LIMITED PHASE II
ENVIRONMENTAL SITE ASSESSMENT
CELIA SITE, CAMP ROAD
NORTHERN ESCAMBIA COUNTY, FLORIDA

PREPARED FOR:

GULF POWER

Pensacola, Florida

PREPARED BY:

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090213-0300
MAY 2009

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1. INTRODUCTION

1.1 PROJECT BACKGROUND INFORMATION

Environmental Consulting & Technology, Inc. (ECT) was retained to conduct a limited phase II environmental site assessment (ESA) of a property owned by RMS Timberlands, L.L.C. (RMS, "subject property" or "subject site"). The subject property is located along Camp Road in northern Escambia County, Florida, 32535. As described in ECT's report *Phase I Environmental Site Assessment, Celia Site, Camp Road, Northern Escambia County, Florida* (dated March 2009), recognized environmental conditions (RECs) were identified associated with the northern adjacent, upgradient Camp Five Landfill and the northern adjacent, upgradient Escambia County Roads Department facility. The landfill has buried waste extending onto the northern portion of the subject site and has documented groundwater and surface water (Mitchell Creek and Camp Five Branch) impacts. The Escambia County Roads Department facility has a documented release of petroleum products, the extent of which is unknown. ECT recommended that surface water and groundwater samples be collected in the vicinity of Mitchell Creek, Camp Five Branch, and the northern portion of the subject property.

The objective of this limited phase II ESA is to investigate the presence or absence of impacts to groundwater and surface water due to the two identified northern adjacent facilities. This phase II ESA report is prepared for the use of and reliance by, Gulf Power Company ("Client"). The phase II ESA was conducted in accordance with generally accepted hydrogeologic and environmental practices.

1.2 PURPOSE AND SCOPE

The purpose of the limited phase II ESA is to investigate whether the land uses associated with the northern adjacent properties has resulted in surface water or groundwater impact to the subject property. The specific scope of services includes completion of the following tasks:

- Groundwater sample collection in the northern portion of the subject property, downgradient from the northern adjacent facilities, and in the vicinity of the proposed meteorological tower site;
- Documentation of field parameters, including dissolved oxygen (DO), oxygen-reduction potential (ORP), temperature, pH, conductivity, and turbidity, during groundwater sampling activities;
- Collection of surface water samples along Mitchell Creek and Camp Five Branch; and
- Preparation of a report describing the findings of the limited phase II ESA investigation.

The results of the limited phase II ESA investigation are provided in this report.

1.3 SITE LOCATION

The subject property is located along Camp Road in northern Escambia County, Florida. The subject property is approximately 1,640 acres in size and is located in Sections 19, 20, 28, 29, 30, and 32 of Township 5 north, Range 31 west. A site vicinity map is provided as Figure 1 and a site map is provided as Figure 2.

1.4 SITE FEATURES

The subject property is owned by RMS and consists of planted pines in various stages of growth. The topography of the subject property is highly variable. Mitchell Creek traverses the property from northwest to southeast. Numerous branches of Mitchell Creek, along with gullies and ravines, are located throughout the property. Cox Road defines portions of the southeastern boundary of the site and Camp Road traverses the northwestern portion of the site. Pine Barren Road is located along the western adjacent parcels and Old Bratt Road is located along the northern adjacent parcels. A petroleum pipeline underlies the southern portion of the subject site. Numerous unimproved, unpaved roadways are located throughout the subject property that provide access to

hunting stands and feed plots. No environmental concerns were identified associated with the past and current uses of the subject property as a result of the phase I ESA investigations.

2. GROUNDWATER AND SURFACE WATER SAMPLING AND ANALYSIS

Groundwater sample collection was performed in those areas that are most likely to detect potential impacts attributable to the RECs noted above and to identify whether or not a contaminant plume extends to an area north of the proposed meteorological tower. Surface water sample collection was conducted to identify the extent of impact from the adjacent landfill in the major streams in the area. The analytical parameters selected to evaluate surface water and groundwater conditions at the site are based on the known and likely constituents of concern associated with the adjacent RECs.

2.1 GROUNDWATER SAMPLING ACTIVITIES

On March 18-20, 2009, ECT utilized the services of Environmental and Geotechnical Specialists, Inc. (EGS) to use a direct push technology (DPT) drill rig to collect groundwater samples for laboratory analysis. Due to difficulties encountered in sample collection (discussed below), ECT remobilized to the subject site on April 7-9, 2009 to conduct monitoring well installation and additional groundwater sample collection. The monitoring well installation was performed using a hollow stem auger (HSA) drill rig operated by Universal Engineering Sciences (UES). Groundwater sample locations are depicted on Figure 3.

Sample locations GW-A through GW-J were identified as the initial sampling locations. Sample locations GW-K through GW-N were identified as contingent, to be sampled based on the field readings (specifically conductivity and ORP). If the field parameters indicated that any of the sample locations GW-E through GW-J were within the plume of documented impact from the northern adjacent Camp Five Landfill, then samples would be collected at the contingent locations GW-K through GW-N, to further assess the extent of the plume towards the proposed meteorological tower site. DPT work commenced on March 18, 2009 at groundwater sampling location GW-A. Groundwater was encountered at a depth of approximately 30 feet below land surface (ft-bls). A one-inch diameter

polyvinyl chloride (PVC) five-foot length screen point sampler was placed at a depth interval of 30-35 ft-bls for sample collection. Groundwater sample collection was attempted using ½-inch diameter polyethylene (PE) tubing, equipped with a check valve inserted onto the end. The tubing was lowered into the well screen sampler and then manually raised and lowered to create a gravity/pressure feed into the tube using the check (ball) valve. Fine silt was encountered at the site in the depth interval of the well screen. The silt clogged the check valve preventing sample collection. Subsequently, EGS ordered a bladder pump for delivery the following day, and continued to advance well screens at the additional locations. On March 19, 2009, EGS completed well screen point sampler advancement at all of the initially proposed locations GW-A through GW-J. Depth to groundwater at location GW-D, along Camp Road, was encountered at approximately 62 ft-bls, and the screen point sampler was advanced to approximately 68 ft-bls.

Sampling with the bladder pump commenced at location GW-E on March 19, 2009. Due to the amount of suspended silts in the groundwater and the bladder pump design, the sample flow rate was extremely slow and each location required approximately four hours to sample. Between March 19 and 20, three locations were sampled with the bladder pump (GW-B, GW-C, and GW-E). Due to the extremely slow pump rate, only one to two sets of field parameters were collected at these locations. Additionally, on March 20, two locations, GW-F and GW-J, were sampled using the tubing and check valve method. On March 20, sample collection at locations (GW-D and GW-G) was attempted using the tubing and check valve method, but only resulted in the collection of a small amount of silty mud. It was therefore determined that EGS would return the following week with an additional bladder pump as well as bailers to attempt to collect samples at the remaining locations. EGS returned to the site on March 24, 2009 and attempted to collect groundwater samples at the remaining locations. EGS was overseen by the Client's representatives. EGS was unsuccessful in collecting samples using either the bladder pumps or the bailers. EGS returned on the following day to remove all of the screen point samplers and grout the boreholes.

The analytical results from the first round of sampling (discussed below) detected groundwater impacts at the initial sampling locations. In addition, ORP readings were positive at all of the sampling locations and conductivity readings were elevated at locations GW-B, GW-C, and GW-E, indicating potential impact. Therefore, it was decided to conduct monitoring well installation activities at the four conditional sampling locations GW-K through GW-N, as well as location GW-D, along Camp Road. Monitoring well installation was conducted using a HSA drill rig, operated by UES and overseen by ECT personnel, on April 7-9, 2009. Monitoring wells were constructed using 2-inch diameter, flush-threaded Schedule 40 PVC riser, connected to 10 ft of 0.010-inch machine slotted screen. The annular space around the wells was filter packed with 30/45 graded silica sand to approximately two feet above the screened interval, sealed with approximately two feet of 30/65 graded silica fine sand, and completed with Portland fine cement grout. The wells were completed with two to three feet of aboveground stickup, and topped with locking, water-tight caps. Monitoring wells GW-D, GW-K, GW-L, GW-M, and GW-N were installed to total depths of 70, 37, 35, 42, and 58 ft-bls, respectively. Following installation, each well was developed for approximately ½-hour until the water ran relatively clear.

Groundwater sample collection from the temporary monitoring wells was conducted on April 8 and 9, 2009. Samples were collected using a Mega-Monsoon submersible pump and dedicated PE tubing. The wells were purged until a set of three consecutively consistent field readings were obtained as outlined in the Florida Department of Environmental Protection (FDEP) Standard Operating Procedures (DEP-SOP-001/01). The pump was decontaminated between wells using the procedures outlined in DEP-SOP-001/01.

Sample collection was successful at locations GW-B, GW- C, GW- D, GW-E, GW-F, GW-J, GW-K, GW-L, GW-M, and GW-N. After sample collection, the samples were

placed on ice and shipped to SunLabs, Inc. for analysis by the various analytical methods discussed below.

2.2 SURFACE WATER SAMPLING ACTIVITIES

Surface water sampling activities were conducted on March 20, 2009. Sampling was proposed at 12 locations located along Mitchell Creek, Camp Five Branch, and other tributaries, as depicted on Figure 4. Sample locations SW-1 and SW-8 were dry and, therefore, could not be sampled. Sample locations SW-4 and SW-12 were not sampled due to accessibility constraints.

Sample collection was successful at locations SW-2, SW-3, SW-5, SW-6, SW-7, SW-9, SW-10, and SW-11. After sample collection, the samples were placed on ice and shipped to SunLabs, Inc. for analysis for iron, total dissolved solids (TDS), biological oxygen demand (BOD), and chemical oxygen demand (COD).

3. GROUNDWATER AND SURFACE WATER SAMPLING ANALYTICAL RESULTS

The groundwater sampling analytical results are summarized in Table 1 and the complete laboratory analytical reports are provided as Appendix A. The groundwater sampling field parameters are summarized in Table 2. The surface water sampling analytical results are summarized in Table 3 and the complete laboratory analytical report is provided as Appendix B. The analytical results of the groundwater samples collected are compared to the applicable groundwater cleanup target levels (GCTLs) and natural attenuation default source concentrations (NADSCs), pursuant to Chapter 62-777 of the Florida Administrative Code (F.A.C.), Tables I and V, respectively. The analytical results of the surface water samples are compared to the applicable Surface Water Criteria, pursuant to Chapter 62-302.530, F.A.C. for Class III Waters and the Drinking Water Standards, pursuant to Chapter 63-550, F.A.C.

3.1 GROUNDWATER SAMPLING ANALYTICAL RESULTS

The groundwater sample collected from location GW-D was analyzed for volatile organic compounds (VOCs) by U. S. Environmental Protection Agency (EPA) method 8260, polynuclear aromatic hydrocarbon (PAHs) by EPA method 8270, total petroleum hydrocarbons (TPH) by the FL-PRO method, and for iron by EPA method 6010 in order to address the potential impacts from the documented release of petroleum products at the northern adjacent Escambia County Roads Department facility.

The groundwater samples collected from the remaining locations (GW-A, GW-B, and GW-C and GW-E through GW-N) were analyzed for the Resource Conservation and Recovery Act (RCRA) eight metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), iron, sodium, chlorides, nitrates, ammonia, TDS, total organic carbon (TOC), zinc, magnesium, and potassium. Sodium, chlorides, and nitrates were analyzed as "tracer" elements to assess the extent of groundwater contaminant plume

migration. Ammonia, TDS, TOC, zinc, magnesium, and potassium were analyzed due to the historic documented presence of these parameters in the existing monitoring wells used at and downgradient of the landfill. In addition, the groundwater sample collected from GW-C was analyzed for VOCs, PAHs, and TPH, to assess whether or not these constituents are present downgradient of the landfill.

The laboratory analytical results indicate that iron was detected at concentrations above the applicable GCTL at locations GW-B, GW-C, GW-D, GW-E, GW-F, GW-J, and GW-N. The concentration of iron exceeded the NADSC at locations GW-C, GW-D, GW-E (filtered only), GW-F, and GW-J (total only). The highest concentration of iron was detected at sampling location GW-F. Other exceedances are:

- Arsenic above the GCTL at location GW-F,
- Chromium above the GCTL at location GW-F,
- Mercury above the GCTL at location GW-F, and
- Nitrogen ammonia (as nitrogen) at location GW-J (no standard is established for this parameter; however, the observed concentration at GW-J was on average greater than 10 times the observed concentration in the other sampling locations).

Barium, chloride, nitrate-N, sodium, TDS, TOC, and zinc were detected in all of the samples collected (with several exceptions), at concentrations that were below the applicable GCTLs, with the highest concentrations generally observed at GW-F. Magnesium and Potassium were also detected in all of the samples collected, with the exception of Potassium at GW-M; however, no standards are established for these parameters. The remaining tested parameters were detected at concentrations below the laboratory's method detection limits (MDLs).

3.2 SURFACE WATER SAMPLING ANALYTICAL RESULTS

Surface water samples were analyzed for iron, TDS, BOD, and COD. The laboratory analytical results indicate that iron was detected above the applicable Class III surface water criteria in all of the sampling locations except locations SW-2 and SW-5. The concentrations of iron ranged from 680 micrograms per liter (ug/L) at location SW-5 to 2,900 ug/L at location SW-7. The highest BOD reading and the only location above the MDLs was at location SW-11. The TDS concentrations ranged from 60,000 ug/L at location SW-2 to 92,000 ug/L at locations SW-9 and SW-11. COD concentrations ranged from 8,130 ug/L at location SW-7 to 21,800 ug/L at location SW-3.

4. DISCUSSION

The scope of work conducted for this limited phase II ESA investigation was designed to evaluate the presence or absence of impacts to groundwater and surface water due to RECs associated with the northern adjacent facilities, as identified in ECT's March 2009 phase I ESA.

The groundwater analytical results indicate that sampling location GW-F is the most impacted, both in exhibiting the highest concentration of iron and in the additional parameters detected. This sampling location is in proximity to monitoring well MW-13 used by others to delineate the plume attributable to the landfill. The additional parameters arsenic, chromium, and mercury were not detected downgradient of location GW-F. A higher than anticipated concentration of iron was detected at location GW-J. Nitrogen ammonia was also detected at this location, at a concentration on average 10 times greater than that observed at other locations. It should be noted that the observed concentrations at GW-F and GW-J may be higher due to the check valve sampling method, resulting in higher amounts of suspended solids. The highest concentrations of iron were detected in the sampling locations closest to the landfill and downgradient of the Escambia County Roads Department facility. No petroleum constituents or other constituents likely attributable to the Escambia County Roads Department facility were detected downgradient of the facility.

The surface water analytical results indicate that location SW-2 is the least impacted. With the exception of location SW-3, the iron impacts are upstream of location SW-5, which is the confluence of Mitchell Creek and Camp Five Branch, consistent with the potential impact from the landfill. There is no ready explanation for the higher than expected concentration of iron and the highest concentration of COD at location SW-3.

5. CONCLUSIONS AND RECOMMENDATIONS

Groundwater concentrations above the applicable GCTL of iron were observed at ground water sampling locations GW-B, GW-C, GW-E, GW-F, and GW-J. It is possible that the ditch located on the northern portion of the subject property is partially acting as a hydrogeologic barrier, such that the contaminant concentrations around the ditch are higher than further downgradient resulting in slowed plume migration.

Based on the results of this limited phase II ESA investigation, it appears that groundwater impacts attributable to the documented contamination at the Camp Fire Landfill are not present along the northwestern boundary of the proposed meteorological tower site. ECT recommends the installation of monitoring wells at some of the previous DPT locations to collect more representative (less turbid) samples, in order to verify the sample results. Additionally, ECT recommends obtaining permission from Escambia County to sample some of their existing monitoring wells in order to establish baseline conditions upgradient and downgradient of the landfill.

The results of the surface water sampling and analysis indicate that with the exception of location SW-3, the impacts likely attributable to the landfill are upstream of the confluence of Mitchell Creek and Camp Five Branch. ECT recommends collecting a confirmatory surface water sample at the SW-3 location, which could provide clearer evidence that the landfill is the source of the documented surface water impacts.

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Table 1 - Ground Water Sampling Analytical Summary

Sample		Arsenic	Barium	Cadmium	Chloride	Chromium	Iron	Lead	Magnesium	Mercury	Nitrate-N	Nitrogen Ammonia (as N)	Potassium	Selenium	Silver	Sodium	Total Dissolved Solids	Total Organic Carbon	Zinc
Location	Date																		
GCTLs		*10*	*2,000*	*5*	*250,000*	*100*	*300*	*15*	*NS*	*2*	*10,000*	*NS*	*NS*	*50*	*100*	*160,000*	*500,000*	*NS*	*5,000*
NADCs		*100*	*20,000*	*50*	*2,500,000*	*1,000*	*3,000*	*150*	*NS*	*20*	*100,000*	*NS*	*NS*	*500*	*1,000*	*1,600,000*	*5,000,000*	*NS*	*50,000*
GW-B	3/20/2009	< 4.8	22	< 0.6	5,600	< 3.5	360	< 4.4	580	<0.2	940	6 I;S7	1,300	< 4.7	< 3.3	4,200	72,000 S7	916 I;S7	35 V
GW-B Lab Filtered	3/19/2009						1,200 V												
GW-C	3/20/2009	< 4.8	35	< 0.6	8,300	< 3.5	6,600	< 4.4	1,500	< 0.2	2,500	223 S7	3,200	< 4.7	< 3.3	7,900	128,000 S7	1,140 I;S7	81 V
GW-C Lab Filtered	3/20/2009						10,000 V												
GW-D	4/8/2009						10,000 V												
GW-E	3/19/2009	< 4.8	17	< 0.6	6,100	< 3.5	2,700	< 4.4	750	< 0.2	1,200	12 I;S7	1,400	< 4.7	< 3.3	4,000	64,000 S7	615 I;S7	26 V
GW-E Lab Filtered	3/19/2009						3,300 V												
GW-F	3/20/2009	59	340	< 0.6	7,000	610	280,000	160	5,100	5.2	740	1,240 S7	8,100	< 4.7	< 3.3	4,600	92,000 S7	6,240 S7	330 V
GW-F Lab Filtered	3/20/2009						4,000 V												
GW-J	3/20/2009	< 4.8	28	< 0.6	5,300	8 I	4,900	< 4.4	810	< 0.2	330	4,850 S7	1,300	< 4.7	< 3.3	3,000	64,000 S7	4,530 S7	230 V
GW-J Lab Filtered	3/20/2009						1,300 V												
GW-K	04/09/09	< 4.8	15	< 0.6	1,750	< 3.5	190	< 4.4	400	< 0.2	50 I	< 5	320 I	< 4.7	< 3.3	1,100 V	8,000 I	< 270	< 2.9
GW-K Lab Filtered	04/09/09		13				11												
GW-L	04/09/09	< 4.8	12	< 0.6	1,820	10 I	290	< 4.4	370	< 0.2	90	< 5	460 I	< 4.7	< 3.3	1,200 V	< 7,300	800 I	7 I
GW-L Lab Filtered	04/09/09		10				12												
GW-M	04/09/09	< 4.8	14	< 0.6	3,200	5 I	76	< 4.4	390	< 0.2	30 I	< 5	< 180	< 4.7	< 3.3	1,600 V	16,000 I	3,000	6 I
GW-M Lab Filtered	04/09/09		12				13												
GW-N	04/09/09	< 4.8	17	< 0.6	3,040	7 I	310	< 4.4	440	< 0.2	340	< 5	1,300	< 4.7	< 3.3	1,800 V	24,000 I	1,400	<2.9
GW-N Lab Filtered	04/09/09		15				40												

Notes:

Analytes that were sampled for and undetected in all samples are not included on this table

I = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

S7 = This analysis performed by Benchmark EnviroAnalytical, Inc., Certification number E84167

V = Indicates that the analyte was detected in both the samples and the associated method blank

All units in micrograms per liter (ug/l)

GCTL = Groundwater Cleanup Target Level, as defined in Chapter 62-777, F.A.C., Table I

NADC = Natural Attenuation Default Concentration, as defined in Chapter 62-777, F.A.C., Table V

NS = No Standard

Bold = Value is above the GCTL, but below the NADC

Bold = Value is above both the GCTL and NADC

Bold = Value is >10 times higher than the NADC