Clayton, Sr., P.E., Inc.
Civil & Environmental Engineering

August 3, 2007

Ms. Jaclynne Drummond
Solid Waste Section
Division of Waste Management
North Carolina Department of Environment and Natural Resources
Mail Service Center 1646
Raleigh, NC 27699-1646

RE: Statistical Analysis/Evaluation: May 2007
Dunn-Erwin Municipal Solid Waste Landfill, permit 43-02
Harnett County, North Carolina

Dear Ms. Drummond:

On behalf of Harnett County and C.T. Clayton, Sr., PE, Inc. (CTC) is pleased to herewith submit the results of the statistical analysis for the semi-annual groundwater monitoring event of May 2007 performed at the Dunn-Erwin Municipal Solid Waste Landfill in accordance with North Carolina Solid Waste Management Rules *15A N.C.A.C. 13 B, .1633* and *.1634*. The findings and conclusions of this report are being incorporated into the assessment of corrective measures (ACM) for the groundwater contamination plume, downgradient of the existing landfill in accordance with North Carolina Solid Waste Management Rules *15A N.C.A.C. 13 B, .1635*.

The report is organized in sections entitled Executive Summary, Introduction, Methodology, and Results, and it has four appendices inclusive of the statistical model output.

Should you have any questions or comments, please contact me at our address shown below or by e-mail at ***tyrus@ctclayton.com***.

Sincerely,

Tyrus Clayton, Jr., P.E.

cc. Jerry Blanchard - Harnett County
C. T. Clayton, Sr., P.E.
C. J. Poran, P.E. - ENSOL, Inc.

/attachments

P.O. Box 578
46 W. Washington St.
Coats, NC 27521
Phone: 910-897-7070
Fax: 910-897-6767

Offices located in Coats and New Bern, North Carolina
www.ctclayton.com

EXECUTIVE SUMMARY

The May 2007 groundwater sampling event performed at the Dunn-Erwin Municipal Solid Waste Landfill (MSWLF) fulfilled the County's semi-annual groundwater sampling and analyses requirements in accordance with North Carolina Solid Waste Management Rules ***15A N.C.A.C. 13 B, .1633*** and ***.1634.***

Prior to this report, an extensive study was completed in order to better understand the groundwater contamination plume at the site, as described in the report dated August 25, 2003, including the field investigation performed in October 2002 in conjunction with the scheduled October 2002 semi-annual sampling event. Also, 12 new observation wells were installed in the general area of the groundwater contamination plume during this field investigation. The field investigation was followed by additional laboratory testing, and an extensive analysis and computer modeling. Results from that study have been incorporated in this report also including the October 2002 delineation of the groundwater contaminant plume in the uppermost aquifer, downgradient of the MSWLF.

Several new wells (MW11, MW 12, MW 13, MW 14, and MW15) and piezometers (PZ-50, PZ-51, PZ-52, and PZ-53) have been installed and are associated with the proposed new construction and demolition debris (C&D) landfill in the southwest of the groundwater contaminant plume area.

Data from the May 2007 semi-annual sampling were evaluated in sets. Set 1 consists of wells monitoring the recently closed (December 1998) solid waste landfill portion of the site where active construction and demolition debris (C&D) placement is ongoing, including monitoring wells (MWs) MW1, MW2, MW3R, MW4, MW5, MW6, MW7B, MW8, and MW31. Monitoring well MW3, which was previously damaged during site operations prior to April 2005 sampling event has been replaced by MW3R as of June 2005. Monitoring wells MW9 and MW10 were installed in March 2001 and have been added to Data Set 1 as of April 2001. These wells have been incorporated into the statistical analysis as their background sampling was completed in October 2002.

In 2006, five (5) new MWs (MW11 - MW15) have been installed in conjunction with the proposed C&D landfill. Theoretically, these new wells belong to Set 1 since they are downgradient of the active C&D and closed MSWLF. These wells will be incorporated into the statistical analysis of Set 1 as Subset 1N after their background sampling is completed in October 2007. Within this Subset 1N, subject to the final proposed C&D landfill design and groundwater monitoring plan, one of these monitoring wells may be designated as an upgradient well to the new landfill. Additionally, one or more of the related four new piezometers (PZ-50 through PZ-53) could also be converted into monitoring wells for the new landfill, as needed.

Set 2 consists of wells monitoring the older closed portion of the landfill site, including MW16, MW23B, MW32, MW33, and the newer MW34 and MW35 installed in June 1996. Monitoring well MW23B is statistically compared with Set 1 as it appears to be located downgradient of these wells.

Set 3 consists of surface water monitoring points (SWPTs) along the wetlands between the

active and the closed areas, including SWPT1, SWPT2, and SWPT3.

Groundwater levels at all monitoring wells are also recorded, as shown in Table 1. As an overall average, groundwater levels during this latest sampling event were approximately 3.45 feet below the average groundwater level based on all sampling events, for each respective well. This value includes groundwater levels for recently installed wells MW11 - MW15.

The North Carolina Groundwater Standards (NCGS) have been amended as per 15A NCAC 02L.0202. The amendment went into effect as of April 1, 2005. This report incorporates the revised NCGS. Historical data has been comprehensively re-evaluated taking into consideration the revised NCGS.

The statistical analysis results indicate that compliance wells MW6, MW7B, MW8, MW9, and MW10 in Set 1 have statistically significant levels of one or more organics over background levels when compared with the background wells. In addition, the May 2007 results show that there were more organics detected in concentrations greater than NCGS when compared to the number of above NCGS organics detected in the October 2006 results. However, generally, the May 2007 organics were detected at lesser concentrations for those same organics that exceeded NCGS in October 2006. The May 2007 above NCGS organics include: 1,4-dichlorobenzene, methylene chloride, tetrachloroethylene, trichloroethylene, and vinyl chloride in MW6; benzene, 1,1-dichloroethane, methylene chloride, trichloroethylene, and vinyl chloride in MW7B; methylene chloride, tetrachloroethylene, and trichloroethylene in MW8; benzene, 1,1-dichloroethane, methylene chloride, trichloroethylene, and vinyl chloride in MW9; and benzene and methylene chloride in MW10.

As part of this event's statistical analysis, the prediction interval intra-well comparison was incorporated to verify certain Test of Proportions (TOP) results. In select cases the compliance-to-background well analyses are not accurate because natural, statistically significant variations existed prior to the facility operation commencement. If the TOP indicates a result of Statistically Significant Increase Over Background Level (SSIOBL) for such a constituent, the prediction interval intra-well comparison is used to verify the result. If the average post-operational concentrations of the constituent are within the prediction interval analysis calculated based on background concentrations, the result is not considered SSIOBL.

Using this methodology, beryllium is not SSIOBL for MW2, MW3, and MW4 and cobalt and lead are not SSIOBL for MW7B, which would have resulted as SSIOBL using just the TOP. Cobalt and mercury in MW6 and mercury in MW7B also show statistically significant levels through the TOP. However, cobalt was not detected during MW6's background sampling, and mercury was not included in either well's background sampling. Consequently, these constituents do not qualify for an intra-well comparison. No inorganics exceeded NCGS during this sampling event, representing a decrease in the number of inorganics exceeding NCGS compared to the October 2006 results.

In Set 2, no organics or inorganics are statistically significant. No organics were detected in May 2007, consistent with the results from October 2006. Of the inorganics, lead was detected in MW32 and barium was detected in MW35 in May 2007, representing an increase compared to October 2006.

Set 3 showed no SSIOBL for any of the tested constituents. No organics were detected in May 2007, consistent with the October 2006 sampling event. Only zinc in SWPT1 was detected in May 2007, representing an increase in inorganics compared to October 2006.

Details of the statistical procedures employed are discussed in Section III of this report, entitled Methodology. The results of the May 2007 analysis are summarized and discussed for each detected constituent at each monitoring well or surface water monitoring point in Section III, entitled Results. Appendices A, B, C, and D contain tabulated data for the individual wells with computer-generated results of the statistical analyses performed and laboratory results with chain of custody forms, respectively. Based on these statistical analysis results and the August 2003 detailed plume investigation report, the following conclusions regarding groundwater contamination and future monitoring at the Dunn-Erwin MSWLF are presented:

- The previously active portion of the Dunn-Erwin solid waste landfill is now closed with a final cap. C&D waste is being placed on the cap area, as per SWS approval. All parameters that have been detected in concentrations that are statistically significant over background levels (SSIOBL) are being compared with North Carolina Groundwater Standards (NCGS), as appropriate.

- Harnett County continues groundwater Assessment Monitoring in accordance with North Carolina Solid Waste Management Rule ***15A N.C.A.C. 13 B, .1634***. The findings and conclusions of this report are being incorporated into the assessment of corrective measures (ACM) for the groundwater contamination plume, downgradient of the existing landfill in accordance with North Carolina Solid Waste Management Rules ***15A N.C.A.C. 13 B, .1635.***

- Based on the draft ACM submitted to the SWS, Harnett County's ACM is being finalized in conjunction with an application for a new C&D landfill unit in the downgradient area of the present landfill.

- Harnett County is planning on implementing the Corrective Action Plan (CAP) upon approval of the ACM by the SWS, possibly towards the end of 2007.

- Based on updated groundwater analytical data accumulated since October 1994 from the scheduled semi-annual sampling events, the top four organic contaminants most frequently detected in downgradient monitoring wells at concentrations that consistently have exceeded NCGS include 1,1-dichloroethane, methylene chloride, tetrachloroethylene, and trichloroethylene. Prior to this event and since October 2003, benzene had been detected in the downgradient plume only in MW9 (both results occurring during the 2006 events). However, benzene was detected in MW7B, MW9, and MW10 during the May 2007 sampling. The prevalence of benzene detections will be observed in future sampling events.

- Of these four organics 1,1-dichloroethane, methylene chloride and trichloroethylene have been consistently considered as statistically significant in the semi-annual assessments. However, only methylene chloride has been consistently detected in average concentrations that are about one order of magnitude greater than NCGS. Therefore, methylene chloride has remained the key organic constituent in the

groundwater contamination plume, downgradient of the MSWLF.

- As of October 1999 only wells MW6, MW7B, and MW8 require annual sampling for Appendix II constituents while in assessment monitoring. All other monitoring wells of Set 1 were excluded from Appendix II sampling requirements based on approval of the North Carolina Solid Waste Section (SWS) from October 1999. However, the SWS requested in March 2007 that MW9 and MW10 also be added to the Appendix II testing since they are within the contaminant plume. Therefore, these five wells will be sampled for Appendix II in October 2007, and annually thereafter, as required by the SWS.

- All active monitoring well locations in Set 1 should continue to be sampled and analyzed for Appendix I constituents semi-annually as per North Carolina Solid Waste Management Rules 15A N.C.A.C. 13 B, .1633, with the next Appendix I sampling event scheduled for October 2007. Monitoring well MW3 was replaced by MW3R in June 2005.

- All active monitoring wells in Set 2 should continue to be sampled and analyzed for Appendix I organics and the eight RCRA metals semi-annually while in detection monitoring. The next sampling event should occur in October 2007.

- All active surface water point locations in Set 3 should continue to be sampled and analyzed for Appendix I constituents semi-annually as per North Carolina Solid Waste Management Rules 15A N.C.A.C. 13 B, .1633, with the next Appendix I sampling event scheduled for October 2007.

- Background sampling of the new MWs (MW11 - MW15) will continue in October 2007 for background level analysis. These wells will be incorporated into the statistical analysis of Set 1 as a Subset 1N after their background sampling is completed.

- The new reporting requirements are expected to be incorporated as part of the October 2007 sampling event, as necessary.

I. Introduction

This statistical analysis was performed to evaluate whether groundwater and surface water monitoring results from the May 2007 sampling event at the Dunn-Erwin MSWLF in Harnett County demonstrate compliance with North Carolina Groundwater Standards (NCGS) with respect to Appendix I and Appendix II constituents of the North Carolina Solid Waste Management Rules ***15A N.C.A.C. 13 B, .1633(a) and .1634(a).*** The United States Environmental Protection Agency (EPA) Guidance Document, Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, April 1989, was used as the main reference for the statistical procedures followed in this study. Details of the procedures and results obtained from the analysis are described in the following sections.

Conclusions and recommendations regarding subsequent sampling at the Dunn-Erwin MSWLF are presented in the Executive Summary. Based on the groundwater contamination plume assessment report submitted to the NCDENR Solid Waste Section (SWS) on August 25, 2003, Figure 1 shows the downgradient area of the MSWLF with approximate contamination plume boundaries of October 2002. A layout of approximate monitoring wells and surface water sampling locations and the MSWLF facility is shown in Figure 2.

II. Groundwater Levels

Table 1 shows historic groundwater levels within monitoring wells at the Dunn-Erwin landfill. Generally, groundwater levels during the May 2007 sampling event were approximately 3.45 feet below the average groundwater level based on all sampling events, for each respective well. This value includes groundwater levels for recently installed wells MW11 - MW15.

Table 2 shows estimated groundwater velocity data, calculated based on groundwater levels recorded in the October 1995 sampling event and estimated range of site hydraulic conductivity and effective porosity values.

III. Methodology

An Excel™ adaptation of the EPA software GRITS/STAT (A Ground Water Information Tracking System with Statistical Analysis Capability, Version 4.2) was utilized to perform statistical calculations. Downgradient monitoring wells (MWs) MW2, MW3R, MW4, MW5, MW6, MW7B, MW8, MW9, MW10, and MW23B were each compared with the upgradient wells MW1 and MW31 (Data Set 1), and downgradient wells MW32, MW33, MW34, and MW35 were each compared to upgradient well MW16 (Data Set 2) to evaluate the existence of statistically significant increases over background levels (SSIOBL) for each detected constituent. Surface Water Monitoring Points (SWPTs) SWPT2 and SWPT3 are compared with upgradient SWPT1 (Data Set 3) to evaluate the existence of SSIOBL for each Appendix I constituent.

The one-way analysis of variance test (ANOVA) compares median concentrations of the respective upgradient and downgradient wells between data sets with at least four

sampling events each. The Excel™ program was employed to perform the ANOVA for each parameter in a monitoring well group with less than 50% total non-detects in all wells over all sampling events.

All data sets with less than 15% non-detects were also tested for both normal and log-normal data distributions using EPA accepted normality tests. A parametric ANOVA was performed for those data sets meeting the normality and less than 15% non-detect requirements. The parametric ANOVA also tested for residual normality and homogeneity of variances (using Levene's Test) between data sets, both of which are necessary to determine those parameters that are SSIOBL using the parametric ANOVA. For both the parametric ANOVA and Levene's Test, non-detected concentrations were computed as on one-half (1/2) of the method detection limit. If any of the above tests produced a negative result, the parametric ANOVA was disregarded. (No data sets met the criteria for a parametric ANOVA test during the latest event).

All data sets with less than 50% non-detects and not fulfilling the requirements of the parametric ANOVA test received the non-parametric ANOVA test, which utilized the Kruskal-Wallace Test for making comparisons between data sets.

The Test of Proportions, as outlined in Section 8.1.2 of the EPA Guidance document, was utilized for all data sets for constituents with less than or equal to 50% and above 10% detects in all monitoring wells combined. This test was further defined to include only those compliance wells (individually coupled with the background wells) that produced a large enough data set such that the total number of detects for the particular constituent was greater than or equal to five (5).

In select cases the compliance-to-background well analyses are not accurate because natural, statistically significant variations existed prior to the facility operation commencement. If the Test of Proportions indicates a result of SSIOBL for such a constituent, the prediction interval intra-well comparison was used to verify the statistical significance of the concentrations. If the average post-operational concentrations of the constituent are within the prediction interval analysis calculated based on background concentrations, the result is not considered SSIOBL.

For all other instances that did not qualify for the ANOVA tests or the Test of Proportions, the detections were analyzed qualitatively. The qualitative analysis was conducted for individual constituents at a particular compliance well. Initially, the number of detections for the constituent in the particular compliance well was considered as follows:

- A compliance well with only one detection was not considered SSIOBL.

- For a compliance well with two or more detections and without detections in the background well, the order of magnitude (OOM) above the detection limit was evaluated. The OOM was computed as the logarithm of the actual detected concentration over the method detection limit. If the average concentrations had an OOM greater than or equal to 0.67 (five times greater than the detection limit), the

constituent was considered SSIOBL for the particular well.

- For a compliance well with two or more detections and with detections of the particular constituent also in the compliance well, the compliance well was evaluated depending on the number and magnitude of detections at the compliance well, the background well, and their respective average concentration differences.

Additionally, Table 5 includes the analysis of cumulative results from all sampling events of the ongoing scheduled semi-annual analyses since October 1994, showing the summary of all organic detections in Data Set 1 that includes downgradient (compliance) monitoring wells (MWs) MW2, MW3R, MW4, MW5, MW6, MW7B, MW8, MW9, MW10, and MW23B.

Page 11 of 12 in Table 5 shows overall average concentration of organics detections with respect to the number of detections, and the average-concentration-to-NCGS ratio (ANR). The criteria selected to identify main organic constituents include these that had 10 or more detections with an ANR that approaches or exceeds 1.0.

IV. Results

This section reports results from the statistical tests performed on detected constituents. A summary of upgradient wells (background wells) precedes the downgradient wells for each data set. The upgradient well summaries include a complete detection history for all sampling events per upgradient well. Downgradient well summaries include a brief detection history followed by the results of the statistical tests per detected constituent.

A summary of the results of the statistical tests is shown in Table 3. Table 4 indicates those parameters that have been detected in concentrations that are statistically significant over background levels (SSIOBL) and those parameters exceeding North Carolina Groundwater Standards (NCGS) during the May 2007 sampling event for each monitoring well.

Detailed summary tables of constituent detections per monitoring well, recommended statistical tests per constituent, and results of the respective statistical tests are enclosed in Appendices A, B, and C for Data Sets 1, 2, and 3, respectively. Laboratory analytical data and chain of custody forms are included in Appendix D.

In Table 5, Page 11 of 12, five organic compounds shown in bold face were identified as the top organic constituents in the groundwater contamination plume, including benzene, 1,1-dichloroethane, methylene chloride, tetrachloroethylene, and trichloroethylene. (1,1-dichloroethane has been added to this list due to its NCGS revision from 700 to 70 ug/l.) Of these only 1,1-dichloroethane, methylene chloride, and trichloroethylene have consistently been identified as SSIOBL by the statistical analyses of the scheduled semi-annual sampling results.

An analysis to verify that these main organic constituents are consistent within the assumed area of the groundwater contamination plume was performed. The analysis

included average concentration of organics detections, number of detections, and ANR values detected only in compliance wells MW6, MW7B, MW8, MW9, and MW10, and averaged only over these five (5) wells for all sampling events since October 1994. The results shown in Table 5, Page 12 of 12 verify that the main organic constituents that had 10 or more detections with an ANR that exceeds 1.0, shown in bold face, are benzene, 1,1-dichloroethane, methylene chloride, tetrachloroethylene, and trichloroethylene.

To obtain time-line perspective of these organics detections, Figure 3 shows the average ANR values per each scheduled semi-annual sampling event in the five downgradient wells located within the estimated groundwater contamination plume area for these five organic constituents. Of these five, methylene chloride has been detected most consistently with the highest ANR values, with a maximum of 31. The Figure also shows that 1,1-dichloroethane, trichloroethylene, and tetrachloroethylene have been detected with ANR values exceeding 1.0 since the beginning of data collection in October 1994, while benzene has only been detected with ANR values exceeding 1.0 since March 1999.

Finally, methylene chloride is the only SSIOBL organic constituent that has consistently been detected in the plume area in concentrations that exceed NCGS by about one order of magnitude. Therefore, methylene chloride is identified as the key organic constituent in this groundwater contamination plume.

SET 1

Upgradient Wells (Background Wells):

MW1: MW1 is an upgradient well for MW2, MW3, MW4, MW5, MW6, MW7B, MW8, and MW23B (which is a Set 2 monitoring well). Historically, this well has shown inorganic concentrations above the detection limit for barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, tin, vanadium, and zinc. Of these constituents, cadmium exceeded NCGS in one sampling event with a concentrations of 0.004 mg/l in January 1995. Lead exceeded NCGS in five sampling events with concentrations of 0.104, 0.104, 0.02, 0.028, and 0.018 mg/l in January, March and September 1995, and April and October 1997, respectively. Historically, carbon disulfide and diethylphthalate have been the only organic constituents detected in MW1. Zinc was the only constituent detected during this latest sampling event.

The following summarizes the history of detected concentrations for each metal constituent:

barium: Barium was detected in six sampling events for MW1 with concentrations of 0.252, 0.024, 1.68, 0.586, 0.083, and 0.1 mg/l in October and November 1994, January and March 1995, October 1997, and October 1998, respectively.

beryllium: Beryllium was detected in nine sampling events for MW1 with concentrations of 0.024, 0.006, 0.002, 0.002, 0.003, 0.006, 0.001, 0.004,

0.003, 0.002, and 0.002 mg/l in January, March, and September 1995, April and October 1996, April and October 1997, April and October 1998, October 1999, and April 2002, respectively.

cadmium: Cadmium was detected in four sampling events for MW1 with concentrations of 0.0008, 0.001, 0.004, and 0.011 mg/l, in October and November 1994 and January and March 1995, respectively.

chromium: Chromium was detected in five sampling events with concentrations of 0.005, 0.018, 0.011, 0.013, 0.02 mg/l in October 1994, January and March 1995, April 1997, and April and October 1998, respectively.

cobalt: Cobalt was detected in only one sampling event for MW1 with a concentration of 0.016 mg/l in January 1995.

copper: Copper was detected in four sampling events for MW1 with concentrations of 0.017, 0.078, 0.018, and 0.007 mg/l in October 1994, January and March 1995, and October 1997, respectively.

lead: Lead was detected in six sampling events for MW1 with concentrations of 0.005, 0.104, 0.104, 0.02, 0.028, and 0.018 mg/l in October 1994 and January, March, and September 1995, and April and October 1997, respectively.

nickel: Nickel was detected for one sampling event in MW1 with a concentration of 0.03 mg/l in January 1995.

vanadium: Vanadium was detected in two sampling events for MW1 with concentrations of 0.02 and 0.083 mg/l in October 1994, and January 1995, respectively.

zinc: Zinc was detected in eight sampling events in MW1 with concentrations of 0.098, 0.012, 0.237, 0.038, 0.08, 0.065, 0.08, and 0.011 mg/l in October and November 1994 and January , March, and September 1995, April 1997, April 2004, and May 2007, respectively.

The following organics have been detected in MW1:

carbon disulfide: Carbon disulfide was detected in two sampling event in MW1 with concentrations of 20.9 and 7.4 mg/l in November 1994 and October 1999, respectively.

diethylphthalate: Diethylphthalate was detected in three sampling events for MW1 with concentrations of 5.3, 5.3 and 9.8 ug/l in September 1995, April 1996 and April 1997, respectively.

MW31: MW31 is a background well for MW2, MW3, MW4, MW5, MW6, MW7B, MW8 and MW23B. The detected metals in MW31 have been barium, beryllium, cadmium, chromium, cobalt, copper, lead, vanadium, and zinc. Of these, arsenic exceeded NCGS in one sampling event with a concentrations of 0.055 mg/l in September 1995. Cadmium exceeded NCGS in three events with concentrations of 0.005, 0.003, and 0.003 in January 1995, March 1995, and September 1995, respectively. Chromium exceeded NCGS in five events with concentrations of 0.21, 0.124, 0.06, 0.08, and 0.1 mg/l in September 1995, April and October 1997, October 1998, and March and October 1999, respectively, and was detected at a concentration of 0.01 mg/l in April 2000. Lead exceeded NCGS in nine events with concentrations of 0.0052, 0.033, 0.17, 0.031, 0.088, 0.045, 0.03, 0.05, and 0.06 mg/l in January, March and September 1995, April 1996, April and October 1997, October 1998, and March and October 1999, respectively. There have been no detected organics in MW31. Zinc was the only constituent detected during this latest sampling event.

The following summarizes the history of detected concentrations for each metal constituent in MW31:

arsenic: Arsenic was detected in five sampling events for MW31 with concentrations of 0.005, 0.055, 0.011, 0.032, and 0.005 mg/l in March and September 1995 April 1996, and April and October 1997, respectively.

barium: Barium was detected in four sampling events for MW31 with concentrations of 0.04, 0.157, 0.097, and 0.098 mg/l in October 1994, January and March 1995, and October 1997 respectively.

beryllium: Beryllium was detected in four sampling events for MW31 with concentrations of 0.028, 0.006, 0.003, 0.001 and 0.005 mg/l in November 1994, September 1995, April and October 1997, and October 1999, respectively.

cadmium: Cadmium was detected in four sampling events for MW31 with concentrations of 0.005, 0.003, 0.003, and 0.001 mg/l in January, March, and September 1995, and April 1997, respectively.

chromium: Chromium was detected in nine sampling events for MW31 with concentrations of 0.021, 0.015, 0.021, 0.21, 0.044, 0.124, 0.06, 0.04, 0.01, and 0.01 mg/l in October and November 1994, January and September 1995, April 1996, April and October 1997, October 1998, October 1999, and April 2000, respectively.

cobalt: Cobalt was detected in two sampling events for MW31 with concentrations of 0.007 and 0.02 mg/l in January and September 1995, respectively.

copper: Copper was detected in eight sampling events for MW31 with concentrations of 0.011, 0.006, 0.052, 0.033, 0.017, 0.033, 0.043, and

0.06 mg/l, in October and November 1994, January, March, and September 1995, April 1996, April 1997, and October 1998, respectively.

lead: Lead was detected in nine sampling events for MW31 with concentrations of 0.011, 0.006, 0.052, 0.033, 0.017, 0.031, 0.088, 0.045, 0.03 and 0.06 mg/l, in October and November 1994, January, March, and September 1995, April 1996, April and October 1997, October 1998, and October 1999, respectively.

vanadium: Vanadium was detected for nine sampling events for MW31 with concentrations of 0.045, 0.026, 0.032, 0.08, 041, 0.087, 0.235, 0.11, and 0.04 mg/l, in October and November 1994, January, March, and September 1995, April 1996, April and October 1997, and October 1998, respectively.

zinc: Zinc was detected for eight sampling events in MW31 with concentrations of 0.017, 0.01, 0.027, 0.037, 0.07, 0.05, 0.04, 0.01, and 0.017 mg/l, in October and November 1994, January, March, and September 1995, April 1996, October 1997, October 1998, October 1999, and May 2007, respectively.

Downgradient Wells (Compliance Wells):

MW2: Compliance well MW2 has shown inorganic detections for arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Of these, cadmium exceeded NCGS in two events, with concentrations of 0.003 and 0.004 mg/l in March and September 1995, respectively. Lead exceeded NCGS in four events, with concentrations of 0.025, 0.025, 0.041, and 0.025 mg/l in November 1994 and January, March and September 1995, respectively. Diethylphthalate, an Appendix II constituent not included in Appendix I, was detected in September 1995 in MW2. This was the only organic constituent detected for all sampling events in MW2. Beryllium and zinc were the only constituents detected during this latest sampling event.

The following results were obtained for the detected metals in May 2007:

beryllium: Beryllium resulted as not SSIOBL for MW2 using the Prediction Interval Analysis.

zinc: Zinc resulted as not SSIOBL for MW2 using the Test of Proportions.

MW3R: Compliance well MW3R has replaced compliance well MW3. Groundwater data from sampling events prior to October 2005 from MW3 have been utilized to compare with the data for MW3R sampled beginning in October 2005.

Compliance well MW3 and/or MW3R previously had metal detections for barium, beryllium, cadmium, chromium, cobalt, copper, lead, vanadium, and zinc. Cadmium, exceeded

NCGS in two sampling events with concentrations of 0.002 and 0.011 mg/l in November 1994 and March 1995, respectively. Carbon disulfide has been the only organic constituent detected in MW3/3R. Zinc was the only constituent detected during this latest sampling event.

The following result was obtained for the detected metal in May 2007:

zinc: Zinc resulted as not SSIOBL for MW3 using the Test of Proportions.

MW4: MW4 has had a history of detections of inorganics barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Cadmium has exceeded NCGS in one event with a concentration of 0.004 mg/l in March 1995. Lead has exceeded NCGS in two events: 0.018 mg/l in both November 1994 and October 1996. Carbon disulfide and diethylphthalate have been the only detected organics for MW4, however no organics were detected in this latest sampling. Beryllium and zinc were the only constituents detected during this latest sampling event.

The following results were obtained for the detected metals in May 2007:

beryllium: Beryllium resulted as not SSIOBL for MW4 using the Prediction Interval Analysis.

zinc: Zinc resulted as not SSIOBL for MW4 using the Test of Proportions.

MW5: Compliance well MW5 had shown above the detection limit inorganic concentrations for barium, cadmium, chromium, copper, lead, nickel, vanadium, and zinc. Of these, chromium exceeded NCGS in one sampling event with a concentration of 0.009 mg/l in October 1994. Carbon disulfide has been the only organic constituent detected with a concentration of 30.5 and 6.4 ug/l in November 1994 and October 1999. Barium was the only constituent detected during this latest sampling event.

The following result was obtained for the detected metal in May 2007:

barium: Barium resulted as not SSIOBL for MW5 using the Test of Proportions.

MW6: Compliance well MW6 has a history of inorganic detections for arsenic, barium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, vanadium, and zinc. Of these, cadmium has exceeded NCGS in three sampling event with concentrations of 0.005, 0.009, and 0.004 mg/l in October and November 1994 and January 1995, respectively. Lead has exceeded NCGS in four sampling events with concentrations of 0.019, 0.033, 0.037, and 0.019 mg/l in November 1994, January and September 1995, and April 1996, respectively. Mercury exceeded NCGS in one sampling event with a concentration of 0.002 mg/l in October 1999. Zinc exceeded NCGS in one sampling event with a concentration of 91.5 mg/l in October 2004. Barium and cobalt were the only inorganic constituents detected during this latest sampling event at MW6.

Detected organics for MW6 include acetone, benzene, bis(2-ethylhexyl)phthalate, carbon disulfide, chlorobenzene, 1,4-dichlorobenzene, chloroethane, 1,1-dichloroethane, 1,1-

dichloroethene, dichlorodifluoromethane, methylene chloride, 1,1,1-trichlroethane, trichloroethylene, vinyl chloride, and xylenes. Benzene has exceeded NCGS in three sampling events with concentrations of 2.7, 3.4, and 9.5 ug/l in March and October 1999 and April 2001, respectively. Chlorobenzene exceeded NCGS in October 1998 with a concentration of 70 ug/l. Chloromethane exceeded NCGS in one sampling event with a concentration of 46 ug/l in April 2000. 1,4-dichlorobenzene has exceeded NCGS in three sampling events with concentrations of 7.2, 6.9, and 3.2 ug/l in April 2001, October 2005, and May 2007, respectively. 1,1-dichloroethane has exceeded NCGS in seven sampling events with concentrations of 78.9, 105, 87.1, 80, 134, 160, and 88 ug/l in October 1994, January and March 1995, October 1996, April and October 1997, and March 1999, respectively. 1,1-dichloroethene has exceeded NCGS in one sampling event with a concentration of 83.2 ug/l in January 1995. Methylene chloride has exceeded NCGS in 11 sampling events with concentrations of 66, 109, 47, 37, 34.8, 28.2, 12.8, 64.5, 20.1, 12.9, and 8.8 ug/l in October 2000, April and October 2001, April and October 2002, October 2003, April 2004, October 2005, April and October 2006, and May 2007, respectively. Tetrachloroethylene has exceeded NCGS in nine sampling events with concentrations of 5.3, 3.8, 5.6, 1.9, 8.2, 7.1, 6.2, 8.0, and 6.9 ug/l in October 1994, January and March 1995, October 1999, April 2001, October 2005, April and October 2006, and May 2007, respectively. Trichloroethylene has exceeded NCGS in 16 sampling events with concentrations of 8.4, 6.7, 10.6, 8.8, 7.2, 6.8, 11, 9.9, 8.7, 7.0, 17, 5.4, 5.2, 8.8, 7.1, 8.1, and 7.7 ug/l in October and November 1994, January and March 1995, February and October 1996, April and October 1997, October 1999, April 2000, April and October 2001, April 2002, October 2005, April and October 2006, and May 2007, respectively. Vinyl chloride has exceeded NCGS in three sampling events with concentrations of 22, 11.2, and 8 ug/l in April 2001, April 2006, and May 2007, respectively. 1,4-dichlorobenzene, cis-1,2-dichloroethene, 1,1-dichloroethane, methylene chloride, tetrachloroethylene, trichloroethylene, and vinyl chloride were the detected organics at MW6 during this latest sampling event.

The following results were obtained for the detected metals in MW6 in May 2007:

barium: Barium resulted as not SSIOBL for MW6 using the Test of Proportions.

cobalt: Cobalt resulted as SSIOBL for MW6 using the Test of Proportions.

The following results were obtained for the detected organics in May 2007:

1,4-dichlorobenzene: 1,4-dichlorobenzene resulted as not SSIOBL for MW6 using the Qualitative Test.

cis-1,2-dichloroethene: cis-1,2-Dichloroethene resulted as not SSIOBL for MW6 using the Qualitative Test.

1,1-dichloroethane: 1,1-dichloroethane resulted as SSIOBL for MW6 using the Test of Proportions.

methylene chloride: Methylene chloride resulted as SSIOBL for MW6 using the Test of Proportions.

tetrachloroethylene: Tetrachloroethylene resulted as not SSIOBL for MW6 using the Qualitative Test.

trichloroethylene: Trichloroethylene resulted as SSIOBL for MW6 using the Test of Proportions.

vinyl chloride: Vinyl chloride resulted as not SSIOBL for MW6 using the Qualitative Test.

MW7B: Compliance well MW7B has replaced compliance well MW7. Groundwater data from previous sampling events (October and November 1994, and January and March 1995) from MW7 have been utilized to compare with the data for MW7B sampled since September 1995.

Detected metals in MW7 and/or MW7B include arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, vanadium, zinc, and mercury. Of these, arsenic exceeded NCGS in one sampling event with a concentration of 0.279 mg/l in October 1997. Cadmium exceeded NCGS in two sampling events with a concentration of 0.004 in both September 1995 and April 1997. Chromium exceeded NCGS in three sampling events with concentrations of 0.04, 0.09, and 0.071 mg/l in March and September 1995, and April 1997, respectively. Lead exceeded NCGS in 18 sampling events with concentrations of 0.519, 0.044, 0.36, 0.196, 0.087, 0.264, 0.062, 0.070, 0.71, 0.05, 0.10, 0.036, 0.017, 0.020, 0.035, 0.018, 0.027, and 0.019 mg/l in October 1994, March and September 1995, April and October 1996, April and October 1997, April 1998, March and October 1999, April and October 2000, October 2001, April 2002, October 2003, October 2004, and April and October 2005, respectively. Mercury exceeded NCGS in five sampling events with concentrations of 0.0027, 0.00142, 0.0011, 0.0015, and 0.0046 mg/l in October 2002, October 2003, October 2004, October 2005, and October 2006, respectively. Barium, cobalt, and lead were the detected metals at MW7 during this latest sampling event.

Detected organics have included benzene, chlorobenzene, chloroethane, 1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethane, methylene chloride, toluene, 1,1,1-trichloroethane, tetrachloroethylene, trichloroethylene, trichlorofluoromethane, xylenes, dichlorodifluoromethane, diethylphthalate, and bis(2-ethylhexyl)phthalate. Of these, benzene has exceeded NCGS in two sampling events with concentrations of 1.1 and 4.7 ug/l in March 1999 and May 2007, respectively. Chloromethane has exceeded NCGS in one sampling event with a concentration of 64 ug/l in April 2000. 1,1-dichloroethane has exceeded NCGS in 21 sampling events with concentrations of 262, 100, 92, 77, 100, 99.5, 110, 210, 170, 90, 176, 230, 87.1, 220, 141, 137, 113, 147, 176, 174, and 153 ug/l in October 1994, September 1995, February, April and October 1996, April 1998, March and October 1999, April and October 2000, October 2001, April and October 2002, April and October 2003, April and October 2004, April 2005, April and October 2006, and May 2007, respectively. 1,2-dichloroethane has exceeded NCGS in one sampling event with a concentration of 8.7 ug/l in April 2003. 1,1-dichloroethene has exceeded NCGS in one sampling event with a concentration of 8.1 ug/l in April 2003. Methylene chloride has exceeded NCGS in 14 sampling events with concentrations of 60, 75, 138, 154, 26.4, 174,

70.3, 93.3, 101, 75.1, 59.6, 79.9, 74.1, and 74.5 ug/l in October 2000, April and October 2001, April and October 2002, April and October 2003, April and October 2004, April and October 2005, April and October 2006, and May 2007, respectively. Tetrachloroethylene exceeded NCGS in one sampling event with a concentration of 9.0 ug/l in October 2005. Trichloroethylene exceeded NCGS in 15 sampling events, with concentrations of 9.9, 10.7, 3.6, 7.8, 6.0, 5.3, 7.3, 8.8, 6.8, 7.6, 7.7, 7.5, 10.5, 9.9, and 8.8 ug/l in October and November 1994, March and October 1999, April 2000, April and October 2001, April 2002, October 2003, April and October 2004, April 2005, April and October 2006, and May 2007, respectively. Vinyl chloride has exceeded NCGS in one sampling event with a concentration of 5 ug/l in May 2007. During this latest sampling event, benzene, chloroethane, cis-1,2-dichloroethene, 1,1-dichloroethane, methylene chloride, trichloroethylene, vinyl chloride, and xylenes were detected at MW7B.

The following results were obtained for the detected inorganics in MW7/7B in May 2007:

barium: Barium resulted as not SSIOBL for MW7/7B using the Test of Proportions.

cobalt: Cobalt resulted as not SSIOBL for MW7/7B using the Prediction Interval Analysis.

lead: Lead resulted as not SSIOBL for MW7/7B using the Prediction Interval Analysis.

The following results were obtained for the detected organics in May 2007:

benzene: Benzene resulted as not SSIOBL for MW7/7B using the Qualitative Test.

chloroethane: Chloroethane resulted as SSIOBL for MW7/7B using the Test of Proportions.

cis-1,2-dichloroethene: cis-1,2-Dichloroethene resulted as not SSIOBL for MW7/7B using the Qualitative Test.

1,1-dichloroethane: 1,1-Dichloroethane resulted as SSIOBL for MW7/7B using the Test of Proportions.

methylene chloride: Methylene chloride resulted as SSIOBL for MW7/7B using the Test of Proportions.

trichloroethylene: Trichloroethylene resulted as SSIOBL for MW7/7B using the Test of Proportions.

vinyl chloride: Vinyl chloride resulted as not SSIOBL for MW7/7B using the Qualitative Test.

xylenes: Xylenes resulted as SSIOBL for MW7/7B using the Test of Proportions.

MW8: Compliance well MW8 has shown above detection limit inorganic concentrations for barium, beryllium, cadmium, chromium, copper, lead, vanadium, zinc, cyanide, and mercury. Cadmium exceeded NCGS in two sampling event with a concentration of 0.002 mg/l in both November 1994 and April 1997. Chromium exceeded NCGS in one sampling event with a concentration of 0.111 mg/l in April 1997. Lead exceeded NCGS in one sampling event with a concentration of 0.073 mg/l in April 1997. Cyanide exceeded NCGS in one sampling event with a concentration of 0.127 mg/l in October 1996. Mercury exceeded NCGS in one sampling event with a concentration of 0.002 mg/l in October 1998. No inorganics were detected during the latest sampling event at MW8.

Detected organics at MW8 have included carbon disulfide, chloroethane, chloromethane, 1,1-dichloroethane, methylene chloride, dichlorodifluoromethane, and xylenes. Benzene exceeded NCGS in two sampling events, with concentrations of 2.1 and 1.6 ug/l in October 1997 and March 1999, respectively. Chloromethane exceeded NCGS in three sampling events, with concentrations of 6.1, 88, and 25 ug/l in October 1999, April 2000, and October 2001, respectively. 1,1-dichloroethane exceeded NCGS in five sampling events with concentrations of 92, 135, 80, 76.8, and 71.5 ug/l in April 2000, April 2001, April and October 2002, and April 2003, respectively. 1,1-dichloroethene exceeded NCGS in one sampling event, with a concentration of 81 ug/l in October 2001. Methylene chloride exceeded NCGS in 19 sampling events, with concentrations of 49, 31, 5.2, 25, 30, 74, 140, 92, 90, 80.5, 71.2, 69, 44.5, 39.9, 40.6, 63.3, 64, 67.2, and 48.4 ug/l in April and October 1997, April and October 1998, March 1999, October 2000, April and October 2001, April and October 2002, April and October 2003, April and October 2004, April and October 2005, April and October 2006, and May 2007, respectively. Tetrachloroethylene exceeded NCGS in two sampling events, with concentrations of 5.2 and 5 ug/l in October 2006 and May 2007, respectively. Trichloroethylene exceeded NCGS in three sampling events, with concentrations of 6.8, 5.3, and 4 ug/l in April and October 2001, and May 2007, respectively. During this latest sampling event, cis-1,2-dichloroethene, 1,1-dichloroethane, methylene chloride, tetrachloroethylene, and trichloroethylene were detected at MW8.

The following results were obtained for the detected organics in MW8 in May 2007:

cis-1,2-dichloroethene: cis-1,2-Dichloroethene resulted as not SSIOBL for MW8 using the Qualitative Test.

1,1-dichloroethane: 1,1-Dichloroethane resulted as SSIOBL for MW8 using the Test of Proportions.

methylene chloride: Methylene chloride resulted as SSIOBL for MW8 using the Test of Proportions.

tetrachloroethylene: Tetrachloroethylene resulted as not SSIOBL for MW8 using the Qualitative Test.

trichloroethylene: Trichloroethylene resulted as SSIOBL for MW8 using the Test of Proportions.

MW9: Compliance well MW9 was installed in March 2001 and was sampled for the first time in April 2001. The data are now included in the statistical analysis.

Detected metals in MW9 include chromium, lead, and vanadium. Chromium exceeded NCGS in one sampling event with a concentration of 0.082 mg/l in October 2002. Barium was the only inorganic detected during this latest sampling event.

Detected organics at MW9 have included benzene, chlorobenzene, chloroethane, chloromethane, 1,2-dibromoethane, cis-1,2-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethane, methylene chloride, tetrachloroethylene, trichloroethylene, and xylenes. Of these, benzene exceeded NCGS in nine sampling events, with concentrations of 8.6, 11, 7.8, 8.2, 8.1, 6.4, 5.6, 5.2, and 5 ug/l in April and October 2001, April and October 2002, April and October 2003, April and October 2006, and May 2007, respectively. Chloromethane exceeded NCGS in one sampling event, with a concentration of 189 ug/l in April 2001. 1,2-dibromoethane exceeded NCGS in one sampling event, with a concentration of 14 ug/l in October 2001. 1,1-dichloroethane exceeded NCGS in 12 sampling events, with concentrations of 126, 219, 170, 202, 135, 122, 75.2, 81.9, 110, 103, 87, and 74.7 ug/l in October 2001, April and October 2002, April and October 2003, April and October 2004, April and October 2005, April and October 2006, and May 2007, respectively. 1,2-dichloroethane exceeded NCGS in one sampling event, with a concentration of 11.8 ug/l in April 2003. Methylene chloride exceeded NCGS in 12 sampling events, with concentrations of 195, 231, 272, 197, 166, 127, 67.9, 56.7, 75.7, 122, 96.4, and 64.2 ug/l in October 2001, April and October 2002, April and October 2003, April and October 2004, April and October 2005, April and October 2006, and May 2007, respectively. Tetrachloroethylene exceeded NCGS in three sampling events, with concentrations of 5.3, 5.3, and 5.1 ug/l in October 2001, October 2002, and April 2003, respectively. Trichloroethylene exceeded NCGS in 12 sampling events, with concentrations of 11, 15, 9.8, 10, 9.5, 8.2, 5.8, 7.0, 6.5, 6.2, 5.0, and 4.7 ug/l in April and October 2001, April and October 2002, October 2003, April and October 2004, April and October 2005, April and October 2006, and May 2007, respectively. Vinyl chloride exceeded NCGS in one sampling event, with a concentration of 9.1 ug/l in May 2007.

Benzene, chlorobenzene, chloroethane, cis-1,2-dichloroethene, 1,1-dichloroethane, methylene chloride, trichloroethylene, and vinyl chloride were detected at MW9 during this latest sampling event.

The following result was obtained for the detected inorganic in MW9 in May 2007:

barium: Barium resulted as not SSIOBL for MW9 using the Test of Proportions.

The following results were obtained for the detected organics in MW9 in May 2007:

benzene: Benzene resulted as not SSIOBL for MW9 using the Qualitative Test.

chlorobenzene: Chlorobenzene resulted as not SSIOBL for MW9 using the Qualitative Test.

chloroethane: Chloroethane resulted as SSIOBL for MW9 using the Test of Proportions.

cis-1,2-dichloroethene: cis-1,2-Dichloroethene resulted as not SSIOBL for MW9 using the Qualitative Test.

1,1-dichloroethane: 1,1-Dichloroethane resulted as SSIOBL for MW9 using the Test of Proportions.

methylene chloride: Methylene chloride resulted as SSIOBL for MW9 using the Test of Proportions.

trichloroethylene: Trichloroethylene resulted as SSIOBL for MW9 using the Test of Proportions.

vinyl chloride: Vinyl chloride resulted as not SSIOBL for MW9 using the Qualitative Test.

MW10: Compliance well MW10 was installed in March 2001 and was sampled for the first time in April 2001. The data are now included in the statistical analysis.

Detected metals in MW10 include chromium, lead, vanadium and zinc. Chromium exceeded NCGS in one sampling event with a concentration of 0.118 mg/l in October 2002. Zinc was the only inorganics detected during this latest sampling event.

Detected organics at MW10 have included acetone, benzene, chlorobenzene, chloroethane, cis-1,2-dichloroethene, 1,2-dibromoethane, 1,1-dichloroethane, methylene chloride, tetrachloroethylene, trichloroethylene, vinyl chloride, and xylenes. Of these, benzene exceeded NCGS in four sampling events, with concentrations of 6.9, 7.3, 6.2, and 4.6 ug/l in April and October 2001, April 2002, and May 2007, respectively. 1,1-dichloroethane exceeded NCGS in three sampling events, with concentrations of 266, 109, and 606 ug/l, in Oct. 2001, April 2002, and April 2004, respectively. Methylene chloride exceeded NCGS in ten sampling events, with concentrations of 120, 310, 132, 59.3, 19.7, 48.7, 48, 67.7, 51.6, 27.1, and 14.4 ug/l in April and October 2001, April and October 2002, April and October 2003, April and October 2004, April 2005, and April 2006, respectively. Tetrachloroethylene exceeded NCGS in six sampling events, with concentrations of 12, 11, 13, 6.8, 7.1, and 7.3 ug/l in April and October 2001, April and October 2002, and April and October 2003, respectively. Trichloroethylene exceeded NCGS in four sampling events, with a concentrations of 11, 11, 9.1, and 5.7 ug/l in April and October 2001, April 2002, and October 2003, respectively. Vinyl chloride exceeded NCGS in one sampling event, with a concentration of 10 ug/l in April 2001.

Benzene, chlorobenzene, cis-1,2-dichloroethene, 1,1-dichloroethane, and methylene chloride were the detected organics at MW10 during this latest sampling event.

The following result was obtained for the detected inorganic in MW10 in May 2007:

zinc: Zinc resulted as not SSIOBL for MW10 using the Test of Proportions.

The following results were obtained for the detected organics in MW10 in May 2007:

benzene: Benzene resulted as not SSIOBL for MW10 using the Qualitative Test.

chlorobenzene: Chlorobenzene resulted as not SSIOBL for MW10 using the Qualitative Test.

cis-1,2-dichloroethene: Cis-1,2-dichloroethene resulted as not SSIOBL for MW10 using the Qualitative Test.

1,1-dichloroethane: 1,1-Dichloroethane resulted as SSIOBL for MW10 using the Test of Proportions.

methylene chloride: Methylene chloride resulted as SSIOBL for MW10 using the Test of Proportions.

MW23B: MW23B is a Set 2 well. It does not follow the Set 1 analysis schedule since it is too remote to be a monitoring point for the active portion of the landfill. It is analyzed for Appendix I organics plus the eight RCRA metals as a part of Set 2. However, it is statistically compared with Set 1 because it appears to be located downgradient of the active landfill.

Compliance well MW23B had shown above the detection limit inorganic concentrations for barium, beryllium, cadmium, chromium, copper, lead, selenium, silver, zinc, and mercury. Of these, lead exceeded NCGS in March and September 1995, February 1996, March and October 1999 with concentrations of 0.018, 0.027, 0.0157, 0.049, and 0.089 mg/l, respectively. Arsenic exceeded NCGS in one sampling event with a concentration of 0.064 in October 1997. Silver exceeded NCGS in one sampling event with a concentration of 0.105 in January 1995. No organics have been detected in MW23B. Mercury also exceeded NCGS in one sampling event with a concentration of 0.0017 mg/l in March 1999. No constituents were detected during the latest sampling event.

DATA SET 2

In May 2007, Set 2 monitoring wells were sampled, analyzed, and statistically evaluated for Appendix I organics and eight RCRA metals only as they monitor the older, closed-out portion of the landfill. Prior to September 1995, there are data for all Appendix I constituents. These data are reported, however analyses are performed for only the eight RCRA metals.

Upgradient Well (Background Well):

MW16: MW16 is a background well for MW32, MW33, MW34, and MW35 in this analysis. The detected inorganics in MW16 include barium, cadmium, chromium, cobalt, copper, lead, mercury, vanadium, and zinc. Of these, cadmium exceeded NCGS in six sampling events with concentrations of 0.0018, 0.006, 0.007, 0.002, 0.0075, and 0.0049 mg/l in October 1994, January, March, and September 1995, October 1996, and April 1997, respectively. Lead exceeded NCGS in two sampling events with a concentration of 0.02 and 0.039 ug/l in April 1997 and March 1999, respectively. Chromium exceeded NCGS in one sampling event with a concentration of 0.062 ug/l in March 1999. The only detected organic in MW16 was methylene chloride in January 1995, which exceeded NCGS with a concentration of 29.4 ug/l. No constituents were detected during the latest sampling event.

The following summarizes the history of detected concentrations for each metal constituent in MW16:

barium: Barium was detected in ten sampling events for MW16 with concentrations of 0.112, 0.194, 0.114, 0.147, 0.014, 0.099, 0.1, 0.281, 0.162, and 0.06 mg/l in October and November 1994, January and March 1995, October 1997, April and October 1998, March and October 1999, and April 2000, respectively.

cadmium: Cadmium was detected in eight sampling events for MW16 with concentrations of 0.0018, 0.001, 0.006, 0.007, 0.002, 0.0075, 0.0049, and 0.001 mg/l in October and November 1994, January, March, and September 1995, October 1996, April 1997, and March 1999, respectively.

chromium: Chromium was detected in eight sampling events for MW16 with concentrations of 0.004, 0.007, 0.005, 0.01, 0.019, 0.006, 0.008, 0.062 and 0.019 mg/l in October and November 1994, March, and September 1995, April 1997, April and October 1998, and March and October 1999, respectively.

copper: Copper was detected in four sampling events for MW16 with concentrations of 0.008, 0.009, 0.018, and 0.014 mg/l in October and November 1994 and January and March 1995, respectively.

lead: Lead was detected in ten sampling events for MW16 with concentrations of 0.002, 0.003, 0.004, 0.013, 0.012, 0.020, 0.002, 0.005, 0.039, 0.011, and 0.002 mg/l in October and November 1994, March and September 1995, October 1996, April and October 1997, October 1998, March and October 1999, and April 2000, respectively.

mercury: Mercury was detected in only one sampling event for MW16 with a concentration of 0.0002 mg/l in October 1998.

vanadium: Vanadium was detected in two sampling events for MW16 with concentrations of 0.005 and 0.012 mg/l in October and November 1994.

zinc: Zinc was detected in five sampling events for MW16 with concentrations of 0.012, 0.014, 0.015, 0.027, and 0.07 mg/l in October and November 1994, January and March 1995, and October 1996, respectively.

Downgradient Wells (Compliance Wells):

MW32: Compliance well MW32 has had detections for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, selenium, vanadium, and zinc. Of these, cadmium exceeded NCGS in two sampling event with concentrations of 0.004 and 0.025 mg/l in November 1994 and October 1998. Chromium exceeded NCGS in two sampling events with concentrations of 0.133 mg/l and 0.094 mg/l in November 1994 and April 2003, respectively. Lead exceeded NCGS in seven sampling events with concentrations of 0.09, 0.02, 0.064, 0.033, 0.063, 0.029, and 0.021 mg/l in November 1994, March 1995, March and October 1999, April 2003, April 2005, and April 2006, respectively. The only detected organic constituent for MW32 was MEK (2-butanone) with a concentration of 471 ug/l in January 1995. Lead was the only constituent detected during the latest sampling event.

The following result was obtained for the detected inorganic in MW32 in May 2007:

lead: Lead resulted as not SSIOBL for MW32 using the Test of Proportions.

MW33: Compliance well MW33 has had detections for barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, vanadium, zinc. Of these, cadmium exceeded NCGS in three sampling events with concentrations of 0.0021, 0.003, and 0.005 mg/l in October and November 1994 and January 1995, respectively. Lead exceeded NCGS in two sampling events with concentrations of 0.014 and 0.016 mg/l in January 1995 and October 1998, respectively. Chromium exceeded NCGS in October 1998 with a concentration of 0.016 mg/l. The only detected organic was cis-1,2-dichloroethene, detected in October 1998 with a concentration of 1.8 ug/l. No constituents were detected in MW33 during the latest sampling event.

MW34: This compliance well, installed in June 1996, was sampled for Appendix I organics and the eight RCRA metals in April 1998. Inorganics barium, chromium, lead, and mercury have been detected in MW34. No organics have been detected at this monitoring well. Detections above NCGS include one detect of chromium with a concentration of 0.017 in October 1998 and three detects of lead with concentrations of 0.02, 0.025 and 0.02 mg/l in October 1998, and March and October 1999, respectively. No constituents were detected in MW34 during the latest sampling event.

MW35: This compliance well, installed in June 1996, was analyzed for Appendix I organics and the eight RCRA metals in April 1998. Inorganics arsenic, barium, cadmium, chromium, lead, mercury and selenium have been detected at MW35. Of these arsenic exceeded NCGS in one sampling event with a concentration of 0.0681 in April 1997. Barium has exceeded NCGS in one sampling event with a concentration of 2.06 mg/l in

April 1997. Cadmium has exceeded NCGS in two sampling events with concentrations of 0.0119 and 0.208 mg/l in April and October 1997. Chromium has exceeded NCGS in three sampling events with concentrations of 0.0119, 0.208, and 0.148 mg/l in April and October 1997, and March 1999. Lead has exceeded NCGS in five sampling events with concentrations of 0.355, 0.105, 0.055, 0.110 and 0.043 mg/l in April and October 1997, October 1998, and March and October 1999, respectively. Mercury exceeded NCGS in one sampling event with a concentration of 2.06 mg/l in 0.002 mg/l in April 1997. No organics have been detected in MW35. Barium was the only constituent detected during the latest sampling event.

The following result was obtained for the detected inorganic in MW35 in May 2007:

barium: Barium resulted as not SSIOBL for MW35 using the Test of Proportions.

SET 3: SURFACE WATER MONITORING POINTS

Set 3 surface water monitoring points were sampled, analyzed, and statistically evaluated for Appendix I parameters only.

Upgradient Surface Water Monitoring Point (Background):

SWPT1: SWPT1 is an upgradient surface water monitoring point for SWPT2 and SWPT3. SWPT1 has had detected metal concentrations for arsenic, barium, cadmium, chromium, copper, and zinc. There were no concentrations exceeding NCGS. The only organic detected at SWPT1 was toluene in October 1999. Zinc was the only constituents detected for SWPT1 in the latest sampling event.

The following summarizes the detection history at SWPT1:

arsenic: Arsenic was detected in two sampling events for SWPT1 with concentrations of 0.007 and 0.013 mg/l in October 1994 and September 1995, respectively.

barium: Barium was detected in four sampling events for SWPT1 with concentrations of 0.045, 0.033, 0.03, and 0.029 mg/l in October and November 1994, and January and March 1995, respectively.

cadmium: Cadmium was detected in two sampling events for SWPT1 with concentrations of 0.001 mg/l in September 1995 and October 2003.

chromium: Chromium was detected in one sampling event for SWPT1 with a concentration of 0.002 mg/l in October 1994.

cobalt: Cobalt was detected in one sampling event for SWPT1 with a concentration of 0.010 mg/l in October 1999.

copper: Copper was detected in two sampling events for SWPT1 with concentrations of 0.006 and 0.006 mg/l in October 1994 and March 1995, respectively.

zinc: Zinc was detected in seven sampling events for SWPT1 with concentrations of 0.011, 0.016, 0.021, 0.013, 0.22, 0.04, and 0.011 mg/l in October and November 1994, January and March 1995, October 1997, October 1998, and May 2007, respectively.

toluene: Toluene was detected in one sampling event for SWPT1 with a concentration of 1.3 ug/l in October 1999.

Downgradient Surface Water Monitoring Points (Compliance):

SWPT2: SWPT2 is a compliance surface water monitoring point with previously detected metal concentrations for arsenic, barium, cadmium, chromium, copper, lead and zinc. There have been no concentrations exceeding NCGS. There were also no organics detected. No constituents were detected for SWPT2 in the latest sampling event.

SWPT3: SWPT3 is a compliance surface water monitoring point with previously detected metal concentrations for arsenic, barium, cadmium, chromium, cobalt, copper, lead and zinc. Of these, cadmium exceeded NCGS in two sampling events with concentrations of 0.0045 and 0.006 mg/l in October 1994 and September 1995. Lead exceeded NCGS in one sampling event with a concentration of 0.02 mg/l in October 1998. The previously detected organics for SWPT3 include benzene, cis-1,2-dichloroethene, ethylbenzene, toluene, vinyl chloride, and xylenes. Of these, benzene and vinyl chloride exceeded groundwater standards for the September 1995 sampling event with concentrations of 9.1 and 15 ug/l, respectively. No constituents were detected for SWPT3 in the latest sampling event.

TABLES

FIGURES

APPENDIX A

DATA SET 1

APPENDIX B

DATA SET 2

APPENDIX C

DATA SET 3

APPENDIX D

LABORATORY RESULTS AND CHAIN OF CUSTODY FORMS

TABLE OF CONTENTS

EXECUTIVE SUMMARY i

I. INTRODUCTION 1

II. GROUNDWATER LEVELS 1

III. METHODOLOGY 1

IV. RESULTS 3

Set 1 Upgradient Monitoring Wells 4
Downgradient Monitoring Wells 7

Set 2 16
Upgradient Monitoring Wells 16
Downgradient Monitoring Wells 17

Set 3 18
Upgradient Surface Water Point 19
Downgradient Surface Water Points 19

TABLES

1. Groundwater Levels Within Monitoring Wells
2. Groundwater Velocity Data
3. Summary of Results of Various Statistical Analyses for Inorganics
4. Summary of Appendices I & II Statistical Analysis Results
5. Analysis of Organic Detections in Downgradient Monitoring Wells

FIGURES

1. Contaminant Plume Assessment
2. Site Layout and Monitoring Well Locations
3. Top Organic Detections in Downgradient Wells per Sampling Event

APPENDICES

APPENDIX A Data Set 1:
- Individual MW Summary Tables
- Excel Results:
  Test of Proportions
  Predictive Interval Analysis

APPENDIX B Data Set 2:
- Individual MW Summary Tables
- Excel Results:
  Test of Proportions

APPENDIX C Data Set 3:
- Individual SWPT Summary Tables
- Excel Results:
  Test of Proportions

APPENDIX D Laboratory Data and Chain of Custody Forms

STATISTICAL ANALYSIS/EVALUATION
MAY 2007
DUNN-ERWIN MUNICIPAL SOLID WASTE LANDFILL
PERMIT #43-02
HARNETT COUNTY, NORTH CAROLINA

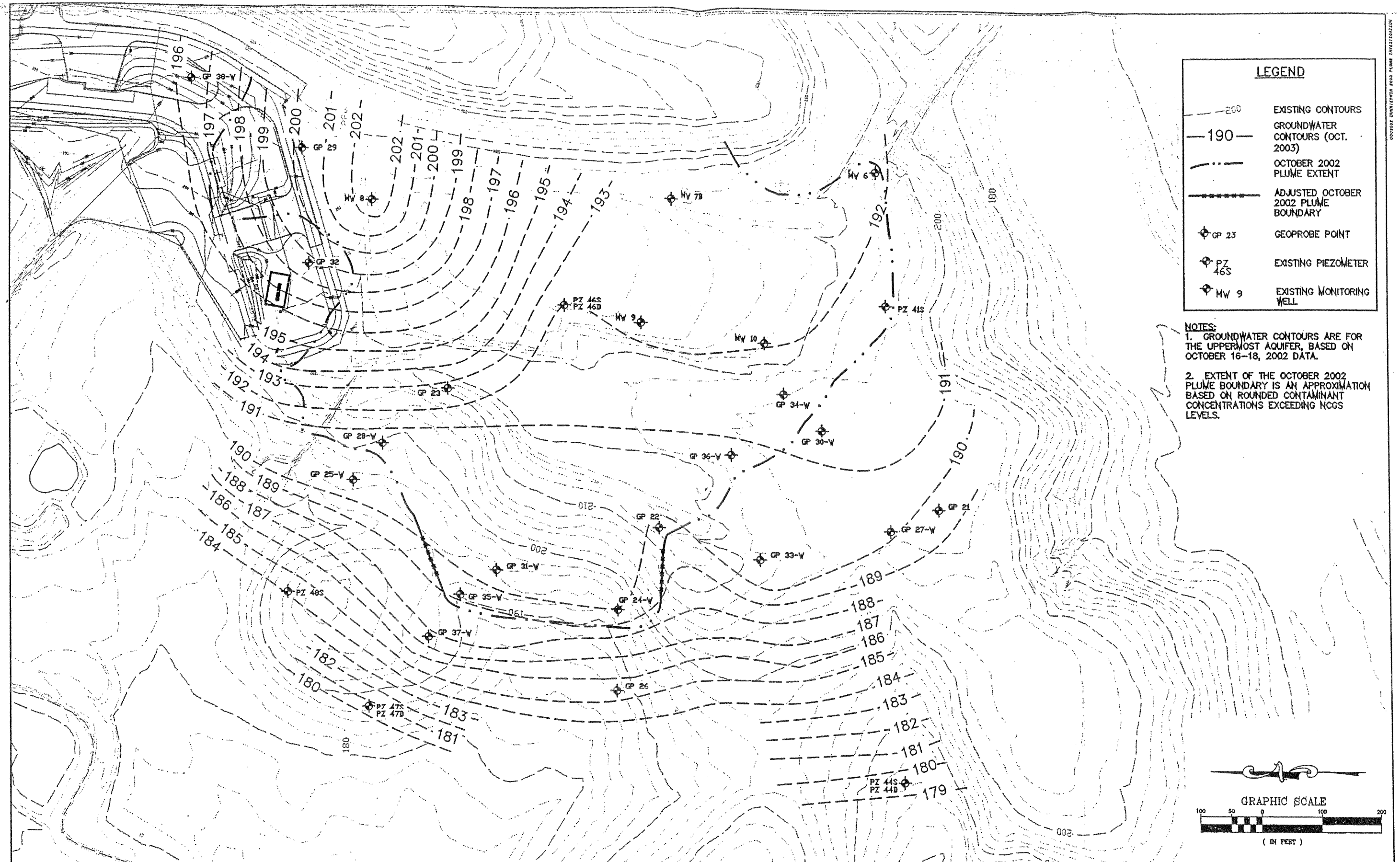
Submitted to:
Solid Waste Section
Division of Waste Management
NCDENR
1646 Mail Service Center
Raleigh, NC 27699-1646

Submitted by:
C.T. Clayton, Sr., P.E., Inc.
P. O. Box 578
Coats, NC 27521

Clayton, Sr., P.E., Inc.
Civil & Environmental Engineering

Submitted on behalf of:
Harnett County General Services
900 South 9th Street
Lillington, NC 27546

August 3, 2007



ENSOL, Inc.
1513 WALNUT STREET, SUITE 250
CARY, NC 27511, USA
Tel: 919.380.7877
Fax: 919.467.9458
www.ensol.us

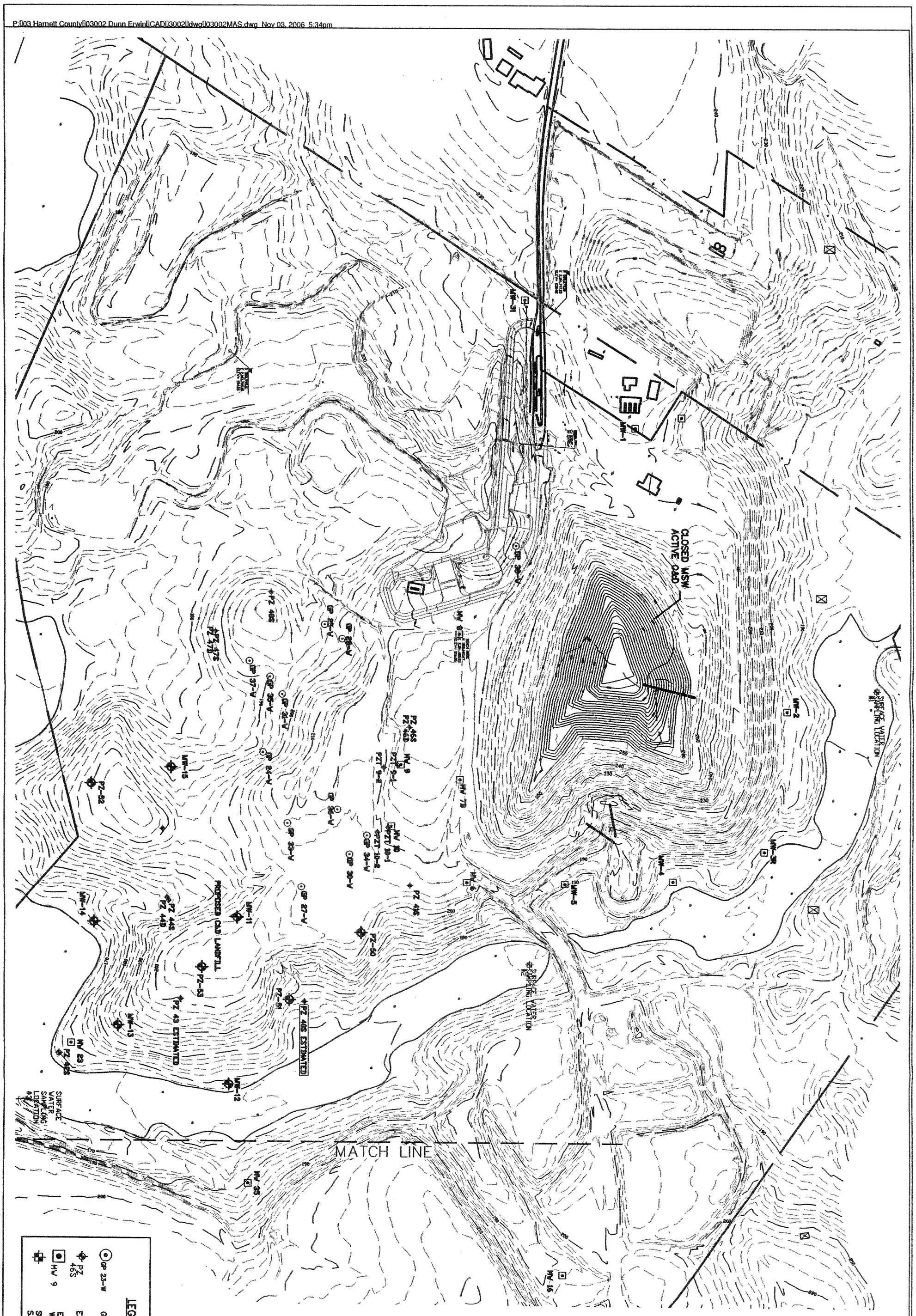
Clayton, Sr., P.E.
C.T. Clayton, Sr., Professional Engineer
PO BOX 12794
NEW BERN, NC 28561
Phone: 252 672-0304 Mobile: 252 671-6979
Home Fax: 910 897-0560 Fax: 252 672-8577

DATE:

FIGURE 1
CONTAMINANT PLUME ASSESSMENT
at
DUNN/ERWIN LANDFILL
HARNETT COUNTY NORTH CAROLINA

PROJECT # : 0002002
PROJ. ENG. : CTC
DRAWN BY : CTC JR.
CHECKED BY : CJP
CAD FILE : DELF Plume 2003.dwg
SCALE : SEE GRAPHICAL SCALE
DATE : AUGUST 28, 2003
SHEET # : 1 OF 1
Email: ctc@cox.net

P:\03 Harnett County\03002 Dunn Erwin\CAD\3002\dwg\03002MAS.dwg Nov 03, 2006 5:34pm



Clayton, Sr., P.E., Inc.
C.T. Clayton, Sr., Professional Engineer
PO BOX 12794
NEW BERN, NC 28561
Phone: 252 672-0304
Home Fax: 910 897-0660
Mobile: 252 671-6979
Fax: 252 672-8577

DATE:

LAYOUT
of
DUNN-ERWIN LANDFILL
FIGURE 2A

HARNETT COUNTY NORTH CAROLINA

PROJECT # : 0003002
PROJ. ENG. : CTC
DRAWN BY : CTC Jr.
FIELD FILE : CJP
CAD FILE : DELF Plume 2004.dwg

SCALE : 1" = 300'
DATE : APRIL 4, 2006

SHEET # : 1 OF 1

300 150 0

[]Server[]Projects[]03 Harnett County[]03002 Dunn Erwin[]CAD[]3002[]dwg[]03002MAS.dwg Oct 31, 2006 4:33pm

LEGEND

- GP 23-W GEOPROBE WELL
- PZ 46S EXISTING PIEZOMETER
- MW 9 EXISTING MONITORING WELL
- SURFACE WATER SAMPLING LOCATION

Clayton, Sr., P.E., Inc.
C.T. Clayton, Sr., Professional Engineer
PO BOX 12794
NEW BERN, NC 28561
Phone: 252 672-0304
Home Fax: 910 897-0660
Mobile: 252 671-6979
Fax: 252 672-8577

DATE:

LAYOUT
of
DUNN-ERWIN LANDFILL
FIGURE 2B

HARNETT COUNTY NORTH CAROLINA

PROJECT # : 0003002
PROJ. ENG.: CTC
DRAWN BY : CTC Jr.
FIELD FILE: CJP
CAD FILE : DELF Plume 2004.dwg
SCALE : 1" = 300'
DATE : APRIL 4, 2006
SHEET # : FIGURE 2B

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 E

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/01/07
DATE REPORTED : 05/18/07

REVIEWED BY:

PARAMETERS	Piezometer #41S	Piezometer #44S	Piezometer #44D	Piezometer #46D	Piezometer #47S	Analysis Date	Analyst	Method Code
Static Water Level, feet	16.00	3.29	11.07	28.31	6.71	05/01/07	RJH	

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 E

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/01/07
DATE REPORTED : 05/18/07

REVIEWED BY:

PARAMETERS	Piezometer #47D	Piezometer #48S	Pizeometer #50	Piezometer #51	Piezometer #52	Analysis Date	Analyst	Method Code
Static Water Level, feet	26.85	15.03	0.0	11.42	19.72	05/01/07	RJH	

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 E

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/01/07
DATE REPORTED : 05/18/07

REVIEWED BY:

PARAMETERS	Piezometer #53	GP-24-W	GP-25-W	GP-27-W	GP-28-W	Analysis Date	Analyst	Method Code
Static Water Level, feet	17.66	6.76	8.75	16.03	11.63	05/01/07	RJH	

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 E

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/01/07
DATE REPORTED : 05/18/07

REVIEWED BY:

PARAMETERS	GP-30-W	GP-31-W	GP-33-W	GP-34-W	GP-35-W	Analysis Date	Analyst	Method Code
Static Water Level, feet	15.52	7.71	19.61	17.82	4.04	05/01/07	RJH	

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 E

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/01/07
DATE REPORTED : 05/18/07

REVIEWED BY:

PARAMETERS	GP-36-W	GP-37-W	GP-38-W	Analysis Date	Analyst	Method Code
Static Water Level, feet	18.67	8.76	16.01	05/01/07	RJH	

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON, NC 27546

CLIENT ID: 6040 E

ANALYST: MAO
DATE COLLECTED: 05/01/07
DATE ANALYZED: 05/11/07
DATE REPORTED: 05/18/07

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	Piezometer #41S	GP-25-W	GP-30-W	GP-37-W	GP-38-W
1. Chloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
2. Vinyl Chloride	<5.00	<5.00	<5.00	<5.00	<5.00
3. Bromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
4. Chloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00	<100.00	<100.00
10. Methylene Chloride	<5.00	<5.00	<5.00	<5.00	<5.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	7.80	<5.00	6.50	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	17.60
15. 2-Butanone	<100.00	<100.00	<100.00	<100.00	<100.00
16. Bromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
17. Chloroform	<5.00	<5.00	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<5.00	<5.00	<5.00	<5.00	<5.00
20. Benzene	<3.00	<3.00	<3.00	<3.00	3.90
21. 1,2-Dichloroethane	<3.00	<3.00	<3.00	<3.00	<3.00
22. Trichloroethene	<3.00	<3.00	<3.00	<3.00	<3.00
23. 1,2-Dichloropropane	<3.00	<3.00	<3.00	<3.00	<3.00
24. Bromodichloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
25. Cis-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
30. Tetrachloroethene	<3.00	<3.00	<3.00	<3.00	<3.00
31. 2-Hexanone	<50.00	<50.00	<50.00	<50.00	<50.00
32. Dibromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
33. 1,2-Dibromoethane	<3.00	<3.00	<3.00	<3.00	<3.00
34. Chlorobenzene	<3.00	<3.00	<3.00	<3.00	<3.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00	<5.00	<5.00
37. Xylenes	<4.00	<4.00	<4.00	<4.00	<4.00
38. Dibromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00	<10.00	<10.00
40. Bromoform	<3.00	<3.00	<3.00	<3.00	<3.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<8.00	<8.00	<8.00	<8.00	<8.00
43. 1,4-Dichlorobenzene	<3.00	<3.00	<3.00	<3.00	<3.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<13.00	<13.00	<13.00	<13.00	<13.00
46. Acrylonitrile	<200.00	<200.00	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00	<100.00	<100.00

ıvironment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6040 E **Week: 18**

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON NC 27546

(919) 233-0407

DISINFECTION
- [ ] CHLORINE
- [ ] UV
- [ ] NONE
- [ ] _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2
							L7	L7	L7
							G	G	G
							E	E	E
Piezometer #41S	05/01/07	0835		15	4	G	G	G	G
Piezometer #44S	05/01/07				1	G			
Piezometer #44D	05/01/07				1	G			
Piezometer #46D	05/01/07				1	G			
Piezometer #47S	05/01/07				1	G			
Piezometer #47D	05/01/07				1	G			
Piezometer #48S	05/01/07				1	G			
Pizeometer #50	05/01/07				1	G			
Piezometer #51	05/01/07				1	G			
Piezometer #52	05/01/07				1	G			
Piezometer #53	05/01/07				1	G			

PARAMETERS

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

A - NONE
B - HNO_3
C - H_2SO_4
D - NAOH
E - HCL
F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
- [ ] WASTEWATER (NPDES)
- [ ] DRINKING WATER
- [ ] DWQ/GW
- [x] SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
Y N

SAMPLES COLLECTED BY:
(Please Print)
Hagel Fox

SAMPLES RECEIVED IN LAB AT 10 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob Hagel	05/01/07 2:51	Anita Fox	5/1/07 2:51
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

№ 151736

FORM #5

Environment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6040 E **Week: 18**

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON NC 27546

(919) 233-0407

DISINFECTION
- [ ] CHLORINE
- [ ] UV
- [ ] NONE
- [ ] _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2
CHLORINE NEUTRALIZED AT COLLECTION									
pH CHECK (LAB)							L7	L7	L7
CONTAINER TYPE, P/G							G	G	G
CHEMICAL PRESERVATION							E	E	E
GP-24-W	05/01/07				1	G			
GP-25-W	05/01/07	1035		15	3	G	G	G	
GP-27-W	05/01/07				1	G			
GP-28-W	05/01/07				1	G			
GP-30-W	05/01/07	0840		15	3	G	G	G	
GP-31-W	05/01/07				1	G			
GP-33-W	05/01/07				1	G			
GP-34-W	05/01/07				1	G			
GP-35-W	05/01/07				1	G			
GP-36-W	05/01/07				1	G			
GP-37-W	05/01/07	1015		15	3	G	G	G	

PARAMETERS

A - NONE
B - HNO_3
C - H_2SO_4
D - NAOH
E - HCL
F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
- [ ] WASTEWATER (NPDES)
- [ ] DRINKING WATER
- [ ] DWQ/GW
- [x] SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY: Y N

SAMPLES COLLECTED BY: (Please Print) Nagel / Fox

SAMPLES RECEIVED IN LAB AT 1.0 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob Nagel	05/01/07 2:51	Matthew Kolb	5/1/07 2:51
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 151735

Environment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6040 E **Week:** 18

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON NC 27546

(919) 233-0407

DISINFECTION
- [ ] CHLORINE
- [ ] UV
- [ ] NONE
- [ ] _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2
							12	12	
							G	G	G
							E	E	E
GP-38-W 05	01 07	1210		15	3	G	G	G	

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

PARAMETERS

A - NONE
B - HNO_3
C - H_2SO_4
D - NAOH
E - HCL
F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
- [ ] WASTEWATER (NPDES)
- [ ] DRINKING WATER
- [ ] DWQ/GW
- [X] SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
Y N

SAMPLES COLLECTED BY:
(Please Print)
H Cook / Fox

SAMPLES RECEIVED IN LAB AT 1.0 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Rob H Cook 05	01 07 / 2:51	Kristina Sadler	5/1/07 / 2:51
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 151734

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 A

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/02/07
DATE REPORTED : 05/18/07

REVIEWED BY:

PARAMETERS	SW-1	SW-2	SW-3	Analysis Date	Analyst	Method Code
PH (field measurement), Units	5.9	4.1	6.3	05/02/07	RJH	SM4500HB
Antimony, ug/l	<6.0	<6.0	<6.0	05/11/07	ADD	EPA200.8
Arsenic, ug/l	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Barium, ug/l	< 100	< 100	< 100	05/11/07	ADD	EPA200.8
Beryllium, ug/l	<1.0	<1.0	<1.0	05/11/07	ADD	EPA200.8
Cadmium, ug/l	<1.0	<1.0	<1.0	05/11/07	ADD	EPA200.8
Cobalt, ug/l	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Copper, ug/l	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Total Chromium, ug/l	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Lead, ug/l	< 10	< 10	< 10	05/09/07	ADD	EPA200.8
Nickel, ug/l	< 50	< 50	< 50	05/11/07	ADD	EPA200.8
Selenium, ug/l	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Silver, ug/l	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Thallium, ug/l	<5.0	<5.0	<5.0	05/09/07	ADD	EPA200.8
Vanadium, ug/l	< 25	< 25	< 25	05/11/07	ADD	EPA200.8
Zinc, ug/l	11	< 10	< 10	05/11/07	ADD	EPA200.8
Turbidity, NTU	80	33	26	05/02/07	MDM	SM2130B
Conductivity (at 25c), uMhos	123	139	168	05/02/07	RJH	SM2510B
Temperature, °C	18	21	22	05/02/07	RJH	SM2550B

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON, NC 27546

CLIENT ID: 6040 A

ANALYST: MAO
DATE COLLECTED: 05/02/07
DATE ANALYZED: 05/11/07
DATE REPORTED: 05/18/07

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	SW-1	SW-2	SW-3
1. Chloromethane	<5.00	<5.00	<5.00
2. Vinyl Chloride	<5.00	<5.00	<5.00
3. Bromomethane	<10.00	<10.00	<10.00
4. Chloroethane	<5.00	<5.00	<5.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00
10. Methylene Chloride	<5.00	<5.00	<5.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	<5.00	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00
15. 2-Butanone	<100.00	<100.00	<100.00
16. Bromochloromethane	<3.00	<3.00	<3.00
17. Chloroform	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<5.00	<5.00	<5.00
20. Benzene	<3.00	<3.00	<3.00
21. 1,2-Dichloroethane	<3.00	<3.00	<3.00
22. Trichloroethene	<3.00	<3.00	<3.00
23. 1,2-Dichloropropane	<3.00	<3.00	<3.00
24. Bromodichloromethane	<3.00	<3.00	<3.00
25. Cis-1,3-Dichloropropene	<5.00	<5.00	<5.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<5.00	<5.00	<5.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00
30. Tetrachloroethene	<3.00	<3.00	<3.00
31. 2-Hexanone	<50.00	<50.00	<50.00
32. Dibromochloromethane	<3.00	<3.00	<3.00
33. 1,2-Dibromoethane	<3.00	<3.00	<3.00
34. Chlorobenzene	<3.00	<3.00	<3.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00
37. Xylenes	<4.00	<4.00	<4.00
38. Dibromomethane	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00
40. Bromoform	<3.00	<3.00	<3.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<8.00	<8.00	<8.00
43. 1,4-Dichlorobenzene	<3.00	<3.00	<3.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<13.00	<13.00	<13.00
46. Acrylonitrile	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00

ent 1, Inc.
P.O. Box 7053, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6040 A **Week: 18**

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON NC 27546

(919) 233-0407

DISINFECTION
- [ ] CHLORINE
- [ ] UV
- [ ] NONE
- [ ] _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Turbidity	Conductivity	Temperature	EPA 8260B	8260 Dup. 1	8260 Dup. 2
CHLORINE NEUTRALIZED AT COLLECTION													
pH CHECK (LAB)							L2				L2	L2	L2
CONTAINER TYPE, P/G						P	P	P	P	P	G	G	G
CHEMICAL PRESERVATION						A	B	A	A	A	E	E	E
SW-1	05 02 07	0830		18	6	G	G	G	G	G	G	G	G
SW-2	05 02 07	0810		21	5	G	G	G	G	G	G	G	
SW-3	05 02 07	0955		22	5	G	G	G	G	G	G	G	

PARAMETERS

A - NONE
B - HNO_3
C - H_2SO_4
D - NAOH
E - HCL
F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
- [ ] WASTEWATER (NPDES)
- [ ] DRINKING WATER
- [ ] DWQ/GW
- [X] SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
Y (✓) N

SAMPLES COLLECTED BY: (Please Print)
H Boal | Fat

SAMPLES RECEIVED IN LAB AT 3.2 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob H Boal	05 02 07	[signature]	5/2/07 1:10
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 151547

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 B

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/02/07
DATE REPORTED : 05/21/07

REVIEWED BY:

PARAMETERS	MW-1	MW-2	MW-3R	MW-4	MW-5	Analysis Date	Analyst	Method Code
PH (field measurement), Units	5.7	4.6	5.8	4.7	6.3	05/02/07	RJH	SM4500HB
Antimony, ug/l	<6.0	<6.0	<6.0	<6.0	<6.0	05/11/07	ADD	EPA200.8
Arsenic, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Barium, ug/l	< 100	< 100	< 100	< 100	112	05/11/07	ADD	EPA200.8
Beryllium, ug/l	<1.0	2	<1.0	2	<1.0	05/11/07	ADD	EPA200.8
Cadmium, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	05/11/07	ADD	EPA200.8
Cobalt, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Copper, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Total Chromium, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Lead, ug/l	< 10	< 10	< 10	< 10	< 10	05/09/07	ADD	EPA200.8
Nickel, ug/l	< 50	< 50	< 50	< 50	< 50	05/11/07	ADD	EPA200.8
Selenium, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Silver, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Thallium, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0	05/09/07	ADD	EPA200.8
Vanadium, ug/l	< 25	< 25	< 25	< 25	< 25	05/11/07	ADD	EPA200.8
Zinc, ug/l	11	13	15	19	< 10	05/11/07	ADD	EPA200.8
Turbidity, NTU	50	33	27	14	33	05/02/07	MDM	SM2130B
Conductivity (at 25c), uMhos	78	89	125	63	153	05/02/07	RJH	SM2510B
Temperature, °C	18	17	16	16	17	05/02/07	RJH	SM2550B
Static Water Level, feet	26.03	15.68	5.80	4.33	15.94	05/02/07	RJH	
Well Depth, feet	65.18	30.21	25.12	20.21	40.14	05/02/07	RJH	
Water Bailed, Gals.	19.2	6.9	9.3	7.2	11.7	05/02/07	RJH	

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 B

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/02/07
DATE REPORTED : 05/21/07

REVIEWED BY:

PARAMETERS	MW-6	MW-7B	MW-8	MW-9	MW-10	Analysis Date	Analyst	Method Code
PH (field measurement), Units	4.6	4.7	4.4	5.2	5.5	05/02/07	RJH	SM4500HB
Antimony, ug/l	<6.0	<6.0	<6.0	<6.0	<6.0	05/11/07	ADD	EPA200.8
Arsenic, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Barium, ug/l	148	341				05/17/07	LFJ	EPA200.8
Barium, ug/l			< 100	103	< 100	05/11/07	ADD	EPA200.8
Beryllium, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	05/11/07	ADD	EPA200.8
Cadmium, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	05/11/07	ADD	EPA200.8
Cobalt, ug/l	28	25	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Copper, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Total Chromium, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Lead, ug/l	< 10	14	< 10	< 10	< 10	05/09/07	ADD	EPA200.8
Nickel, ug/l	< 50	< 50	< 50	< 50	< 50	05/11/07	ADD	EPA200.8
Selenium, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Silver, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Thallium, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0	05/09/07	ADD	EPA200.8
Vanadium, ug/l	< 25	< 25	< 25	< 25	< 25	05/11/07	ADD	EPA200.8
Zinc, ug/l	< 10	< 10	< 10	< 10	19	05/11/07	ADD	EPA200.8
Turbidity, NTU	60	20	3.8	80	75	05/02/07	MDM	SM2130B
Conductivity (at 25c), uMhos	184	179	115	186	191	05/02/07	RJH	SM2510B
Temperature, °C	17	18	17	17	17	05/02/07	RJH	SM2550B
Static Water Level, feet	16.85	25.01	16.56	25.41	20.84	05/02/07	RJH	
Well Depth, feet	19.34	30.23	25.22	32.74	26.30	05/02/07	RJH	
Water Bailed, Gals.	1.2	2.4	3.9	3.6	2.4	05/02/07	RJH	

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 B

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/02/07
DATE REPORTED : 05/21/07

REVIEWED BY:

PARAMETERS	MW-31	Equipment Blank	Trip Blank	Analysis Date	Analyst	Method Code
PH (field measurement), Units	5.4			05/02/07	RJH	SM4500HB
Antimony, ug/l	<6.0			05/11/07	ADD	EPA200.8
Antimony, ug/l		<6.0		05/17/07	LFJ	EPA200.8
Arsenic, ug/l	< 10			05/11/07	ADD	EPA200.8
Arsenic, ug/l		< 10		05/17/07	LFJ	EPA200.8
Barium, ug/l	< 100			05/11/07	ADD	EPA200.8
Barium, ug/l		< 100		05/17/07	LFJ	EPA200.8
Beryllium, ug/l	<1.0			05/11/07	ADD	EPA200.8
Beryllium, ug/l		<1.0		05/17/07	LFJ	EPA200.8
Cadmium, ug/l	<1.0			05/11/07	ADD	EPA200.8
Cadmium, ug/l		<1.0		05/17/07	LFJ	EPA200.8
Cobalt, ug/l	< 10			05/11/07	ADD	EPA200.8
Cobalt, ug/l		< 10		05/17/07	LFJ	EPA200.8
Copper, ug/l	< 10			05/11/07	ADD	EPA200.8
Copper, ug/l		< 10		05/17/07	LFJ	EPA200.8
Total Chromium, ug/l	< 10			05/11/07	ADD	EPA200.8
Total Chromium, ug/l		< 10		05/17/07	LFJ	EPA200.8
Lead, ug/l	< 10			05/09/07	ADD	EPA200.8
Lead, ug/l		< 10		05/17/07	LFJ	EPA200.8
Nickel, ug/l	< 50			05/11/07	ADD	EPA200.8
Nickel, ug/l		< 50		05/17/07	LFJ	EPA200.8
Selenium, ug/l	< 10			05/11/07	ADD	EPA200.8
Selenium, ug/l		< 10		05/17/07	LFJ	EPA200.8
Silver, ug/l	< 10			05/11/07	ADD	EPA200.8
Silver, ug/l		< 10		05/17/07	LFJ	EPA200.8
Thallium, ug/l	<5.0			05/09/07	ADD	EPA200.8
Thallium, ug/l		<5.0		05/17/07	LFJ	EPA200.8
Vanadium, ug/l	< 25			05/11/07	ADD	EPA200.8
Vanadium, ug/l		< 25		05/17/07	LFJ	EPA200.8
Zinc, ug/l	17			05/11/07	ADD	EPA200.8
Zinc, ug/l		< 10		05/17/07	LFJ	EPA200.8
Turbidity, NTU	80			05/02/07	MDM	SM2130B
Conductivity (at 25c), uMhos	25			05/02/07	RJH	SM2510B

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 B

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/02/07
DATE REPORTED : 05/21/07

REVIEWED BY:

PARAMETERS	MW-31	Equipment Blank	Trip Blank	Analysis Date	Analyst	Method Code
Temperature, °C	19			05/02/07	RJH	SM2550B
Static Water Level, feet	22.56			05/02/07	RJH	
Well Depth, feet	39.33			05/02/07	RJH	
Water Bailed, Gals.	7.8			05/02/07	RJH	

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON, NC 27546

CLIENT ID: 6040 B

ANALYST: MAO
DATE COLLECTED: 05/02/07
DATE REPORTED: 05/21/07

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

Date Analyzed: / PARAMETERS, ug/l	05/11/07 MW-1	05/12/07 MW-2	05/12/07 MW-3R	05/14/07 MW-4	05/14/07 MW-5
1. Chloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
2. Vinyl Chloride	<5.00	<5.00	<5.00	<5.00	<5.00
3. Bromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
4. Chloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00	<100.00	<100.00
10. Methylene Chloride	<5.00	<5.00	<5.00	<5.00	<5.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
15. 2-Butanone	<100.00	<100.00	<100.00	<100.00	<100.00
16. Bromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
17. Chloroform	<5.00	<5.00	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<5.00	<5.00	<5.00	<5.00	<5.00
20. Benzene	<3.00	<3.00	<3.00	<3.00	<3.00
21. 1,2-Dichloroethane	<3.00	<3.00	<3.00	<3.00	<3.00
22. Trichloroethene	<3.00	<3.00	<3.00	<3.00	<3.00
23. 1,2-Dichloropropane	<3.00	<3.00	<3.00	<3.00	<3.00
24. Bromodichloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
25. Cis-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
30. Tetrachloroethene	<3.00	<3.00	<3.00	<3.00	<3.00
31. 2-Hexanone	<50.00	<50.00	<50.00	<50.00	<50.00
32. Dibromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
33. 1,2-Dibromoethane	<3.00	<3.00	<3.00	<3.00	<3.00
34. Chlorobenzene	<3.00	<3.00	<3.00	<3.00	<3.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00	<5.00	<5.00
37. Xylenes	<4.00	<4.00	<4.00	<4.00	<4.00
38. Dibromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00	<10.00	<10.00
40. Bromoform	<3.00	<3.00	<3.00	<3.00	<3.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<8.00	<8.00	<8.00	<8.00	<8.00
43. 1,4-Dichlorobenzene	<3.00	<3.00	<3.00	<3.00	<3.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<13.00	<13.00	<13.00	<13.00	<13.00
46. Acrylonitrile	<200.00	<200.00	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00	<100.00	<100.00

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON, NC 27546

CLIENT ID: 6040 B

ANALYST: MAO
DATE COLLECTED: 05/02/07
DATE REPORTED: 05/21/07

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

Date Analyzed: / PARAMETERS, ug/l	05/14/07 MW-6	05/14/07 MW-7B	05/14/07 MW-8	05/14/07 MW-9	05/14/07 MW-10
1. Chloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
2. Vinyl Chloride	8.00	5.00	<5.00	9.10	<5.00
3. Bromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
4. Chloroethane	<5.00	10.50	<5.00	13.00	<5.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00	<100.00	<100.00
10. Methylene Chloride	8.80	74.50	48.40	64.20	14.40
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	13.90	153.00	49.10	74.70	10.90
13. Vinyl Acetate	<50.00	<50.00	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	12.60	6.00	7.00	5.70	16.50
15. 2-Butanone	<100.00	<100.00	<100.00	<100.00	<100.00
16. Bromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
17. Chloroform	<5.00	<5.00	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<5.00	<5.00	<5.00	<5.00	<5.00
20. Benzene	<3.00	4.70	<3.00	5.00	4.60
21. 1,2-Dichloroethane	<3.00	<3.00	<3.00	<3.00	<3.00
22. Trichloroethene	7.70	8.80	4.00	4.70	<3.00
23. 1,2-Dichloropropane	<3.00	<3.00	<3.00	<3.00	<3.00
24. Bromodichloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
25. Cis-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
30. Tetrachloroethene	6.90	<3.00	5.00	<3.00	<3.00
31. 2-Hexanone	<50.00	<50.00	<50.00	<50.00	<50.00
32. Dibromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
33. 1,2-Dibromoethane	<3.00	<3.00	<3.00	<3.00	<3.00
34. Chlorobenzene	<3.00	<3.00	<3.00	11.10	3.40
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00	<5.00	<5.00
37. Xylenes	<4.00	4.80	<4.00	<4.00	<4.00
38. Dibromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00	<10.00	<10.00
40. Bromoform	<3.00	<3.00	<3.00	<3.00	<3.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<8.00	<8.00	<8.00	<8.00	<8.00
43. 1,4-Dichlorobenzene	3.20	<3.00	<3.00	<3.00	<3.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<13.00	<13.00	<13.00	<13.00	<13.00
46. Acrylonitrile	<200.00	<200.00	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00	<100.00	<100.00

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON, NC 27546

CLIENT ID: 6040 B

ANALYST: MAO
DATE COLLECTED: 05/02/07
DATE REPORTED: 05/21/07

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

Date Analyzed: / PARAMETERS, ug/l	05/14/07 MW-31	05/14/07 Equipment Blank	05/14/07 Trip Blank
1. Chloromethane	<5.00	<5.00	<5.00
2. Vinyl Chloride	<5.00	<5.00	<5.00
3. Bromomethane	<10.00	<10.00	<10.00
4. Chloroethane	<5.00	<5.00	<5.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00
10. Methylene Chloride	<5.00	<5.00	<5.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	<5.00	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00
15. 2-Butanone	<100.00	<100.00	<100.00
16. Bromochloromethane	<3.00	<3.00	<3.00
17. Chloroform	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<5.00	<5.00	<5.00
20. Benzene	<3.00	<3.00	<3.00
21. 1,2-Dichloroethane	<3.00	<3.00	<3.00
22. Trichloroethene	<3.00	<3.00	<3.00
23. 1,2-Dichloropropane	<3.00	<3.00	<3.00
24. Bromodichloromethane	<3.00	<3.00	<3.00
25. Cis-1,3-Dichloropropene	<5.00	<5.00	<5.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<5.00	<5.00	<5.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00
30. Tetrachloroethene	<3.00	<3.00	<3.00
31. 2-Hexanone	<50.00	<50.00	<50.00
32. Dibromochloromethane	<3.00	<3.00	<3.00
33. 1,2-Dibromoethane	<3.00	<3.00	<3.00
34. Chlorobenzene	<3.00	<3.00	<3.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00
37. Xylenes	<4.00	<4.00	<4.00
38. Dibromomethane	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00
40. Bromoform	<3.00	<3.00	<3.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<8.00	<8.00	<8.00
43. 1,4-Dichlorobenzene	<3.00	<3.00	<3.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<13.00	<13.00	<13.00
46. Acrylonitrile	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00

Environment 1, Inc.
P.O. Box 7085; 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

Page 1 of 2

CLIENT: 6040 B **Week: 18**

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON NC 27546

(919) 233-0407

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Turbidity	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2
							6					2	2	2
						P	P	P	P	P		G	G	G
						A	B	A	A	A		E	E	E
MW-1	05 02 07	0755		18	6	G	G	G	G	G	G	G	G	G
MW-2	05 02 07	0825		17	5	G	G	G	G	G	G	G	G	
MW-3R	05 02 07	0840		16	5	G	G	G	G	G	G	G	G	
MW-4	05 02 07	0845		16	5	G	G	G	G	G	G	G	G	
MW-5	05 02 07	0850		17	5	G	G	G	G	G	G	G	G	
MW-6	05 02 07	0810		17	5	G	G	G	G	G	G	G	G	
MW-7B	05 02 07	0745		18	5	G	G	G	G	G	G	G	G	
MW-8	05 02 07	0805		17	5	G	G	G	G	G	G	G	G	
MW-9	05 02 07	0740		17	5	G	G	G	G	G	G	G	G	
MW-10	05 02 07	0735		17	5	G	G	G	G	G	G	G	G	
MW-31	05 02 07	1040		19	6	G	G	G	G	G	G	G	G	G

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob Hoge	05 02 07 1:00	[illegible]	5/2/07 1:00
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

PARAMETERS

A - NONE
B - HNO_3
C - H_2SO_4
D - NAOH
E - HCL
F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
- ☐ WASTEWATER (NPDES)
- ☐ DRINKING WATER
- ☐ DWQ/GW
- ☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
Y N

SAMPLES COLLECTED BY: (Please Print) H Hoge / Fot

SAMPLES RECEIVED IN LAB AT 3.2 °C

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 151546

Environment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6040 B **Week: 18**

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON NC 27546

(919) 233-0407

DISINFECTION
- [x] CHLORINE
- [ ] UV
- [ ] NONE
- [ ] _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Turbidity	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2
CHLORINE NEUTRALIZED AT COLLECTION														
pH CHECK (LAB)							L2					12	12	
CONTAINER TYPE, P/G						P	P	P	P	P		G	G	G
CHEMICAL PRESERVATION						A	B	A	A	A		E	E	E
Equipment Blank	05 0207				3		[x]					[x]	[x]	
Trip Blank					2							[x]	[x]	

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
- [ ] WASTEWATER (NPDES)
- [ ] DRINKING WATER
- [ ] DWQ/GW
- [x] SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY: Y (circled) N

SAMPLES COLLECTED BY: (Please Print) [illegible]

SAMPLES RECEIVED IN LAB AT 3.2 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob H Page	05 0207	[illegible]	5/2/07 1:00
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 151545

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 C

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/02/07
DATE REPORTED : 05/21/07

REVIEWED BY:

PARAMETERS	MW-16	MW23-B	MW-32	MW-33	MW-34	Analysis Date	Analyst	Method Code
PH (field measurement), Units	6.3	5.4	6.2	4.9	5.7	05/02/07	RJH	SM4500HB
Arsenic, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Barium, ug/l	< 100	< 100	< 100	< 100	< 100	05/11/07	ADD	EPA200.8
Cadmium, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	05/11/07	ADD	EPA200.8
Total Chromium, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Lead, ug/l	< 10	< 10	11	< 10	< 10	05/09/07	ADD	EPA200.8
Mercury, ug/l	<0.2	<0.2	<0.2	<0.2	<0.2	05/11/07	ADD	EPA200.8
Selenium, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Silver, ug/l	< 10	< 10	< 10	< 10	< 10	05/11/07	ADD	EPA200.8
Turbidity, NTU	23	39	290	8.8	10	05/02/07	MDM	SM2130B
Conductivity (at 25c), uMhos	194	42	49	77	80	05/02/07	RJH	SM2510B
Temperature, °C	16	16	17	16	16	05/02/07	RJH	SM2550B
Static Water Level, feet	8.40	6.28	5.10	8.90	4.77	05/02/07	RJH	
Well Depth, feet	45.23	24.55	24.55	26.43	40.23	05/02/07	RJH	
Water Bailed, Gals.	17.7	8.7	9.3	8.4	17.4	05/02/07	RJH	

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 C

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/02/07
DATE REPORTED : 05/21/07

REVIEWED BY:

PARAMETERS	MW-35	Analysis Date	Analyst	Method Code
PH (field measurement), Units	5.7	05/02/07	RJH	SM4500HB
Arsenic, ug/l	< 10	05/11/07	ADD	EPA200.8
Barium, ug/l	132	05/11/07	ADD	EPA200.8
Cadmium, ug/l	<1.0	05/11/07	ADD	EPA200.8
Total Chromium, ug/l	< 10	05/11/07	ADD	EPA200.8
Lead, ug/l	< 10	05/09/07	ADD	EPA200.8
Mercury, ug/l	<0.2	05/11/07	ADD	EPA200.8
Selenium, ug/l	< 10	05/11/07	ADD	EPA200.8
Silver, ug/l	< 10	05/11/07	ADD	EPA200.8
Turbidity, NTU	130	05/02/07	MDM	SM2130B
Conductivity (at 25c), uMhos	222	05/02/07	RJH	SM2510B
Temperature, °C	15	05/02/07	RJH	SM2550B
Static Water Level, feet	6.01	05/02/07	RJH	
Well Depth, feet	22.15	05/02/07	RJH	
Water Bailed, Gals.	7.8	05/02/07	RJH	

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON, NC 27546

REVIEWED BY:

CLIENT ID: 6040 C

ANALYST: MAO
DATE COLLECTED: 05/02/07
DATE ANALYZED: 05/14/07
DATE REPORTED: 05/21/07

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MW-16	MW23-B	MW-32	MW-33	MW-34
1. Chloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
2. Vinyl Chloride	<5.00	<5.00	<5.00	<5.00	<5.00
3. Bromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
4. Chloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00	<100.00	<100.00
10. Methylene Chloride	<5.00	<5.00	<5.00	<5.00	<5.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
15. 2-Butanone	<100.00	<100.00	<100.00	<100.00	<100.00
16. Bromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
17. Chloroform	<5.00	<5.00	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<5.00	<5.00	<5.00	<5.00	<5.00
20. Benzene	<3.00	<3.00	<3.00	<3.00	<3.00
21. 1,2-Dichloroethane	<3.00	<3.00	<3.00	<3.00	<3.00
22. Trichloroethene	<3.00	<3.00	<3.00	<3.00	<3.00
23. 1,2-Dichloropropane	<3.00	<3.00	<3.00	<3.00	<3.00
24. Bromodichloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
25. Cis-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
30. Tetrachloroethene	<3.00	<3.00	<3.00	<3.00	<3.00
31. 2-Hexanone	<50.00	<50.00	<50.00	<50.00	<50.00
32. Dibromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
33. 1,2-Dibromoethane	<3.00	<3.00	<3.00	<3.00	<3.00
34. Chlorobenzene	<3.00	<3.00	<3.00	<3.00	<3.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00	<5.00	<5.00
37. Xylenes	<4.00	<4.00	<4.00	<4.00	<4.00
38. Dibromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00	<10.00	<10.00
40. Bromoform	<3.00	<3.00	<3.00	<3.00	<3.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<8.00	<8.00	<8.00	<8.00	<8.00
43. 1,4-Dichlorobenzene	<3.00	<3.00	<3.00	<3.00	<3.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<13.00	<13.00	<13.00	<13.00	<13.00
46. Acrylonitrile	<200.00	<200.00	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00	<100.00	<100.00

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON, NC 27546

CLIENT ID: 6040 C

ANALYST: MAO
DATE COLLECTED: 05/02/07
DATE ANALYZED: 05/14/07
DATE REPORTED: 05/21/07

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MW-35
1. Chloromethane	<5.00
2. Vinyl Chloride	<5.00
3. Bromomethane	<10.00
4. Chloroethane	<5.00
5. Trichlorofluoromethane	<5.00
6. 1,1-Dichloroethene	<5.00
7. Acetone	<100.00
8. Iodomethane	<10.00
9. Carbon Disulfide	<100.00
10. Methylene Chloride	<5.00
11. trans-1,2-Dichloroethene	<5.00
12. 1,1-Dichloroethane	<5.00
13. Vinyl Acetate	<50.00
14. Cis-1,2-Dichloroethene	<5.00
15. 2-Butanone	<100.00
16. Bromochloromethane	<3.00
17. Chloroform	<5.00
18. 1,1,1-Trichloroethane	<5.00
19. Carbon Tetrachloride	<5.00
20. Benzene	<3.00
21. 1,2-Dichloroethane	<3.00
22. Trichloroethene	<3.00
23. 1,2-Dichloropropane	<3.00
24. Bromodichloromethane	<3.00
25. Cis-1,3-Dichloropropene	<5.00
26. 4-Methyl-2-Pentanone	<100.00
27. Toluene	<5.00
28. trans-1,3-Dichloropropene	<5.00
29. 1,1,2-Trichloroethane	<5.00
30. Tetrachloroethene	<3.00
31. 2-Hexanone	<50.00
32. Dibromochloromethane	<3.00
33. 1,2-Dibromoethane	<3.00
34. Chlorobenzene	<3.00
35. 1,1,1,2-Tetrachloroethane	<5.00
36. Ethylbenzene	<5.00
37. Xylenes	<4.00
38. Dibromomethane	<10.00
39. Styrene	<10.00
40. Bromoform	<3.00
41. 1,1,2,2-Tetrachloroethane	<5.00
42. 1,2,3-Trichloropropane	<8.00
43. 1,4-Dichlorobenzene	<3.00
44. 1,2-Dichlorobenzene	<5.00
45. 1,2-Dibromo-3-Chloropropane	<13.00
46. Acrylonitrile	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00

Environment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6040 C **Week: 18**

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON NC 27546

(919) 233-0407

DISINFECTION
- [ ] CHLORINE
- [ ] UV
- [ ] NONE
- [ ] _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Turbidity	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2
							L2					L2	L2	L2
						P	P	P	P	P		G	G	G
						A	B	A	A	A		E	E	E
MW-16	05 0207	0910		16	6	G	G	G	G	G	G	G	G	G
MW23-B	05 0207	1005		16	5	G	G	G	G	G	G	G	G	
MW-32	05 0207	0900		17	5	G	G	G	G	G	G	G	G	
MW-33	05 0207	0925		16	5	G	G	G	G	G	G	G	G	
MW-34	05 0207	0930		16	5	G	G	G	G	G	G	G	G	
MW-35	05 0207	0915		15	5	G	G	G	G	G	G	G	G	

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

PARAMETERS

A - NONE
B - HNO_3
C - H_2SO_4
D - NAOH
E - HCL
F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
- [ ] WASTEWATER (NPDES)
- [ ] DRINKING WATER
- [ ] DWQ/GW
- [X] SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
Y N

SAMPLES COLLECTED BY: (Please Print)
H Lapel Fox

SAMPLES RECEIVED IN LAB AT 3.2 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob Wagel 05	0207	[signature]	5/2/07 1:00
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 151544

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6040 F

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON ,NC 27546

DATE COLLECTED: 05/02/07
DATE REPORTED : 05/21/07

REVIEWED BY:

PARAMETERS	MW-11	MW-12	MW-13	MW-14	MW-15	Analysis Date	Analyst	Method Code
PH (field measurement), Units	5.0	5.2	6.6	5.9	5.1	05/02/07	RJH	SM4500HB
Antimony, ug/l	<6.0	<6.0	<6.0	<6.0	<6.0	05/17/07	LFJ	EPA200.8
Arsenic, ug/l	< 10	< 10	< 10	< 10	< 10	05/17/07	LFJ	EPA200.8
Barium, ug/l	< 100	< 100	< 100	< 100	< 100	05/17/07	LFJ	EPA200.8
Beryllium, ug/l	<1.0	1	<1.0	<1.0	<1.0	05/17/07	LFJ	EPA200.8
Cadmium, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	05/17/07	LFJ	EPA200.8
Cobalt, ug/l	< 10	< 10	< 10	< 10	< 10	05/17/07	LFJ	EPA200.8
Copper, ug/l	< 10	< 10	< 10	< 10	< 10	05/17/07	LFJ	EPA200.8
Total Chromium, ug/l	< 10	< 10	< 10	< 10	< 10	05/17/07	LFJ	EPA200.8
Lead, ug/l	< 10	< 10	< 10	< 10	< 10	05/17/07	LFJ	EPA200.8
Nickel, ug/l	< 50	< 50	< 50	< 50	< 50	05/17/07	LFJ	EPA200.8
Selenium, ug/l	< 10	< 10	< 10	< 10	< 10	05/17/07	LFJ	EPA200.8
Silver, ug/l	< 10	< 10	< 10	< 10	< 10	05/17/07	LFJ	EPA200.8
Thallium, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0	05/17/07	LFJ	EPA200.8
Vanadium, ug/l	< 25	< 25	< 25	< 25	< 25	05/17/07	LFJ	EPA200.8
Zinc, ug/l	< 10	13	12	12	< 10	05/17/07	LFJ	EPA200.8
Turbidity, NTU	160	150	33	55	60	05/02/07	MDM	SM2130B
Conductivity (at 25c), uMhos	35	84	162	100	24	05/02/07	RJH	SM2510B
Temperature, °C	17	17	17	17	15	05/02/07	RJH	SM2550B
Static Water Level, feet	19.05	6.25	24.91	7.30	9.60	05/02/07	RJH	
Well Depth, feet	27.60	22.53	50.56	29.92	14.55	05/02/07	RJH	

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON, NC 27546

CLIENT ID: 6040 F

ANALYST: MAO
DATE COLLECTED: 05/02/07
DATE REPORTED: 05/21/07

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

Date Analyzed: / PARAMETERS, ug/l	05/14/07 MW-11	05/14/07 MW-12	05/14/07 MW-13	05/15/07 MW-14	05/15/07 MW-15
1. Chloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
2. Vinyl Chloride	<5.00	<5.00	<5.00	<5.00	<5.00
3. Bromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
4. Chloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00	<100.00	<100.00
10. Methylene Chloride	<5.00	<5.00	<5.00	<5.00	<5.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
15. 2-Butanone	<100.00	<100.00	<100.00	<100.00	<100.00
16. Bromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
17. Chloroform	<5.00	<5.00	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<5.00	<5.00	<5.00	<5.00	<5.00
20. Benzene	<3.00	<3.00	<3.00	<3.00	<3.00
21. 1,2-Dichloroethane	<3.00	<3.00	<3.00	<3.00	<3.00
22. Trichloroethene	<3.00	<3.00	<3.00	<3.00	<3.00
23. 1,2-Dichloropropane	<3.00	<3.00	<3.00	<3.00	<3.00
24. Bromodichloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
25. Cis-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
30. Tetrachloroethene	<3.00	<3.00	<3.00	<3.00	<3.00
31. 2-Hexanone	<50.00	<50.00	<50.00	<50.00	<50.00
32. Dibromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
33. 1,2-Dibromoethane	<3.00	<3.00	<3.00	<3.00	<3.00
34. Chlorobenzene	<3.00	<3.00	<3.00	<3.00	<3.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00	<5.00	<5.00
37. Xylenes	<4.00	<4.00	<4.00	<4.00	<4.00
38. Dibromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00	<10.00	<10.00
40. Bromoform	<3.00	<3.00	<3.00	<3.00	<3.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<8.00	<8.00	<8.00	<8.00	<8.00
43. 1,4-Dichlorobenzene	<3.00	<3.00	<3.00	<3.00	<3.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<13.00	<13.00	<13.00	<13.00	<13.00
46. Acrylonitrile	<200.00	<200.00	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00	<100.00	<100.00

Environment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6040 F **Week: 18**

HARNETT CO. (DUNN/ERWIN)
GENERAL SERVICES HARNETT CO.
MR. JERRY BLANCHARD, MANAGER
900 SOUTH 9TH STREET
LILLINGTON NC 27546

(919) 233-0407

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Turbidity	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2
CHLORINE NEUTRALIZED AT COLLECTION														
pH CHECK (LAB)						12						12	12	12
CONTAINER TYPE, P/G						P	P	P	P	P		G	G	G
CHEMICAL PRESERVATION (PARAMETERS)						A	B	A	A	A		E	E	E
MW-11	05 02 07	0940		17	6	G	G	G	G	G	G	G	G	G
MW-12	05 02 07	0950		17	5	G	G	G	G	G	G	G	G	
MW-13	05 02 07	0945		17	5	G	G	G	G	G	G	G	G	
MW-14	05 02 07	1010		17	5	G	G	G	G	G	G	G	G	
MW-15	05 02 07	1015		15	5	G	G	G	G	G	G	G	G	

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION (PARAMETERS)

A - NONE
B - HNO_3
C - H_2SO_4
D - NAOH
E - HCL
F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:

- ☐ WASTEWATER (NPDES)
- ☐ DRINKING WATER
- ☐ DWQ/GW
- ☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY: Y N

SAMPLES COLLECTED BY: (Please Print) W Page / F a

SAMPLES RECEIVED IN LAB AT 3.2 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob W Page	05 02 07	[signature]	5/2/07 12:00
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 151733

Table 2
Harnett County Dunn-Erwin Landfill
Groundwater Velocity Data
Based on Groundwater Gradients Estimated for the October 1995 Sampling Event

Shallow Wells								Estimated Velocities* (cm/s)			
	K (cm/sec)*		n values*				i*, Oct. 95	=(1)*i/(3)	=(1)*i/(4)	=(2)*i/(5)	=(2)*i/(6)
MW	Note Ref. (1)	(2)	(3)	(4)	(5)	(6)	(7)	(a)	(b)	(c)	(d)
MW1	7.9E-07	1.0E-03	0.1	0.2	0.3	0.4	3.3E-02	2.6E-07	1.3E-07	1.1E-04	8.3E-05
MW2	3.5E-05	1.0E-03	0.1	0.2	0.3	0.4	4.0E-02	1.4E-05	7.0E-06	1.3E-04	1.0E-04
MW3	1.2E-05	1.0E-03	0.1	0.2	0.3	0.4	8.0E-02	9.2E-06	4.6E-06	2.7E-04	2.0E-04
MW4	1.2E-05	1.0E-03	0.1	0.2	0.3	0.4	8.0E-02	9.9E-06	5.0E-06	2.7E-04	2.0E-04
MW5	4.0E-05	1.0E-03	0.1	0.2	0.3	0.4	1.0E-01	4.0E-05	2.0E-05	3.3E-04	2.5E-04
MW6	3.5E-05	1.0E-03	0.1	0.2	0.3	0.4	8.0E-02	2.8E-05	1.4E-05	2.7E-04	2.0E-04
MW7B	NA	1.0E-03	0.1	0.2	0.3	0.4	1.0E-02	NA	NA	3.3E-05	2.5E-05
MW8	2.0E-06	1.0E-03	0.1	0.2	0.3	0.4	1.3E-02	2.5E-07	1.3E-07	4.2E-05	3.1E-05
MW9	8.6E-04		0.25				1.5E-02	5.2E-05			
MW10	3.0E-06		0.25				1.7E-02	2.0E-07			
MW11	2.5E-05		NA				NA	NA			
MW12	2.3E-05		NA				NA	NA			
MW13	5.5E-06		NA				NA	NA			
MW14	7.4E-07		NA				NA	NA			
MW15	2.2E-05		NA				NA	NA			
MW16	7.3E-08	1.0E-03	0.1	0.2	0.3	0.4	NA	NA	NA	NA	NA
MW23B	2.8E-04	1.0E-03	0.1	0.2	0.3	0.4	2.0E-02	5.6E-05	2.8E-05	6.7E-05	5.0E-05
MW31	3.2E-06	1.0E-03	0.1	0.2	0.3	0.4	2.5E-02	8.0E-07	4.0E-07	8.3E-05	6.3E-05
MW32	2.9E-06	1.0E-03	0.1	0.2	0.3	0.4	NA	NA	NA	NA	NA
MW33	4.1E-06	1.0E-03	0.1	0.2	0.3	0.4	NA	NA	NA	NA	NA
MW34	NA	NA	0.1	0.2	0.3	0.4	NA	NA	NA	NA	NA
MW35	NA	NA	0.1	0.2	0.3	0.4	NA	NA	NA	NA	NA

*** Equation** **V=Ki/n (cm/sec)**

Where V = Mean groundwater velocity as calculated by the above equation
i= Hydraulic gradient (unitless), see note (7)
n = Effective porosity (unitless), see notes (3) through (6)
k = hydraulic conductivity, see notes (1) and (2)

Notes:

NA refers to wells where data is unavailable
(1) In situ hydraulic conductivity as estimated by Withers and Ravenel, "Evaluation of Groundwater Flow and Direction", November 1994
(2) In situ site hydraulic conductivity as estimated for "Field Investigation of Contaminant Plume", October 1996, except
MW9 and MW10 installed in March 2001, for which values are obtained from the Titan report.
MW11 - MW15 calculated by ENSOL, Inc., August 2006 (based on slug tests).
(3) Estimated as the lower limit for effective porosity, n, by Withers and Ravenel, Evaluation of Groundwater Flow and Direction, November 199
(4) Estimated as the upper limit for effective porosity, n, by Withers and Ravenel, Evaluation of Groundwater Flow and Direction, November 19
(5) Lower limit of effective porosity estimation in "Field Investigation of Contaminant Plume", October 1996.
(6) Upper limit of effective porosity estimation in "Field Investigation of Contaminant Plume", October 1996.
(7) Hydraulic gradient as estimated from groundwater contours based on groundwater data sampled in October 1995.

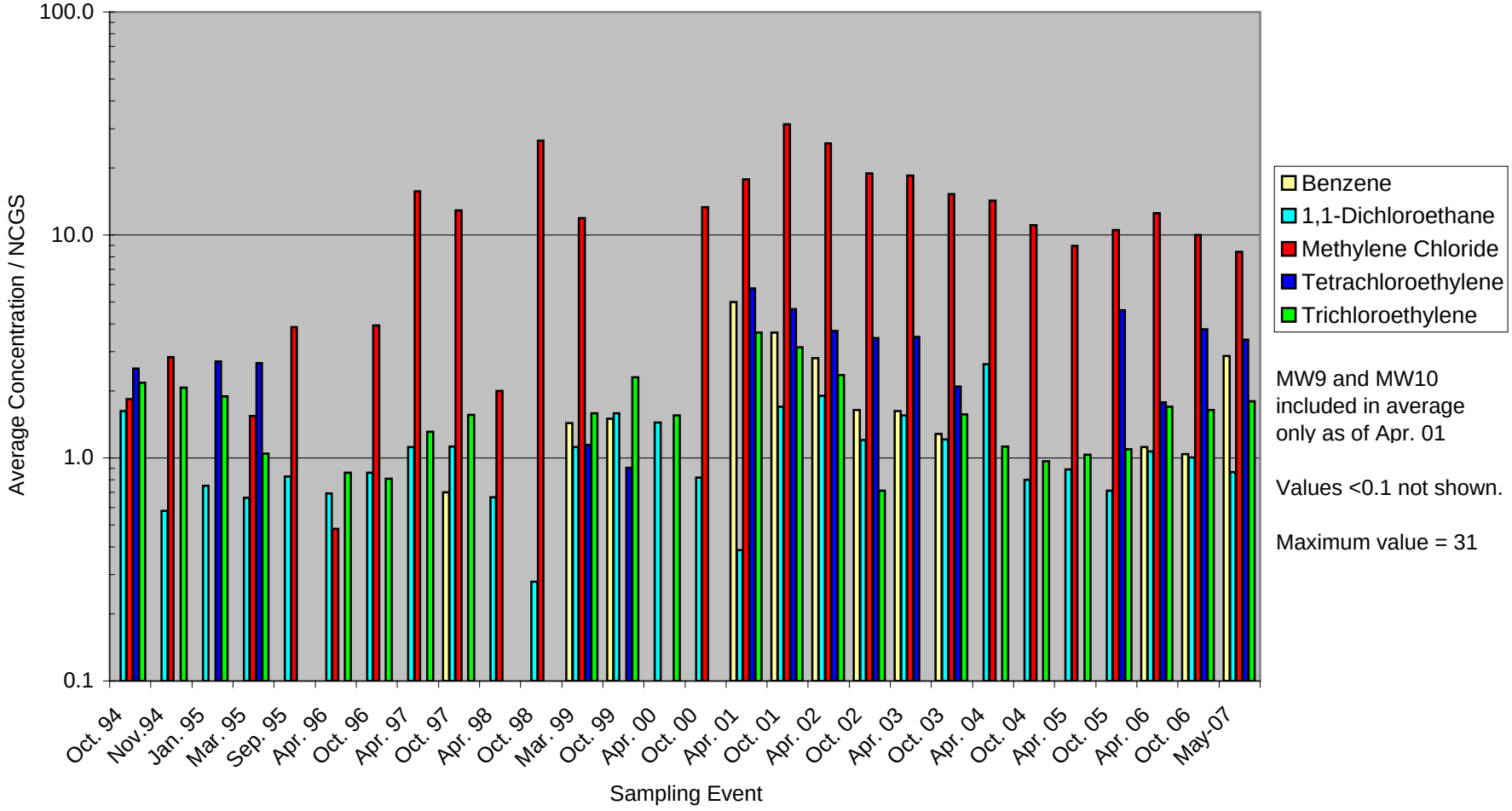
(a) Velocity as estimated using Withers and Ravenel estimated hydraulic conductivity (1), the lower limit for effective porosity (3), and the corresponding hydraulic gradient estimated from Figure 1.

(b) Velocity as estimated using Withers and Ravenel estimated hydraulic conductivity (1), the upper limit for effective porosity (4), and the corresponding hydraulic gradient estimated from Figure 1.

(c) Velocity as estimated using estimated hydraulic conductivity (2), the effective porosity (5), and the corresponding hydraulic gradient estimated from Figure 1.

(d) Velocity as estimated using estimated hydraulic conductivity (2), the effective porosity (6), and the corresponding hydraulic gradient estimated from Figure 1.

(e) For MW9 and MW10 installed in March 2001, velocity was computed for values obtained from the Titan report.

Figure 3

Top Five, NCGS-Normalized Average Organics Concentrations per Sampling Event
Averages for Select Downgradient Wells (Contaminant Plume Area)
MW6, MW7B, MW8, MW9, MW10
Dunn-Erwin Landfill, Harnett County