Appendix K.7

Phase I Environmental Audit, Union Carbide Corporation, Woodbine, Georgia, Facility

CH2M Hill

July 2004

46 Pages

Phase I Environmental Audit
Union Carbide Corporation

Woodbine, Georgia, Facility

Prepared for:

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Abbreviations and Acronyms

AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
ACS	Aventis Cropscience
BCS	Bayer Cropscience
bls	below land surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CONSENT	Superfund Consent Decrees
CORRACTS	Corrective Action Report
EDI	Early Detection Incentive
EDR	Environmental Data Resources Inc.
EPA	U.S. Environmental Protection Agency
EPD	Georgia Environmental Protection Division
ERNS	Emergency Response Notification System
FIFRA	Federal Insecticide, Fungicide, & Rodenticide Act
FINDS	Facility Index System
GA-DNR	Georgia Department of Natural Resources
HMIRS	Hazardous Materials Information Reporting System
LQG	Large Quantity Generator
LUST	Leaking Underground Storage Tank
MINES	Mines Master Index File
MLTS	Material Licensing Tracking System
NGVD	National Geodetic Vertical Datum
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
OCBM	Orthochlorobenzalmalononitrile
PADS	PCB Activity Database System
PAH	polynuclear aromatic hydrocarbons

PWS	Public Water Supply
RAATS	RCRA Administrative Action Tracking System
RCRA	Resource Conservation and Recovery Act
RCRIS-LQG	RCRIS Large Quantity Generator
RCRIS-SQG	RCRIS Small Quantity Generator
RCRIS-TSD	Resource Conservation and Recovery Information System
RFI	RCRA Facility Investigation
ROD	Record of Decision
RP	Rhone Poulenc
SHWS	State Hazardous Waste Sites
SWMU	Solid Waste Management Unit
SQG	Small Quantity Generator
SWF/LF	Solid Waste Facilities/Landfill Sites
TCRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
UCC	Union Carbide Corporation
USGS	U.S. Geologic Survey
UST	Underground Storage Tanks

Certification

I hereby certify that this report was prepared by me or under my direct supervision, and that I am a duly Registered Professional Engineer under the laws of the State of Florida.

Pamela A. Lehr, P.E.
Project Manager
State of Florida License No. 42634
Date: _____

SECTION 1

Introduction

1.1 Background

CH2M HILL was contracted by The Dow Chemical Company (Dow) to provide Phase I Environmental Audit services to aid in Dow's valuation for a potential sale of the Union Carbide Corporation (UCC) property in Woodbine, Georgia. The target property consists approximately 4,011 acres. The 22 acre landfill (regulated unit) and an appropriate buffer zone on the northwest portion of the site will be excluded from the property sale. Exhibits 1-1 and 1-2 show the location of the property and the target area for the database search, respectively.

1.2 Scope

The scope of work for this Phase I Environmental Audit included the following tasks:

- A regulatory database search
- Review of historical topographic maps and aerial photographs for past and present land use, and a review of documents and records provided by Dow to CH2M HILL
- A site inspection of the target property to identify visibly contaminated areas
- Interviews with current owners, occupants of the property, and local government officials
- Evaluation and summary report

Environmental Data Resources, Inc. (EDR), conducted a computerized database search, under subcontract to CH2M HILL, to identify available federal, state, and local records from past and current land uses that could have resulted in contamination on or adjacent to the site.

A CH2M HILL field inspector visited the site and surrounding areas on July 12, 2004, to characterize the present land use and to inspect for indications of past operations that could have affected the property. The site was examined for signs of former structures, tank installations, areas exhibiting soil discoloration, disturbed or stressed vegetation, or other evidence of past waste-handling activities.

1.3 Purpose

The purpose of this report is to summarize findings of the Phase I Environmental Audit of the UCC facility, based on available information on file and site observations in accordance with American Society for Testing and Materials (ASTM) Standard E 1527-00. Limitations regarding the interpretation and use of this report are provided in the following sections.

EXHIBIT 1-1
Site Overview Map

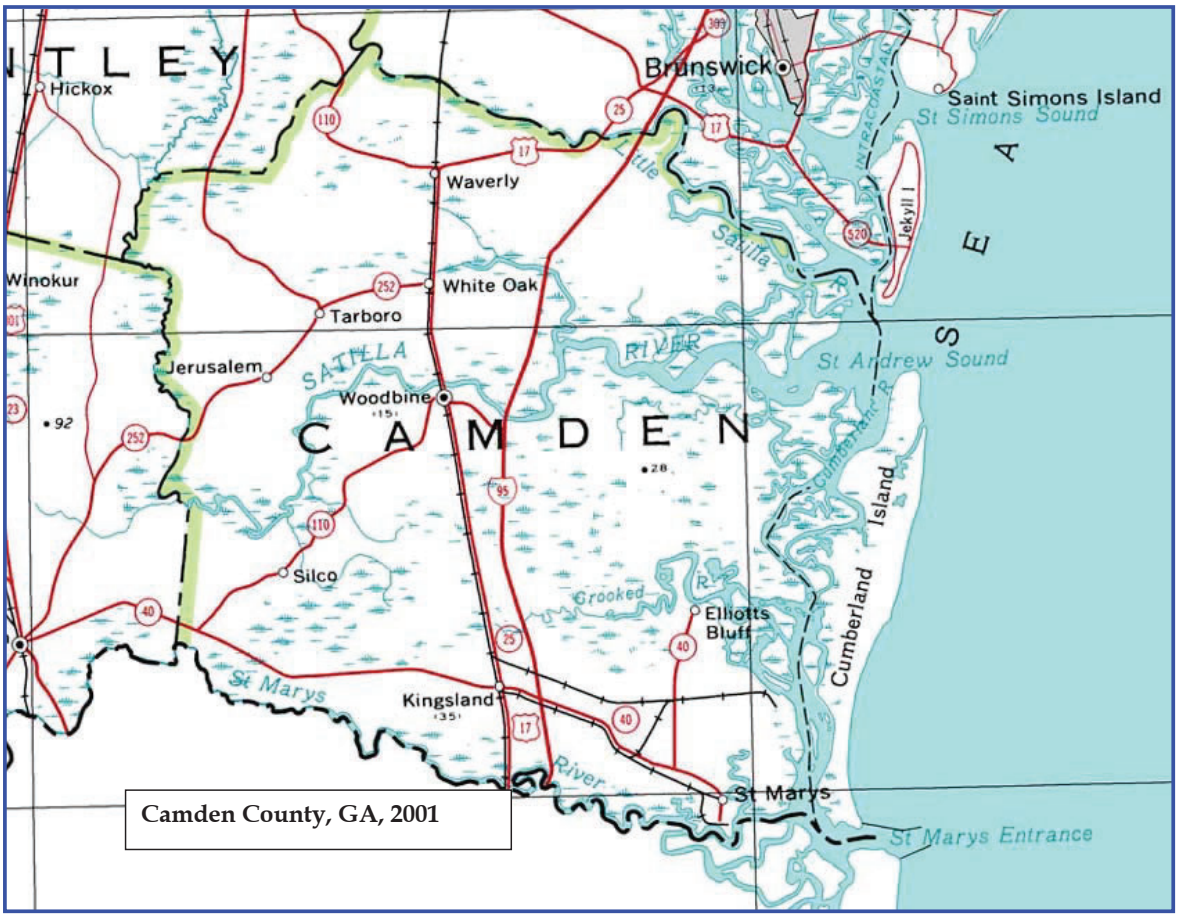
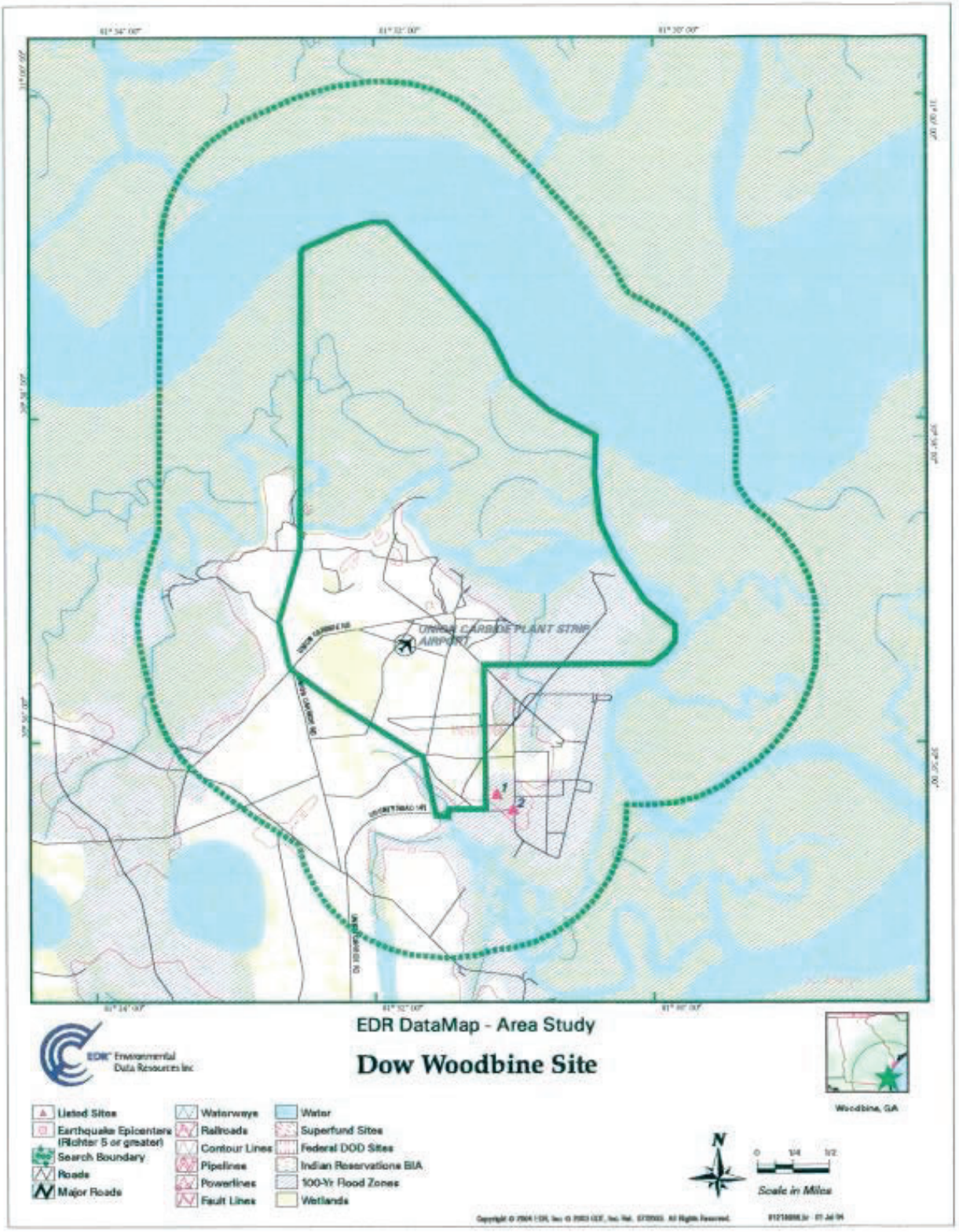


EXHIBIT 1-2
Target Area Search Map



1.4 Special Terms and Conditions

The scope of work described in Section 1.2 of this report authorized CH2M HILL to perform activities associated with the preparation of this Phase I Environmental Audit. CH2M HILL did not perform subsurface investigations to evaluate the presence of contaminated soil and groundwater caused by onsite or neighboring activities. Additionally, tests for radon, asbestos, or lead-based paint were not included in the scope of work. The report findings should not be construed as a guarantee or representation, either expressed or implied, that such substances or conditions are absent. CH2M HILL assumes no responsibility for conditions that it was not authorized to investigate, or that were not in the scope of work. Further limitations regarding the interpretation and use of this report are included in the following section.

1.5 Limitations and Exceptions of Assessment

The conclusions and recommendations contained in this report represent the professional opinions of CH2M HILL. These opinions were arrived at in accordance with the applicable professional standards and practices. However, this report is not a warranty nor does it imply a guarantee of any sort. This report has been prepared based on the following terms and conditions:

- CH2M HILL's services shall be governed by the terms and conditions of the "Agreement for Services between CH2M HILL and Dow," (the "Partnership" agreement).

- CH2M HILL makes no claim that this investigation constitutes "all appropriate inquiry into the previous ownership and use of the property consistent with good commercial or customary practice", as defined under Section 101(35)(B) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

- CH2M HILL staff who performed the site assessment are not attorneys; therefore, this report is not a legal representation or interpretation of environmental laws, rules, regulations, or policies of local, state, or federal governmental agencies.

- This report is based, in part, on unverified preliminary information supplied to CH2M HILL from several sources during this project; therefore, CH2M HILL cannot guarantee the report's completeness or accuracy.

- If hazardous substances or hazardous conditions have not been identified during the performance of the scope of services, such a finding should not be construed as a guarantee or representation, either expressed or implied, that such substances or conditions are absent.

- All opinions or recommendations apply to site conditions existing when services were performed. CH2M HILL cannot report on, or accurately predict, events that may change the site conditions after the described services are performed, whether occurring naturally or caused by external forces.

- This report has been prepared for the exclusive use of Dow for the purpose of evaluating potential environmental liabilities associated with the target property located in Woodbine, Georgia. No rights or benefits are granted to anyone other than Dow and CH2M HILL and has no third party beneficiaries. All work products will be prepared for the exclusive use of Dow, for specific application to the property described herein. There are no beneficiaries of this report other than Dow, and no other person or entity is entitled to rely upon the work products without the written consent of CH2M HILL.

CH2M HILL assumes no responsibility for conditions that we were not authorized to investigate, or that were not in our specific scope of work.

1.6 Limiting Conditions and Methodology Used

There were some constraints, marshland and wooded areas, that impeded CH2M HILL's inspection of the target property and/or obstructed CH2M HILL's view. Approximately 2,513 acres of marshland could not be accessed, specifically, all the property north of Todd Creek, which was observed from the bank of Todd Creek and several smaller marshes (Big Cypress Pond) south of Todd Creek. The smaller marshes were viewed and accessed around the periphery by foot. The airstrip, structures, artesian well, two cemeteries, seven solid waste management units (SWMUs), and an oak hammock near the landfill were also inspected by foot. Because of the size of the target property, the remainder of the 1,499 acres of highland (approximately 90 percent) was a drive-through inspection along roads and fire breaks. All developed areas were accessible.

Methodology followed good commercial and customary practice with the goal of identifying recognized environmental conditions that would be subject to an enforcement action.

SECTION 2

Phase I Environmental Audit

2.1 Site Description and History

2.1.1 Site Location and Description

The UCC property is located near the end of Harrietts Bluff Road, in Woodbine, approximately 12 miles east of Woodbine center, in Camden County, which is in the southeastern corner of Georgia. The property includes Fairfield Point, Boys Point, Schooner Landing, and portions of Big Cypress Pond (see Exhibit 2-1).

2.1.2 Site Features

The UCC property is located in the Atlantic Coastal Plain Physiographic Province. Approximately 2,513 of 4,012 acres of UCC property are marshland, and 1,499 acres are highland. The elevation of highland ranges from 10 to 29 feet above the National Geodetic Vertical Datum (NGVD). The remainder of property generally consists of several small expanses and one large expanse of tidal herbaceous salt marsh, which is interspersed with numerous tidal creeks, streams, and small islands of high ground. The Kingsland northeast Georgia topographic quadrangle of the U.S. Geologic Survey (USGS) shows a slight topographic gradient toward the east-northeast. A physical setting map with topographic features is presented in Exhibit 2-2. A 1988 aerial photograph showing features of the target property is presented in Exhibit 2-3 Additional aerial photographs of the site from 1953 through 1988 are provided in Appendix A.

2.1.3 Structures, Roads, and/or Other Improvements within the Site

Todd Creek divides the property into approximately 1,499 acres on the south side and 2,513 acres on the north side. Past industrial activities have been restricted to the area south of Todd Creek. There is no development north of Todd Creek. At the time of the site inspection, the target property had approximately 30 miles of paved roads, approximately 30 miles of dirt firebreak roads, and an undetermined number of miles of other dirt and mowed grass "roads." At the north end of the northeast-trending portion of Rocket Pit Road (see Exhibit 2-4) is an inactive rocket launch pad. This pad is fenced to keep wild animals out of the ±500-foot-deep silo of the launch pad. A 100-foot-deep concrete ring surrounds the rocket pit.

Near the end of Rocket Pit Road, the site contains two wells: one a production well, the other an artesian well that has been flowing continually for more than 36 years. Approximately 450 feet from the production well is former SWMU-03. Next to the artesian well is an "Anchor House", the stucco bottom remains of a house that was built in the shape of an anchor by Colonel Floyd, circa 1860. There are two bunkers used as storage by Bayer Crop Science (BCS), and two 6-foot x 6-foot concrete pads that may have been used for support of equipment. Directly west of this portion of road is a 22-acre Resource Conservation and Recovery Act (RCRA) landfill. SWMU-02 lined both sides of the dirt road leading to the landfill. A borrow pond for the landfill is in the southwest

EXHIBIT 2-1
Site Location Map and Surveyed Boundary

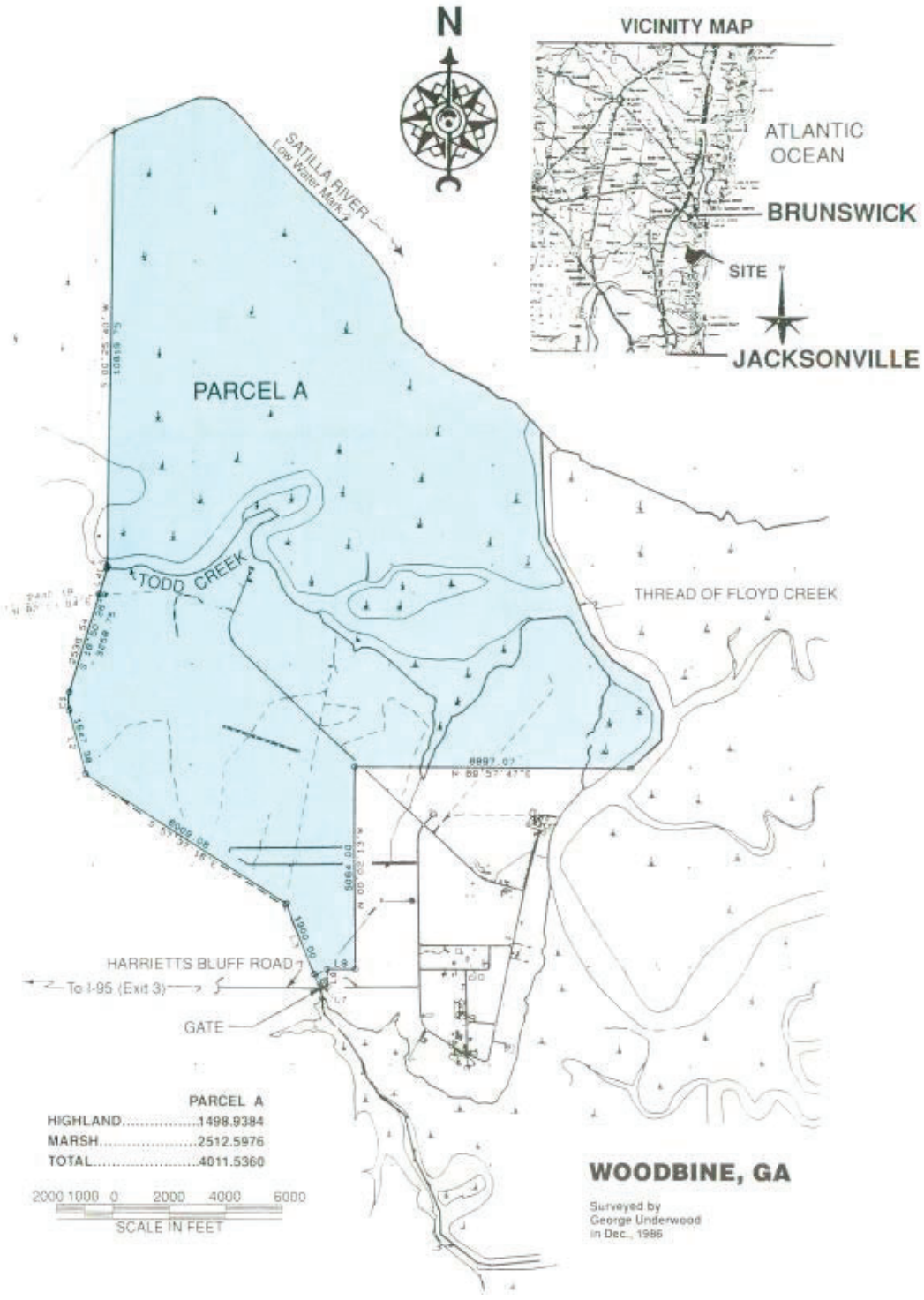


EXHIBIT 2-2
Site Physical Setting Map

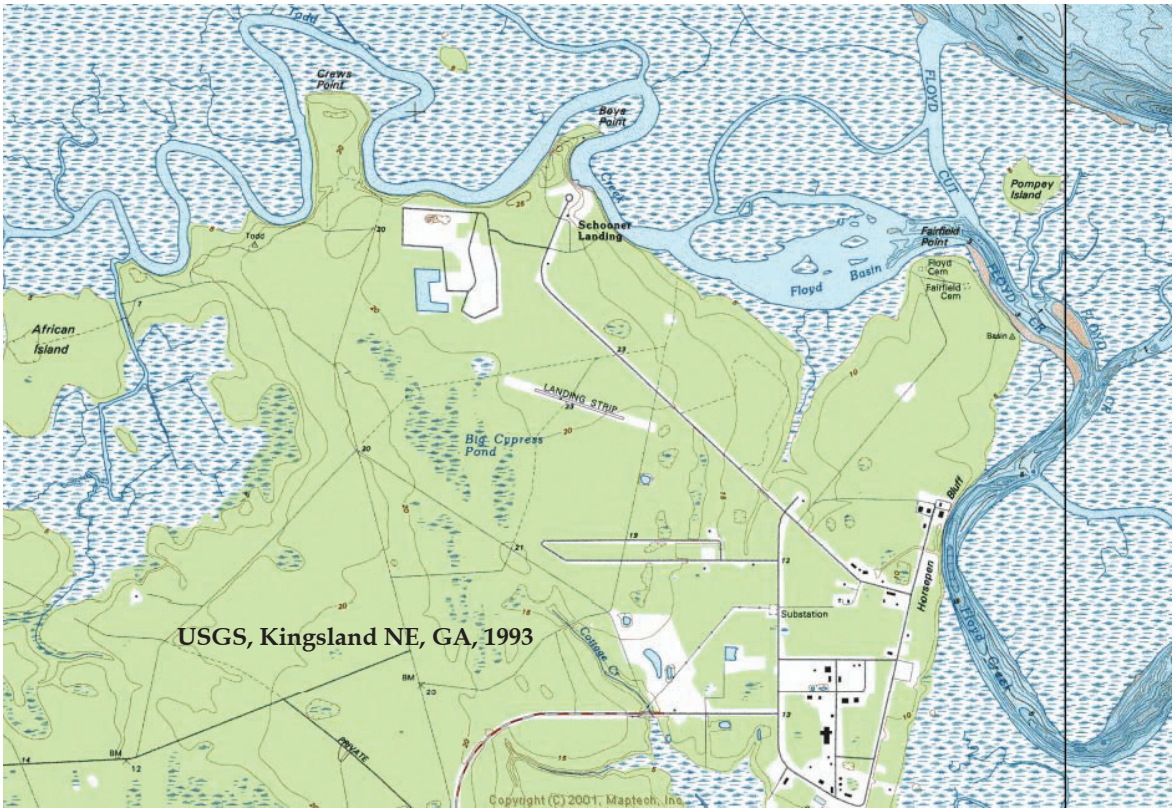


EXHIBIT 2-3
1988 Aerial Photograph

EXHIBIT 2-4
Facility Map

quadrant where the landfill is also located. SWMU-01 is located near the property boundary along a mowed road extending from the northwest boundary of the landfill.

On the northeast side of the northwest-trending portion of Rocket Pit Road, between Main Road and the northeast-trending portion of the road, there is an approximate 55-acre parcel acquired by Rhone-Poulenc Ag Company (RP) during a land swap with UCC. This parcel contains a permitted National Pollutant Discharge Elimination System (NPDES) sprayfield currently used by BCS for their industrial wastewater.

Southwest of the sprayfield, on the west side of Rocket Pit Road, is an air strip 2,600 feet in length. It is accessed by a mowed "road" that runs southwest off of Rocket Pit Road. Southeast of the air strip, and on the east side of Fire Break 1 Road, is a former acetone evaporation pond (SWMU-04). Farther south on the east side of Fire Break 1 Road and north of the southern portion of Loop Road is SWMU-05. Going south along the east side of Fire Break 1 Road is SWMU-06 (excavated), a borrow pit area, and a wet weather pond.

Approximately 300 feet east of the intersection of Rocket Pit Road and Main Road is the northeast-trending Fire Break 2 Road. Going northeast approximately 0.6 miles on Fire Break 2 Road, SWMU-07 (excavated) is on both sides of the road. This area has a small bunker. At the end of Fire Break 2 Road (Fairfield Point) is Floyd Cemetery and Fairfield Cemetery.

The entire UCC land and the adjacent BCS facility are jointly enclosed by fence, except at the creek and river boundaries. The joint facility is controlled by a 24-hour manned security force. The only entrance to the combined facility, at the end of Harrietts Bluff Road, is a guarded entry checkpoint. Vehicle access to UCC property from BCS property is controlled by locked gates across the roadways. Additionally, the regulated unit is totally enclosed by fencing.

2.1.4 Current Property Use

North of Todd Creek remains undeveloped and unused. South of Todd Creek, seven SWMUs have been closed. There is ongoing groundwater monitoring and remediation at the RCRA landfill (excluded from property transfer), a permitted NPDES sprayfield used by BCS (property transfer already done), and industrial operations by BCS located southeast of the target property (property transfer already done).

Once every 15 years the western portion of the target property is used for small-scale tree harvesting. The eastern portion has not been harvested and exhibits a canopy of live oak. Aside from small-scale tree farming, the target property does not maintain or sustain any commercial, industrial, and/or agricultural activities.

2.1.5 Past Property Use

During the 1800s, the target property was the homestead of Colonel Floyd. From 1927 to 1942, this property was part of a tract known as Sea Island Game Preserve at Cabin Bluff.

From 1963 to 1976, Thiokol Corporation (TC) first operated a manufacturing facility on and adjacent to the target property. TC manufactured and tested solid fuel rocket motors, illuminating ordinance devices, riot control agents (tear gas), and assorted chemical materials under toll processing agreements with other companies. The pesticide aldicarb

(trade name TEMIK™) was manufactured by TC for UCC prior to the acquisition of the facility by UCC. In 1976, UCC purchased the approximately 7,193-acre facility from TC. UCC manufactured and formulated pesticides at the facility from 1976 to 1986. In December 1986, UCC sold the manufacturing plant and some adjacent land to RP, which was later renamed Aventis Cropscience (ACS). During 2001, BCS bought ACS. UCC retained ownership of approximately 4,012 acres of the facility, which included a 22-acre RCRA landfill (regulated unit) and seven disposal areas used by TC, now classified as SWMUs.

Historical aerial photographs of the area are provided in Appendix A for 1953, 1977, 1981, and 1988. The 1953 photographs show that the target property and surrounding properties were undeveloped woodland, marsh, and perhaps some open pasture. The 1977 and 1981 aerial photographs show the facility buildings, the air strip, and more open farmed land. The RCRA landfill and a constructed pond can be seen in the 1988 aerial photograph. To date, the target property remains undeveloped woodland, marsh, and farmland. Historical topographic maps, provided in Appendix B for 1958, 1979, and 1993, also show that the target property was undeveloped, except for the landing strip, the landfill, and a constructed pond.

2.1.5.1 Landfill Description

Prior to 1976, TC owned and operated a landfill for the disposal of waste products in the northwest portion of the plant site. UCC used the landfill after its acquisition from TC; additional cells were added for both hazardous and nonhazardous waste on an as-needed basis. Cell A of the regulated unit was previously used to dispose of TEMIK fines, which contain aldicarb, a listed acute hazardous waste (P070), as defined in 40 CFR 261.33(2). The landfill occupies approximately 22 acres consisting of two approximately rectangular sites and is generally less than 15 feet deep. The landfill was eventually closed and the Georgia Environmental Protection Division (GEPD) issued a Hazardous Waste Facility Permit, No. HW-063(D), to UCC on September 28, 1988, for post-closure care of the landfill.

This landfill and an appropriate surrounding buffer zone will not be included in any potential sale.

2.1.5.2 SWMU Description

Seven pre-RCRA SWMUs were identified in UCC's Part B Permit Application for Post Closure Care, dated September 29, 1986 and revised July, 1987. SWMUs active after 1976 were closed, as described in RCRA Closure Plans submitted to the Georgia EPD on July 25, 1985, and July 8, 1986.

Pursuant to Section IV.A.1 of the referenced Hazardous Waste Permit, UCC submitted a RCRA Facility Investigation (RFI) Work Plan to the EPD in July 1992 and received approval for the Work Plan in a letter dated August 5, 1992. An RFI Report was submitted to EPD February 5, 1993; an RFI Phase II Report was submitted September 20, 1996; and an addendum to the report of Phase II RFI was submitted June 12, 1997. The seven SWMUs are described below based on the RFI Report, field investigation and subsequent interviews.

SWMU-01 – Disposal Area. Surface disposal activities occurred during the period from 1966 to 1975 in an area of approximately 2,00 square feet located west of Cell A of the closed RCRA landfill (see Exhibit 2-4). Approximately 20,000 pounds of scrap metal from various

ordnance projects, trip flares, and metal parts were placed in this SWMU. No chemical contaminants are known to have been placed in the unit. No known releases have occurred. SWMU-01 has been cleaned and has received No Further Action (NFA) status from the Georgia Department of Natural Resources (DNR).

SWMU-02 – Surface Storage of Empty Drums. Surface storage activities occurred during the period from 1967 to 1974 on the north and south sides of the road leading to the closed RCRA landfill. Empty drums were placed in an area approximately 1,000 feet parallel to the road and set back 30 feet from the road. The drums were removed in 1974. The drums potentially contained residuals of malononitrile, orthochlorobenzaldehyde, and orthochlorobenzalmalononitrile (OCBM) (tear gas). Because the drums were reportedly empty, no known releases have occurred. SWMU-02 has been cleaned and has received NFA status from Georgia DNR.

SWMU-03 – Buried OCBM and Surface Debris. Surface and subsurface disposal activities occurred during the period from 1967 to 1976 in an area located north and east of UCC's Production Well No. 3. Surface disposal activities were generally limited to approximately 2 acres of open area on the north end of the SWMU (north and east of Production Well No. 3) and to approximately 30 feet on each side of a north-south trending firebreak road running to the open area from Production Well No. 3. Approximately 25,000 pounds of scrap metal and miscellaneous materials and approximately 2,000 pounds of empty and live shells were placed in the surface disposal area. The scrap metal and miscellaneous materials originated from OCBM formulation equipment. The shells were derived from various pyrotechnics produced at the site. Additionally, the area also contained paint waste containers, an air handler, a boiler, and an inflatable building.

An unknown quantity of OCBM was buried along the east-west trending firebreak road, 250 feet northeast of UCC Production Well No. 3. The trench was reported to run parallel to the roadway and estimated to be 100 feet long by 12 feet wide and 5 feet deep. Additionally, approximately 550 feet northeast of UCC Production Well No. 3, a trench 100 feet long by 2 feet wide and 2 feet deep was found to contain Nuchar® (an activated carbon typically used in the treatment of industrial waste) and other unknown waste materials. SWMU-03 has been cleaned and has received NFA status from Georgia DNR.

SWMW-04 – Acetone Evaporation Pond. Surface and subsurface disposal activities occurred during the period from 1968 to 1970 in an area 1,200 feet north of Loop Road on the east and west sided of a firebreak road. The firebreak road connects Loop Road to the onsite air strip. Surface disposal occurred in the Acetone Evaporation Pond, formerly a borrow pit located east of the roadway. The 250-foot by 210-foot acetone evaporation pond was contained by the roadway on the west and by an earthen berm on the remaining three sides. The borrow pit was backfilled with soil in 1974 and currently is 2 to 3 feet higher than the surrounding grade. The pond received unknown quantities of acetone.

A second borrow pit, located west of the roadway, was used for disposal of Nuchar® and raw corn cob grit. The approximate dimensions of the borrow pit are 215 feet by 150 feet. The 3-foot-thick waste material is covered by 0.5 feet to 2.5 feet of top soil. SWMU-04 has been cleaned and has received NFA status from Georgia DNR.

SWMU-05 – Buried Aldicarb Oxime. A "one-time" subsurface disposal activity occurred in 1973 in an area less than 200 square feet located east of the intersection of Loop Road and the firebreak road leading to the onsite air strip. A 7-foot by 3-foot trench approximately 2 feet deep had been excavated to contain a drum that is believed to contain aldicarb oxime. SWMU-05 has been cleaned and has received NFA status from Georgia DNR.

SWMU-06 – Buried OCBM, Aldicarb, and Surface Debris. Surface and subsurface disposal activities occurred during the period from 1966 to 1970. Unknown quantities of scrap metal, gypsum granules, corn cob grit, aldicarb, and OCBM were disposed of in SWMU-06. Surface disposal of scrap metal, concrete, asphalt, and tar occurred south of Loop Road on the east side of the firebreak road. This surface disposal area is approximately 300 feet by 40 feet.

South of the surface disposal area and paralleling the firebreak road are a series of discontinuous trenches in an area approximately 300 feet long, 40 feet wide, and less than 6 feet deep. The ground surface is broken by 3- to –4-foot-high mounds of earth alternating with low areas running the length of the trench area. The disposal trenches are located between the earthen mounds. According to an interview with Milton Lynn (the former TC employee who now works for BCS), the mounds are believed to be the soil excavated from the original trench during disposal activities. These trenches are designated as Former Trench Area No. 1 and contain layers of waste believed to be primarily Nuchar® and corn cob grit. The waste is 1 to 3 feet below the ground surface and occurs in layers ranging from 3 to 5 inches in thickness.

An additional series of trenched, Former Trench Area No. 2, extends perpendicular to the firebreak road in an easterly direction. This trench area is approximately 500 feet long by 40 feet wide and is bounded on the south by an old wire fence. The trench area is generally 2 to 4 feet higher than the surrounding ground surface. Based on input from site personnel, it is believed the soil excavated from the trench during disposal activities was placed back on top of the trench after disposal. This trench contains Nuchar®, corn cob grit, gypsum, and other waste materials, such as pieces of plastic bags, steel drums, and cardboard.

A borrow pit 250 feet by 200 feet, located south of the old wire fence, was reportedly used for incineration activities and subsurface disposal of OCBM, Nuchar®, corn cob grit, and general construction waste (e.g., tree stumps). The borrow pit was backfilled in 1976. SWMU-06 has been cleaned and excavated and has received NFA status from Georgia DNR.

SWMU-07 – Buried OCBM and Various Ordinance Items. Surface and subsurface disposal activities occurred during the period from 1966 to 1976 in an area located on the east and west sides of the firebreak road leading to Floyd Cemetery. The Area on the west side of the road is approximately 250 feet by 200 feet.

Surface disposal activities consisted primarily of burning excess and off-specification explosives from trip flares, illuminating mortar flares, and OCBM pyromix. An estimated 50 drums containing trip flares were filled with concrete and buried in a trench on the east side of the road. Additionally, an estimated 40 drums containing OCBM were buried on the west side of the road. Also, an unknown number of drums reportedly containing aldicarb were buried adjacent to the west side of the roadway. SWMU-07 has been cleaned and excavated and has received NFA status from Georgia DNR.

The seven SWMUs were remediated and/or excavated. A Hazardous Waste Facility Permit issued by Georgia DNR, Environmental Protection Division, dated December 23, 1998, listed SWMU-02, SWMU-03, and SWMU-05 as NFA (see Appendix C). According to this permit, the only cells requiring further investigation were SWMU-04, SWMU-06, and SWMU-07. It is CH2M HILL's understanding that SWMU-01 received NFA status, but no documentation to that effect could be located. A letter dated July 16, 2002, (see Appendix C) from Georgia DNR listed SWMU-04, SWMU-06, and SWMU-07 as NFA status and also states "...this completes Union Carbide's requirements to address the SWMUs identified in Appendix A-1 of the permit" and "EPD's action results in the movement of the SWMUs listed in Appendix A-1 of the permit to Appendix A-2, which lists SWMUs and Areas of Concern that require no further action at this time." CH2M HILL infers from this letter the NFA status for SWMU-01.

2.1.6 Current and Past Use of Adjoining Properties

Areas adjacent to the UCC boundary include the Satilla River to the north, Floyd Creek to the east, the BCS property to the southeast, and property owned by Sea Island Land Company (formerly Brunswick Pulp and Paper Company) to the west. The BCS history is described above. It is currently manufacturing pesticides. It has its own production well, sanitary landfill, and septic system. The former Brunswick Pulp and Paper property was not developed and was used for harvesting trees. This property is still undeveloped, but Sea Island Land Company has future plans for development.

2.2 Regional Hydrogeology

Camden County is located in the southeastern part of Georgia. The county is bordered on the north by Brantely and Glynn Counties, on the west by Charlton County, on the south by Nassau County Florida, and by the Atlantic Ocean to the east. Camden County crosses three watersheds: the Satilla on the north, the Cumberland-St. Simmons on the east, and the St. Mary's on the South. The hydrogeologic units underlying Camden County consist of the surficial aquifer system, the intermediate aquifer system, and the Floridan aquifer.

Groundwater is the primary source of water supply in the Camden County area. The groundwater systems beneath this site generally consist of a surficial aquifer and the Floridan aquifer.

The surficial aquifer is the uppermost groundwater system and is approximately 250 feet thick. It is comprised of unconsolidated sand, clayey sand, shell, and thin limestone beds of post-Miocene deposits (Clark et al., 1964; Bermes et al., 1983; Clark et al., 1990). It is underlain by late and middle Miocene deposits that form the Berryville Clay Member (approximately 60 feet thick) of the Coosawhatchie Formation. The water-bearing zone of the intermediate Hawthorn Group. It consists principally of discontinuous carbonate, shell, and sand beds (Bermes et al., 1963).

The top of the principal artisan aquifer—the Floridan aquifer, the primary source of potable water in coastal Georgia (Krause et al., 1984)—occurs at a depth of approximately 430 feet below land surface (bls).

Consolidated marine and marginal marine limestone and dolomite from the Eocene Series form the Floridan aquifer, which, in this area, can be categorized into three general intervals:

- Upper Floridan aquifer (Ocala Limestone and upper portion of the Avon Park formation)
- Middle semi-confining unit (the lower portion of the Avon Park formation)
- Lower Floridan aquifer (Oldsmar formation)

The carbonate formations that comprise the Ocala Limestone and upper Floridan aquifer were deposited in the Late Eocene and are expected to be approximately 600 feet thick in this area. They typically contain very fossiliferous limestone and some dolostone with high, effective porosity and permeability. Flow along bedding planes, joints, and fractures also enhances the water-bearing features of the formation (Krause and Randolph, 1989). The Avon Park formation, deposited in the middle to late Eocene, comprises the lower part of the upper Floridan and usually forms a semi-confining unit between the upper and lower Floridan aquifers. The Avon Park formation generally consists of hard, low-permeability limestone and dolostone. It is expected to be approximately 200 feet thick, existing at approximately 1,100 feet bls at this site.

The lower Floridan aquifer is in the Oldsmar Limestone and is expected to be found in this area below 1,200 feet bls and is up to 1,200 feet thick. Deposited in the Eocene, the lower Floridan aquifer contains carbonate rocks, which are less fossiliferous and more dolomitic than the upper Floridan aquifer. The flow characteristics are mainly from secondary permeability features, such as flow along bedding planes, fractures, and joints (Krause and Randolph, 1989). The lower zone of the lower Floridan aquifer is comprised of a highly transmissive zone known as the Fernandina interval.

The Cedar Keys formation comprises the base of the aquifer system in Camden County. The Paleocene-age Cedar Keys formation contains dolomitic limestone and dolomite, having regionally extensive interbedded anhydrite layers that mark the base of the system (Krause and Randolph, 1989).

2.3 Site Inspection

CH2M HILL conducted a site visit on July 12, 2004, to identify any indications of environmental concerns, types of businesses, and typical land use of adjacent properties. A preliminary site investigation revealed some AM15 and 40 mm containers used for the packaging tear gas lying on the ground on both sides of a mowed "road" that extends from the northwest end of the RCRA landfill to the property line (N 3057.121, W 8132.626). There were also a couple of rusted barrels onsite with unknown contents. This section of the property is within the buffer zone of the landfill. In another area northwest of SWMU-07 on the left side of Fire Break 2 Road (N 3056.706, W 8130.486), there were several empty rusted barrels, again with unknown contents. The west end of the airstrip appeared to have a fuel spill on the runway, and just off the runway on the west end, the was a pile of an unknown black, soft-solid material that smelled slightly of hydrocarbon. No visual signs of contamination, such as stressed vegetation or soil discoloration, were observed around any part of the site. Photographs documenting the site inspection are provided in Appendix D.

2.4 Facility Personnel Interview

During the site inspection, CH2M HILL was accompanied by an original TC employee who now works for BCS, Milton Lynn. Mr. Lynn has been at the facility continuously for more than 36 years in the capacity of a Senior Maintenance Supervisor. The employee was interviewed extensively to obtain information indicating recognized environmental conditions in connection with the property. Mr. Lynn shared information about:

- Current and past use(s) of property
- Current and past use(s) of adjoining property
- Topographic conditions and vegetative cover
- General description of structures
- Roads
- Wells
- Drums
- Borrow pits and evaporation ponds
- Solid waste

2.5 EDR AuditCheck™ Facility Report

Under subcontract to CH2M HILL, EDR conducted a database search to identify any government filings on the UCC facility. More than four million government records from more than 600 federal, state, and local environmental databases were searched. It should be noted that the results are for the facility as a whole, which included the original property, and not necessarily for the target property. Records under names other than UCC (records 2 through 9) are not associated with the target property. The results of the database search are presented in the EDR AuditCheck™ Facility Report provided in Appendix E and summarized in Exhibit 2-5.

EXHIBIT 2-5
UCC Facility Summary

Waste Management	Multimedia
Generates hazardous waste (RCRIS)	Listed in a county/local database (LOCAL)
Treats, stores, or disposes of hazardous waste (RCRIS/TSDF)	
Received notices of violations (RCRIS/VIOL)	
Subject to corrective action (CORRACTS)	

The latest corrective action (September 25, 2001), listed under "Facility generates hazardous waste, Facility treats, stores, or disposes of hazardous waste on-site" states migration of contaminated groundwater under control and human exposure .

As of August 28, 2002, all UCC facility violations have achieved compliance. EPA has 17 records of corrective actions for the UCC facility, the latest verifying that migration of contaminated groundwater is under control. EDR found one report for multimedia listed in a county/local unique database for lead with a groundwater pathway score of 8.1.

2.6 EDR DataMap™ Area Study

EDR searched a 1-mile radius of the target property boundary for available environmental records. A review of the CORRACTS list (a list of handlers with RCRA Corrective Action Activity), as provided by EDR, and dated March 15, 2004, revealed that there is one CORRACTS site within the searched area, UCC.

A review of the RCRIS-TSD list (Resource Conservation and Recovery Information System treat, store or dispose of the waste) as provided by EDR, and dated April 13, 2004, revealed that there is one RCRIS-TSD site within the searched area, UCC.

A review of the RCRIS-SQG list (small quantity generator), as provided by EDR, and dated April 13, 2004, revealed that there is one RCRIS-SQG site within the searched area, UCC.

A review of the GA NON-HSI list (Georgia Non Hazardous Site Inventory Sites) as provided by EDR revealed that there are two GA NON-HSI sites within the searched area, UCC and RP.

Given the history of the area, there is only one manufacturing facility that has operated under several different names at the same address.

2.7 EDR Historical Topographic Map Report

In accordance with ASTM E-1527-00 Section 7.3, *Historical Use Information*, EDR's historical Topographic Map Report includes a search of available public and private color historical map collections.

2.8 Regulatory File Review

CH2M HILL's review of historical aerial photographs and topographic maps (see Appendix A and B, respectively), the database search, and site inspection results indicated that development has occurred within the boundaries of the target property within the past 38 years. Therefore, a regulatory file review was conducted to obtain copies of the following information for the sites:

- Copies of any Notice of Violations (NOVs)/Memos/Letters of Interest
- Copies of Reports (Title Pages, Dates, Tables of Contents, Concentration Results, and Maps)
- Copies of Pertinent drawings
- Copies of RCRA Permits

2.9 UCC Records Review

CH2M HILL's review of UCC records include the Hazardous Waste Facility Post-Closure Care Permit Renewal Application and its appendices, correspondence, and maps of interest.

2.10 Habitat and Protected Species Review

2.10.1 Habitats

The Dow Woodbine site is located in the Coastal Plain Marine Flatlands region Atlantic Coastal Plain physiographic province. The site is within two subregions, the Coastal Marine Flatlands and the Tidal Marine Area. Habitats within the site include Todd Creek, the Saltilla River, tidal marsh, oak hammocks, young pine plantations, emergent wetlands, recently harvested cypress ponds and bay forests, upland oldfields, and maintained grassed areas. More than half the Dow Woodbine site is tidal marsh associated with the Saltilla River and Todd Creek. The remainder of the site includes scattered wetlands and uplands. None of the habitats on the Woodbine site are extraordinary or unique, although the oak hammock habitat remaining is of high quality.

2.10.1.1 Streams, Rivers, and Wetlands

The Saltilla River, which flows along the northern boundary of the property, is a tidal river (Wharton, 1978). Todd Creek, which parallels the Saltilla River and includes Floyd Basin, is a tidal Creek. These two streams are connected hydrologically through an extensive tidal marsh. Wharton (1978) classified this type of habitat as a coastal marine marsh tidal system. In the western portion of the property, near the solid fuel rocket test pit, the banks of Todd Creek are undergoing severe erosion and have undercut banks approximately 15 feet above the stream.

Tidal rivers and creeks support a diverse invertebrate faunal assemblage, with studies indicating that up to 20 species of amphipods, 16 species of nantid shrimp, 14 polychaete worm species, 16 crab species, 9 bivalve mollusks, and 9 gastropod mollusks (Wharton, 1978). Macrophytic vegetation typically is lacking from the channels of tidal rivers and creeks. Fish species vary with salinity concentration, with high salinity tending to result in greater numbers of fewer species of fish (Wharton, 1978).

Vegetation within the tidal marsh is dominated by near monoculture stands of cordgrass (*Spartina* spp.), saltgrass (*Distichlys spicata*), and black rush (*Juncus romerianus*). These plants segregate into distinct zones, with cordgrass occurring most seaward and black rush occurring most inland. The zones divide along salinity gradients. Common animals include numerous species of frogs and snakes, alligators, garfish, and bowfin. Shorebirds and ducks frequent the saltmarsh, with particularly high numbers found during winter. Osprey and bald eagles are common, with both species observed nesting on or adjacent to the property. Marsh rabbits and rice rats typically are the most abundant mammals.

Within the southern portion of the property there are four general wetland types represented: man-made, modified emergent/scrub-shrub, and cut-over cypress ponds and bay swamps, which currently exhibit scrub-shrub vegetation.

Manmade wetlands are those wetlands that have developed in areas excavated by humans. The borrow pit adjacent to the landfill and the wet weather pond near the southern boundary are the largest man-made wetlands. These areas contain standing water with emergent wetland vegetation (typically sedges, bulrush, and grasses) transitioning to upland vegetation as one moves up the banks from the water. The man-made wetlands are isolated form other waters on the property.

The emergent/scrub-shrub wetlands have not been altered recently by human activity. These areas probably are remnants of cypress savanna or pitcher plant bogs that were disturbed by earlier human activity on the property. The presence of hooded pitcher plant (*Sarracenia minor*) in abundance is indicative that these areas were relatively open habitats historically. Vegetation probably consisted of scattered pond cypress or slash pine (*Pinus elliottii*) with a sparse shrub layer. The dominant herbaceous species would have included hooded pitcher plant, orchids (*Habenaria* spp. and *Platanthera* spp.), lilies (*Lilium* spp.), plus numerous grasses and sedges. The likely past human alteration is reflected in the abundant shrub layer that has developed including St. John's worts (*Hypericum* spp.), wax myrtle, and low-growing shrubs. Prior to harvest, cypress ponds would have been dominated by pond cypress (*Taxodium ascendens*), with common understory components including sweetbay (*Magnolia virginiana*), gums (*Nyssa* spp.), red maple (*Acer rubrum* var. *triloba*), fetterbush (*Lyonia lucida*), and wax myrtle (*Myrica cerifera*). Common herbaceous components likely would have included poison ivy (*Toxicodendron radicans*), lizard's tail (*Saururus cernuus*), greenbrier (*Smilax rotundifolia*), and yellow-eyed grass (*Xyris* spp.). Typical animal species would include salamanders, toads, oligochaete worms, shrews, and marsh rabbits. Additionally, the cypress ponds likely received use by larger animals from the surrounding uplands, including wading birds, deer, and raccoons.

Prior to harvest, bay swamps would have been dominated by evergreen or semi-evergreen trees including sweetbay, loblolly bay (*Gordonia lasianthus*), and swamp red bay (*Persia palustris*). Bay swamps typically accumulate peat and do not have deep or extensive standing surface water. Understory species typically include wax myrtle, fetterbush, and azaleas (*Rhododendron* spp.). Ferns such as netted chain fern (*Woodwardia virginica*) are the predominant herbaceous plants. Faunal composition would be similar to cypress ponds, but with fewer species associated with aquatic habitats.

2.10.1.2 Uplands

The oak hammocks are classified as upland maritime forest by Wharton (1978). On the site, the dominant trees are live oak (*Quercus virginiana*), red cedar (*Juniperus virginiana*), and cabbage palm (*Sabal palmetto*). Saw palmetto (*Serenoa repens*), wax myrtle, and yaupon (*Ilex vomitoria*) are the common shrubs and herbaceous cover is limited. These hammocks contain depression pits that hold water for extended periods, but that are usually unvegetated. Animals present in these habitats include gopher tortoise (*Gopherus polyphemus*), eastern indigo snake (*Drymarchon corais couperi*), eastern diamondback (*Crotalus adamanteus*), nine-banded armadillo (*Dasypus novemcinctus*), opossum (*Didelphis marsupialis*), and gray squirrel (*Sciurus carolinensis*).

Young pine plantations are different from any natural communities that would occur on these sites. Loblolly pine (*P. taeda*) has replaced longleaf pine (*P. palustris*) and slash pine as the overstory species, and planting densities are much greater than would occur in nature. Understory vegetation is sparse because of the density of the pines and typically comprises ruderal species. Much of the area planted to loblolly pine was oak hammock prior to being replanted to pine. Other pine areas may have been slash or longleaf pine savannas prior to loblolly establishment. Animals found in surrounding habitats would use the loblolly pine areas for foraging or shelter, at least occasionally.

Oldfields are found on upland areas that were cleared for pasture or farming and later abandoned from those uses. Other oldfields may be found where earthmoving occurred and the disturbed ground was not replanted to a specific type. No effort was made to replant these areas to a specific vegetation type, and they have developed into various seres from weedy fields to young scrub forests. These habitats contain typical ruderal species and woody species typical of the surrounding land types. Many of the animals described for the surrounding habitat types would occur in the oldfields. Because of the relatively open habitat and high seed production associated with the typical plants, songbird use of oldfields is higher than for other habitat types on the property.

Areas immediately surrounding structures may be maintained in grasses. These areas have the manicured appearance of lawns or active pastures. Typically only grasses and ruderal weeds are found in these areas, and animal use is very low.

2.10.2 Protected Species

2.10.2.1 Animals

Review of historic records indicted that 19 Federal or state-listed animal species could occur within the approximate 4,000-acre Woodbine site (see Exhibit 2-6). Site investigation on July 12, 2004, indicated that the American alligator (*Alligator mississippiensis*), bald eagle (*Haliaeetus leucocephalus*), wood stork (*Mycteria americana*), and gopher tortoise (*G. polyphemus*) occur on the site. While not seen during site survey, the eastern indigo snake (*D. corais couperi*) also is known to occur on the property.

The American alligator was observed in the deep part of the borrow pit used for excavation of the material used for the landfill cap. Juvenile wood storks were observed foraging in the wet weather pond near the southern boundary of the property. This species also could forage along the edge of the borrow pit by the landfill or along mudflats and shallows along Todd Creek. There is a known bald eagle nest on the land adjacent to the property to the west. Two adult eagles and one juvenile eagle were observed soaring above the abandoned airstrip and the wetlands on the southwestern part of the property. This species could forage along Todd Creek and Floyd Basin and in the borrow pit by the landfill. Gopher tortoise are found throughout the property between the airstrip and Todd Creek and also are found on the peninsula with the Floyd Family cemetery. The indigo snake could occur throughout the areas where gopher tortoise are found.

Potentially suitable habitat was identified for Bachman's Sparrow (*Aimophila aestivalis*) in the recently cut-over areas on the western part of the property. The area was not suitable for the species when forested as it lacked pine, but the species could use the early successional habitat now present in the harvested areas.

The striped newt (*Notophthalmus perstriatus*) could occur in the oak hammocks between the airstrip and the landfill. This area historically had native pine forests and contains ephemeral depression ponds that offer potential reproductive habitat.

The wetlands in the southwestern part of the property could provide suitable habitat for the spotted turtle (*Clemmys guttata*). These wetlands contain shallow standing water and have dense herbaceous cover, conditions favored by the turtle.

The tidal marsh along Todd Creek and the Saltilla River on the northern portion of the property provides habitat that may be used by piping plover (*Charadrius melodus*) and gull-billed tern (*Sterna nilotica*), and the peregrine falcon (*Falco peregrinus*) may use this area during migration. No potentially suitable nesting or roosting habitat was identified for the sallow-tailed kite (*Elanoides forficatus*), but this species could forage over the property. The Florida manatee (*Trichechus manatus*) may occasionally enter the channels of Todd Creek and the Saltilla River.

No potentially suitable habitat was identified for other species listed in Exhibit 2-6, and these species are unlikely to occur within the property boundaries.

2.10.2.1 Plants

Review of historic records indicted that 13 state-listed plant species could occur within the approximate 4,000-acre Woodbine site (see Exhibit 2-7). No federally protected plants were identified as potentially occurring ion the property from the records search.

Site investigation on July 12, 2004 indicated that hooded pitcher plant (*S. minor*) occurs in the southwestern part of the property. This plant was relatively abundant in the edges of and adjacent to wetlands around Loop Road.

No other listed species were observed, but potentially suitable habitat was identified for hartwrightia (*Hartwrightia floridana),* pond spice *(Listea aestivalis*), climbing buckthorn (*Sageretia minutiflora*), ball-moss (*Tillandsia recurvata*), dwarf witch-alder (*Fothergilla gardenii*), and narrowleaf obedient plant (*Physostegia leptophylla*). Exhibit 2-7 identifies the habitat areas where these species could occur. With the exception of the potential for narrowleaf obedient plant in the tidal marshes, the quality of the potential habitat observed for these species was relatively low.

Tarflower (*Befaria racemosa*), a plant on the Georgia Watch List (species deemed in need of additional knowledge to determine their conservation status), was identified in the southwestern and southcentral parts of the property. This species was observed growing in considerable numbers along roadsides and on upland margins of wetlands in recently cut-over areas.

EXHIBIT 2-6
State and Federal Protected Animal Species with Potential to Occur on Woodbine Site

Species	Common Name	Legal Status	Habitat	Comments
Alligator mississippiensis	American Alligator	GA: Threatened by similarity of appearance to a protected taxon US: Threatened by similarity of appearance to a protected taxon	shallow brackish water, swamps, sloughs	Occurs on site, in borrow pit adjacent to landfill and could occur along sloughs or backwaters of Todd Creek.
Corynorhinus rafenesquii	Rafinesque's Big-eared Bat	GA: Rare US: Not Listed	Mature Pine Flatwoods	No suitable habitat
Neofiber alleni	Round-tailed Muskrat	GA: Threatened US: Not Listed	Shallow grassy ponds marshes, and bogs	No suitable habitat
Trichechus manatus	West Indian Manatee	GA: Endangered US: Endangered	Riverine, Estuarine, and marine	May occur as an occasional in the Todd Creek/Saltilla River channels.
Aimophila aestivalis	Bachman's Sparrow	GA: Rare US: Not Listed	Open pine forests and regenerating clear cuts	Limited potential habitat where trees have been harvested.
Charadrius melodus	Piping Plover	GA: Threatened US: Threatened	Beaches, mudflats, tidal ponds	May occur as an occasional on tidal mudflats along Todd Creek on the northern part of the property.
Charadrius wilsonia	Wilson's Plover	GA: Rare US: Not Listed	Barrier Islands beaches	No suitable habitat
Elanoides forficatus	Swallow-tailed Kite	GA: Rare US: Not Listed	Uneven forest canopies near open areas	No suitable habitat onsite, could be transient user of the property.
Falco peregrinus	Peregrine Falcon	GA: Endangered US: De-Listed		Potential transient use of marsh during migration
Haliaeetus leucocephalus	Bald Eagle	GA: Endangered US: Threatened	Large trees near open water	Nest offsite, forage onsite.

EXHIBIT 2-6
State and Federal Protected Animal Species with Potential to Occur on Woodbine Site

Species	Common Name	Legal Status	Habitat	Comments
Mycteria americana	Wood Stork	GA: Endangered US: Endangered	shallow marshy and open water areas	Juveniles observed in wet weather pond.
Picoides borealis	Red-cockaded Woodpecker	GA: Endangered US: Endangered	Mature, open pine forests	No suitable habitat.
Sterna nilotica	Gull-billed Tern	GA: Threatened US: Not Listed	Marshes and coastal areas	Could utilize marsh on northern portion of property
Clemmys guttata	Spotted Turtle	GA: Unusual US: Not Listed	Heavily vegetated shallow wetlands with standing or slowly flowing water	Limited potentially suitable habitat exists.
Drymarchon corais couperi	Eastern Indigo Snake	GA: Threatened US: Threatened	longleaf pine and turkey oak scrub	Occurs throughout the sandy portions of the property extending south from Todd Creek to the abandoned airstrip
Gopherus polyphemus	Gopher Tortoise	GA: Threatened US: Not Listed	longleaf pine and turkey oak scrub	Occurs throughout the sandy portions of the property extending south from Todd Creek to the abandoned airstrip
Ambystoma cingulatum	Flatwoods Salamander	GA: Threatened US: Threatened	Pine flatwoods and isolated herbaceous wetlands	No suitable habitat
Notophthalmus perstriatus	Striped Newt	GA: Rare US: Not Listed	Pine sandhills and flatwoods	Limited potential habitat between the landfill and the abandoned airstrip.
Lucanis goodei	Bluefin Killifish	GA: Unusual US: Not Listed	Vegetated ponds, sloughs, lakes; tolerant of brackish water	Could occur in borrow pit for landfill cap.

EXHIBIT 2-7
State Protected Plant Species with Potential to Occur on Woodbine Site

Species	Common Name	Legal Status	Habitat	Comments
Asplenium heteroresiliens	Wagner's Spleenwort	GA: Threatened US: Not Listed	Marl outcrops, limestone ledges, and Tabby construction	Was not observed on Anchor House, no other potentially suitable habitat exists.
Balduina atropurpurea	Purple Honeycomb Head	GA: Rare US: Not Listed	Wet pine savannas	No suitable habitat.
Carex dasycarpa	Velvet Sedge	GA: Rare US: Not Listed	Sandy acid woods and hammocks and streambanks	No suitable habitat.
Epidendron conopseum	Greenfly Orchid	GA: Unusual US: Not Listed	Moist to seasonally dry woods	No suitable habitat.
Hartwrightia floridana	Hartwrightia	GA: Threatened US: Not Listed	Mucky peat of pine flatwoods and sedge meadows and wet ditches	Limited potentially suitable habitat exists in the southwestern part of the property.
Listea aestivalis	Pond Spice	GA: Threatened US: Not Listed	Margins of swamps and sandhill depression ponds	Potentially suitable habitat exists in the central part of the property.
Sageretia minutiflora	Climbing Buckthorn	GA: Threatened US: Not Listed	Calcareous rocky bluffs, forested shell middens, and evergreen hammocks along streams and coastal marshes	Species could occur in the tidal marshes of Todd Creek and the Saltilla River.
Sarracenia minor	Hooded Pitcher plant	GA: Unusual US: Not Listed	Open bogs, wet savannas, pine flatwoods	Occurs in wetlands on the western portion of Loop Road.
Tillandsia recurvata	Ball-moss	GA: Threatened US: Not Listed	Branches of live oak trees	Was not observed, potentially suitable habitat exists on the property.
Fothergilla gardenii	Dwarf Witch-alder	GA: Threatened US: Not Listed	Low, flat, swampy areas	Potentially suitable habitat exists in southwestern part of the property.
Matelea alabamensis	Alabama Spiny-pod	GA: Threatened US: Not Listed	Oak-Hickory forest	No suitable habitat.
Matelea pubiflora	Trailing Milkvine	GA: Rare US: Not Listed	Sand ridges in association with turkey oak and longleaf pine	No suitable habitat.

EXHIBIT 2-7
State Protected Plant Species with Potential to Occur on Woodbine Site

Species	Common Name	Legal Status	Habitat	Comments
Physostegia leptophylla	Narrowleaf Obedient Plant	GA: Threatened US: Not Listed	Wet muck or peat in shallow water of river or swamp openings and margins of fresh and brackish tidal marshes	Potentially suitable habitat occurs in tidal marsh of Todd Creek and the Saltilla River.

SECTION 3

Conclusions and Recommendations

3.1 Summary of Findings and Conclusions

CH2M HILL performed a Phase I Environmental Audit of UCC property located in southwestern Camden County in Woodbine, Georgia. CH2M HILL endeavored to perform this Phase I Environmental Audit in substantial conformance with the scope and limitations of ASTM Standard E 1527-00. Any exceptions to or deletions from the standard are described in Sections 1.4, 1.5, and 1.6 of this report.

The electronic database search identified one industrial facility at this property. The site reconnaissance revealed there may have been a hydrocarbon release on the airstrip, and there is some unidentified semi-solid material at the west end of the runway. OCBM remnants and empty, rusted barrels were found near the vicinity of SWMU-01, potentially part of the landfill buffer zone. Rusted, empty barrels were found north of SWMU-07.

No other visual signs of contamination were observed during the site visit. The section north of Todd's Creek has always been undeveloped. The SWMUs south of Todd Creek have been closed and granted NFA status. Industrial operations are limited to property already sold to others (BCS/RP) or excluded (landfill) from the proposed sale. There should be no issues from past industrial operations that would restrict future use of the property.

3.2 Recommendations

Based on the presence of possible environmental liabilities described in this report, CH2M HILL recommends that UCC remove possible hydrocarbons on and near the end of the airstrip. If visual signs of contamination, such as stressed vegetation or soil discoloration, are observed while removing the possible contaminant, CH2M HILL recommends collecting surface soil samples to confirm the presence (if any) of contaminated soil. If soil samples are collected, they should be analyzed for volatile organic aromatics using EPA Method 8020, polynuclear aromatic hydrocarbons (PAHs) using EPA Method 8310, and Florida Petroleum Range Organics using the FL PRO method. It is also recommended that barrels be removed from property north of SWMU-07. Although the property near SWMU-01 may be within the buffer zone around the landfill, it is recommended that any OCBM remnants be removed as well as the rusted barrels. The remainder of the property showed no visible environmental liabilities. Assuming these results are representative, there are no indications that the target property contains petroleum or hazardous substances that would devalue the property.

The observations, conclusions, and recommendations presented in this report are CH2M HILL's professional opinions based upon investigation and assessment as described in this report. They are intended exclusively for the purpose outlined herein and specifically for the site location indicated. This report is intended for the sole use of UCC and its legal counsel. The scope of services performed for this investigation may not be appropriate to

satisfy the needs of other users, and any use or re-use of this document or the findings, conclusions, or recommendations represented herein is at the sole risk of other users.

It should be recognized that this study was not intended to be a definitive investigation of contamination, environmental impairment, or environmental compliance at the site. Given that the schedule and scope of services for this investigation were limited, it is possible that currently unrecognized contamination may exist at the site and that the levels of potential contamination may vary across the site.

The opinions and recommendations presented herein apply to site conditions existing at the time of the investigation and those reasonably foreseeable. They cannot necessarily apply to site-specific changes of which CH2M HILL is not aware, or having exercised all reasonable skills, care, and diligence, has not had the opportunity to evaluate.

SECTION 4

Works Cited

American Society for Testing and Materials. 2000. *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*.

Bermes, B.J., G.W. Leve, and G.R. Tarver. 1963. *Geology and Groundwater Resources of Flagler, Putnam, and St. Johns Counties, Florida*. Report of Investigations 32. Tallahassee, Fla.: Florida Geological Survey.

Clark, W.E., R.H. Musgrove, C.G. Menke, and J.W. Cagle Jr. 1964. *Water Resources of Alachua, Bradford, Clay, and Union Counties, Florida*. Report of Investigations 35. Tallahassee, Fla.: Florida Geological Service.

Clark, J.S., C.M.Hacke, and M.F. Peck. 1990. *Geology and Ground Water Resources of the Coastal Area of Georgia*. Bulletin 113. Atlanta, Ga.: Department of Natural Resources.

Krause, R.E., S.E. Matthews, and H.E. Gill. 1984. *Evaluation of the Groundwater Resources of Coastal Georgia; Preliminary Report on the Data Available as of July 1983*. Information Circular 62. Atlanta, Ga.: Georgia Department of Natural Resources.

Krause, R.E., and R.B. Randolph. 1989. *Hydrology of the Floridan Aquifer System in Southeast Georgia and Adjacent Parts of Florida and South Carolina*. Professional Paper 1403-D. Washington D.C.: U,S. Geological Survey.

Wharton, C.H. 1978. *The Natural Environments of Georgia*. Bulletin 114 of the Georgia Department of Natural Resources. Third Printing, 1998.

APPENDIX A

Historical Aerial Photographs

APPENDIX B

Historical Topographic Maps

APPENDIX C

Permit Appendices and NFA Letter

APPENDIX D

Site Inspection Photographs

APPENDIX E

EDR AuditCheck™ Facility Report

APPENDIX F

EDR DataMap™ Area Study

APPENDIX G

EDR Historical Topographic Map Report Report

SECTION 1

Introduction

SECTION 2

Phase I Environmental Audit

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Conclusions and Recommendations

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Works Cited