

May 17, 2010

Service Request No: J1001501

Handi Wang
HDR Engineering

200 W. Forsyth Street, Suite 800
Jacksonville, FL 32202

Laboratory Results for: Trail Ridge Landfill

Dear Handi:

Enclosed are the results of the sample(s) submitted to our laboratory on April 6, 2010. For your reference, these analyses have been assigned our service request number **J1001501**.

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.

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.



Craig Myers
Project Manager

Page 1 of 32

CAS Jacksonville is NELAC-accredited by the State of Florida, #E82502. Other state accreditations include: Georgia, #958; Kentucky, #63; Louisiana, #02086; North Carolina, #527; South Carolina, #96021001; Texas, #T104704197-09-TX.

COLUMBIA ANALYTICAL SERVICES, INC.

Client: HDR Engineering
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request No.: J1001501
Date Received: 4/6/10

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

Four water samples and one trip blank were received for analysis at Columbia Analytical Services on 4/6/10. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 4±2°C upon receipt at the lab except for aqueous samples designated for metals analyses, which were stored at room temperature.

Volatile Organic Compounds by GC-MS

The sample was analyzed for Volatile Organics using EPA Method 8260. No problems were observed.

Batch QC Notes and Discussion

Quality control samples for MS/DMS were performed using samples from another sample delivery group (SDG). The frequency requirement for quality control sample analysis was consistent with the project's requirements. Matrix specific quality control results have no bearing on sample data from a different matrix or location. Therefore, control of the batch has been evaluated using the method blank and the laboratory control sample.

Metals by ICP-MS/ICP-OES

The samples were analyzed for Total Metals using EPA Methods 6020/6010B. No problems were observed.

Batch QC Notes and Discussion

Quality control samples (i.e., Dup/Spike or MS/DMS samples) were performed using samples from another sample delivery group (SDG). The frequency requirement for quality control sample analysis was consistent with the project's requirements. Matrix specific quality control results have no bearing on sample data from a different matrix or location. Therefore, control of the batch has been evaluated using the method blank and the laboratory control sample.

General Chemistry Parameters

The sample was analyzed for Fecal Coliform using Standard Method 9222 D. No problems were observed.

Approved by _____

Date _____

5/17/10

(Revision 1)

Florida DEP Data Qualifiers

- B Results based upon colony counts outside the acceptable range.
- D Measurement was made in the field.
- 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 practical quantitation limit.
- J Estimated value (one of the following reasons is discussed in the project case narrative).
1. The result may be inaccurate because the surrogate recovery limits have been exceeded.
 2. No known quality control criteria exists for the component.
 3. The reported value failed to meet the established quality control criteria for either precision or accuracy.
 4. The sample matrix interfered with the ability to make any accurate determination (e.g., primary and confirmation results show greater than 40% RPD).
 5. The data is questionable because of improper laboratory or field protocols (e.g., GC/MS Tune did not meet method criteria).
- K Off scale low. The value is less than the lowest calibration standard but greater than the method reporting limit (MRL).
- L Off scale high. The analyte is above the upper limit of the linear calibration range.
- M The MDL/MRL has been elevated because the analyte could not be accurately quantified due to matrix interference.
- N Presumptive evidence of the analyte. Confirmation was not performed.
- Q Sample held beyond the accepted holding time.
- T Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only.
- 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.
- Y The laboratory analysis was from an improperly preserved sample.
- Z Too many colonies were present (TNTC). 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:
Project: Trail Ridge Landfill

Service Request: J1001501

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
J1001501-001	MWB-25	4/6/10	08:32
J1001501-002	SW-2	4/6/10	08:45
J1001501-003	SW-1	4/6/10	09:00
J1001501-004	SW-3	4/6/10	09:20
J1001501-005	Trip Blank	4/6/10	00:00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501
Date Collected: 04/06/2010
Date Received: 04/06/2010

Appendix I Volatile Organic Compounds by GC/MS

Sample Name: MWB-2S
Lab Code: J1001501-001
Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Regulatory Limit	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloromethane	ND	U	1.0	0.13	2.7	1	04/07/10	04/07/10	
Vinyl Chloride	ND	U	1.0	0.16	1	1	04/07/10	04/07/10	
Bromomethane	ND	U	1.0	0.49	9.8	1	04/07/10	04/07/10	
Chloroethane	ND	U	5.0	0.68	12	1	04/07/10	04/07/10	
Trichlorofluoromethane	ND	U	20	0.71	2100	1	04/07/10	04/07/10	
1,1-Dichloroethene	ND	U	1.0	0.41	7	1	04/07/10	04/07/10	
Acetone	ND	U	50	5.6	6300	1	04/07/10	04/07/10	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.7		1	04/07/10	04/07/10	
Carbon Disulfide	ND	U	10	3.1	700	1	04/07/10	04/07/10	
Methylene Chloride	ND	U	5.0	0.45	5	1	04/07/10	04/07/10	
trans-1,2-Dichloroethene	ND	U	1.0	0.39	100	1	04/07/10	04/07/10	
Acrylonitrile	ND	U	10	2.7	0.06	1	04/07/10	04/07/10	
1,1-Dichloroethane	ND	U	1.0	0.37	70	1	04/07/10	04/07/10	
Vinyl Acetate	ND	U	10	2.7	88	1	04/07/10	04/07/10	
cis-1,2-Dichloroethene	ND	U	1.0	0.083	70	1	04/07/10	04/07/10	
2-Butanone (MEK)	ND	U	10	2.5	4200	1	04/07/10	04/07/10	
Bromochloromethane	ND	U	5.0	0.67	91	1	04/07/10	04/07/10	
Chloroform	ND	U	1.0	0.35	70	1	04/07/10	04/07/10	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.48	200	1	04/07/10	04/07/10	
Carbon Tetrachloride	ND	U	1.0	0.34	3	1	04/07/10	04/07/10	
Benzene	ND	U	1.0	0.066	1	1	04/07/10	04/07/10	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.30	3	1	04/07/10	04/07/10	
Trichloroethene (TCE)	ND	U	1.0	0.12	3	1	04/07/10	04/07/10	
1,2-Dichloropropane	ND	U	1.0	0.30	5	1	04/07/10	04/07/10	
Dibromomethane	ND	U	5.0	0.39	70	1	04/07/10	04/07/10	
Bromodichloromethane	ND	U	1.0	0.19	0.6	1	04/07/10	04/07/10	
cis-1,3-Dichloropropene	ND	U	1.0	0.15	0.2	1	04/07/10	04/07/10	
4-Methyl-2-pentanone (MIBK)	ND	U	25	2.2	560	1	04/07/10	04/07/10	
Toluene	ND	U	1.0	0.47	40	1	04/07/10	04/07/10	
trans-1,3-Dichloropropene	ND	U	1.0	0.16	0.2	1	04/07/10	04/07/10	
1,1,2-Trichloroethane	ND	U	1.0	0.48	5	1	04/07/10	04/07/10	
Tetrachloroethene (PCE)	ND	U	1.0	0.17	3	1	04/07/10	04/07/10	
2-Hexanone	ND	U	25	2.1	280	1	04/07/10	04/07/10	
Dibromochloromethane	ND	U	1.0	0.34	0.4	1	04/07/10	04/07/10	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501
Date Collected: 04/06/2010
Date Received: 04/06/2010

Appendix I Volatile Organic Compounds by GC/MS

Sample Name: MWB-2S
Lab Code: J1001501-001
Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Regulatory Limit	Dilution Factor	Date Extracted	Date Analyzed	Note
1,2-Dibromoethane (EDB)	ND	U	1.0	0.47	0.02	1	04/07/10	04/07/10	
Chlorobenzene	ND	U	1.0	0.42	100	1	04/07/10	04/07/10	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.45	1.3	1	04/07/10	04/07/10	
Ethylbenzene	ND	U	1.0	0.52	30	1	04/07/10	04/07/10	
m,p-Xylenes	ND	U	2.0	1.1	20	1	04/07/10	04/07/10	
o-Xylene	ND	U	1.0	0.49	20	1	04/07/10	04/07/10	
Styrene	ND	U	1.0	0.49	100	1	04/07/10	04/07/10	
Bromoform	ND	U	2.0	0.44	4.4	1	04/07/10	04/07/10	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.16	0.2	1	04/07/10	04/07/10	
1,2,3-Trichloropropane	ND	U	2.0	0.66	0.02	1	04/07/10	04/07/10	
1,4-Dichlorobenzene	ND	U	1.0	0.46	75	1	04/07/10	04/07/10	
trans-1,4-Dichloro-2-butene	ND	U	20	4.3		1	04/07/10	04/07/10	
1,2-Dichlorobenzene	ND	U	1.0	0.48	600	1	04/07/10	04/07/10	
1,2-Dibromo-3-chloropropane (DBCP)	ND	U	5.0	2.3	0.2	1	04/07/10	04/07/10	

Surrogate Name	%Rec	Control Limits	Note
1,2-Dichloroethane-d4	102	71-122	Acceptable
4-Bromofluorobenzene	104	75-120	Acceptable
Dibromofluoromethane	101	82-116	Acceptable
Toluene-d8	104	88-117	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501
Date Collected: 04/06/2010
Date Received: 04/06/2010

Appendix I Volatile Organic Compounds by GC/MS

Sample Name: Trip Blank
Lab Code: J1001501-005
Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Regulatory Limit	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloromethane	ND	U	1.0	0.13	2.7	1	04/07/10	04/07/10	
Vinyl Chloride	ND	U	1.0	0.16	1	1	04/07/10	04/07/10	
Bromomethane	ND	U	1.0	0.49	9.8	1	04/07/10	04/07/10	
Chloroethane	ND	U	5.0	0.68	12	1	04/07/10	04/07/10	
Trichlorofluoromethane	ND	U	20	0.71	2100	1	04/07/10	04/07/10	
1,1-Dichloroethene	ND	U	1.0	0.41	7	1	04/07/10	04/07/10	
Acetone	ND	U	50	5.6	6300	1	04/07/10	04/07/10	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.7		1	04/07/10	04/07/10	
Carbon Disulfide	ND	U	10	3.1	700	1	04/07/10	04/07/10	
Methylene Chloride	ND	U	5.0	0.45	5	1	04/07/10	04/07/10	
trans-1,2-Dichloroethene	ND	U	1.0	0.39	100	1	04/07/10	04/07/10	
Acrylonitrile	ND	U	10	2.7	0.06	1	04/07/10	04/07/10	
1,1-Dichloroethane	ND	U	1.0	0.37	70	1	04/07/10	04/07/10	
Vinyl Acetate	ND	U	10	2.7	88	1	04/07/10	04/07/10	
cis-1,2-Dichloroethene	ND	U	1.0	0.083	70	1	04/07/10	04/07/10	
2-Butanone (MEK)	ND	U	10	2.5	4200	1	04/07/10	04/07/10	
Bromochloromethane	ND	U	5.0	0.67	91	1	04/07/10	04/07/10	
Chloroform	ND	U	1.0	0.35	70	1	04/07/10	04/07/10	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.48	200	1	04/07/10	04/07/10	
Carbon Tetrachloride	ND	U	1.0	0.34	3	1	04/07/10	04/07/10	
Benzene	ND	U	1.0	0.066	1	1	04/07/10	04/07/10	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.30	3	1	04/07/10	04/07/10	
Trichloroethene (TCE)	ND	U	1.0	0.12	3	1	04/07/10	04/07/10	
1,2-Dichloropropane	ND	U	1.0	0.30	5	1	04/07/10	04/07/10	
Dibromomethane	ND	U	5.0	0.39	70	1	04/07/10	04/07/10	
Bromodichloromethane	ND	U	1.0	0.19	0.6	1	04/07/10	04/07/10	
cis-1,3-Dichloropropene	ND	U	1.0	0.15	0.2	1	04/07/10	04/07/10	
4-Methyl-2-pentanone (MIBK)	ND	U	25	2.2	560	1	04/07/10	04/07/10	
Toluene	ND	U	1.0	0.47	40	1	04/07/10	04/07/10	
trans-1,3-Dichloropropene	ND	U	1.0	0.16	0.2	1	04/07/10	04/07/10	
1,1,2-Trichloroethane	ND	U	1.0	0.48	5	1	04/07/10	04/07/10	
Tetrachloroethene (PCE)	ND	U	1.0	0.17	3	1	04/07/10	04/07/10	
2-Hexanone	ND	U	25	2.1	280	1	04/07/10	04/07/10	
Dibromochloromethane	ND	U	1.0	0.34	0.4	1	04/07/10	04/07/10	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501
Date Collected: 04/06/2010
Date Received: 04/06/2010

Appendix I Volatile Organic Compounds by GC/MS

Sample Name: Trip Blank
Lab Code: J1001501-005
Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Regulatory Limit	Dilution Factor	Date Extracted	Date Analyzed	Note
1,2-Dibromoethane (EDB)	ND	U	1.0	0.47	0.02	1	04/07/10	04/07/10	
Chlorobenzene	ND	U	1.0	0.42	100	1	04/07/10	04/07/10	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.45	1.3	1	04/07/10	04/07/10	
Ethylbenzene	ND	U	1.0	0.52	30	1	04/07/10	04/07/10	
m,p-Xylenes	ND	U	2.0	1.1	20	1	04/07/10	04/07/10	
o-Xylene	ND	U	1.0	0.49	20	1	04/07/10	04/07/10	
Styrene	ND	U	1.0	0.49	100	1	04/07/10	04/07/10	
Bromoform	ND	U	2.0	0.44	4.4	1	04/07/10	04/07/10	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.16	0.2	1	04/07/10	04/07/10	
1,2,3-Trichloropropane	ND	U	2.0	0.66	0.02	1	04/07/10	04/07/10	
1,4-Dichlorobenzene	ND	U	1.0	0.46	75	1	04/07/10	04/07/10	
trans-1,4-Dichloro-2-butene	ND	U	20	4.3		1	04/07/10	04/07/10	
1,2-Dichlorobenzene	ND	U	1.0	0.48	600	1	04/07/10	04/07/10	
1,2-Dibromo-3-chloropropane (DBCP)	ND	U	5.0	2.3	0.2	1	04/07/10	04/07/10	

Surrogate Name	%Rec	Control Limits	Note
1,2-Dichloroethane-d4	100	71-122	Acceptable
4-Bromofluorobenzene	102	75-120	Acceptable
Dibromofluoromethane	99	82-116	Acceptable
Toluene-d8	103	88-117	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501
Date Collected: NA
Date Received: NA

Appendix I Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: JWG1001310-4
Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Regulatory Limit	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloromethane	ND	U	1.0	0.13	2.7	1	04/07/10	04/07/10	
Vinyl Chloride	ND	U	1.0	0.16	1	1	04/07/10	04/07/10	
Bromomethane	ND	U	1.0	0.49	9.8	1	04/07/10	04/07/10	
Chloroethane	ND	U	5.0	0.68	12	1	04/07/10	04/07/10	
Trichlorofluoromethane	ND	U	20	0.71	2100	1	04/07/10	04/07/10	
1,1-Dichloroethene	ND	U	1.0	0.41	7	1	04/07/10	04/07/10	
Acetone	ND	U	50	5.6	6300	1	04/07/10	04/07/10	
Iodomethane (Methyl Iodide)	ND	U	5.0	2.7		1	04/07/10	04/07/10	
Carbon Disulfide	ND	U	10	3.1	700	1	04/07/10	04/07/10	
Methylene Chloride	ND	U	5.0	0.45	5	1	04/07/10	04/07/10	
trans-1,2-Dichloroethene	ND	U	1.0	0.39	100	1	04/07/10	04/07/10	
Acrylonitrile	ND	U	10	2.7	0.06	1	04/07/10	04/07/10	
1,1-Dichloroethane	ND	U	1.0	0.37	70	1	04/07/10	04/07/10	
Vinyl Acetate	ND	U	10	2.7	88	1	04/07/10	04/07/10	
cis-1,2-Dichloroethene	ND	U	1.0	0.083	70	1	04/07/10	04/07/10	
2-Butanone (MEK)	ND	U	10	2.5	4200	1	04/07/10	04/07/10	
Bromochloromethane	ND	U	5.0	0.67	91	1	04/07/10	04/07/10	
Chloroform	ND	U	1.0	0.35	70	1	04/07/10	04/07/10	
1,1,1-Trichloroethane (TCA)	ND	U	1.0	0.48	200	1	04/07/10	04/07/10	
Carbon Tetrachloride	ND	U	1.0	0.34	3	1	04/07/10	04/07/10	
Benzene	ND	U	1.0	0.066	1	1	04/07/10	04/07/10	
1,2-Dichloroethane (EDC)	ND	U	1.0	0.30	3	1	04/07/10	04/07/10	
Trichloroethene (TCE)	ND	U	1.0	0.12	3	1	04/07/10	04/07/10	
1,2-Dichloropropane	ND	U	1.0	0.30	5	1	04/07/10	04/07/10	
Dibromomethane	ND	U	5.0	0.39	70	1	04/07/10	04/07/10	
Bromodichloromethane	ND	U	1.0	0.19	0.6	1	04/07/10	04/07/10	
cis-1,3-Dichloropropene	ND	U	1.0	0.15	0.2	1	04/07/10	04/07/10	
4-Methyl-2-pentanone (MIBK)	ND	U	25	2.2	560	1	04/07/10	04/07/10	
Toluene	ND	U	1.0	0.47	40	1	04/07/10	04/07/10	
trans-1,3-Dichloropropene	ND	U	1.0	0.16	0.2	1	04/07/10	04/07/10	
1,1,2-Trichloroethane	ND	U	1.0	0.48	5	1	04/07/10	04/07/10	
Tetrachloroethene (PCE)	ND	U	1.0	0.17	3	1	04/07/10	04/07/10	
2-Hexanone	ND	U	25	2.1	280	1	04/07/10	04/07/10	
Dibromochloromethane	ND	U	1.0	0.34	0.4	1	04/07/10	04/07/10	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501
Date Collected: NA
Date Received: NA

Appendix I Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: JWG1001310-4
Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Regulatory Limit	Dilution Factor	Date Extracted	Date Analyzed	Note
1,2-Dibromoethane (EDB)	ND	U	1.0	0.47	0.02	1	04/07/10	04/07/10	
Chlorobenzene	ND	U	1.0	0.42	100	1	04/07/10	04/07/10	
1,1,1,2-Tetrachloroethane	ND	U	1.0	0.45	1.3	1	04/07/10	04/07/10	
Ethylbenzene	ND	U	1.0	0.52	30	1	04/07/10	04/07/10	
m,p-Xylenes	ND	U	2.0	1.1	20	1	04/07/10	04/07/10	
o-Xylene	ND	U	1.0	0.49	20	1	04/07/10	04/07/10	
Styrene	ND	U	1.0	0.49	100	1	04/07/10	04/07/10	
Bromoform	ND	U	2.0	0.44	4.4	1	04/07/10	04/07/10	
1,1,2,2-Tetrachloroethane	ND	U	1.0	0.16	0.2	1	04/07/10	04/07/10	
1,2,3-Trichloropropane	ND	U	2.0	0.66	0.02	1	04/07/10	04/07/10	
1,4-Dichlorobenzene	ND	U	1.0	0.46	75	1	04/07/10	04/07/10	
trans-1,4-Dichloro-2-butene	ND	U	20	4.3		1	04/07/10	04/07/10	
1,2-Dichlorobenzene	ND	U	1.0	0.48	600	1	04/07/10	04/07/10	
1,2-Dibromo-3-chloropropane (DBCP)	ND	U	5.0	2.3	0.2	1	04/07/10	04/07/10	

Surrogate Name	%Rec	Control Limits	Note
1,2-Dichloroethane-d4	98	71-122	Acceptable
4-Bromofluorobenzene	104	75-120	Acceptable
Dibromofluoromethane	99	82-116	Acceptable
Toluene-d8	104	88-117	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water
Sample Name: SW-2
Lab Code: J1001501-002

Service Request: J1001501
Date Collected: 4/ 6/10 0845
Date Received: 4/ 6/10

Basis: NA

Beryllium, Total, by Inductively Coupled Plasma/Mass Spectrometry

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed
Beryllium, Total	6020	ND U	µg/L	1.0	0.3	1	4/ 7/10	4/12/10 15:08

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water
Sample Name: SW-1
Lab Code: J1001501-003

Service Request: J1001501
Date Collected: 4/ 6/10 0900
Date Received: 4/ 6/10

Basis: NA

Lead, Total, by Inductively Coupled Plasma/Mass Spectrometry

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed
Lead, Total	6020	1 I	µg/L	1.0	0.3	1	4/ 7/10	4/12/10 15:12

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water
Sample Name: SW-3
Lab Code: J1001501-004

Service Request: J1001501
Date Collected: 4/ 6/10 0920
Date Received: 4/ 6/10

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed
Iron, Total	6010B	2100	µg/L	100	10	1	4/ 8/10	4/9/10 14:17
Lead, Total	6020	8.4	µg/L	1.0	0.3	1	4/ 7/10	4/12/10 15:17

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: J1001501-MB

Service Request: J1001501
Date Collected: NA
Date Received: NA

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed
Beryllium, Total	6020	ND U	µg/L	1.0	0.3	1	4/ 7/10	4/12/10 14:15
Iron, Total	6010B	ND U	µg/L	100	10	1	4/ 8/10	4/9/10 11:59
Lead, Total	6020	ND U	µg/L	1.0	0.3	1	4/ 7/10	4/12/10 14:15

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501
Date Collected: 4/6/2010
Date Received: 4/6/2010

Hardness, Total

Prep Method: METHOD
Analysis Method: SM 2340B
Test Notes:

Units: mg/L (ppm)
Basis: NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
SW-1	J1001501-003	1.7	0.08	1	4/8/2010	4/9/2010	27	
SW-3	J1001501-004	1.7	0.08	1	4/8/2010	4/9/2010	143	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Jacksonville, City of
Project Name : Trail Ridge Landfill
Project Number : NA
Sample Matrix : WATER

Service Request : J1001501
Date Collected : 04/06/10
Date Received : 04/06/10

Inorganic Parameters

Sample Name : MWB-2S
Lab Code : J1001501-001
Test Notes :

Basis : NA

Analyte	Units	Analysis Method	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
Conductivity (Field)	uMHOS/cm	120.1 (Field)	-	-	1	04/06/10 08:31	54	
Groundwater Elevation	Foot	NA	1	1	1	04/06/10 08:31	137.89	
Oxygen, Dissolved (Field)	mg/L (ppm)	360.1	-	-	1	04/06/10 08:31	0.7	
pH (Field)	pH UNITS	150.1	-	-	1	04/06/10 08:31	4.54	
Temperature (Field)	DEG C	170.1	-	-	1	04/06/10 08:31	16.7	
Turbidity (Field)	NTU	180.1	-	-	1	04/06/10 08:31	7.5	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Jacksonville, City of
Project Name : Trail Ridge Landfill
Project Number : NA
Sample Matrix : WATER

Service Request : J1001501
Date Collected : 04/06/10
Date Received : 04/06/10

Inorganic Parameters

Sample Name : SW-2
Lab Code : J1001501-002
Test Notes :

Basis : NA

Analyte	Units	Analysis Method	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
Conductivity (Field)	uMHOS/cm	120.1 (Field)	-	-	1	04/06/10 08:45	51	
Oxygen, Dissolved (Field)	mg/L (ppm)	360.1	-	-	1	04/06/10 08:45	5.9	
pH (Field)	pH UNITS	150.1	-	-	1	04/06/10 08:45	4.30	
Temperature (Field)	DEG C	170.1	-	-	1	04/06/10 08:45	16.3	
Turbidity (Field)	NTU	180.1	-	-	1	04/06/10 08:45	2.1	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Jacksonville, City of
Project Name : Trail Ridge Landfill
Project Number : NA
Sample Matrix : WATER

Service Request : J1001501
Date Collected : 04/06/10
Date Received : 04/06/10

Inorganic Parameters

Sample Name : SW-1
Lab Code : J1001501-003
Test Notes :

Basis : NA

Analyte	Units	Analysis Method	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
Conductivity (Field)	uMHOS/cm	120.1 (Field)	-	-	1	04/06/10 09:00	111	
Oxygen, Dissolved (Field)	mg/L (ppm)	360.1	-	-	1	04/06/10 09:00	2.3	
pH (Field)	pH UNITS	150.1	-	-	1	04/06/10 09:00	4.13	
Temperature (Field)	DEG C	170.1	-	-	1	04/06/10 09:00	18.7	
Turbidity (Field)	NTU	180.1	-	-	1	04/06/10 09:00	1.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Jacksonville, City of
Project Name : Trail Ridge Landfill
Project Number : NA
Sample Matrix : WATER

Service Request : J1001501
Date Collected : 04/06/10
Date Received : 04/06/10

Inorganic Parameters

Sample Name : SW-3
Lab Code : J1001501-004
Test Notes :

Basis : NA

Analyte	Units	Analysis Method	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
Coliform, Fecal	CFU/100mL	SM 9222 D	10	10	10	04/06/10 13:05	260	
Conductivity (Field)	uMHOS/cm	120.1 (Field)	-	-	1	04/06/10 09:20	368	
Oxygen, Dissolved (Field)	mg/L (ppm)	360.1	-	-	1	04/06/10 09:20	5.7	
pH (Field)	pH UNITS	150.1	-	-	1	04/06/10 09:20	6.88	
Temperature (Field)	DEG C	170.1	-	-	1	04/06/10 09:20	20.0	
Turbidity (Field)	NTU	180.1	-	-	1	04/06/10 09:20	45.9	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Jacksonville, City of
Project Name : Trail Ridge Landfill
Project Number : NA
Sample Matrix : WATER

Service Request : J1001501
Date Collected : NA
Date Received : NA

Inorganic Parameters

Sample Name : Method Blank
Lab Code : J1001501-MB
Test Notes :

Basis : NA

Analyte	Units	Analysis Method	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
Coliform, Fecal	CFU/100mL	SM 9222 D	1	1	1	04/06/10 13:05	U	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501

Surrogate Recovery Summary
Appendix I Volatile Organic Compounds by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>	<u>Sur4</u>
MWB-2S	J1001501-001	102	104	101	104
Trip Blank	J1001501-005	100	102	99	103
Method Blank	JWG1001310-4	98	104	99	104
Lab Control Sample	JWG1001310-3	98	103	101	103

Surrogate Recovery Control Limits (%)

Sur1 = 1,2-Dichloroethane-d4	71-122
Sur2 = 4-Bromofluorobenzene	75-120
Sur3 = Dibromofluoromethane	82-116
Sur4 = Toluene-d8	88-117

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501
Date Extracted: 04/07/2010
Date Analyzed: 04/07/2010

**Lab Control Spike Summary
Appendix I Volatile Organic Compounds by GC/MS**

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: JWG1001310

Analyte Name	Lab Control Sample JWG1001310-3 Lab Control Spike			%Rec Limits
	Result	Expected	%Rec	
Chloromethane	19.4	20.0	97	67-135
Vinyl Chloride	19.3	20.0	96	78-132
Bromomethane	20.8	20.0	104	79-130
Chloroethane	20.2	20.0	101	74-126
Trichlorofluoromethane	17.8	20.0	89	74-134
1,1-Dichloroethene	19.4	20.0	97	78-130
Acetone	106	100	106	67-133
Iodomethane (Methyl Iodide)	98.2	100	98	68-134
Carbon Disulfide	93.5	100	93	76-138
Methylene Chloride	19.6	20.0	98	72-124
trans-1,2-Dichloroethene	19.9	20.0	99	77-124
Acrylonitrile	106	100	106	77-127
1,1-Dichloroethane	19.8	20.0	99	80-128
Vinyl Acetate	97.9	100	98	61-148
cis-1,2-Dichloroethene	20.0	20.0	100	80-126
2-Butanone (MEK)	101	100	101	73-127
Bromochloromethane	21.0	20.0	105	79-129
Chloroform	20.1	20.0	100	83-124
1,1,1-Trichloroethane (TCA)	19.2	20.0	96	79-124
Carbon Tetrachloride	19.3	20.0	96	81-125
Benzene	19.5	20.0	97	79-119
1,2-Dichloroethane (EDC)	19.6	20.0	98	80-124
Trichloroethene (TCE)	20.2	20.0	101	76-124
1,2-Dichloropropane	20.7	20.0	104	79-123
Dibromomethane	20.1	20.0	101	83-123
Bromodichloromethane	20.3	20.0	102	81-123
cis-1,3-Dichloropropene	20.7	20.0	103	86-123
4-Methyl-2-pentanone (MIBK)	107	100	107	72-136
Toluene	20.3	20.0	101	86-117
trans-1,3-Dichloropropene	21.3	20.0	107	83-124
1,1,2-Trichloroethane	21.4	20.0	107	86-114
Tetrachloroethene (PCE)	19.7	20.0	99	80-121
2-Hexanone	109	100	109	71-138
Dibromochloromethane	21.3	20.0	107	82-121
1,2-Dibromoethane (EDB)	21.7	20.0	108	88-117

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

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.

QA/QC Report

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501
Date Extracted: 04/07/2010
Date Analyzed: 04/07/2010

Lab Control Spike Summary
Appendix I Volatile Organic Compounds by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: JWG1001310

Analyte Name	Lab Control Sample JWG1001310-3 Lab Control Spike			%Rec Limits
	Result	Expected	%Rec	
Chlorobenzene	20.4	20.0	102	86-113
1,1,1,2-Tetrachloroethane	21.5	20.0	107	85-117
Ethylbenzene	20.3	20.0	101	90-118
m,p-Xylenes	40.7	40.0	102	86-121
o-Xylene	20.4	20.0	102	89-119
Styrene	20.8	20.0	104	89-122
Bromoform	20.1	20.0	101	68-129
1,1,2,2-Tetrachloroethane	21.2	20.0	106	83-120
1,2,3-Trichloropropane	21.3	20.0	107	83-123
1,4-Dichlorobenzene	19.9	20.0	100	83-113
trans-1,4-Dichloro-2-butene	18.5	20.0	93	53-143
1,2-Dichlorobenzene	19.8	20.0	99	84-115
1,2-Dibromo-3-chloropropane (DBCP)	19.1	20.0	95	62-123

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

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.

QA/QC Report

Client: Jacksonville, City of
Project: Trail Ridge Landfill
Sample Matrix: Water

Service Request: J1001501
Date Analyzed: 4/9/10 -
4/12/10

Lab Control Sample Summary
Inorganic Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample J1001501-LCS			% Rec Limits
		Result	Expected	% Rec	
Beryllium, Total	6020	46.3	50.0	93	80 - 120
Iron, Total	6010B	2060	2000	103	80 - 120
Lead, Total	6020	52.6	50.0	105	80 - 120

Comments:



Columbia Analytical Services, Inc.
Cooler Receipt Form

Client: HDR Service Request #: 31001501

Project: TRAIL RIDGE

Cooler received on 4/6/10 and opened on 4/6/10 by gno

COURIER: CAS UPS FEDEX Client Other _____ Airbill # _____

- 1 Were custody seals on outside of cooler? Yes No
If yes, how many and where? #: ___ 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 4 +/- 2 degrees C) 216
- 5 Thermometer ID 716
- 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 BUBBLEWRAP
- 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? Yes No N/A
 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 VOA vials checked for absence of air bubbles? If present, note below Yes No N/A
- 16 Where did the bottles originate? CAS Client

Sample ID	Reagent	Lot #	ml added	Initials Date/Time

Additional comments and/or explanation of all discrepancies noted above:
TRIP BLANK not analyzed

Client approval to run samples if discrepancies noted: _____ Date: 26



SR # J 1001501

Date: 4/6/10

Initials: SJO

Note that pH is check and meets the required pH criterion listed in the column heading unless otherwise noted on the cooler receipt form.

Container	Bottle Code																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31							
Pres.	40mL	40mL	40mL	125mL	125mL	125mL	125mL	125mL	250mL	500mL	500mL	500mL	500mL	500mL	1L	1L	1L	1L	1L	20z	40z	80z	16oz	100ml	Ziplock	Misc.												
Req. pH	N/A	<2	N/A	N/A	HCl	H2SO4	HNO3	H2SO4	HNO3	HNO3	HNO3	HNO3	HNO3	HNO3	HCl	H2SO4	H2SO4	HNO3	HNO3	HNO3	HNO3	HCl	H2SO4	H2SO4	H2SO4													
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NOTE: VOA pH checks are performed by the analytical area, not sample control



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

SR # **31001501**
CAS Contact

PAGE **1** OF **1**

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

www.caslab.com

Project Name TRAIL RIDGE		Project Number		ANALYSIS REQUESTED (Include Method Number and Matrix)	
Project Manager BRAD STONE		Email Address		PRESERVATIVE	
Company/Address HDR INC		200 W FORSYTH ST, SITE 800		KCL	
200 W FORSYTH ST, SITE 800		JACKSONVILLE FL 32202		KNO3	
Phone # 904 598 8553		FAX#		K2S2O7	
Sampler's Signature Ben Ramjeawan		Sampler's Printed Name BEN RAMJEAWAN		METALS/ANIONICS	
CLIENT SAMPLE ID		LAB ID		YOC	
MWB 25		4/6/10 0832 GW		METALS/ANIONICS	
SW-2		4/6/10 0845 SW		METALS/ANIONICS	
SW-1		4/6/10 0900 SW		METALS/ANIONICS	
SW-3		4/6/10 0920 SW		METALS/ANIONICS	
SAMPLING DATE		SAMPLING TIME		METALS/ANIONICS	
MATRIX		NUMBER OF CONTAINERS		METALS/ANIONICS	
3		1		METALS/ANIONICS	
1		1		METALS/ANIONICS	
2		1		METALS/ANIONICS	
REMARKS/ALTERNATE DESCRIPTION		SPECIAL INSTRUCTIONS/COMMENTS		INVOICE INFORMATION	
PO#		REPORT REQUIREMENTS		PO#	
BILL TO:		TURNAROUND REQUIREMENTS		BILL TO:	
I. Results Only		STANDARD		I. Results Only	
II. Results + OC Summaries (LCS, DUP, MS/MSD as required)		RUSH (SURCHARGES APPLY)		II. Results + OC Summaries (LCS, DUP, MS/MSD as required)	
III. Results + OC and Calibration Summaries		REQUESTED FAX DATE		III. Results + OC and Calibration Summaries	
IV. Data Validation Report with Raw Data		REQUESTED REPORT DATE		IV. Data Validation Report with Raw Data	
V. Specialized Forms - Custom Report		CUSTODY SEALS: Y N		V. Specialized Forms - Custom Report	
Edata Yes No		RECEIVED BY		Edata Yes No	
RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY	
Signature		Signature		Signature	
Printed Name		Printed Name		Printed Name	
Firm		Firm		Firm	
Date/Time		Date/Time		Date/Time	
Date/Time		Date/Time		Date/Time	
Date/Time		Date/Time		Date/Time	

(Revision 1)

