



September 10, 2010

Mrs. Sylvia Rowland
Rowland Landfill
3000 Gresham Lake Road
Raleigh, NC 27615

**RE: Summary Report of Four Quarterly Sampling Events
June 2009, October 2009, January 2010, and April 2010
Rowland LCID Landfill and Wood Processing Facility
Ground Water and Landfill Gas Evaluation**

Dear Mrs. Rowland:

This document presents a summary of sampling work performed in June 2009, October 2009, January 2010, and April 2010. The work was performed in accordance with the SWS-approved Work Plan dated April 8, 2009, consisting of a soil-gas survey for the detection of methane conducted at 16 locations near the facility boundary and on-site buildings (**Figure 1**), in addition to sampling an on-site water supply well and Perry Creek. Please refer to the attached Sampling Report for July 2, 2009, which provides additional background information (**Attachment 1**).

The surface water and water supply well samples contain low levels of several dissolved metals, all of which were detected below the corresponding NC 2L groundwater quality standards. In addition, no volatile organic compounds were reported for either sample location. Methane gas was found at several probe locations – some gas levels exceeded the lower explosive limit (LEL). In accordance with NCAC 15A 13B .1646 (4) (c), upon detection of methane exceeding the threshold values, the Facility management took the following actions:

- Immediately took all steps required to protect human health, including but not limited to advising the staff of conditions, restricted customer access and limited staff access to portions of the site where the conditions were found, reinforced a “No Smoking” policy on the premises, installed gas detectors in buildings on site, and notified the Division.
- Within seven days the Facility placed in the operating record a report of the methane gas levels (and the location of the detection), along with a description of the response to protect human health (document prepared by John Tucker, PE).
- Within 60 days a remediation plan was implemented, consisting of negotiating the work plan with the SWS, followed by four quarterly sampling events; next step is a plan for positive action to remediate the conditions – in preparation – place a copy of the plan in the Operating Record, and notify the Division that the plan has been implemented; the plan shall describe the nature and extent of the problem and the proposed remedy.

Brief Project History

The Rowland landfill began in the 1980's as backfill for a quarry dating to the 1960's. The landfill was formerly operated under a permit from Wake County and has recently come under regulation by the NC DENR Division of Waste Management, Solid Waste Section (SWS), Permit #92O-LCID. At present, the Section is reviewing the old Wake County permits for consistency with current rules, requiring permit updates as needed. A ground water assessment was performed in the 1990's under the auspices of the NC DENR DWM Superfund Section.

Correspondence dated between 2001 and 2005 from the Superfund Section indicate the landfill had been assigned "No Further Action" status in the Inactive Hazardous Sites Program and recommended a discontinuation of monitoring and abandonment of the monitoring wells. Abandonment records were presented to (and acknowledged by) the Superfund Section.

Work Plan Summary

The work plan dated April 8, 2009 is summarized below:

Area Water Well Reconnaissance

- Conduct a survey or identify water wells in use within 1500 feet of the facility.
- Prepare a map showing ground water flow directions and identified wells.

Ground Water Monitoring

- Conduct four quarterly samples of ground water from the on-site water supply well and from the nearest active stream – Perry Creek; please note, after two sampling events that produced no results that could be attributed to the former landfill, the SWS was advised of these results (in a meeting with J. Drummond), who consented to allow the Facility to suspend further stream sampling in order to focus on the gas monitoring.
- Analyze the samples for Appendix I parameters and report results from each event using NC DENR Solid Waste Section reporting protocols.
- Prepare a summary report after four quarters are completed (this document), with recommendations for amending the monitoring program or discontinuing the sampling, as may be appropriate.

Methane Monitoring

- Finalize the methane sampling locations based on proximity and direction of occupied structures, utilities, natural barriers (i.e., topography and surface streams), and the facility boundary (completed and previously reported).

- Conduct four quarterly rounds of methane sampling using conventional soil-gas detection monitoring techniques, i.e., a bar-hole punch test conducted to depths of approximately 3 feet using a portable detection meter specifically calibrated for methane (i.e., a Gem 5000).*
- Monitor on-site buildings using the Gem 5000 equipment.
- Review the methane sampling results with the Solid Waste Section and evaluate data to determine if additional testing is warranted.**
- Prepare a final report with findings and recommendations.

* This depth is approximately equal to most shallow utilities along a roadway shoulder, i.e., the north property boundary; driving the bar-hole punch may be assisted with a backhoe.

**An interim data review with the SWS was conducted after two sampling events; action was initiated to prepare a gas remediation plan – to be addressed in a separate document. Further gas monitoring might be warranted, including continuous gas alarms in the buildings and permanent gas monitoring wells.

Departure from Work Plan

The April 8, 2009 Work Plan to date has been followed exactly, except that only three rounds of surface water or supply well sampling were collected, with the consent of the SWS.

Data Presentation

Table 1 presents the historical results of the methane gas sampling. **Figure 1** presents the methane and ground water sampling locations.

Methane Monitoring Results

The results of the soil-gas survey for the detection of methane are shown on **Figure 1**. Soil-gas was analyzed at 15 locations near the facility boundary and within on-site buildings, using a Gem 5000 portable gas detection meter specifically calibrated for methane. It should be noted that, according to the meter supplier and manufacturer, any of the light single-chain hydrocarbons (methane, ethane, propane, and butane) could potentially trigger detection, but these are all potentially explosive gases. Those authorities are confident that the heavier, more complex petroleum-based hydrocarbons would be filtered out and not produce detection, whereas the equipment is designed to make the distinction.

Methane was detected at six (6) of the fifteen (15) sampling locations in October 2009 (B-4, B-5, B-6, B-7, B-8 and B-10), four (4) of the fifteen (15) sampling locations in January 2010 (B-5, B-6, B-8 and B-10) and six (6) of the fifteen (15) sampling locations in April 2010 (B-5, B-6, B-7, B-8, B-10 and B-11). The pattern of the detections appears to be weighted toward the east side of the facility, i.e., along a shared property line with the asphalt plant – again, no implication of the asphalt plant is implied at this time – and to the north of the LCID and south of the wood waste processing area.

This pattern of detection is consistent with the results of the initial methane gas sampling conducted in June 2009. The history of the subject site, according to the Owner, includes a methane recovery demonstration project conducted some 25 or more years ago – a trench fill was constructed near the northwest corner of the facility within an old quarry site, i.e., the area that is now the stockpile area in the processing area (see **Figure 1**), which extended an original thickness of approximately 40 feet. There was a significant decrease in the top elevation of the demonstration pile as gas was extracted, but further details are not known at this time.

The data for this study were collected by drilling a 3-foot deep boring into the soil using an apparatus designed for drilling into concrete slabs, equipped with a 36-inch long, 1-inch diameter masonry bit. This method offered advantages over conventional drive-bar borings, e.g., the masonry bit is less prone to “refusing” on obstacles (rocks, roots, or debris), and the sidewalls of the boring do not become compacted. An instantaneous reading was taken with the Gem 5000 meter, then the boring was allowed to vent for 2 minutes and another reading was taken – both results are recorded in **Table 1**. None of the borings encountered water.

The highest methane concentrations were detected to the east of the LCID, within a drainage feature believed to be in natural ground (not part of the former quarry) and to the north of the LCID and south of the wood waste processing area. Initial readings of 100% LEL were detected at B-4, B-5, B-6, B-8 and B-10 in October 2009, whereas the two-minute readings decreased to 12% LEL at B-4, 44% at B-6, and 14% LEL at B-6, but remained at 100% LEL at B-5 and B-8. Initial readings of 100% LEL were detected at B-5, B-6, B-8 and B-10 in January 2010, whereas the two-minute readings decreased to 64% at B-5 and 86% at B-10, but remained at 100% LEL at B-6 and B-8.

Initial readings of 100% LEL were detected at B-5, B-6, B-7, B-8, B-10 and B-11 in April 2010, whereas the two-minute readings decreased to 69% at B-8 and 0% at B-11, but remained at 100% LEL at B-5, B-6, B-7 and B-10. The sanitary sewer pipeline that runs along the south facility boundary is under consideration as a possible conduit, although no readings were taken on the adjacent asphalt plant property to the east. All standing water was observed for gas bubbles, including small puddles on the sewer right-of-way, still portions of Perry Creek, and the wet drainage feature to the west of the facility – no discernable gas bubbles indicative of landfill gas migration were detected. There were no standing water bodies to the east, near the higher methane concentrations.

Ground Water and Surface Water Sampling Results

One of two on-site water wells (located in the northwest corner of the facility; see **Figure 1**) and a still pool in Perry Creek just south of the LCID were sampled in January and April 2010 and analyzed for Appendix I parameters. The well samples were pulled from an outdoor tap – this well was selected because of its frequent use for dust control and possibly drinking. The samples were preserved and shipped to Prism Laboratories in Charlotte, North Carolina, using appropriate chain-of-custody protocols. The laboratory sample reports are attached as **Attachment 2**. See the July 2009 report (**Attachment 1**) for the initial laboratory results.

No Appendix I volatile organic compounds were detected in either the well samples or the surface water samples collected from Perry Creek. Low levels of several Appendix I metals were detected in both the well and creek samples at concentrations below the corresponding NCAC 2L groundwater quality standards. These results suggest no ground water impact exceeding either the 2L standards or the Solid Waste Section Limits that can be attributed to the former demolition landfill operation – consistent with the “no further action” status assigned by the Division of Waste Management in 2001.

Conclusions

- Methane detected at several soil-gas borings approaches or exceeds the allowable maximum of 100% LEL (lower explosive limit) mandated by the Solid Waste rules.
- The lower explosive limit for methane is 5% methane in air; the readings taken indicate methane concentrations in the soil – concentrations in air are expected to be lower than in the soil due to diffusion of methane into the atmosphere.
- Higher detected methane levels are on the east side of the facility, along a shared property line with an asphalt plant, and to the north of the LCID and south of the wood waste processing area.
- Methane is heavier than air and tends to concentrate in low places – the shared property line occurs along a deep drainage ravine, where the gas could concentrate in the air.
- The methane values were well below the LEL in soil-gas borings located near the Receiving Office and another on-site building that is used either for storage or offices.
- The presence of methane is likely a chronic condition that has existed for years – based on experience it would take years for concentrations to build up to the LEL in the soils.
- The source of the gas appears to be past disposal activities at the Facility – it is documented that purposeful activities that generated methane were conducted years ago, however the higher gas concentrations are located toward the opposite site of the Facility from known early gas generating experiments; it is possible that the decomposition of older “demolition” wastes or more recent LCID wastes are be the source of methane.
- The Owner and staff for the Facility were duly notified and appropriate documentation has been placed into the Operating Record.
- The potential risk of fire or explosion is small; the Facility staff was advised not to smoke in the facility, to avoid open fires, and not to enter the east drainage feature unnecessarily.
- There does not appear to be any immediate risk to the staff or the general public, as long as proper precautions are taken, but corrective action is warranted.

- The ground water and stream sampling data support earlier conclusions by the Division of Waste Management that the Facility is not causing a ground water impact that exceeds the 2L standards or the Solid Waste Section Limits.
- Ground water at the Facility flows toward Perry Creek, i.e., the regional discharge feature; area wells are up gradient of the LCID and there is little potential for water well development between the facility boundary and the discharge feature.
- No expansion or continuation of the ground water monitoring is warranted.

Recommendations

- A methane remediation plan (in preparation) should be implemented at the Facility – see separate documents.
- The east property boundary should be clearly marked in order to keep the remediation activities on the subject property – the adjacent landowner (Rea Construction) should be notified of the conditions.
- Tentatively, the remediation plan should consist of a subsurface gas-collection trench along the east property line (see **Figure 1**), located within ravine; details of the trench design will be furnished in a separate document; some clearing and erosion control measures will be needed.
- Future gas sampling should be performed via permanent gas monitoring wells; details of the well construction and sampling protocol will be furnished in a separate document.
- Consideration should be given to connecting the collection trench to a solar powered “candlestick” flare, i.e., a passive venting method that will reduce methane emissions to the atmosphere; alternatively, a small diesel generator with an integral blower would accelerate the methane removal and convert the gas into “green energy” (electricity) that can be used on-site or sold back to the power grid.
- A passive vent may require air quality permitting and should be discussed with NC DENR (Divisions of Solid Waste and Air Quality) – the landfill is too small to fall under the Title-V air quality rules, but there may be a general permit requirement for this activity; conversely, a diesel engine powered generator should not require an air permit, but provisions with the power company for selling the electricity need to be evaluated.
- Permanent explosive gas detectors with alarms should be maintained in the occupied buildings.
- Based on the ground water sampling results, the ground water sampling component of this evaluation should be discontinued.

- A draft methane remediation should be developed and reviewed with the Division of Waste Management and implemented in the near future.

Please contact me if you have any questions or if I can be of further assistance.

Cordially, yours,

A handwritten signature in black ink, appearing to read "G. David Garrett". The signature is stylized and cursive.

G. David Garrett, P.G., P.E.

cc: John Tucker, PE

Attachments



Figure 1 – Methane Sampling Locations and Proposed Recovery Trench, not to scale

TABLE 1
RESULTS OF METHANE GAS MONITORING
ROWLAND LCID LANDFILL AND PROCESSING FACILITY
RALEIGH, WAKE COUNTY, NC

Boring ID	Sampling Date	Methane (% in Air)		Methane (%LEL)	
		Initial	After 2 min.	Initial	After 2 min.
B1	6/30/2009	0.5	0.1	0	0
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0
B2	6/30/2009	0.6	0.1	11	2
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0
B3	6/30/2009	0	0	0	0
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0
B4	6/30/2009	0	0	0	0
	10/28/2009	10.2	0.6	100	12
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0
B5	6/30/2009	16.3	2.2	100	42
	10/28/2009	10.2	6	100	100
	1/29/2010	12.4	2.7	100	64
	4/12/2010	56.9	56	100	100
B5-2	6/30/2009	0	0	0	0
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0
B6	6/30/2009	15.9	3	100	56
	10/28/2009	20.4	2.2	100	44
	1/29/2010	31	18.4	100	100
	4/12/2010	28.3	30.7	100	100
B7	6/30/2009	16	18.9	100	100
	10/28/2009	0.3	0.2	7	3
	1/29/2010	0	0.2	0	4
	4/12/2010	9.6	11.1	100	100
B8	6/30/2009	2	0.2	40	2
	10/28/2009	43.7	41.6	100	100
	1/29/2010	51.7	52.7	100	100
	4/12/2010	10.2	3.5	100	69

Boring ID	Sampling Date	Methane (% in Air)		Methane (%LEL)	
		Initial	After 2 min.	Initial	After 2 min.
B9	6/30/2009	0.1	0	2	0
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0
B10	6/30/2009	5.3	0.8	100	17
	10/28/2009	14.4	0.7	100	14
	1/29/2010	16.9	4.1	100	86
	4/12/2010	72.4	59.2	100	100
B11	6/30/2009	0	0	0	0
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	8.9	0	100	0
B12	6/30/2009	0	0	0	0
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0
B13	6/30/2009	0	0	0	0
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0
B14	6/30/2009	0.6	0	14	0
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0
B15	6/30/2009	0.5	0.1	8	2
B16	6/30/2009	0.3	0	5	0
B17	6/30/2009	0.1	0	2	0
B18	6/30/2009	0	0	0	0
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0
On-Site Buildings	6/30/2009	0	0	0	0
	10/28/2009	0	0	0	0
	1/29/2010	0	0	0	0
	4/12/2010	0	0	0	0

Attachment 1

Report of Initial Sampling Events, August 9, 2009
Sampled June 30 – July 2, 2009



August 9, 2009

John A.K. Tucker, P.E.
Consulting Engineer
P.O. Box 297
Fuquay-Varina, North Carolina 27526

**RE: Results of Initial Sampling Event – July 2, 2009
Rowland LCID Landfill and Processing Facility
Ground Water and Landfill Gas Evaluation**

Dear John:

This document presents a summary of sampling work performed in accordance with the SWS-approved Work Plan dated April 8, 2009. A soil-gas survey for the detection of methane was conducted at 18 locations near at the facility boundary and on-site buildings (see **Figure 1**), in addition to sampling an on-site water supply well and Perry Creek. A potable water well survey was conducted in the vicinity of the landfill (see **Figure 2**). The water samples came back as “non-detect” but methane gas was found at several probe locations – some gas levels exceeded the lower explosive limit (LEL). As such, immediate action was taken in accordance with the rules pertaining to gas detection at lined landfills, NCAC 15A 13B .1646 (4) (c), whereas rule changes for LCID facilities are currently pending. The referenced rules require the following:

Upon detection of methane exceeding the threshold values (described above), the facility management must perform the following:

- Immediately take all steps required to protect human health and notify the Division
- Within seven days place in the operating record a report of the methane gas levels (and the location of the detection), along with a description of the response to protect human health
- Within 60 days implement a remediation plan for the methane gas release, place a copy of the plan in the Operating Record and notify the Division that the plan has been implemented – the plan shall describe the nature and extent of the problem and the proposed remedy.

In response, the Owner and the Division were contacted and advised of the situation; the Owner then notified the staff to take precautions and reinforced an existing non-smoking policy. An advisory document was prepared (by Mr. Tucker) and placed in the Operating Record, and a proposed remedy plan is in preparation – to be reviewed with the SWS upon completion.

Topography and Surroundings

The landfill is situated amidst old industrial properties, adjacent to an asphalt batch plant. The site is physically located just south of a topographic divide (defined by Gresham Lake Road) and drained by natural drainage features, located east and west of the facility, southward toward Perry Creek, which flows to the south and east to Gresham Lake then to the Neuse River. The drainage feature to the east is dry and does not show on either the NRCS soils map (**Figure 3A**) or the USGS topo map (**Figure 3B**). The site is surrounded by the City of Raleigh and served by paved streets, although some of the adjacent properties are not in the City limits. The area is largely served by municipal water, but extant water supply wells are known (i.e., on the project premises); potable wells are in use at some of the adjacent properties (**Figure 2**). Based on the topography, none of the water wells in the area appears to be down gradient of the facility.

Occupied structures (including commercial buildings and residences) exist within 500 feet of the *facility boundary* in the northwest, north, northeast and east directions. Residences are located just over 500 feet from the *landfill boundary* to the north, across Gresham Lake Road. Utility corridors – potential gas migration conduits – are expected along the road but no large pipelines appear to cut through the property. A sanitary sewer pipe line exists near the south property line. The facility boundary does not extend to the ground water discharge feature (Perry Creek), located approximately 100 feet south of the landfill boundary, but there is no development within the low area between the landfill and the creek – the low area is owned by Rea Construction, as is the asphalt plant to the east of the facility. Miscellaneous equipment and debris have been stored in the low area, some of which may have been buried according to staff at the subject facility. No investigation of the Rea property has been undertaken or reviewed in context with this work. The City has been contacted regarding the gas detections pursuant to determining if alternate sources exist, i.e., the sanitary sewer pipeline.

Property Information

The following information came from the Wake County IMAPS web site (see **Figure 4**):

Map Coordinates	X: 2122362.3507652692 Y: 776028.0174716837
PIN Number	1727262194 (landfill parcel)
Zoning	IND-1 (allows landfills)
Acreage	28.38 (three parcels)

Brief Project History

The Rowland landfill began in the 1980's as backfill for a quarry dating to the 1960's. The landfill was formerly operated under a permit from Wake County and has recently come under regulation by the NC DENR Division of Waste Management (DWM) Solid Waste Section (Permit #92O-LCID). At present, the Section is reviewing the old Wake County permits for consistency with current rules, requiring permit updates as needed. A ground water assessment was performed in the 1990's under the auspices of the NC DENR DWM Superfund Section.

Correspondence dated between 2001 and 2005 from the Superfund Section indicate the landfill had been assigned “No Further Action” status in the Inactive Hazardous Sites Program and recommended a discontinuation of monitoring and abandonment of the monitoring wells. Abandonment records were presented to (and acknowledged by) the Superfund Section, upon which I concluded in my letter to you dated July 15, 2008 (**Attachment 1**) that the facility appears to have complied with the regulatory requirements at the time. Based on the backup correspondence, there does not appear to be cause for further concern regarding ground water impacts, nor does the facility appear to constitute a threat to the environment or to the public.

Regulatory Concerns

During our February 24, 2009 meeting, Solid Waste Section (SWS) staff expressed a desire to confirm the aforementioned conclusions prior to renewing the Permit to Operate, scheduled for later this year. Two main concerns need to be investigated:

- 1) Evaluate ground water conditions to verify the findings of the earlier assessment, i.e., demonstrate that there is still no apparent impact on the ground water, by monitoring on-site streams and the on-site water supply well, and
- 2) Monitor for methane in accordance with Solid Waste Section rules pertaining to threshold limits for occupied structures on the site and at the property line.

Ground water monitoring is not normally required at LCID landfills, but this is a special case due to the historical operation of the landfill – the whole class of “demolition” landfills was eliminated by a 1998 rule change, and most of the existing landfills that planned to continue operating into 1998 and beyond – those regulated by the SWS at least – were required to demonstrate compliance with the post-1998 regulations, including the potential for ground water impacts and verifying that flow conditions are relatively well understood. Methane monitoring has neither been required historically at LCID landfills, but the past use of the site warrants confirmation monitoring – a portion of the site was once been fitted with gas extraction wells for methane recovery demonstration project, but this activity was discontinued.

Work Plan Summary

The work plan dated April 8, 2009 is summarized below:

Area Water Well Reconnaissance

- Conduct a survey or identify water wells in use within 1500 feet of the facility
- Prepare a map showing ground water flow directions and identified wells

Ground Water Monitoring

- Conduct four quarterly samples of ground water from the on-site water supply well and from the nearest active stream – either the “east” drainage feature (preferred, if running), or from Perry Creek – locations will be selected based on ambient conditions

- Analyze the samples for Appendix I parameters and report results from each event using NC DENR Solid Waste Section reporting protocols
- Prepare a summary report after four quarters are completed with recommendations for amending the monitoring program or discontinuing the sampling, as may be appropriate

Methane Monitoring

- Finalize the methane sampling locations based on proximity and direction of occupied structures, utilities, natural barriers (i.e., topography and surface streams), and the facility boundary
- Conduct four quarterly rounds of methane sampling using conventional soil-gas detection monitoring techniques, i.e., a bar-hole punch test conducted to depths of approximately 3 feet* using a detection meter specifically calibrated to detect methane (i.e., a Gem 5000)
- Monitor on-site buildings using the Gem 5000 equipment
- Review the methane sampling results with the Solid Waste Section and evaluate data to determine if additional testing is warranted**
- Prepare a final report with findings and recommendations.

* This depth is approximately equal to most shallow utilities along a roadway shoulder, i.e., the north property boundary; driving the bar-hole punch may be assisted with a backhoe.

**A second stage of monitoring might be warranted, or perhaps a permanent monitoring program, possibly consisting of continuous gas alarms in the buildings and future gas monitoring probes (similar to ground water monitoring wells, except these do not penetrate the water table). The methane sampling locations might need to be shifted to determine the gas migration patterns and concentrations. It is not prudent to install permanent methane monitoring probes until gas has been detected and a migration pattern has been tentatively established to guide the selection of probe locations. It is highly likely that if any gas is migrating from the landfill, it has been doing so for many years – steady state conditions would have been achieved – and the gas will show up at depths reachable with the bar-hole punch test.

Departure from Work Plan

The April 8, 2009 Work Plan to date has been followed exactly, except that in consideration of the gas detections, an interim report (this document) was prepared. This information is to be discussed with Solid Waste officials and, if warranted, adjustments may be made to future sampling events. A landfill gas remediation plan is in preparation. Please refer to the **Recommendations** section of this report.

Data Presentation

Tables 1 and 2 present the results of the gas and ground water sampling, respectively. Also see **Figure 1** for the methane survey results. Upon completing four quarterly sampling events, a baseline ground water sampling report will be prepared following the SWS format protocols.

Methane Monitoring Results

The results of the soil-gas survey for the detection of methane are shown on **Figure 1**. Soil-gas was analyzed at 18 locations near at the facility boundary and within on-site buildings, using a Gem 5000 portable gas detection meter specifically calibrated for methane. It should be noted that, according to the meter supplier and manufacturer, any of the light single-chain hydrocarbons (methane, ethane, propane, butane) could potentially trigger a detection, but these are all potentially explosive gases. Those authorities are confident that the heavier, more complex petroleum-based hydrocarbons would be filtered out and not produce detection, whereas the equipment is designed to make the distinction. For future sampling events, there is another filter we that can be added to the sensor probe (see **Recommendations**).

Methane was detected at 10 of the 18 sampling locations. These locations were flagged in the field and surveyed with a hand-held GPS so they could be revisited for subsequent sampling. The pattern of the detections appears to be weighted toward the east side of the facility, i.e., along a shared property line with the asphalt plant – again, no implication of the asphalt plant is implied at this time. The history of the subject site, according to the Owner, includes a methane recovery demonstration project conducted some 25 or more years ago – a trench fill was constructed near the northwest corner of the facility within an old quarry site, i.e., the area that is now the stockpile area in the processing area (see **Figure 1**), which extended an original thickness of approximately 40 feet. There was a significant decrease in the top elevation of the demonstration pile as gas was extracted, but further details are not known at this time.

The data for this study were collected by drilling a 3-foot deep boring into the soil using an apparatus designed for drilling into concrete slabs, equipped with a 36-inch long, 1-inch diameter masonry bit. This method offered advantages over conventional drive-bar borings, e.g., the masonry bit is less prone to “refusing” on obstacles (rocks, roots, or debris), and the sidewalls of the boring do not become compacted. An instantaneous reading was taken with the Gem 5000 meter, then the boring was allowed to vent for 2 minutes and another reading was taken – both results are plotted on **Figure 1**. None of the borings encountered water. The borings stayed open for a period of at least 24 hours and could be observed in that time – a slight “rotten-egg” odor was detected at B-5 after 24 hours.

On **Figure 1**, at the front entrance on Gresham Lake Road, B-17 showed readings of 2% and 0, instantaneous and following two minutes, respectively. The numbers represent % LEL, i.e., the lower explosive limit, which is a concentration of 5% methane in standard atmospheric conditions – at 100% LEL *in air* a potentially explosive condition exists. This is the basis of the SWS rules, which allow a maximum concentration of 100% LEL *in soil* at the facility boundary and 25% LEL within an occupied structure. Progressing south toward the Receiving Office (see **Figure 1**), both readings were 0, and further south at B-9 the readings were 2% and 0. Back to the west of B-9 the readings at B-10 (within the interior of the facility, along the boundary between the LCID and the processing area) the readings were 100% instantaneous and 17% after two minutes. Further west, both readings were 0 at B-11 and at B-12 (along the west side of the facility). Further north, the readings were 8% and 2% at B-15, near the northwest corner of the facility, and 5% and 0 at B-16, located at the north boundary (along Gresham Lake Road) and near an old house on the premises used as office and/or storage space. See **Conclusions**.

The highest methane concentrations were detected to the east of the LCID, within a drainage feature believed to be in natural ground (not part of the former quarry). Instantaneous readings of 100% LEL were detected at B-5, B-6, and B-7 (see Figure 1), whereas the two-minute readings decreased to 42% LEL at B-5 and 56% LEL at B-6 but remained at 100% LEL at B-7. The very next sampling location, B-4, showed both readings as 0; the same was encountered at B-3, located along the southern footprint and close to the property line. Readings at B-2 were 11% LEL instantaneous and 2% LEL after two minutes, 0 at B-1 (both readings); at B-14 the readings were 14% LEL instantaneous and 0 after two minutes. The sanitary sewer pipeline that runs along the south facility boundary is under consideration as a possible conduit, although no readings were taken on the adjacent asphalt plant property to the east. All standing water was observed for gas bubbles, including small puddles on the sewer right-of-way, still portions of Perry Creek, and the wet drainage feature to the west of the facility – no discernable gas bubbles indicative of landfill gas migration were detected. There were no standing water bodies to the east, near the higher methane concentrations. Refer to the following **Conclusions** section.

Ground Water Sampling Results

One of two on-site water wells (located in the north east corner of the facility (see **Figure 1**) and a still pool in Perry Creek just south of the LCID were sampled and analyzed for Appendix I parameters. The well sample was pulled from an outdoor tap – this well was selected because of its frequent use for dust control and possibly drinking. The samples were preserved and shipped to SGS Environmental Services in Wilmington, North Carolina, using appropriate chain-of-custody protocols. The laboratory sample report is attached as **Attachment 2**. The on-site well sample was analyzed for 50 organic constituents; all were below detection limits except tetrachloroethene, detected at 0.210 micrograms/liter, which is below the Solid Waste Section Limit of 1.0 micrograms/liter. The sample from Perry Creek was also non-detect on all 50 constituents except toluene, detected at 0.120 micrograms/liter, which is below the Solid Waste Section Limit of 1.0 micrograms/liter. The results at the well sample could have been a result of the historic landfill gas extraction demonstration project; the sample from Perry Creek is possibly due to the nearby interstate highway or a number of potential upstream sources. These results suggest no ground water impact exceeding either the 2L standards or the Solid Waste Section Limits that can be attributed to the former demolition landfill operation – consistent with the “no further action” status assigned by the Division of Waste Management in 2001.

Conclusions

- Methane detected at several soil-gas borings approaches or exceeds the maximum of 100% LEL (lower explosive limit) mandated by the Solid Waste rules.
- The lower explosive limit for methane is 5% methane in air; the readings taken indicate methane concentrations in the soil – concentrations in air are expected to be lower due to diffusion of methane into the atmosphere.
- Higher detected methane levels are on the east side of the facility, along a shared property line with an asphalt plant, with a sanitary sewer located nearby.

- Methane is heavier than air and tends to concentrate in low places – the shared property line occurs along a deep drainage ravine, where the gas could concentrate in the air.
- The methane values were well below the LEL in soil-gas borings located near the Receiving Office and another on-site building that is used either for storage or offices.
- The presence of methane is likely a chronic condition that has existed for years – based on experience it would take years for concentrations to build up to the LEL in the soils.
- The source has not been defined – purposeful activities that generated methane were conducted years ago, but the decomposition of older “demolition” wastes or more recent LCID wastes may be the source of methane; potential off-site sources exist, as well.
- The Owner and staff for the LCID facility were duly notified and appropriate documentation has been placed into the Operating Record; a methane mitigation plan is under development.
- The risk of a potential fire or explosion is small (but real); the facility staff was advised not to smoke in the facility, to avoid open fires, and not to enter the drainage feature unnecessarily.
- There does not appear to be any immediate risk to the staff or the general public, as long as proper precautions are taken, but conditions are such that further investigation and, perhaps, corrective action, is warranted.
- The ground water and stream sampling data support earlier conclusions by the Division of Waste Management that the facility is not causing a ground water impact that exceeds the 2L standards or the Solid Waste Section Limits.
- Ground water at the facility flows toward Perry Creek, i.e., the regional discharge feature; area wells are up gradient of the LCID and there is little potential for water well development between the facility boundary and the discharge feature.
- No expansion of the ground water monitoring is warranted; consideration should be given to discontinuing the ground water sampling in favor of more detailed methane evaluation.

Recommendations

- The next round of soil-gas monitoring should expand the investigation to include the adjacent asphalt plant property and the sanitary sewer easement to determine if off-site gas migration is occurring – this could help identify potential other sources of the gas.
- A map of the sanitary sewer alignments (and other underground utilities) in the vicinity should be procured and these alignments should be investigated via the same soil-gas surveying techniques – trenches along pipe lines could be conduits to local buildings.

- The City and the adjacent property owner should be notified about the potential for landfill gas migration and to secure permission to access those properties.
- Future gas surveys might include additional filters and/or gas sampling and laboratory analysis to help determine the source of the gas – sewer gas and landfill gas have slightly different compositions, both different from vapors generated by petroleum or other compounds that may have been introduced to the subsurface either on-site or off-site.
- The landfill Owner and staff should be vigilant about enforcing the “No Smoking” policy and restricting access to the drainage ravine except as necessary.
- The staff should look for signs of distress on the landfill slopes, e.g., cracks, sloughs, steaming or smoking vents, dark stains or dead vegetation that might indicate a fire in progress or landfill gas migration toward the surface.
- Permanent explosive gas detectors with alarms should be placed in the occupied buildings – these are available at most hardware stores at a relatively low cost.
- Based on the ground water sampling results, further ground water sampling and analysis is not warranted and the ground water sampling component of this evaluation should be discontinued.
- A revised soil-gas sampling plan should be developed and reviewed with the Division of Waste Management, in conjunction with one or more remedial action plans, prior to the next quarterly sampling event.

Closing

This work will continue with the next sampling event in early October 2009, unless an amendment is made as a result of our review of these data with the Division of Waste Management. Any future changes to the Work Plan will be documented.

Please contact me if you have any questions or if I can be of further assistance.

Cordially, yours,



G. David Garrett, P.G., P.E.

cc: Sylvia Rowland – Owner



Figure 1 – Methane Sampling Results, not to scale



Figure 2 – Vicinity Water Well Survey and Ground Water Flow Direction



Figure 3A – NRCS Soils Map, from Wake County GIS, not to scale

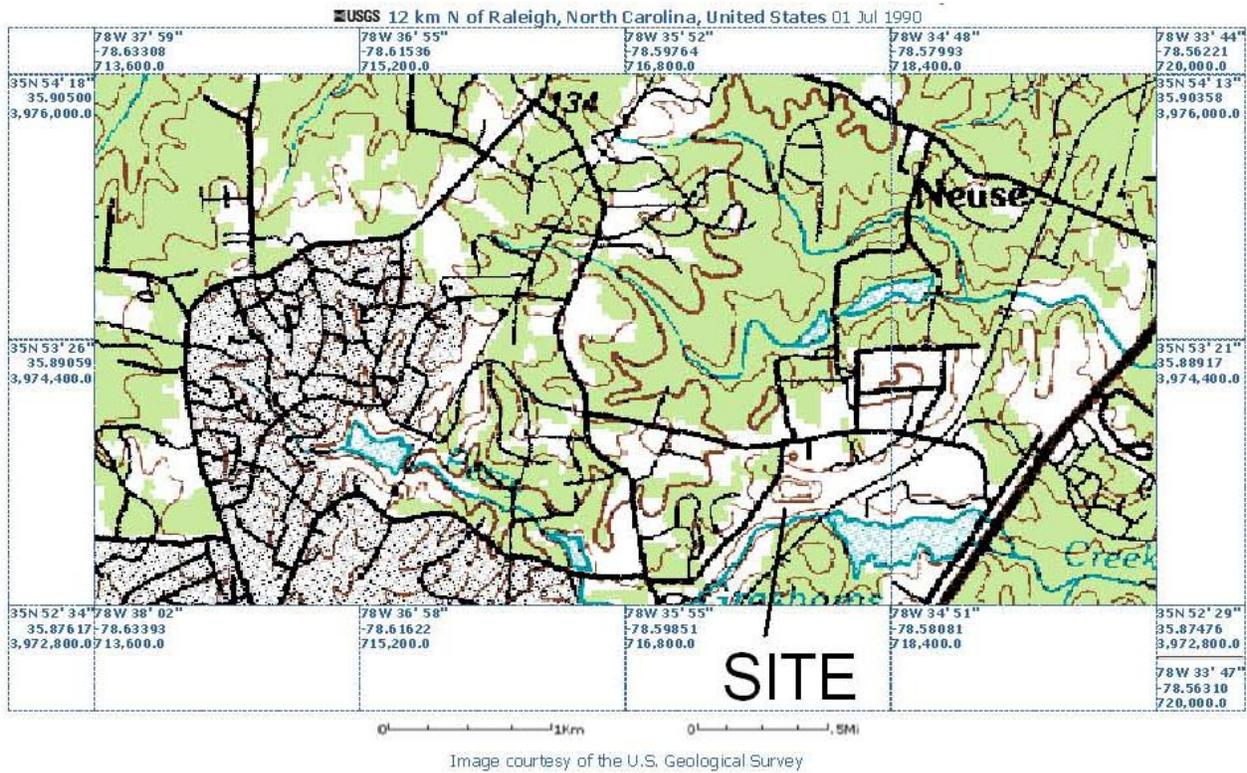


Figure 3B – USGS Topo Map, from Terraserver (date unknown)

Attachment 1

Letter from David Garrett, P.G., P.E., dated July 15, 2008

and backup correspondence from the

Inactive Hazardous Sites Program manager,
NC DENR Division of Waste Management, Superfund Section

David Garrett & Associates

Engineering and Geology



July 15, 2008

John A.K. Tucker, P.E.
Consulting Engineer
P.O. Box 297
Fuquay-Varina, North Carolina 27526

RE: Ground Water File Review for Rowland Landfill

Dear John:

On June 23, 2008 you and I visited the offices of Rowland Landfill located on Gresham Lake Road in Raleigh, NC, and reviewed several documents pertaining to a prior ground water investigation at the site. That investigation, ended ca. 2004, was apparently in conjunction with an investigation of the adjacent Rea Construction asphalt plant, although no documents for the asphalt plant were present, nor have any documents pertaining to the asphalt been reviewed by me. I understand that the status of the ground water investigation came into question regarding a permit renewal application (Permit #92O-LCID), which you previously submitted to NCDENR Division of Waste Management, Solid Waste Section, Permitting Branch.

The documents I reviewed consist of the following (attached, in chronological order):

1. December 5, 2001 – No Further Action (NFA) request from Keith Snavelly of the NCDENR Division of Waste Management, Superfund Section, Inactive Sites Branch, pertaining to the need for remedial action based on the July 21, 2001 sampling results for monitoring wells MW-1 through MW-7 and surface water sampling location SS-1. All detections were noted below the State's 2L ground water protection standards, except chloroform detected above the 2L standard (but below the US-EPA maximum contaminant level for drinking water) at MW-1, which the letter stated was suspected to be a laboratory contaminant. The letter stated that the Rowland Landfill site had been assigned "No Further Action" status in the Inactive Hazardous Sites Program.
2. November 22, 2004 – No Further Action (NFA) request from Keith Snavelly of the NCDENR Division of Waste Management, Superfund Section, Inactive Sites Branch, pertaining to the discontinuation of monitoring based on the September 2, 2004 sampling results for monitoring well MW-4 (*sic*). All detections were noted below the State's 2L ground water protection standards. The letter stated that the site would remain in the "No Further Action" category in the Inactive Hazardous Sites Program. The letter advised Natural Power, Inc. (Rowland Landfill) to abandon all wells in accordance with North Carolina regulations and to notify NCDENR with documentation when the well abandonment is completed.

3. May 23, 2005 – Report of Groundwater Monitoring Well Abandonment at Rowland Landfill, with abandonment records and a map showing locations for six monitoring wells (MW-2 through MW-7) on the landfill premises. No record was reviewed for the abandonment of MW-1, located close to Gresham Lake Road on what appears to be an adjacent land parcel.
4. October 13, 2005 – No Further Action (NFA) request from Keith Snavely of the NCDENR Division of Waste Management, Superfund Section, Inactive Sites Branch, acknowledging the abandonment of the monitoring wells. The letter confirmed that the site would remain in the “No Further Action” category in the Inactive Hazardous Sites Program.

Based on the foregoing information, the records indicate that the site poses no concern for local ground water supplies or surface water quality. The Owners of Rowland Landfill have complied with all NCDENR requirements and brought the ground water investigation to a positive conclusion. The “No Further Action” status signifies that the Division of Waste Management does not consider this site to constitute a threat to the environment or the public at large.

Based on my site visit, I conclude that the current waste operations are orderly and appear to be compliant with NCDENR regulations regarding waste acceptance, placement and coverage. The site appears to be well managed and is proceeding toward a near-future completion of the current phase, which will alleviate aesthetic concerns visible to the public from I-540.

I concur with the Division’s evaluation regarding the ground water and, given the nature of the permitted waste disposal activities, i.e., Land Clearing Inert Debris, I foresee no reason that the permit should not be renewed or that the site should require future ground water monitoring.

Please contact me if you have any questions or if I can be of further assistance.

Cordially, yours,



G. David Garrett, P.G., P.E.

Attachments 1 – 4, reviewed documents



**NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT**

**MICHAEL F. EASLEY, GOVERNOR
WILLIAM G. ROSS, JR., SECRETARY
DEXTER R. MATTHEWS, INTERIM DIRECTOR**



COPY

December 5, 2001

Ms. Cynthia R. McCoy, Vice President
Natural Power, Inc.
2730 Rowland Road, Suite 106
Raleigh, North Carolina 27615

RE: No Further Action Request
Rowland Landfill
Raleigh, Wake County

Dear Ms. McCoy:

I reviewed the November 13, 2001 Monitoring Well Test Results report for the July 21, 2001 groundwater and surface water sampling event. The groundwater samples from all monitoring wells (MW-1 through MW-7) are below 15A NCAC 2L groundwater standards for volatiles, semi-volatiles, and metals with the exception of chloroform detected in MW-1. In addition, surface water sample (SS-1) is below laboratory detection for these constituents in regards to surface water standards. Chloroform was detected in water supply well MW-1 at a concentration of 4.3 parts per billion (ppb) which exceeds the 2L groundwater standard of 0.19 ppb. However, this concentration is below the maximum contaminant level of 100 ppb for drinking water, and has not been present in any past groundwater sampling events. Therefore, it is suspected to be a lab contaminant and not a concern.

Since the groundwater samples from the monitoring wells and surface water sample from Perry Creek are either below the NCAC 2L groundwater standard or surface water standards for volatiles, semi-volatiles, and metals the site is being assigned "No Further Action" status in the Inactive Hazardous Sites Program. No further remedial action will be required at the Site unless the Department later determines, based on new information or information not previously provided to the Department, that the site has not been remediated to current standards or that the Department was provided with false or incomplete information.

If you have any further questions, I can be reached at (919) 733-2801, ext 282.

Sincerely,

Keith Snavelly, Hydrogeologist
Inactive Hazardous Sites Branch
Superfund Section

c:\wpfiles\rowlandldf\ufa_rowlandldf.wpd

1646 MAIL SERVICE CENTER, RALEIGH, NORTH CAROLINA 27699-1646
401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE: 919-733-4996 \ FAX: 919-715-3605

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED/10% POST-CONSUMER PAPER



North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary

RECEIVED
11/22/04

November 22, 2004

Ms. Cynthia R. McCoy, Vice President
Natural Power, Inc.
2730 Rowland Road, Suite 106
Raleigh, North Carolina 27615

RE: No Further Action Request
Follow-up groundwater sampling
Rowland Landfill, Raleigh, Wake County

Dear Ms. McCoy:

I have reviewed the Groundwater Characterization Report (Report) for the subject site received in our office on November 12, 2004. Based on the Report's September 2, 2004 sampling event, the groundwater from monitoring well MW-4 was analyzed for volatile organic and semi-volatile organic compounds, metals, and total suspended solids. All of these constituents were found to be either below laboratory detection limits or below the 15A NCAC 2L Groundwater Standards.

Since this Report indicates that the groundwater constituents in MW-4 are below the groundwater standards, the subject site remains a No Further Action in the Inactive Hazardous Sites Inventory as it was assigned on December 5, 2001.

Now that all monitoring wells at the subject site are below the 2L groundwater standards and the site is a no further action, Natural Power, Inc. should abandon all monitoring wells at the subject site in accordance 15A NCAC 2C Well Construction Standards and notify us by letter when that the abandonment procedure has been completed. A copy of well abandonment documentation should be attached.

If you have any further questions about this site, please contact me at (919) 733-2801, ext. 282.

Sincerely,

Keith Snavelly, Hydrogeologist
Inactive hazardous Sites Branch
Superfund Section



North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary

October 13, 2005

Ms. Cynthia R. Mc Coy, Vice President
Natural Power, Inc.
2730 Rowland Road, Suite 106
Raleigh, North Carolina 27615

RE: No Further Action Request
Follow-up groundwater sampling
Rowland Landfill, Raleigh, Wake County

Dear Ms. McCoy:

On November 22, 2004, I sent you a letter requesting that Rowland Landfill abandon all monitoring wells at the subject site in accordance with 15A NCAC 2C well construction standards and notify us by letter when the abandonment procedure has been completed. On May 23, 2005, Tierra, Inc. sent us copies of the well abandonment records following the abandonment procedures of the monitoring wells conducted on May 9, 2005.

Since these records indicate all wells have been abandoned at the site as requested, the Inactive Hazardous Sites Branch confirms that this site remains a No Further Action in the Inactive Hazardous Sites Inventory as it was assigned on December 5, 2001. If you have any further questions about this site, I can be reached at 919-508-8479.

Sincerely,

Keith Snavelly, Hydrogeologist
Inactive Hazardous Sites Branch
Superfund Section

Attachment 2

Laboratory analytical data for samples acquired in July 2009
from the on-site well and Perry Creek



Mr. David Garrett
Environmental Field Management
5105 Harbour Towne Dr.
Raleigh NC 27604

Report Number: G1081-1

Client Project: Rowland LF

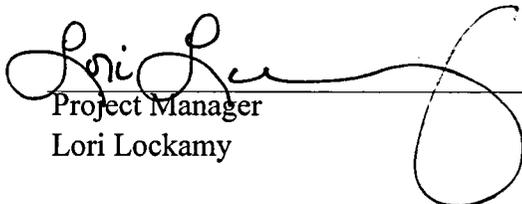
Dear Mr. Garrett:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call SGS at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS Environmental Services for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
SGS Environmental Services, Inc.


Project Manager
Lori Lockamy


Date

Case Narrative
Environmental Field Management
SGS Project: **G1081-1**
Project Name: **Rowland LF**

SGS Environmental Services Inc.

July 14, 2009

- Two water samples were accepted into the laboratory on July 2nd; 2009 at 1000 for analyses as indicated on the chain of custody. The samples were received in good condition, at a temperature range of 2.7°C. This addendum contains the 625 data with the full compound list reported as per client request.
- All extractions and analyses were completed within holding time limits, with the following quality control exceptions.

8260 Analysis

- The associated **Trip Blank**, although not listed on the enclosed COC, was analyzed and Methylene Chloride was detected below the reporting limit (RL), but above the method detection limit (MDL). Methylene Chloride was also detected in both samples at similar concentration levels and have been 'J' flagged. These detections may be attributed to the background concentration found in the **Trip Blank**.

 _____ Date 7/14/09
Craig R Tronzo
Data Review

SGS North America, Inc.
List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantification Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL/CL = Reporting Limit / Control Limit

RPD = Relative Percent Difference

UJ = Target analytes with recoveries that are $10\% < \%R < LCL$; # of MEs are allowable and compounds are not detected in the sample.

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% solids = Percent Solids

Special Notes:

- 1) Metals and mercury samples are digested with a hot block; see the standard operating procedure document for details.
- 2) Uncertainty for all reported data is less than or equal to 30 percent.

**Results for Volatiles
by GCMS 8260 Appendix I**

Client Sample ID: Perry Creek-070109
Client Project ID: Rowland LF
Lab Sample ID: G1081-1-1A
Lab Project ID: G1081-1

Analyzed By: MJC
Date Collected: 7/1/2009 14:55
Date Received: 7/2/2009
Matrix: Water
Sample Amount: 5 mL

Compound	Result UG/L	SWSL Limit UG/L	MDL UG/L	Dilution Factor	Date Analyzed	Flag
Acetone	BQL	100	2.18	1	7/12/2009	
Acetonitrile	BQL	55.0	2.58	1	7/12/2009	
Acrylonitrile	BQL	200	2.93	1	7/12/2009	
Benzene	BQL	1.00	0.0650	1	7/12/2009	
Bromochloromethane	BQL	3.00	0.101	1	7/12/2009	
Bromodichloromethane	BQL	1.00	0.0760	1	7/12/2009	
Bromoform	BQL	3.00	0.120	1	7/12/2009	
Bromomethane	BQL	10.0	0.133	1	7/12/2009	
2-butanone	BQL	100	0.544	1	7/12/2009	
Carbon disulfide	BQL	100	0.0690	1	7/12/2009	
Carbon tetrachloride	BQL	1.00	0.0870	1	7/12/2009	
Chlorobenzene	BQL	3.00	0.0820	1	7/12/2009	
Chloroethane	BQL	10.0	0.106	1	7/12/2009	
Chloroform	BQL	5.00	0.0790	1	7/12/2009	
Chloromethane	BQL	1.00	0.146	1	7/12/2009	
Dibromochloromethane	BQL	3.00	0.0900	1	7/12/2009	
1,2-Dibromo-3-chloropropane	BQL	13.0	1.21	1	7/12/2009	
Dibromomethane	BQL	10.0	0.113	1	7/12/2009	
1,2-Dibromoethane	BQL	1.00	0.124	1	7/12/2009	
1,2-Dichlorobenzene	BQL	5.00	0.127	1	7/12/2009	
1,3-Dichlorobenzene	BQL	5.00	0.0810	1	7/12/2009	
1,4-Dichlorobenzene	BQL	5.00	0.0790	1	7/12/2009	
t-1,4-Dichloro-2-butene	BQL	50.5	0.630	1	7/12/2009	
1,1-Dichloroethane	BQL	5.00	0.0740	1	7/12/2009	
1,1-Dichloroethene	BQL	5.00	0.0890	1	7/12/2009	
1,2-Dichloroethane	BQL	1.00	0.0790	1	7/12/2009	
cis-1,2-Dichloroethene	BQL	5.00	0.0650	1	7/12/2009	
t-1,2-dichloroethene	BQL	5.00	0.0890	1	7/12/2009	
1,2-Dichloropropane	BQL	1.00	0.0940	1	7/12/2009	
1,1-Dichloropropene	BQL	5.00	0.0720	1	7/12/2009	
cis-1,3-Dichloropropene	BQL	1.00	0.0760	1	7/12/2009	
t-1,3-Dichloropropene	BQL	1.00	0.0760	1	7/12/2009	
Ethylbenzene	BQL	1.00	0.0770	1	7/12/2009	
2-hexanone	BQL	50.0	0.720	1	7/12/2009	
Iodomethane	BQL	10.0	0.0420	1	7/12/2009	
Methylene chloride	BQL	1.00	0.0980	1	7/12/2009	
4-methyl-2-pentanone	BQL	100	0.550	1	7/12/2009	
Styrene	BQL	1.00	0.0850	1	7/12/2009	
1,1,1,2-Tetrachloroethane	BQL	5.00	0.0900	1	7/12/2009	
1,1,2,2-Tetrachloroethane	BQL	3.00	0.115	1	7/12/2009	
Tetrachloroethene	BQL	1.00	0.0690	1	7/12/2009	
Toluene	0.120	1.00	0.0760	1	7/12/2009	J
Trichloroethene	BQL	1.00	0.0540	1	7/12/2009	
1,1,1-Trichloroethane	BQL	1.00	0.0540	1	7/12/2009	
1,1,2-Trichloroethane	BQL	1.00	0.182	1	7/12/2009	

**Results for Volatiles
by GCMS 8260 Appendix I**

Client Sample ID: Perry Creek-070109
 Client Project ID: Rowland LF
 Lab Sample ID: G1081-1-1A
 Lab Project ID: G1081-1

Analyzed By: MJC
 Date Collected: 7/1/2009 14:55
 Date Received: 7/2/2009
 Matrix: Water
 Sample Amount: 5 mL

Compound	Result UG/L	SWSL Limit UG/L	MDL UG/L	Dilution Factor	Date Analyzed	Flag
Trichlorofluoromethane	BQL	1.00	0.111	1	7/12/2009	
1,2,3-Trichloropropane	BQL	1.00	0.120	1	7/12/2009	
Vinyl acetate	BQL	50.0	0.100	1	7/12/2009	
Vinyl chloride	BQL	1.00	0.149	1	7/12/2009	
Total Xylene	BQL	5.00	0.0650	1	7/12/2009	

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	10	10	100
Toluene-d8	10	10.2	102
4-Bromofluorobenzene	10	9.64	96

Comments:

Flags:

BQL = Below Quantitation Limits.
 J = Detected below the quantitation limit.

Analyst:

Reviewed By:

SGS North America, Inc.

**Results for Volatiles
by GCMS 8260 Appendix I**

Client Sample ID: Supply Well-070109
 Client Project ID: Rowland LF
 Lab Sample ID: G1081-1-2A
 Lab Project ID: G1081-1

Analyzed By: MJC
 Date Collected: 7/1/2009 16:00
 Date Received: 7/2/2009
 Matrix: Water
 Sample Amount: 5 mL

Compound	Result UG/L	SWSL Limit UG/L	MDL UG/L	Dilution Factor	Date Analyzed	Flag
Acetone	BQL	100	2.18	1	7/12/2009	
Acetonitrile	BQL	55.0	2.58	1	7/12/2009	
Acrylonitrile	BQL	200	2.93	1	7/12/2009	
Benzene	BQL	1.00	0.0650	1	7/12/2009	
Bromochloromethane	BQL	3.00	0.101	1	7/12/2009	
Bromodichloromethane	BQL	1.00	0.0760	1	7/12/2009	
Bromoform	BQL	3.00	0.120	1	7/12/2009	
Bromomethane	BQL	10.0	0.133	1	7/12/2009	
2-butanone	BQL	100	0.544	1	7/12/2009	
Carbon disulfide	BQL	100	0.0690	1	7/12/2009	
Carbon tetrachloride	BQL	1.00	0.0870	1	7/12/2009	
Chlorobenzene	BQL	3.00	0.0820	1	7/12/2009	
Chloroethane	BQL	10.0	0.106	1	7/12/2009	
Chloroform	BQL	5.00	0.0790	1	7/12/2009	
Chloromethane	BQL	1.00	0.146	1	7/12/2009	
Dibromochloromethane	BQL	3.00	0.0900	1	7/12/2009	
1,2-Dibromo-3-chloropropane	BQL	13.0	1.21	1	7/12/2009	
Dibromomethane	BQL	10.0	0.113	1	7/12/2009	
1,2-Dibromoethane	BQL	1.00	0.124	1	7/12/2009	
1,2-Dichlorobenzene	BQL	5.00	0.127	1	7/12/2009	
1,3-Dichlorobenzene	BQL	5.00	0.0810	1	7/12/2009	
1,4-Dichlorobenzene	BQL	5.00	0.0790	1	7/12/2009	
t-1,4-Dichloro-2-butene	BQL	50.5	0.630	1	7/12/2009	
1,1-Dichloroethane	BQL	5.00	0.0740	1	7/12/2009	
1,1-Dichloroethene	BQL	5.00	0.0890	1	7/12/2009	
1,2-Dichloroethane	BQL	1.00	0.0790	1	7/12/2009	
cis-1,2-Dichloroethene	BQL	5.00	0.0650	1	7/12/2009	
t-1,2-dichloroethene	BQL	5.00	0.0890	1	7/12/2009	
1,2-Dichloropropane	BQL	1.00	0.0940	1	7/12/2009	
1,1-Dichloropropene	BQL	5.00	0.0720	1	7/12/2009	
cis-1,3-Dichloropropene	BQL	1.00	0.0760	1	7/12/2009	
t-1,3-Dichloropropene	BQL	1.00	0.0760	1	7/12/2009	
Ethylbenzene	BQL	1.00	0.0770	1	7/12/2009	
2-hexanone	BQL	50.0	0.720	1	7/12/2009	
Iodomethane	BQL	10.0	0.0420	1	7/12/2009	
Methylene chloride	BQL	1.00	0.0980	1	7/12/2009	
4-methyl-2-pentanone	BQL	100	0.550	1	7/12/2009	
Styrene	BQL	1.00	0.0850	1	7/12/2009	
1,1,1,2-Tetrachloroethane	BQL	5.00	0.0900	1	7/12/2009	
1,1,2,2-Tetrachloroethane	BQL	3.00	0.115	1	7/12/2009	
Tetrachloroethene	0.210	1.00	0.0690	1	7/12/2009	J
Toluene	BQL	1.00	0.0760	1	7/12/2009	
Trichloroethene	BQL	1.00	0.0540	1	7/12/2009	
1,1,1-Trichloroethane	BQL	1.00	0.0540	1	7/12/2009	
1,1,2-Trichloroethane	BQL	1.00	0.182	1	7/12/2009	

**Results for Volatiles
by GCMS 8260 Appendix I**

Client Sample ID: Supply Well-070109
 Client Project ID: Rowland LF
 Lab Sample ID: G1081-1-2A
 Lab Project ID: G1081-1

Analyzed By: MJC
 Date Collected: 7/1/2009 16:00
 Date Received: 7/2/2009
 Matrix: Water
 Sample Amount: 5 mL

Compound	Result UG/L	SWSL Limit UG/L	MDL UG/L	Dilution Factor	Date Analyzed	Flag
Trichlorofluoromethane	BQL	1.00	0.111	1	7/12/2009	
1,2,3-Trichloropropane	BQL	1.00	0.120	1	7/12/2009	
Vinyl acetate	BQL	50.0	0.100	1	7/12/2009	
Vinyl chloride	BQL	1.00	0.149	1	7/12/2009	
Total Xylene	BQL	5.00	0.0650	1	7/12/2009	

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	10	9.82	98
Toluene-d8	10	10.1	101
4-Bromofluorobenzene	10	9.73	97

Comments:

Flags:

BQL = Below Quantitation Limits.
 J = Detected below the quantitation limit.

Analyst: 

Reviewed By: 

Results for Metals

Client Sample ID: Perry Creek-070109
 Client Project ID: Rowland LF
 Lab Sample ID: G1081-1-1
 Lab Project ID: G1081-1
 ICP InitWt/Vol: 50 mL Final Vol: 50 mL
 Hg InitWt/Vol: 40 mL Final Vol: 57 mL
 Prep Batch: 14589 14592

Analyzed By: PSW
 Date Collected: 7/1/2009 14:55
 Date Received: 7/2/2009
 Matrix: WATER

Metals	Result	SWSL	MDL	DF	Units	Method	Date Analyzed	Flags
Antimony	BQL	0.00600	0.00295	1	MG/L	6010B	7/8/2009	
Arsenic	BQL	0.0100	0.00491	1	MG/L	6010B	7/8/2009	
Barium	0.0724	0.100	0.00206	1	MG/L	6010B	7/8/2009	JB
Beryllium	BQL	0.00100	0.000442	10	MG/L	6020	7/10/2009	
Cadmium	BQL	0.00100	0.000158	10	MG/L	6020	7/10/2009	
Chromium	0.00258	0.0100	0.00146	1	MG/L	6010B	7/8/2009	JB
Cobalt	BQL	0.0100	0.00172	1	MG/L	6010B	7/8/2009	
Copper	0.00535	0.0100	0.00129	1	MG/L	6010B	7/8/2009	JB
Iron	3.97	0.100	0.0200	1	MG/L	6010B	7/8/2009	
Lead	BQL	0.0100	0.00679	1	MG/L	6010B	7/8/2009	
Manganese	0.536	0.0100	0.000640	1	MG/L	6010B	7/8/2009	B
Mercury	BQL	0.000285	0.000024	1	MG/L	7470	7/8/2009	
Nickel	0.00408	0.0500	0.00236	1	MG/L	6010B	7/8/2009	J
Selenium	BQL	0.0100	0.00278	1	MG/L	6010B	7/8/2009	
Silver	0.00184	0.0100	0.000656	1	MG/L	6010B	7/8/2009	JB
Thallium	BQL	0.00550	0.000198	10	MG/L	6020	7/10/2009	
Vanadium	BQL	0.00250	0.000586	10	MG/L	6020	7/10/2009	
Zinc	0.00398	0.0100	0.00129	1	MG/L	6010B	7/8/2009	J

Comments

BQL = Below Quantitation Limits
 DF = Dilution Factor
 J = Between MDL and RL
 B= Amount in Prep Blank > MDL

Reviewed By: 
 METALS.XLS

Results for Metals

Client Sample ID: Supply Well-070109
 Client Project ID: Rowland LF
 Lab Sample ID: G1081-1-2
 Lab Project ID: G1081-1
 ICP InitWt/Vol: 50 mL Final Vol: 50 mL
 Hg InitWt/Vol: 40 mL Final Vol: 57 mL
 Prep Batch: 14589 14592

Analyzed By: PSW
 Date Collected: 7/1/2009 16:00
 Date Received: 7/2/2009
 Matrix: WATER

Metals	Result	SWSL	MDL	DF	Units	Method	Date Analyzed	Flags
Antimony	BQL	0.00600	0.00295	1	MG/L	6010B	7/8/2009	
Arsenic	BQL	0.0100	0.00491	1	MG/L	6010B	7/8/2009	
Barium	0.0334	0.100	0.00206	1	MG/L	6010B	7/8/2009	JB
Beryllium	BQL	0.00100	0.000442	10	MG/L	6020	7/10/2009	
Cadmium	BQL	0.00100	0.000158	10	MG/L	6020	7/10/2009	
Chromium	0.00298	0.0100	0.00146	1	MG/L	6010B	7/8/2009	JB
Cobalt	BQL	0.0100	0.00172	1	MG/L	6010B	7/8/2009	
Copper	0.00785	0.0100	0.00129	1	MG/L	6010B	7/8/2009	JB
Iron	BQL	0.100	0.0200	1	MG/L	6010B	7/8/2009	
Lead	BQL	0.0100	0.00679	1	MG/L	6010B	7/8/2009	
Manganese	0.00215	0.0100	0.000640	1	MG/L	6010B	7/8/2009	JB
Mercury	BQL	0.000285	0.000024	1	MG/L	7470	7/8/2009	
Nickel	BQL	0.0500	0.00236	1	MG/L	6010B	7/8/2009	
Selenium	BQL	0.0100	0.00278	1	MG/L	6010B	7/8/2009	
Silver	0.00132	0.0100	0.000656	1	MG/L	6010B	7/8/2009	JB
Thallium	BQL	0.00550	0.000198	10	MG/L	6020	7/10/2009	
Vanadium	0.00242	0.00250	0.000586	10	MG/L	6020	7/10/2009	J
Zinc	0.132	0.0100	0.00129	1	MG/L	6010B	7/8/2009	

Comments

BQL = Below Quantitation Limits
 DF = Dilution Factor
 J = Between MDL and RL
 B= Amount in Prep Blank > MDL

Reviewed By: 
 METALS.XLS

Results for Anions
by IC 300.0

Client Sample ID: Perry Creek-070109
 Client Project ID: Rowland LF
 Lab Sample ID: G1081-1-1E
 Lab Project ID: G1081-1

Analyzed By: PSW
 Date Collected: 7/1/2009 14:55
 Date Received: 7/2/2009
 Matrix: Water

Analyte	Result mg/L	RL mg/L	MDL mg/L	Dilution Factor	Date Analyzed	Flags
Chloride	9.19	3.00	0.107	10	7/7/2009	
Sulfate	3.14	0.300	0.0563	1	7/8/2009	

Comments:

All values corrected for dilution.
 BQL = Below quantitation limit.

Reviewed By: 
 IC_WA.XLS

Results for Anions
by IC 300.0

Client Sample ID: Supply Well-070109
 Client Project ID: Rowland LF
 Lab Sample ID: G1081-1-2E
 Lab Project ID: G1081-1

Analyzed By: PSW
 Date Collected: 7/1/2009 16:00
 Date Received: 7/2/2009
 Matrix: Water

Analyte	Result mg/L	RL mg/L	MDL mg/L	Dilution Factor	Date Analyzed	Flags
Chloride	4.69	3.00	0.107	10	7/7/2009	
Sulfate	1.15	0.300	0.0563	1	7/8/2009	

Comments:

All values corrected for dilution.
 BQL = Below quantitation limit.

Reviewed By: 
 IC_WA.XLS

Analytical Results

Client Sample ID: Perry Creek-070109
 Client Project ID: Rowland LF
 Lab Sample ID: G1081-1-1
 Lab Project ID: G1081-1

Date Collected: 2009-07-01 14:55:00
 Date Received: 2009-07-02 10:00:00
 Matrix: Water

Analyte	Result	RL	Units	Method	Date Analyzed	Analyst
Alkalinity	104	1.0	mg/L	SM 2320B	07/08/09	element 1
TDS	170	1.0	mg/L	SM 2540C	07/03/09	element 1

Comments

BQL = Below Quantitation Limits
 DF = Dilution Factor
 RL = Report Limit

Reviewed By: 
subout.xls

Analytical Results

Client Sample ID: Supply Well-070109
 Client Project ID: Rowland LF
 Lab Sample ID: G1081-1-2
 Lab Project ID: G1081-1

Date Collected: 2009-07-01 16:00:00
 Date Received: 2009-07-02 10:00:00
 Matrix: Water

Analyte	Result	RL	Units	Method	Date Analyzed	Analyst
Alkalinity	45.0	1.0	mg/L	SM 2320B	07/08/09	element 1
TDS	122	1.0	mg/L	SM 2540C	07/03/09	element 1

Comments

BQL = Below Quantitation Limits
 DF = Dilution Factor
 RL = Report Limit

Reviewed By: 
subout.xls

Attachment 2

Laboratory analytical data for samples acquired in January and April 2010
From the on-site well and Perry Creek



Case Narrative

Date: 02/16/10
Company: Environmental Field Management
Contact: Aaron Hill
Address: 495 Beaumont Lane
Pittsboro, NC 27312

Client Project ID: Rowland LF
Prism COC Group No: G0210065
Collection Date(s): 01/29/10
Lab Submittal Date(s): 02/02/10
Client Project Name Or No: Raleigh, NC

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 17 pages. A chain-of-custody is also attached for the samples submitted to Prism for this project.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative. Quality control statements and/or sample specific remarks are included in the sample comments section of the laboratory report for each sample affected.

Semi Volatile Analysis

N/A

Volatile Analysis

No Anomalies Reported

Metals Analysis

No Anomalies Reported

Wet Lab and Micro Analysis

Analysis Note for Q47928 LCS Alkalinity, Total: No duplicate with this batch.

Analysis Note for Q47958 MS Sulfate: MS/MSD recovery outside the control limits.

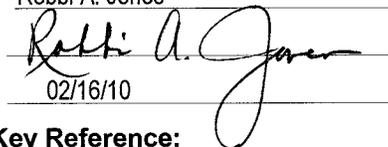
Analysis Note for Q47958 MSD Sulfate: Matrix interference is suspected.

Please call if you have any questions relating to this analytical report.

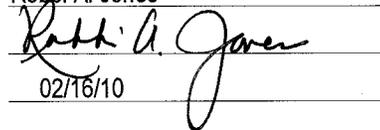
Data Reviewed by: Robbi A. Jones

Project Manager: Robbi A. Jones

Signature:



Signature:



Review Date:

02/16/10

Approval Date:

02/16/10

Data Qualifiers Key Reference:

- B: Compound also detected in the method blank.
- #: Result outside of the QC limits.
- DO: Compound diluted out.
- E: Estimated concentration, calibration range exceeded.
- J: The analyte was positively identified but the value is estimated below the reporting limit.
- H: Estimated concentration with a high bias.
- L: Estimated concentration with a low bias.
- M: A matrix effect is present.

Notes: This report should not be reproduced, except in its entirety, without the written consent of Prism Laboratories, Inc. The results in this report relate only to the samples submitted for analysis.



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 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

02/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF
 Sample Matrix: Water

Client Sample ID: Perry Crk-012910
 Prism Sample ID: 269739
 COC Group: G0210065
 Time Collected: 01/29/10 10:05
 Time Submitted: 02/02/10 16:10

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Volatile Organic Compounds by GC/MS</u>									
1,1,1,2-Tetrachloroethane	BRL	µg/L	1.0	0.15	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,1,1-Trichloroethane	BRL	µg/L	1.0	0.063	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,1,1,2,2-Tetrachloroethane	BRL	µg/L	1.0	0.071	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,1,2-Trichloroethane	BRL	µg/L	1.0	0.17	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,1-Dichloroethane	BRL	µg/L	1.0	0.096	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,1-Dichloroethene	BRL	µg/L	1.0	0.078	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,2,3-Trichloropropane	BRL	µg/L	1.0	0.081	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,2-Dibromo-3-chloropropane	BRL	µg/L	2.0	0.59	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,2-Dibromoethane (EDB)	BRL	µg/L	1.0	0.14	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,2-Dichlorobenzene	BRL	µg/L	1.0	0.076	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,2-Dichloroethane	BRL	µg/L	1.0	0.14	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,2-Dichloropropane	BRL	µg/L	1.0	0.13	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,3-Dichlorobenzene	BRL	µg/L	1.0	0.074	1	8260B	02/05/10 17:35	Iwitry	Q47750
1,4-Dichlorobenzene	BRL	µg/L	1.0	0.068	1	8260B	02/05/10 17:35	Iwitry	Q47750
2-Hexanone	BRL	µg/L	5.0	0.19	1	8260B	02/05/10 17:35	Iwitry	Q47750
4-Methyl-2-pentanone (MIBK)	BRL	µg/L	5.0	0.13	1	8260B	02/05/10 17:35	Iwitry	Q47750
Acetone	BRL	µg/L	10	0.62	1	8260B	02/05/10 17:35	Iwitry	Q47750
Acrylonitrile	BRL	µg/L	100	0.86	1	8260B	02/05/10 17:35	Iwitry	Q47750
Benzene	BRL	µg/L	1.0	0.072	1	8260B	02/05/10 17:35	Iwitry	Q47750
Bromochloromethane	BRL	µg/L	1.0	0.13	1	8260B	02/05/10 17:35	Iwitry	Q47750
Bromodichloromethane	BRL	µg/L	1.0	0.063	1	8260B	02/05/10 17:35	Iwitry	Q47750
Bromoform	BRL	µg/L	1.0	0.27	1	8260B	02/05/10 17:35	Iwitry	Q47750
Bromomethane	BRL	µg/L	3.0	0.47	1	8260B	02/05/10 17:35	Iwitry	Q47750
Carbon disulfide	BRL	µg/L	5.0	1.4	1	8260B	02/05/10 17:35	Iwitry	Q47750
Carbon tetrachloride	BRL	µg/L	2.0	0.12	1	8260B	02/05/10 17:35	Iwitry	Q47750
Chlorobenzene	BRL	µg/L	1.0	0.061	1	8260B	02/05/10 17:35	Iwitry	Q47750
Chlorodibromomethane	BRL	µg/L	1.0	0.30	1	8260B	02/05/10 17:35	Iwitry	Q47750

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NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

02/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF
 Sample Matrix: Water

Client Sample ID: Perry Crk-012910
 Prism Sample ID: 269739
 COC Group: G0210065
 Time Collected: 01/29/10 10:05
 Time Submitted: 02/02/10 16:10

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Chloroethane	BRL	µg/L	5.0	0.13	1	8260B	02/05/10 17:35	lwitry	Q47750
Chloroform	BRL	µg/L	1.0	0.089	1	8260B	02/05/10 17:35	lwitry	Q47750
Chloromethane	BRL	µg/L	2.0	0.11	1	8260B	02/05/10 17:35	lwitry	Q47750
cis-1,2-Dichloroethene	BRL	µg/L	1.0	0.076	1	8260B	02/05/10 17:35	lwitry	Q47750
cis-1,3-Dichloropropene	BRL	µg/L	1.0	0.10	1	8260B	02/05/10 17:35	lwitry	Q47750
Dibromomethane	BRL	µg/L	1.0	0.13	1	8260B	02/05/10 17:35	lwitry	Q47750
Ethylbenzene	BRL	µg/L	1.0	0.067	1	8260B	02/05/10 17:35	lwitry	Q47750
m,p-Xylenes	BRL	µg/L	2.0	0.081	1	8260B	02/05/10 17:35	lwitry	Q47750
Methyl ethyl ketone (MEK)	BRL	µg/L	5.0	0.90	1	8260B	02/05/10 17:35	lwitry	Q47750
Methyl iodide	BRL	µg/L	5.0	0.14	1	8260B	02/05/10 17:35	lwitry	Q47750
Methylene chloride	BRL	µg/L	2.0	0.45	1	8260B	02/05/10 17:35	lwitry	Q47750
o-Xylene	BRL	µg/L	1.0	0.046	1	8260B	02/05/10 17:35	lwitry	Q47750
Styrene	BRL	µg/L	1.0	0.047	1	8260B	02/05/10 17:35	lwitry	Q47750
Tetrachloroethene	BRL	µg/L	1.0	0.069	1	8260B	02/05/10 17:35	lwitry	Q47750
Toluene	BRL	µg/L	1.0	0.042	1	8260B	02/05/10 17:35	lwitry	Q47750
trans-1,2-Dichloroethene	BRL	µg/L	2.0	0.12	1	8260B	02/05/10 17:35	lwitry	Q47750
trans-1,3-Dichloropropene	BRL	µg/L	1.0	0.043	1	8260B	02/05/10 17:35	lwitry	Q47750
trans-1,4-Dichloro-2-butene	BRL	µg/L	10	0.40	1	8260B	02/05/10 17:35	lwitry	Q47750
Trichloroethene	BRL	µg/L	2.0	0.054	1	8260B	02/05/10 17:35	lwitry	Q47750
Trichlorofluoromethane	BRL	µg/L	2.0	0.088	1	8260B	02/05/10 17:35	lwitry	Q47750
Vinyl acetate	BRL	µg/L	20	0.10	1	8260B	02/05/10 17:35	lwitry	Q47750
Vinyl chloride	BRL	µg/L	2.0	0.15	1	8260B	02/05/10 17:35	lwitry	Q47750

Surrogate	% Recovery	Control Limits
Toluene-d8	94	77 - 123
Dibromofluoromethane	106	75 - 129
Bromofluorobenzene	93	80 - 124

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Laboratory Report

02/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF
 Sample Matrix: Water

Client Sample ID: Perry Crk-012910
 Prism Sample ID: 269739
 COC Group: G0210065
 Time Collected: 01/29/10 10:05
 Time Submitted: 02/02/10 16:10

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Alkalinity (Titrimetric Method)</u>									
Alkalinity, Total	52	mg/L	5.0	0.76	1	SM2320 B	02/12/10 14:55	asawyer	Q47928
<u>Chloride by Ion Chromatography</u>									
Chloride	7.8	mg/L	2.0	0.021	2	9056	02/11/10 18:49	rlottin	Q47954
<u>Mercury by CVAA</u>									
Mercury	BRL	mg/L	0.0002	0.0000084	1	7470A	02/08/10 15:13	kpowers	Q47801
Sample Preparation:				20 mL /	30 mL	7470A	02/08/10 7:45	kpowers	P26684
<u>Metals by ICP</u>									
Antimony	0.0020 J	mg/L	0.010	0.0014	1	6010B	02/04/10 15:35	dsullivan	Q47725
Arsenic	0.0014 J	mg/L	0.010	0.0012	1	6010B	02/04/10 15:35	dsullivan	Q47725
Barium	0.041	mg/L	0.010	0.00026	1	6010B	02/04/10 15:35	dsullivan	Q47725
Beryllium	BRL	mg/L	0.0020	0.00015	1	6010B	02/04/10 15:35	dsullivan	Q47725
Cadmium	BRL	mg/L	0.0010	0.00012	1	6010B	02/04/10 15:35	dsullivan	Q47725
Chromium	0.0009 J	mg/L	0.0050	0.0004	1	6010B	02/04/10 15:35	dsullivan	Q47725
Cobalt	0.0007 J	mg/L	0.0050	0.0004	1	6010B	02/04/10 15:35	dsullivan	Q47725
Copper	0.0029 J	mg/L	0.010	0.0018	1	6010B	02/04/10 15:35	dsullivan	Q47725
Iron	1.9	mg/L	0.050	0.015	1	6010B	02/04/10 15:35	dsullivan	Q47725
Lead	BRL	mg/L	0.0050	0.00095	1	6010B	02/04/10 15:35	dsullivan	Q47725
Manganese	0.22	mg/L	0.010	0.00042	1	6010B	02/04/10 15:35	dsullivan	Q47725
Nickel	0.0009 J	mg/L	0.010	0.0005	1	6010B	02/04/10 15:35	dsullivan	Q47725
Selenium	BRL	mg/L	0.020	0.0040	1	6010B	02/04/10 15:35	dsullivan	Q47725
Silver	BRL	mg/L	0.0050	0.00018	1	6010B	02/04/10 15:35	dsullivan	Q47725
Thallium	BRL	mg/L	0.010	0.0024	1	6010B	02/04/10 15:35	dsullivan	Q47725
Vanadium	0.0015 J	mg/L	0.0050	0.0004	1	6010B	02/04/10 15:35	dsullivan	Q47725
Zinc	0.015 J	mg/L	0.030	0.0037	1	6010B	02/04/10 15:35	dsullivan	Q47725
Sample Preparation:				50 mL /	50 mL	3010A	02/04/10 8:30	mbarber	P26657

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NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

02/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF
 Sample Matrix: Water

Client Sample ID: Perry Crk-012910
 Prism Sample ID: 269739
 COC Group: G0210065
 Time Collected: 01/29/10 10:05
 Time Submitted: 02/02/10 16:10

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Sulfate by Ion Chromatography</u>									
Sulfate	14	mg/L	2.0	0.063	2	9056	02/11/10 18:49	rloftin	Q47958
<u>Total Dissolved Solids</u>									
Total Dissolved Solids	110	mg/L	20	14	1	SM2540 C	02/04/10 13:20	kpowers	Q47771

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a wet-weight basis

Angela D. Overcash, V.P. Laboratory Services



NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

02/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF
 Sample Matrix: Water

Client Sample ID: Supply Well-012910
 Prism Sample ID: 269740
 COC Group: G0210065
 Time Collected: 01/29/10 10:25
 Time Submitted: 02/02/10 16:10

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Volatile Organic Compounds by GC/MS</u>									
1,1,1,2-Tetrachloroethane	BRL	µg/L	1.0	0.15	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,1,1-Trichloroethane	BRL	µg/L	1.0	0.063	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,1,2,2-Tetrachloroethane	BRL	µg/L	1.0	0.071	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,1,2-Trichloroethane	BRL	µg/L	1.0	0.17	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,1-Dichloroethane	BRL	µg/L	1.0	0.096	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,1-Dichloroethene	BRL	µg/L	1.0	0.078	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,2,3-Trichloropropane	BRL	µg/L	1.0	0.081	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,2-Dibromo-3-chloropropane	BRL	µg/L	2.0	0.59	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,2-Dibromoethane (EDB)	BRL	µg/L	1.0	0.14	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,2-Dichlorobenzene	BRL	µg/L	1.0	0.076	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,2-Dichloroethane	BRL	µg/L	1.0	0.14	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,2-Dichloropropane	BRL	µg/L	1.0	0.13	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,3-Dichlorobenzene	BRL	µg/L	1.0	0.074	1	8260B	02/05/10 18:09	Iwtry	Q47750
1,4-Dichlorobenzene	BRL	µg/L	1.0	0.068	1	8260B	02/05/10 18:09	Iwtry	Q47750
2-Hexanone	BRL	µg/L	5.0	0.19	1	8260B	02/05/10 18:09	Iwtry	Q47750
4-Methyl-2-pentanone (MIBK)	BRL	µg/L	5.0	0.13	1	8260B	02/05/10 18:09	Iwtry	Q47750
Acetone	BRL	µg/L	10	0.62	1	8260B	02/05/10 18:09	Iwtry	Q47750
Acrylonitrile	BRL	µg/L	100	0.86	1	8260B	02/05/10 18:09	Iwtry	Q47750
Benzene	BRL	µg/L	1.0	0.072	1	8260B	02/05/10 18:09	Iwtry	Q47750
Bromochloromethane	BRL	µg/L	1.0	0.13	1	8260B	02/05/10 18:09	Iwtry	Q47750
Bromodichloromethane	BRL	µg/L	1.0	0.063	1	8260B	02/05/10 18:09	Iwtry	Q47750
Bromoform	BRL	µg/L	1.0	0.27	1	8260B	02/05/10 18:09	Iwtry	Q47750
Bromomethane	BRL	µg/L	3.0	0.47	1	8260B	02/05/10 18:09	Iwtry	Q47750
Carbon disulfide	BRL	µg/L	5.0	1.4	1	8260B	02/05/10 18:09	Iwtry	Q47750
Carbon tetrachloride	BRL	µg/L	2.0	0.12	1	8260B	02/05/10 18:09	Iwtry	Q47750
Chlorobenzene	BRL	µg/L	1.0	0.061	1	8260B	02/05/10 18:09	Iwtry	Q47750
Chlorodibromomethane	BRL	µg/L	1.0	0.30	1	8260B	02/05/10 18:09	Iwtry	Q47750

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NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

02/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF
 Sample Matrix: Water

Client Sample ID: Supply Well-012910
 Prism Sample ID: 269740
 COC Group: G0210065
 Time Collected: 01/29/10 10:25
 Time Submitted: 02/02/10 16:10

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Chloroethane	BRL	µg/L	5.0	0.13	1	8260B	02/05/10 18:09	Iwitry	Q47750
Chloroform	BRL	µg/L	1.0	0.089	1	8260B	02/05/10 18:09	Iwitry	Q47750
Chloromethane	BRL	µg/L	2.0	0.11	1	8260B	02/05/10 18:09	Iwitry	Q47750
cis-1,2-Dichloroethene	BRL	µg/L	1.0	0.076	1	8260B	02/05/10 18:09	Iwitry	Q47750
cis-1,3-Dichloropropene	BRL	µg/L	1.0	0.10	1	8260B	02/05/10 18:09	Iwitry	Q47750
Dibromomethane	BRL	µg/L	1.0	0.13	1	8260B	02/05/10 18:09	Iwitry	Q47750
Ethylbenzene	BRL	µg/L	1.0	0.067	1	8260B	02/05/10 18:09	Iwitry	Q47750
m,p-Xylenes	BRL	µg/L	2.0	0.081	1	8260B	02/05/10 18:09	Iwitry	Q47750
Methyl ethyl ketone (MEK)	BRL	µg/L	5.0	0.90	1	8260B	02/05/10 18:09	Iwitry	Q47750
Methyl iodide	BRL	µg/L	5.0	0.14	1	8260B	02/05/10 18:09	Iwitry	Q47750
Methylene chloride	BRL	µg/L	2.0	0.45	1	8260B	02/05/10 18:09	Iwitry	Q47750
o-Xylene	BRL	µg/L	1.0	0.046	1	8260B	02/05/10 18:09	Iwitry	Q47750
Styrene	BRL	µg/L	1.0	0.047	1	8260B	02/05/10 18:09	Iwitry	Q47750
Tetrachloroethene	BRL	µg/L	1.0	0.069	1	8260B	02/05/10 18:09	Iwitry	Q47750
Toluene	BRL	µg/L	1.0	0.042	1	8260B	02/05/10 18:09	Iwitry	Q47750
trans-1,2-Dichloroethene	BRL	µg/L	2.0	0.12	1	8260B	02/05/10 18:09	Iwitry	Q47750
trans-1,3-Dichloropropene	BRL	µg/L	1.0	0.043	1	8260B	02/05/10 18:09	Iwitry	Q47750
trans-1,4-Dichloro-2-butene	BRL	µg/L	10	0.40	1	8260B	02/05/10 18:09	Iwitry	Q47750
Trichloroethene	BRL	µg/L	2.0	0.054	1	8260B	02/05/10 18:09	Iwitry	Q47750
Trichlorofluoromethane	BRL	µg/L	2.0	0.088	1	8260B	02/05/10 18:09	Iwitry	Q47750
Vinyl acetate	BRL	µg/L	20	0.10	1	8260B	02/05/10 18:09	Iwitry	Q47750
Vinyl chloride	BRL	µg/L	2.0	0.15	1	8260B	02/05/10 18:09	Iwitry	Q47750

Surrogate	% Recovery	Control Limits
Toluene-d8	97	77 - 123
Dibromofluoromethane	109	75 - 129
Bromofluorobenzene	96	80 - 124

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NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

02/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF
 Sample Matrix: Water

Client Sample ID: Supply Well-012910
 Prism Sample ID: 269740
 COC Group: G0210065
 Time Collected: 01/29/10 10:25
 Time Submitted: 02/02/10 16:10

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Alkalinity (Titrimetric Method)</u>									
Alkalinity, Total	72	mg/L	5.0	0.76	1	SM2320 B	02/12/10 14:55	asawyer	Q47928
<u>Chloride by Ion Chromatography</u>									
Chloride	4.6	mg/L	2.0	0.021	2	9056	02/11/10 19:56	rloftin	Q47954
<u>Mercury by CVAA</u>									
Mercury	BRL	mg/L	0.0002	0.0000084	1	7470A	02/08/10 14:47	kpowers	Q47801
Sample Preparation:				20 mL /	30 mL	7470A	02/08/10 7:45	kpowers	P26684
<u>Metals by ICP</u>									
Antimony	0.0027 J	mg/L	0.010	0.0014	1	6010B	02/04/10 15:58	dsullivan	Q47725
Arsenic	BRL	mg/L	0.010	0.0012	1	6010B	02/04/10 15:58	dsullivan	Q47725
Barium	0.037	mg/L	0.010	0.00026	1	6010B	02/04/10 15:58	dsullivan	Q47725
Beryllium	BRL	mg/L	0.0020	0.00015	1	6010B	02/04/10 15:58	dsullivan	Q47725
Cadmium	BRL	mg/L	0.0010	0.00012	1	6010B	02/04/10 15:58	dsullivan	Q47725
Chromium	0.0013 J	mg/L	0.0050	0.0004	1	6010B	02/04/10 15:58	dsullivan	Q47725
Cobalt	BRL	mg/L	0.0050	0.0004	1	6010B	02/04/10 15:58	dsullivan	Q47725
Copper	0.0026 J	mg/L	0.010	0.0018	1	6010B	02/04/10 15:58	dsullivan	Q47725
Iron	BRL	mg/L	0.050	0.015	1	6010B	02/04/10 15:58	dsullivan	Q47725
Lead	0.0019 J	mg/L	0.0050	0.00095	1	6010B	02/04/10 15:58	dsullivan	Q47725
Manganese	0.0028 J	mg/L	0.010	0.00042	1	6010B	02/04/10 15:58	dsullivan	Q47725
Nickel	0.0005 J	mg/L	0.010	0.0005	1	6010B	02/04/10 15:58	dsullivan	Q47725
Selenium	BRL	mg/L	0.020	0.0040	1	6010B	02/04/10 15:58	dsullivan	Q47725
Silver	BRL	mg/L	0.0050	0.00018	1	6010B	02/04/10 15:58	dsullivan	Q47725
Thallium	BRL	mg/L	0.010	0.0024	1	6010B	02/04/10 15:58	dsullivan	Q47725
Vanadium	0.0025 J	mg/L	0.0050	0.0004	1	6010B	02/04/10 15:58	dsullivan	Q47725
Zinc	0.86	mg/L	0.030	0.0037	1	6010B	02/04/10 15:58	dsullivan	Q47725
Sample Preparation:				50 mL /	50 mL	3010A	02/04/10 8:30	mbarber	P26657

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Laboratory Report

02/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF
 Sample Matrix: Water

Client Sample ID: Supply Well-012910
 Prism Sample ID: 269740
 COC Group: G0210065
 Time Collected: 01/29/10 10:25
 Time Submitted: 02/02/10 16:10

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Sulfate by Ion Chromatography</u>									
Sulfate	7.5	mg/L	2.0	0.063	2	9056	02/11/10 19:56	rloftin	Q47958
<u>Total Dissolved Solids</u>									
Total Dissolved Solids	100	mg/L	20	14	1	SM2540 C	02/04/10 13:20	kpowers	Q47771

Sample Comment(s):

BRL = Below Reporting Limit

J- Estimated value between the Reporting Limit and the MDL

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a wet-weight basis

Angela D. Overcash, V.P. Laboratory Services



NC Certification No. 402
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 NC Drinking Water Cert. No. 37735

Level II QC Report

2/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF

COC Group Number: G0210065
 Date/Time Submitted: 2/2/10 16:10

Metals by ICP, method 6010B

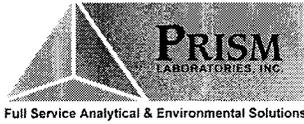
Method Blank	Result	RL	Control Limit	Units	QC Batch ID
Antimony	0.0026	0.01	<0.005	mg/L	Q47725
Arsenic	0.001	0.01	<0.005	mg/L	Q47725
Barium	0.0007	0.01	<0.005	mg/L	Q47725
Beryllium	-0.0001	0.002	<0.001	mg/L	Q47725
Cadmium	0.0001	0.001	<0.0005	mg/L	Q47725
Chromium	0.0001	0.005	<0.0025	mg/L	Q47725
Cobalt	0.0002	0.005	<0.0025	mg/L	Q47725
Copper	0.0007	0.01	<0.005	mg/L	Q47725
Iron	0.0127	0.05	<0.025	mg/L	Q47725
Lead	0.0004	0.005	<0.0025	mg/L	Q47725
Manganese	0.0005	0.01	<0.005	mg/L	Q47725
Nickel	0.0004	0.01	<0.005	mg/L	Q47725
Selenium	0.0013	0.02	<0.01	mg/L	Q47725
Silver	ND	0.005	<0.0025	mg/L	Q47725
Thallium	0.0003	0.01	<0.005	mg/L	Q47725
Vanadium	0.0002	0.005	<0.0025	mg/L	Q47725
Zinc	0.0129	0.03	<0.015	mg/L	Q47725

Laboratory Control Sample	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Antimony	0.2518	0.25	mg/L	101	80-120	Q47725
Arsenic	0.247	0.25	mg/L	99	80-120	Q47725
Barium	0.2516	0.25	mg/L	101	80-120	Q47725
Beryllium	0.248	0.25	mg/L	99	80-120	Q47725
Cadmium	0.2451	0.25	mg/L	98	80-120	Q47725
Chromium	0.2484	0.25	mg/L	99	80-120	Q47725
Cobalt	0.2523	0.25	mg/L	101	80-120	Q47725
Copper	0.2504	0.25	mg/L	100	80-120	Q47725
Iron	1.0252	1	mg/L	103	80-120	Q47725
Lead	0.2466	0.25	mg/L	99	80-120	Q47725
Manganese	0.2489	0.25	mg/L	100	80-120	Q47725
Nickel	0.2503	0.25	mg/L	100	80-120	Q47725
Selenium	0.2442	0.25	mg/L	98	80-120	Q47725
Silver	0.2506	0.25	mg/L	100	80-120	Q47725
Thallium	0.2486	0.25	mg/L	99	80-120	Q47725

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Level II QC Report

2/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF

COC Group Number: G0210065
 Date/Time Submitted: 2/2/10 16:10

Laboratory Control Sample						
	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Vanadium	0.2498	0.25	mg/L	100	80-120	Q47725
Zinc	0.2479	0.25	mg/L	99	80-120	Q47725

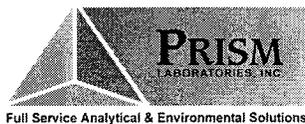
Matrix Spike						
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
269739 Antimony	0.2503	0.25	mg/L	99	75-125	Q47725
Arsenic	0.2486	0.25	mg/L	99	75-125	Q47725
Barium	0.2927	0.25	mg/L	101	75-125	Q47725
Beryllium	0.2529	0.25	mg/L	101	75-125	Q47725
Cadmium	0.2426	0.25	mg/L	97	75-125	Q47725
Chromium	0.2476	0.25	mg/L	99	75-125	Q47725
Cobalt	0.2503	0.25	mg/L	100	75-125	Q47725
Copper	0.2571	0.25	mg/L	102	75-125	Q47725
Iron	2.8842	1	mg/L	100	75-125	Q47725
Lead	0.2446	0.25	mg/L	98	75-125	Q47725
Manganese	0.4628	0.25	mg/L	98	75-125	Q47725
Nickel	0.2455	0.25	mg/L	98	75-125	Q47725
Selenium	0.2454	0.25	mg/L	98	75-125	Q47725
Silver	0.2507	0.25	mg/L	100	75-125	Q47725
Thallium	0.249	0.25	mg/L	100	75-125	Q47725
Vanadium	0.2516	0.25	mg/L	100	75-125	Q47725
Zinc	0.254	0.25	mg/L	96	75-125	Q47725

Matrix Spike Duplicate								
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
269739 Antimony	0.2504	0.25	mg/L	99	75-125	0	0 - 20	Q47725
Arsenic	0.2451	0.25	mg/L	97	75-125	1	0 - 20	Q47725
Barium	0.2868	0.25	mg/L	98	75-125	2	0 - 20	Q47725
Beryllium	0.2473	0.25	mg/L	99	75-125	2	0 - 20	Q47725
Cadmium	0.2383	0.25	mg/L	95	75-125	2	0 - 20	Q47725
Chromium	0.2428	0.25	mg/L	97	75-125	2	0 - 20	Q47725
Cobalt	0.2469	0.25	mg/L	98	75-125	1	0 - 20	Q47725
Copper	0.2514	0.25	mg/L	99	75-125	2	0 - 20	Q47725
Iron	2.8459	1	mg/L	96	75-125	1	0 - 20	Q47725
Lead	0.2405	0.25	mg/L	96	75-125	2	0 - 20	Q47725
Manganese	0.4566	0.25	mg/L	95	75-125	1	0 - 20	Q47725
Nickel	0.2408	0.25	mg/L	96	75-125	2	0 - 20	Q47725
Selenium	0.2402	0.25	mg/L	96	75-125	2	0 - 20	Q47725

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Level II QC Report

2/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF

COC Group Number: G0210065
 Date/Time Submitted: 2/2/10 16:10

Matrix Spike Duplicate

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
269739 Silver	0.246	0.25	mg/L	98	75-125	2	0 - 20	Q47725
Thallium	0.2448	0.25	mg/L	98	75-125	2	0 - 20	Q47725
Vanadium	0.2473	0.25	mg/L	98	75-125	2	0 - 20	Q47725
Zinc	0.2496	0.25	mg/L	94	75-125	2	0 - 20	Q47725

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NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Level II QC Report

2/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF

COC Group Number: G0210065
 Date/Time Submitted: 2/2/10 16:10

Volatile Organic Compounds by GC/MS, method 8260B

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
1,1,1,2-Tetrachloroethane	ND	1	<0.5	µg/L	Q47750
1,1,1-Trichloroethane	ND	1	<0.5	µg/L	Q47750
1,1,2,2-Tetrachloroethane	ND	1	<0.5	µg/L	Q47750
1,1,2-Trichloroethane	ND	1	<0.5	µg/L	Q47750
1,1-Dichloroethane	ND	1	<0.5	µg/L	Q47750
1,1-Dichloroethene	ND	1	<0.5	µg/L	Q47750
1,1-Dichloropropene	ND	1	<0.5	µg/L	Q47750
1,2,3-Trichlorobenzene	ND	2	<1	µg/L	Q47750
1,2,3-Trichloropropane	ND	1	<0.5	µg/L	Q47750
1,2,4-Trichlorobenzene	ND	1	<0.5	µg/L	Q47750
1,2,4-Trimethylbenzene	ND	1	<0.5	µg/L	Q47750
1,2-Dibromo-3-chloropropane	ND	2	<1	µg/L	Q47750
1,2-Dibromoethane (EDB)	ND	1	<0.5	µg/L	Q47750
1,2-Dichlorobenzene	ND	1	<0.5	µg/L	Q47750
1,2-Dichloroethane	ND	1	<0.5	µg/L	Q47750
1,2-Dichloropropane	ND	1	<0.5	µg/L	Q47750
1,3,5-Trimethylbenzene	ND	1	<0.5	µg/L	Q47750
1,3-Dichlorobenzene	ND	1	<0.5	µg/L	Q47750
1,3-Dichloropropane	ND	1	<0.5	µg/L	Q47750
1,4-Dichlorobenzene	ND	1	<0.5	µg/L	Q47750
2,2-Dichloropropane	ND	2	<1	µg/L	Q47750
2-Chloroethyl vinyl ether	ND	2	<1	µg/L	Q47750
2-Chlorotoluene	ND	1	<0.5	µg/L	Q47750
2-Hexanone	ND	2	<1	µg/L	Q47750
4-Chlorotoluene	ND	1	<0.5	µg/L	Q47750
4-Methyl-2-pentanone (MIBK)	ND	2	<1	µg/L	Q47750
Acetone	ND	10	<5	µg/L	Q47750
Acrolein	ND	20	<10	µg/L	Q47750
Acrylonitrile	ND	20	<10	µg/L	Q47750
Benzene	ND	0.5	<0.25	µg/L	Q47750
Bromobenzene	ND	1	<0.5	µg/L	Q47750
Bromochloromethane	ND	1	<0.5	µg/L	Q47750
Bromodichloromethane	ND	1	<0.5	µg/L	Q47750
Bromoform	ND	1	<0.5	µg/L	Q47750

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Level II QC Report

2/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF

COC Group Number: G0210065
 Date/Time Submitted: 2/2/10 16:10

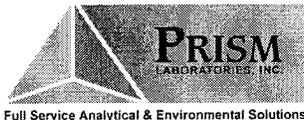
Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
Bromomethane	ND	3	<1.5	µg/L	Q47750
Carbon disulfide	ND	2	<1	µg/L	Q47750
Carbon tetrachloride	ND	2	<1	µg/L	Q47750
Chlorobenzene	ND	1	<0.5	µg/L	Q47750
Chlorodibromomethane	ND	1	<0.5	µg/L	Q47750
Chloroethane	ND	5	<2.5	µg/L	Q47750
Chloroform	ND	1	<0.5	µg/L	Q47750
Chloromethane	ND	2	<1	µg/L	Q47750
cis-1,2-Dichloroethene	ND	1	<0.5	µg/L	Q47750
cis-1,3-Dichloropropene	ND	1	<0.5	µg/L	Q47750
Dibromomethane	ND	1	<0.5	µg/L	Q47750
Dichlorodifluoromethane	ND	2	<1	µg/L	Q47750
Ethylbenzene	ND	1	<0.5	µg/L	Q47750
Hexachlorobutadiene	ND	2	<1	µg/L	Q47750
Isopropyl ether (IPE)	ND	1	<0.5	µg/L	Q47750
Isopropylbenzene	ND	1	<0.5	µg/L	Q47750
m,p-Xylenes	ND	2	<1	µg/L	Q47750
Methyl ethyl ketone (MEK)	ND	5	<2.5	µg/L	Q47750
Methyl iodide	ND	5	<2.5	µg/L	Q47750
Methyl t-butyl ether (MTBE)	ND	1	<0.5	µg/L	Q47750
Methylene chloride	ND	2	<1	µg/L	Q47750
n-Butylbenzene	ND	1	<0.5	µg/L	Q47750
n-Propylbenzene	ND	1	<0.5	µg/L	Q47750
Naphthalene	ND	1	<0.5	µg/L	Q47750
o-Xylene	ND	1	<0.5	µg/L	Q47750
p-Isopropyltoluene	ND	1	<0.5	µg/L	Q47750
sec-Butylbenzene	ND	1	<0.5	µg/L	Q47750
Styrene	ND	1	<0.5	µg/L	Q47750
tert-Butylbenzene	ND	1	<0.5	µg/L	Q47750
Tetrachloroethene	ND	1	<0.5	µg/L	Q47750
Toluene	ND	1	<0.5	µg/L	Q47750
trans-1,2-Dichloroethene	ND	2	<1	µg/L	Q47750
trans-1,3-Dichloropropene	ND	1	<0.5	µg/L	Q47750
trans-1,4-Dichloro-2-butene	ND	10	<5	µg/L	Q47750
Trichloroethene	ND	2	<1	µg/L	Q47750
Trichlorofluoromethane	ND	2	<1	µg/L	Q47750

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Level II QC Report

2/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF

COC Group Number: G0210065
 Date/Time Submitted: 2/2/10 16:10

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
Vinyl acetate	ND	20	<10	µg/L	Q47750
Vinyl chloride	ND	2	<1	µg/L	Q47750

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
1,1-Dichloroethene	46.91	50	µg/L	94	62-141	Q47750
Benzene	51.02	50	µg/L	102	70-141	Q47750
Chlorobenzene	44.12	50	µg/L	88	88-120	Q47750
Toluene	50.64	50	µg/L	101	78-130	Q47750
Trichloroethene	50.46	50	µg/L	101	78-124	Q47750

Matrix Spike

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
269756 1,1-Dichloroethene	523	500	µg/L	105	54-140	Q47750
Benzene	557.9	500	µg/L	112	62-129	Q47750
Chlorobenzene	485.1	500	µg/L	97	64-127	Q47750
Toluene	549	500	µg/L	110	60-131	Q47750
Trichloroethene	564.7	500	µg/L	113	52-128	Q47750

Matrix Spike Duplicate

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
269756 1,1-Dichloroethene	529.6	500	µg/L	106	54-140	1	0 - 20	Q47750
Benzene	556.4	500	µg/L	111	62-129	0	0 - 19	Q47750
Chlorobenzene	479.4	500	µg/L	96	64-127	1	0 - 20	Q47750
Toluene	550.1	500	µg/L	110	60-131	0	0 - 21	Q47750
Trichloroethene	567.4	500	µg/L	113	52-128	0	0 - 18	Q47750

Total Dissolved Solids, method SM2540 C

Method Blank						QC Batch ID
	Result	RL	Control Limit	Units		
Total Dissolved Solids	-2	20	<20	mg/L		Q47771

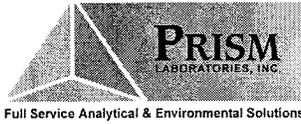
Laboratory Control Sample							QC Batch ID
	Result	Spike Amount	Units	Recovery %	Recovery Ranges %		
Total Dissolved Solids	1028	1000	mg/L	103	90-110		Q47771

Duplicate							
Sample ID:	Sample Result	Duplicate Result	Units	RPD %	RPD Range %	QC Batch ID	
269713 Total Dissolved Solids	1678	1702	mg/L	1	0 - 20	Q47771	

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Level II QC Report

2/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF

COC Group Number: G0210065
 Date/Time Submitted: 2/2/10 16:10

Mercury by CVAA, method 7470A

Method Blank							QC Batch ID		
	Result	RL	Control Limit	Units					
Mercury	-0.00003	0.0002	<0.0001	mg/L			Q47801		
Laboratory Control Sample							QC Batch ID		
	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
Mercury	0.00895	0.0093		mg/L	95	80-120	Q47801		
Matrix Spike							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
269740 Mercury	0.00871	0.0093		mg/L	93	80-120	Q47801		
Matrix Spike Duplicate							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	
269740 Mercury	0.00856	0.0093		mg/L	92	80-120	2	0 - 20	Q47801

Alkalinity (Titrimetric Method), method SM2320 B

Method Blank							QC Batch ID
	Result	RL	Control Limit	Units			
Alkalinity, Total	ND	5	<2.5	mg/L			Q47928
Laboratory Control Sample							QC Batch ID
	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	
Alkalinity, Total	272.45	250		mg/L	109	90-110	Q47928

Chloride by Ion Chromatography, method 9056

Method Blank							QC Batch ID		
	Result	RL	Control Limit	Units					
Chloride	ND	1	<0.5	mg/L			Q47954		
Laboratory Control Sample							QC Batch ID		
	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
Chloride	4.936	5		mg/L	99	80-120	Q47954		
Matrix Spike							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
269739 Chloride	17.95	10		mg/L	102	80-120	Q47954		
Matrix Spike Duplicate							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	
269739 Chloride	17.91	10		mg/L	101	80-120	0	0 - 15	Q47954

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Level II QC Report

2/16/10

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane
 Pittsboro, NC 27312

Project Name: Raleigh, NC
 Project ID: Rowland LF

COC Group Number: G0210065
 Date/Time Submitted: 2/2/10 16:10

Sulfate by Ion Chromatography, method 9056

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
Sulfate	ND	1	<0.5	mg/L	Q47958

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Sulfate	5.035	5	mg/L	101	80-120	Q47958

Matrix Spike

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
269739 Sulfate	18.31	10	mg/L	43 #	80-120	Q47958

Matrix Spike Duplicate

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
269739 Sulfate	18.17	10	mg/L	41 #	80-120	1	0 - 15	Q47958

#-See Case Narrative

Environmental Field Management
Aaron Hill
495 Beaumont Lane, Pittsboro, NC 27312
Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)

Lab Submittal Date: 04/14/2010
Prism Work Order: 0040082

This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

The results in this report relate only to the samples as submitted to the laboratory and the test results meet all requirements of NELAC except for those instances indicated in the case narrative and/or test comments.

Please call if you have any questions relating to this analytical report.

Respectfully,

PRISM LABORATORIES, INC.



President/Project Manager



Reviewed By

Data Qualifiers Key Reference:

MI	Matrix spike outside of the control limits. Matrix interference suspected.
MC	Sample concentration too high for recovery evaluation.
M	Matrix spike outside of the control limits.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
BRL	Below Reporting Limit
MDL	Method Detection Limit
RPD	Relative Percent Difference
*	Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
Perry Crk-041210	0040082-01	Water	04/12/10	04/14/10
Supply Well-041210	0040082-02	Water	04/12/10	04/14/10

Samples received in good condition at 3.1 degrees C unless otherwise noted.

Environmental Field Management
Attn: Aaron Hill
495 Beaumont Lane, Pittsboro, NC 27312
Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh,
NC)

Sample Matrix: Water

Client Sample ID: Perry Crk-041210

Prism Sample ID: 0040082-01

Prism Work Order: 0040082

Time Collected: 04/12/10 10:05

Time Submitted: 04/14/10 09:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Anions by Ion Chromatography

Chloride	12	mg/L	1.0	0.010	1	300.0	4/21/10 19:05	KCP	P0D0308
Sulfate	16	mg/L	1.0	0.032	1	300.0	4/21/10 19:05	KCP	P0D0309

General Chemistry Parameters

Bicarbonate Alkalinity	63	mg/L	5.0	0.76	1	SM2320 B	4/19/10 11:55	AGS	P0D0077
Total Alkalinity	63	mg/L	5.0	0.76	1	SM2320 B	4/19/10 11:55	AGS	P0D0077
Total Dissolved Solids	98	mg/L	20	14	1	SM2540 C	4/16/10 12:45	JAB	P0D0047

Total Metals

Antimony	BRL	mg/L	0.010	0.0012	1	6010C	4/19/10 15:43	DJS	P0D0055
Arsenic	BRL	mg/L	0.010	0.0019	1	6010C	4/19/10 15:43	DJS	P0D0055
Barium	0.034	mg/L	0.010	0.00064	1	6010C	4/19/10 15:43	DJS	P0D0055
Beryllium	BRL	mg/L	0.0020	0.00026	1	6010C	4/19/10 15:43	DJS	P0D0055
Cadmium	BRL	mg/L	0.0010	0.00015	1	6010C	4/19/10 15:43	DJS	P0D0055
Chromium	BRL	mg/L	0.0050	0.00051	1	6010C	4/19/10 15:43	DJS	P0D0055
Cobalt	0.00047	mg/L	0.0050	0.00031	1	6010C	4/19/10 15:43	DJS	P0D0055
Copper	BRL	mg/L	0.010	0.0011	1	6010C	4/19/10 15:43	DJS	P0D0055
Iron	1.8	mg/L	0.050	0.034	1	6010C	4/19/10 15:43	DJS	P0D0055
Lead	BRL	mg/L	0.0050	0.00057	1	6010C	4/19/10 15:43	DJS	P0D0055
Manganese	0.22	mg/L	0.010	0.00066	1	6010C	4/19/10 15:43	DJS	P0D0055
Mercury	BRL	mg/L	0.00020	0.0000084	1	7470A	5/3/10 15:42	RWF	P0E0017
Nickel	BRL	mg/L	0.010	0.0022	1	6010C	4/19/10 15:43	DJS	P0D0055
Selenium	BRL	mg/L	0.020	0.0028	1	6010C	4/19/10 15:43	DJS	P0D0055
Silver	BRL	mg/L	0.0050	0.00036	1	6010C	4/19/10 15:43	DJS	P0D0055
Thallium	BRL	mg/L	0.010	0.0016	1	6010C	4/19/10 15:43	DJS	P0D0055
Vanadium	0.00049	mg/L	0.0050	0.00025	1	6010C	4/19/10 15:43	DJS	P0D0055
Zinc	BRL	mg/L	0.030	0.0026	1	6010C	4/19/10 15:43	DJS	P0D0055

Volatile Organic Compounds by GC/MS

1,1,1,2-Tetrachloroethane	BRL	ug/L	1.0	0.15	1	8260B	4/20/10 14:48	LMW	P0D0128
1,1,1-Trichloroethane	BRL	ug/L	1.0	0.063	1	8260B	4/20/10 14:48	LMW	P0D0128
1,1,1,2,2-Tetrachloroethane	BRL	ug/L	1.0	0.071	1	8260B	4/20/10 14:48	LMW	P0D0128
1,1,2-Trichloroethane	BRL	ug/L	1.0	0.17	1	8260B	4/20/10 14:48	LMW	P0D0128
1,1-Dichloroethane	BRL	ug/L	1.0	0.096	1	8260B	4/20/10 14:48	LMW	P0D0128
1,1-Dichloroethylene	BRL	ug/L	1.0	0.078	1	8260B	4/20/10 14:48	LMW	P0D0128
1,2,3-Trichloropropane	BRL	ug/L	1.0	0.081	1	8260B	4/20/10 14:48	LMW	P0D0128
1,2-Dibromo-3-chloropropane	BRL	ug/L	2.0	0.59	1	8260B	4/20/10 14:48	LMW	P0D0128
1,2-Dibromoethane	BRL	ug/L	1.0	0.14	1	8260B	4/20/10 14:48	LMW	P0D0128
1,2-Dichlorobenzene	BRL	ug/L	1.0	0.076	1	8260B	4/20/10 14:48	LMW	P0D0128
1,2-Dichloroethane	BRL	ug/L	1.0	0.14	1	8260B	4/20/10 14:48	LMW	P0D0128
1,2-Dichloropropane	BRL	ug/L	1.0	0.13	1	8260B	4/20/10 14:48	LMW	P0D0128
1,4-Dichlorobenzene	BRL	ug/L	1.0	0.068	1	8260B	4/20/10 14:48	LMW	P0D0128
Acetone	BRL	ug/L	10	0.62	1	8260B	4/20/10 14:48	LMW	P0D0128

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Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane, Pittsboro, NC 27312
 Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)
 Sample Matrix: Water

Client Sample ID: Perry Crk-041210
 Prism Sample ID: 0040082-01
 Prism Work Order: 0040082
 Time Collected: 04/12/10 10:05
 Time Submitted: 04/14/10 09:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Acrylonitrile	BRL	ug/L	100	0.86	1	8260B	4/20/10 14:48	LMW	P0D0128
Benzene	BRL	ug/L	1.0	0.072	1	8260B	4/20/10 14:48	LMW	P0D0128
Bromochloromethane	BRL	ug/L	1.0	0.13	1	8260B	4/20/10 14:48	LMW	P0D0128
Bromodichloromethane	BRL	ug/L	1.0	0.062	1	8260B	4/20/10 14:48	LMW	P0D0128
Bromoform	BRL	ug/L	1.0	0.27	1	8260B	4/20/10 14:48	LMW	P0D0128
Bromomethane	BRL	ug/L	3.0	0.47	1	8260B	4/20/10 14:48	LMW	P0D0128
Carbon disulfide	BRL	ug/L	5.0	1.4	1	8260B	4/20/10 14:48	LMW	P0D0128
Carbon Tetrachloride	BRL	ug/L	2.0	0.12	1	8260B	4/20/10 14:48	LMW	P0D0128
Chlorobenzene	BRL	ug/L	1.0	0.061	1	8260B	4/20/10 14:48	LMW	P0D0128
Chloroethane	BRL	ug/L	5.0	0.13	1	8260B	4/20/10 14:48	LMW	P0D0128
Chloroform	BRL	ug/L	1.0	0.089	1	8260B	4/20/10 14:48	LMW	P0D0128
Chloromethane	BRL	ug/L	2.0	0.11	1	8260B	4/20/10 14:48	LMW	P0D0128
cis-1,2-Dichloroethylene	BRL	ug/L	1.0	0.076	1	8260B	4/20/10 14:48	LMW	P0D0128
cis-1,3-Dichloropropylene	BRL	ug/L	1.0	0.10	1	8260B	4/20/10 14:48	LMW	P0D0128
Dibromochloromethane	BRL	ug/L	1.0	0.30	1	8260B	4/20/10 14:48	LMW	P0D0128
Dibromomethane	BRL	ug/L	1.0	0.13	1	8260B	4/20/10 14:48	LMW	P0D0128
Dichlorodifluoromethane	BRL	ug/L	2.0	0.11	1	8260B	4/20/10 14:48	LMW	P0D0128
Ethylbenzene	BRL	ug/L	1.0	0.067	1	8260B	4/20/10 14:48	LMW	P0D0128
m,p-Xylenes	BRL	ug/L	2.0	0.081	1	8260B	4/20/10 14:48	LMW	P0D0128
Methyl Butyl Ketone (2-Hexanone)	BRL	ug/L	5.0	0.19	1	8260B	4/20/10 14:48	LMW	P0D0128
Methyl Ethyl Ketone (2-Butanone)	BRL	ug/L	5.0	0.90	1	8260B	4/20/10 14:48	LMW	P0D0128
Methyl Isobutyl Ketone	BRL	ug/L	5.0	0.12	1	8260B	4/20/10 14:48	LMW	P0D0128
Methylene Chloride	BRL	ug/L	2.0	0.44	1	8260B	4/20/10 14:48	LMW	P0D0128
o-Xylene	BRL	ug/L	1.0	0.046	1	8260B	4/20/10 14:48	LMW	P0D0128
Styrene	BRL	ug/L	1.0	0.047	1	8260B	4/20/10 14:48	LMW	P0D0128
Tetrachloroethylene	BRL	ug/L	1.0	0.069	1	8260B	4/20/10 14:48	LMW	P0D0128
Toluene	BRL	ug/L	1.0	0.042	1	8260B	4/20/10 14:48	LMW	P0D0128
trans-1,2-Dichloroethylene	BRL	ug/L	2.0	0.12	1	8260B	4/20/10 14:48	LMW	P0D0128
trans-1,3-Dichloropropylene	BRL	ug/L	1.0	0.043	1	8260B	4/20/10 14:48	LMW	P0D0128
trans-1,4-Dichloro-2-butene	BRL	ug/L	10	0.40	1	8260B	4/20/10 14:48	LMW	P0D0128
Trichloroethylene	BRL	ug/L	2.0	0.054	1	8260B	4/20/10 14:48	LMW	P0D0128
Trichlorofluoromethane	BRL	ug/L	2.0	0.088	1	8260B	4/20/10 14:48	LMW	P0D0128
Vinyl acetate	BRL	ug/L	20	0.10	1	8260B	4/20/10 14:48	LMW	P0D0128
Vinyl chloride	BRL	ug/L	2.0	0.16	1	8260B	4/20/10 14:48	LMW	P0D0128
Xylenes, total	BRL	ug/L	3.0	0.13	1	8260B	4/20/10 14:48	LMW	P0D0128

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	103 %	80-124
Dibromofluoromethane	112 %	75-129
Toluene-d8	99 %	77-123

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Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane, Pittsboro, NC 27312
 Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)
 Sample Matrix: Water

Client Sample ID: Supply Well-041210
 Prism Sample ID: 0040082-02
 Prism Work Order: 0040082
 Time Collected: 04/12/10 12:30
 Time Submitted: 04/14/10 09:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Anions by Ion Chromatography

Chloride	4.2	mg/L	1.0	0.010	1	300.0	4/21/10 20:12	KCP	P0D0308
Sulfate	11	mg/L	1.0	0.032	1	300.0	4/21/10 20:12	KCP	P0D0309

General Chemistry Parameters

Bicarbonate Alkalinity	63	mg/L	5.0	0.76	1	SM2320 B	4/19/10 11:55	AGS	P0D0077
Total Alkalinity	63	mg/L	5.0	0.76	1	SM2320 B	4/19/10 11:55	AGS	P0D0077
Total Dissolved Solids	98	mg/L	20	14	1	SM2540 C	4/16/10 12:45	JAB	P0D0047

Total Metals

Antimony	BRL	mg/L	0.010	0.0012	1	6010C	4/19/10 15:50	DJS	P0D0055
Arsenic	BRL	mg/L	0.010	0.0019	1	6010C	4/19/10 15:50	DJS	P0D0055
Barium	0.047	mg/L	0.010	0.00064	1	6010C	4/19/10 15:50	DJS	P0D0055
Beryllium	BRL	mg/L	0.0020	0.00026	1	6010C	4/19/10 15:50	DJS	P0D0055
Cadmium	BRL	mg/L	0.0010	0.00015	1	6010C	4/19/10 15:50	DJS	P0D0055
Chromium	0.0010	mg/L	0.0050	0.00051	1	6010C	4/19/10 15:50	DJS	P0D0055
Cobalt	BRL	mg/L	0.0050	0.00031	1	6010C	4/19/10 15:50	DJS	P0D0055
Copper	0.0097 J	mg/L	0.010	0.0011	1	6010C	4/19/10 15:50	DJS	P0D0055
Iron	BRL	mg/L	0.050	0.034	1	6010C	4/19/10 15:50	DJS	P0D0055
Lead	0.0050	mg/L	0.0050	0.00057	1	6010C	4/19/10 15:50	DJS	P0D0055
Manganese	0.0033 J	mg/L	0.010	0.00066	1	6010C	4/19/10 15:50	DJS	P0D0055
Mercury	BRL	mg/L	0.00020	0.0000084	1	7470A	5/3/10 16:01	RWF	P0E0017
Nickel	BRL	mg/L	0.010	0.0022	1	6010C	4/19/10 15:50	DJS	P0D0055
Selenium	BRL	mg/L	0.020	0.0028	1	6010C	4/19/10 15:50	DJS	P0D0055
Silver	BRL	mg/L	0.0050	0.00036	1	6010C	4/19/10 15:50	DJS	P0D0055
Thallium	BRL	mg/L	0.010	0.0016	1	6010C	4/19/10 15:50	DJS	P0D0055
Vanadium	0.0026 J	mg/L	0.0050	0.00025	1	6010C	4/19/10 15:50	DJS	P0D0055
Zinc	7.6	mg/L	0.30	0.026	10	6010C	4/20/10 16:40	DJS	P0D0055

Volatile Organic Compounds by GC/MS

1,1,1,2-Tetrachloroethane	BRL	ug/L	1.0	0.15	1	8260B	4/20/10 14:22	LMW	P0D0128
1,1,1-Trichloroethane	BRL	ug/L	1.0	0.063	1	8260B	4/20/10 14:22	LMW	P0D0128
1,1,1,2,2-Tetrachloroethane	BRL	ug/L	1.0	0.071	1	8260B	4/20/10 14:22	LMW	P0D0128
1,1,2-Trichloroethane	BRL	ug/L	1.0	0.17	1	8260B	4/20/10 14:22	LMW	P0D0128
1,1-Dichloroethane	BRL	ug/L	1.0	0.096	1	8260B	4/20/10 14:22	LMW	P0D0128
1,1-Dichloroethylene	BRL	ug/L	1.0	0.078	1	8260B	4/20/10 14:22	LMW	P0D0128
1,2,3-Trichloropropane	BRL	ug/L	1.0	0.081	1	8260B	4/20/10 14:22	LMW	P0D0128
1,2-Dibromo-3-chloropropane	BRL	ug/L	2.0	0.59	1	8260B	4/20/10 14:22	LMW	P0D0128
1,2-Dibromoethane	BRL	ug/L	1.0	0.14	1	8260B	4/20/10 14:22	LMW	P0D0128
1,2-Dichlorobenzene	BRL	ug/L	1.0	0.076	1	8260B	4/20/10 14:22	LMW	P0D0128
1,2-Dichloroethane	BRL	ug/L	1.0	0.14	1	8260B	4/20/10 14:22	LMW	P0D0128
1,2-Dichloropropane	BRL	ug/L	1.0	0.13	1	8260B	4/20/10 14:22	LMW	P0D0128
1,4-Dichlorobenzene	BRL	ug/L	1.0	0.068	1	8260B	4/20/10 14:22	LMW	P0D0128
Acetone	BRL	ug/L	10	0.62	1	8260B	4/20/10 14:22	LMW	P0D0128

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Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane, Pittsboro, NC 27312
 Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)
 Sample Matrix: Water

Client Sample ID: Supply Well-041210
 Prism Sample ID: 0040082-02
 Prism Work Order: 0040082
 Time Collected: 04/12/10 12:30
 Time Submitted: 04/14/10 09:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Acrylonitrile	BRL	ug/L	100	0.86	1	8260B	4/20/10 14:22	LMW	P0D0128
Benzene	BRL	ug/L	1.0	0.072	1	8260B	4/20/10 14:22	LMW	P0D0128
Bromochloromethane	BRL	ug/L	1.0	0.13	1	8260B	4/20/10 14:22	LMW	P0D0128
Bromodichloromethane	BRL	ug/L	1.0	0.062	1	8260B	4/20/10 14:22	LMW	P0D0128
Bromoform	BRL	ug/L	1.0	0.27	1	8260B	4/20/10 14:22	LMW	P0D0128
Bromomethane	BRL	ug/L	3.0	0.47	1	8260B	4/20/10 14:22	LMW	P0D0128
Carbon disulfide	BRL	ug/L	5.0	1.4	1	8260B	4/20/10 14:22	LMW	P0D0128
Carbon Tetrachloride	BRL	ug/L	2.0	0.12	1	8260B	4/20/10 14:22	LMW	P0D0128
Chlorobenzene	BRL	ug/L	1.0	0.061	1	8260B	4/20/10 14:22	LMW	P0D0128
Chloroethane	BRL	ug/L	5.0	0.13	1	8260B	4/20/10 14:22	LMW	P0D0128
Chloroform	BRL	ug/L	1.0	0.089	1	8260B	4/20/10 14:22	LMW	P0D0128
Chloromethane	BRL	ug/L	2.0	0.11	1	8260B	4/20/10 14:22	LMW	P0D0128
cis-1,2-Dichloroethylene	BRL	ug/L	1.0	0.076	1	8260B	4/20/10 14:22	LMW	P0D0128
cis-1,3-Dichloropropylene	BRL	ug/L	1.0	0.10	1	8260B	4/20/10 14:22	LMW	P0D0128
Dibromochloromethane	BRL	ug/L	1.0	0.30	1	8260B	4/20/10 14:22	LMW	P0D0128
Dibromomethane	BRL	ug/L	1.0	0.13	1	8260B	4/20/10 14:22	LMW	P0D0128
Dichlorodifluoromethane	BRL	ug/L	2.0	0.11	1	8260B	4/20/10 14:22	LMW	P0D0128
Ethylbenzene	BRL	ug/L	1.0	0.067	1	8260B	4/20/10 14:22	LMW	P0D0128
m,p-Xylenes	BRL	ug/L	2.0	0.081	1	8260B	4/20/10 14:22	LMW	P0D0128
Methyl Butyl Ketone (2-Hexanone)	BRL	ug/L	5.0	0.19	1	8260B	4/20/10 14:22	LMW	P0D0128
Methyl Ethyl Ketone (2-Butanone)	BRL	ug/L	5.0	0.90	1	8260B	4/20/10 14:22	LMW	P0D0128
Methyl Isobutyl Ketone	BRL	ug/L	5.0	0.12	1	8260B	4/20/10 14:22	LMW	P0D0128
Methylene Chloride	BRL	ug/L	2.0	0.44	1	8260B	4/20/10 14:22	LMW	P0D0128
o-Xylene	BRL	ug/L	1.0	0.046	1	8260B	4/20/10 14:22	LMW	P0D0128
Styrene	BRL	ug/L	1.0	0.047	1	8260B	4/20/10 14:22	LMW	P0D0128
Tetrachloroethylene	BRL	ug/L	1.0	0.069	1	8260B	4/20/10 14:22	LMW	P0D0128
Toluene	BRL	ug/L	1.0	0.042	1	8260B	4/20/10 14:22	LMW	P0D0128
trans-1,2-Dichloroethylene	BRL	ug/L	2.0	0.12	1	8260B	4/20/10 14:22	LMW	P0D0128
trans-1,3-Dichloropropylene	BRL	ug/L	1.0	0.043	1	8260B	4/20/10 14:22	LMW	P0D0128
trans-1,4-Dichloro-2-butene	BRL	ug/L	10	0.40	1	8260B	4/20/10 14:22	LMW	P0D0128
Trichloroethylene	BRL	ug/L	2.0	0.054	1	8260B	4/20/10 14:22	LMW	P0D0128
Trichlorofluoromethane	BRL	ug/L	2.0	0.088	1	8260B	4/20/10 14:22	LMW	P0D0128
Vinyl acetate	BRL	ug/L	20	0.10	1	8260B	4/20/10 14:22	LMW	P0D0128
Vinyl chloride	BRL	ug/L	2.0	0.16	1	8260B	4/20/10 14:22	LMW	P0D0128
Xylenes, total	BRL	ug/L	3.0	0.13	1	8260B	4/20/10 14:22	LMW	P0D0128

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	110 %	80-124
Dibromofluoromethane	108 %	75-129
Toluene-d8	102 %	77-123

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Environmental Field Management
Attn: Aaron Hill
495 Beaumont Lane, Pittsboro, NC 27312
Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)

Prism Work Order: 0040082
Time Submitted: 4/14/10 9:00:00AM

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P0D0128 - 5030B										
Blank (P0D0128-BLK1)										
Prepared & Analyzed: 04/20/10										
Dichlorodifluoromethane	BRL	2.0	ug/L							
Chloromethane	BRL	2.0	ug/L							
Vinyl chloride	BRL	2.0	ug/L							
Bromomethane	BRL	3.0	ug/L							
Chloroethane	BRL	5.0	ug/L							
Trichlorofluoromethane	BRL	2.0	ug/L							
1,1-Dichloroethylene	BRL	1.0	ug/L							
Acetone	BRL	10	ug/L							
Carbon disulfide	BRL	5.0	ug/L							
Methylene Chloride	BRL	2.0	ug/L							
trans-1,2-Dichloroethylene	BRL	2.0	ug/L							
Acrylonitrile	BRL	100	ug/L							
1,1-Dichloroethane	BRL	1.0	ug/L							
Vinyl acetate	BRL	20	ug/L							
cis-1,2-Dichloroethylene	BRL	1.0	ug/L							
Methyl Ethyl Ketone (2-Butanone)	BRL	5.0	ug/L							
Chloroform	BRL	1.0	ug/L							
Carbon Tetrachloride	BRL	2.0	ug/L							
1,1,1-Trichloroethane	BRL	1.0	ug/L							
Bromochloromethane	BRL	1.0	ug/L							
1,2-Dichloroethane	BRL	1.0	ug/L							
Benzene	BRL	1.0	ug/L							
Trichloroethylene	BRL	2.0	ug/L							
1,2-Dichloropropane	BRL	1.0	ug/L							
Bromodichloromethane	BRL	1.0	ug/L							
Dibromomethane	BRL	1.0	ug/L							
cis-1,3-Dichloropropylene	BRL	1.0	ug/L							
Methyl Isobutyl Ketone	BRL	5.0	ug/L							
Toluene	BRL	1.0	ug/L							
trans-1,3-Dichloropropylene	BRL	1.0	ug/L							
1,1,2-Trichloroethane	BRL	1.0	ug/L							
Tetrachloroethylene	BRL	1.0	ug/L							
Methyl Butyl Ketone (2-Hexanone)	BRL	5.0	ug/L							
Dibromochloromethane	BRL	1.0	ug/L							
1,2-Dibromoethane	BRL	1.0	ug/L							
Chlorobenzene	BRL	1.0	ug/L							
1,1,1,2-Tetrachloroethane	BRL	1.0	ug/L							
Ethylbenzene	BRL	1.0	ug/L							
m,p-Xylenes	BRL	2.0	ug/L							
o-Xylene	BRL	1.0	ug/L							
Styrene	BRL	1.0	ug/L							
Bromoform	BRL	1.0	ug/L							
1,1,2,2-Tetrachloroethane	BRL	1.0	ug/L							
1,2,3-Trichloropropane	BRL	1.0	ug/L							
1,4-Dichlorobenzene	BRL	1.0	ug/L							
1,2-Dichlorobenzene	BRL	1.0	ug/L							

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Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane, Pittsboro, NC 27312
 Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)

Prism Work Order: 0040082
 Time Submitted: 4/14/10 9:00:00AM

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P0D0128 - 5030B										
Blank (P0D0128-BLK1)										
Prepared & Analyzed: 04/20/10										
1,2-Dibromo-3-chloropropane	BRL	2.0	ug/L							
Xylenes, total	BRL	3.0	ug/L							
Methyl Iodide	BRL	5.0	ug/L							
trans-1,4-Dichloro-2-butene	BRL	10	ug/L							
Surrogate: Dibromofluoromethane	26.0		ug/L	25.0		104	75-129			
Surrogate: Toluene-d8	24.0		ug/L	25.0		96	77-123			
Surrogate: 4-Bromofluorobenzene	25.2		ug/L	25.0		101	80-124			
LCS (P0D0128-BS1)										
Prepared & Analyzed: 04/20/10										
1,1-Dichloroethylene	47.3	1.0	ug/L	50.0		95	70-154			
Benzene	61.8	1.0	ug/L	50.0		124	77-128			
Trichloroethylene	56.2	2.0	ug/L	50.0		112	77-133			
Toluene	57.4	1.0	ug/L	50.0		115	76-131			
Chlorobenzene	51.0	1.0	ug/L	50.0		102	78-119			
Surrogate: Dibromofluoromethane	26.3		ug/L	25.0		105	75-129			
Surrogate: Toluene-d8	25.3		ug/L	25.0		101	77-123			
Surrogate: 4-Bromofluorobenzene	25.8		ug/L	25.0		103	80-124			
Matrix Spike (P0D0128-MS1)										
Source: 0040082-02										
Prepared & Analyzed: 04/19/10										
1,1-Dichloroethylene	442	10	ug/L	500	BRL	88	65-162		20	
Benzene	586	10	ug/L	500	BRL	117	73-131		17	
Trichloroethylene	530	20	ug/L	500	BRL	106	72-133		17	
Toluene	558	10	ug/L	500	BRL	112	72-135		18	
Chlorobenzene	472	10	ug/L	500	BRL	94	76-119		20	
Surrogate: Dibromofluoromethane	23.2		ug/L	25.0		93	75-129			
Surrogate: Toluene-d8	24.1		ug/L	25.0		96	77-123			
Surrogate: 4-Bromofluorobenzene	25.6		ug/L	25.0		102	80-124			

Environmental Field Management
Attn: Aaron Hill
495 Beaumont Lane, Pittsboro, NC 27312
Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)

Prism Work Order: 0040082
Time Submitted: 4/14/10 9:00:00AM

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P0D0128 - 5030B										
Matrix Spike Dup (P0D0128-MSD1)		Source: 0040082-02			Prepared & Analyzed: 04/19/10					
1,1-Dichloroethylene	423	10	ug/L	500	BRL	85	65-162	4	20	
Benzene	567	10	ug/L	500	BRL	113	73-131	3	17	
Trichloroethylene	521	20	ug/L	500	BRL	104	72-133	2	17	
Toluene	541	10	ug/L	500	BRL	108	72-135	3	18	
Chlorobenzene	448	10	ug/L	500	BRL	90	76-119	5	20	
<i>Surrogate: Dibromofluoromethane</i>	23.5		ug/L	25.0		94	75-129			
<i>Surrogate: Toluene-d8</i>	23.9		ug/L	25.0		95	77-123			
<i>Surrogate: 4-Bromofluorobenzene</i>	24.5		ug/L	25.0		98	80-124			

Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane, Pittsboro, NC 27312
 Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)

Prism Work Order: 0040082
 Time Submitted: 4/14/10 9:00:00AM

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch POD0055 - 3010A

Blank (POD0055-BLK1) Prepared & Analyzed: 04/19/10

Antimony	BRL	0.010	mg/L							
Arsenic	BRL	0.010	mg/L							
Barium	0.00197	0.010	mg/L							J
Beryllium	BRL	0.0020	mg/L							
Cadmium	BRL	0.0010	mg/L							
Chromium	BRL	0.0050	mg/L							
Cobalt	BRL	0.0050	mg/L							
Copper	BRL	0.010	mg/L							
Iron	BRL	0.050	mg/L							
Lead	BRL	0.0050	mg/L							
Manganese	BRL	0.010	mg/L							
Nickel	BRL	0.010	mg/L							
Selenium	BRL	0.020	mg/L							
Silver	BRL	0.0050	mg/L							
Thallium	BRL	0.010	mg/L							
Vanadium	BRL	0.0050	mg/L							
Zinc	BRL	0.030	mg/L							

LCS (POD0055-BS1)

Prepared & Analyzed: 04/19/10

Antimony	0.261	0.010	mg/L	0.250		104	80-120			
Arsenic	0.220	0.010	mg/L	0.250		88	80-120			
Barium	0.225	0.010	mg/L	0.250		90	80-120			
Beryllium	0.223	0.0020	mg/L	0.250		89	80-120			
Cadmium	0.219	0.0010	mg/L	0.250		88	80-120			
Chromium	0.223	0.0050	mg/L	0.250		89	80-120			
Cobalt	0.230	0.0050	mg/L	0.250		92	80-120			
Copper	0.223	0.010	mg/L	0.250		89	80-120			
Iron	0.899	0.050	mg/L	1.00		90	80-120			
Lead	0.219	0.0050	mg/L	0.250		87	80-120			
Manganese	0.222	0.010	mg/L	0.250		89	80-120			
Nickel	0.223	0.010	mg/L	0.250		89	80-120			
Selenium	0.218	0.020	mg/L	0.250		87	80-120			
Silver	0.224	0.0050	mg/L	0.250		90	80-120			
Thallium	0.221	0.010	mg/L	0.250		88	80-120			
Vanadium	0.221	0.0050	mg/L	0.250		88	80-120			
Zinc	0.220	0.030	mg/L	0.250		88	80-120			

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Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane, Pittsboro, NC 27312
 Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)

Prism Work Order: 0040082
 Time Submitted: 4/14/10 9:00:00AM

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P0D0055 - 3010A

Matrix Spike (P0D0055-MS1)		Source: 0040010-02			Prepared & Analyzed: 04/19/10					
Antimony	0.255	0.010	mg/L	0.250	0.00416	100	75-125			
Arsenic	0.250	0.010	mg/L	0.250	BRL	100	75-125			
Barium	0.336	0.010	mg/L	0.250	0.0978	95	75-125			
Beryllium	0.247	0.0020	mg/L	0.250	BRL	99	75-125			
Cadmium	0.238	0.0010	mg/L	0.250	BRL	95	75-125			
Chromium	0.298	0.0050	mg/L	0.250	0.0606	95	75-125			
Cobalt	0.247	0.0050	mg/L	0.250	0.00132	98	75-125			
Copper	0.305	0.010	mg/L	0.250	0.0480	103	75-125			
Iron	159	1.0	mg/L	1.00	161	NR	75-125			
Lead	0.235	0.0050	mg/L	0.250	BRL	94	75-125			
Manganese	1.97	0.010	mg/L	0.250	1.75	87	75-125			
Nickel	0.257	0.010	mg/L	0.250	0.0235	94	75-125			
Selenium	0.280	0.020	mg/L	0.250	0.0351	98	75-125			
Silver	0.250	0.0050	mg/L	0.250	BRL	100	75-125			
Thallium	0.236	0.010	mg/L	0.250	BRL	95	75-125			
Vanadium	0.258	0.0050	mg/L	0.250	0.00777	100	75-125			
Zinc	0.248	0.030	mg/L	0.250	BRL	99	75-125			

Matrix Spike Dup (P0D0055-MSD1)		Source: 0040010-02			Prepared & Analyzed: 04/19/10					
Antimony	0.242	0.010	mg/L	0.250	0.00416	95	75-125	5	20	
Arsenic	0.235	0.010	mg/L	0.250	BRL	94	75-125	6	20	
Barium	0.318	0.010	mg/L	0.250	0.0978	88	75-125	6	20	
Beryllium	0.232	0.0020	mg/L	0.250	BRL	93	75-125	6	20	
Cadmium	0.223	0.0010	mg/L	0.250	BRL	89	75-125	6	20	
Chromium	0.282	0.0050	mg/L	0.250	0.0606	89	75-125	5	20	
Cobalt	0.231	0.0050	mg/L	0.250	0.00132	92	75-125	6	20	
Copper	0.289	0.010	mg/L	0.250	0.0480	96	75-125	5	20	
Iron	167	1.0	mg/L	1.00	161	604	75-125	5	20	
Lead	0.223	0.0050	mg/L	0.250	BRL	89	75-125	5	20	
Manganese	1.89	0.010	mg/L	0.250	1.75	57	75-125	4	20	MC
Nickel	0.243	0.010	mg/L	0.250	0.0235	88	75-125	6	20	
Selenium	0.266	0.020	mg/L	0.250	0.0351	92	75-125	5	20	
Silver	0.235	0.0050	mg/L	0.250	BRL	94	75-125	6	20	
Thallium	0.225	0.010	mg/L	0.250	BRL	90	75-125	5	20	
Vanadium	0.242	0.0050	mg/L	0.250	0.00777	94	75-125	6	20	
Zinc	0.233	0.030	mg/L	0.250	BRL	93	75-125	6	20	

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Environmental Field Management
Attn: Aaron Hill
495 Beaumont Lane, Pittsboro, NC 27312
Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)

Prism Work Order: 0040082
Time Submitted: 4/14/10 9:00:00AM

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P0E0017 - 7470A										
Blank (P0E0017-BLK1)				Prepared & Analyzed: 05/03/10						
Mercury	BRL	0.00020	mg/L							
LCS (P0E0017-BS1)				Prepared & Analyzed: 05/03/10						
Mercury	0.0102	0.00020	mg/L	0.00938		108	80-120			
Matrix Spike (P0E0017-MS1)				Source: 0040082-01 Prepared & Analyzed: 05/03/10						
Mercury	0.00915	0.00020	mg/L	0.00938	BRL	98	80-120			
Matrix Spike Dup (P0E0017-MSD1)				Source: 0040082-01 Prepared & Analyzed: 05/03/10						
Mercury	0.00909	0.00020	mg/L	0.00938	BRL	97	80-120	0.7	20	

Environmental Field Management
Attn: Aaron Hill
495 Beaumont Lane, Pittsboro, NC 27312
Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)

Prism Work Order: 0040082
Time Submitted: 4/14/10 9:00:00AM

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P0D0308 - NO PREP										
Blank (P0D0308-BLK1)				Prepared & Analyzed: 04/21/10						
Chloride	BRL	1.0	mg/L							
LCS (P0D0308-BS1)				Prepared & Analyzed: 04/21/10						
Chloride	4.65	1.0	mg/L	5.00		93	90-110			
Matrix Spike (P0D0308-MS1)				Source: 0040082-01 Prepared & Analyzed: 04/21/10						
Chloride	21.1	1.1	mg/L	10.0	12.3	88	90-110			M
Matrix Spike Dup (P0D0308-MSD1)				Source: 0040082-01 Prepared & Analyzed: 04/21/10						
Chloride	20.9	1.1	mg/L	10.0	12.3	86	90-110	0.5	15	M
Batch P0D0309 - NO PREP										
Blank (P0D0309-BLK1)				Prepared & Analyzed: 04/21/10						
Sulfate	BRL	1.0	mg/L							
LCS (P0D0309-BS1)				Prepared & Analyzed: 04/21/10						
Sulfate	5.02	1.0	mg/L	5.00		100	90-110			
Matrix Spike (P0D0309-MS1)				Source: 0040082-01 Prepared & Analyzed: 04/21/10						
Sulfate	14.7	1.1	mg/L	10.0	15.5	NR	90-110			MI
Matrix Spike Dup (P0D0309-MSD1)				Source: 0040082-01 Prepared & Analyzed: 04/21/10						
Sulfate	14.7	1.1	mg/L	10.0	15.5	NR	90-110	0.08	15	MI

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Environmental Field Management
 Attn: Aaron Hill
 495 Beaumont Lane, Pittsboro, NC 27312
 Pittsboro, NC 27312

Project: Rowland Landfill (Raleigh, NC)

Prism Work Order: 0040082
 Time Submitted: 4/14/10 9:00:00AM

General Chemistry Parameters - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P0D0047 - NO PREP										
Blank (P0D0047-BLK1)				Prepared & Analyzed: 04/16/10						
Total Dissolved Solids	BRL	20	mg/L							
LCS (P0D0047-BS1)				Prepared & Analyzed: 04/16/10						
Total Dissolved Solids	976	20	mg/L	1000		98	90-110			
Duplicate (P0D0047-DUP1)				Source: 0040103-14 Prepared & Analyzed: 04/16/10						
Total Dissolved Solids	864	20	mg/L		858			0.7	20	
Batch P0D0077 - NO PREP										
Blank (P0D0077-BLK1)				Prepared & Analyzed: 04/19/10						
Bicarbonate Alkalinity	BRL	5.0	mg/L							
Total Alkalinity	BRL	5.0	mg/L							
LCS (P0D0077-BS1)				Prepared & Analyzed: 04/19/10						
Bicarbonate Alkalinity	226	5.0	mg/L	250		90	90-110			
Total Alkalinity	226	5.0	mg/L	250		90	90-110			
LCS Dup (P0D0077-BSD1)				Prepared & Analyzed: 04/19/10						
Bicarbonate Alkalinity	252	5.0	mg/L	250		101	90-110	11	200	
Total Alkalinity	252	5.0	mg/L	250		101	90-110	11	200	
Duplicate (P0D0077-DUP1)				Source: 0040082-01 Prepared & Analyzed: 04/19/10						
Bicarbonate Alkalinity	64.3	5.0	mg/L		62.9			2	20	
Total Alkalinity	64.3	5.0	mg/L		62.9			2	20	

Sample Extraction Data

NO PREP

Lab Number	Batch	Initial	Final	Date
0040082-01	P0D0309	25 mL	25 mL	04/21/10
0040082-01	P0D0308	25 mL	25 mL	04/21/10
0040082-02	P0D0309	25 mL	25 mL	04/21/10
0040082-02	P0D0308	25 mL	25 mL	04/21/10

NO PREP

Lab Number	Batch	Initial	Final	Date
0040082-01	P0D0047	50 mL	50 mL	04/16/10
0040082-01	P0D0077	50 mL	50 mL	04/19/10
0040082-02	P0D0047	50 mL	50 mL	04/16/10
0040082-02	P0D0077	50 mL	50 mL	04/19/10

Prep Method: 3010A

Lab Number	Batch	Initial	Final	Date
0040082-01	P0D0055	50 mL	50 mL	04/19/10
0040082-02	P0D0055	50 mL	50 mL	04/19/10
0040082-02	P0D0055	50 mL	50 mL	04/19/10

Prep Method: 7470A

Lab Number	Batch	Initial	Final	Date
0040082-01	P0E0017	20 mL	30 mL	05/03/10
0040082-02	P0E0017	20 mL	30 mL	05/03/10

Prep Method: 5030B

Lab Number	Batch	Initial	Final	Date
0040082-01	P0D0128	10 mL	10 mL	04/20/10
0040082-02	P0D0128	10 mL	10 mL	04/20/10

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Full-Service Analytical & Environmental Solutions

449 Springbrook Road • P.O. Box 240543 • Charlotte, NC 28224-0543
Phone: 704/529-6364 • Fax: 704/525-0409

Client Company Name: EFM

Report To/Contact Name: Aaron Hill

Reporting Address: 495 Beaumont Lane
P. Hboro, NC 27312

Phone: 919-837-9901 Fax (Yes) No: 9902

Email (Yes) (No) Email Address: Aaron.Hill.efm@gmail.com

EDD Type: PDF Excel Other

Site Location Name: Rowland LF

Site Location Physical Address: Raleigh, NC

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1 QUOTE # TO ENSURE PROPER BILLING: _____

Project Name: Rowland LF

Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)

*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements

Invoice To: EFM

Address: SAME

Purchase Order No./Billing Reference _____

Requested Due Date 1 Day 2 Days 3 Days 4 Days 5 Days

"Working Days" 6-9 Days Standard 10 days Rush Work Must Be Pre-Approved

Samples received after 15:00 will be processed next business day.

Turnaround time is based on business days, excluding weekends and holidays.

(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

LAB USE ONLY			
	YES	NO	N/A
Samples INTACT upon arrival?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Received ON WET ICE? Temp <u>31</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROPER PRESERVATIVES indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Received WITHIN HOLDING TIMES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUSTODY SEALS INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VOLATILES rec'd W/OUT HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROPER CONTAINERS used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC USACE FL NC

SC OTHER N/A

Water Chlorinated: YES NO

Sample Iced Upon Collection: YES NO

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER			PRESERVATIVES	ANALYSES REQUESTED				REMARKS	PRISM LAB ID NO.
				*TYPE SEE BELOW	NO.	SIZE		APPT	APPT VOL	APPT METALS	APPT SUPPLY		
Perry Crk-041210	4/12/10	1005	WT	/				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		01
Supply Well-041210	↓	1230	↓					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

Sampler's Signature: Aaron Hill Sampled By (Print Name): Aaron Hill Affiliation: EFM

PRESS DOWN FIRMLY - 3 COPIES

Upon relinquishing, this Chain of Custody is your authorization for Prism to proceed with the analyses as requested above. Any changes must be submitted in writing to the Prism Project Manager. There will be charges for any changes after analyses have been initialized.

Relinquished By: (Signature) <u>Aaron Hill</u>	Received By: (Signature) <u>Alex Koss</u>	Date <u>041210</u>	Military/Hours <u>1430</u>	Additional Comments: <u>2x 40ml HCL</u> <u>250ml HNO3</u> <u>500ml un</u> <u>TL un</u>
Relinquished By: (Signature) <u>Alex Koss</u>	Received By: (Signature) <u>[Signature]</u>	Date <u>4/13/10</u>	Military/Hours <u>1255</u>	
Relinquished By: (Signature) <u>[Signature]</u>	Received By: (Signature) <u>[Signature]</u>	Date <u>4/14/10</u>	Military/Hours <u>900</u>	
Method of shipment: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand-delivered <input type="checkbox"/> Prism Field Service <input type="checkbox"/> Other _____	NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.	COC Group No. <u>6040082</u>		

PRISM USE ONLY

Site Arrival Time:
Site Departure Time:
Field Tech Fee:
Mileage:

SEE REVERSE FOR TERMS & CONDITIONS

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ORIGINAL

*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

NPDES: <input type="checkbox"/> NC <input type="checkbox"/> SC	UST: <input type="checkbox"/> NC <input type="checkbox"/> SC	GROUNDWATER: <input type="checkbox"/> NC <input type="checkbox"/> SC	DRINKING WATER: <input type="checkbox"/> NC <input type="checkbox"/> SC	SOLID WASTE: <input type="checkbox"/> NC <input type="checkbox"/> SC	RCRA: <input type="checkbox"/> NC <input type="checkbox"/> SC	CERCLA: <input type="checkbox"/> NC <input type="checkbox"/> SC	LANDFILL: <input type="checkbox"/> NC <input type="checkbox"/> SC	OTHER: <input type="checkbox"/> NC <input type="checkbox"/> SC
--	--	--	---	--	---	---	---	--