at Sump Area

JED Solid Waste Management Facility

Monitoring Data - Soil Vapor Extraction System Pilot Test Study

ID Point	7/20/12		7/27/12		7/30/12		8/3/12		8/6/12		8/10/12		8/13/12		8/27/12		9/3/12	
	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)
SVE-1	0.3	-8.0	0.6	-15.8	0.5	-14.6	0.6	-16.5	0.7	-15.6	0.5	-23.4	3.3	-24.15	1.1	-37.75	0.5	-25.70
SVE-2	0.0	-12.8	0.4	-14.7	0.3	-15.5	0.4	-16.9	0.3	-16.8	0.6	-23.8	0.4	-24.75	0.0	-35.82	0.1	-24.92
SVE-3	0.0	-14.2	0.5	-15.1	0.3	-16.1	0.4	-15.6	0.3	-14.1	0.0	-26.1	0.7	-24.49	0.0	-35.20	0.4	-25.55
SVE-4	0.5	-22.9	2.9	-15.5	1.9	-14.5	0.8	-14.7	2.8	-14.8	3.3	-24.1	2.1	-24.17	41.5	-35.89	12.7	-25.82
VZA	0.0	0.1	1.7	-0.1	0.3	0.1	0.3	0.1	0.3	0.3	0.0	0.0	0.0	0.00	0.0	-0.01	0.0	-0.01
GPR-10	0.3	0.2	3.2	0.0	0.3	0.0	0.6	0.3	0.3	0.3	0.1	0.02	0.8	-0.10	0.0	0.00	0.0	0.00
TGP-1	4.2	0.2	0.5	0.0	0.3	0.0	0.4	0.3	0.3	0.3	0.1	0.02	0.0	-0.10	0.0	0.04	0.0	0.00
MW-1A	21.1	0.5	0.4	-0.3	0.4	-0.2	0.8	-1.1	0.4	0.1	0.4	0.0	0.0	-0.10	25.9	0.56	52.1	2.69
SVE Main	27.2	-41.7	1.1	-14.1	0.4	-39.8	1.9	-40.3	0.4	-39.1	0.4	-39.0	10.6	-38.83	6.3	-42.73	0.9	-40.26
Cell 5 Sump	31.1	-3.6	23.5	-18.2	56.1	-9.9	23.9	-26.0	56.9	-9.3	58.5	-5.0	57.1	-10.50	36.8	-24.56	37.2	-27.82
Cell 5 2" GW	54.7	-3.3	29.4	-14.5	57.6	-2.8	12.4	-21.8	56.6	-3.6	59.9	-0.08	56.3	-2.99	59.2	-20.76	57.4	-24.45
Flare	53.7	2.7	51.0	2.7	51.0	3.1	46.9	3.2			51.3	3.6	55.2	3.00	53.3	3.24	51.6	2.85

SVE-1 – Soil Vapor Extraction Well

VZA – Vadose Zone Aeration Well

GPR – Perimeter Gas Monitoring Probe

TGP – Temporary Perimeter Gas Monitoring Probe

MW – Water Quality Monitoring Well

GW – Landfill Gas Extraction Well

SP – Set Pressure

SVE Main – Soil Vapor Extraction System Main Header Pipe Connection at GW-85

Cell 5 Sump – Vacuum Connection at Cell 5 Leachate Sump Manholes

Cell 5 2" GW – 2-inch Dia. Gas Extraction Well at Sump Area

JED Solid Waste Management Facility

Monitoring Data - Soil Vapor Extraction System Pilot Test Study

ID Point	9/14/12		9/17/12		9/21/12		9/24/12		10/1/12					
	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)	CH ₄ (%)	SP (In.)
SVE-1	0.5	-36.87	0.0	-33.85	7.9	-33.69	2.4	-30.32	0.1	-30.19				
SVE-2	0.0	-34.40	0.0	-34.77	0.6	-37.19	0.4	-35.03	0.1	-31.23				
SVE-3	0.0	-34.99	0.0	-34.13	0.3	-37.49	2.1	-34.77	0.4	-33.35				
SVE-4	28.7	-35.50	36.4	-35.68	30.2	-39.61	25.9	-34.64	38.2	-35.42				
VZA	4.9	0.00	4.4	-0.02	0.1	-0.02	1.3	-0.01	8.8	-0.02				
GPR-10	0.0	-0.01	0.0	-0.02	0.5	-0.01	2.6	0.00	0.4	-0.02				
TGP-1	0.0	0.00	0.0	0.00	0.8	-0.01	1.6	0.00	6.2	-0.01				
MW-1A	50.5	2.81	50.4	5.66	50.2	2.78	49.9	4.79	51.6	4.65				
SVE Main	10.5	-39.61	8.5	-36.86	8.0	-41.64	55.4	-37.06	3.9	-40.99				
Cell 5 Sump	31.4	-24.28	34.0	-19.20	37.1	-24.79	49.3	-17.80	30.0	-26.48				
Cell 5 2" GW	57.3	-19.87	57.6	-21.30	56.8	-20.91	56.0	-15.98	57.8	-22.51				
Flare	50.2	2.84	53.3	3.55	49.0	2.94	47.5	3.37	51.1	2.79				

SVE-1 – Soil Vapor Extraction Well

VZA – Vadose Zone Aeration Well

GPR – Perimeter Gas Monitoring Probe

TGP – Temporary Perimeter Gas Monitoring Probe

MW – Water Quality Monitoring Well

GW – Landfill Gas Extraction Well

SP – Set Pressure

SVE Main – Soil Vapor Extraction System Main Header Pipe Connection at GW-85

Cell 5 Sump – Vacuum Connection at Cell 5 Leachate Sump Manholes

Cell 5 2" GW – 2-inch Dia. Gas Extraction Well at Sump Area

Background Groundwater Sampling

May 8th, 2012



May 18, 2012

Service Request No: J1202197

Kirk Wills
Waste Services of Florida, Inc.
11500 43rd Street North
Clearwater, FL 33762

Laboratory Results for: JED SWDF Pilot Study

Dear Kirk,

Enclosed are the results of the sample(s) submitted to our laboratory May 09, 2012
For your reference, these analyses have been assigned our service request number **J1202197**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. If required, the laboratory can provide uncertainty measurements for each method employed in sample analysis; this uncertainty measurement would be generated using method validation studies and the laboratory's quality control data.

Please contact me if you have any questions. My extension is 4409. You may also contact me via email at CMyers@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Craig Myers
Project Manager



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Columbia Analytical Services, Inc.

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Received: 5/9/12

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables, including results of QC samples analyzed from this delivery group. When appropriate to the procedure, method blank results have been reported with each analytical test. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Parameters that are included in the NELAC Fields of Testing but are not included in the lab's NELAC accreditation are identified in the discussion of each analytical procedure.

Sample Receipt

Three water samples and one trip blank were received for analysis at Columbia Analytical Services on 5/9/12. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at $\leq 6^{\circ}\text{C}$ upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Volatile Organic Analyses:

Method 8260B: Samples LS-5 and LS-4 required dilution due to the foaming nature of the matrix. The reporting limits are adjusted to reflect the dilution.

Metals Analyses:

No significant data anomalies were noted with this analysis.

General Chemistry Analyses:

Method 350.1: The control criterion for matrix spike recovery of Ammonia for sample MW-1A is not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Florida Department of Health	E82502	6/30/2012
North Carolina Department of Environment and Natural Resources	527	12/31/2012
Virginia Environmental Accreditation Program	460191	12/14/2012
Louisiana Department of Environmental Quality	02086	6/30/2012
Kentucky Division of Waste Management	63	7/5/2013
South Carolina Department of Health and Environmental Control	96021001	6/30/2012
Texas Commision on Environmental Quality	T104704197-09-TX	5/31/2012
Maine Department of Health and Human Services	2011006	2/3/2013
Pennsylvania Department of Environmental Protection	68-04835	7/31/2012
New Jersey Department of Environmental Protection	FL019	6/30/2012

Data Qualifiers

Florida-DEP

- ! Data deviates from historically established concentration ranges
- * Not reported due to interference
- ? Data is rejected and should not be used
- A Value reported is the arithmetic mean of two or more determinations
- B Results based upon colony counts outside the acceptable range.
- D Measurement was made in the field.
- E Extra samples were taken at composite stations
- H Value based on field kit determination; results may not be accurate.
- I The reported value is between the laboratory method detection limit and the laboratory PQL.
- J Estimated value.
- K Off scale low. The value is less than the lowest calibration standard.
- L Off scale high. The analyte is above the acceptable level of quantitation.
- M The MDL/MRL has been elevated because the analyte could not be accurately quantified.
- N Presumptive evidence of presence of material.
- O Sampled, but analysis lost or not performed
- Q Sample held beyond the acceptable holding time.
- R Significant rain in the past 48 hours (typically in excess of 0.5 inches)
- T Estimated value, less than the MDL
- U Indicates that the compound was analyzed for but not detected.
- V Indicates that the analyte was detected in both the sample and the associated method blank.
- X Insufficient individuals were present in the sample to achieve a minimum of 280 organisms for identification (Stream Condition Index Analysis only)
- Y The laboratory analysis was from an unpreserved or improperly preserved sample.
- Z Too many colonies were present, the numeric value represents the filtration volume

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study

Service Request: J1202197

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
J1202197-001	MW-1A	5/8/2012	1700
J1202197-002	LS-5	5/8/2012	1440
J1202197-003	LS-4	5/8/2012	1530
J1202197-004	Trip Blank	5/8/2012	0000

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: 05/08/12 17:00
Date Received: 05/09/12 09:30

Sample Name: MW-1A
Lab Code: J1202197-001

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Benzene	3.25	1.00	0.210	1	05/14/12 16:40	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	93	68 - 118	05/14/12 16:40	
4-Bromofluorobenzene	105	78 - 129	05/14/12 16:40	
Dibromofluoromethane	91	80 - 114	05/14/12 16:40	
Toluene-d8	109	87 - 118	05/14/12 16:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: 05/08/12 17:00
Date Received: 05/09/12 09:30

Sample Name: MW-1A
Lab Code: J1202197-001

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium, Total Recoverable	6010B	2.73	mg/L	0.10	0.02	1	05/11/12	5/10/12	
Iron, Total Recoverable	6010B	2050	ug/L	100	3	1	05/11/12	5/10/12	
Magnesium, Total Recoverable	6010B	2.02	mg/L	0.10	0.02	1	05/11/12	5/10/12	
Manganese, Total Recoverable	6010B	5 I	ug/L	10	3	1	05/11/12	5/10/12	
Potassium, Total Recoverable	6010B	3.0	mg/L	2.0	0.09	1	05/11/12	5/10/12	
Sodium, Total Recoverable	6010B	12.0	mg/L	0.50	0.03	1	05/11/12	5/10/12	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: 05/08/12 17:00
Date Received: 05/09/12 09:30

Sample Name: MW-1A
Lab Code: J1202197-001

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO ₃ , Total	SM 2320 B	15.7	mg/L	5.0	5.0	1	05/16/12 14:31	
Ammonia as Nitrogen	350.1	4.45	mg/L	0.010	0.007	1	05/14/12 12:24	
Bicarbonate Alkalinity as CaCO ₃	SM 2320 B	15.7	mg/L	5.0	5.0	1	05/16/12 14:31	
Carbon, Total Organic (TOC)	SM 5310 B	9.9	mg/L	1.0	0.09	1	05/16/12 13:42	
Carbonate Alkalinity as CaCO ₃	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	05/16/12 14:31	
Chloride	300.0	30.7	mg/L	0.50	0.11	1	05/10/12 16:22	
Sulfate	300.0	0.68	mg/L	0.50	0.18	1	05/10/12 16:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: 05/08/12 14:40
Date Received: 05/09/12 09:30

Sample Name: LS-5
Lab Code: J1202197-002

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Benzene	8.40 U	40.0	8.40	40	05/14/12 17:10	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	90	68 - 118	05/14/12 17:10	
4-Bromofluorobenzene	105	78 - 129	05/14/12 17:10	
Dibromofluoromethane	88	80 - 114	05/14/12 17:10	
Toluene-d8	108	87 - 118	05/14/12 17:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: 05/08/12 14:40
Date Received: 05/09/12 09:30

Sample Name: LS-5
Lab Code: J1202197-002

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium, Total Recoverable	6010B	145	mg/L	0.10	0.02	1	05/11/12	5/10/12	
Iron, Total Recoverable	6010B	4070	ug/L	100	3	1	05/11/12	5/10/12	
Magnesium, Total Recoverable	6010B	36.2	mg/L	0.10	0.02	1	05/11/12	5/10/12	
Manganese, Total Recoverable	6010B	304	ug/L	10	3	1	05/11/12	5/10/12	
Potassium, Total Recoverable	6010B	586	mg/L	2.0	0.09	1	05/11/12	5/10/12	
Sodium, Total Recoverable	6010B	1750	mg/L	10	0.6	20	05/14/12	5/10/12	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water
Sample Name: LS-5
Lab Code: J1202197-002

Service Request: J1202197
Date Collected: 05/08/12 14:40
Date Received: 05/09/12 09:30
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO ₃ , Total	SM 2320 B	3370	mg/L	500	500	100	05/16/12 14:38	
Ammonia as Nitrogen	350.1	927	mg/L	1.0	0.8	100	05/14/12 12:32	
Bicarbonate Alkalinity as CaCO ₃	SM 2320 B	3370	mg/L	500	500	100	05/16/12 14:38	
Carbon, Total Organic (TOC)	SM 5310 B	2460	mg/L	100	9	100	05/16/12 14:48	
Carbonate Alkalinity as CaCO ₃	SM 2320 B	500 U	mg/L	500	500	100	05/16/12 14:38	
Chloride	300.0	3150	mg/L	25	6	50	05/10/12 17:07	
Sulfate	300.0	24 I	mg/L	25	9	50	05/10/12 17:07	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: 05/08/12 15:30
Date Received: 05/09/12 09:30

Sample Name: LS-4
Lab Code: J1202197-003

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Benzene	8.40 U	40.0	8.40	40	05/14/12 17:40	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	91	68 - 118	05/14/12 17:40	
4-Bromofluorobenzene	104	78 - 129	05/14/12 17:40	
Dibromofluoromethane	89	80 - 114	05/14/12 17:40	
Toluene-d8	110	87 - 118	05/14/12 17:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: 05/08/12 15:30
Date Received: 05/09/12 09:30

Sample Name: LS-4
Lab Code: J1202197-003

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium, Total Recoverable	6010B	138	mg/L	0.10	0.02	1	05/11/12	5/10/12	
Iron, Total Recoverable	6010B	3400	ug/L	100	3	1	05/11/12	5/10/12	
Magnesium, Total Recoverable	6010B	26.0	mg/L	0.10	0.02	1	05/11/12	5/10/12	
Manganese, Total Recoverable	6010B	238	ug/L	10	3	1	05/11/12	5/10/12	
Potassium, Total Recoverable	6010B	886	mg/L	2.0	0.09	1	05/11/12	5/10/12	
Sodium, Total Recoverable	6010B	2290	mg/L	10	0.6	20	05/14/12	5/10/12	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water
Sample Name: LS-4
Lab Code: J1202197-003

Service Request: J1202197
Date Collected: 05/08/12 15:30
Date Received: 05/09/12 09:30
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO ₃ , Total	SM 2320 B	4660	mg/L	500	500	100	05/16/12 14:44	
Ammonia as Nitrogen	350.1	1490	mg/L	2.0	1.5	200	05/14/12 12:45	
Bicarbonate Alkalinity as CaCO ₃	SM 2320 B	4660	mg/L	500	500	100	05/16/12 14:44	
Carbon, Total Organic (TOC)	SM 5310 B	5790	mg/L	100	9	100	05/16/12 15:03	
Carbonate Alkalinity as CaCO ₃	SM 2320 B	500 U	mg/L	500	500	100	05/16/12 14:44	
Chloride	300.0	4070	mg/L	25	6	50	05/10/12 17:22	
Sulfate	300.0	27	mg/L	25	9	50	05/10/12 17:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: 05/08/12 00:00
Date Received: 05/09/12 09:30

Sample Name: Trip Blank
Lab Code: J1202197-004

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Benzene	0.210 U	1.00	0.210	1	05/14/12 16:10	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	91	68 - 118	05/14/12 16:10	
4-Bromofluorobenzene	103	78 - 129	05/14/12 16:10	
Dibromofluoromethane	90	80 - 114	05/14/12 16:10	
Toluene-d8	111	87 - 118	05/14/12 16:10	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: JQ1202947-02

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Benzene	0.210 U	1.00	0.210	1	05/14/12 12:40	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	96	68 - 118	05/14/12 12:40	
4-Bromofluorobenzene	105	78 - 129	05/14/12 12:40	
Dibromofluoromethane	92	80 - 114	05/14/12 12:40	
Toluene-d8	109	87 - 118	05/14/12 12:40	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: J1202197-MB

Service Request: J1202197
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium, Total Recoverable	6010B	0.02 U	mg/L	0.10	0.02	1	05/11/12	5/10/12	
Iron, Total Recoverable	6010B	4 I	ug/L	100	3	1	05/11/12	5/10/12	
Magnesium, Total Recoverable	6010B	0.02 U	mg/L	0.10	0.02	1	05/11/12	5/10/12	
Manganese, Total Recoverable	6010B	3 U	ug/L	10	3	1	05/11/12	5/10/12	
Potassium, Total Recoverable	6010B	0.09 I	mg/L	2.0	0.09	1	05/11/12	5/10/12	
Sodium, Total Recoverable	6010B	0.03 U	mg/L	0.50	0.03	1	05/11/12	5/10/12	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: J1202197-MB

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO ₃ , Total	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	05/16/12 12:57	
Ammonia as Nitrogen	350.1	0.007 U	mg/L	0.010	0.007	1	05/14/12 12:17	
Bicarbonate Alkalinity as CaCO ₃	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	05/16/12 12:57	
Carbon, Total Organic (TOC)	SM 5310 B	0.09 U	mg/L	1.0	0.09	1	05/16/12 11:30	
Carbonate Alkalinity as CaCO ₃	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	05/16/12 12:57	
Chloride	300.0	0.11 U	mg/L	0.50	0.11	1	05/10/12 14:38	
Sulfate	300.0	0.18 U	mg/L	0.50	0.18	1	05/10/12 14:38	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.**Service Request:** J1202197**Project:** JED SWDF Pilot Study**Sample Matrix:** Water**SURROGATE RECOVERY SUMMARY**

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Sample Name	Lab Code	1,2-Dichloroethane-d4	4-Bromofluorobenzene	Dibromofluoromethane
		68 - 118	78 - 129	80 - 114
MW-1A	J1202197-001	93	105	91
LS-5	J1202197-002	90	105	88
LS-4	J1202197-003	91	104	89
Trip Blank	J1202197-004	91	103	90
Lab Control Sample	JQ1202947-01	93	103	89
Method Blank	JQ1202947-02	96	105	92

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.**Service Request:** J1202197**Project:** JED SWDF Pilot Study**Sample Matrix:** Water**SURROGATE RECOVERY SUMMARY****Volatile Organic Compounds by GC/MS****Analysis Method:** 8260B

Sample Name	Lab Code	Toluene-d8
		87 - 118
MW-1A	J1202197-001	109
LS-5	J1202197-002	108
LS-4	J1202197-003	110
Trip Blank	J1202197-004	111
Lab Control Sample	JQ1202947-01	107
Method Blank	JQ1202947-02	109

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197

Date Analyzed: 05/14/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Units: ug/L

Basis: NA

Analysis Lot: 291498

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	JQ1202947-01	16.7	20.0	84	83-118

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Analyzed: 5/11/12

Lab Control Sample Summary
Inorganic Parameters

Units: mg/L**Basis:** NA

Lab Control Sample
J1202197-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Calcium, Total Recoverable	6010B	4.76	5.00	95	80-120
Magnesium, Total Recoverable	6010B	4.80	5.00	96	80-120
Potassium, Total Recoverable	6010B	96.4	100	96	80-120
Sodium, Total Recoverable	6010B	24.3	25.0	97	80-120

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Analyzed: 5/11/12

Lab Control Sample Summary
Inorganic Parameters

Units: ug/L**Basis:** NA

Lab Control Sample
J1202197-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Iron, Total Recoverable	6010B	4790	5000	96	80-120
Manganese, Total Recoverable	6010B	490	500	98	80-120

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.
Project JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: 05/08/12
Date Received: 05/09/12
Date Analyzed: 05/10/12 - 05/14/12

Replicate Sample Summary
General Chemistry Parameters

Sample Name: MW-1A **Units:** mg/L
Lab Code: J1202197-001 **Basis:** NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample J1202197-001DUP	Average	RPD	RPD Limit
					Result			
Ammonia as Nitrogen	350.1	0.010	0.007	4.45	4.45	4.45	<1	20
Chloride	300.0	0.50	0.11	30.7	30.6	30.6	<1	20
Sulfate	300.0	0.50	0.18	0.68	0.69	0.683	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Collected: 05/08/12
Date Received: 05/09/12
Date Analyzed: 05/10/12 - 05/14/12

Matrix Spike Summary
Ammonia as Nitrogen

Sample Name: MW-1A
Lab Code: J1202197-001

Units: mg/L
Basis: NA

Matrix Spike
J1202197-001MS

Analyte Name	Method	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Ammonia as Nitrogen	350.1	4.45	5.51	1.00	106 #	90-110
Chloride	300.0	30.7	81.2	50.0	101	90-110
Sulfate	300.0	0.68	52.9	50.0	104	90-110

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.
Project: JED SWDF Pilot Study
Sample Matrix: Water

Service Request: J1202197
Date Analyzed: 05/10/12 - 05/16/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L**Basis:** NA**Lab Control Sample**

J1202197-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity as CaCO ₃ , Total	SM 2320 B	227	250	91	85-115
Ammonia as Nitrogen	350.1	0.974	1.00	97	90-110
Carbon, Total Organic (TOC)	SM 5310 B	49.3	50.0	99	90-110
Chloride	300.0	52.1	50.0	104	90-110
Sulfate	300.0	52.5	50.0	105	90-110

Cooler Receipt Form

Client: WSD

Service Request #: 31202497

Project: JED SWDF

Cooler received on 5-9-12

and opened on 5-9-12 by SL

COURIER: ALS ☒ UPS ☐ FEDEX Client Other _____ Airbill # 1Zx5W0982210006754

- 1 Were custody seals on outside of cooler? ☒ Yes ☐ No
If yes, how many and where? #: 1 on lid other _____
- 2 Were seals intact and signature and date correct? ☒ Yes ☐ No N/A
- 3 Were custody papers properly filled out? ☒ Yes ☐ No N/A
- 4 Temperature of cooler(s) upon receipt (Should be > 0°C and < 6°C) 1.2
- 5 Thermometer ID 781
- 6 Temperature Blank Present? ☒ Yes ☐ No
- 7 Were Ice or Ice Packs present ☒ Ice ☐ Ice Packs ☐ No
- 8 Did all bottles arrive in good condition (unbroken, etc....)? ☒ Yes ☐ No N/A
- 9 Type of packing material present
Netting ☐ Vial Holder ☒ Bubble Wrap
Paper ☐ Styrofoam ☐ Other ☐ N/A
- 10 Were all bottle labels complete (sample ID, preservation, etc....)? ☒ Yes ☐ No N/A
- 11 Did all bottle labels and tags agree with custody papers? ☒ Yes ☐ No N/A
- 12 Were the correct bottles used for the tests indicated? ☒ Yes ☐ No N/A
- 13 Were all of the preserved bottles received with the appropriate preservative?
☒ HNO₃ pH<2 ☒ H₂SO₄ pH<2 ZnAc₂/NaOH pH>9 NaOH pH>12 ☒ HCl pH<2
Preservative additions noted below
- 14 Were all samples received within analysis holding times? ☒ Yes ☐ No N/A
- 15 Were all VOA vials free of air bubbles? If present, note below ☒ Yes ☐ No N/A
- 16 Where did the bottles originate? ☒ ALS ☐ Client

Sample ID	Reagent	Lot #	ml added	Initials Date/Time
<u>LS-5</u>				
<u>LS-4</u>				

Additional comments and/or explanation of all discrepancies noted above:

Unable to preserve due to sample matrix

Client approval to run samples if discrepancies noted:

Date:



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

SR # 51202197
CAS Contact

9143 Philips Highway, Ste 200 • Jacksonville, FL 32256 (904) 739-2277 • 800-695-7222 x06 • FAX (904) 739-2011 PAGE 1 OF 1

www.caslab.com

Project Name <u>JED SWDF Pilot Study</u>		Project Number <u>1202197</u>		Waste Services of Florida, Inc. JED SWDF Pilot Study		5					
Project Manager <u>Joe Terry</u>		Email Address <u>jterry@wsr.us</u>		PRESERVATIVE		ANALYSIS REQUESTED (Include Method Number)					
Company/Address <u>WSI</u>		11500 43rd St. N.		1* 2 3 1 0							
Phone # <u>813-943-8633</u>		FAX # <u>33762</u>		NUMBER OF CONTAINERS							
Sample's Signature <u>Joe Terry</u>		Sample's Printed Name <u>Joe Terry</u>									
CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	TIME	MATRIX			REMARKS/ ALTERNATE DESCRIPTION				
<u>MW-1A</u>		<u>5-8-12</u>	<u>1700</u>	<u>GLW</u>	<u>0</u>	<u>3</u>	<u>1</u>				
<u>LS-5</u>		<u>5-8-12</u>	<u>1440</u>	<u>leachate</u>	<u>0</u>	<u>3</u>	<u>1</u>				
<u>LS-4</u>		<u>5-8-12</u>	<u>1530</u>	<u>leachate</u>	<u>0</u>	<u>3</u>	<u>1</u>				
<u>Top Blank</u>		<u>4-26-12</u>	<u>-</u>	<u>DI H₂O</u>	<u>2</u>	<u>2</u>					
SPECIAL INSTRUCTIONS/COMMENTS * LS-5 & LS-4 VOA vials and TOC vials are unpreserved (effervesced when contacted HCl, rinsed vials of HCL using sample leachate)								REPORT REQUIREMENTS ☐ I. Results Only ☒ II. Results + QC Summaries (LCS, OUP, MSMSD as required) ☐ III. Results + QC and Calibration Summaries ☐ IV. Data Validation Report with Raw Data ☐ V. Specialized Forms / Custom Report Edata ☐ Yes ☐ No		INVOICE INFORMATION PO# BILL TO:	
								TURNAROUND REQUIREMENTS ☐ RUSH (SURCHARGES APPLY) ☒ STANDARD REQUESTED FAX DATE REQUESTED REPORT DATE		RECEIVED BY Signature Printed Name Firm Date/Time	
								CUSTODY SEALS: Y N		RECEIVED BY	
								SAMPLE RECEIPT: CONDITION/COOLER TEMP: <u>1.2</u>		RECEIVED BY	
								RELINQUISHED BY		RELINQUISHED BY	
								Signature <u>Joe Terry</u>		Signature <u>Shawn Lighty</u>	
								Printed Name <u>Joe Terry</u>		Printed Name <u>Shawn Lighty</u>	
								Firm <u>WSI</u>		Firm <u>WSI</u>	
								Date/Time <u>5-8-12/1800</u>		Date/Time <u>5-9-12 0930</u>	
								Distribution: White - Return to Originator; Yellow - Retained by Client		JSCOC-3/11	

Leachate Sampling Form

Site: J.E.D. Solid Waste Management Facility

Date: May 8, 2012

Sampled By: J. Terry

Station: Leachate Primary Sump Cell 4

WACS ID: _____

Sample Rate: ~300 mL/min Sample Rate (VOC's): < 100 ml/min

Water Quality Meter (Make & Model): YSI 556 S/N or ID: 0642173AA

Sampling Method: ☐ Bailer ☐ Peristaltic Pump ☐ Submersible Pump ☒ Port* Pump (Make & Model): cell sump pump

Time	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Comments
1520	33.25	7.23	23.504	0.6	-187.1	0.11	dark brown	

Field Conditions/Observations: M. sunny, ~92°F

Detectable Odor: ☒ Yes ☐ No Describe: smoke-like

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION	INTENDED ANALYSIS AND/OR METHOD
# CONTAINERS	MATERIAL	VOLUME (ml)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	
3	Clear glass	40	None	None	8260
1	HDPE	250	HNO3	Pre-filled by Lab	Metals (Fe, Ca, Na, K, Mg, Mn)
1	HDPE	125	H2SO4	Pre-filled by Lab	NH ₃
2	Amber Glass	40	None	None	TOC
1	HDPE	250	None	None	Cl, Bic-Alk, SO ₄

Sample ID: LS-41 Sample Time: 1530 Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ☐ Courier ☒ UPS (Airbill No. 13XSW0982210006754) ☐ Other (_____)

Notes: *Leachate was collected into a 5 gallon food-grade plastic bucket from port in sump piping and then decanted into a 1-litre glass pitcher and then poured into sample containers. The bucket and glass pitcher was decontaminated in between sampling locations. When filling preserved VOA vials leachate effervesces when contacts HCL. Preserved VOA vials were rinsed with sample leachate to remove HCL and then filled unpreserved with no head space. Same for TOC sample vials.

Leachate Sampling Form

Site: J.E.D. Solid Waste Management Facility

Date: May 8, 2012

Sampled By: J. Terry

Station: Leachate Primary Sump Cell 5

WACS ID: _____

Sample Rate: ~300 mL/min Sample Rate (VOC's): <100 mL/min

Water Quality Meter (Make & Model): YSI 556 S/N or ID: 0642173AM

Sampling Method: ☐ Bailer ☐ Peristaltic Pump ☐ Submersible Pump ☒ Port* Pump (Make & Model): cell sump pump

Time	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Comments
1430	32.13	7.13	17.545	3.0	-89.9	2.8	dark brown	

Field Conditions/Observations: M. sunny, ~92°F

Detectable Odor: ☒ Yes ☐ No Describe: smoke-like

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION	INTENDED ANALYSIS AND/OR METHOD
# CONTAINERS	MATERIAL	VOLUME (ml)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	
3	Clear glass	40	None	None	8260
1	HDPE	250	HNO ₃	Pre-filled by Lab	Metals (Fe, Ca, Na, K, Mg, Mn)
1	HDPE	125	H ₂ SO ₄	Pre-filled by Lab	NH ₃
2	Amber Glass	40	None	None	TOC
1	HDPE	250	None	None	Cl, Bic-Alk, SO ₄

Sample ID: LS-5 Sample Time: 1440 Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ☐ Courier ☒ UPS (Airbill No. 1ZXS5W098220006754) ☐ Other (_____)

Notes: *Leachate was collected into a 5 gallon food-grade plastic bucket from port in sump piping and then decanted into a 1-litre glass pitcher and then poured into sample containers. The bucket and glass pitcher was decontaminated in between sampling locations. When filling preserved VOA vials leachate effervesces when contacts HCL. Preserved VOA vials were rinsed with sample leachate to remove HCL and then filled unpreserved with no head space. Same for TOC sample vials.

Form FD 9000-24

SITE NAME: J.E.D. SWMF (WACs Facility ID: 89544)		SITE LOCATION: 1501 Omni Way, St. Cloud, Osceola County, Florida, 34773	
WELL NO: MW-1A	SAMPLE ID: MW-1A	DATE: May 9, 2012	

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Joe Terry / WSI				SAMPLER(S) SIGNATURE(S): <i>Joe Terry</i>			SAMPLING INITIATED AT: 1700		SAMPLING ENDED AT: 1710	
PUMP OR TUBING DEPTH IN WELL (feet): 22				TUBING MATERIAL CODE: PE			FIELD-FILTERED: Y (N) Filtration Equipment Type:		FILTER SIZE: _____ µm	
FIELD DECONTAMINATION: PUMP Y (N)				TUBING Y (N (replaced))			DUPLICATE: Y (N)			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			SAMPLE PUMP FLOW RATE (mL per minute)	
MW-1A	3	CG	40mL	HCL	Prefilled by lab		Benzene by 8260		RFPP	<100
MW-1A	2	AG	40mL	HCL	Prefilled by lab		TOC		RFPP	<100
MW-1A	1	PE	250mL	HNO ₃	Prefilled by lab		Metals		APP	250
MW-1A	1	PE	125mL	H ₂ SO ₄	Prefilled by lab		NH ₃		APP	250
MW-1A	1	PE	250mL	None	None		Cl, Bic-Alk, SO ₄		APP	250
REMARKS: weather: m. sunny, ~92°F, slight breeze Odor: none Metals: Fe, Ca, Mg, Na, K, Mn										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: $\pm 5\%$ Dissolved Oxygen: all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally $+ 5$ NTU or $+ 10\%$ (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24
GROUNDWATER SAMPLING LOG

SITE NAME: J.E.D. SWMF (WACs Facility ID: 89544)		SITE LOCATION: 1501 Omni Way, St. Cloud, Osceola County, Florida, 34773	
WELL NO: MW-4A	SAMPLE ID: MW-4A	DATE: May 8, 2012	

PURGING DATA

WELL	TUBING	WELL SCREEN INTERVAL						STATIC DEPTH	PURGE PUMP TYPE		
DIAMETER (inches): 2.0	DIAMETER (inches): 0.25	DEPTH: feet to feet						TO WATER (feet): DRY	OR BAILER: peristaltic		
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (feet – feet) X 0.16 gallons/foot = gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = 0.0 gallons + (0.0026 gallons/foot X feet) + 0.12 gallons = gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):			FINAL PUMP OR TUBING DEPTH IN WELL (feet):			PURGING INITIATED AT:		PURGING ENDED AT:		TOTAL VOLUME PURGED (gallons):	
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (^o C)	COND. (circle units) μmhos/cm or μS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ORP (mv)
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016											
PURGING EQUIPMENT CODES: B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Joe Terry / WSI				SAMPLER(S) SIGNATURE(S): 			SAMPLING INITIATED AT:		SAMPLING ENDED AT:	
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE: PE			FIELD-FILTERED: Y N Filtration Equipment Type:		FILTER SIZE: _____ µm	
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)			DUPLICATE: Y N			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
	3	CG	40mL	HCL	Prefilled by lab		Benzene by 8260		RFPP	<100
	2	AG	40mL	HCL	Prefilled by lab		TOC		RFPP	<100
	1	PE	250mL	HNO ₃	Prefilled by lab		Metals		APP	
	1	PE	125mL	H ₂ SO ₄	Prefilled by lab		NH ₃		APP	
	1	PE	250mL	None	None		Cl, Bic-Alk, SO ₄		APP	
REMARKS: weather: Odor: Metals: Fe, Ca, Mg, Na, K, Mn										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, $+0.2$ mg/L or $+10\%$ (whichever is greater) **Turbidity:** all readings < 20 NTU; optionally $+5$ NTU or $+10\%$ (whichever is greater)

Revision Date: February 12, 2009

Field Instrument Calibration Record

Site: JED SWMF Date: May 7, 2012

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AM

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME12953

Time: 1945

Calibration Standard			Instrument Response	Percent Deviation ⁽¹⁾ or Difference	Allowable Deviation ⁽²⁾	Calibrated? Yes or No	Type of Calibration ⁽³⁾	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
C146449	Aug 1, 2013	pH = 4.00	4.11	0.11	0.2	Y	C	JT
C148066	Oct 6, 2013	pH = 7.00	7.09	0.09	0.2	Y	C	JT
C150016	Jan 4, 2013	pH = 10.00	9.98	0.02	0.2	Y	C	JT
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
C251755	April 2013	Turbidity = 10 NTU	10.04	0.4	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
C250574	Jan 24, 2013	Conductivity = 0.084 mS/cm	0.085	1.2	5%	Y	C	JT
C147260	Aug 30, 2013	Conductivity = 1.000 mS/cm	0.989	1.1	5%	Y	C	JT
	Per Table →	D.O. = 8.35 mg/L @ 24.4°C	8.40	0.044	0.2 mg/l	Y	C	JT

Date: May 9, 2012 Time: 0800

Calibration Standard			Instrument Response	Percent Deviation ⁽¹⁾ or Difference	Allowable Deviation ⁽²⁾	Calibrated? Yes or No	Type of Calibration ⁽³⁾	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
C146449	Aug 1, 2013	pH = 4.00	4.09	0.09	0.2	Y	C	JT
C148066	Oct 6, 2013	pH = 7.00	7.06	0.06	0.2	Y	C	JT
C150016	Jan 4, 2013	pH = 10.00	9.96	0.04	0.2	Y	C	JT
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
C251755	April 2013	Turbidity = 10 NTU	10.08	0.8	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
C250574	Jan 24, 2013	Conductivity = 0.084 mS/cm	0.084	0.0	5%	Y	C	JT
C147260	Aug 30, 2013	Conductivity = 1.000 mS/cm	0.993	0.7	5%	Y	C	JT
	Per Table →	D.O. = 8.27 mg/L @ 24.9°C	8.29	0.011	0.2 mg/l	Y	C	JT

Note (1): Percent Deviation = (Standard Value – Instrument Response) ÷ Standard Value x 100

Note (2): Allowable Deviation: pH ± 0.2 of Standard Value; Conductivity ± 5 % of Standard Value; Salinity ± 3 % of Standard Value; DO ± 0.2 mg/L;

Turbidity 0.1-10 NTU ± 10% of Standard Value, 11-40 NTU ± 8% of Standard Value, 41-100 NTU ± 6.5% of Standard Value, >100 NTU ± 5% of Standard Value

Note (3): Initial, Continual, Final



SR #

CAS Contact

www.caslab.com

[illegible]



Wind (dir/spd): varies/<1mph

NA = Not Applicable

Quarterly Groundwater Sampling MW-1A and MW-4A

August 6th, 2012.



August 17, 2012

Service Request No: J1203722

Kirk Wills
Waste Services of Florida, Inc.
11500 43rd Street North
Clearwater, FL 33762

Laboratory Results for: JED Pilot Study

Dear Kirk,

Enclosed are the results of the sample(s) submitted to our laboratory August 07, 2012
For your reference, these analyses have been assigned our service request number **J1203722**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the NELAC 2003 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 4409. You may also contact me via email at Craig.Myers@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Craig Myers
Project Manager



ADDRESS 9143 Philips Highway, Suite 200, Jacksonville, FL 32256

PHONE +1 904 739 2277 | FAX +1 904 739 2011

Columbia Analytical Services, Inc.

Part of the ALS Group A Campbell Brothers Limited Company

Environmental

www.caslab.com ■ www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Florida Department of Health	E82502	6/30/2013
North Carolina Department of Environment and Natural Resources	527	12/31/2012
Virginia Environmental Accreditation Program	460191	12/14/2012
Louisiana Department of Environmental Quality	02086	6/30/2013
Georgia Department of Natural Resources	958	6/30/2013
Kentucky Division of Waste Management	63	7/5/2013
South Carolina Department of Health and Environmental Control	96021001	6/30/2013
Texas Commision on Environmental Quality	T104704197-09-TX	5/31/2013
Maine Department of Health and Human Services	2011006	2/3/2013
Department of Defense	66206	5/31/2013

Data Qualifiers

Florida-DEP

- ! Data deviates from historically established concentration ranges
- * Not reported due to interference
- ? Data is rejected and should not be used
- A Value reported is the arithmetic mean of two or more determinations
- B Results based upon colony counts outside the acceptable range.
- D Measurement was made in the field.
- E Extra samples were taken at composite stations
- H Value based on field kit determination; results may not be accurate.
- I The reported value is between the laboratory method detection limit and the laboratory PQL.
- J Estimated value.
- K Off scale low. The value is less than the lowest calibration standard.
- L Off scale high. The analyte is above the acceptable level of quantitation.
- M The MDL/MRL has been elevated because the analyte could not be accurately quantified.
- N Presumptive evidence of presence of material.
- O Sampled, but analysis lost or not performed
- Q Sample held beyond the acceptable holding time.
- R Significant rain in the past 48 hours (typically in excess of 0.5 inches)
- T Estimated value, less than the MDL
- U Indicates that the compound was analyzed for but not detected.
- V Indicates that the analyte was detected in both the sample and the associated method blank.
- X Insufficient individuals were present in the sample to achieve a minimum of 280 organisms for identification (Stream Condition Index Analysis only)
- Y The laboratory analysis was from an unpreserved or improperly preserved sample.
- Z Too many colonies were present, the numeric value represents the filtration volume

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study

Service Request: J1203722

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
J1203722-001	MW-4A	8/6/2012	0920
J1203722-002	Trip Blank	8/6/2012	0000
J1203722-003	MW-1A	8/6/2012	1000

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water

Service Request: J1203722
Date Collected: 08/06/12 09:20
Date Received: 08/07/12 09:30

Sample Name: MW-4A
Lab Code: J1203722-001

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Benzene	4.04	1.00	0.210	1	08/15/12 03:22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	112	72 - 121	08/15/12 03:22	
4-Bromofluorobenzene	106	86 - 113	08/15/12 03:22	
Dibromofluoromethane	102	86 - 112	08/15/12 03:22	
Toluene-d8	91	88 - 115	08/15/12 03:22	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water
Sample Name: MW-4A
Lab Code: J1203722-001

Service Request: J1203722
Date Collected: 08/06/12 09:20
Date Received: 08/07/12 09:30
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Iron, Total Recoverable	6010B	3090	ug/L	100	3	1	08/08/12 20:46	8/8/12	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water
Sample Name: MW-4A
Lab Code: J1203722-001

Service Request: J1203722
Date Collected: 08/06/12 09:20
Date Received: 08/07/12 09:30
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO ₃ , Total	SM 2320 B	15.4	mg/L	5.0	5.0	1	08/13/12 18:03	
Ammonia as Nitrogen	350.1	4.56	mg/L	0.010	0.007	1	08/08/12 16:51	
Bicarbonate Alkalinity as CaCO ₃	SM 2320 B	15.4	mg/L	5.0	5.0	1	08/13/12 18:03	
Carbonate Alkalinity as CaCO ₃	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	08/13/12 18:03	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water

Service Request: J1203722
Date Collected: 08/06/12 00:00
Date Received: 08/07/12 09:30

Sample Name: Trip Blank
Lab Code: J1203722-002

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Benzene	0.210 U	1.00	0.210	1	08/15/12 03:53	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	113	72 - 121	08/15/12 03:53	
4-Bromofluorobenzene	108	86 - 113	08/15/12 03:53	
Dibromofluoromethane	101	86 - 112	08/15/12 03:53	
Toluene-d8	92	88 - 115	08/15/12 03:53	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water

Service Request: J1203722
Date Collected: 08/06/12 10:00
Date Received: 08/07/12 09:30

Sample Name: MW-1A
Lab Code: J1203722-003

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Benzene	2.50	1.00	0.210	1	08/15/12 04:24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	115	72 - 121	08/15/12 04:24	
4-Bromofluorobenzene	101	86 - 113	08/15/12 04:24	
Dibromofluoromethane	104	86 - 112	08/15/12 04:24	
Toluene-d8	91	88 - 115	08/15/12 04:24	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water
Sample Name: MW-1A
Lab Code: J1203722-003

Service Request: J1203722
Date Collected: 08/06/12 10:00
Date Received: 08/07/12 09:30
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Iron, Total Recoverable	6010B	1790	ug/L	100	3	1	08/08/12 20:50	8/8/12	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water
Sample Name: MW-1A
Lab Code: J1203722-003

Service Request: J1203722
Date Collected: 08/06/12 10:00
Date Received: 08/07/12 09:30
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO ₃ , Total	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	08/13/12 18:08	
Ammonia as Nitrogen	350.1	12.5	mg/L	0.020	0.014	2	08/08/12 17:13	
Bicarbonate Alkalinity as CaCO ₃	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	08/13/12 18:08	
Carbonate Alkalinity as CaCO ₃	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	08/13/12 18:08	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water

Service Request: J1203722
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: JQ1205137-02

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Benzene	0.210 U	1.00	0.210	1	08/15/12 00:15	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	112	72 - 121	08/15/12 00:15	
4-Bromofluorobenzene	108	86 - 113	08/15/12 00:15	
Dibromofluoromethane	101	86 - 112	08/15/12 00:15	
Toluene-d8	92	88 - 115	08/15/12 00:15	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: J1203722-MB

Service Request: J1203722
Date Collected: NA
Date Received: NA
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Iron, Total Recoverable	6010B	3 I	ug/L	100	3	1	08/08/12 19:53	8/8/12	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: J1203722-MB

Service Request: J1203722
Date Collected: NA
Date Received: NA
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO ₃ , Total	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	08/13/12 17:48	
Ammonia as Nitrogen	350.1	0.007 U	mg/L	0.010	0.007	1	08/08/12 16:47	
Bicarbonate Alkalinity as CaCO ₃	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	08/13/12 17:48	
Carbonate Alkalinity as CaCO ₃	SM 2320 B	5.0 U	mg/L	5.0	5.0	1	08/13/12 17:48	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.**Service Request:** J1203722**Project:** JED Pilot Study**Sample Matrix:** Water**SURROGATE RECOVERY SUMMARY**

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Sample Name	Lab Code	1,2-Dichloroethane-d4	4-Bromofluorobenzene	Dibromofluoromethane
		72 - 121	86 - 113	86 - 112
MW-4A	J1203722-001	112	106	102
Trip Blank	J1203722-002	113	108	101
MW-1A	J1203722-003	115	101	104
Lab Control Sample	JQ1205137-01	108	108	101
Method Blank	JQ1205137-02	112	108	101

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.**Service Request:** J1203722**Project:** JED Pilot Study**Sample Matrix:** Water**SURROGATE RECOVERY SUMMARY**

Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Sample Name	Lab Code	Toluene-d8
		88 - 115
MW-4A	J1203722-001	91
Trip Blank	J1203722-002	92
MW-1A	J1203722-003	91
Lab Control Sample	JQ1205137-01	91
Method Blank	JQ1205137-02	92

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water

Service Request: J1203722
Date Analyzed: 08/14/12

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Units: ug/L

Basis: NA

Analysis Lot: 304874

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	JQ1205137-01	20.2	20.0	101	80-117

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water

Service Request: J1203722
Date Analyzed: 08/08/12
Date Extracted: 08/08/12

Lab Control Sample Summary
Inorganic Parameters

Analysis Method: 6010B
Prep Method: EPA 3005A

Units: ug/L
Basis: NA
Analysis Lot: 303998

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	J1203722-LCS	5190	5000	104	80-120

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Waste Services of Florida, Inc.
Project: JED Pilot Study
Sample Matrix: Water

Service Request: J1203722
Date Analyzed: 08/08/12 - 08/13/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L**Basis:** NA**Lab Control Sample**

J1203722-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity as CaCO ₃ , Total	SM 2320 B	238	250	95	85-115
Ammonia as Nitrogen	350.1	1.03	1.00	103	90-110

Cooler Receipt Form

Client: WSI Service Request #: 51203722
 Project: JED Pilot Study
 Cooler received on 8/7/12 and opened on 8/7/12 by SL
 COURIER: ALS ☒ FEDEX Client Other _____ Airbill # 12X5W0982210007806

- 1 Were custody seals on outside of cooler? ☒ No
 If yes, how many and where? #: 1 in lid other _____
- 2 Were seals intact and signature and date correct? ☒ No N/A
- 3 Were custody papers properly filled out? ☒ No N/A
- 4 Temperature of cooler(s) upon receipt (Should be > 0°C and < 6°C) 1.98 _____
- 5 Thermometer ID 781 _____
- 6 Temperature Blank Present? ☒ No
- 7 Were Ice or Ice Packs present ☒ Ice Packs No
- 8 Did all bottles arrive in good condition (unbroken, etc....)? ☒ No N/A
- 9 Type of packing material present
 Netting Vial Holder Bubble Wrap
 Paper Styrofoam Other N/A
- 10 Were all bottle labels complete (sample ID, preservation, etc....)? ☒ No N/A
- 11 Did all bottle labels and tags agree with custody papers? ☒ No N/A
- 12 Were the correct bottles used for the tests indicated? ☒ No N/A
- 13 Were all of the preserved bottles received with the appropriate preservative?
HNO3 pH<2 H2SO4 pH<2 ZnAc2/NaOH pH>9 NaOH pH>12 HCl pH<2
Preservative additions noted below
- 14 Were all samples received within analysis holding times? ☒ No N/A
- 15 Were all VOA vials free of air bubbles? If present, note below ☒ No N/A
- 16 Where did the bottles originate? ☒ Client

Sample ID	Reagent	Lot #	ml added	Initials Date/Time

Additional comments and/or explanation of all discrepancies noted above:

Client approval to run samples if discrepancies noted:

Date:



SR# J1203722 CAS Contract

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Field Instrument Calibration Record

Site: SED SVE Pilot Quarterly Sampling Date: Aug. 5, 2012

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AM

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME12953

Time: 2130

Calibration Standard			Instrument Response	Percent Deviation ⁽¹⁾ or Difference	Allowable Deviation ⁽²⁾	Calibrated? Yes or No	Type of Calibration ⁽³⁾	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
C146449	Aug 1, 2013	pH = 4.00	4.03	0.08	0.2	y	C	DT
C148066	Oct 6, 2013	pH = 7.00	7.05	0.05	0.2	y	C	DT
C150016	Jan 4, 2013	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
C251755	April 2013	Turbidity = 10 NTU	9.84	1.1	10%	y	C	DT
C250574	Jan 24, 2013	Conductivity = 84 µS/cm	85	1.2	5%	y	C	DT
C142041	March 2013	Conductivity = 500 µS/cm	498	0.4	5%	y	C	DT
C147260	Aug 30, 2013	Conductivity = 1,000 µS/cm			5%			
	Per Table →	D.O. = 8.309 mg/L @ 24.7 °C	8.27	0.04	0.2 mg/l	y	C	DT

Date: Aug. 6, 2012 Time: 1745

Calibration Standard			Instrument Response	Percent Deviation ⁽¹⁾ or Difference	Allowable Deviation ⁽²⁾	Calibrated? Yes or No	Type of Calibration ⁽³⁾	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
C146449	Aug 1, 2013	pH = 4.00	4.04	0.04	0.2	y	C	DT
C148066	Oct 6, 2013	pH = 7.00	7.07	0.07	0.2	y	C	DT
C150016	Jan 4, 2013	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
C251755	April 2013	Turbidity = 10 NTU	9.93	0.7	10%	y	C	DT
C250574	Jan 24, 2013	Conductivity = 84 µS/cm	84	0.0	5%	y	C	DT
C142041	March 2013	Conductivity = 500 µS/cm	496	0.8	5%	y	C	DT
C147260	Aug 30, 2013	Conductivity = 1,000 µS/cm			5%			
	Per Table →	D.O. = 8.248 mg/L @ 25.1 °C	8.25	0.002	0.2 mg/l	y	C	DT

Note (1): Percent Deviation = (Standard Value – Instrument Response) ÷ Standard Value x 100

Note (2): Allowable Deviation: pH ± 0.2 of Standard Value; Conductivity ± 5 % of Standard Value; Salinity ± 3 % of Standard Value; DO ± 0.2 mg/L;

Turbidity 0.1-10 NTU ± 10% of Standard Value, 11-40 NTU ± 8% of Standard Value, 41-100 NTU ± 6.5% of Standard Value, >100 NTU ± 5% of Standard Value

Note (3): Initial, Continual, Final



Field Instrument Calibration Record

Site: SED SVE Pilot Study Date: Aug. 6, 2012 Time: 0745

Calibration Performed by: Joe Terry Company: Waste Services of Florida, Inc.

Instrument Make and Model: LANDTEC GEM2000

Instrument Serial Number: GM11327

Calibration Gas			Span Setting	Instrument Response
Lot No.	Expiration Date	Gas		
LTJ171-MD-CM	Sept. 2014	Methane	50%	50
LTJ171-MD-CM	Sept. 2014	Carbon Dioxide	35%	35
NA	NA	Ambient Oxygen	20.8%	20.8

NA = Not Applicable

Notes: Calibrated



PAGE 1 OF 1

CAS Contract

Distribution: White - Return to Originator; Yellow - Retained by Client

Form FD 9000-24

SITE NAME: J.E.D. SWMF (WACs Facility ID: 89544)		SITE LOCATION: 1501 Omni Way, St. Cloud, Osceola County, Florida, 34773	
WELL NO: MW-4A	SAMPLE ID: MW-4A		DATE: Aug. 6, 2012

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLER(S) SIGNATURE(S): <i>Joe Terry</i>				SAMPLING INITIATED AT: 0920		SAMPLING ENDED AT: 0928						
PUMP OR TUBING DEPTH IN WELL (feet): 21				TUBING MATERIAL CODE: PE		FIELD-FILTERED: Y (N) FILTER SIZE: _____ µm						
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced)				DUPLICATE: Y (N)								
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH						
MW-4A	3	CG	40mL	HCL	Prefilled by lab		Benzene by 8260		RFPP		<100	
MW-4A	1	PE	250mL	HNO ₃	Prefilled by lab		Iron		APP		260	
MW-4A	1	PE	250mL	None	None		Bicarb-Alkalinity		APP		260	
MW-4A	1	PE	125mL	H ₂ SO ₄	Prefilled by lab		NH ₃		APP		260	
REMARKS: weather: clear, 82°F												
Odor: slight sulfur-like												
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)												
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)												

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, $+0.2$ mg/L or $+10\%$ (whichever is greater) **Turbidity:** all readings < 20 NTU; optionally $+5$ NTU or $+10\%$ (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

SITE NAME: J.E.D. SWMF (WACs Facility ID: 89544)		SITE LOCATION: 1501 Omni Way, St. Cloud, Osceola County, Florida, 34773	
WELL NO: MW-1A	SAMPLE ID: MW-1A	DATE: Aug. 6, 2012	

PURGING DATA

WELL DIAMETER (inches): 2.0		TUBING DIAMETER (inches): 0.25		WELL SCREEN INTERVAL DEPTH: 13 feet to 23 feet		STATIC DEPTH TO WATER (feet): 18.05		PURGE PUMP TYPE OR BAILER: peristaltic			
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (23 feet - 18.05 feet) X 0.16 gallons/foot = 0.8 gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = 0.0 gallons + (0.0026 gallons/foot X feet) + 0.12 gallons = gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 21			FINAL PUMP OR TUBING DEPTH IN WELL (feet): 21			PURGING INITIATED AT: 0930		PURGING ENDED AT: 0955		TOTAL VOLUME PURGED (gallons): 6.2	
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm <u>or µS/cm</u>	DISSOLVED OXYGEN (circle units) <u>mg/L or</u> % saturation	TURBIDITY (NTUs)	COLOR (describe)	ORP (mV)
0945	5.4	5.4	0.08	18.51	4.69	26.86	1951	0.84	0.8	clear	26.8
0950	0.4	5.8	0.08	18.51	4.69	26.91	1934	0.79	0.7	clear	42.0
0955	0.4	6.2	0.08	18.51	4.70	26.89	1930	0.74	0.9	clear	41.3
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016											
PURGING EQUIPMENT CODES: B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Joe Terry / WSI				SAMPLER(S) SIGNATURE(S): <i>Joe Terry</i>			SAMPLING INITIATED AT: 1000		SAMPLING ENDED AT: 1010	
PUMP OR TUBING DEPTH IN WELL (feet): 21				TUBING MATERIAL CODE: PE			FIELD-FILTERED: Y (N)		FILTER SIZE: _____ µm	
FIELD DECONTAMINATION: PUMP Y (N)				TUBING Y (N) (replaced)			DUPLICATE: Y (N)			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
MW-1A	3	CG	40mL	HCL	Prefilled by lab		Benzene by 8260		RFPP	<100
MW-1A	1	PE	250mL	HNO ₃	Prefilled by lab		Iron		APP	300
MW-1A	1	PE	250mL	None	None		Bicarb-Alkalinity		APP	300
MW-1A	1	PE	125mL	H ₂ SO ₄	Prefilled by lab		NH ₃		APP	300
REMARKS: weather: clear, 82°F										
Odor: none										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

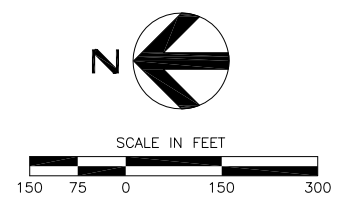
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, $+0.2$ mg/L or $+10\%$ (whichever is greater) **Turbidity:** all readings < 20 NTU; optionally $+5$ NTU or $+10\%$ (whichever is greater)

Revision Date: February 12, 2009

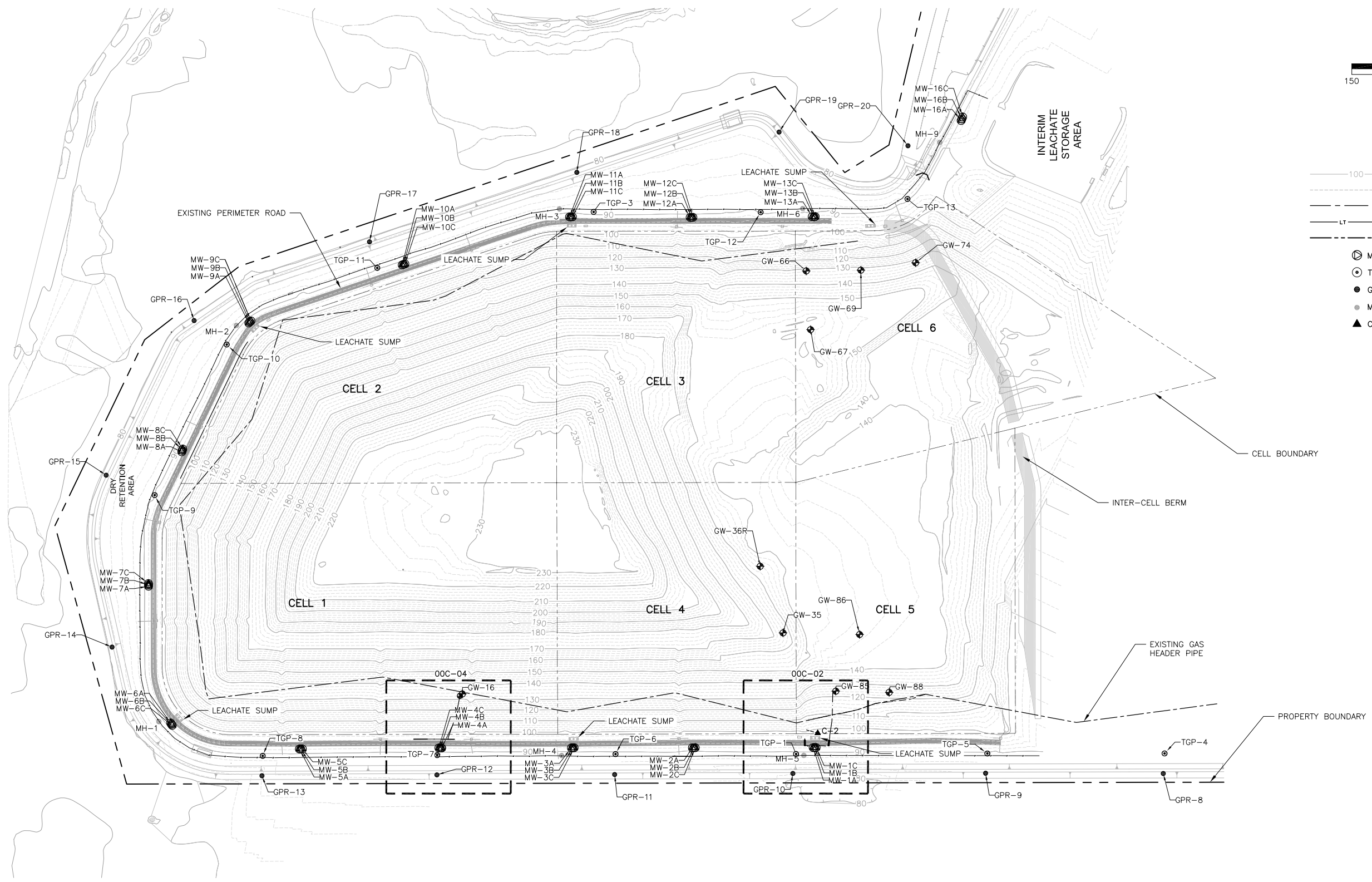
Attachment C

Record Drawings



LEGEND

- 100 EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- EXISTING GAS HEADER PIPE
- LT EXISTING LEACHATE FORCEMAIN
- EXISTING CELL BOUNDARY
- MW-1A EXISTING MONITORING WELLS
- TPG-4 TEMPORARY GAS PROBE
- GPR-1 GAS PROBE
- MH-1 MANHOLE
- C-2 STRUCTURAL SOIL FILL EXTRACTION WELL LOCATION



HDR Engineering, Inc.
200 W Forsyth St
Jacksonville, FL 32202

ISSUE	DATE	DESCRIPTION

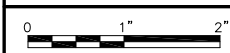
PROJECT MANAGER	B. STONE, P.E.
DESIGN BY	C. KOENIG, P.E.
DESIGN BY	
CHECKED BY	B. STONE, P.E.
DRAWN BY	C. BREWER
PROJECT NUMBER	174075



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

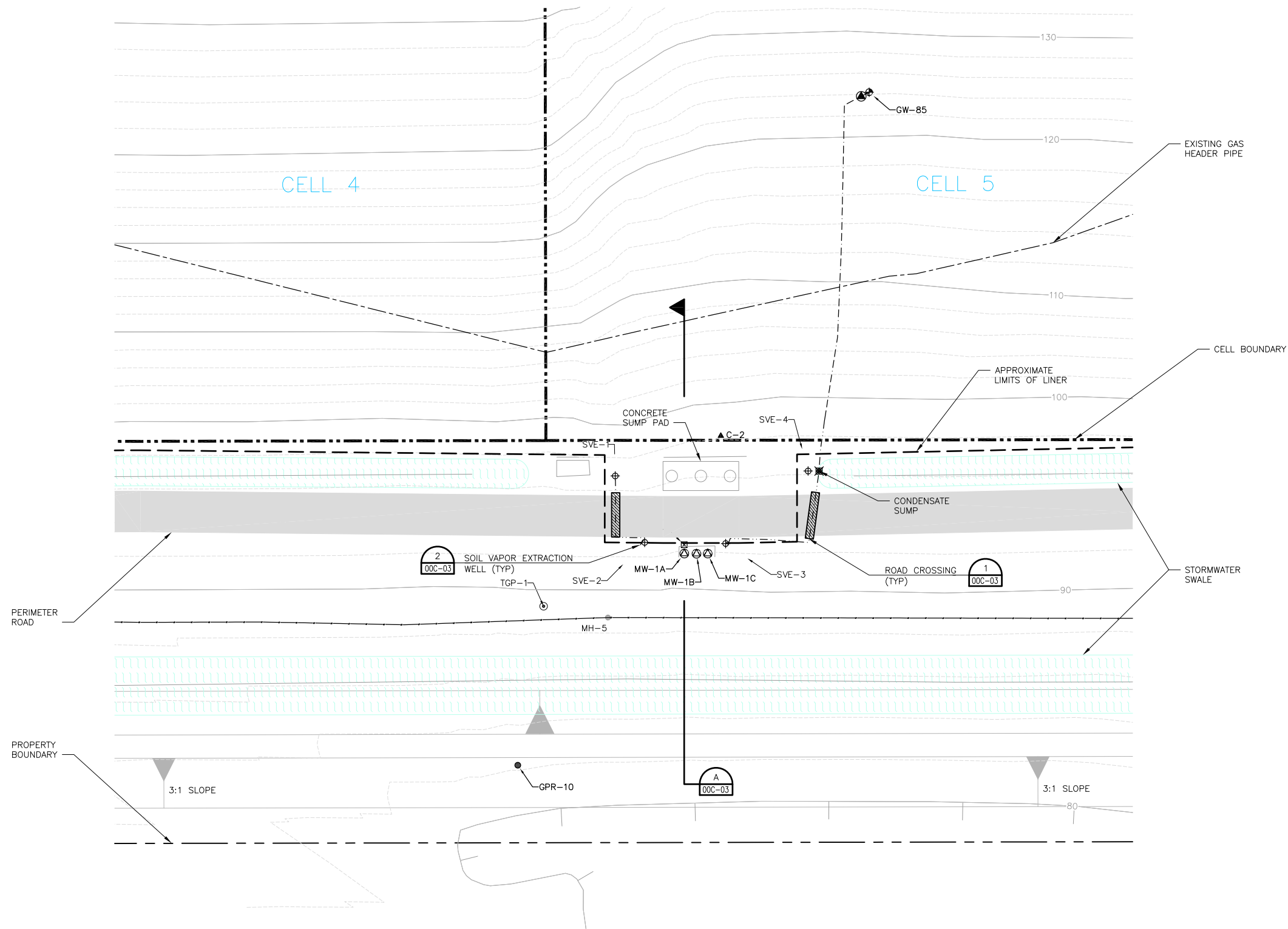
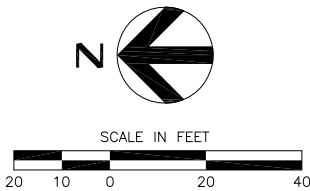
1501 Omni Way St. Cloud, FL. 34773
(407) 891-3720

SITE PLAN



FILENAME	OOC-01.dwg
SCALE	AS SHOWN

SHEET
OOC-01



LEGEND

- 100 EXISTING CONTOURS (MAJOR)
- 110 EXISTING CONTOURS (MINOR)
- LT EXISTING GAS HEADER PIPE
- EXISTING LEACHATE FORCEMAIN
- EXISTING CELL BOUNDARY
- EXISTING LIMITS OF LINER (APPROX)
- 4" Ø HDPE SDR 11
- MW-1A EXISTING MONITORING WELLS
- TPG-1 TEMPORARY GAS PROBE
- GPR-10 GAS PROBE
- MH-5 MANHOLE
- C-2 STRUCTURAL SOIL FILL EXTRACTION TEST WELL LOCATION
- VZA VADOSE ZONE AERATION WELL
- SVE-1 SOIL VAPOR EXTRACTION WELL
- CONDENSATE SUMP
- SVE MAIN WELLHEAD

NOTES:
1. REFER TO GCCS AS-BUILTS FOR LOCATIONS OF GAS EXTRACTION WELLS IN THE VICINITY OF THE GAS HEADER PIPE SHOWN ON THIS DRAWING.



HDR Engineering, Inc.
200 W Forsyth St
Jacksonville, FL 32202

ISSUE	DATE	DESCRIPTION

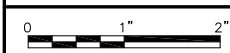
PROJECT MANAGER	B. STONE, P.E.
DESIGN BY	C. KOENIG, P.E.
CHECKED BY	B. STONE, P.E.
DRAWN BY	C. BREWER
PROJECT NUMBER	174075



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

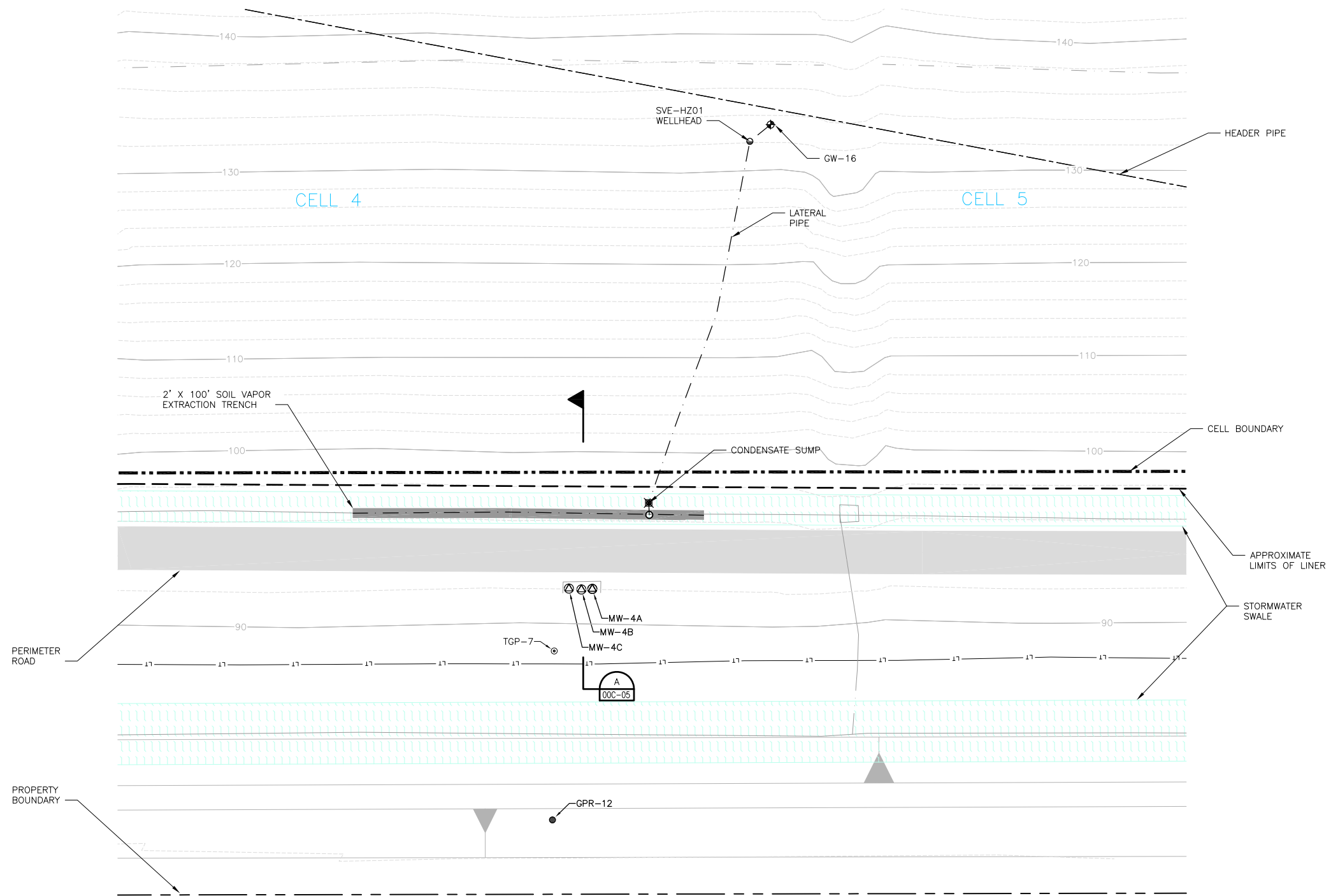
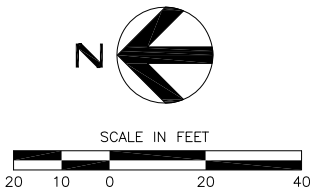
1501 Omni Way St. Cloud, FL. 34773
(407) 891-3720

PILOT VERTICAL SOIL VAPOR EXTRACTION
RECORD DRAWING



FILENAME	OOC-02.dwg
SCALE	AS SHOWN

SHEET
00C-02



- LEGEND**
- 100 ——— EXISTING CONTOURS (MAJOR)
 - EXISTING CONTOURS (MINOR)
 - EXISTING HEADER PIPE
 - LT ——— EXISTING LEACHATE FORCEMAIN
 - EXISTING CELL BOUNDARY
 - EXISTING LIMITS OF LINER (APPROX)
 - 4" Ø HDPE SDR 11 HORIZONTAL WELL
 - CONDENSATE SUMP
 - ⊙ MW-4A EXISTING MONITORING WELLS
 - ⊙ TGP-7 TEMPORARY GAS PROBE
 - GPR-12 GAS PROBE
 - MH-1 MANHOLE
 - SVE-HZ01 WELLHEAD

HDR Engineering, Inc.
200 W Forsyth St
Jacksonville, FL 32202

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

Waste Services, Inc.

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

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

**PILOT HORIZONTAL SOIL VAPOR
EXTRACTION TRENCH
RECORD DRAWING**

0 1" 2"

FILENAME	00C-04.dwg
SCALE	AS SHOWN

SHEET	00C-04
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