SITE: GE Aerospace
BREAK: 1.9
OTHER: v.1

SITE INVESTIGATION

GE AEROSPACE / MARTIN MARIETTA

HUNTSVILLE, MADISON COUNTY, ALABAMA

ALD009305608

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10603192

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Date:	**May 18, 1998**
Prepared by:	**Jerremy H. Stamps (Site Investigator)** **Compliance Section** **Field Operations Division**
Site:	**GE Aerospace / Martin Marietta** **Huntsville, Madison County, Alabama**
EPA ID NO.:	**ALD009305608**
Reference No.:	**6633**

Low Priority
BJ 8.20.98

1.0 Introduction

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization act of 1986 (SARA) and a cooperative agreement between the U. S. Environmental Protection Agency and the Alabama Department of Environmental Management (ADEM), a Site Investigation (SI) was conducted at the GE Aerospace site in Huntsville, Madison County, Alabama. The purpose of this investigation was to collect information concerning conditions at the site sufficient to assess the threat posed to human health and the environment and to determine the need for additional investigations under CERCLA or other authority, and, if appropriate, support site evaluation using the Hazardous Ranking System (HRS) for proposal to the National Priorities List (NPL). The investigation included reviewing previous information, sampling waste and environmental media to test Preliminary Assessment (PA) hypotheses and to evaluate and document HRS factors.

2.0 Site Description

2.1 Location

The General Electric Aerospace site (GE Aerospace) is located at 110 Wynn Drive in Huntsville, Madison County, Alabama (Figure 1). More specifically, the site is a 13.25 acre parcel of land located within the Northwest 1/4 of Section 5, Township 4 South, Range 1 West (Reference 1). The geographic coordinates of the site are 34° 43' 18" North Latitude and 86° 39' 23" West Longitude (Reference 1).

The climate of Madison County is mild, temperate, and continental. It is characterized by long, hot, humid summers, with an average daily high of 89° F and an average daily low temperature of 68° F. Winter is mild and pleasant, and has an average daily high temperature of 52° F, and an average low temperature of 32° F. The average yearly rainfall is 51.7 inches, with a net yearly rainfall of 11.7 inches. The average yearly temperature is 60° F. Maximum temperatures exceed 100° F and minimum temperatures are less than -5° F. (Reference 14)

2.2 *Site Description*

The GE Aerospace site, 13.25 acres in size, is located in the Northwest 1/4 of Section 5, Township 4 South, Range 1 West in the town of Huntsville, Madison County, Alabama (Figure 1). The GE Aerospace site is bound on the north by Gilmer Road, on the south by commercial properties (U.S. Army Strategic Defense Command), on the southwest by a concrete lined drainage ditch and then by residential housing, on the east by Wynn Drive, and on the west by commercial properties (South Central Bell Field Maintenance Facility). The immediate area surrounding the subject property is generally comprised of commercial structures and single family residential neighborhoods.

The GE Aerospace site is at an elevation of approximately 650 to 665 feet above mean sea level. The site is relatively flat with a slope of 1 to 4 percent towards the southwest (see Figure 1). The site is outside the 500-year flood plain (Reference 5).

2.3 Operational History & Waste Characteristics

Since about 1966 the subject site (GE Aerospace) appears to have been used as a manufacturing, testing and research facility for small electrical components. The GE Aerospace property ownership and tenant occupancy history are as follows:

> Prior to 1963, the subject site consisted of undeveloped farmland and a private residence owned by Miss Annie H. Bradford of [101 Clinton Avenue East, Huntsville, Alabama.]
>
> On September 9, 1963, the subject property was conveyed to the Research Site Foundation.
>
> On November 21, 1966, University of Alabama, Huntsville Foundation (Formerly Research Site Foundation, Inc.) conveyed the 13.25 site to Huntsville Industrial Associates, Inc.
>
> In 1966 Huntsville Industrial Associates, Inc. built a building on the site and leased it to Astro Space. Astro Space conducted research and development of mechanical and electrical models and test devices for the federal government.
>
> In the early 1970's, Chrysler Corporation took up occupancy of the southern part of the building while the northern part of the building was vacant during this time period. Work by the Chrysler Corporation at this

subject site involved updating electronic test equipment and manufacturing electrical performance equipment.

In the mid 1970's General Electric Corporation replaced Chrysler Corporation in the southern part of the building. Micrometrics occupied the northern part of the building during this same time period. Both these companies were involved in testing and updating electrical and mechanical equipment under contract by the U.S. Government.

In November 1981, Chrysler Corporation moved into the northern portion of the building. Chrysler was involved in design and testing of electrical and communication controls for high-speed trains.

In May of 1985 Huntsville Industrial Associates, Inc. sold the subject property to Wynn Drive Properties.

In November of 1987 Chrysler ceased operations and moved out of the building. General Electric continued to occupy the southern part of the building and expanded its occupancy beginning January 1, 1988 to the new 106,000 square foot addition. General Electric is involved is research, development and testing of computer equipment and other electrical devices.

In 1990, General Electric decided to relocate its Huntsville operation to Florida and to abandon or sublease the subject property. General Electric corporate policy dictated that before any abandonment or subleasing a base line environmental study should be performed.

Mr. Tyrone Samples is currently leasing the site to PEI Electronics. Mr. Samples current mailing address is Samples Properties, P.O. Box 264

Huntsville, Alabama 35804. Mr. Samples Telephone number is (205) 533-0003.

In May of 1991 GE's environmental study found high levels of TPH in soils around a transformer that had been refilled and retrofitted in 1988 or 1989. At this time groundwater analysis at the site showed no volatile or semi-volatile organic compounds. (Attachment 8)

In January of 1992, the TPH contaminated soil around the transformer was being removed. During the removal, a layer of gravel was encountered and an oily liquid seeped out into the excavation. The liquid was found to consist of approximately 90% TCE. Groundwater monitoring was performed again in late 1992, and for the first time TCE was found at 0.26 ppm (parts per million). (Attachment 8)

In March of 1993, General Electric reported to ADEM its findings of groundwater contamination. (Attachment 2)

On February 8, 1994, ADEM issued a Notice of Violation (NOV) to GE alleging that substances related to GE's operation have entered the groundwater, constituting an unpermitted discharge of pollutants to state waters. The NOV required that a groundwater quality assessment be performed in order to determine the horizontal and vertical extent of groundwater contamination. (Attachment 3)

On May 23, 1994 ADEM gave Martin Marietta/GE Aerospace an indefinite extension for the completion of the requirements of the November 8, 1994 Notice of Violation. GE testified that they never used a drop of TCE at the Huntsville site, but when they first occupied the site in the mid 1970's they had to have drums containing TCE left behind by prior tenant disposed of at Chemical Waste Management's Emelle Alabama Facility. (Attachment 6)

In November of 1994 Martin Marietta Corp., successor in interest to GE Aerospace, appealed the NOV on the grounds that the TCE contamination did not come from GE's operation and therefore the GE should not be held responsible since it committed no unlawful discharge. (Attachment 8)

On April 14, 1998 ADEM sampled three of the four on site monitoring wells for volatiles and metals. Chloroform, zinc, aluminum and cadmium were found in the groundwater. During this sampling event it was also determined that the water level in the shallow aquifer had dropped significantly since 1993. The reason for this change in the water level is currently not known. (Attachment 11)

3.0 Groundwater Pathway

3.1 Hydrogeology

The GE Aerospace site is situated within the Highland Rim section of the Interior Low Plateau physiographic province. The Highland Rim section is characterized by an alternating landscape of stream valleys and gently rolling hills of slight to moderate relief. Portions of the Cumberland Plateau section of the Appalachian Plateaus is found within the 4-mile study area. The Cumberland Plateau has higher relief than the Interior Low Plateau due to submature dissection. The elevation of the land at the GE Aerospace site is approximately 665 feet above mean sea level.

The geology of the area surrounding the site consist of residuum layer overlying layered sedimentary rocks, while not subject to major tectonic forces, have been influenced by the Nashville Dome. The Nashville Dome is a domal structure centered around Nashville Tennessee that imparts a 20-30 feet per mile dip to the south and southwest on the sedimentary formations of north-central Alabama. Linear features, fractures and solution enlarged karst features are very common in Madison County. Much of the county, including the area in which the GE Aerospace site is located, is considered to be in an area in which sinkholes have occurred or can occur. Large springs, such as Brahan

Spring and Byrd Spring, located in Huntsville indicate that karst processes are active in the area surrounding the site.

The source of water for all the public water supply wells and springs with the study area is the Tuscumbia-Fort Payne aquifer. Cavernous porosity is present in many places where dissolution has enlarged joints and bedding-planes in this carbonate rock aquifer. Wells that penetrate these features produce large quantities of water. For example, the William Well has pumped as much as 3,200 gallons per minutes. (Reference 3; Reference 12)

The Tuscumbia-Fort Payne aquifer can be considered a partially confined aquifer. The underlying Maury Formation and Chattanooga Shale makes the Tuscumbia-Fort Payne aquifer practically impermeable from below, and the presence of a low hydraulic conductivity residual mantle that overlies much of the study area decreases the likelihood of surface contamination entering into the aquifer from above. The Tuscumbia-Fort Payne aquifer is highly susceptible to surface contamination in areas where poorly drained land surfaces reside above the potentiometric surface of the aquifer. The Tuscumbia-Fort Payne aquifer is extremely susceptible to surface contamination in areas where dissolution processes have formed karst surface features such as sinkholes and disappearing streams. (Reference 3; Reference 12)

The Tuscumbia Limestone formation, which is Mississippian in age, is also known as the St. Louis or Huntsville Limestone. The general lithology of the Tuscumbia Limestone is light-gray micritic or bioclastic limestone with white chert nodules common. Dark gray chert is found within the unit but is less common. The average thickness of the Tuscumbia is about 200 feet. Many karst solution features are present in the Tuscumbia and it is common for these features to be vertically controlled. (Reference 3)

The Fort Payne Chert, which is Mississippian in age, is located stratigraphically beneath the Tuscumbia Limestone and Monteagle Limestone. The Fort Payne consist of thin

bedded microcrystalline siliceous limestone unit with an average of about 50 percent blue-gray to smoky chert. In the study area, the Fort Payne can be as much as 150 feet thick. Many karst solution features are present in the Fort Payne. Weathering of the Fort Payne produces a thick residuum of yellowish-brown clay containing blocky chert. (Reference 3)

The Maury Formation, which is Mississippian in age, is located stratigraphically beneath the Fort Payne Chert. The Maury Formation consists of less than 5 feet of green fosiliferous clay shale that unconformibly lies above the Chattanooga Shale. (Reference 12)

Underlying the Maury Formation is the Chattanooga Shale of Devonian age. The Chattanooga Shale is brownish-black to grayish-black silty, organic shale, and lesser amount of light- to dark-gray fine-grained sandstone that may contain pyrite and phosphatic inclusions. These black petroliferous shales are slightly radioactive due to the trace presence of uranium. In Madison County, the Chattanooga Shale is only 1 to 13 feet thick. (Reference 12)

At the GE Aerospace site, 40-80 feet of Tuscumbia Limestone and Fort Payne Chert regolith overlies approximately 60-80 feet of Fort Payne Chert bedrock. At the base of the Fort Payne Chert is the Maury Formation and Chattanooga Shale. (Reference 12)

3.2 Groundwater Targets

The Huntsville City area is served by Huntsville Utilities. All 192,324 residents obtain potable water from the public water system. According to the water availability data from the city of Huntsville, Braham Spring and Lowemill Well are the only two sources of public water that exist within a 4-mile radius of the site. The source of water for all of Huntsville Utilities wells and springs is the Tuscumbia-Fort Payne aquifer. The citizens of Huntsville are supplied water by the public water system of Huntsville, which is an

eight source blended system. The system consist of two surface water sources that supply sixty percent of the total population and six wells which supply the remaining forty percent of the populations water. Public water is available throughout Huntsville, and therefore the use of private wells is probably nonexistent. (Reference 3; Reference 4)

3.3 Groundwater Conclusions

At one time or another TCE, chloroform, zinc, aluminum and cadmium have been detected in the groundwater of the shallow residuum aquifer underneath the GE Aerospace site (Table 1-3). The vertical and horizontal extent of these contaminants is currently not known.

All the contaminants found in groundwater are documented to have been used at one time or another in the 32-year history of the site. There is also some evidence that the source of the groundwater contamination lies below the concrete floors of the facility (Attachment 2). Further study beyond the normal scope of a SI would be required to document that the source lies underneath the facilities buildings as well as to determine the true extent of groundwater contamination.

4.0 Surface Water Pathway

4.1 Hydrology

Overland drainage from the GE Aerospace site enters the surface water pathway via Sherwood Branch, located to the south and southwest of the site. From the probable point of entry (PPE), Sherwood Branch flows southeast for 1.18 miles before being discharged into McDonald Creek. McDonald Creek then flows southeast for 5.64 miles before discharging into Huntsville Spring Creek. Huntsville Spring Creek then flows south for 1.81 miles before entering Wheeler Lake of the Tennessee River. The remainder of the 15-mile surface water pathway remains within the Tennessee River.

The Tennessee River has an average flow of 42,940 cubic feet per second (cfs). The lowest flow to which the Tennessee River will decline during 7 consecutive days on an average of once every 2 years of normal flow (7-day Q2) is estimated to be 8570 cfs. The 7-day Q10 is estimated to be 4880 cfs. (Reference 6; Reference 13)

4.2 Surface Water Targets

Within the 15-mile surface water pathway, the Tennessee River is classified for water contact sports and for fish and wildlife (Reference 7). The GE Aerospace site, and the land along the banks of the Tennessee River and its intermittent tributaries might be critical to the support of many threatened and endangered terrestrial species (see list of terrestrial species in Section 5.2). The table below lists the aquatic wildlife that is thought to have a high probability of being exposed to contaminants from the site if it was to enter the surface water pathway:

Common Name	***Listing***	***Distribution in Alabama***
Orange-Footed Pearly Mussel	Endangered	Tennessee River
Pink Mucket Pearly Mussel	Endangered	Tennessee River
Rough Pigtoe Mussel	Endangered	Tennessee River
Cracking Pearly Mussel	Endangered	Tennessee River
Cumberland Monkeyface pearly Mussel	Endangered	Tennessee River
Fanshell	Endangered	Tennessee River
Little-Wing Pearly Mussel	Endangered	Tennessee River
Purple Cat's Paw Mussel	Endangered	Tennessee River
Ring Pink Mussel	Endangered	Tennessee River
Turgid-Blossom Pearly Mussel	Endangered	Tennessee River

White Wartback Pearly Mussel	Endangered	Tennessee River
Yellow-Blossom Pearly Mussel	Endangered	Tennessee River
Snail Darter	Endangered	Madison County
Slackwater Darter	Endangered	Madison County
Alabama Cave Shrimp	Endangered	Madison County
Fine-Rayed Pigtoe Mussel	Endangered	Madison County
Tan Riffle Shell Mussel	Endangered	Madison County
Shiny Pigtoe Mussel	Endangered	Madison County

(Reference 8; Reference 9)

4.3 Surface Water Conclusion

Fisheries, endangered aquatic wildlife and Wheeler National Wildlife Refuge are potential targets located within the 15-mile downstream surface water pathway. Due to the large quantity of water that flows through the Tennessee River, the concentration of any particular contaminant from the site is probably not great enough to have a noticeable impact on the fisheries or aquatic wildlife within the surface water pathway.

5.0 Soil Pathway and Air Exposure

The USDA Soil Survey indicates that the GE Aerospace site is underlain by Decatur and Cumberland silty clay loam soils. These soils consist of 5 to 6 inches of brownish-red silty clay loam. Below this layer is reddish-brown to dark-red firm to very firm subsoil that grades with depth from silty clay loam to silty clay. These soils have a medium internal drainage and a moderately high water holding capacity. Permeability and infiltration for this type of soil is also in the moderate range. (Reference 2)

The people living in the Sherwood Park residential community as well as the onsite and adjacent workers make up the major target that could be potentially impacted by soil and/or air contamination coming from the GE Aerospace site.

According to the Alabama 1990 census records (Reference 10), the average number of people living in homes located in Madison County is 2.56 residents per household. In the following table, the total population within the target area has been broken down into sub-populations that live within each specified distance radius from the site:

DISTANCE FROM SITE	*POPULATION*
0 TO 1/4 MILE	100
>1/4 TO 1/2 MILE	850
>1/2 TO 1 MILE	3,750
>1 TO 2 MILES	15,000
>2 TO 3 MILES	25,000
>3 TO 4 MILES	35,000
TOTAL POPULATION	79,700

None of the site is considered a wetland environment. Some parts of the Wheeler National Wildlife Refuge that lie within the 4-mile target area and the 15-mile surface water pathway might be considered wetlands. It is not known if the site is a critical habitat for federally designated endangered or threatened species, but the table below list the terrestrial species that may utilize the land and surface waters located within the specified target areas:

Common Name	*Listing*	*Distribution in Alabama*
Gray Bat	Endangered	Madison County
Indiana Bat	Endangered	Madison County
Bald Eagle	Endangered	Madison County
Red Wolf	Endangered	Statewide
Backman's Warbler	Endangered	Statewide
Eskimo Curlew	Endangered	Statewide
American Peregrine Falcon	Endangered	Statewide

American Burying Beetle	Endangered	Statewide
Florida Panther	Endangered	Statewide
Arctic Peregrine Falcon	Threatened	Statewide

(Reference 8; Reference 9)

Building foundations and asphalt parking lots cover most of the area where soil is suspected to be contaminated with TCE. The remainder of the site is landscaped with grass, shrubs and trees. Exposure to the contaminated soil at the site is anticipated to be almost impossible, and at most very short termed and infrequent. During the site visit, no dust or odors were humanly detectable in the air. Therefore, the likelihood of exposure via the air and soil pathways is believed to be very unlikely.

6.0 Summary and Conclusions

Since 1966, the GE Aerospace site has been used as a manufacturing, testing and research facility for small electrical components. In the 30 years that the facility has been in operation, four different companies have leased the property and there have been three different owners of the property. The current owner of the property is Mr. Tyrone Samples. Mr. Samples is currently leasing the property to PEI Electronics Inc.

In March of 1993, General Electric reported to ADEM its findings of TCE groundwater contamination. GE testified that they never used TCE in their operations at the site, but when they first occupied the site in the mid 1970's they disposed of drums containing TCE that were left behind by the previous tenant.

Currently the only known exposure pathway to exist at the GE Aerospace site is the groundwater pathway. TCE, chloroform, zinc, aluminum and cadmium have been detected in the groundwater of the shallow residuum aquifer underneath the GE Aerospace site (see Tables 1-3). The vertical and horizontal extent of this contamination has yet to be determined.

The GE Aerospace site is in need of further groundwater study before it can be determined as to whether or not the site should be proposed for the National Priorities List. Based mostly on the site's location within the city of Huntsville and the underlying karst geology, the site has the potential to threaten human health and the environment via the groundwater pathway. The necessary data needed to determine if there is a source of contamination great enough to impact groundwater to a point where a threat actually could exist is beyond the capabilities of this Site Investigation. Therefore, an Expanded Site Investigation will be necessary in order to determine if the site has the potential to pose a significant threat to the groundwater pathway.

7. REFERENCES

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12. Doyle F. L., et. al., Geological Survey of Alabama, 1975, Environmental Geology and Hydrology, Huntsville and Madison County Alabama Geological Survey of Alabama Atlas Series 8.

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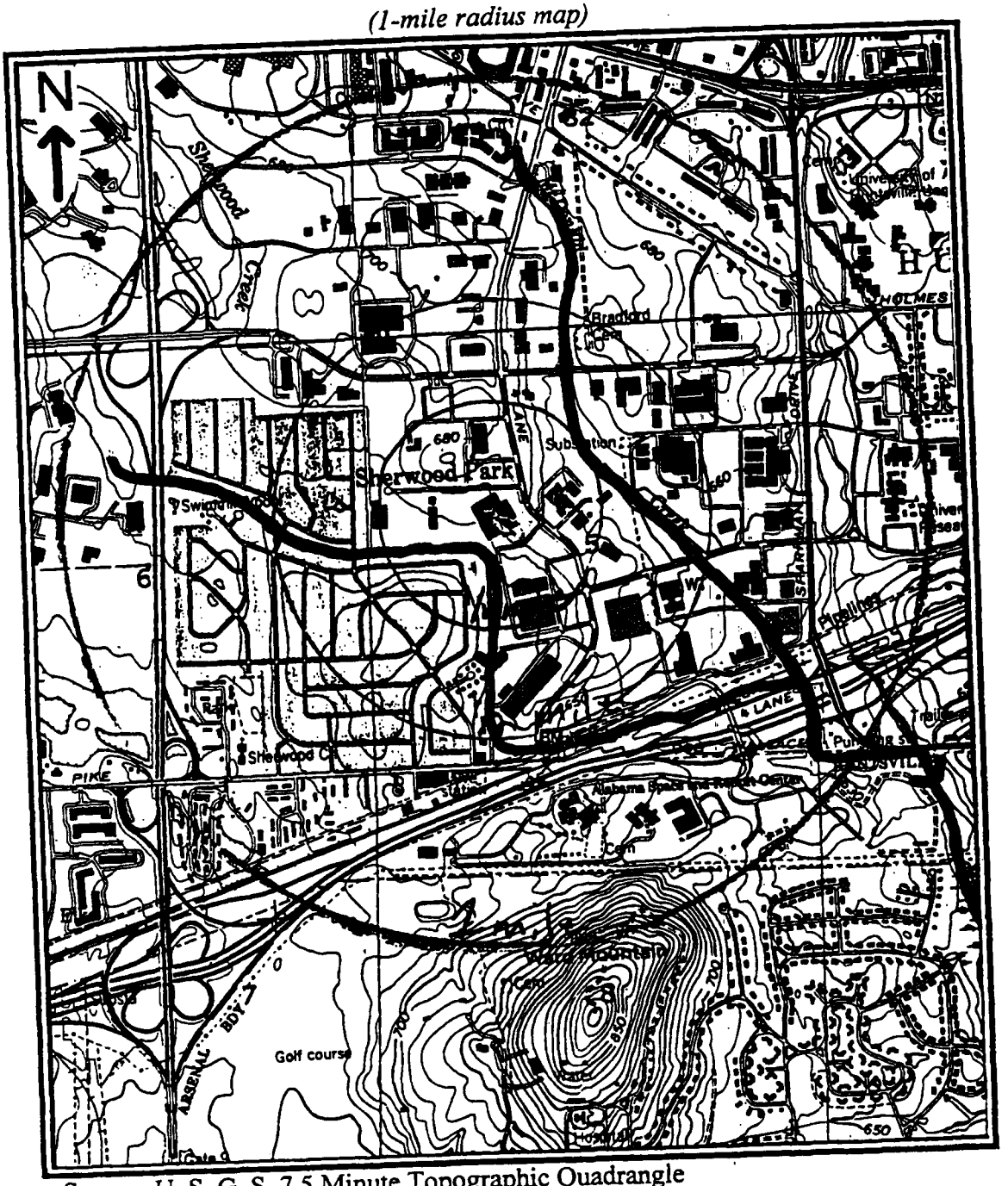
FIGURE 1

FIGURE 1
GE AEROSPACE SITE
(1-mile radius map)



Source: U. S. G. S. 7.5 Minute Topographic Quadrangle

FIGURE 2

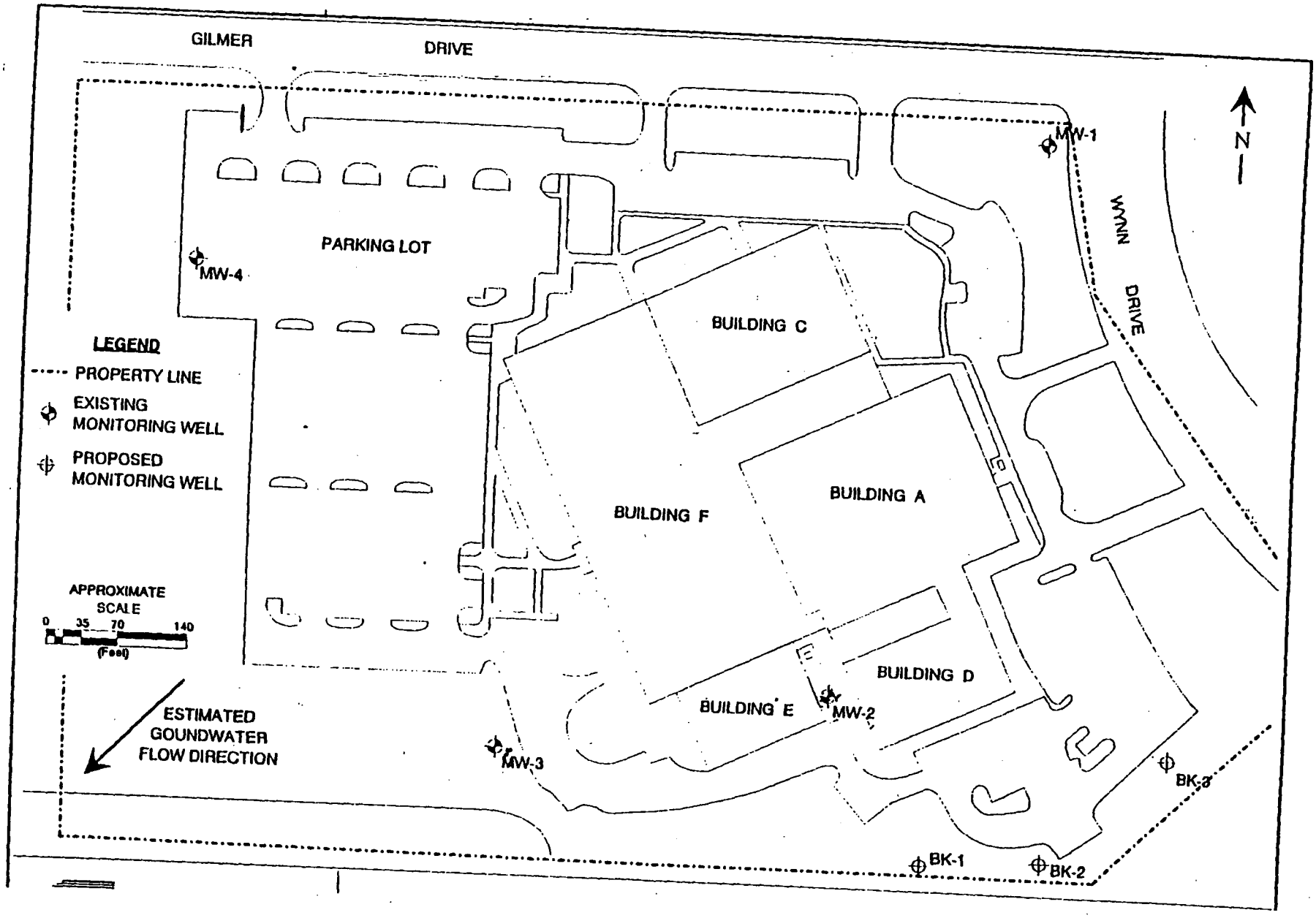

GILMER
DRIVE
PARKING LOT
MW-4
MW-1
WWW
DRIVE
N
BUILDING C
BUILDING F
BUILDING A
BUILDING D
BUILDING E
MW-2
MW-3
BK-3
BK-1
BK-2
LEGEND
PROPERTY LINE
EXISTING MONITORING WELL
PROPOSED MONITORING WELL
APPROXIMATE SCALE
0 35 70 140
(Feet)
ESTIMATED GOUNDWATER FLOW DIRECTION

Figure 2

REFERENCE 1

see
Plate
1

REFERENCE
2

s 1947, No. 3

Issued February 1958

SOIL SURVEY

Madison County Alabama

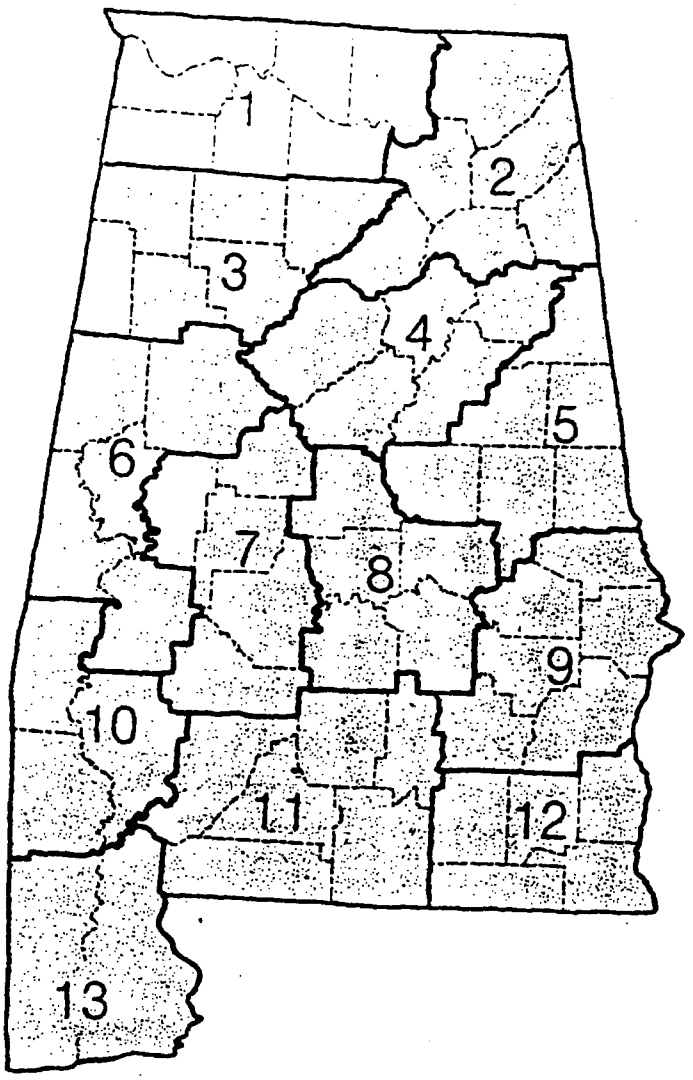
OUR SOIL ★ OUR STRENGTH

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES
ALABAMA AGRICULTURAL EXPERIMENT STATION
TENNESSEE VALLEY AUTHORITY

REFERENCE
3

WATER-RESOURCES INVESTIGATIONS REPORT 87-4068

GEOHYDROLOGY AND SUSCEPTIBILITY OF MAJOR AQUIFERS TO SURFACE CONTAMINATION IN ALABAMA; AREA 1



Prepared by
U.S. GEOLOGICAL SURVEY
in cooperation with the
ALABAMA DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT

REFERENCE
4

AL	0000882	002	BRAHAM SPRINGS 3.5 mi. NE	SG
AL	0000882	003	WILLIAMS WELL out 7 4 miles	SG
AL	0000882	004	DALLAS WELL out	SG
AL	0000882	005	LINCOLN WELL out	SG
AL	0000882	006	LOWE MILL WELL 3.5 miles	SG
AL	0000882	007	TENNESSEE RIVER (S.W.)	SS
AL	0000882	008	HAMPTON COVE WELL out	SG
AL	0000882	009	LINCOLN/DALLAS PLANT out	PT

REFERENCE
5

NATIONAL FLOOD INSURANCE PROGRAM

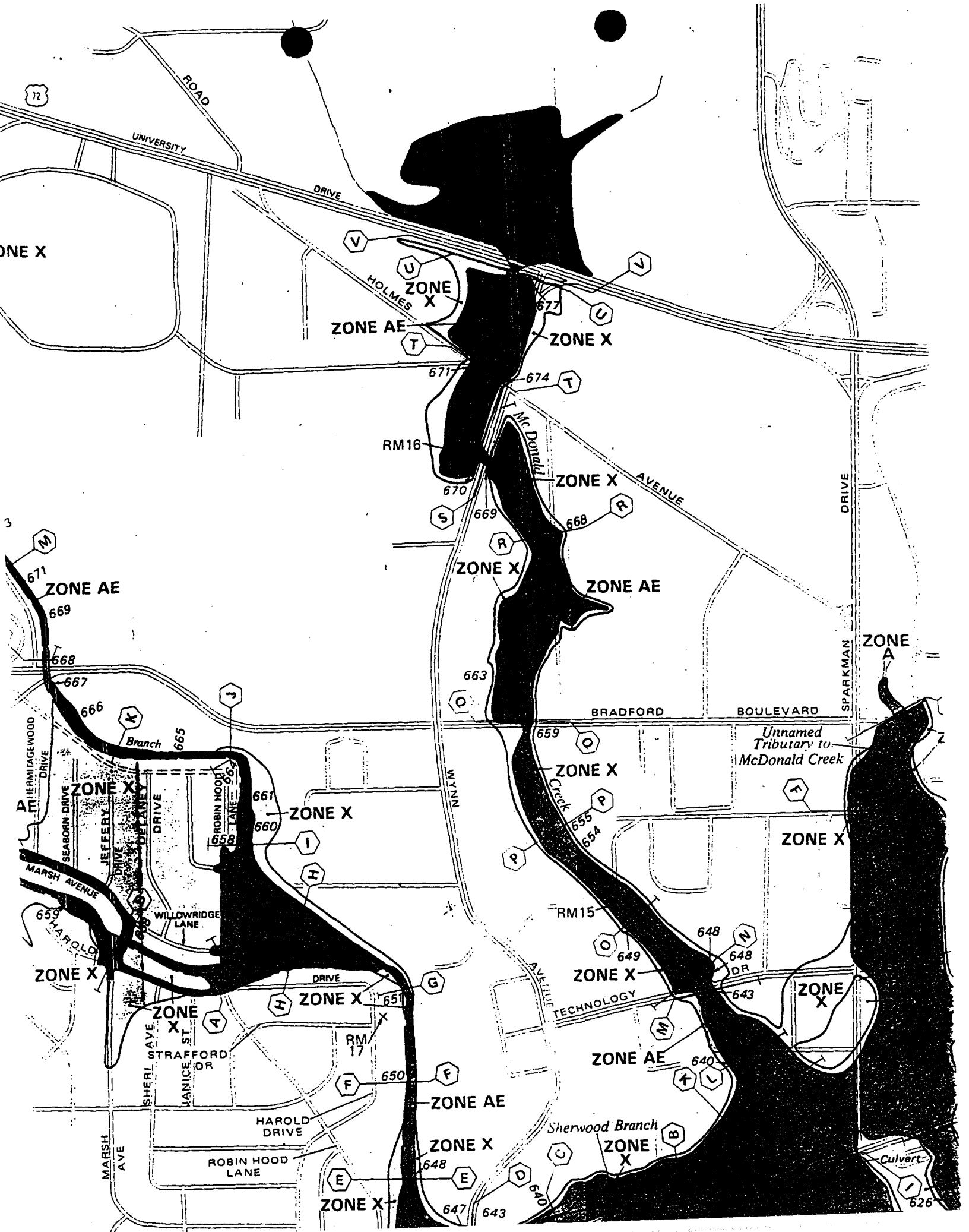
FIRM
FLOOD INSURANCE RATE MAP

CITY OF
HUNTSVILLE,
ALABAMA
MADISON COUNTY

PANEL 20 OF 50
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY–PANEL NUMBER:
010153 0020 C
MAP REVISED:
MARCH 2, 1993

Federal Emergency Management Agency



ROAD
UNIVERSITY
DRIVE
72
ONE X
HOLMES
ZONE X
ZONE AE
ZONE X
677
671
674
RM16
McDonald
ZONE X
AVENUE
670
669
668
ZONE X
ZONE AE
DRIVE
SPARKMAN
ZONE A
663
BRADFORD
BOULEVARD
659
Unnamed Tributary to McDonald Creek
ZONE X
Creek
655
654
ZONE X
WYNN
ZONE AE
669
668
667
666
Branch
665
HERMITAGEWOOD DRIVE
ZONE X
SEABORN DRIVE
JEFFERY DRIVE
DELANEY DRIVE
ROBIN HOOD LANE
664
661
ZONE X
660
658
MARSH AVENUE
WILLOWRIDGE LANE
659
HAROLD
ZONE X
RM15
648
648
649
ZONE X
DR
643
ZONE X
TECHNOLOGY
AVENUE
DRIVE
ZONE X
651
ZONE X
RM 17
STRAFFORD DR
SHERI AVE
JANICE ST
ZONE AE
640
650
ZONE AE
HAROLD DRIVE
Sherwood Branch
ZONE X
ROBIN HOOD LANE
MARSH AVE
ZONE X
648
ZONE X
647
643
640
Culvert
626

REFERENCE
6

7-DAY LOW FLOWS AND FLOW DURATION OF ALABAMA STREAMS THROUGH 1973

GEOLOGICAL SURVEY OF ALABAMA BULLETIN 113

REFERENCE
7

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Water Division - Water Quality Program

Chapter 335-6-11
Water Use Classifications
For Interstate and Intrastate Waters

SEP 1993
ADEM
SPECIAL PROJECTS

Table of Contents

335-6-11-.01 The Use Classification System
335-6-11-.02 Use Classifications

335-6-11-.01 The Use Classification System

(1) Use classifications utilized by the State of Alabama are as follows:

Public Water Supply	PWS
Swimming and Other Whole Body Water-Contact Sports	S
Shellfish Harvesting	SH
Fish and Wildlife	F&W
Agricultural and Industrial Water Supply	A&I
Industrial Operations	IO
Navigation	N
Outstanding Alabama Water	OAW

(2) Use classifications apply water quality criteria adopted for particular uses based on existing utilization, uses reasonably expected in the future, and those uses not now possible because of correctable pollution but which could be made if the effects of pollution were controlled or eliminated. Of necessity, the assignment of use classifications must take into consideration the physical capability of waters to meet certain uses.

(3) Those use classifications presently included in the standards are reviewed informally by the Department's staff as the need arises, and the entire standards package, to include the use classifications, receives a formal review at least once each three years. Efforts currently underway through local 201 planning projects will provide additional technical data on certain streams in the State, information on treatment alternatives, and applicability of various management techniques, which, when available, will hopefully lead to new decisions regarding use classifications. Of particular interest are those segments which are currently classified for any usage which has an associated degree of quality criteria considered to be less than that applicable to a classification of "Fish and Wildlife." As rapidly as it can be demonstrated that new classifications are feasible on these segments from an economic and technological viewpoint, based on the information being generated pursuant to staff studies and the planning efforts previously outlined, such improvement will be sought.

REFERENCE
8

ALABAMA

FEDERALLY LISTED ENDANGERED/THREATENED SPECIES

10/16/91

A	PRIORITY	STATUS	COMMON/SCIENTIFIC NAMES	Distribution
mals 7)	6C	E	Florida panther (*Felis concolor coryi*)	Statewide
	8	E	Gray bat (*Myotis grisescens*)	Tennessee Valley to Conecuh Co.
	5	E	Red wolf (*Canis rufus*)	Statewide
	3C	ECH	Alabama beach mouse (*Peromyscus polionotus ammobates*)	Coastal,Baldwin C
	8	ECH	Indiana bat (*Myotis sodalis*)	Extreme North
	3C	ECH	Perdido Key beach mouse (*Peromyscus polionotus trissyllepsis*)	Coastal,Baldwin C
	5C	ECH	West Indian (Florida) Manatee (*Trichechus manatus*)	Coastal waters
rds 9)	5	E	Bachman's warbler (*Vermivora bachmanii*)	Statewide
	5	E	Eskimo curlew (*Numenius borealis*)	Statewide
	5	E	Ivory-billed woodpecker (*Campephilus principalis*	South, west-centr
	8C	E	Red-cockaded woodpecker (*Picoides borealis*)	Statewide
	5C	E	Wood stork (*Mycteria americana*)	Statewide
	8C	E,T	Bald eagle (*Haliaeetus leucocephalus*)	Statewide
	5C	E,T	Piping plover (*Charadrius melodus*)	Coastal

REFERENCE
9

ENDANGERED AND THREATENED SPECIES

OF THE

SOUTHEASTERN UNITED STATES

(THE RED BOOK)

Introduction Section. Volume 1

Prepared by:

U.S. Fish and Wildlife Service
Southeast Region
Atlanta, Georgia

January 1992

Availability Unlimited
For Sale by Superintendent of Documents
Post Office Box 371954
Pittsburgh, PA 15250-7954

Stock Order Number: 924-003-00000-6

REFERENCE
10

Demographic Profile

1990 CENSUS
Alabama Counties and Cities
By Race

Alabama State Data Center
Center for Business and Economic Research
College of Commerce and Business Administration
The University of Alabama

REFERENCE
11

Alabama School Populations
1992

to get total school populations add:

$\underbrace{\text{total faculty} + \text{total enrollment}}_{A} + \underbrace{\text{total staff}}_{B}$

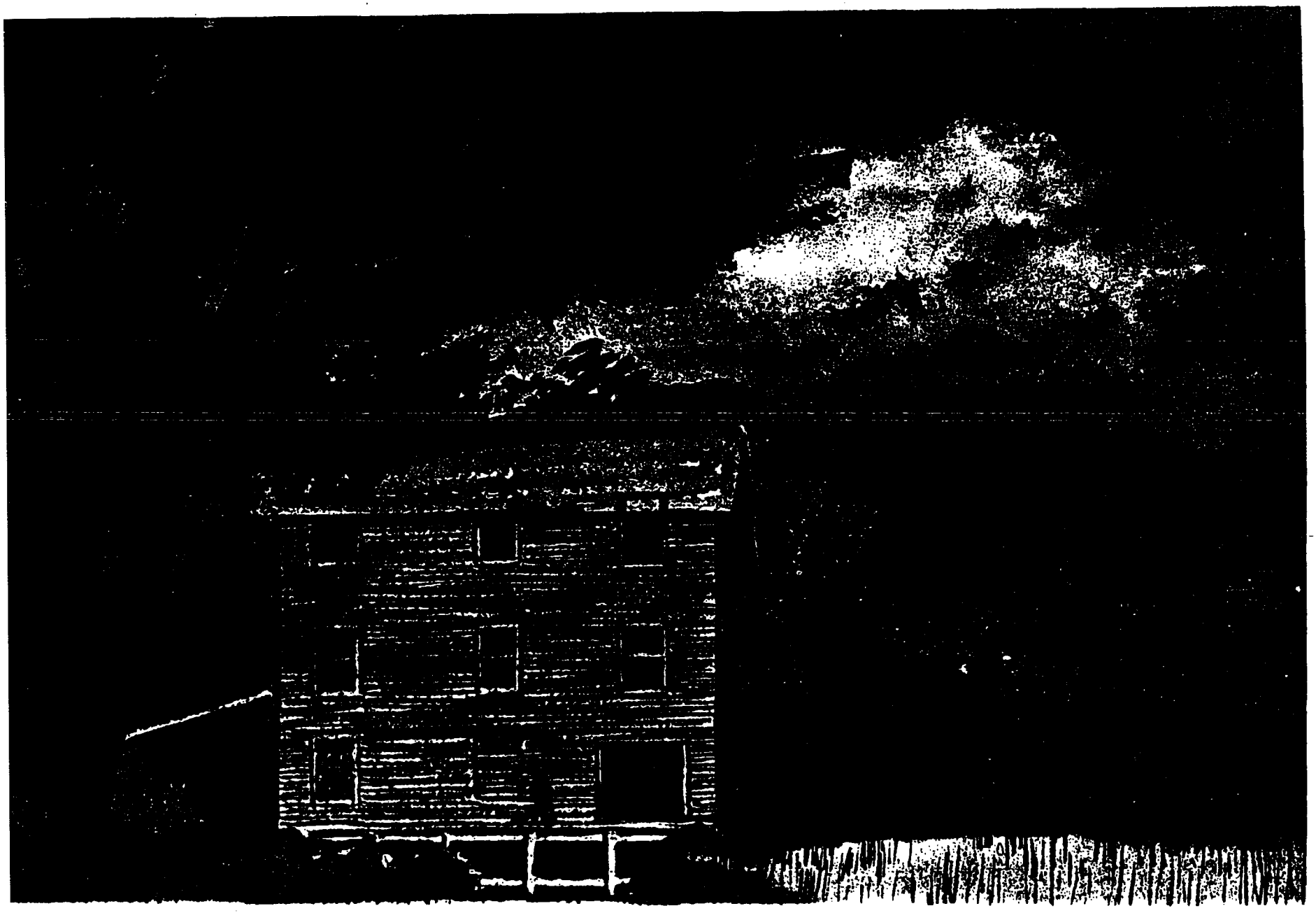
9/23/93 STATE OF ALABAMA - DEPARTMENT OF EDUCATION PAGE
LEA PERSONNEL SYSTEM (EDLPT471)

TOTAL NUMBER OF PUPILS AND FACULTY BY SCHOOL BY COUNTY

COUNTY	SCHOOL	TOTAL FACULTY	TOTAL ENROLLMENT
AUTAUGA COUNTY	AUTAUGA COUNTY ALT SCHOOL	1	
AUTAUGA COUNTY	AUTAUGAVILLE ELEMENTARY SCH	23	337
AUTAUGA COUNTY	AUTAUGAVILLE HIGH SCHOOL	22	288
AUTAUGA COUNTY	BILLINGSLEY HIGH SCHOOL	38	652
AUTAUGA COUNTY	MARBURY SCHOOL	36	649
AUTAUGA COUNTY	PRATTVILLE ELEMENTARY SCH	40	841
AUTAUGA COUNTY	PRATTVILLE INTERMEDIATE SCH	41	897
AUTAUGA COUNTY	PRATTVILLE JUNIOR HIGH SCH	43	846
AUTAUGA COUNTY	PRATTVILLE KINDERGARTEN SCH	32	483
AUTAUGA COUNTY	PRATTVILLE HIGH SCHOOL	71	1,343
AUTAUGA COUNTY	PRATTVILLE PRIMARY SCHOOL	52	839
BALDWIN COUNTY	BALDWIN COUNTY HIGH SCHOOL	71	1,326
BALDWIN COUNTY	BALDWIN CO REG DETENT CTR	2	11
BALDWIN COUNTY	BAY MINETTE MIDDLE SCHOOL	55	876
BALDWIN COUNTY	BAY MINETTE INTERMEDIATE	30	458
BALDWIN COUNTY	BAY MINETTE ELEMENTARY	47	723
BALDWIN COUNTY	NORTH BALDWIN ALT SCHOOL	3	
BALDWIN COUNTY	DAPHNE HIGH SCHOOL	51	1,010
BALDWIN COUNTY	DAPHNE MIDDLE SCHOOL	31	536
BALDWIN COUNTY	DAPHNE INTERMEDIATE SCHOOL	16	353
BALDWIN COUNTY	DAPHNE ELEMENTARY SCHOOL	42	705
BALDWIN COUNTY	DELTA ELEMENTARY SCHOOL	19	273
BALDWIN COUNTY	ELBERTA ELEMENTARY SCHOOL	37	605
BALDWIN COUNTY	ELSANOR SCHOOL	14	209
BALDWIN COUNTY	FAIRHOPE MIDDLE SCH	56	913
BALDWIN COUNTY	FAIRHOPE INTERMEDIATE SCH	38	727
BALDWIN COUNTY	FAIRHOPE RESOURCE CENTER	27	452
BALDWIN COUNTY	FAIRHOPE ELEMENTARY	65	952
BALDWIN COUNTY	FOLEY ELEMENTARY	55	768
BALDWIN COUNTY	FOLEY MIDDLE SCHOOL	34	594
BALDWIN COUNTY	FOLEY HIGH SCHOOL	70	1,256
BALDWIN COUNTY	FOLEY INTERMEDIATE	22	353
BALDWIN COUNTY	GULF SHORES MIDDLE SCHOOL	19	343
BALDWIN COUNTY	GULF SHORES ELEMENTARY SCH	27	457
BALDWIN COUNTY	LOXLEY ELEMENTARY	24	317
BALDWIN COUNTY	LOXLEY MIDDLE SCHOOL	7	125
BALDWIN COUNTY	PERDIDO ELEMENTARY SCHOOL	25	402
BALDWIN COUNTY	PINE GROVE ELEMENTARY SCH	24	312
BALDWIN COUNTY	ROBERTSDALE ELEMENTARY SCH	60	891
BALDWIN COUNTY	ROBERTSDALE HIGH SCHOOL	45	306
BALDWIN COUNTY	ROSINTON SCHOOL	6	121
BALDWIN COUNTY	SILVERHILL SCHOOL	24	405
BALDWIN COUNTY	SPANISH FORT SCHOOL	40	716
BALDWIN COUNTY	STAPLETON SCHOOL	9	107
BALDWIN COUNTY	SUMMERDALE ELEMENTARY SCH	26	390
BALDWIN COUNTY	SWIFT CONSOLIDATED ELEM SCH	7	132
BALDWIN COUNTY	VAUGHN SCHOOL	4	
BARBOUR COUNTY	BAKER HILL SCHOOL	17	247

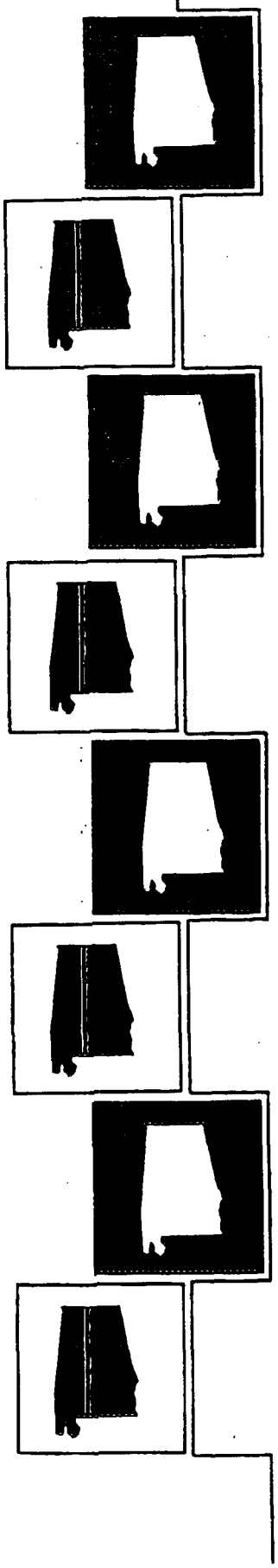
REFERENCE
12

ENVIRONMENTAL GEOLOGY AND HYDROLOGY
HUNTSVILLE AND MADISON COUNTY, ALABAMA



REFERENCE
13

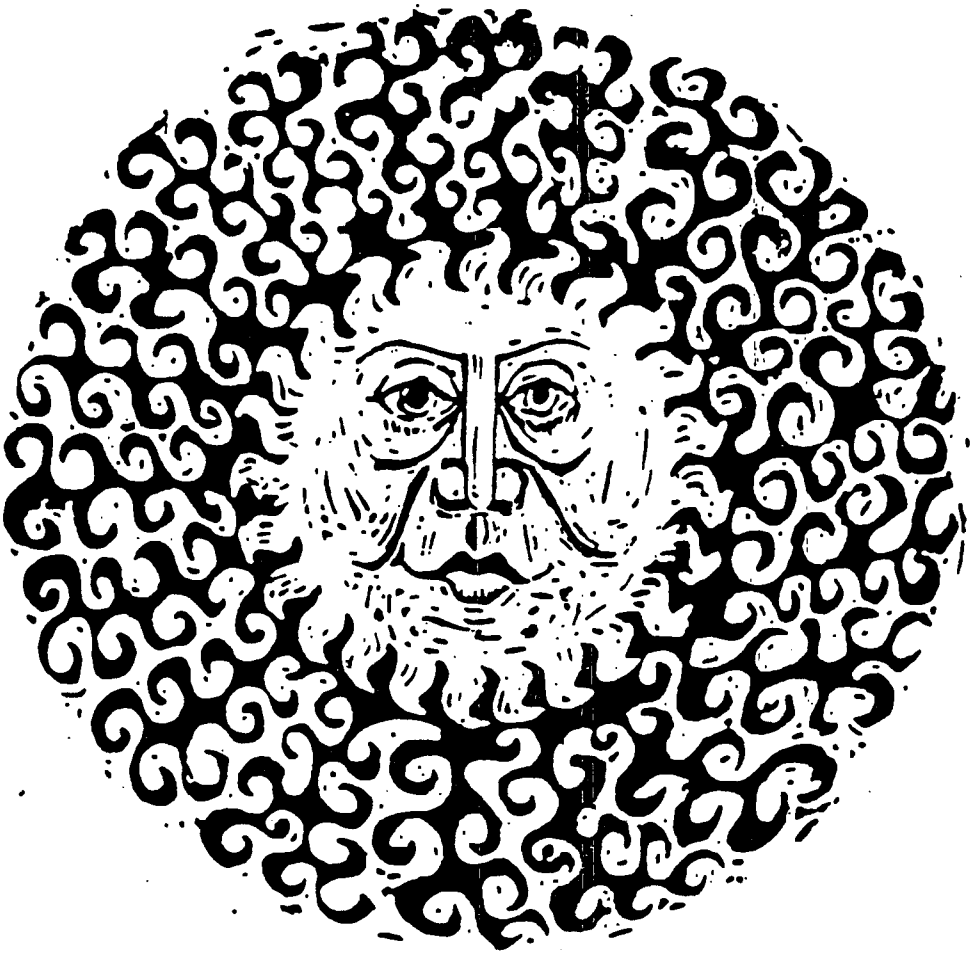
Water-Resources Investigations Report 93-4186



LOW-FLOW AND FLOW-DURATION CHARACTERISTICS OF ALABAMA STREAMS

Prepared by
the United States Department of the Interior, Geological Survey
In cooperation with
the Alabama Department of Environmental Management
and the Tennessee Valley Authority

REFERENCE
14



CLIMATIC ATLAS OF THE UNITED STATES

ATTACHMENT 1

1

File

STATE OF ALABAMA

WATER IMPROVEMENT COMMISSION

IRA L. MYERS, M. D.
CHAIRMAN
STATE HEALTH OFFICER

CLAUDE D. KELLEY
VICE CHAIRMAN
COMMISSIONER, DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES

JAMES W. WARR
CHIEF ADMINISTRATIVE OFFICER

749 STATE OFFICE BUILDING

MONTGOMERY, ALABAMA 36104

TELEPHONE 269-7971

November 15, 1973

Mr. David L. Hardy
Manager, MFI Division
Astro-Space Laboratories, Inc.
110 Wynn Drive, NW
Huntsville, Alabama 35806

Dear Mr. Hardy:

This is to advise you of action taken by the Water Improvement Commission on November 12, 1973, regarding Metal Finishing Industries. At that time, the Commission, acting on staff recommendations, approved the preliminary plans for pretreatment facilities to serve your plant, and further approved the following implementation schedule:

Approval of Preliminary Plans	November 12, 1973
Submission of Final Plans	December 12, 1973
Approval of Final Plans	January 1, 1974
Completion of Construction	May 1, 1974

It was stipulated that your discharge to the Huntsville sanitary sewerage system be limited to the following:

Flow	40,000 gallons per day
Aluminum	0.167 pounds per day
Cadmium	0.033 pounds per day
Chromium (+6)	0.033 pounds per day
Chromium (Total)	0.167 pounds per day
Cyanide	0.033 pounds per day
Nickel	0.167 pounds per day
Zinc	0.267 pounds per day
Suspended Solids	8.34 pounds per day
pH	6.0 - 9.0

If you should have any questions regarding this matter, please contact Mr. Larry Bryant or Mr. Charles Horn.

Yours very truly,

James W. Warr

James W. Warr
Chief Administrative Officer
Water Improvement Commission

NOV 16 RECD

JWW/dds
cc: Mr. Woolsey Finnell
Mr. C. D. Black

SEP 2 9 1973

STATE OF ALABAMA

WATER IMPROVEMENT COMMISSION

IRA L. MYERS, M. D.
CHAIRMAN
STATE HEALTH OFFICER

CLAUDE D. KELLEY
VICE CHAIRMAN
COMMISSIONER, DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES

JAMES W. WARR
CHIEF ADMINISTRATIVE OFFICER

749 STATE OFFICE BUILDING
MONTGOMERY, ALABAMA 36104
TELEPHONE 269-797

September 25, 1973

CERTIFIED MAIL
DELIVER TO ADDRESSEE ONLY
RETURN RECEIPT REQUESTED

Mr. Ed DeVault
Director, Container Division
Spaco, Incorporated
3016 University Drive, N.W.
Huntsville, Alabama 35805

Dear Mr. DeVault:

Recent samples collected by a member of the technical staff of the Commission reveal that wastewater discharged from your plant exceeds limits established by the staff for heavy metals. The chemical analysis revealed the following:

Chromium (Total) 25 mg/l

Act No. 1260, Acts of Alabama, Regular Session, 1971, requires that a permit be obtained from the Commission for discharge to the waters of the State whether the discharge is made directly or through a municipal or private treatment system. A copy of this law is enclosed for your information. The section referred to above appears on Page 9, Section (h).

The Commission, in official action, has adopted a policy requiring secondary treatment or its equivalent of all non-biodegradable wastes prior to discharge into the waters of Alabama. Such wastes are interpreted to include metal finishing wastes. Acting under provisions of Act No. 1260, you are hereby directed to submit to the Commission within 45 days of receipt of this communication a plan leading to the treatment of the waste discharged by your plant. The plan, which must be designed by a professional engineer registered in Alabama with experience in waste treatment design, should follow the Format of Engineering Report for Industrial Waste Proposals, a copy of which is enclosed. The plan should provide for the following:

COMMISSION MEMBERS
MARVIN O. BERGLIN DR. ROBERT M. BUCHER LOUIS GRABENSTEDER HENRY A. LESLIE ROBERT T. WRIGHT

1. Adequate treatment of aluminum, chromium and any other metals that may be present in your waste;

2. Means to collect and dewater solids produced in treatment, in a form suitable for landfill disposal;

3. Means to sample the treated effluent, record pH, measure flow, and to monitor those parameters specified by the AWIC below;

4. An effluent of the following quality:

Aluminum	0.5 mg/l
Chromium (+6)	0.1 mg/l
Chromium (Total)	0.5 mg/l
Total Suspended Solids	25 mg/l
pH	8.5 - 9.5

If the information requested is not received within the time frame specified, we will have no alternative but to bring this matter before the Commission for appropriate action.

If we can be of assistance, please contact Mr. Larry Bryant or Mr. Charles Horn.

Yours very truly,

James W. Warr
Chief Administrative Officer
Water Improvement Commission

JWW/dds

cc: Mr. Woolsey Finnell

Mr. C. D. Black

INSTRUMENTATION SYSTEMS
INERTIAL SYSTEMS
GYROSCOPES
ELECTRONICS
MED-ELECTRONICS
PRECISION FABRICATION

Astro-Space Laboratories, Inc.
Research Park
110 WYNN DRIVE N.W. / HUNTSVILLE, ALABAMA 35806 / 205/837-5830

File

October 5, 1973

State of Alabama
Water Improvement Commission
749 State Office Building
Montgomery, Alabama 36104
Attention: Mr. Larry Bryant
Assistant Sanitary Engineer
Water Improvement Commission

Dear Sir:

In response to your request to Mr. Dave Hardy of Astro-Space Labs, we are hereby replying to your letter of September 4, 1973 in which you made eight itemized comments on the ASL proposal submitted to you on 7 August 1973. It is anticipated that you will receive this correspondence by 8 October 1973.

Enclosed with this correspondence are ASL Drawings 401919, Sheet 1 - Industrial Waste Disposal Diagram, Sheet 2 - Sludge Filter, and Sheet 3 - Settling Tank. Listed below are the responses to your comments in the September 4, 1973 letter in that same order:

1. ASL Dwg. 401919, Sheet 2 shows a Sludge Filter for removing the water and leaving a solid waste suitable for landfill disposal. Astro-Space will dispose of their own waste, but before this can be done, a permit application will be submitted to the City of Huntsville for disposal of this solid waste at a site to be specified by them.

2. In our plating process, we feel that it is necessary to perform the following steps on the cyanide and chrome operations:

   Cyanide:

   A. Parts are removed from the cyanide plating tank and placed in a drag tank. That solution is added back to the plating tank to retain the chemicals.

OCT 8 RECD

B. Parts are then taken from the drag tank and placed in a chlorine dip tank. This tank will be checked every two hours for available chlorine maintained at a pH of approximately 12. The condition of this tank will be checked by the chemical lab every two hours of plating operation and the results recorded on a posted log sheet. These sheets will be filed and available for inspection. Note: All cyanide solutions contain a wetting agent to reduce drag out by approximately 60%.

C. After chlorine saturation, which occurs approximately every five days, the contents of the tank will be pumped into the pH adjusting tank.

D. The solution is then pumped into the proposed settling tank (Sheet 3) where the heavy metals are precipitated out.

Chrome:

A. The parts are dipped into a drag tank containing water.

B. Next, the parts are dipped into a drag tank containing sodium bisulfite and a pH of 2.0-4.0. The purpose of this tank is to neutralize hexavalent chrome.

C. Parts are dipped into a tank containing Hydrazine at a pH of 8.0-9.0, to convert the trivalent chrome to chromic hydroxide. Each of these tanks will be checked by the lab chemist every 4 hours when the line is in operation. These data will be logged and kept on file. A wetting agent is also used here to minimize drag out.

D. The tank solutions in (B) and (C) are weekly pumped into the pH Adjusting Tank, and when neutralized, then pumped into the Settling Basin.

E. The parts are dipped in a fresh water rinse as the final plating setp. This water is pumped into the pH Adjusting Tank for final treatment.

3. The polymers will be automatically metered with time. The quantity of these agents will be establishe after installation by periodically taking samples of the water at the sewer entrance and examining these samples for heavy metal content. Samples will be evaluated by certified lab tests and also a Hach Meter. After a period of careful examination, the frequency of analysis will be reduced.

4. Reference ASL Dwg. 401919, Sheet 1: Lime is no longer used. Instead, two liquid agents will be used, a 20% solution of sodium hydroxide, and a 20% solution of sulfuric acid. These solutions will be injected with dispensing equipment controlled by the automatic pH controller/recorder.

5. Please refer to Item (1).

6. ASL Drawing 401919, Sheet 3, is a detailed drawing of the settling basin we propose to install. Only one tank of this type will be used.

   Upon consultation with the plating supervisor, it has been determined that with minor adjustments in our disposal processes, we can tolerate a wait of three hours for settling.

7. Please see Dwg. 401919, Sheet 1, which shows a continuous water sampler and flowmeter. The sample will be checked by laboratory analyses three times the first month after all equipment has been installed. ASL will purchase a Hach Model DR-EL/Z Water Test Kit (Ames, Iowa) for daily analysis of water samples for the first month, and three times per week thereafter. It should be noted that this Hach Kit is the same type used by the City of Huntsville for this type of water analysis. Results of these tests will be recorded on the applicable state forms and mailed to A.W.I.C. monthly.

8. As referred to above, a flowmeter will be installed and the daily volumetric water consumption will be recorded and transmitted with the water analysis data.

If after review of the above statements and the enclosed

drawings, you have further comments, please contact the undersigned.

Sincerely,

J.R. Loyd
Section Head
Mechanical Engineering Section

cc: Al St.Laurent
Bob Morgan
Dave Hardy
Woolsey Finnell
Dept. of Public Works
Huntsville, Alabama

JRL/rc

ATTACHMENT
2

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Leigh Pegues, Director

1751 Cong. W. L. Dickinson Drive
Montgomery, AL
36130-1463
(205) 271-7700
FAX 271-7950
270-5612

Field Offices:

110 Vulcan Road
Birmingham, AL
35209-4702
(205) 942-6168
FAX 941-1603

P.O. Box 953
Decatur, AL
35602-0953
(205) 353-1713
FAX 340-9359

2204 Perimeter Road
Mobile, AL
36615-1131
(205) 450-3400
FAX 479-2593

Jim Folsom
Governor

June 11, 1993

MEMORANDUM

TO: Sonya Massey, Chief
Groundwater Branch
Water Division

THROUGH: Dave Davis, Chief
North Unit
RCRA Compliance Branch
Land Division

Dixie Beatty
North Unit
RCRA Compliance Branch
Land Division

GW-94-1-7

FROM: Steven O. Jenkins, Chief
RCRA Compliance Branch
Land Division

RE: Referral of GE Aerospace (now Martin Marietta)
110 Wynn Drive, Huntsville, Alabama
USEPA Identification Number: ALD 009 305 608

The RCRA Compliance Branch has reviewed the attached information on the above-referenced facility. It appears from the submitted information that the potential groundwater contamination at this site cannot be determined to be from a RCRA regulated hazardous waste but may, however, be subject to remediation under the provisions of the Water Pollution Control Act.

Should you have any questions regarding this matter, please contact me.

SOJ/DLB:mah:NE#90-19

Attachment(s)

File: GE Aerospace/Gen/Madison County

Printed on Recycled Paper

March 29, 1993

Ms. Dixie Beatty
Alabama Department of Environmental Management
Land Division
1751 Dickinson Dr.
Montgomery, AL 36130

MAR 1993
RECEIVED
ADEM
LAND DIVISION

RE: GE Aerospace Facility - Building "A"
110 Wynn Drive, Huntsville, AL

Dear Ms. Beatty,

Please find enclosed a field summary report by O'Brien and Gere Engineers, Inc. describing the investigative efforts at building "A", 110 Wynn Drive, Huntsville, Alabama. This investigation supports General Electric Company's divestiture and environmental assessment process upon exiting a property we have leased. During our operation of the facility we have been and continue to be registered with your office as a small quantity generator.

It is our understanding you are requesting this report for general information purposes. We are voluntarily providing the enclosed information to support your request and to keep you informed of our current activities. Should you have any questions relating to the enclosed material, please contact me at 904-239-2628.

Sincerely,

Christopher D. Parent
Environmental Engineer

cc N. Cosmos
J. Doyle
B. Wasser

O'BRIEN & GERE
ENGINEERS, INC.

March 23, 1993

MAR 1993
RECEIVED
ADEM
LAND DIVISION

Mr. Chris Parent
Environmental Health and Safety Engineer
GENERAL ELECTRIC COMPANY
GE AEROSPACE
1800 Volusia Avenue
Daytona Beach, FL 32114

Re: General Electric
Huntsville, Alabama

File: 5067.015.581

Dear Chris:

At the request of General Electric Company located in Daytona Beach, Florida (GE Daytona), O'Brien & Gere Engineers, Inc. (O'Brien & Gere) has prepared this letter report to summarize the Remedial Program conducted at the GE facility located in Huntsville, Alabama (GE Huntsville), per our scope of work dated May 4, 1991.

This letter report presents the information in three sections: I. Overview, II. Summary of Exploratory Activities, and III. Summary of Sampling Activities.

I. OVERVIEW

A Phase I Environmental Liability Assessment for the GE Huntsville facility was conducted by ERM, Inc. at the request of GE Huntsville. A final report of the findings was completed on November 21, 1990. The information obtained during the assessment was to be used to support facility closure plans. During the assessment, an area of concern was discovered adjacent to a transformer pad located in an open area bound by Buildings A, D, E, and F, as shown in Figures 1 and 2. Upon review of the revised Phase I Environmental Liability Assessment Report, GE Daytona requested sampling at selected areas, combined with the completion of a baseline environmental study, to assess environmental quality at the site. The objective of the study was to establish a baseline database of information concerning environmental quality of soil, surface water, and ground water at the property.

The results of the baseline study revealed the presence of total petroleum hydrocarbons (TPH) in the vicinity of the transformer pad. Based on the results of the field screening and laboratory analysis of sample borings in this area, ERM, Inc. recommended soil removal from the western, southern, and eastern sides of the transformer pad, in accordance with Alabama Department of Environmental Management (ADEM) guidelines. These guidelines, as presented in the *ADEM Guidelines for the Disposal of Non-hazardous Petroleum-contaminated Waste*, state that the soil action level for TPH is 100 parts per million (ppm).

O'Brien & Gere Engineers, Inc., an O'Brien & Gere Company
Sabal V, Suite 210 / 3922 Coconut Palm Drive / Tampa, FL 33619 / (813) 623-5225 FAX (813) 623-5448
...and offices in major U.S. cities

Excavation of the petroleum contaminated soils was completed and soil samples were collected and analyzed for TPH, to obtain confirmatory analytical data of the soil excavation program. One confirmatory sample collected in the northern wall of the east excavation area (see Figure 2A) indicated that additional soil removal was necessary. During excavation, a layer of gravel was exposed releasing small amounts of liquid into the excavation area. A sample of the liquid was collected and the excavation was lined with polyethylene sheeting and backfilled with clean soil. Analytical results of the liquid sample revealed the presence of TCE.

Based on information collected during preparation of the work plan, GE Daytona decided to conduct an exploratory excavation at the GE Huntsville site in an area east of the transformer where TCE was detected. The objectives of the excavation program included further evaluation of the area of concern, characterization of background soil, disposal of excavated contaminated soil, soil sample collection from the excavation area, and laboratory analysis of collected samples. The program proposed excavation to a depth of approximately five feet in an area 2 feet by 6 feet located northeast of the transformer and adjacent to the foundation of Building F (see Figure 2). O'Brien & Gere, with the assistance of OBG Technical Services Inc. (OBG Tech), conducted the proposed work from November 20 through November 23, 1992, followed by additional sampling performed on January 21, 1993. The following sections summarize the exploratory activities.

II. SUMMARY OF EXPLORATORY ACTIVITIES

Exploratory activities at the GE Huntsville site were conducted as follows:

November 20, 1992:

- O'Brien & Gere personnel met with the laboratory director of Technical Micronics Controls, Inc. (TMC), Huntsville, Alabama. to discuss analytical methods appropriate to the project, sampling schedules, necessary turnaround times, and analytical costs.
- O'Brien & Gere and OBG Tech personnel discussed site preparation activities, program objectives, direction, and scheduling, and performed an initial site inspection.
- In order to provide access to the excavation area, OBG Tech assisted in the removal of a catwalk using a crane and an operator from Empire Crane Services, Huntsville, Alabama.
- O'Brien & Gere and OBG Tech delineated and prepared contamination, contingency, decontamination, support, and drum staging areas.
- MW-2 was purged and sampled.

November 21, 1992:

- A soil staging area was prepared by OBG Tech under the supervision of O'Brien & Gere. Two layers of polyethylene plastic sheeting (7 mils each) were placed at two designated areas to serve as the staging areas for excavated soils.

- Electrical power to the transformer was disconnected by Huntsville Utilities and the excavation area was delineated as shown on Figure 2.

- Background soil headspace characterization was performed. Soil background data was gathered using a hand auger to collect soil samples at one (1) foot intervals up to five (5) feet from a minimum of three (3) boring locations, to be analyzed using a Photoionization Detector (PID) which analyzes organic vapors. An arithmetic average of 80 ppm was obtained from the recorded data and was used as the soil background value. Soil background boring locations (BK) are shown on Figure 1.

- Excavation of the proposed area was conducted by OBG Tech under the supervision of O'Brien & Gere. Excavation consisted of soil removal at one (1) foot intervals using a small backhoe at the beginning of excavation activities and later using shovels, noting changes in PID readings and soil discolorations. Soil with PID readings less than 80 ppm were to be considered "clean" and were staged in the "clean" staging area. Soil with PID readings equal to or greater than 80 ppm were placed in 55-gallon drums for staging at the drum staging area and for later disposal. The top one (1) foot of soil removed from the excavation area had a dark red appearance characteristic of local clays. The clays encountered during the excavation were dense and prolonged excavation activities. At approximately 3.5 feet from the soil surface, a 1.5 feet thick layer of gravel was discovered. The gravel layer consisted of grey, 1/2 inch crushed stone. Soil removal was accomplished while wearing "Modified Level D" protection, as described in the Health and Safety Plan (HASP). When PID readings exceeded 50 ppm, the excavation crew changed to "Level B" protection, as described in the HASP.

- A two-phase liquid was encountered at a depth of four (4) feet which created a small puddle at the center of the excavation. The light phase, which was brown in appearance, was believed to be aqueous based. The dense non-aqueous phase liquid (DNAPL) was black and had an oily appearance. Approximately eight (8) gallons of liquid were removed from the excavation using a glass jar, and was placed into a 55-gallon drum. Of the eight (8) gallons, approximately two (2) gallons were of the dense phase. Subsequent to its removal, the liquid continued to seep into the excavation through the south boundary. It was decided to allow the liquid to collect in the excavation for later removal.

- Further investigation of the southern excavation boundary revealed the presence of additional dense phase liquid which drained into the center of the excavation. Where a decreased flow of liquid was observed, it was decided to remove the remaining liquid. Approximately four (4) additional gallons of liquid were removed, of which approximately one (1) gallon was dense phase liquid.

November 22, 1992:

- Site cleanup efforts begin.

- A drainage system was installed inside the excavation to allow any potentially remaining dense phase liquid to drain into the lower point of the excavation (excavation center). The excavation was found to be mostly dry. An eight (8) inch diameter, six (6) inch deep cavity was excavated at the center of the excavation in which to place the drain pipe (see Figure 3). The remaining excavation was filled with grade four (4) lime rock (0 to 1/4 inch in size). The last two (2) feet of the excavation was covered with native clay soil. The area was cleaned, leveled, and seeded with grass. The roof drainage pipe located at the corner of Buildings D and F was extended to the parking lot to prevent erosion of the area previously excavated and to divert excessive stormwater runoff from the area, as shown on Figure 2. The drums were sealed, labeled and placed at the lined drum staging area. The work area was prepared for the next day's final cleanup activities. The limits of excavation are shown in Figure 4.

November 23, 1992:

- With the assistance of OBG Tech, the catwalk was restored to its original location, using the services of a crane and operator from Empire Crane Services, Huntsville, Alabama. Final cleanup of the work area was performed by OBG Tech.

- Three exploratory borings were excavated and soil samples were collected at locations shown in Figure 3. Soil sample head space was analyzed using a PID.

January 21, 1993:

- Ground water level measurements were collected at MW-1, MW-2, MW-3, and MW-4. A site walk-over in the vicinity of MW-2 was performed utilizing a PID; no positive results were obtained. In addition, ground water samples were collected at MW-2 for laboratory analysis for Volatile Organics (USEPA Method 601/602, 624), Base/Neutral Extractable Organics (USEPA Method 625), and Total Phenolics (USEPA Method 420.1).

- The excavation drainage system was sampled with a PID, with readings reported up to 35 ppm. A bailer was used to collect an aqueous sample from the drainage system. The collected sample did not indicate the presence of DNAPL, however, an unidentified odor was detected in the water.

III. SUMMARY OF SAMPLING ACTIVITIES

This section describes the sampling and analysis of soil and ground water which took place at the GE Huntsville facility as part of the exploratory study.

Soil Sampling and Analysis

- Twelve (12) background soil samples (BK) were collected on November 21, 1992 from three different borings for head space screening using a PID. Samples designated "BK" (BK-1, BK-2, and BK-3) were collected to evaluate background soil quality at the property. At each location, BK-1 through BK-3 were collected at depths up to four feet at one foot intervals. Each soil sample was placed in a glass jar and covered with aluminum foil for head space screening using a PID. Sample results are presented in Table 1 and Attachment 1.

- Two (2) soil samples (P) were collected on November 22, 1992 from the two piles of excavated soil for head space screening using a PID. Samples designated "P" were collected from two piles of soil generated during the excavation. The samples were collected with the purpose of determining if the soil from the piles was above or below background levels. Sample results are presented in Table 2.

- Six (6) soil samples (S) were collected on November 22, 1992 at the limits of the excavation to be analyzed for Halogenated and Aromatic Volatile Organics (using USEPA Methods 8010/8020) and Total Petroleum Hydrocarbons (using USEPA Method 418.1). Samples designated "S" were collected from the limits of the excavation once excavation activities were concluded. These samples were collected in order to evaluate soil quality conditions at the limits of excavation. Sample results are presented in Table 3 and Attachment 1.

- One (1) composite soil sample (SC) was collected from drummed soil on November 22, 1992 for the purpose of characterization. The sample designated "SC" was collected to determine the characteristics of the soil to be disposed. The soil sample was collected as a composite sample generated from collecting samples from each of the 55-gallon drums that were assigned for disposal. Sample results are presented in Table 4 and Attachment 1.

- Twenty six (26) soil exploratory samples (EX) were collected on November 23, 1992 from four different borings, as shown on Figure 3. Samples designated "EX" were collected from four (4) borings as shown in Figure 2, for the purpose of evaluating soil quality conditions at areas around excavation site. The soil samples were analyzed for VOCs in the head space using a PID. Sample results are presented in Table 5 and Attachment 1.

Liquid Sampling and Analysis

- One (1) dense non-aqueous phase liquid (DNAPL) sample was collected on November 21, 1992 for analysis using USEPA Method 8270. The dense non-aqueous phase liquid sample designated "DNAPL" was collected from liquid containerized in the 55-gallon drum for the purpose of identifying the presence and concentration of compounds potentially present in the liquid. Sample results are presented in Table 4 and Attachment 1.

Ground Water Sampling and Analysis

- Two (2) ground water (GW) samples were collected from monitoring well No. 2 (MW-2). One sample was collected on November 20, 1992 and analyzed for Volatile Organics and Base/Neutral Acid Extractables using USEPA Methods 624/625. One sample was collected on January 21, 1993 and analyzed for Total Phenolics using USEPA Method 420.1, in addition to USEPA Method 624/625. Water level data (January sampling event) and field measurements for pH and specific conductance (November sampling event) were also collected at the site. Well MW-2 revealed values of 5.5 s.u. for pH and 36.8 umhos/cm for specific conductance. Sample results are presented in Table 6 and Attachment 1. MW-2 was sampled on January 22, 1993 due to questionable quality control of the first ground water sample (laboratory blanks detected TCE). The sample was analyzed by Wadsworth/Alert Laboratories, Tampa, Florida for Priority Pollutant Volatile and Semi-volatile Organic Compounds using USEPA Methods 624/625, and Total Phenolics using USEPA Method 420.1. In addition, water level measurements were collected at MW-1 through MW-4, and the drainage collection system was inspected. Upon bailing the drainage collection system no DNAPL was observed. Sample results are presented in Table 6 and Attachment 1.

In total, fifty (50) samples were collected at the site. Forty seven (47) soil samples were collected, one (1) free product sample, and two (2) ground water samples. Refer to Figures 2 and 3 for sample locations and Tables 1 through 5 and Attachment 1 for analytical results.

We trust that this summary has provided GE Daytona with the information necessary to assess further action at the GE Huntsville facility. Should you have any questions, please feel free to contact Paul Seavy or me at your convenience.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

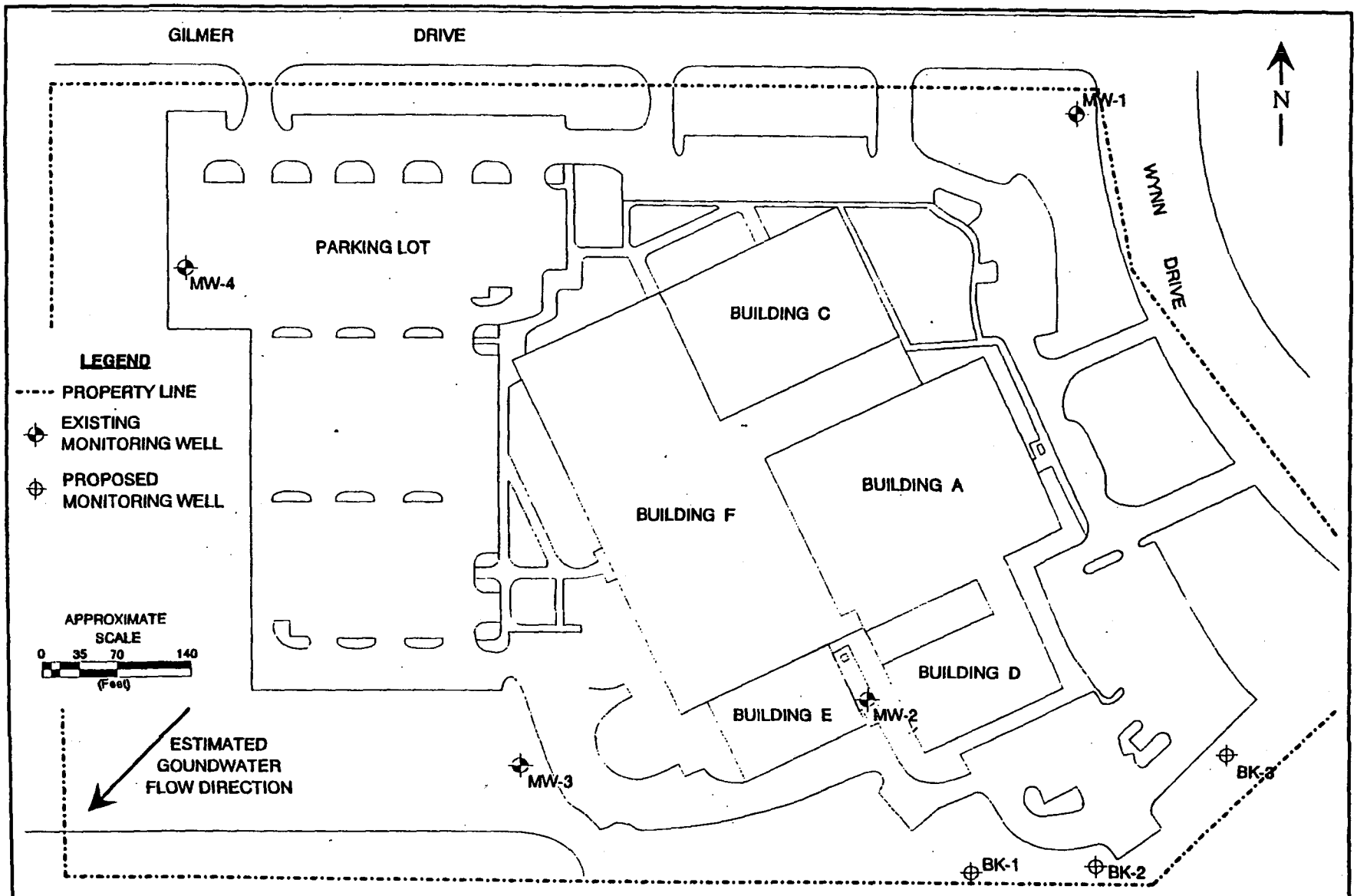
Steven R. Garver, P.E.
Vice President

SRG/arb

cc: P.R. Seavy, Jr., P.E., O'Brien & Gere Engineers, Tampa
R.E. Vargas, O'Brien & Gere Engineers, Cape Canaveral
D.R. Theoret, P.G., O'Brien & Gere Engineers, Cape Canaveral

HUNTLTR.RPT

FIGURES



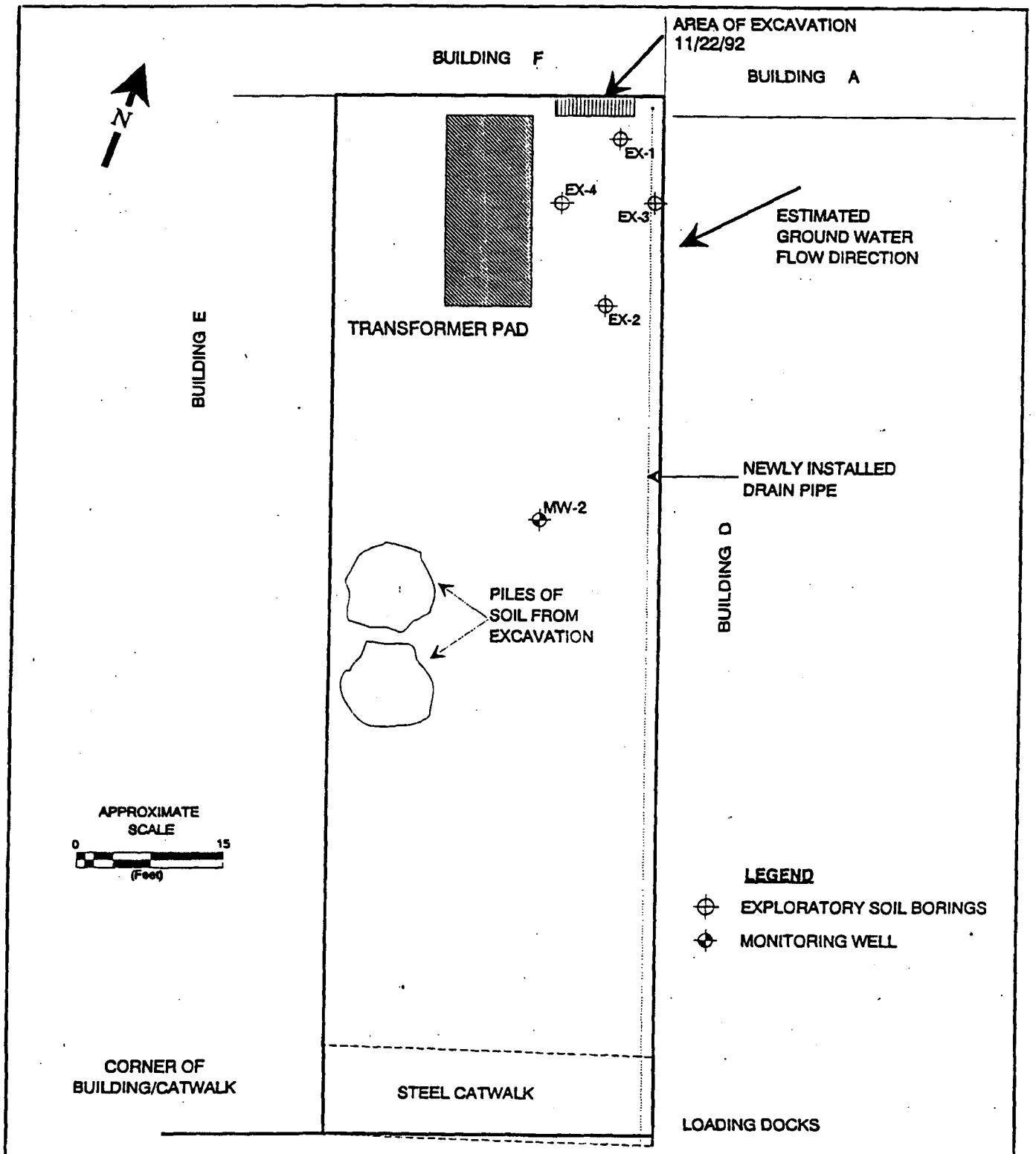
O'BRIEN & GERE ENGINEERS, INC.
Tampa, Florida

FIGURE 1

SITE PLAN

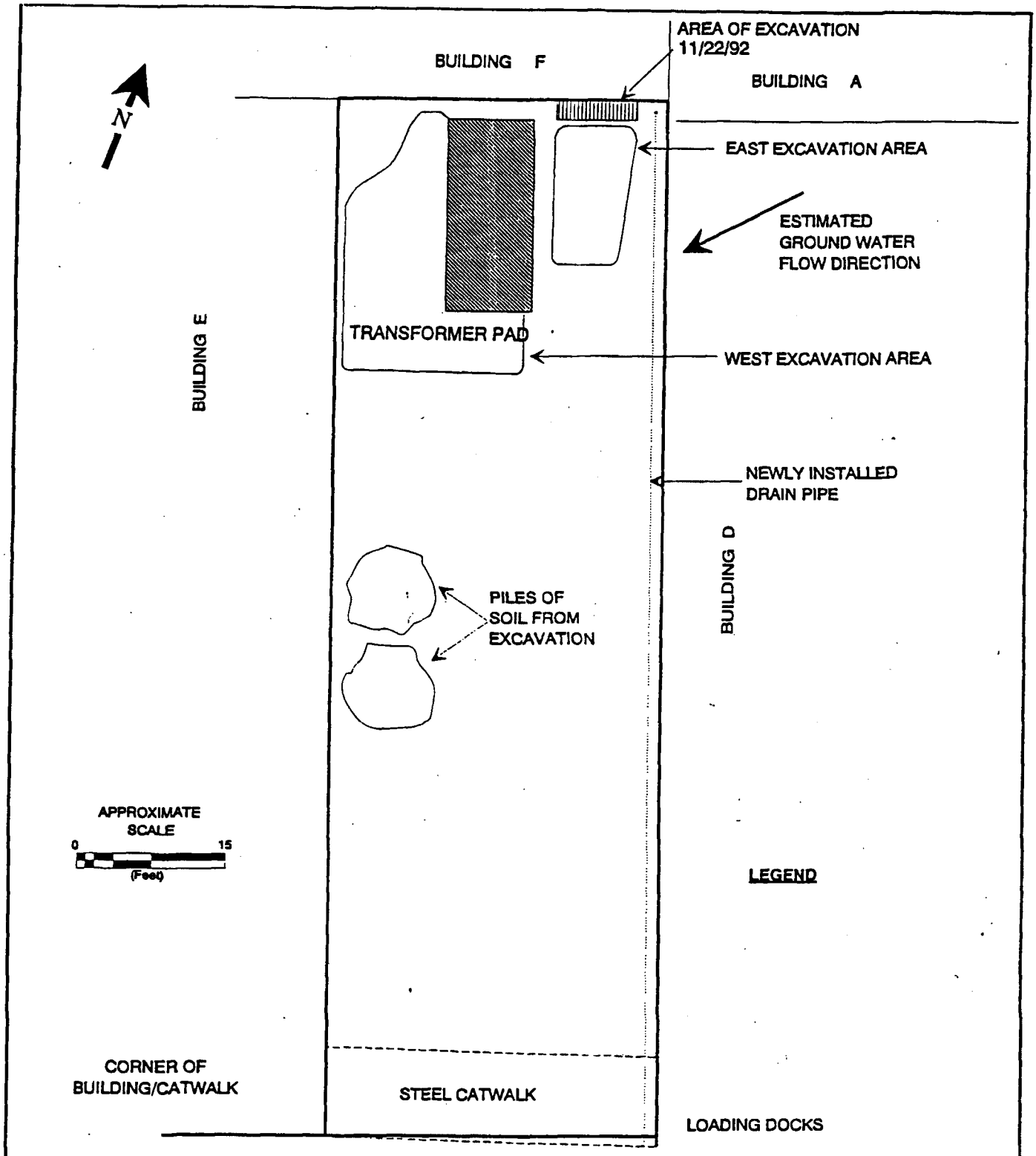
General Electric Company, Huntsville, AL

BASE MAP SOURCE: ERM, Nov. 1991:



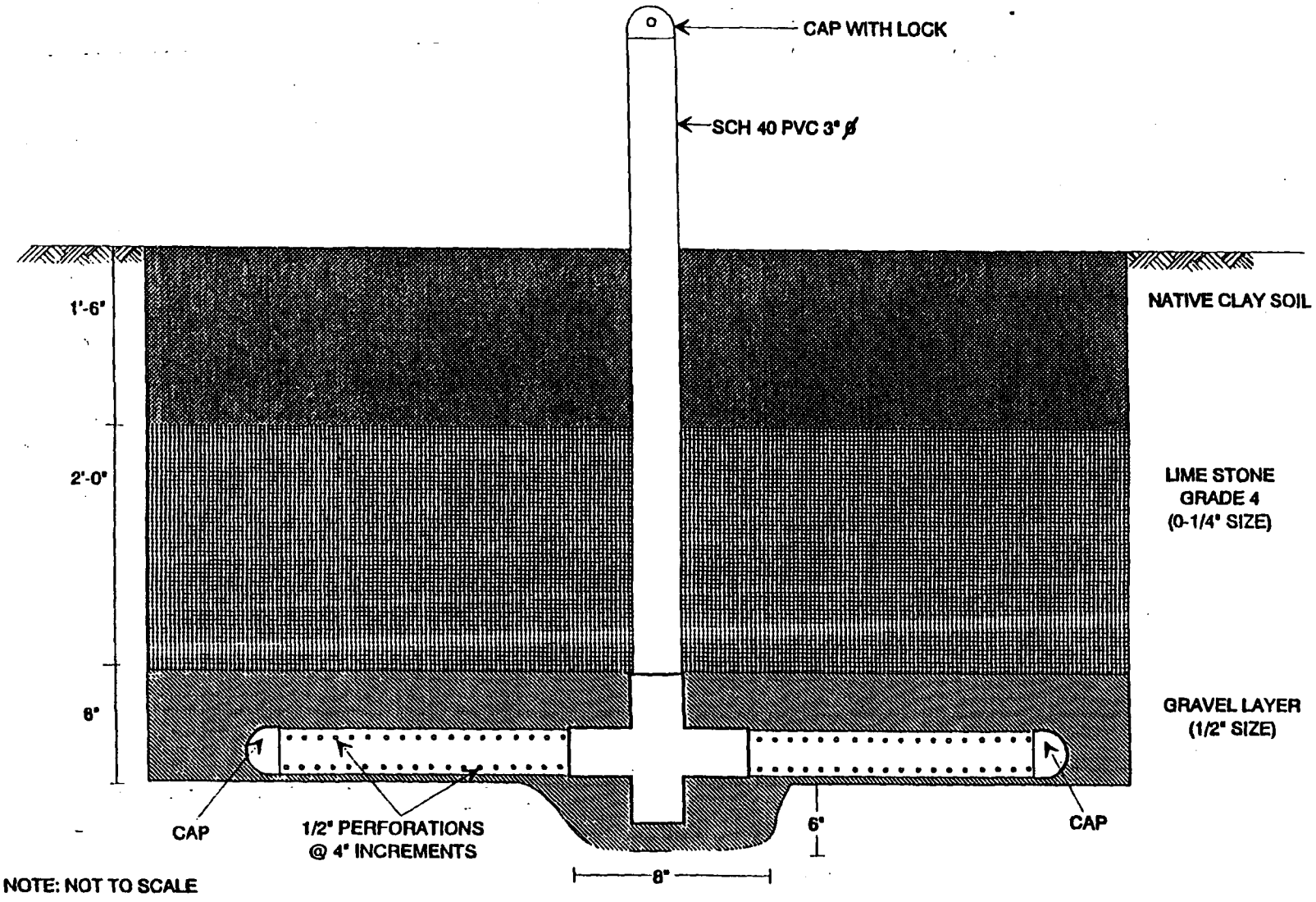
O'BRIEN & GERE
ENGINEERS, INC.
Tampa, Florida

FIGURE 2
AREA OF EXCAVATION
General Electric Company, Huntsville, AL
BASE MAP SOURCE: ERM, Nov. 1991:



O'BRIEN & GERE
ENGINEERS, INC.
Tampa, Florida

FIGURE 2A
AREA OF EXCAVATION
General Electric Company, Huntsville, AL
BASE MAP SOURCE: ERM, Nov. 1991.



O'BRIEN & GERE
ENGINEERS, INC.
Tampa, Florida

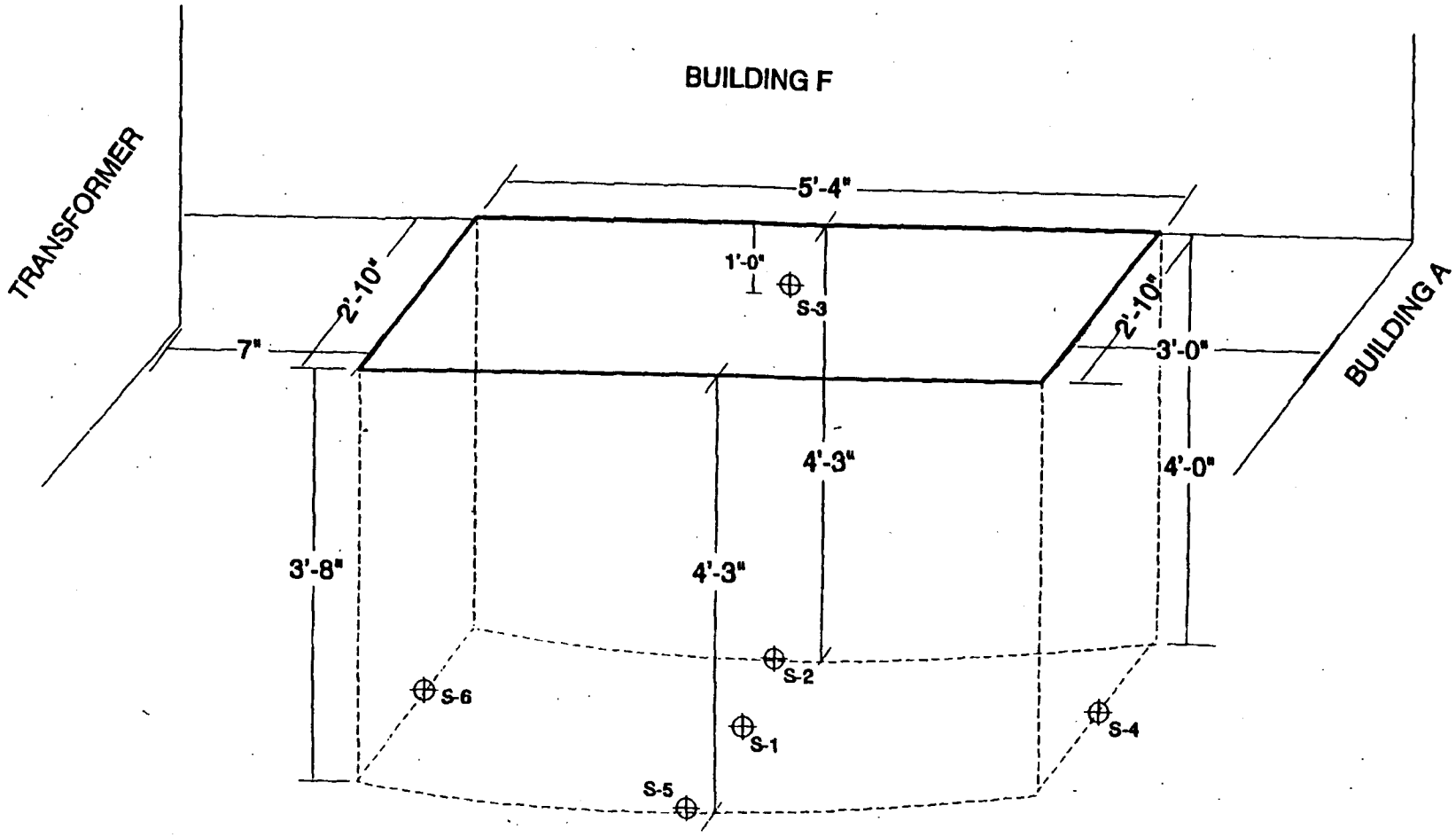
SEL 02/16/93

FIGURE 3

EXCAVATION DRAINAGE SYSTEM

General Electric Company, Huntsville, AL

5067015003



O'BRIEN & GERE
ENGINEERS, INC.
Tampa, Florida

FIGURE 4
BUILDING F
EXCAVATION DIMENSIONS
General Electric Company, Huntsville, AL

TABLES

TABLE 1

Soil Background Sample Results

Boring Number	Event Number	Depth BGS (ft)	PID Reading (ppm)	Comments
BK-1	073	0-1	104	Dark red soil color,
	075	1-2	104	Soil Temperature, 57 F
	077	2-3	100	
	080	3-4	113	
		Average	**105.25**	
BK-2	083	0-1	51.4	Dark red soil color
	084	1-2	65.6	Soil Temperature, 57 F
	085	2-3	82.9	
	088	3-4	37.1	
		Average	**59.25**	
BK-3	089	0-1	27.8	Dark red soil color
	090	1-2	36.7	Soil Temperature, 57 F
	091	2-3	139	
	092	3-4	83.5	
		Average	**76.75**	
		OVERALL AVERAGE	**80.42**	

BGS = Below Ground Surface

TABLE 2

Soil Screening Results
(ppm)

Sample ID	Collection Date	Minimum	Maximum	Average
P-1	11/22/92	15.2	20.1	18.2
P-2	11/22/92	21.4	27.7	24.0

NOTE: PID was calibrated using: Zero Value = Ambient Air; Calibration gas = Isobuthelene, 100 ppm; Precision and Accuracy = isobuthelene, 25 ppm.

TABLE 3

Soil Excavation Limits Sample Results

Sample ID	Description	Detected Compounds	Detected Concentration (ppm)
S1	Soil-Bottom	TPH	180
		TCE	0.06
S2	Soil-North, Gravel	TPH	1000
		TCE	0.726
		cis-1,2-DCE	0.012
		1,2-DCA	0.017
S3	Soil-North, Foundation	TPH	96
		TCE	0.03
S4	Soil-East	TPH	100
		TCE	0.011
S5	Soil-South	TPH	173
		TCE	0.4
S6	Soil-West	TPH	242
		TCE	0.021

TPH - Total Petroleum Hydrocarbons (USEPA Method 418.1)
TCE - Trichloroethene (USEPA Method 8260)
DCE - Dichloroethene (USEPA Method 8260)
DCA - Dichloroethane (USEPA Method 8260)

TABLE 4

GE HUNTSVILLE - TMC ANALYTICAL RESULTS

Sample ID - Collection Date	Description	Results	
DNAPL - 11/21/92	Dense non-aqueous phase liquid	1,1,1-TCA TCE TPH	9.3% 89.5% 5.0%
SC - 11/22/92	Soil Composite	1,1,1-TCA TCE TPH	9.9 ppb 4.92% 316 ppm

TABLE 5

Soil Exploratory Sample Results

Boring Number	Event Number	Depth BGS (ft)	PID Reading (ppm)	Comments
EX-1	110	0-1	139	Dark red clay soil
	111	1-2	551	Soil temperature 53°F
	112	2-3	1,302	
	113	3-4	797	
	114	4-5	836	
	115	5-6	>9,999	
	117	6-7	>9,999	
EX-2	122	0-1	53	Dark red clay soil
	123	1-2	316	Soil temperature 53°F
	124	2-3	153	
	125	3-4	228	
	127	4-5	79	
	136	5-6	212	
	137	6-7	292	
EX-3	128	0-1	33.5	Dark red clay soil
	129	1-2	41.7	Soil temperature 53°F
	130	2-3	67.9	
	131	3-4	37.8	
	132	4-5	220	
	133	5-6	237	
	135	6-7	135	
EX-4	138	0-2	563	Dark red clay soil
	139	2-4	1,842	Soil temperature 53°F
	140	4-6	>9,999	

TABLE 6

Ground Water Sample Results

Sample ID - Collection Date	Detected Compounds	Detected Concentration (ppm)
MW-2 - 11/20/92	TCE	0.260
MW-2 - 01/22/93	TCE	0.022
Trip Blank - 11/20/92	TCE	0.010
Equipment Blank - 11/23/92	TCE	0.183
Trip Blank # 2 - 11/23/92	TCE	0.044
Trip Blank # 3 - 1/22/93 **	Not Detected	N/A

Monitoring Well	Water Level Measurement Data*	Date Collected
MW-1	7.48/7.47	01/21/93
MW-2	14.27/14.27	01/21/93
MW-3	10.86/10.87	01/21/93
MW-4	5.97/5.97	01/21/93

TCE - Trichloroethene (USEPA Method 624)
* - data collected 12:30 p.m./1:30 p.m.; presented as depth to water below PVC.
** - Performed to questionable quality control of ground water samples for 11/20 and 11/22, 1993.

ATTACHMENT 3

ADEM
ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Jim Folsom
Governor

James W. Warr, Director

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February 8, 1994

CERTIFIED MAIL P 014 549 677
RETURN RECEIPT REQUESTED

Christopher D. Parent
Simulation & Control Systems Dept.
General Electric Company
Post Office Box 2825
Daytona Beach, Florida 32115-2825

Dear Mr. Parent:

RE: **NOTICE OF VIOLATION**
GW Incident Number GW 94-1-7
GE Aerospace
110 Wynn Drive
Huntsville, Madison County, Alabama
USEPA Identification Number: ALD 009 305 608

On March 29, 1993, the Alabama Department of Environmental Management (ADEM) received a letter containing Phase I Environmental Liability Assessment report for the above referenced facility. This information indicates that substances related to the operations at the GE Aerospace facility have entered the groundwater.

This is to provide notification that the unpermitted discharge of pollutants to Waters of the State is a violation of Alabama law, specifically Title 22 §§ 22-22 9(i)(3)., (1990 Replacement Volume) Code of Alabama (1975).

Therefore, the Department has determined that the following actions should be taken:

1. The facility must conduct a groundwater quality assessment by fully defining the vertical and horizontal extent of groundwater contamination. This should be demonstrated by installing monitoring wells which can be verified or projected to be clean at the down-gradient limit of the plume and vertically at depth. The assessment should also include a monitoring plan for determining rate, extent and concentrations of contamination on a quarterly basis. The facility will have forty-five (45) days from the date this letter to submit an assessment plan, and will have ninety (90) days from the approval date of the assessment plan to conduct the assessment and submit a finalized groundwater quality assessment report.

2. Upon review of the groundwater quality assessment report, the Department will make a determination whether corrective actions will be required.

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The investigation must be conducted in accordance with accepted geological practices by a geologist or engineer experienced in hydrogeological linvestigations.

Should there be any questions concerning these requirements, please contact J. Wayne Payton at (205)271-7849.

Sincerely,

Charles R. Horn, Chief
Water Division

CRH/JWP/rlb

ATTACHMENT 4

MA[illegible]RD, COOPER & GALE, [illegible]

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FACSIMILE (205) 254-1999

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ASA ROUNTREE
N. LEE COOPER
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DANIEL H. MARKSTEIN III
DOUGLAS T. ARENDALL
KIRBY SEVIER
GEORGE G. LYNN
J. HOBSON PRESLEY, JR.
STEPHEN E. BROWN
CATHY S. WRIGHT
CURTIS O. LILES III
H. THOMAS WELLS, JR.
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A. INGE SELDEN III
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JAMES L. PRIESTER
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RANDALL H. MORROW
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THOMAS W. THAGARD III
LUCINDA P. COLE
JOHN O. SOMERVILLE
MELISSA [illegible]
WILLIAM B. WAHLHEIM, JR.

4

March 3, 1994

MAR 1994
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ADEM
GROUNDWATER
SECTION

VIA FACSIMILE 205-271-7950

Mr. J. Wayne Payton
Groundwater Section
Alabama Department of Environmental Management
1751 Cong. W. L. Dickinson Drive
P.O Box 301463
Montgomery, AL 36130-1463

Re: Martin Marietta Corp., Successor in Interest To GE Aerospace; February 8, 1994 Notice of Violation for Groundwater Incident No. GW 94-1-7

Dear Mr. Payton:

This letter follows up my conversation with you and Jim Stevens yesterday and my conversation with Sonya Massey and Jim Stevens today. As we discussed, this firm is representing Martin Marietta Corporation, as successor in interest to GE Aerospace, which received the above-referenced Notice of Violation on February 19, 1994. As we also discussed, and as I also relayed to Jim and Sonya, Martin Marietta has grave doubts that it is in any way responsible for the organic contamination discovered by it and reported to you last year. I am in the process of investigating the prior and concurrent usage of the property in question by other tenants. In order to protect the rights of Martin Marietta, I will be filing shortly a Request for Hearing and Immediate Stay. Sonya has confirmed for me that the time for appeal expires after Monday, March 7, 1994.

As I mentioned to you, it would of great help to Martin Marietta if the Department would extend the time in the NOV for submitting any groundwater quality assessment plan from 45 to 90 days. Although Martin Marietta may still need to pursue a stay, it would aid our ability to properly and fully investigate this issue if the time were extended.

If the parties later disagree over the identity of the responsible party, or disagree over any other issue, then the request for a stay can be pursued at that time. However, to avoid having to reach the stay issue too early in the investigative process, we would like to have the Department go ahead and agree to extend the time for submitting any assessment plan from 45 to 90 days. Please understand that this request for an extension is not an acknowledgement of the validity of the NOV, nor an acquiescence to the terms of the NOV. The request is simply a means of accomplishing our mutual goal, to determine the correct party to take the necessary corrective action, without diverting our time and energy with the stay process.

If you have any questions, please feel free to call. Since I have also had discussions with Sonya and Jim, I am also faxing them a copy of this letter. I will be in Atlanta tomorrow, but would appreciate your letting my office know of any decision that is made. I look forward to working with you and the Groundwater Branch toward a resolution of this issue.

Very truly yours,

Jarred O. Taylor II

JOTII/cnb
cc: Ms. Sonya Massey (via facsimile)
James Stevens, Esq. (via facsimile)

ATTACHMENT
5

file 5

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

James W. Warr, Director

Jim Folsom
Governor

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FAX 479-2593

April 29, 1994

Mr. Jarred O. Taylor II
Maynard, Cooper & Gale, P.C.
1901 Sixth Avenue North
Suite 2400 AmSouth/Harbert Plaza
Birmingham, Alabama 35203-2602

Re: Request for Extension for Submission of Groundwater Assessment Plan; Notice of Violation for Groundwater Incident No. GW 94-1-7, April 13, 1994

Dear Mr. Taylor:

The Department has reviewed the above referenced request made on behalf of Martin Marietta Corporation, Successor in Interest to GE Aerospace at 110 Wynn Drive, Huntsville, Alabama. The Department has determined that the request is reasonable and hereby grants an extension of thirty (30) days from the previously extended date of compliance. The Groundwater Assessment Plan for Groundwater Incident No. GW 94-1-7 will be due one hundred and twenty (120) days from the date of the Notice of Violation (NOV) letter. All of the other requirements as set forth in the NOV remain the same.

Should you require additional information regarding this matter, please contact me at 271-7849.

Sincerely,

J. Wayne Payton

J. Wayne Payton, Hydrogeologist
Hydrogeology Unit

cc: Sonja Massey, Chief
Groundwater Branch

Fred Mason, Chief
Hydrogeology Unit

James Stevens, Attorney
Office of General Counsel

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ATTACHMENT
6

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

ames W. Warr, Director

Jim Folsom
Governor

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May 23, 1994

Mr. Jarred O. Taylor II
Maynard, Cooper & Gale, P.C.
1901 Sixth Avenue North
Suite 2400 AmSouth/Harbert Plaza
Birmingham, Alabama 35203-2602

Re: Meeting to Discuss Notice of Violation for Groundwater Incident No. GW 94-1-7, February 8, 1994
GE Aerospace

Dear Mr. Taylor:

The Department appreciates having had the opportunity to discuss the above referenced matter with you and your clients Ms. Wasser and Mr. Parent. The meeting was informative and several points were raised which will require further review by Groundwater Branch staff.

During the meeting, pertinent information was provided regarding prior tenancy of the property, ownership of said property and chemical compounds utilized by the current tenant. Copies of such information will facilitate the Department's review of the Notice of Violation of February 8, 1994. Please forward the following information to the Department at the address above:

1. Documents showing past and present ownership and tenancy of property;

2. Statement that GE Aerospace did not use Trichloroethylene (TCE) and supporting documentation;

3. Statement of the solvent utilized in cleaning printed circuit boards, how it is employed, amount of solvent used, amount of solvent recycled, and supporting documentation;

The Groundwater Branch will review this information in order to determine the proper course of action. Until further notice, an indefinite extension is given for completion of the requirements of the Notice of Violation of February 8, 1994.

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Should you require additional information regarding this matter, please contact Wayne Payton at 271-7849.

Sincerely,

Sonja Massey, Chief
Groundwater Branch

cc: James Stevens, Attorney
Office of General Counsel

Fred Mason, Chief
Hydrogeology Unit

J. Wayne Payton, Hydrogeologist
Hydrogeology Unit

ATTACHMENT
7

MARTIN MARIETTA
SIMULATION & AUTOMATED SYSTEMS

POST OFFICE BOX 2825
DAYTONA BEACH, FLORIDA 32120-2825
TELEPHONE (904) 239-2511

June 3, 1994

Maynard, Cooper & Gale, P.C.
1901 Sixth Avenue North
Suite 2400
Birmingham, Alabama 35203-2602
Attention: Jared O. Taylor, II

NOV 1994
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ADEM
GROUNDWATER
SECTION

Dear Mr. Taylor:

As part of my review of records from GE Aerospace's former facility at 110 Wynn Drive, Huntsville, Alabama, I have reviewed approximately one hundred and fifty (150) Material Safety Data Sheets (MSDSs) for materials in use at that site. Along with the MSDSs I have reviewed material inventories for the GE Aerospace operating units at that site. These inventories are dated from 1986 through 1990.

I found no reference to trichloroethylene (CAS 79-01-6) on any of the MSDSs or any of the inventories. I did locate several sheets indicating that methyl chloroform (CAS 71-55-6) was in use at the site, as well as xylene, methylene chloride, isopropyl alcohol, and a variety of other chemicals. Trade names, common names, synonyms, and Chemical Abstract Services numbers (CAS) were used to determine the identities of the materials reported on each MSDS and inventory.

The GE Aerospace operations reported to have taken place at the site were related to engineering design, repro graphics, and limited production, with the printed circuit board (board) manufacturing area associated with the most intensive use of chemicals. Trichloroethylene would not normally have been used for the cleaning of the boards because the method specified required the use of nonflammable materials: trichloroethylene is a class 1C flammable liquid.

The method specified for board cleaning was cold vapor-phase degreasing. This method required that the cleaning material be heated to boiling, generating vapor which was then chilled by the refrigeration coils, creating a cold vapor cloud. The boards were emersed into the cold cloud of vapor, with the resulting condensate allowed to run off the boards, carrying any contaminants with it. Trichloroethylene could not be used for this type of operation because its flash point is only three (3) degrees Fahrenheit higher than its boiling point, creating a substantial fire hazard.

Because cold vapor-phase degreasing units are designed to contain the vapor cloud, emissions are minimal; when the systems are not in use, covers typically are employed to reduce losses. Under these circumstances, the use of one or two drums of cleaning material a year would have been typical. GE Aerospace sites used methyl chloroform or methylene chloride, because the are nonflammable liquids.

If you have any questions please contact me at (904) 239-2612 or (407) 826-6704.

Sincerely,

Bernadine M. Wasser, CIH
Manager - EHS

pc: N. Varney

ATTACHMENT
8

MAYNARD, COOPER & GALE, P.C.

ATTORNEYS AT LAW

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NOV 1994
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ADEM
GROUNDWATER
SECTION

November 22, 1994

Ms. Sonja Massey, Chief
Groundwater Branch
Alabama Department of Environmental Management
P.O. Box 301463
Montgomery, AL 36130-1463

RE: Notice of Violation, Groundwater Incident No. GW 94-1-7, February 8, 1994

Dear Sonja:

Representatives of Martin Marietta and I met with you, Jim Stevens and other representatives of the Department in May. At that meeting, we explained to you the results of our investigation into Martin Marietta's discovery of TCE in the groundwater beneath the leased facility in Huntsville. That investigation included an assessment of the past and present ownership and tenancy of the property, and the fact that GE Aerospace did not use TCE during its tenure at the leased facility. The bottom line was that we had concluded that the TCE found in the groundwater did not originate from any operation of GE Aerospace at the facility. Based on these representations, the Department was kind enough to provide an indefinite extension or stay of the requirements set out in the referenced Notice of Violation. You asked, however, that we provide you whatever documentation we had, or further detail in writing, to support our conclusions. Please accept this letter and the enclosures as such further detail.

Background

The current facility is a conglomeration of buildings that have been built over the years. The original owner, Huntsville Industrial Associates ("HIA"), built the original building in 1966 and leased it to Astro Space Laboratories. Astro Space did research and development of mechanical and electrical devices. Astro Space had a laboratory and a machine shop as part of its operations. As best we can tell, Astro Space went out of business in the early 1970's. Sometime in 1974, the interior to the original building was altered. Chrysler next leased the

space, manufacturing electrical equipment. Chrysler occupied the premises thereafter, until 1981.

On June 1, 1980, GE signed a lease with HIA, but interviews with current and former GE employees reveal that GE did not actually occupy the site until sometime in 1981. At this time, only part of the original building was being leased by GE. Later, various other leases were executed between GE and HIA. During this period, GE's activities included production of printed circuit boards.

In May, 1985, HIA sold the property to the current owner, Wynn Drive Properties. All leases executed by GE thereafter were with Wynn Drive Properties.

In 1990, GE made the decision to relocate its Huntsville operation to Florida. This relocation would entail abandoning or subleasing the Huntsville site. Corporate policy dictated that before any abandonment or subleasing was consummated, a baseline environmental study should be performed. This would include a Phase I and limited soil, surface and groundwater sampling program. Such a program was implemented in the fall of 1990 through early 1991, with the sampling of the groundwater monitoring wells occurring in March, 1991.

Two reports were generated from this activity. First, the November, 1990 Phase I report notes disturbed soil around a transformer in the area in question and recommends the area be more closely studied to use as a baseline. The May 13, 1991 baseline report revealed high levels of TPH in the soil around the transformer. Interviews revealed that this transformer was refilled, retrofitted, or repaired sometime in 1988 or 1989. These high levels of TPH range from 4,670 ppm to 9,550 ppm. At that time the groundwater analysis showed no volatile or semi-volatile organic compounds, including a total absence of TCE.

The follow-up investigation was designed to find the vertical and horizonal extent of this TPH contamination. The September 16, 1991 report recommended that the TPH-contaminated soil be removed and properly disposed. GE elected to go forward despite the fact the TPH contamination was not caused by it.

In January of 1992, the TPH-contaminated soil was excavated and confirmatory samples taken. One such sample next to the northern wall of the excavation (which was at the southern wall of Building F) showed more soil needed to be removed. During this removal, a layer of gravel was encountered and an oily liquid seeped out into the excavation. GE communicated this incident to ADEM. The liquid was sampled and found to consist of approximately 90% TCE. Groundwater monitoring also performed in late 1992 found, for the first time, TCE in the groundwater. The level at this time was .26 ppm. In January, 1993,

GE's contractor resampled the well, finding .022 ppm TCE. In March of 1993, GE forwarded to ADEM its investigatory report. Eleven months later, ADEM issued a Notice of Violation to GE alleging that substances related to GE's operation have entered the groundwater, constituting an unpermitted discharge of pollutants to state waters. The NOV further directs that a groundwater quality assessment be performed.

As you know, GE/Martin Marietta appealed the NOV on the ground that the TCE contamination did not come from GE's operation and that GE should not be held responsible since it committed no unlawful discharge.

Discussion

To the best of our knowledge and belief, GE never purchased nor used at this location the first drop of TCE. Enclosed with this letter is a letter to me from Bernadine M. Wasser of Martin Marietta, who was also present at our meeting in May. As you can see, Ms. Wasser summarizes her investigation and review of records from the facility in Huntsville. As is clearly stated in her letter to me, no reference to TCE has been found in any of GE's records. Moreover, the method specified for the activity engaged in by GE would have been inconsistent with the use of TCE. We can provide you with copies of the several hundred MSDS sheets, if you so desire.

One of the most recent discoveries, from several interviews and a few documents, which are enclosed, is that when GE first occupied the premises, it discovered drums that had been left behind by a prior tenant, Astro Space or Chrysler. GE had these drums analyzed and at least one of them contained TCE. GE established a profile with Chemical Waste Management at Emelle to ship this material to Chemical Waste Management. This is indicative both of TCE use by other parties as well as of GE's good corporate citizenship regarding environmental compliance. These shipments to CWM of the prior tenant's TCE are reflected in the 1982 documents enclosed.

Also during our investigation, we learned that Wynn Drive Properties' insurance company required an assessment of the property in 1988. This assessment is memorialized in a report prepared by Bhate Engineering Corporation on behalf of New England Mutual Life Insurance Company and Wynn Drive Properties dated December 21, 1988. In this report, some of the prior tenancy and ownership information is listed, although there is some conflict between our understanding and the information presented in this report. It is interesting, however, to note that TCE is nowhere mentioned in the report, although TCA is. Please also note that the loading dock referenced in this report is nowhere near the area of concern. This report, prepared by an independent source, confirms many of the facts being relayed to you in this

letter. I am enclosing with this letter, in addition to the specific documents mentioned herein, certain other documents you may find of interest or containing information to confirm statements made to you either at the meeting or in this letter. If you have any questions about any of the enclosed information or this letter, please do not hesitate to call me.

I look forward to hearing from you at your convenience regarding your assessment of this information and the confirmation by the Department that it no longer holds GE Aerospace/Martin Marietta responsible for the contamination found at the referenced facility.

Very truly yours,

Jarred O. Taylor II

Enclosures
JOTII/cnb

cc: James Stevens, Esquire (w/encls.)

176072 TAYLOJ

ATTACHMENT 9

9

NOV 1994
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GROUNDWATER
SECTION

1100 WYNN DRIVE
HUNTSVILLE, ALABAMA
BEC PROJECT NUMBER: 280118

Prepared for:

NEW ENGLAND MUTUAL
LIFE INSURANCE COMPANY
AND WYNN DRIVE PROPERTIES
C/O MORRIS, SMITH, SINIARD, CLOUD,
AND FEES, P.C.
300 CLINTON AVENUE WEST, SECOND FLOOR
HUNTSVILLE, ALABAMA 35901

ATTENTION: ATTORNEY CHARLES SMITH

Bhate Engineering Corporation
Geotechnical. Materials. Environmental Engineers

Bhate Engineering Corporation
Geotechnical Materials Environmental Engineers
[illegible]
Birmingham ■ Alabama ■ 35212-3515
(205) 591-7062

December 21, 1988

New England Mutual Life Insurance Company
and Wynn Drive Properties
C/O Morris, Smith, Siniard, Cloud & Fees, P.C.
300 Clinton Avenue West, Second Floor
Huntsville, Alabama 35901

Attention: Attorney Charles Smith

Subject: Environmental Site Assessment
Property at 110 Wynn Drive
Huntsville, Alabama
BEC Project Number: 280118

Dear Attorney Smith:

Bhate Engineering Corporation's Environmental Group is pleased to submit the following Environmental Site Assessment for the subject project. The objective of this study was to evaluate past and present site specific environmental factors which may have an impact on the subject property. The findings of this study are presented in the following sections.

We appreciate the opportunity to work with you on this project. If you have any questions regarding the information contained in this report, please contact us at your convenience.

Respectfully submitted,

BHATE ENGINEERING CORPORATION
ENVIRONMENTAL GROUP

Walter B. Raymond
Environmental Geologist

John B. Milledge
Environmental Geologist

Donald A. Cables
Environmental Division Manager

Willie M. NeSmith, P.E.
Operations Manager

/rp

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APPENDIX

1.0 SCOPE OF WORK

The primary objective of this study was to evaluate the past and present site specific environmental factors which may have an impact on the subject property. The overall Environmental Site Assessment included the following.

1. Review of the property's chain of ownership.

2. Review of the historical usage of the property.

3. Review of the previous building tennants and their use of the subject structure.

4. Review of the applicable Alabama Department of Environmental Management (ADEM) and the U.S. Environmental Protection Agency's (EPA) listings.

5. Identification of suspect asbestos containing building materials (ACBM) during a preliminary asbestos survey.

6. Sampling and laboratory analysis of suspect ACBM to determine the presence of asbestos.

7. A visual survey of the subject structure and grounds for indications of the presence of hazardous waste and chemicals.

8. A visual survey of the subject structure and grounds for indications of the presence of Polychlorinated Biphenyls (PCB) containing electrical transformers.

2.0 SITE LOCATION AND DESCRIPTION

2.1 SITE LOCATION

The subject property is located on the southwest corner of the intersection of Wynn Drive and Gilmer Street in Huntsville, Madison County, Alabama. Presently the property is occupied by a large commerical/office structure which is discussed in detail in the following section. The subject property is bounded on the north by Gilmer Street, on the south by a multi-story offical commercial structure which houses the U.S. Army Stratigic Defence Command, on the southwest by a concrete lined drainage ditch and adjacent single family residential structures, on the east by Wynn Drive and on the west by a South Central Bell Field Maintenance Facility (Figure 1). The immediate area surrounding the subject property is generally comprised of office/commercial structures and single family residential neighborhoods.

2.2 BUILDING DESCRIPTION

Information previded by Mr. Newman McCown, Facilities Administrator for General Electric, indicates that the structure contains approximately 166,000 ft^2 of floor space. Approximately 24,000 ft^2 of the total structure, referred to as the Chrysler Building, was vacant during the time this site assessment was conducted. It is our understanding that the existing structure is actually a composite of five individual structures which were constructed at different times beginnning about 1966 through 1987. The five individual buildings, are discussed in detail in the following paragraphs and are illustrated on Figure 2. The total building is referred to as the subject structure in the text of this report.

Based on information provided by Mr. Newman McCown, Facilities Administrator, G.E., it is our understanding that the subject structure is served by all public utilities (water, sewer, gas and electricity). Floor drains are located within the restrooms, the new cafeteria area and the PC Board Plating Room. These drains are connected to the sanitary sewer system. No septic systems or wells of any type are present on the property. Solid waste disposal is provided by BFI, Huntsville, Alabama. We also understand that G.E. has four vehicles at this site. They include a van, a car, a station wagon, and 1 1/2 ton pickup truck. These vehicles are not maintained or serviced at this location. No underground storage tanks are present on the site.

The eastcentral protion of the subject structure, referred to in this report as the Old G.E. Building, is the oldest of the five buildings and was constructed around 1966. Information provided by Mr. Newman McCown revealed that this portion of the strucutre underwent extensive renovation and remodeling several years ago at which time most of the ceiling panels were removed and replaced. This one story building is constructed with concrete block exterior walls, a concrete floor slab and a metal roof with steel bar joints.

The northeastern portion of the structure, referred to as the Chrysler Building, contains approximately 24,000 ft.^{2} of floor space. No date of construction was available for this structure. This one story building is constructed with a concrete slab on grade with the roof system supported by metal joist. The underside of the roof decking is insulated with a yellow-orange fiberglass material. The east exterior wall is composed of brick. Metal siding is present along the north side of the structure.

The southeastern portion of the subject structure referred to as the Southeast Butler Building is a metal frame building with metal siding which is utilized for office space. Mr. McCown noted that this portion of the structure was constructed around 1982.

The southwest portion of the structure, referred to as the Cafeteria Building, is also a metal frame building. At the time our site assessment was conducted, this area of the subject structure was being remodeled to provide an employee cafeteria. It is our understanding that this building was constructed about 1985.

The western half of the subject structure, referred to as the New Addition in this report, is the newest building. This structure was added in 1987 resulting in an additional 106,000 ft^2 of floor space. This two story structure, is constructed with concrete floor slabs and a roof system supported by metal joist. The outside of the building covered with a Drive It exterior.

2.3 GROUNDS DESCRIPTION

The majority of the grounds of the subject property are occuppied by asphalt parking and drives with landscaped and natural areas surrounding the perimeter of the property. A concrete lined drainage ditch (approximately 40'-50' wide and 10'-12' deep) is present adjacent the southwest corner of the subject property (Plate No. 1). This drainage creek flows in an easterly direction at the southwest corner of the property. Information provided by Mr. Newman McCown indicates that this drainage ditch is dry during the summer months. Surface runoff from the west parking lot enters this concrete line drainage ditch by way of two concrete flumes present along the south side of the west parking lot (Plate No 2). A natural area within the southwest corner of the site is covered with grass and submature to mature hardwoods (Figure 1).

Several pole mounted transformers and 3 capacitors are present along the west property boundary. This area is also underlain by a buried electrical cable as revealed by posted signs (Figure 1).

During the site reconnaissance, a pad mounted electric air compressor was noted adjacent the southwest corner of the subject structure (Plate No. 3). This unit is mounted on a wooden pallet and is resting on a concrete slab within a fenced area. Four quarts of Dayton Air Compressor Oil were noted on the concrete slab. Visible signs of leaking compressor oil were observed. Oil was observed on the compressor motor. Oil staining was noted on the concrete pad and the adjacent ground surface. A BFI dumpster is also present adjacent the southwest corner of the subject structure (Figure 1).

A small grassed lined drainage ditch is present along the southern property boundary, directly south of the metal frame building currently being renovated for use as an employee cafeteria. This ditch is fed by a 12-18 inch diameter concrete pipe which runs under the south parking lot. Apparently the pipe connects to the storm drain inlets present within the south and east asphalt parking lots. This small drainage ditch discharges into the concrete lined ditch directly south of the southwest corner of the subject structure. This small drainage ditch was dry on the dates the site reconnaissance was conducted (Figure 1).

A loading dock is present along the central area of the south end of the subject structure. On the date the site reconnaissanc was conducted, three (3) empty 55 gallon drums of 111 Tricholroethane were present on the dock (Plate No. 4). In addition, one (1) full 55 gallon drum of Isopropanol Anhydrous was also present. A 55 gallon drum inside a Bondico Poly-overpack Salvage Drum was also present (Plate No. 5). Information obtained from Mr. Newman McCown and Mr. Chuck Reyna, General Electric, revealed that this drum contained a mixture of 111Tricholroethane and acid which had been used in the P.C. board etching process. Apparently, the steel 55 gallon drum was placed inside the plastic salvage drum when signs of corrosion were observed. Two pad mounted electrical transformers are also present directly north of the loading dock, between the two metal frame buildings (Figure 1).

A small portable electrical equipment shelter, (approximately 10' x 22' x 8') is present adjacent the loading dock along the south wall of the southeast Butler building. Information provided by Mr. Chuck Reyna revealed that this portable shelter contains automatic testing equipment. No chemicals are stored in the shelter (Figure 1).

A pole mounted electrical transformer is present at the southeast corner of the subject property. The eastern side of the property is grassed and landscaped.

Two pad mounted elelctrical transformers are present along the north side of the subject structure. An entrance canopy is present along the north side of the Chrysler Building. Asbestos containings ceiling panels were identified in this canopy (Plate Nos. 6 & 7).

3.0 CHAIN OF OWNERSHIP AND TENNANT OCCUPANCY

3.1 GENERAL

The chain of ownership, land use and tennant occupancy history presented in Section 3.0 of this report is based on information obtained from records on file in the Madison County Court House, Huntsville, Alabama and information provided by Morris, Smith, Siniard, Cloud & Fees, P.C., Attorney's at Law, Huntsville, Alabama. A telephone conversation with Lieutenant General Charles W. Eifler at 10011 San Ramon Drive SE, Huntsville, Alabama 35802, also provided information about tennant occupancy and tennant use of the building. The historical review of tennant occupancy and the review of past ownership represents a good faith only effort to be used in assessing the environmental impact of past land usage on future development. This review is in no way intended to represent a complete search for clear title to the property, nor is the completeness or accuracy guaranteed.

3.2 PAST LAND USAGE

Prior to about 1966, the subject site consisted of undeveloped land that was farmed, and a private residence as described in Section 3.3.

3.3 CHAIN OF OWNERSHIP

The title to the subject site prior to 1963 was retained by Miss Annie H. Bradford of 101 Clinton Avenue East, Huntsville, Alabama. A 1963 Tax Return List (Exhibit A in the Appendix) indicates that in 1963 the subject property consisted of undeveloped land, an 8 room house, 3 cabins and 2 barns.

The title to the subject site after 1963 is as set forth below:

1. On September 9, 1963, this property was conveyed to Research Sites Foundation by Deed recorded in Deed Book 328 at Page 239 in the Probate Records of Madison County, Alabama.

2. On November 21, 1966, University of Alabama, Huntsville Foundation (formerly Research Sites Foundation, Inc.) conveyed the 13.25 acre site (which is the present size of the subject site) to Huntsville Industrial Associates, Inc. by Deed recorded in Deed Book 387 at Page 243 in the Probate Records of Madison County, Alabama. At the time this Deed was conveyed, it was expressly agreed by and between the parties that this property shall be the site of a telephone communications center or a

research or development or testing or related facility (including facilities for general office purposes). It was also expressly agreed that this property shall not be used or maintained as a dumping ground or for the storage of rubbish, trash, junk, scrap iron or like material. All trash, garbage and other waste would be kept in closed, sanitary containers pending removal from the premises.

In 1966 Huntsville Industrial Associates, Inc. built a building on the site. A copy of the City of Huntsville Inspection Record, dated December 22, 1966, which sets forth the building activity is included in the Appendix as Exhibit B. This building was leased to Astro Space as noted in the Tennant Occupancy History presented in Section 3.4 of this report.

3. Huntsville Industrial Associates, Inc. retained title to the subject property until it was conveyed to Wynn Drive Properties in May of 1985 as recorded in Deed Book 630 at Page 536 in the Probate Records of Madison County, Alabama.

4. Since 1985, Wynn Drive Properties has continued to own the subject property.

It appears that the subject site has been used as a manufacturing facility for small electrical components, and a testing and research center since the initial building was constructed in about 1966.

3.4 TENNANT OCCUPANCY

The building at 110 Wynn Drive, Huntsville, Alabama is actually a composite of four phases of construction activity that have occurred from about 1966 through 1987. The initial building was built in 1966 by Huntsville Industrial Associates, Inc. A history of the building occupancy and the use of the building by those occupants is presented below.

1. In 1966 Huntsville Industrial Associates, Inc. leased to Astro Space. Astro Space was involved in research and development of mechanical and electrical models and test devices for the federal government.

2. Chrysler Corporation was the next entity that occupied the building in the early 1970's. Chrysler occupied the southern part of the building while the north part of the building was vacant during this time period. Work at the Chrysler facility involved updating electronic test equipment and manufacturing electrical performance equipment.

3. General Electric Corporation replaced Chrysler Corporation in the southern part of the building in the mid 1970's and Micrometrics occupied the northern part of the building during this same time period. These firms were involved with testing and updating electrical and mechanical equipment under contract by the U.S. Government.

4. Chrysler Corporation moved back into the northern portion of the building (24,000 square feet) in November, 1981. Work performed by Chrysler involved design and testing of electrical and communication controls for high speed trains. The floor in a portion of the building was modified to accomodate high technology computer equipment.

5. Chrysler ceased operations and moved out of the building in November, 1987. However, General Electric continued to occupy the southern part of the building and expanded its operations to include occupancy beginning January 1, 1988 of the new 106,000 square foot addition. General Electric is involved is research, development and testing of computer equipment and other electrical devices.

4.0 REVIEW OF ADEM AND EPA LISTINGS

During preparation of this report, the EPA Facility Index System (FINDS) listing, EPA Comprehensive Environmental Response, Compensation, Liability Act Information System (CERCLIS) listing and the ADEM Hazardous Waste Data Management System (HWDMS) listing were reviewed. The FINDS listing is a tabulation of all sites or facilities which are subject to EPA regulations. The CERCLIS listing is a summary of actual, suspected or alleged locations of environmental impairment. The HWDMS listing is a list of generators, transporters, and treatment and storage facilities of hazardous waste which require a permit and are closely regulated by the Alabama Department of Environmental Management.

General Electric at 110 Wynn Drive, Huntsville, Alabama is listed on the U.S. Environmental Protection Agency Facility Index System (FINDS) and the Alabama Department of Environmental Management Hazardous Waste Data Management System (HWDMS) listings. This property is not included on the EPA CERCLIS list for Madison County.

The EPA and State Hazardous Waste genarator numbers as provided by Mr. C.W. Reyna are as follows:

EPA I.D.# ALD009305608
Alabama I.D.# 0000000511

5.0 HAZARDOUS WASTE SURVEY

On December 16 and 19, 1988, a hazardous waste survey was conducted at the subject property by Mr. John Milledge and Mr. Walter Raymond of Bhate Engineering's Environmental Group. This survey consisted of a visual inspection of the interior of the subject structure and the grounds of the property for indications of the presence of hazardous waste. This survey concentrated on identification of substances classified as either "characteristic wastes" or "listed wastes" by the Resource Conservation Recovery Act of 1976 (RCRA). RCRA defines characteristic wastes as those which are ignitiable, corrosive, reactive, or toxic. Listed wastes are those substances which have been determined to be hazardous by the Environmental Protection Agency (EPA) and are included on lists published by the EPA.

During the hazardous waste survey conducted within the interior of the subject structure, two areas of chemical use were identified by Mr. Newman McCown and Mr. Chuck Reyna, General Electric. These areas included the PC Board Plating Room located within the Old G.E. Building and the production area within the lower level of the new 106,000 ft^2 addition.

Within the PC Board Plating Room, twelve (12) containers of small quantities of potentially hazardous chemicals, no longer used, were noted. Many of these containers have never been opened. An inventory of the chemical noted on December 19, 1988, prepared by Mr. Chuck Reyna, General Electric, has been included in the Appendix of this report. Information provided by Mr. Reyna revealed that this plating operation has not been utilized for over two years. General Electric is presently in the process of dismantling this laboratory and disposing of these chemical substances. These chemicals are not considered a sever environmental threat provided they are properly disposed of.

111 Trichloroethane is used in the production area witin the lower level of the new 106,000 $ft.^2$ addition. This substance is used within a Branson Cleaning Machine for the purpose of cleaning flux from solder boards.

Mr. McCown noted that the interior of the subject structure is sprayed on a monthly basis by Dixie Pest Control. Information obtained from Jackie Glass, Dixie Pest Control, revealed that the chemicals routinely used within the structure include Darsban, Malathion, and Demon EC. Information obtained from Mr. Arnie Grigsby, U.S. EPA, Region IV, revealed that these products have not been banned by the EPA nor has their use been restricted provided they are applied as per the manufacturers instructions.

Mr. McCown also noted that a contract cleaning service was retained to maintain the interior of the subject structure. Information provided by Mr. Morty Banks, Huntsville Professional Maintenance Service, indicates that general purpose cleaners such as glass cleaner, floor stripper, floor finish and disinfectant were used in the building. Mr. Banks stated he would supply Material Safety Data Sheets on the various products used if necessary.

No other suspect areas were identified during the hazardous waste survey conducted within the subject structure or during interviews with Mr. McCowen and Mr. Reyna. Likewise, no suspect areas were identified within the unoccupied portion of the building referred to as the Chrysler Building.

While on site, a hazardous waste survey was also conducted on the ground of the subject property. Typically, during a hazardous waste survey, areas of possible environmental impairment are documented and sampled and analyzed as deemed necessary. When conducting an environmental site assessment suspect areas to be investigated include, but are not limited to, areas of distressed vegetation, areas of discolored soil or standing water and areas which exhibit unusual or chemical odors.

Information obtained during the preparation of this report revealed that the grounds of the subject property are maintained by Webster's Lawn Care. Information provided by Mr. Lee McBride, Webster's Lawn Care, revealed that the chemicals reoutinely applied to the grounds of the subject property include Iron Chelates, MSMA, Basagran, Pendimethalin, Surflan, and Trimac. Information provided by Mr. Arnie Grigsby, U.S. EPA revealed that these products have not been banned by the EPA nor has their use restricted provided they are applied as per the manufactures instructions.

As discussed in Section 2.3, a small electric air compressor was observed adjacent the southwest corner of the subject structure. This unit appears to be leaking oil as evidenced by the presence of oil on the exterior or the compressor motor and oil staining on the concrete pad and adjacent ground surface. This leakage appears to be minor and should not pose a severe environmental threat. However, the source of the leak should be repaired or replaced or an appropriate containment system should be constructed. No other areas of possible environmental impairment were noted in the grounds of the subject property on the date the hazardous waste survey was conducted.

6.0 ASBESTOS SURVEY

On December 16 and 19, 1988, and asbestos survey was conducted at the subject property by Mr. John Milledge and Mr. Walter Raymond of Bhate Engineering Corporation's Environmental Group. This survey consisted of visually inspecting the interior and exterior of the subject structure for the presence of asbestos containing building materials. We note that although a prudent effort was made to obtain and analyze at least one sample of each suspect material noted, there is no assurrance that all suspect asbestos containing building materials were identified during the asbestos survey. This is due in part to the vastness of the structure with regard to budgetary restraints, as well as possible past renovations and repairs within the structure as the result of fires, plumbing repairs, remodeling, or vandalism.

In the past, asbestos has been used in literally thousands of products, collectly referred to as asbestos containing materials. These products include building materials such as ceiling tiles, floor tiles, pipe insulation, fireproofing and acoustical plaster. Asbestos gained wide spread use because it is plentiful, readily available, low in cost and because of its unique properties, i.e., it does not burn, it is strong, it conducts heat and electricity poorly, and it is impervious to chemical corrosion.

One of the most common uses for asbestos was a fireproofing material. It was sprayed on steel beams used in construction of multi-storied buildings to prevent structural members from warping or collapsing in the event of fire. Asbestos is also added to a variety of building materials to enhance strength. It is found in concrete and concrete-like products such as sideing, roofing shingles, and pipes. Asbestos has also been added to asphalt, vinyl, and other materials to make products like roofing felts, floor tiles, joint compounds and adhesives. Asbestos also received wide spread use for thermal insulation and condensation control. Asbestos has also been used as a component of acoustical and decorative plaster.

During the asbestos survey conducted at the subject structure on December 16 and 19, 1988, forty-one (41) suspect asbestos containing building materials were identified and sampled. These materials included ceiling panels, floor tiles and adhesive mastic, vinyl baseboards and adhesive mastic, pipe and duct insulation, ceiling insulation, roof insulation, and a textured exterior surfacing material. The bulk samples were analyzed by Environmental Management and Engineering, Inc. (EME) and Environmental Material Consultants (EMC) for asbestos content using polarized light microscopy (PLM). The asbestos bulk sample analysis reports, prepared by EME and EMC have been included in the Appendix.

Table 1 summarizing the sample locations, descriptions and laboratory test results for each suspect material analyzed, has also been included in the Appendix of this report. In summary, asbestos was identified in six (6) samples of the forty-one (41) samples collected and analyzed. A summary of the samples which were determined to be positive for asbestos content is presented below. Analysis of the remaining samples submitted for identification did not reveal the presence of asbestos.

Summary of Samples Determined to Contain Asbestos

BEC Sample No.	Sample Description	Location of Sample
JM-13	White Ceiling Panel	PC Board Plating Room Old GE Bldg. Sample from ceiling panel though which exhaust vent is extended.
JM-15	Off-white Ceiling Panel (Hard Textured)	PC Board Plating Room Old GE Bldg.
JM-26	Floor Tile Adhesive (Floor Tile does not contain asbestos)	Janitors closet within SE Bulter Bldg. (Probably same material used in adjacent restrooms in this bldg.
JM-27	Floor Tile & Adhesive (white with black streaks)	Hallway of Chrysler Bldg. (SE corner)
JM-33	Backing of rolled vinyl flooring (top is vinyl)	4th Room on Left from SE corner of Chrysler Bldg.
JM-41	White Ceiling Panel (Hard, textured)	Entrance canopy, north side of Chrysler Bldg.

7.0 POLYCHLOCINATED BYPHENYL (PCB) ELECTRICAL EQUIPMENT

During the hazardous waste survey conducted on December 16 and 19, 1988, the subject structure and grounds were also visually inspected for the presence of Polycholorinated Biphenyl (PCB) labeled electrical equipment. Electrical equipment which possibly contain PCB dielectric fluids include distribution transformers, capacitors, and rectifiers.

Information provided by Mr. Newman McCown, G.E. Facilities Administrator, indicates that some dry-type step down transformers are present inside the subject structure, however, no oil filled transformers are present inside. During the exterior hazardous waste survey, several pad mounted and pole mounted distribution transformers were observed. In addition, a pole mounted capacitor bank was also noted along the west side of the property. These units are the property of Huntsville Utilities.

The three pole mounted capacitors located on the west property boundary are clearly labled as non-PCB units. However, information obtained from Mr. Jack Mathis, Huntsville Utilities Company, revealed that not all of Huntsville Utilities distribution transformers have been tested for PCB content. Mr. Mathis noted that ususally units are not tested for PCB's unless they are returned to the shop for maintenance. Therefore, Huntsville Utility distribution transformers must be considered as PCB contaminated.

8.0 CONCLUSIONS AND RECOMMENDATIONS

1. Several containers of potentially hazardous chemicals were observed within the PC Board Plating Room of the Old G.E. Building. It is our understanding that this plating operation has not been utilized for several years. G.E. is presently in the process of dismantling this laboratory and disposing of these chemical substances. These chemical are not considered a environmental threat provided they are properly stored and disposed of.

2. 111 Trichloroethone is used in the production area within the lower level of the new 106,000 ft^2 addition. This substance is used within a Branson Cleaning Machine for the purpose of removing flux from solder boards. This substance should be used following all applicable safety precautous as outlined in the MSDS. Likewise, the manufactures instructions should be followed when using this substance in the Branson Cleaning Machine.

3. It is our understanding that the empty 55 gallon drums (previously containing 111 Trichloroethane) noted in the south loading dock are used to return the spent solvent to the chemical manufacturer. These drums should be stored in a secured area until needed since the empty container may contain potentially hazardous residue in the form of solids, liquids, or vapors. Drums which will not be used to return spent product should be properly disposed of.

4. The chemical substance contained within the salvage drum on the south loading dock should be properly disposed of to prevent possible environmental contamination if accidently or intentionally overturned. Likewise, no use for the Isopropanol Anhydrous was identified during our interview with G.E. personnel. This 55 gallon drum should be properly disposed of or stored in an approved storage area.

5. A small electric air compressor was noted along the southwest corner of the subject structure. Oil was observed on the exterior of the compressor motor. Likewise, oil staining was observed on the concrete pad and adjacent ground surface. The source of the leak should be repaired or replaced or an appropriate containment system should be installed to prevent possible environmental contamination.

6. Numberous pad-mounted and pole-mounted electrical distribution transformers are present on the property or on the property boundaries. Information obtained from Huntsville Utilities indicates that these units have not been tested for PCB content and therefore are classified as PCB contaminated. Although these units are the property of Huntsville Utilities, they should be sampled and analyzed to determine PCB content since a leak or explosion of a distribution transformer containing PCB dielectric fluid could greatly impact the subject property.

7. Asbestos containing building materials were identified in six of bulk samples collected and analyzed during the asbestos survey. Specific asbestos recommendation are presented below:

   1. An operations and maintenance program should be implemented in accordance with the Occupational Safety and Health Administration (OSHA) Asbestos Construction Standard, 29 CFR 1926.58, and the EPA publication entitled Guidance for Controlling Asbestos-Containing Materials in Buildings. The purpose of such a program is to ensure the appropriate engineering, work practice and personnal protective equipment controls are used when maintenance, renovation and/or housekeeping tasks are performed on or in the vacinity of asbestos-containing materials in order to minimize the potential for the release and exposure to airborne asbestos fibers.

   2. If an asbestos clean-up abatement or removal project is undertaken, regardless of size or scope, such a project should be carried out in accordance with the above OSHA regulation and EPA guideline, and EPA regulation 40 CFR 61, Subpart M, which specifies additional requirements for the renovation of buildings with asbestos-containing materials and the disposal of asbestos-containing waste.

   3. As per the requirements of the Occupational Safety and Health Adminsitration (OSHA) Asbestos Construction Standard, 29 CFR 1926.58, the materials determined to contain asbestos should be labeled as follows:

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

9.0 CLOSING REMARKS

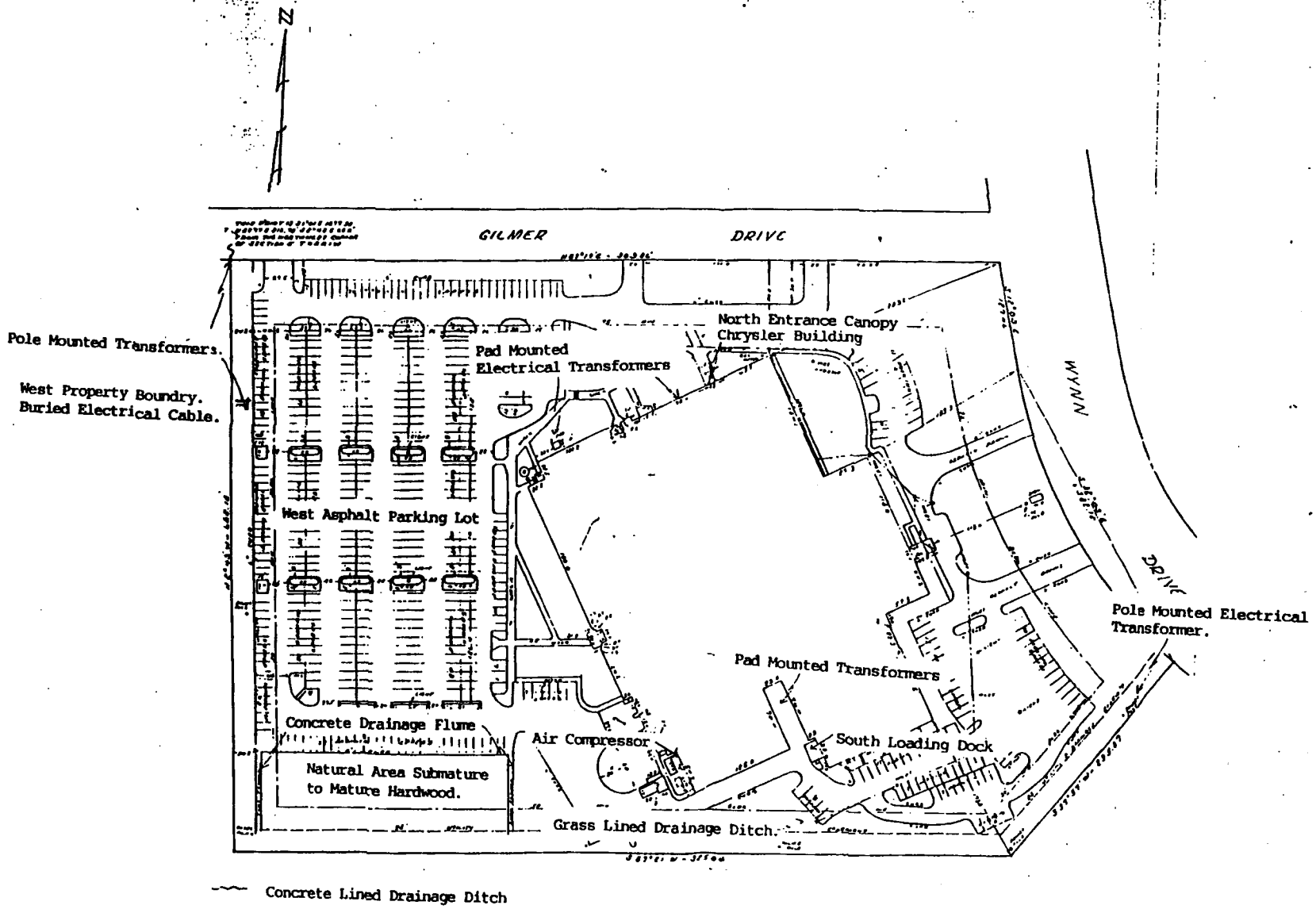
This environmental site assessment and asbestos survey has been prepared for the exclusive use of Morris, Smith, Siniard, Cloud & Fees, P.C., their client, their legal counsel and their lending institution for specific application to the subject site. The information presented in this report is based solely on a review of the available records as noted within, observations made during the site reconnaissance and asbestos survey, and laboratory analyses as noted within. Interview with local residents and General Electric employees represents a good faith only effort used in assessing the environmental impact of past land usage and current operational procedures. No warranty to the completeness or accuracy of these personnal communications is expressed or implied. A listing of the information sources noted within this report has been included as Table 2 in the Appendix.

The scope of this study was limited to an examination of conditions within the site boundaries. No specific soil or groundwater contaminants were tested for during the preparation of this report. Possible future contamination from off-site sources was not evaluated.

Future environmental conditions can change subject to, but not limited to, construction activity in the area, renovation/construction activity or future building use. The opinions and findings in this report represent those conditions apparent at the time this study was conducted.

APPENDIX A

FIGURES 1 Through 3



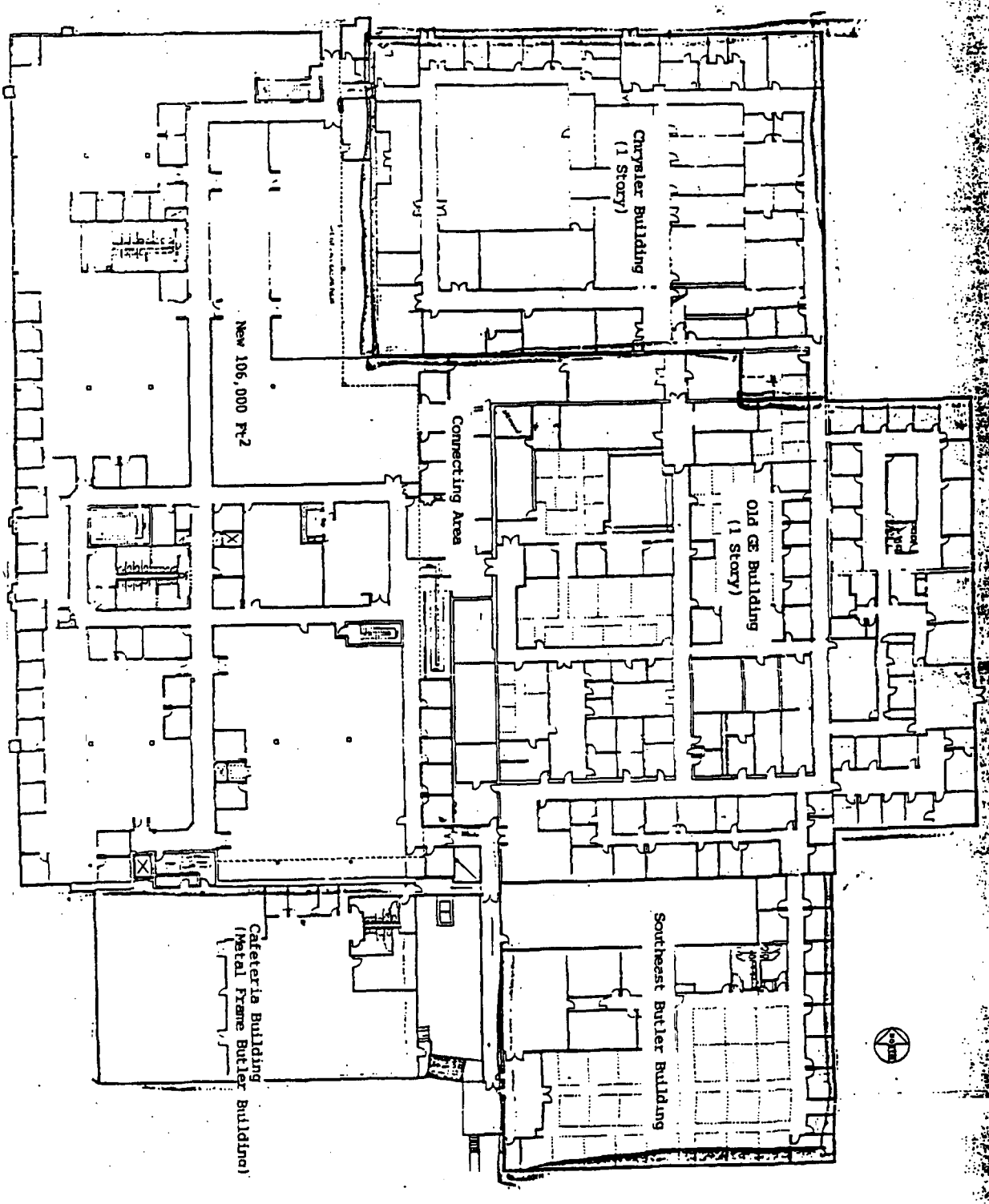
ENVIRONMENTAL SITE
ASSESSMENT
PROPERTY AT
110 WYNN DRIVE
HUNTSVILLE, ALABAMA

Figure 1

SITE PLAN

PROJECT NO.	SCALE	DATE	DRAWN BY	CHECKED BY
280118	1"=120'	12-21-88	ABM	JBM

Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers



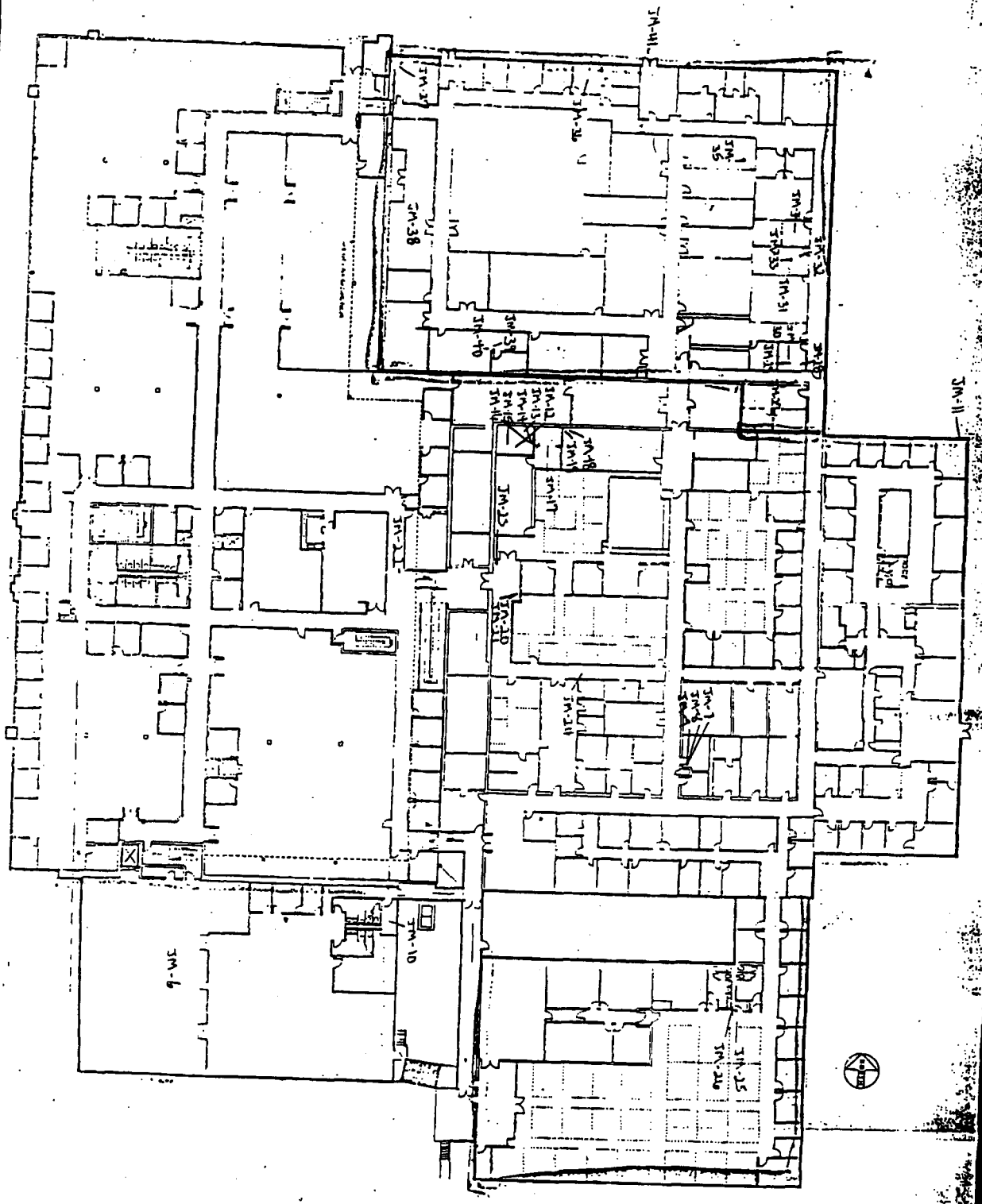
Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers

BUILDING PLAN

PROJECT NO.	SCALE	DATE	DRAWN BY:
280118	NTS	12-21-88	AEW
			CHECKED BY: JBM

ENVIRONMENTAL SITE ASSESSMENT
PROPERTY AT
110 WYNN DRIVE
HUNTSVILLE, ALABAMA

Figure 2



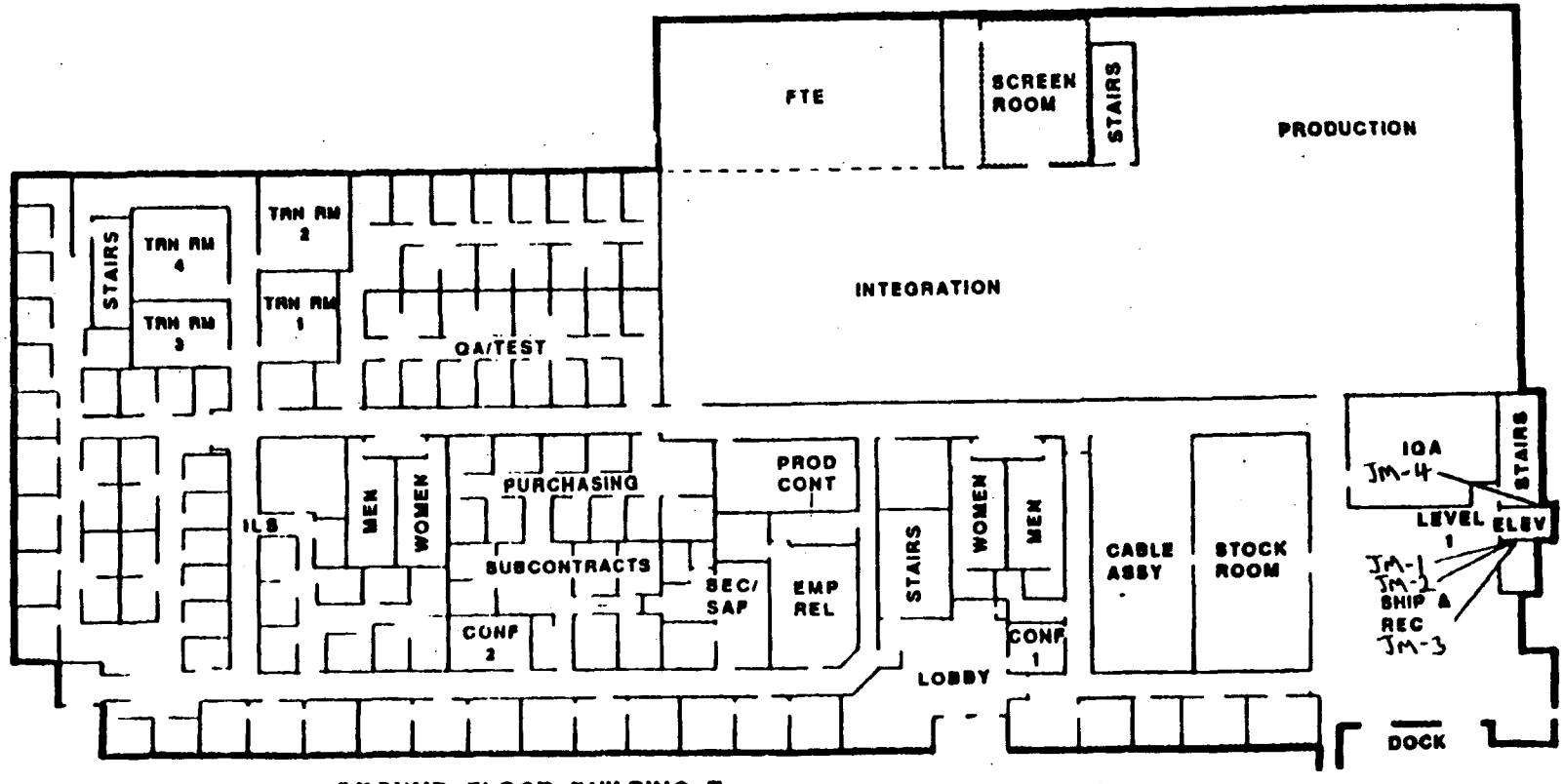
Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers

ASBESTOS BULK SAMPLE LOCATION DIAGRAM

PROJECT NO.	SCALE	DATE	DRAWN BY: AEW
280118	NTS	12-21-88	CHECKED BY JBM

ENVIRONMENTAL SITE ASSESSMENT
PROPERTY AT
110 WYNN DRIVE
HUNTSVILLE, ALABAMA

Figure 3



GROUND FLOOR BUILDING F WEST ENTRANCE

Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers

ASBESTOS BULK SAMPLE LOCATION DIAGRAM

PROJECT NO.	SCALE	DATE	DRAWN BY: AEM
280116	NTS	12-21-88	CHECKED BY: JEM

ENVIRONMENTAL SITE ASSESSMENT PROPERTY AT 110 WYNN DRIVE HUNTSVILLE, ALABAMA

Figure 3A

APPENDIX B

PHOTOGRAPHIC PLATES 1 Through 7

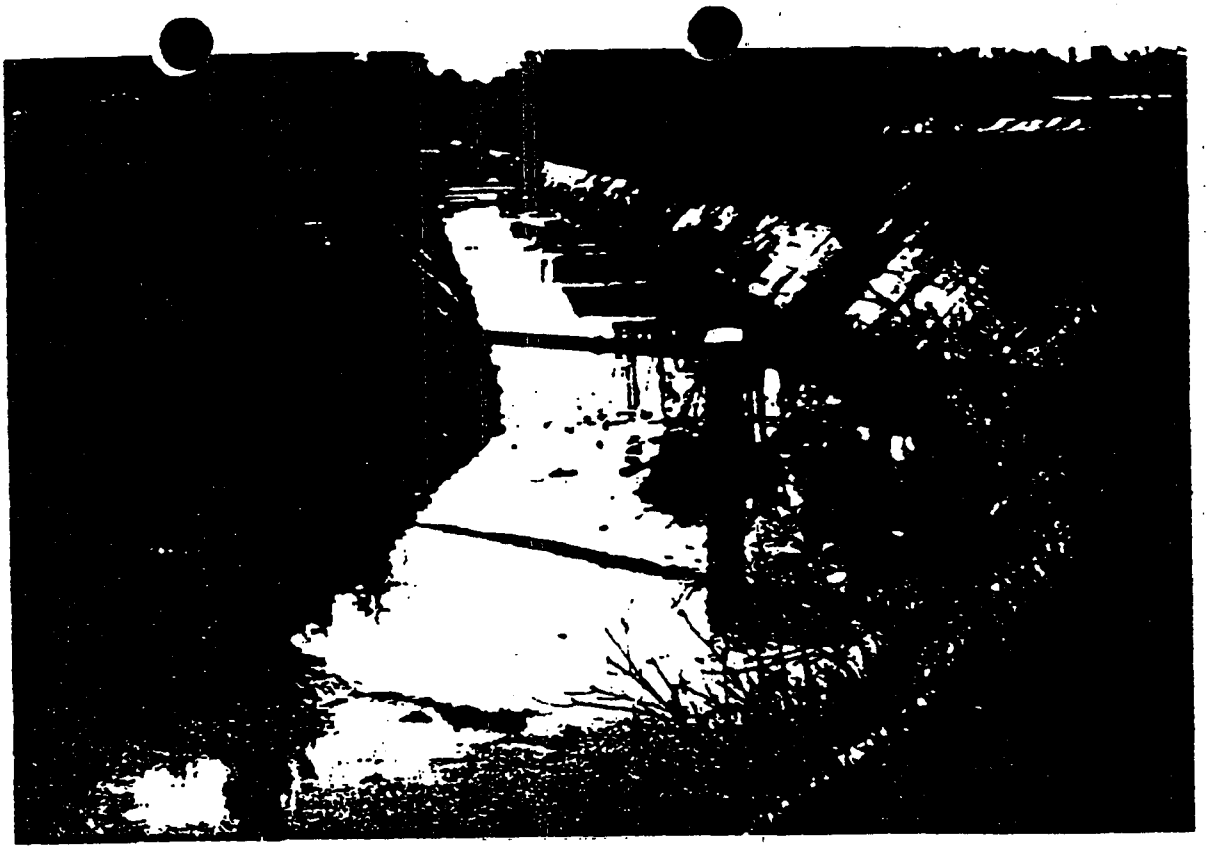


Plate No. 1
Drainage Ditch Along Southwest
quadrant of subject site.

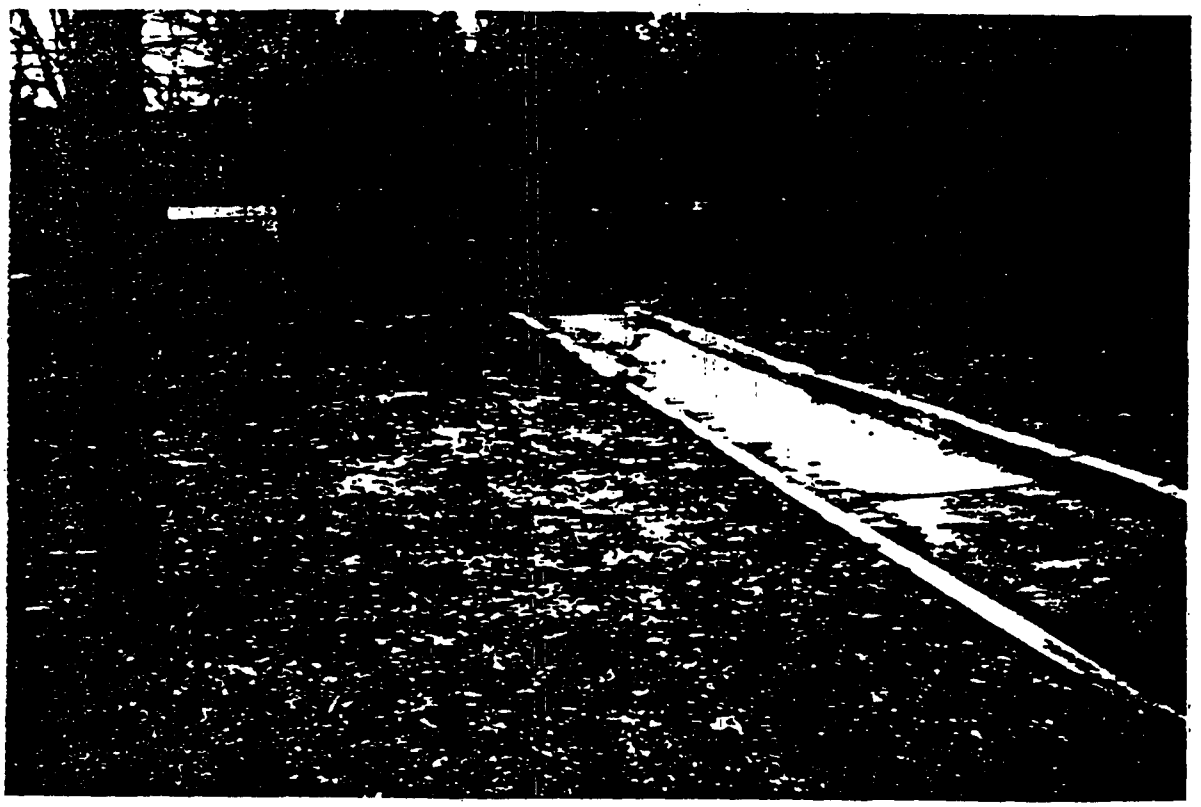


Plate No. 2
Drainage Plume near Southwest
Corner of west asphalt parking lot

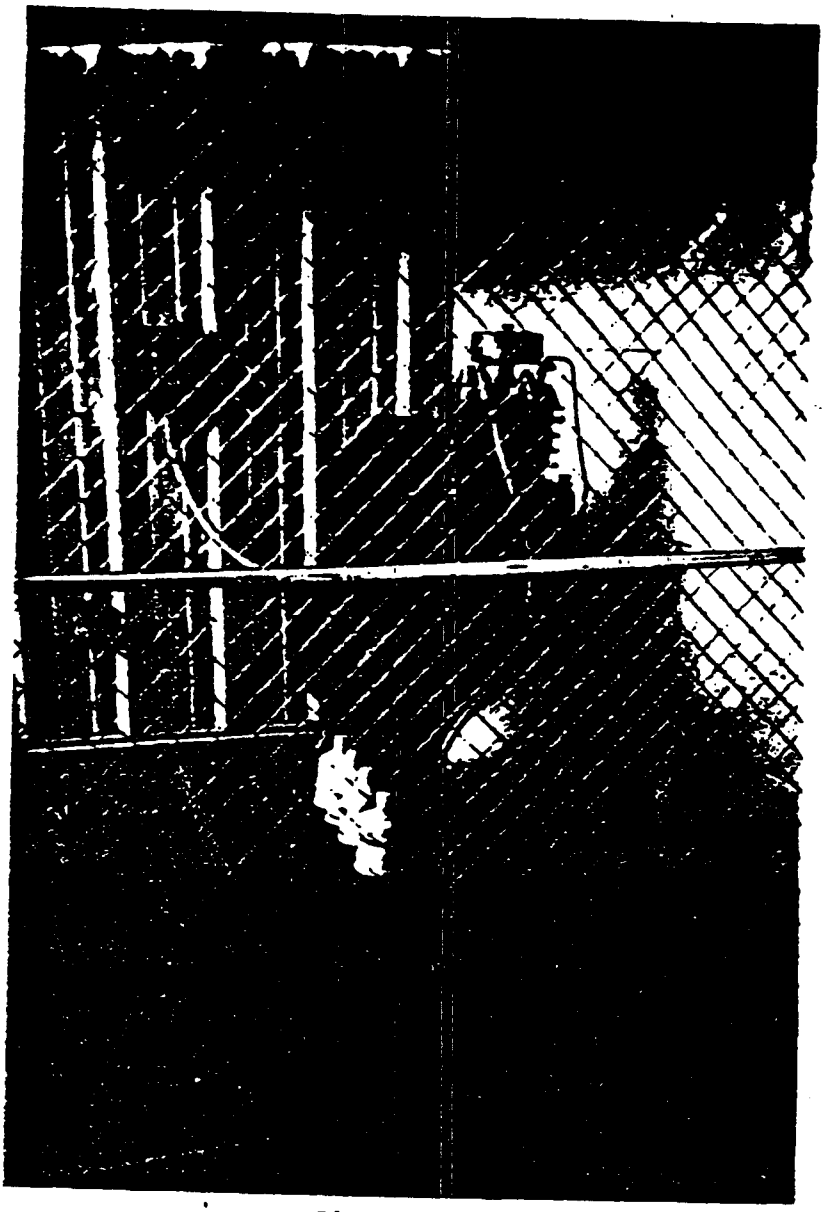


Plate No. 3
Air Compressor Located Near Southeast
Exterior Wall of Building.

Note Oil Stains.

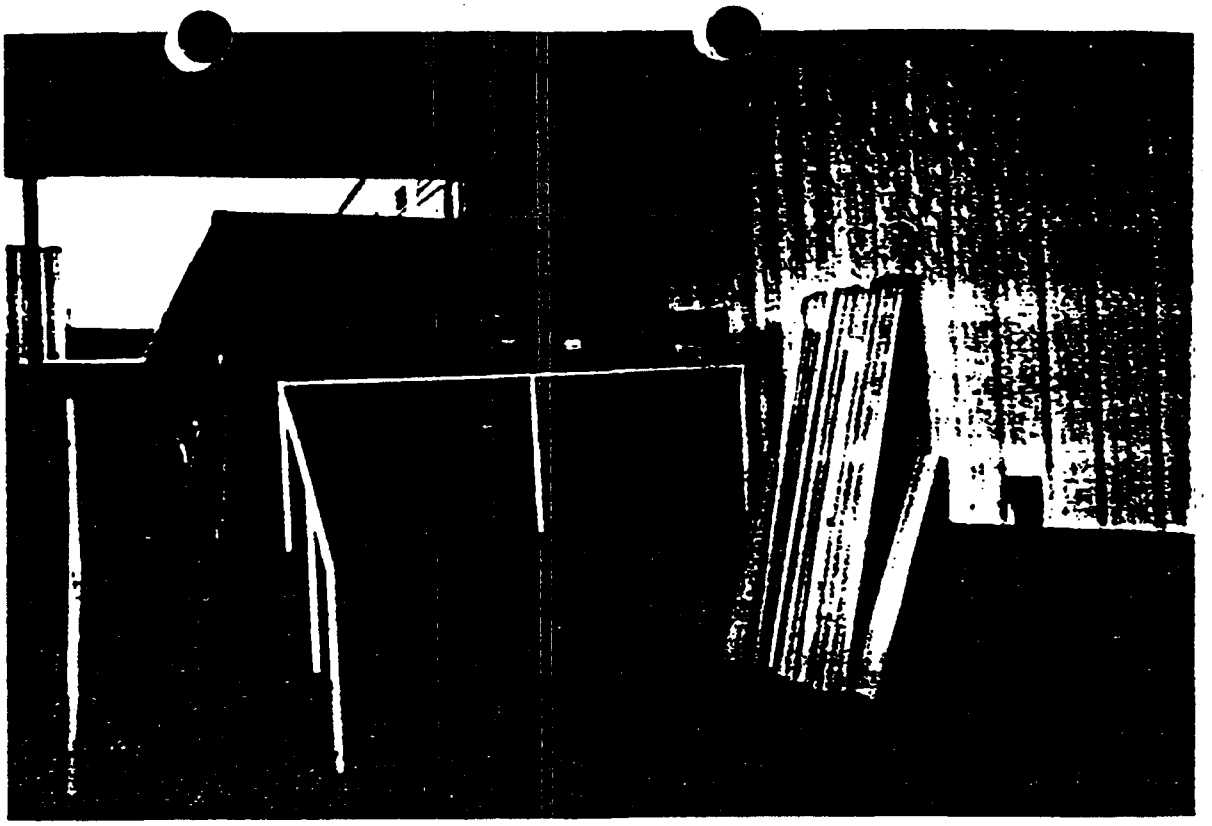


Plate No. 4
Loading Dock near Southcentral
Exterior of building. Black
drum is empty.

Plate No. 5
Loading Dock near Southcentral
Exterior of building. Yellow
drum contains acid mixture

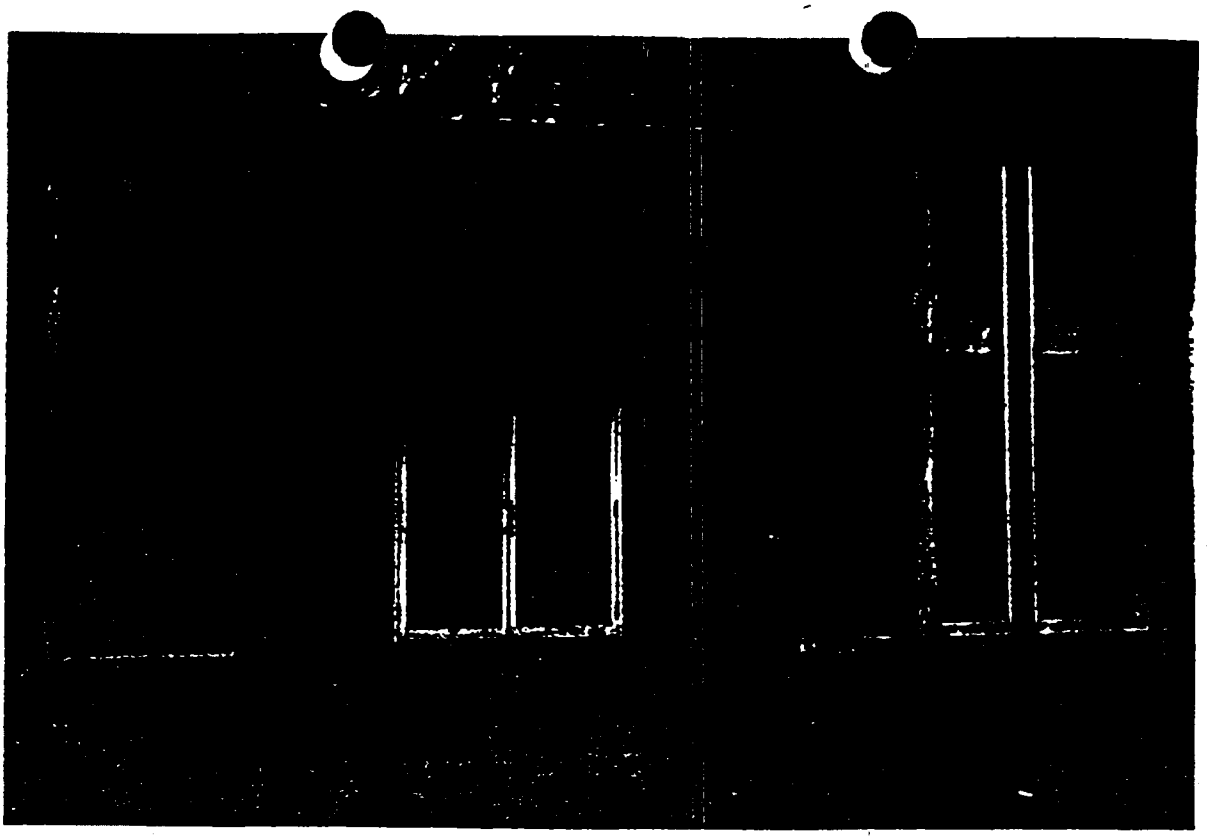


Plate No. 6
Entrance Canopy North Side of Building

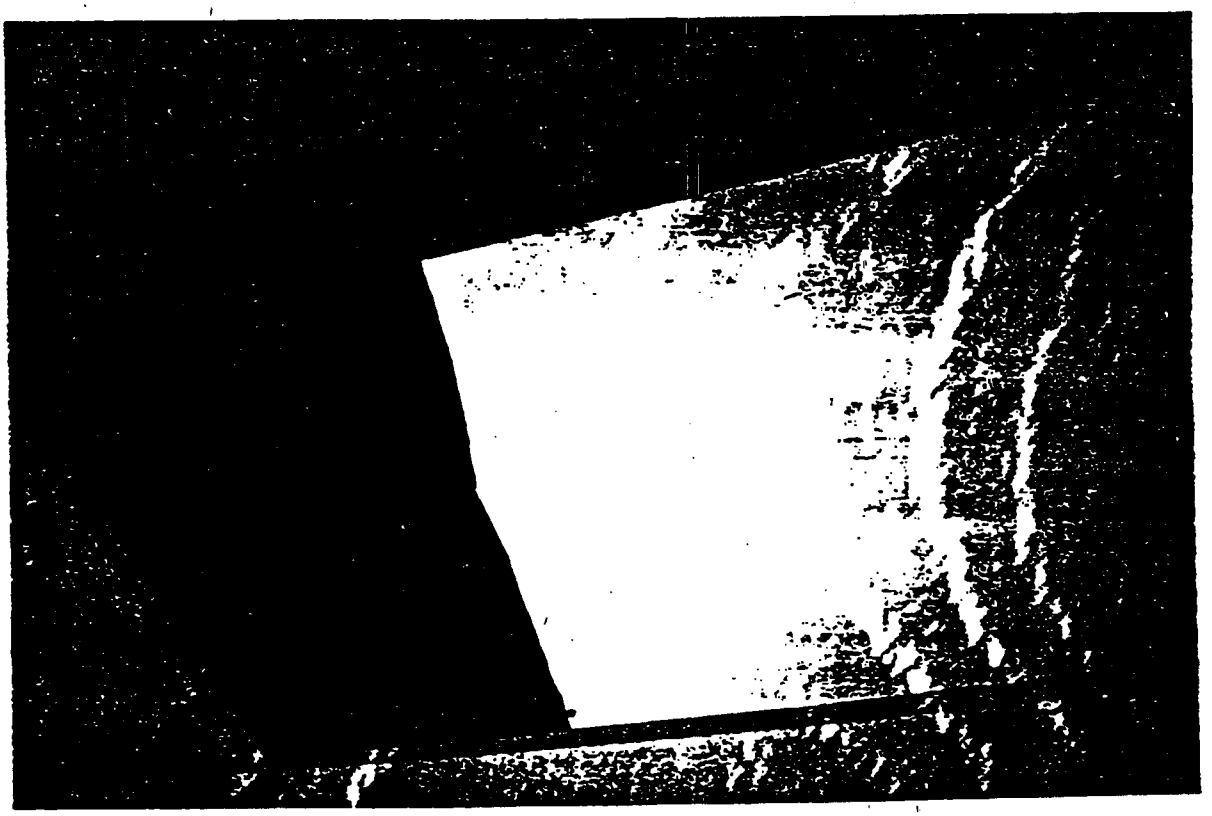


Plate No. 7
Entrance Canopy North Side of building showing detail of white transite asbestos panel

ATTACHMENT 10

326/1007

ENVIRONMENTAL SITE ASSESSMENT
FOR
LECRAW, LECRAW, ISHLER AND SAMPLES
110 WYNN DRIVE
HUNTSVILLE, ALABAMA
LOAN NO.: 113908-8

Prepared for:
THE NEW ENGLAND
MUTUAL LIFE INSURANCE COMPANY

SWL Project No. 5261-94-002

November 30, 1993

Prepared by:
SOUTHWESTERN LABORATORIES, INC.
8601 Dunwoody Place, Suite 440
Atlanta, Georgia 30350
404/552-0058

Steve D. Wolford, R.E.M.
SWL Environmental Consulting
Project Manager, Houston

William H. Lucas, III
Atlanta Program Manager

Laura L. Neill
Environmental Professional

SWL

ENVIRONMENTAL SERVICES

November 30, 1993

Northridge Business Park
8601 Dunwoody Place
Building 400, Suite 440
Atlanta, Georgia 30350
Phone: (404) 552-0058
Fax: (404) 552-2557

The New England Mutual Life Insurance Company
501 Boylston Street
Boston, Massachusetts 02116-3700

Attention: John J. Weis
Senior Vice President

RE: Environmental Site Assessment
LeCraw, LeCraw, Ishler & Samples
Loan No: 113908-8
Huntsville, Alabama
SWL Project No. 5261-94-002

Dear Mr. Weis:

Submitted herein is our report of the environmental site assessment performed for the above referenced project.

All of the data accumulated for the assessment (photographs, title information, field notes, etc.) will be kept in your project file. If you have any questions or need any additional information, please do not hesitate to call. The report and information in your file is considered confidential and will not be released without your authorization.

We appreciate the opportunity to work with you on this project and hope you will contact SwL for future projects.

Sincerely,

SOUTHWESTERN LABORATORIES, INC.

Steve Wolford, R.E.M.
Environmental Consulting
Project Manager, Houston

5261940002.RPT\NEM

The New England®
insurance and investment

Memorandum

To: Subsequent Recipients of Property Summary Reports

From: John J. Weis, Second Vice President

Subject: Property Summary Reports Prepared for TNE Mortgage Securitization

Date: November 24, 1993

This report was prepared for the benefit of New England Mutual Life Insurance Company (TNE), under a contract with the preparer. This document is being furnished to the recipient for the recipient's convenience and it is the responsibility of the recipient to assure itself that information contained herein is accurate and complete. Any reliance on the contents shall be solely at the recipient's risk. This document is being provided without any warranty or representation, express or implied, as to its contents, its suitability for any purpose, its accuracy, truthfulness or completeness.

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ENVIRONMENTAL SITE ASSESSMENT
for
Lecraw, Lecraw, Samples & Ishler
LOAN NO.: 113908-8
SWL PROJECT NO. 5261-94-002

1.0 EXECUTIVE SUMMARY

Southwestern Laboratories, Inc. (SWL) has performed an environmental site assessment (ESA) for the above referenced project according to our proposal/agreement dated October 11, 1993. The site was inspected on October 26, 1993 at 9:00 a.m by Laura L. Neill of SWL.

The site is located at 110 Wynn Drive, Huntsville, Madison County, Alabama. Presently, the 15.25 acre site is improved with one- and two-story 180,000 square foot building. The building is currently occupied by Pentastar Electronics. Pentastar is a government contractor which designs and manufactures electronic equipment at the site. Pentastar has been a tenant at the site since approximately 1988. In addition, a small portion of the building is currently leased to General Electric, which provides the same services as Pentastar.

The historical review indicates, through a search of city directories for the city of Huntsville, that the site and site vicinity have historically been used for commercial and industrial purposes. Former tenants at the site include Southern Technologies, Inc., Astro Space Laboratories, Danmont Corporation, and Royal Medical Corporation.

There is no evidence of underground storage tanks, petroleum pipelines, or wells (oil, gas, water) soil staining, or distressed vegetation on-site. Pentastar does, however, generate potentially hazardous waste products as a result of their processes. These materials are stored in a locked shed on the western side of the site, until they are transported, by Van Waters & Rogers to Florida for disposal by Laidlaw Environmental Services. The materials observed on the site included toluene, xylene, isopropyl alcohol, ethylene glycol, 1,1,1, trichloroethane and waste thinning oil.

Due to the governmentally sensitive/secure nature of operations at the site, and the materials associated with these processes, SWL recommends that the property owner be kept informed by the tenant regarding the generation, storage, and disposal of hazardous materials. Furthermore, it is recommended that a Tenant Audit be conducted to further delineate and determine the exact nature of operations conducted at the site. It is suggested that the tenant provide copies of certifications, manifests, and other documents related to the environmentally sensitive nature of the onsite operations.

The regulatory review indicates there are no Superfund or CERCLIS sites, ADEM permitted solid waste landfills, RCRA TSD facilities, ADEM registered UST or LUST facilities, or records of hazardous material releases or spills within the search radius. Two RCRA

Generators, General Electric Company and Pentastar Electronics are located on the site. Neither of these operations are listed as RCRA Violators.

We have performed a Phase I Environmental site Assessment in conformance with the scope of limitations of ASTM Standard Practice E.50.02.2 of 110 Wynn Drive, Huntsville, Alabama. Any exceptions to, or deletions from, the Standard Practice are described in Section 4.2.1 of this report. Because historical aerial photographs of the site were not reasonably available, this report was completed without the benefit of the information that they would provide. This Assessment has revealed evidence of a Recognized Environmental Condition in connection with the site for which a Tenant Audit is recommended to confirm the exact nature of operations conducted at the site.

2.0 INTRODUCTION

2.1 Purpose of Assessment

The purpose of this Phase I Environmental Site Assessment (ESA) is to provide an environmental assessment which meets the American Society for Testing and Materials (ASTM) Standard E.50.02.2 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site assessment Process" and which:

1. Identifies and describes the presence of any Recognized Environmental Conditions (RECs).

2. Where RECs are identified, if reasonably possible, estimates the cost of remediation to a prudent owner of the subject site.

3. If necessary, recommends the scope of any further study to determine the existence of an actual release of any Hazardous Substance or to accurately estimate the cost of any required remediation.

2.2 Limitations

This ESA was performed in accordance with generally accepted practices of the profession undertaking similar studies at the same time and in the same geographical area. SwL observed that degree of care and skill generally exercised by the profession under similar circumstances and conditions.

SWL's observations, findings, and opinions must not be considered as scientific certainties but solely as opinions based upon our professional judgement concerning the significance of the limited data gathered during the course of the site assessment. Specifically, SWL does not and cannot represent that the site contains no hazardous or toxic materials, asbestos, or other latent conditions beyond that observed by SWL during its site assessment. Further, the services herein shall in no way be construed, designed, or intended to be relied upon as legal interpretation or advice.

This study and report has been prepared on behalf of and for the exclusive use of The New England Mutual Life Insurance Company solely for use and reliance in the environmental assessment of this site. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without the prior written consent of The New England Mutual Life Insurance Company and SWL. In that case, SWL will issue a letter of understanding to the third party for signature and will provide a copy of this report to the third party as directed by The New England Mutual Life Insurance Company.

2.3 Resources

Source References

U.S. Department of Agriculture Soil Conservation Service, Soil Survey of Madison County.
Huntsville Fire Department

Project Team Members

Environmental Consulting

Wolford, Steve D. Program Manager	B.S. Biology M.P.H. Env. Health Sciences M.B.A. Finance 40 Hour Hazardous Waste Operations OSHA Course EPA Accredited Asbestos Inspector
William H. Lucas, III Atlanta Program Manager	B.S. Geology, Professional Geologist, South Carolina & Tennessee 40 Hour Hazardous Waste Operations OSHA Course
Neill Laura L.	B.A. Political Science Environmental Professional 40 Hour Hazardous Waste Operations OSHA Course EPA Accredited Asbestos Inspector

Asbestos Services

Jackson, Terry	B.S. Civil Engineering Manager, Asbestos Services EPA Accredited-Contractor Supervisor & Inspector Professional Engineering Registration #55409 State of Texas Licensed Management Planner

Jank, Thomas J.	B.A. Geology Microscopist EPA Accredited - Contractor Supervisor NIOSH 582 - Phase Contrast Microscopist Polarized Light Microscopist

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The site is located at 110 Wynn Drive, Huntsville, Madison County, Alabama. Presently, the 15.25 acre site is improved with one- and two-story 180,000 square foot building.

3.2 Nature of Property

Presently, the site is an industrial property which has been improved with one 180,000 square foot building with associated outbuildings. The on-site structures were built in several phases from 1972 through 1986. The building is currently occupied by Pentastar Electronics. Pentastar is a government contractor and designs and manufactures electronic equipment at the site. In addition, a small portion of the building is leased to General Electric, which provides the same services as Pentastar.

No known or possible environmental land use restrictions, i.e. wetlands, were identified at the site at the time of the site visit.

Based upon site observations and information provided int he topographic map of the site area, it does not appear that the potential for flooding at the site is high.

Based upon available published maps, aerial photographs, and observations made during the site visit, it appears that this site does not contain jurisdictional wetlands as defined and regulated by federal authority under 33 CFR Parts 320-330.

Please see Attachments 10.2 for a Site Drawing.

Due to the governmentally sensitive nature of the services provided by Pentastar, no site photographs were allowed.

3.3 Nature of Vicinity

The site is located in an area that is predominantly improved with office buildings. Some residential properties are located to the north of the site. A majority of the businesses in the immediate site vicinity seem to be associated with NASA and Department of Defense projects in Huntsville.

North: The area to the north of the site is a predominantly heavily populated residential area.

South: The area to the immediate south in relation to the site is used as an office building. Other properties to the south include other commercial properties and vacant vegetated land.

East: The property to the immediate east of the site has been developed with a bank. Other properties to the east of the site are also used for commercial purposes.

West: The property to the immediate west of the site is a U. S. government facility. A search of the Huntsville City Directories indicated that the tenants in this building are associated with NASA and the U. S. Department of Defense. No information is available describing the services provided at this location. Due to the fact that this facility is at an extreme topographic downgradient position in relation to the site, it is unlikely that operations at the government facility would present an environmental concern at the site. Additionally, a Chrysler plant is located approximately 0.25 miles southwest of the site.

3.4 Topography

The Jeff, Alabama USGS Topographic Quadrangle Map (dated 1967 and photorevised 1982) indicates the site is 660 feet above sea level in a gently sloping area with surface drainage flowing predominantly to the southwest towards Dry Creek located approximately 200 yards southwest of the site. A copy of the topographic map is included as Figure 10.1.

In addition to the primary aquifers, groundwater occasionally occurs in shallow, discontinuous, or "perched" water-bearing units. Shallow groundwater is typically encountered at depths of less than 20 feet for the Huntsville area. These shallow water units are generally utilized infrequently for local agricultural or domestic use in rural areas, but are the aquifers most likely to be impacted by releases from underground storage tank systems or surface spills.

Flow direction in these units is highly variable, but is generally toward the nearest down gradient water body (lakes, creeks, rivers) and can be approximated by observing the surface topography. Recharge areas for these perched aquifers are very local, and they can be influenced by surface development of impervious cover (buildings, parking lots, roads), major road construction (underpasses, utility trenches), and variations in annual rainfall.

The site is located in the Decatur series of soils. This soil type is characterized by deep, well drained, moderately permeable soils that formed in residuum weathered from limestone. These soils are on level to strongly sloping uplands in valleys. Slopes are dominantly 1 to 10 percent but range up to 25 percent.

4.0 SITE HISTORY

4.1 Prior Owners

Due to the limited time frame associated with this project, no chain-of-title search was conducted. Therefore, no information was available regarding previous owners of the site.

4.2 Prior Uses

A review of the Huntsville City Directories indicated that the site has been used by several tenants. These tenants are Pentastar Electronics, GE Governmental Services, Inc., Southern Technologies, Inc., Astro Space Laboratories, Danmont Corporation, and Royal Medical Corporation. No information was available in regards to the services provided by the previous tenants at the site. However, it would not be extreme to assume that several of these facilities were, in some way, associated with either NASA or the Department of Defense. Therefore, it is possible that processes conducted at the site may have included materials that were environmentally sensitive.

4.2.1 Aerial Photograph Review

Aerial photographs were reviewed to help establish prior land use and for evidence of processes, facilities or surface features that might be an environmental concern. No historical aerial photographs of the site area were available for review. This is not in compliance with ATSM Standard Practices. The current aerial photograph is included as Attachment 10.3. The following summarizes the aerial photograph review:

DATE	SOURCE OF AERIAL	PHOTO ID NUMBER
March 9, 1993	Atlantic Aerial Surveys	9003041-9010028
The site appears to be improved with the current site structure. The site vicinity appears to be predominantly improved for commercial and industrial purposes. The area to the north of the site is residential.		

The aerial photograph indicates that the site and its surrounding area were developed for predominantly industrial and commercial uses prior to 1991.

The review of the aerial photographs revealed no landscars, oil or gas wells, or other surface features on-site or on adjacent properties which may be indicative of industrial, mineral production, waste disposal, or fuel storage operations.

4.2.2 City Directories

City directories, which list property tenants by street address, were reviewed to identify past site occupants. The Polk's City Directories were reviewed in the Huntsville Library for selected years from 1972 to 1992, and are summarized below. The site's current listed address is 110 Wynn Drive.

The review of the city directories indicates that the site has been used by several different tenants. These include Pentastar Electronics, GE Governmental Services, Inc., Southern Technologies, Inc., Astro Space Laboratories, Danmont Corporation, and Royal Medical Corporation.

The directories also indicated that the area has historically been used for commercial and industrial purposes. A majority of the tenants in the area appear to have been government contractors which are connected with NASA and Department of Defense projects. These neighboring tenants include Chrysler, U.S. Army Strategic Defense Command, Technical Micronics Control, TRW Space & Defense Systems, Redstone Federal Credit Union, Toroid Corporation, Huntsville Fire Department, Quantum Research International Inc., Delta Research, Carlson-Four Seasons Travel, Ballistic Missile Center, TMC Inc., Triad Microsystems, General Research, Delta Research, Boeing Military Airplane Company., Martin Construction, Dynetics Inc., Philips Elmet Petroleum Corporation, Huntsville Association, U. S. HUD., Master Information Systems, U. S. Corps of Engineers, U. S. Redstone Arsenal, U. S. AMMCS, Texas Instruments, Stanford Research Institute, U. S. Safeguard System Command, Mosler Safe Company, Management Systems, Inc. and Boeing - Hughes Aircraft.

The review of city directories indicates that the site and neighboring facilities have been used for industrial purposes which may have included hazardous materials. Based upon the distances of neighboring facilities from the site, it is unlikely that their operations have had an environmental impact on the site.

There are indications that the site or adjacent properties have been occupied by industrial, mineral production, waste management, or fuel storage companies based on the review of the city directories.

4.2.3 Sanborn Fire Insurance Maps.

In the late nineteenth century, the Sanborn Company began preparing maps indicating construction materials of developed urban areas to be used by companies offering fire insurance on a specific building. With the advent of retail gasoline service stations, the locations of gas tanks were noted, without indication of them being above ground or underground. These maps were updated and expanded geographically, periodically through the twentieth century. Because the site is not located within the central business district of Huntsville, the site is located in an area not referenced by the Sanborn Fire Insurance Maps.

5.0 ENVIRONMENTAL AGENCY REVIEW

Regulatory information was reviewed to obtain information which might indicate the presence of hazardous and/or toxic materials at the site or surrounding properties.

5.1 Environmental Records

Due to the governmentally sensitive nature of the work done by Pentastar, no environmental records were available for review. In a conversation with Melvin Cleveland, the facility environmental manager for Pentastar, it was determined that the facility does generate hazardous waste. These materials include 1,1,1 TCE (approx. 12-55 gal drums/2 months), toluene (5 gals/6 months) and waste oil (30 gals/6 months). Mr. Cleveland stated that these waste products are stored in a locked shed on the site until they are removed by Van Waters and Rogers, a registered disposal company, and shipped to Laidlaw Environmental Services in Florida for proper disposal.

5.2 Database Reports

Federal Superfund and CERCLIS Sites

The U.S. Environmental Protection Agency (EPA) maintains a list of federal Superfund sites and a list of CERCLIS sites. The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) commonly referred to as Superfund, was created in 1980 to cover both the past and present emergencies. The EPA has created the National Priority List (NPL) which is a list of abandoned sites which may require remedial investigation, feasibility studies, and possibly remedial activities; the guidelines of which appear in the Code of Federal Regulations, CFR 40, Parts 190 to 399. The sites with the highest priority ranking are classified as active Superfund sites.

The Comprehensive Environmental Response Compensation and Liability Information Service (CERCLIS) is a computer database which lists both inactive and active sites which have been inspected by EPA or its designees for possible violation of Resource Conservation and Recovery Act (RCRA) or CERCLA regulations. Sites may be included on the CERCLIS file through citizen complaints or reports from other regulatory agencies.

The search encompasses a one mile radius for Superfund and a one-half mile radius for CERCLIS sites of the site. No Superfund sites were identified through the database search as being located within one mile of site.

CERCLIS

SITE NAME	ADDRESS	DISTANCE/DIRECTION	TXD #
Chrysler Corp.	102 Wynn Drive	0.25 mile Southwest	Not Provided
Technical Micronics	210 Wynn Drive	0.5 mile East	Not Provided

According to information provided in the CERCLIS database, a Preliminary Assessment was performed at the Chrysler Corporation facility on 12/01/84. This investigation was followed by a Screening Site Inspection on 09/30/92. No information was provided in the database that would indicate the nature of the initial concerns, nor the results of the inspections. Due to the apparent topographic downgradient position of the Chrysler facility in relation to the site, it is unlikely that operations at Chrysler would have an environmental impact on the site.

Also included in the database were two Preliminary Assessments which have been conducted at Technical Micronics. The first was conducted on 12/01/79 and the second was conducted on 09/12/85. A Screening Site Inspection was conducted on 01/01/80. No information was provided in the database that would indicate the nature of the initial concerns at the facility, nor the results of the three inspections. Due to the distance of the Technical Micronics facility from the site, it is unlikely that operations there would have environmentally impacted the site.

RCRA Notifiers/Violators

Resource Conservation and Recovery Act (RCRA) gives authority to the EPA to promulgate regulations which define what materials are hazardous and how they should be stored, treated, transported, and disposed. The RCRA Notifiers List is a computerized database which lists generators, treaters, transporters, and disposers of hazardous wastes.

Any violations to the specific RCRA procedures or guidelines (federal regulations) results in a Class I violation designation which potentially can result in harm to human health and the environment.

RCRA facilities identified with a generator code of "G-1", generate at least 1,000 kg/month of non-acutely hazardous waste or 1 kg/ month of acutely hazardous waste. A generator code of "G-2" indicates a facility that generates between 100-1,000 kg/month of non-acutely hazardous waste. A generator code of "G-3" indicates generation of less than 100 kg/month of non-acutely hazardous waste and is classified as a conditionally-exempt small quantity generator. A RCRA facility that stores hazardous waste is indicated by a code of "S", a transporter of waste by a "T", and a disposer of waste by a "D".

The search encompasses a one mile radius of the site for RCRA TSD Facilities while the search radius for RCRA Generators is limited to the site and adjacent properties.

SITE NAME	ADDRESS	CODE	CLASS 1 VIOLATOR	DISTANCE/ DIRECTION
Pentastar Electronics	110 Wynn Drive	G-1	No	Site
General Electric Co/SSD	110 Wynn Drive	G-1	No	Site

There are two RCRA Generator Facilities located on the site. These are Pentastar Electronics and General Electric Co./SSD. Since neither of these facilities are listed as a RCRA Violator, it is assumed that these facilities are in compliance with all reporting and operational conditions enforced under RCRA guidelines and as a result that the operations conducted at the facilities do not pose recognized environmental threats to the integrity of the site.

Federal ERNS List

The EPA Emergency Response Notification System (ERNS) serves to store information on releases of oil and hazardous substances. Releases are recorded in ERNS when they are initially reported to the federal government by any party. ERNS combines data from the National Response Center and the Marine Safety Information System.

The search radius was limited to the site which was not identified on the ERNS List.

Toxic Release Inventory

The EPA Toxic Release Inventory (TRI) database contains emissions data for those companies that manufacture, process, or use certain amounts of 320 listed chemicals. These companies are required to report their emissions to air, land, and/or water according to the Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986.

The search radius was limited to the site which was not identified on the TRI Inventory Database.

State Superfund Sites

No State Superfund List is maintained for the state of Alabama.

Solid Waste Landfills

The State of Alabama maintains a permit application list for municipal solid waste landfills.

Also, EPA has requested that the State of Alabama evaluate disposal facilities to determine whether they may be classified as "open dumps". EPA defines open dumps as any facility or site where solid waste is disposed of which is not a sanitary landfill which meets the criteria promulgated under Section 4004 and which is not a facility for disposal of hazardous waste.

The search encompasses a one-half mile radius around the site. No State of Alabama permitted solid waste landfills or Open Dumps were identified within a one-half mile radius of the site.

Underground and Above-Ground Storage Tanks

The State of Alabama maintains a registration list of underground storage tanks (USTs), and above ground storage tanks (ASTs). The search for state registered USTs is limited to on-site or adjacent properties. After the review database review, no USTs were identified to be located at the site or on its adjacent properties.

ADEM Recorded Hazardous Material Releases

The State of Alabama SPILL database serves to track all reported spills to the ADEM of a harmful quantity of oil and hazardous substances or other substances or a release or threatened release.

No State of Alabama recorded hazardous material releases were identified on or adjacent to the site.

City Government Inquiries

The City of Huntsville Fire Department keeps records pertaining to hazardous material spills. An interview with Brett Garrison indicated that there have been no hazardous material spill responses on the site, but several have occurred in the site area. These problems have been limited to the parking lots of the facilities at which these incidents occurred and, thus, do not appear to pose an environmental concern at the site.

5.3 Regulatory Status

No records were identified at federal, state, or local agencies pertaining to the environmental status, conditions or compliance at site.

5.4 Other

No other potential liabilities were identified pertaining to the environmental status, conditions or compliance at site.

6.0 RECOGNIZED ENVIRONMENTAL CONDITIONS

For the purposes of this scope of work, the term "Hazardous Substance" shall mean: such chemicals, elements, compounds and wastes of any nature and composition, as are defined as hazardous wastes, hazardous substances, regulated substances, pollutants, or contaminants, toxic wastes or toxic substances by the CERCLA of 1980, as amended; the Superfund Amendment and Reauthorization Act of 1976, as amended; the Toxic Substances Control Act, as amended; the Clean Water Act, as amended; the Asbestos Emergency Response Acct, as amended, or any other federal, state, or local statute, law or ordinance; and petroleum, petroleum products and their constituents.

As specified in the ASTM standard the term Recognized Environmental Condition (REC) "means the presence or likely presence of any Hazardous Substance or Petroleum Products on a Property under conditions that indicate an existing release, a past release, or a material threat of a release of any Hazardous Substances or Petroleum Products into structures on the Property or into the ground, groundwater, or surface water of the Property. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment action if brought to the attention of appropriate governmental agencies."

6.1 Use of Hazardous Substances

In a conversation with Melvin Cleveland, the facility environmental manager, it was determined that the facility does generate hazardous waste. These materials include 1,1,1 TCE (approx. 12-55 gal drums/2 months), toluene (5 gals/6 months) and waste oil (30 gals/6 months). Mr. Cleveland stated that these waste products are stored in a locked shed on the site until they are removed by Van Waters and Rogers, a registered disposal company, and shipped to Laidlaw Environmental Services in Florida for proper disposal.

6.2 Solid Waste Handling

Solid wastes generated at the site are limited to domestic-type trash, consisting mostly of paper products. This material is transported off-site for disposal by a licensed disposal contractor twice a week.

6.3 On-site and Off-site Contamination

There are no indications that the site has been contaminated nor has contaminated any off-site properties.

6.4 Underground Storage Tanks

There are no indications that the site has any USTs on-site.

6.5 Above Ground Storage Tanks

There are no indications that the site has any ASTs on-site.

6.6 PCBs

There is one pad mounted transformer located on the site. Attempts were made to gather information from Alabama Power Company regarding PCB content of onsite transformers. Alabama Power will not release this type of information without testing the transformer for the cost of $100. No stained soils or vegetation were observed in the immediate vicinity of the transformer. Additionally, no leaks from the transformer were observed during the site visit and hence does not currently present an environmental concern to the site.

6.7 Asbestos-Containing Materials

An asbestos survey was conducted on October 26, 1993 by Laura L. Neill of SwL, an EPA accredited inspector (#6537).

The purpose of this investigation was to identify the presence and location of asbestos-containing materials (ACMs). The survey followed current recommended EPA guidelines for surveying ACM (Guidance for Controlling Asbestos-Containing Materials in Buildings, 1985). Sampling was conducted in accordance with the Asbestos Hazard Emergency Response Act, 40 C.F.R. Sections 763.83, 763.86, 763.87 and 763.88, and the U.S. Environmental Protection Agency's "Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-024). Only friable and damaged non-friable materials were sampled.

The survey involved the inspection of friable and damaged non-friable building materials. These included ceiling texture, thermal pipe wrap and chipped floor tile. The building on-site was constructed in phases between 1971 and 1986. The interiors are finished with acoustic ceiling tile, vinyl 12'x 12' floor tile, carpeting, cinder blocks and wallboard.

A total of six samples were collected. All materials evaluated were readily accessible. Any materials not readily accessible (i.e. piping in the walls, hidden insulation treatments, etc.) were not assessed in this survey and should be evaluated if and when they are located during building renovation or demolition.

The materials sampled were submitted for analysis of asbestos content to our EPA accredited and *State of Texas licensed laboratory in Houston (NVLAP No. 1502 00)*. The samples were analyzed by Polarized Light Microscopy (PLM) coupled with Dispersion Staining techniques in accordance with the EPA's "Interim Method of the Determination of Asbestos in Bulk Insulation Samples".

Results. The EPA defines ACM as any material containing greater than 1% asbestos. Of the materials sampled, none were identified as containing asbestos. The results of the laboratory analyses are included as Attachment 10.5.

6.8 Lead Paint

According to the scope of work, only properties that are residential in nature and that were constructed prior to 1978 are to be evaluated with respect to lead-based paint and since the site was constructed in 1988 and is not used for residential purposes, no lead based paint inspection was performed.

7.0 CONCLUSION

We have performed a Phase I Environmental site Assessment in conformance with the scope of limitations of ASTM Standard Practice E.50.02.2 of 110 Wynn Drive, Huntsville, Alabama. Any exceptions to, or deletions from, the Standard Practice are described in Section 4.2.1 of this report. Because historical aerial photographs of the site were not reasonably available, this report was completed without the benefit of the information that they would provide. This Assessment has revealed evidence of a Recognized Environmental Condition in connection with the site for which a Tenant Audit is recommended to confirm the exact nature of operations conducted at the site.

8.0 RECOMMENDATIONS

8.1 Remediation

Based on the conclusions of this study, no remediation activities are recommended at this time.

8.2 Asbestos Removal

According to the results of the asbestos survey, no ACM was identified at the site. Therefore, it is unnecessary to perform an asbestos removal event at the site at this time.

8.3 Monitoring

Based on the conclusions of this report, and due to the governmentally sensitive/secure nature of operations at the site, and the materials associated with these processes, SWL recommends that the property owner be kept informed by the tenant regarding the generation, storage, and disposal of hazardous materials. Furthermore, it is recommended that a Tenant Audit be conducted to further delineate and determine the exact nature of operations conducted at the site. It is suggested that the tenant provide copies of certifications, manifests, and other documents related to the environmentally sensitive nature of the onsite operations.

8.4 Reporting/Compliance

Based on the conclusions of this report, reporting of activities on the site is not likely to be necessary to preserve the environmental integrity of the site.

8.5 Further Study

Based on the conclusions of this study, no further study of the site is necessary.

9.0 CERTIFICATION

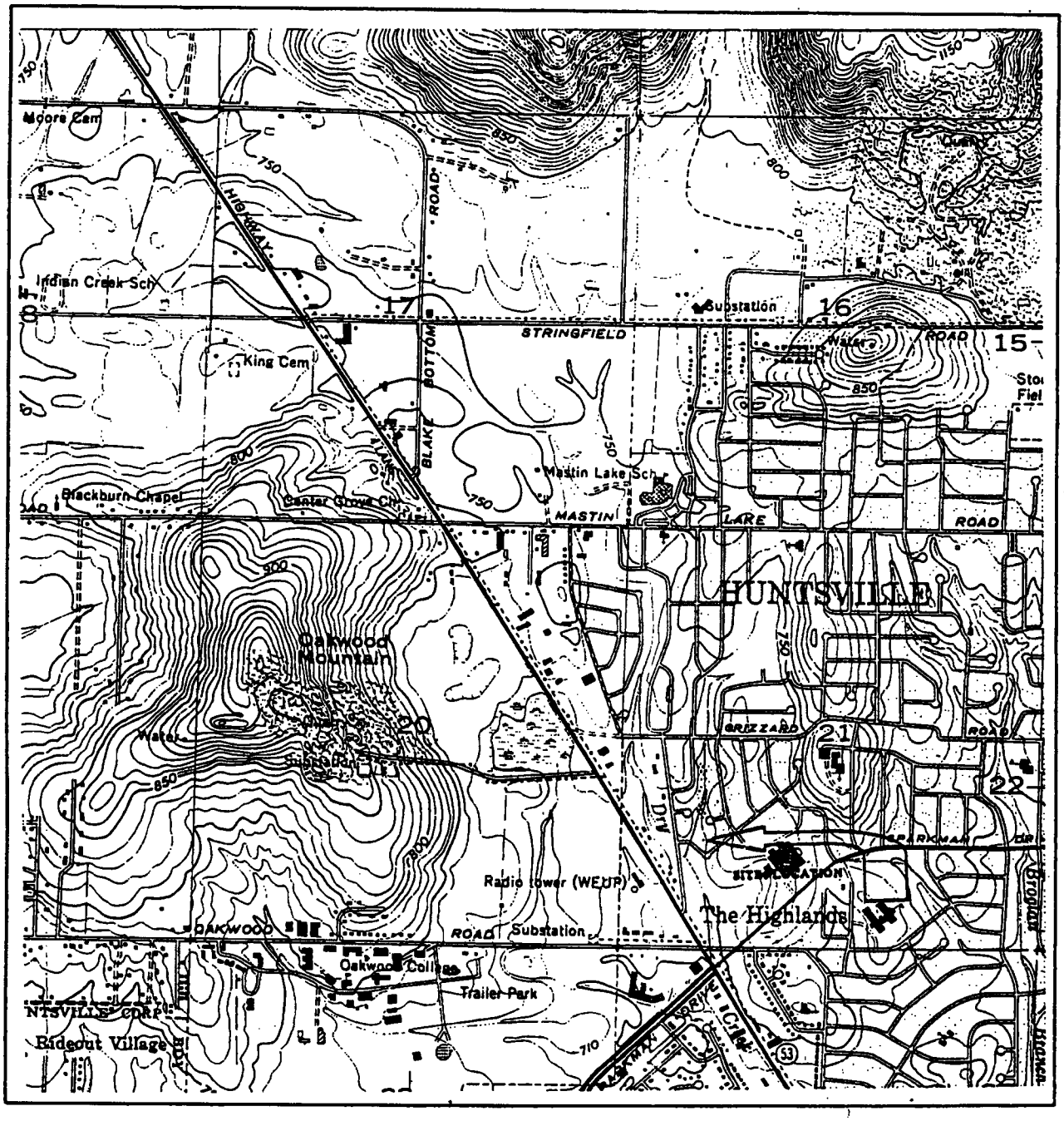
PHASE I ENVIRONMENTAL SITE ASSESSMENT
Site Name: Lecraw, Lecraw, Ishler and Samples
Loan Identification: 113908-8

I certify that this Phase I Environmental Site Assessment was conducted under my direction and supervision. I further certify that I have reviewed and approve this report, and that the methods and procedures employed in the development of this report conform to industry standards in this market; the ASTM Standard; for any sampling, AHERA, NESHAP, and USEPA "Simplified Sampling Scheme for Surfacing Materials" (EPA 560/5-85-030a), and the scope of work required by the Client as described in Section 10.8 of this report.

Steve D. Wolford, R.E.M.
Project Manager, Houston

10.0 ATTACHMENTS

10.1 Map
10.2 Site Drawing
10.3 Historical Aerial Photographs
10.4 Public Records
10.5 Analytical Results
10.6 Photographs
10.7 Regulatory Files
10.8 Scope of Work

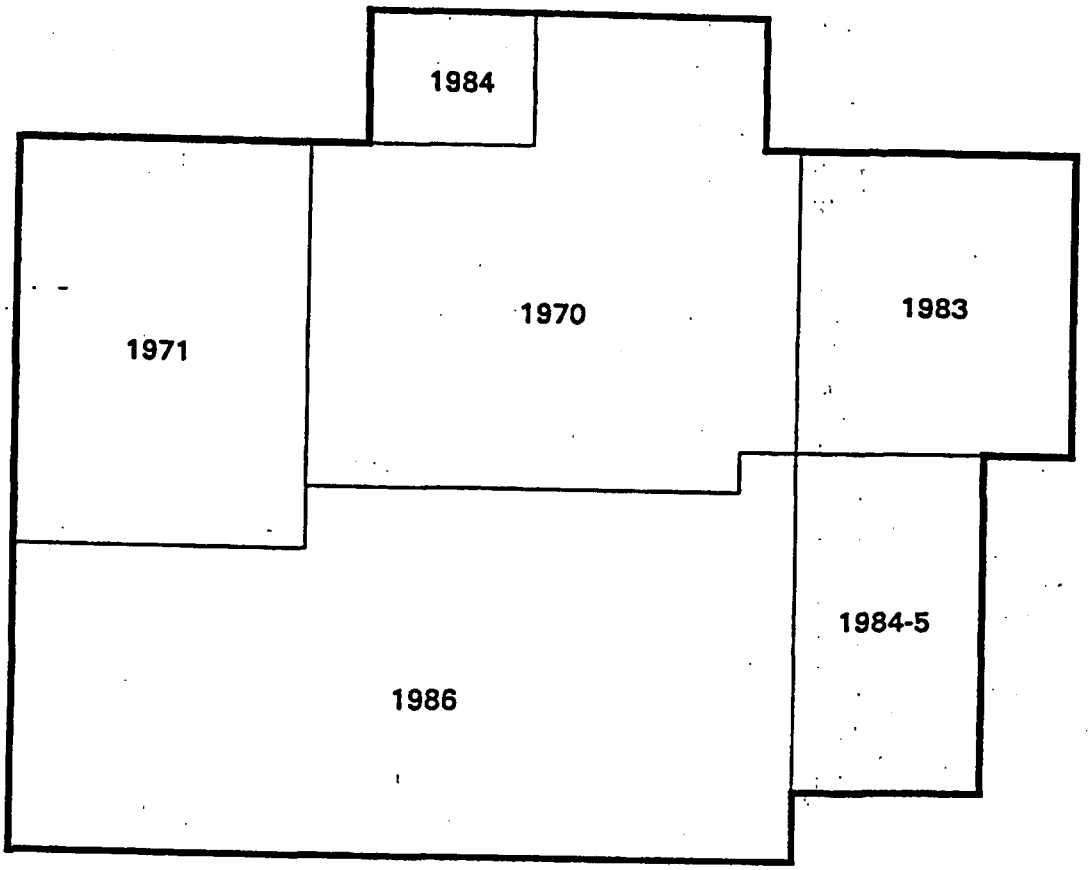


USGS 7.5 Minute Series
Jeff, Alabama
Topographic Quadrangle

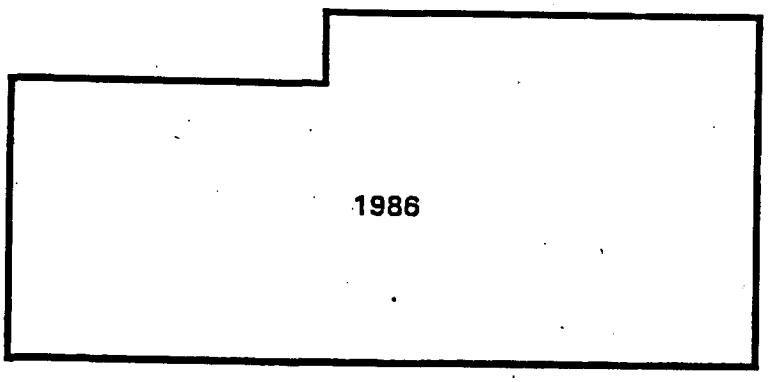
Scale 1:24000
Contour Interval: 20 Feet

N

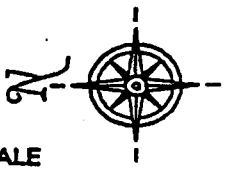
Project: Lecraw, Ishler & Samples Project No.: 5261-94-002 Location: Huntsville, AL	Attachment 10.1	**SWL** Environmental Services



1st Floor Plan



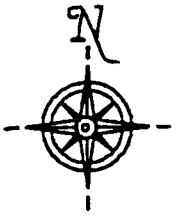
2nd Floor Plan



NOT TO SCALE

Project: LeCraw, LeCraw, Samples & Ishler Project No.: 5261-94-002 Huntsville, AL	Attachment 10.2. Site Plan.	***Huntingdon*** Environmental Services

Source: Atlantic Aerial Surveys
Photo Number: 9010028
Scale: 1" = 1200'
Date: March 19, 1991



Project: Lecraw, Ishler & Samples Project No.: 5261-94-002 Location: Hunstville, AL	Aerial Photograph	SwL Environmental Services

VISTA ENVIRONMENTAL INFORMATION

FED/STATE REPORT

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993
Subject Property:	HIGHRIDGE 5261-93-430		
Street Address:	2021 HIGHRIDGE DR		
City:	HUNTSVILLE		
State:	AL		
Zip:	35802		
County:	MADISON		
Add'l Search Options:			
Zip Codes:	1) 35805 2) 35801		

SITES IN THE AREA

Agency/Database	Date of Data	# of Sites In Zip Code	# of Sites In Area
US,EPA,NPL	06/93	0	0
US,EPA,CERCLIS	06/93	10	1
US,EPA,FINDS	01/93	119	3
US,EPA,RCRA*	07/92	84	2
US,EPA,ERNS	10/92	5	0
US,EPA,OPEN DUMP SITES	06/85	0	0
US,EPA,DOCKETS	05/93	0	0
US,EPA,RAATS	02/93	1	0
State,SPL	N/A	0	0
State,LUST	N/A	0	0
State,UST	04/93	175	3
State,SPILL	N/A	0	0
State,SOLID WASTE	03/92	0	46
	03/92	.....	.....
	03/92	.....	.....

For a description of this report please turn to the last page.

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FOR MORE INFORMATION CALL (619)450-6100

5060 Shoreham Place, Suite 300, San Diego, CA 92122

VISTA ENVIRONMENTAL INFORMATION

NPL Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

The National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the US Dept of Health and Human Services and the US EPA in order to become an NPL site.

A search of the 06/93 NPL database revealed the following sites within the zip code area of the subject property.

SITES IN THE AREA

0 site(s) found in the zip code area(s)

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VISTA ENVIRONMENTAL INFORMATION

CERCLIS Sites

Client Project/P.O. No.:
Client Reference Name:

VISTA Report No.: 025042001
Date of Report: Aug. 28, 1993

Site Description

Subject Property: HIGHRIDGE 5261-93-430
Address: 2021 HIGHRIDGE DR
City: HUNTSVILLE
State: AL
Zip: 35802
County: MADISON

Additional Search Criteria

Zip Codes: 1) 35805 2) 35801

The CERCLIS List is a compilation by the EPA of the sites which the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (Superfund Act).

A search of the 06/93 CERCLIS database revealed the following sites within the zip code area of the subject property.

SITES IN THE AREA

Facility Name : B F I
Facility Address : 4704 COMMERCIAL DR NW
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 46821
EPA ID: ALD083752352

Site Information

Status: NOT PROP/CURR/DELE NPL
Site Ownership: OTHER
Lead Agency: NO DETERMINATION

CERCLA EVENTS

Event Type: DISCOVERY
Lead Agency: FUND LEAD
Event Status: NOT REPORTED

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J & A ENTERPRISES (continued)

Actual Completion Date: 06/14/91

Event Type: REMOVAL ACTION
Lead Agency: FUND LEAD
Event Status: NOT REPORTED
Actual Start Date: 06/27/91
Actual Completion Date: 03/10/92

Facility Name : US TVA HUNTSVILLE PRIMARY SUBSTATION
Facility Address : 250 POLARD STREET
Facility City/Zip : HUNTSVILLE , AL 35758
VISTA Enhanced City/Zip : HUNTSVILLE , AL 35801

Vista Number: 3780453
EPA ID: AL164009001

Site Information

Status: NOT PROP/CURR/DELE NPL
Site Ownership: UNKNOWN
Lead Agency: NO DETERMINATION

Facility Name : CHRYSLER CORP
Facility Address : 102 WYNN DR
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 2620345
EPA ID: ALD001817295

Site Information

Status: NOT PROP/CURR/DELE NPL
Site Ownership: OTHER
Lead Agency: NO DETERMINATION

CERCLA EVENTS

Event Type: DISCOVERY
Lead Agency: FUND LEAD
Event Status: NOT REPORTED
Actual Completion Date: 08/01/80

Event Type: PRELIMINARY ASSESSMENT

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CHRYSLER CORP (continued)

Event Status: NOT REPORTED
Actual Completion Date: 12/01/84

Event Type: SCREENING SITE INSPECTION
Event Status: NOT REPORTED
Actual Completion Date: 09/30/92

Facility Name : TECHNICAL MICRONICS
Facility Address : 210 WYNN DR
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 418627
EPA ID: ALD031639743

Site Information

Status: NOT PROP/CURR/DELE NPL
Site Ownership: OTHER
Lead Agency: NO DETERMINATION

CERCLA EVENTS

Event Type: DISCOVERY
Lead Agency: FUND LEAD
Event Status: NOT REPORTED
Actual Completion Date: 03/01/79

Event Type: PRELIMINARY ASSESSMENT
Lead Agency: FUND LEAD
Event Status: NOT REPORTED
Actual Completion Date: 12/01/79

Event Type: PRELIMINARY ASSESSMENT
Event Status: NOT REPORTED
Actual Completion Date: 09/12/85

Event Type: SCREENING SITE INSPECTION
Event Status: NOT REPORTED
Actual Completion Date: 01/01/80

VISTA ENVIRONMENTAL INFORMATION

FINDS Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

The Facility Index System (FINDS) is a compilation of any property or site which the EPA has investigated, reviewed or been made aware of in connection with its various regulatory programs. Each record indicates the EPA Program Office that may have files on the site or facility.

A search of the 01/93 FINDS database revealed the following sites within the zip code area of the subject property.

SITES IN THE AREA

Facility Name : ADS SERVICES
Facility Address : 3006 11TH AVE SW
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 7011
EPA ID: ALD982110538

Agency Id Information

Program Name: Haz Waste
Agency Id: ALD982110538

Facility Name : CORLETT AUTO RESTORATION SALES
Facility Address : 2007 145TH STREET SW
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 102386
EPA ID: ALD982141905

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UNITED PARCEL SERVICE (continued)

Facility City/Zip : HUNTSVILLE , AL 35802

Agency Id Information

Program Name: Haz Waste
Agency Id: ALD981758089

Facility Name : ACUSTAR INC
Facility Address : 103 WYNN DR
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 5475
EPA ID: ALD001817295

Agency Id Information

Program Name: NPDES
Agency Id: AL0056162

Program Name: NPDES
Agency Id: AL0055816

Program Name: TOXICS-TRIS
Agency Id: 35805HNTSV102WY

Program Name: TOXICS-TRIS
Agency Id: 35805CSTRN102WY

Program Name: CERCLIS
Agency Id: ALD001817295

Program Name: Haz Waste
Agency Id: ALD001817295

Facility Name : GENERAL ELECTRIC CO SSD
Facility Address : 110 WYNN DR
Facility City/Zip : HUNTSVILLE , AL 35807
VISTA Enhanced City/Zip : HUNTSVILLE , AL 35805

Vista Number: 167646
EPA ID: ALD009305608

Agency Id Information

Program Name: Haz Waste
Agency Id: ALD009305608

Facility Name : PENTASTAR ELECTRONICS
Facility Address : 110 WYNN DRIVE
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 3132483
EPA ID: ALD983182981

Agency Id Information

Program Name: Haz Waste
Agency Id: ALD983182981

Facility Name : TECHNICAL MICRONICS
Facility Address : 210 WYNN DR NW
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 418627
EPA ID: ALD031639743

Agency Id Information

Program Name: Haz Waste
Agency Id: ALD097755409

Program Name: CERCLIS
Agency Id: ALD031639743

Program Name: Haz Waste
Agency Id: ALD031639743

Facility Name : MICROMEDIC SYSTEMS INC
Facility Address : 330 WYNN DR
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 271697
EPA ID: ALD077897981

Agency Id Information

Program Name: Haz Waste
Agency Id: ALD077897981

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VISTA ENVIRONMENTAL INFORMATION

RCRA Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste.

A search of the 07/92 HWDMS/RCRIS database revealed the following sites within the zip code area of the subject property.

SITES IN THE AREA

Facility Name : ADS SERVICES
Facility Address : 3006 11TH AVE SW
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 7011
EPA ID: ALD982110538

Generator Details

Waste Quantity Class: Generates 100 kg./month but less than 1000 kg./month of non-acutely hazardous waste

---

Facility Name : CORLETT AUTO RESTORATION SALES
Facility Address : 2007 145TH STREET SW
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 102386
EPA ID: ALD982141905

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Facility Name : HUNTSVILLE ONE HOUR CLEANERS
Facility Address : 8410 WHITESBURG DR
Facility City/Zip : HUNTSVILLE , AL 35802

Vista Number: 203285
EPA ID: ALD981015795

Generator Details

Waste Quantity Class: Generates 100 kg./month but less than 1000 kg./month of non-acutely hazardous waste

---

Facility Name : UNITED PARCEL SERVICE
Facility Address : 113 WINCHESTER ROAD
Facility City/Zip : HUNTSVILLE , AL 35802

Vista Number: 442017
EPA ID: ALD981758089

Generator Details

Waste Quantity Class: Generates 100 kg./month but less than 1000 kg./month of non-acutely hazardous waste

---

Facility Name : ACUSTAR, INC.
Facility Address : 103 WYNN DRIVE
Facility City/Zip : HUNTSVILLE , AL 35824
VISTA Enhanced City/Zip : HUNTSVILLE , AL 35805

Vista Number: 5475
EPA ID: ALD001817295

Generator Details

Waste Quantity Class: Generates at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

Facility Name : GENERAL ELECTRIC CO/SSD
Facility Address : 110 WYNN DRIVE
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 167646
EPA ID: ALD009305608

Generator Details

Waste Quantity Class: Generates 100 kg./month but less than 1000 kg./month of non-acutely hazardous waste

---

Facility Name : PENTASTAR ELECTRONICS
Facility Address : 110 WYNN DRIVE
Facility City/Zip : HUNTSVILLE , AL 35805

Vista Number: 3132483
EPA ID: ALD983182981

Generator Details

Waste Quantity Class: Generates at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

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Facility Name	: SCIENTIFIC SERVICES INC	Vista Number:	371048
Facility Address	: 210 WYNN DRIVE	EPA ID:	ALD097755409
Facility City/Zip	: HUNTSVILLE , AL 35805		

Generator Details

Waste Quantity Class: Generates at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

Violations: This handler has violations outstanding for generator requirements

Facility Name	: TECHNICAL MICRONICS CONTROL INC	Vista Number:	418627
Facility Address	: 210 WYNN DR	EPA ID:	ALD031639743
Facility City/Zip	: HUNTSVILLE , AL 35807		
VISTA Enhanced City/Zip	: HUNTSVILLE , AL 35805		

Generator Details

Waste Quantity Class: Generates 100 kg./month but less than 1000 kg./month of non-acutely hazardous waste

Facility Name	: MICROMEDIC SYSTEMS INC	Vista Number:	271697
Facility Address	: 330 WYNN DRIVE	EPA ID:	ALD077897981
Facility City/Zip	: HUNTSVILLE , AL 35805		

Generator Details

Waste Quantity Class: Generates at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

Sites with incomplete address information which may be in the search zip code(s) area.

Facility Name	: GAF CORP	Vista Number:	163515
Facility Address	: 5565 REDSTONE ARSENAL	EPA ID:	ALD004010468
Facility City/Zip	: HUNTSVILLE , AL 35798		
VISTA Enhanced City/Zip	: HUNTSVILLE , AL		

Generator Details

Waste Quantity Class: Generates 100 kg./month but less than 1000 kg./month of non-acutely hazardous waste

VISTA ENVIRONMENTAL INFORMATION

OpenDump Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

A search of the 1989 OPEN DUMP inventory of facilities that do not comply with the Environmental Protection Agency's Criteria for Classification of Solid Waste Disposal Facilities and Practices; revealed the following facilities located within the below listed city. An additional search conducted revealed the following facilities located within the below listed county for which no city location information was available: The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. RCRA defines

A search of the 06/85 INV OPEN DUMPS database revealed the following sites within the zip code area of the subject property.

SITES IN THE AREA

0 site(s) found in the zip code area(s)

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VISTA ENVIRONMENTAL INFORMATION

Dockets Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

The Consolidated Docket Enforcement System is a compilation of civil judicial enforcement actions filed by the Department of Justice on behalf of EPA against violators of Federal Environmental Statutes.

A search of the 05/93 DOCKETS database revealed the following sites within the zip code area of the subject property.

SITES IN THE AREA

0 site(s) found in the zip code area(s)

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VISTA ENVIRONMENTAL INFORMATION

RAATS Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

The Resource Conservation and Recovery Act Administrative Actions Tracking System (RAATS) tracks and records RCRA Section 3008 Compliance Orders and Orders on Consent for the Office of Waste Programs Enforcement U.S. Environmental Protection Agency.

A search of the 02/93 RAATS database revealed the following sites within the zip code area of the subject property.

SITES IN THE AREA

Facility Name	:	SCI SYSTEMS INC.	EPA ID #:	ALD980559843
Facility Address	:	NOT REPORTED	Docket Number:	83-41
Facility City	:	HUNTSVILLE	VISTA Number:	000371190
Facility State	:	AL 35802	Issue Date:	NOT REPORTED
Facility Region	:	04	Final Date:	3/23/83
Status	:	02		
Action Code	:	NOT REPORTED		
Violation	:	122.22		
Violation Type	:	C		
Proposed Fine	:	0		
Fine Imposed	:	0		

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VISTA ENVIRONMENTAL INFORMATION

State Priority Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

No list exists for this state.

SITES IN THE AREA

0 site(s) found in the zip code area(s)

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VISTA ENVIRONMENTAL INFORMATION

LUST Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

No list exists for this state.

SITES IN THE AREA

0 site(s) found in the zip code area(s)

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VISTA ENVIRONMENTAL INFORMATION

UST Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

The Alabama Department of Environmental Management, UST Division maintains an inventory of registered underground storage tanks. This inventory is a database which contains information from the:

Registered Tanks Consultant's Report 04/93

A search of this database revealed the following facilities located in the zip code searched. Also included are sites with incomplete addresses reported to be located in the city searched. If no city name has been reported, the county name was used.

SITES IN THE AREA

Facility Name	: CEDAR GAP	Vista Number:	2023087
Facility Address	: 2664 HWY 72 E	Agency ID:	089000911
Facility City/Zip	: HUNTSVILLE , AL 35801		

Owner Information

Owner Name:	CAMPBELL & SONS OIL
Owner Address:	2518-B S MEMORIAL PKWY
Owner City:	HUNTSVILLE
Owner State:	AL
Owner Zip:	35801

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Owner Information

Owner Name: BILL PENNEY MOTOR CO
Owner Address: 4808 UNIVERSITY DR NW
Owner City: HUNTSVILLE
Owner State: AL
Owner Zip: 35816

Tank Information

Number of Underground Tanks: 3

Tanks Details

Tank Id: 03 U
Tank Contents: UNKNOWN
Tank Size: 1000 GALLONS
Tank Status: ACTIVE/IN SERVICE
Tank Material: BARE STEEL
Tank Age: 29
Pipe Type: UNKNOWN
Leak Monitor: UNKNOWN

Tank Id: 02 U
Tank Contents: UNKNOWN
Tank Size: 1000 GALLONS
Tank Status: ACTIVE/IN SERVICE
Tank Material: BARE STEEL
Tank Age: 29
Pipe Type: UNKNOWN
Leak Monitor: UNKNOWN

Tank Id: 01 U
Tank Contents: UNKNOWN
Tank Size: 4000 GALLONS
Tank Status: ACTIVE/IN SERVICE
Tank Material: BARE STEEL
Tank Age: 29
Pipe Type: UNKNOWN
Leak Monitor: UNKNOWN

Facility Name : ACUSTAR INC
Facility Address : 107 WYNN DR

Vista Number: 5475
Agency ID: 089005868

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VISTA ENVIRONMENTAL INFORMATION

Spills Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

No list exists for this state.

SITES IN THE AREA

0 site(s) found in the zip code area(s)

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VISTA ENVIRONMENTAL INFORMATION

Solid Waste Sites

Client Project/P.O. No.:		VISTA Report No.:	025042001
Client Reference Name:		Date of Report:	Aug. 28, 1993

Site Description

Subject Property:	HIGHRIDGE 5261-93-430
Address:	2021 HIGHRIDGE DR
City:	HUNTSVILLE
State:	AL
Zip:	35802
County:	MADISON

Additional Search Criteria

Zip Codes:	1) 35805 2) 35801

The Alabama Department of Environmental Management, Land Division, Solid Waste Branch maintains an inventory of the solid waste facilities in the state. This inventory is a database which contains information from the:

Recycling Facilities List	03/92
Permitted Sanitary Landfills	03/92
Permitted Landfills	03/92

A search of this database revealed the following facilities located in the zip code searched. Also included are sites with incomplete addresses reported to be located in the city searched. If no city name has been reported, the county name was used.

SITES IN THE AREA

Sites with incomplete address information which may be in the search zip code(s) area.

Facility Name	: REDSTONE ARSENAL SANITARY LANDFILL	Vista Number:	2620099
Facility Address	: NOT REPORTED	Agency ID:	45-03R
Facility City/Zip	: NOT REPORTED, AL		
County	: MADISON		

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SWL

December 2, 1993

The New England Mutual Life Insurance Company
501 Boylston Street
Boston, Massachusetts 02116-3700

Attention: John J. Weis
Second Vice President

Re: Environmental Site Assessments for Region IV and Region VI
ADDENDUM

Dear Mr. Weis:

Please let this letter serve as a statement of correction for the Environmental Site Assessments prepared for your company in November 1993. The text in Section 5.2 incorrectly states the Toxic Release Inventory search was limited to on-site facilities when in fact in all cases, the search was conducted for on- and adjacent sites.

Sincerely,

SOUTHWESTERN LABORATORIES, INC.

Steve Wolford

Steve Wolford, R.E.M.
Environmental Consulting
Project Manager, Houston

SW/ng

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EXHIBIT 1:

SCOPE OF WORK

I. Consultant's General Duties

The Environmental Consultant's ("Consultant") general duties under the Professional Services Agreement (the "Agreement") to which this Scope of Work is attached are to provide environmental investigation and analysis services (the "Services") to Client with respect to each property listed on the Property Information Sheet attached as Exhibit 2 to the Agreement (the "Property"), and to provide the results and conclusions of the investigation to Client in a comprehensive, confidential report, as specified herein (the "Report"). Consultant shall perform the services in accordance with the Agreement, and the terms, conditions and obligations of the Agreement are to be read and interpreted in accordance with this Scope of Work.

This Scope of Work is based upon the ASTM Standard E.50.02.2 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." (ASTM Standard) The Consultant shall consult this standard for general guidance, rely on the Standard for determining customary practice, and certify to the Client that the assessment has been performed in accordance with the ASTM Standard.

Consultant should take note that Client's interest in each property is that of a lender subject to rights and restrictions established in the loan documents. Consultant should assume that satisfactory access to the property, staff, vendors, and documents will be provided by Borrower. Client will assist Consultant in securing access and information within Client's rights in the event Borrower fails to cooperate. In no event should Consultant seek access to any property, vendor or documents if the Borrower objects to such access or attempts to restrict Consultant from performing its investigative duties.

II. Definitions

For purposes of this Scope, the term "Hazardous Substance" shall mean: such chemicals, elements, compounds and wastes of any nature and composition, as are defined as hazardous wastes, hazardous substances, regulated substances, pollutants or contaminants, toxic wastes or toxic substances by the Comprehensive Environmental Responsibility, Compensation, and Liability Act of 1980, as amended, ("CERCLA"); the Superfund Amendment and Reauthorization Act of 1976, as amended ("RCRA"); the Toxic Substances Control Act, as amended ("TSCA"); the Clean Water Act, as amended ("CWA"); the Asbestos Emergency Response Act, as amended ("AHERA"); or any other federal, state or local statute, law or ordinance; and petroleum, petroleum products and their constituents, (hereinafter collectively referred to as "Hazardous Substances").

As specified in the ASTM standard E.50.02.2 entitled "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process"...the term Recognized Environmental Conditions will be used to describe environmental conditions or impacts warranting further inquiry. "In defining a standard of

good commercial and customary practice for conducting an Environmental Site Assessment of a parcel of property, the goal of the processes established by this Standard Practice is to identify Recognized Environmental Conditions. The term "Recognized Environmental Conditions" means the presence or likely presence of any Hazardous Substance or Petroleum Products on a Property under conditions that indicate an existing release, a past release, or a material threat of a release of any Hazardous Substances or Petroleum Products into structures on the Property or into the ground, groundwater or surface water of the Property. The term includes Hazardous Substances or Petroleum Products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."

III. Purpose of Assessment

The purpose of this Phase I Environmental Site Assessment is to provide an environmental assessment which meets ASTM Standards and which:

1. Identifies and describes the presence of any Recognized Environmental Conditions.

2. Where Recognized Environmental Conditions are identified, if reasonably possible, estimates the cost of remediation to a prudent owner of the subject site.

3. If necessary, recommends the scope of any further study to determine the existence of an actual release of any Hazardous Substance or to accurately estimate the cost of any required remediation.

IV. Information Package

The Consultant will be furnished with Property Information Sheet (attached as Exhibit 2 to the Agreement) which provides to Consultant: the Property's street address; the property type, size and year built; the site size; and, the outstanding loan balance. To the extent necessary, Client may be able to provide a separate list of legal descriptions or lot, block, and subdivision descriptions.

V. Standard Phase I Environmental Assessment Procedures and Methods

The Consultant shall employ the following assessment procedures and methods for all properties ("Procedures"):

A. Site History - Using the process detailed in Section 7.3 (Historical Use Information) of the ASTM Standard, conduct a review of historical uses as detailed below:

   1. Obtain historic aerial photographs spanning sixty (60) years, if reasonably available, from governmental or other sources.

2. Review reasonably available historic maps, tax records, street directories, building permits, zoning records and/or other historical sources to determine past uses of the Property.

B. Site Reconnaissance - The site reconnaissance shall be conducted in general accordance with the process described in Section 8 (Site Reconnaissance) of the ASTM Standard. Special attention shall be given to the following:

1. Observe the periphery of the Property as well as the exterior of all structures thereon. Inspect accessible interior common areas, occupied spaces, maintenance and repair areas, boiler rooms, and other areas that may pose environmental concerns.

2. Identify present use of the Property and facilities or improvements located thereon. Determine whether any portions of the Property are subject to environmental land use restrictions, such as wetlands or flood plains.

3. Physically inspect the Property perimeter, observing neighboring properties; identify uses or conditions on neighboring properties; note uses or conditions that are likely to present an impact of sufficient magnitude to constitute a Recognized Environmental Condition for the subject site.

4. By regional physiographic observation or hydrographic contour maps and the Database Report, verify or determine, if reasonably possible, the estimated direction of groundwater flow and surface water flow on and near the Property.

5. Using the interview process detailed in Section 9 of the ASTM Standard, identify potential Recognized Environmental Conditions by interviewing the "key site manager", as well as reasonably available personnel on the Property and reasonably available neighbors. Inquiries may include, but are not limited to, the following topics:

   a. Past uses of the Property;

   b. Current permits and registrations;

   c. Notices of violations, complaints or litigation;

   d. Ownership of transformers;

   e. Spills, releases and any clean-up thereof and related documentation;

   f. Existing or known internal audits or consultant's reports on manufacturing activities and/or environmental compliance;

   g. Grievances or work stoppages related to environmental hazards;

h. Knowledge of any Federal or State superfund liability or state superlien liability;

i. Pending environmental requirements or obligations.

C. Site Use/Operations - The site inspection shall be conducted in general accordance with the process detailed in Section 8 (Site Reconnaissance) of the ASTM Standard. Special attention shall be given to the following:

1. Review Material Safety Data Sheets maintained at the Property.

2. Identify Hazardous Substances, potentially hazardous Substances and raw materials manufactured, used, generated, stored, released, transported or disposed of on or in connection with the Property or facilities located thereon; note any odors, pools of liquid, disposal areas or storage drums on the Property; note any pits, ponds or lagoons; note any stressed vegetation.

3. Investigate whether Hazardous Substances or potentially Hazardous Substances were manufactured, used, generated, stored, released, transported or disposed of in connection with past and current property usage.

4. Review Resource Conservation Recovery Act (RCRA) records regarding hazardous waste (including a review of hazardous waste manifest); determine method of handling and disposal.

5. Determine method of solid waste disposal (that is, non-hazardous waste) and identity of disposal site.

6. Identify approximate locations of possible ASTs/USTs. Investigate whether all identified ASTs/USTs are properly registered, are in use, have been tested appropriately for leakage, have had remediation, have been upgraded (e.g., containment, corrosion protection spill and overfill prevention devices, etc.), and/or have been taken out of operation, removed, filled with inert substances, or otherwise closed.

7. Identify the type and location of any electrical or other equipment located on the Property likely to contain Polychlorinated Biphenyls ("PCBs") and determine, with respect to each, all pertinent information regarding leakage, ownership and manufacture.

8. Determine the presence of Asbestos Containing Material (ACM) for all structures constructed prior to 1980. The consultant shall first interview the owner or property manager regarding existing reports, studies, and the presence of an Operations and Maintenance (O&M) Plan. If such documentation exists the Consultant shall review it. No further action will be needed if the information is sufficient to meet the requirements of Section 6.7 and Section 8 of the Phase I Environmental Site Assessment Report specified in this Scope of Work. If such documentation does not

exist, or is insufficient to meet the reporting requirements of this Scope of Work, the Consultant shall prepare a work plan for asbestos sampling as described below.

Every attempt should be made to visually inspect every building, every unit. If access to every unit is denied, every effort should be made to visually inspect at least one unit in every building. In particular, identify all suspect ACM which is (i) thermal insulation; (ii) acoustical or decorative treatment for ceilings and walls; (iii) flooring materials; or (iv) sprayed on fireproofing. Identify whether the suspected ACM is friable or non-friable in accordance with the Asbestos Hazard Emergency Response Act categories, and for friable and damaged non-friable suspected ACM, document the location and the condition. If possible without damage to the Property or the structures or improvements thereon, take a representative number of samples of suspected friable ACM, in accordance with the Asbestos Hazard Emergency Response Act, 40 C.F.R. Sections 763.83, 763.86, 763.87 and 763.88, and the U.S. Environmental Protection Agency's "Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-024).

The total number of samples for each Property should not exceed twenty-five (25) without the prior written approval of the Client. The asbestos inspection shall be conducted by an accredited AHERA-trained asbestos inspector, and if any local certifications or training is required, the asbestos inspector shall meet all such requirements. All such sampling and analysis shall be done in accordance with EPA-approved protocols set forth in 40 C.F.R. Section 763.87.

9. If the Property has residential buildings constructed prior to 1978 located thereon, identify the location of interior and exterior painted surfaces suspected to contain lead-based paint which is likely to pose a health risk under conditions of normal building occupancy. In particular, identify suspect interior and exterior painted surfaces which are in a deteriorated condition, such as cracking, chipping or peeling paint particles. Take ten (10) samples per one hundred (100) units (minimum of 10 samples) of lead-swab or crushed ampule tests of those painted surfaces which are in a deteriorated condition. The number of samples should not exceed thirty (30) without the prior written approval of the Client. All material sampling should be performed in accordance with all EPA-approved protocols.

10. Identify the presence of any active or inactive wells on the Property.

11. Identify other conditions or operations on the Property that may represent a Recognized Environmental Condition.

12. Take 8 to 12 color photographs of the Property, particularly of conditions that may be significant to the evaluation of any environmental concerns noted.

D. Regulatory Compliance and Agency Review - This review shall be conducted according to Section 7 (Records Review) of the ASTM Standard, with the exception of the additional requirement to search the Toxic Release Inventory Data System. As stated in Section 7.1.1 of the ASTM Standard, "The purpose of the records review is to obtain and review records that will help identify Recognized Environmental Conditions in connection with the property."

1. Database Search. Unless an environmental database search ("Database Report")less than ninety (90) days old has otherwise been provided to the Consultant for review, the Consultant will obtain for review, analyze and summarize a Database Report for the Property. The Database Search shall include at a minimum a search of the following databases at the prescribed search distances:

Database Searched	Search Distance
Federal NPL Site List	1.0 mile/1.6 kilometer
Federal CERCLIS List	0.5 mile/0.8 kilometer
Federal RCRA TSD Facilities List	1.0 mile/1.6 kilometer
Federal RCRA Generators List	Property and adjoining property
Federal ERNS List	Property only
State Lists of Hazardous Waste Sites Identified for Investigation or Remediation (NPL and CERCLIS Equivalents)	1.0 mile/1.6 kilometer
State Landfill and/or Solid Waste Disposal Site Lists	0.5 mile/0.8 kilometer
State Leaking UST Lists	0.5 mile/0.8 kilometer
State Registered UST Lists	Property and adjoining property
Toxic Release Inventory Data Systems	Property and adjoining property

At the Consultant's discretion, the radii prescribed above may be reduced to an "Approximate Minimum Search Distance" as defined and prescribed by the ASTM Standard (except for the Federal NPL, Federal RCRA TSD lists and any list prescribed above as for the Property only). The

justification for each reduction and the Approximate Minimum Search Distance actually used for any particular record shall be explained in the Report.

2. Through interviews with site contacts and on the basis of the site visit and records search, determine whether any on-site activity requires environmental permits or any state-required permit or authorization (e.g., National Pollutant Discharge Elimination System ("NPDES") permit, Underground Storage Tank ("UST") registration or RCRA ID number), whether all such permits have been obtained and are current, and to the extent information is readily available, whether operations and conditions at or on the Property comply with all permit requirements.

3. If access is available, review all correspondence or other internal records which indicate the possibility or likelihood of non-compliance with applicable federal, state or local environmental statutes or regulations.

4. Review the Database Report, focusing on the contaminated sites near the Property that were identified. Evaluate identified properties that could have an impact on the Property, and, if appropriate, review relevant agency files to determine the current status of the identified properties. If a Recognized Environmental Condition is discovered as a result of the Database search, independently verify the groundwater flow direction.

5. To the extent information is publicly and reasonably available ("publicly available" meaning that the source of information allows access to the information by anyone upon request) from documents obtained from or interviews with appropriate federal, state or local agencies, determine: whether there has been any notice of violation, cease and desist order, memorandum of understanding, injunction, or the like issued with respect to the Property or owner/operator thereof; if the Property or any facilities located thereon are presently under investigation for violation of any environmental statutes, laws, regulations, or standards; if there have been any reported violations or registered complaints; whether the Property and owner/operators thereof are in compliance with environmental statutes, laws, regulations, and standards; and whether there is any other pertinent information relating to the subject or neighboring properties in the files of the regulatory authority.

VI. Reporting

A. Oral Report

Consultant shall contact the Consultant Coordinator within one business day of the discovery of any condition which results in the determination by the Consultant that it will recommend the need for further study as part of its recommendations in this Phase I investigation.

B. Written Reports

1. For each Property, prepare a Phase I Environmental Site Assessment Report. The descriptions provided in the Report format stated below are intended to be general descriptions of the information set forth in Section V of this scope of work. The Report should address all items set forth in Section V and Section VI herein. For each item below, if the item is inapplicable or response information does not exist, the Report shall nevertheless enumerate that item and so state its applicability.

2. Upon completion of the Reports for all Properties, prepare the Summary of Findings attached as Exhibit 1.

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

1. **Executive Summary.** [Describe the key findings of the report, particularily any identified Recognized Environmental Conditions, key recommendations for further study, and the total estimated cost of remediation, if any.]

2. **Introduction.**

2.1. Purpose. [State the purpose of the investigation. Absent contrary instructions from Client, the purpose should be substantially the same as stated in Part III of the Scope of Work.]

2.2. Limitations. [To the extent that there are any limitations or qualifications on the findings, conclusions, or recommendations in the Report, they must be stated here.]

2.3. Resources. [A list of the resources checked, persons interviewed (listing each individually), and the names of Consultant's employees or subcontractors who performed the investigation, as well as the dates each such activity was conducted.]

3. **Site Description.**

3.1. Location and Legal Description of the Property.

3.2. Nature of Property. [Describe the use of the Property (such as residential, commercial, etc.), including all portions thereof (such as undeveloped areas, outparcels, etc.) Describe all improvements on the Property (including buildings, roads, heating/cooling systems, sewage disposal, and sources of potable water). Identify all owners and operators of the Property and the type of business (except that lessees of office buildings, etc. need not be identified). Describe any known or possible environmental land use restrictions (such as wetlands, flood plain, etc.)]

3.3. Nature of vicinity. [Describe the nature or uses of properties in the vicinity of the Property. Describe all land uses in the area that could represent a Recognized Environmental Condition for the subject site.]

3.4. Topography. [Describe the topography of the area in the vicinity of the Property, including the terrain, surface water resources, etc. Describe the known or estimated direction of surface water and groundwater flow.]

4. **Site History:**

4.1. Prior Owners. [List any identified prior owners of the Property.]

4.2. Prior Uses. [Describe prior uses of the Property. Comment upon the likely environmental significance of the identified owners/uses.]

5. **Environmental Agency Review.**

5.1 Environmental Records. [Describe all environmental records reviewed at the Property, state whether the records appear to indicate that the facility is in compliance with environmental obligations, and identify any environmental records which were expected but not present or could not be produced.]

5.2 Database Reports. [Describe all records searched and note whether the properties listed in the Database Report may have an impact on the Property. Summarize the significant contents of these records.]

5.3 Regulatory Status. [Describe all records identified at federal, state, or local agencies pertaining to the environmental status, conditions or compliance at the Property. Summarize the significant contents of these records, including all violations, orders, or complaints pertaining to the Property. Describe the results of all interviews with public officials and regulatory agencies.]

5.4 Other. [Describe other potential liabilities, such as discovered or disclosed pending litigation, CERCLA cost-recovery claims, required capital expenditures for environmental improvements, etc.]

6. **Recognized Environmental Conditions.** [For each of the following, provide the listed specific information, reasonably necessary to evaluate whether these practices, improvements, or conditions constitute Recognized Environmental Conditions. State the source of all information reported, the basis for corroboration of third party interview information, and state what information was not made available or not in files reviewed. Conclude each section with the Consultant's opinion whether or not these constitute Recognized Environmental Conditions.]

6.1. Use of Hazardous Substances. [Describe all uses of Hazardous Substances. Describe methods by which Hazardous Substances are

handled, stored and disposed. Include descriptions of all unidentified possible Hazardous Substances. Comment on the adequacy of the handling, storage, and disposal of Hazardous Substances and whether it appears to meet applicable standards.]

6.2. Solid Waste Handling. [Describe the nature of all solid waste generated at the Property and the method by which the solid waste is handled and disposed.]

6.3. On-Site and Off-Site Contamination. [Describe all areas of known, suspected, or potential contamination by Hazardous Substances. If it is known or possible that contamination has migrated off-site, so state.]

6.4. Underground Storage Tanks. [Describe all USTs currently or formerly present at the Property. State whether there is any evidence of contamination associated with the USTs. Describe the age, construction, size, and use of all USTs. State whether USTs have been registered and are otherwise in compliance with applicable laws. State whether the USTs have been tested for leakage, have been upgraded (such as for corrosion protection and overfill protection). For USTs taken out of service, state the date the USTs were removed from service, the closure procedures, and whether any contamination was detected.]

6.5 Above Ground Tanks. [Describe all ASTs currently or formerly present at the Property. Describe the age, construction, size, and use of all AST's. State whether there is any evidence of contamination associated with the ASTs. State whether SPCC plans exist(ed) for the ASTs and whether they are otherwise in compliance with applicable laws.]

6.6 PCBs. [Describe all known or suspected PCB-containing items, including the ownership of the item, whether the items are labeled, and whether there was any indication of leakage from the item.]

6.7 Asbestos-Containing Materials. [Provide the following information for identified ACM: (i) identify whether the ACM is friable or non-friable; (ii) classify all ACM as damaged, potential for damage, poor, fair or good; (iii) provide the location and the amount of friable and damaged non-friable ACM, both in quantity and on a percentage of the functional space; (iv) describe the condition of all damaged friable and damaged non-friable ACM, specifically the type of damage (flaking, blistering, water damage, etc.), severity of damage, and extent or spread of damage over large areas; (v) note whether friable or damaged non-friable ACM has the potential for disturbance or whether it is likely to be deteriorated within one year from the date of inspection; (vi) note whether friable and damaged non-friable ACM are located in areas that are accessible to tenants or property personnel. Describe the sampling locations and the test results for the samples analyzed.]

6.8 Lead Paint. [If required, describe the conditions of interior paint and the results of swab tests for the presence of lead. Estimate specific location(s) and the area of lead-based paint surfaces.]

7. Conclusion.

The Report shall have a conclusion section which states one of the following:

"We have performed a Phase I Environmental Site Assessment in conformance with the scope of limitations of ASTM Standard Practice E.50.02.2 of (insert address or legal description), the Property. Any exceptions to, or deletions from, the Standard Practice are described in section ( ) of this report. This Assessment has revealed no evidence of Recognized Environmental Conditions in connection with the Property."

OR

"We have performed a Phase I Envrionmental Site Assessment in conformance with the scope and limitations of ASTM Standard Practice E.50.02.2 of (insert address or legal description), the Property. Any exception to, or deletions from, the Standard Practice are described in section ( ) of this report. This Assessment has revealed no evidence of Recognized Environmental Conditions in connection with the Property except for the following: (list)."

8. Recommendations.

For sites where Recognized Environmental Conditions have been identified, Consultant shall make one or more of the following recommendations. The Consultant should clearly note the specific Recognized Environment Condition that each recommendation addresses. Moreover, for each recommendation made, the Consultant should assume that the borrower is a prudent owner, interested in addressing any environmental problem in the most cost-effective manner possible. The Consultant should not propose unnecessarily expensive solutions to Recognized Environmental Conditions when effective, lower-cost alternatives are available.

8.1 Remediation. [The action a property owner would take to remediate a known release of a Hazardous Substance, that has occurred or exists on the property in violation of governmental laws or regulations and that could be subject to a regulatory enforcement action. If reasonably possible, the Consultant should estimate the cost to the property owner of any recommended remediation. If necessary, and if calculable with reasonable certainty based on Consultant's experience with similar circumstances, this cost estimate may be expressed either as a historical average or as a narrow range of expected costs. The Consultant should be mindful in recommending remediation and in estimating cost that, if avoidable, a prudent owner will not undertake a remediation to address problems which are the responsibility of other parties, such as tenants and off-site generators.]

8.2 Asbestos Removal. [The actions a property owner would take to minimize any health threat to building occupants resulting from the existence of asbestos. The Consultant, should assume that the owner would seek to encapsulate friable ACM if possible rather than remove it, and defer the removal of non-friable ACM as long as practical. The Consultant should estimate both the cost of removal and the required timing to the property owner as best as possible, being mindful to only include the marginal extra cost of regulatory review, permits, removal activity, and disposal incurred when undertaking tenant improvements, normal building repairs, and capital improvements on Asbestos-Containing Materials.]

8.3 Monitoring. [The actions a property owner might take to monitor the subject site for the possible release of Hazardous Substances not covered in Section 8.1, monitor the potential migration of off-site Hazardous Substances onto the subject site, or implement an Operation and Maintenance Plan for ACM. The costs of any recommended monitoring effort are presumed to be inconsequential and do not need to be specifically quantified by the Consultant.]

8.4 Reporting/Compliance. [The actions a property owner would take to meet the routine permitting and reporting requirements of regulatory agencies. In making recommendations in this area the Consultant should attempt to distinguish between reporting requirements of the property owner from those of the tenants, and should, where possible, address only those which have an effect on the property owner. Again, the Consultant should assume that the costs associated with this category of recommendations are insignificant, and do not need to be specifically estimated.]

8.5 Further Study. [Describe specifically any recommended further study, including the estimated cost and time frame for such study, required to determine the existence of an actual release of any Hazardous Substance or to accurately estimate the cost of any required remediation.]

9. **Certification.** [A statement by a licensed engineer or certified environmental professional with a degree in geology, industrial hygiene, or chemistry, that the assessment was performed under his direction and supervision, that he has reviewed and approved the report and that the methods and procedures employed in development of the report conform to:

1. Industry standards in this market
2. The ASTM standard
3. For any asbestos sampling, AHERA, NESHAP, and USEPA "Simplified Sampling Scheme for Surfacing Materials (EPA 560/5-85-030a)

10. **Attachments.** [Include in the Report the following separately numbered attachments.]

10.1 Map. [A map at not less than 1:100,000 scale showing the location of the Property and the surrounding area. One or more USGS 7.5' quadrangles showing a 1.5 mile radius around the Property is sufficient.]

10.2 Site Drawing. [A drawing at not less than 1:600 scale showing the Property, street names, improvements on the Property, locations of environmentally sensitive areas, locations of USTs, ASTs and other potential sources of environmental contamination, and areas of known or potential contamination. This drawing need not be drawn to scale or based upon a survey, but must be sufficiently accurate to inform Client of the general locations of the mentioned items.]

10.3 Historical Aerial Photographs.

10.4 Analytical Results. [Attach copies of any Asbestos Sampling Report and Lead Paint Sampling Report.]

10.5 Photographs. [Attach photographs of buildings and other improvements on the Property, and any visible Recognized Environmental Conditions on the Property which can be documented with photographs.]

10.6 Regulatory Files. [Attach copies of significant extracts or portions of agency files reviewed in connection with Section V.D. of the Scope of Work, above.]

10.7 Scope of Work. [Attach a copy of this Scope of Work.]

EXHIBIT 1

Summary of Findings

Property Name	Recognized Environmental Conditions (Y/N)	Recommended Remediation (Y/N)	Recommended Asbestos Removal (Y/N)	Total Estimated Remediation Costs (As Reported)
Portfolio 1:				
[List Properties]				
Portfolio 2:				
[List Properties]				

ATTACHMENT 11

ADEM CENTRAL LAB

05/04/98

ADEM CENTRAL LAB

To: ADEM
1751 Congress W. Dickinson Dr.
Montgomery, Al. 36109
CERCLA (Site Insp/Invest)

Source..... G E AEROSPACE
Location.. MW-2
Sample Collector.. JERREMY STAMPS
Sample Matrix..... WATER
Fund Code No..... 521

Date Collected..04/16/98
Date Submitted.. 04/17/98

Attention: JERREMY STAMPS

Sample No.	Analysis	Result	Units	MDL	Date Completed	Method
AA09382						
	VOLATILES BY PURGE AND TRAP GC/MS					
	1,1,1,2-Tetrachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1,1-Trichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1,2,2-Tetrachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1,2-Trichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloropropanone	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloropropene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,3-Trichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,3-Trichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,4-Trichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,4-Trimethylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dibromomethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,3,5-Trimethylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,3-Dichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,3-Dichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,4-Dichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1-Chlorobutane	< MDL	ug/L	5.0	04/21/98	SW8260
	2,2-Dichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Butanone	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Chlorotoluene	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Hexanone	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Nitropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	4-Chlorotoluene	< MDL	ug/L	5.0	04/21/98	SW8260
	4-Isopropyltoluene	< MDL	ug/L	5.0	04/21/98	SW8260
	Acetone	< MDL	ug/L	5.0	04/21/98	SW8260
	Acrylonitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Ally Chloride	< MDL	ug/L	5.0	04/21/98	SW8260
	Benzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromochloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromodichloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromoform	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromomethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Carbon Disulfide	< MDL	ug/L	5.0	04/21/98	SW8260
	Carbon Tetrachloride	< MDL	ug/L	5.0	04/21/98	SW8260
	Chloroacetonitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Chlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260

ADEM CENTRAL LAB

05/04/98

ADEM CENTRAL LAB

To: ADEM
1751 Congress W. Dickinson Dr.
Montgomery, Al. 36109
CERCLA (Site Insp/Invest)

Source..... G E AEROSPACE
Location.. MW-2
Sample Collector.. JERREMY STAMPS
Sample Matrix..... WATER
Fund Code No..... 521

Date Collected..04/16/98
Date Submitted.. 04/17/98

Attention: JERREMY STAMPS

Sample No.	Analysis	Result	Units	MDL	Date Completed	Method
AA09382						
	Chloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Chloroform	< MDL	ug/L	5.0	04/21/98	SW8260
	Chloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	DBCP(1,2-Dibromo-3-chloro	< MDL	ug/L	5.0	04/21/98	SW8260
	Dibromochloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Dibromomethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Dichlorodifluoromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Diethyl Ether	< MDL	ug/L	5.0	04/21/98	SW8260
	Ethyl Methacrylate	< MDL	ug/L	5.0	04/21/98	SW8260
	Ethylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Hexachlorobutadiene	< MDL	ug/L	5.0	04/21/98	SW8260
	Hexachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Isopropylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	MIBK (4-Methyl-2-pentanone)	< MDL	ug/L	5.0	04/21/98	SW8260
	MTBE [Methyl-tert-Butyl	< MDL	ug/L	5.0	04/21/98	SW8260
	Methacrylonitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Methyl Iodide	< MDL	ug/L	5.0	04/21/98	SW8260
	Methylacrylate	< MDL	ug/L	5.0	04/21/98	SW8260
	Methylene Chloride	< MDL	ug/L	5.0	04/21/98	SW8260
	Methylmethacrylate	< MDL	ug/L	5.0	04/21/98	SW8260
	Naphthalene	< MDL	ug/L	5.0	04/21/98	SW8260
	Nitrobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Pentachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Propionitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Styrene	< MDL	ug/L	5.0	04/21/98	SW8260
	THF [Tetrahydrofuran]	< MDL	ug/L	5.0	04/21/98	SW8260
	Tetrachloroethylene	< MDL	ug/L	5.0	04/21/98	SW8260
	Toluene	< MDL	ug/L	5.0	04/21/98	SW8260
	Trichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	Trichlorofluoromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Vinyl Chloride	< MDL	ug/L	5.0	04/21/98	SW8260
	cis-1,2-Dichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	cis-1,3-Dichloropropene	< MDL	ug/L	5.0	04/21/98	SW8260
	meta-Xylene	< MDL	ug/L	5.0	04/21/98	SW8260
	n-Butylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	n-Propylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	ortho-Xylene	< MDL	ug/L	5.0	04/21/98	SW8260
	para-Xylene	< MDL	ug/L	5.0	04/21/98	SW8260
	sec-Butylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	tert-Butylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	trans-1,2-Dichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	trans-1,3-Dichloropropene	< MDL	ug/L	5.0	04/21/98	SW8260
	trans-1,4-Dichloro-2-butene	< MDL	ug/L	5.0	04/21/98	SW8260

ADEM CENTRAL LAB

05/04/98

ADEM CENTRAL LAB

To: ADEM
1751 Congress W. Dickinson Dr.
Montgomery, Al. 36109
CERCLA (Site Insp/Invest)

Source..... G E AEROSPACE
Location.. MW-2
Sample Collector.. JERREMY STAMPS
Sample Matrix..... WATER
Fund Code No..... 521

Date Collected..04/16/98
Date Submitted.. 04/17/98

Attention: JERREMY STAMPS

Sample No.	Analysis	Result	Units	MDL	Date Completed	Method
AA09382						
	Trace Metals					
	Aluminum using ICP	< MDL	mg/L	0.200	04/30/98	EPA200.7
	Cadmium by ICP	< MDL	mg/L	0.0030	04/30/98	EPA200.7
	Chromium by ICP	< MDL	mg/L	.015	04/30/98	EPA200.7
	Copper by ICP	< MDL	mg/L	.020	04/30/98	EPA200.7
	Lead by Graphite Furnace	< MDL	mg/L	.0020	04/29/98	EPA239.2
	Nickel by ICP	< MDL	mg/L	.030	04/30/98	EPA200.7
	Zinc by ICP	< MDL	mg/L	0.030	04/30/98	EPA200.7

ADEM CENTRAL LAB

05/04/98

To: ADEM
1751 Congress W. Dickinson Dr.
Montgomery, Al. 36109
CERCLA (Site Insp/Invest)

Source..... G E AEROSPACE
Location.. MW-3
Sample Collector.. JERREMY STAMPS
Sample Matrix..... WATER
Fund Code No..... 521

ADEM CENTRAL LAB

Date Collected..04/16/98
Date Submitted.. 04/17/98

Attention: JERREMY STAMPS

Sample No.	Analysis	Result	Units	MDL	Date Completed	Method
AA09383						
	VOLATILES BY PURGE AND TRAP GC/MS					
	1,1,1,2-Tetrachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1,1-Trichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1,2,2-Tetrachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1,2-Trichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloropropanone	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloropropene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,3-Trichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,3-Trichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,4-Trichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,4-Trimethylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dibromomethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,3,5-Trimethylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,3-Dichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,3-Dichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,4-Dichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1-Chlorobutane	< MDL	ug/L	5.0	04/21/98	SW8260
	2,2-Dichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Butanone	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Chlorotoluene	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Hexanone	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Nitropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	4-Chlorotoluene	< MDL	ug/L	5.0	04/21/98	SW8260
	4-Isopropyltoluene	< MDL	ug/L	5.0	04/21/98	SW8260
	Acetone	< MDL	ug/L	5.0	04/21/98	SW8260
	Acrylonitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Ally Chloride	< MDL	ug/L	5.0	04/21/98	SW8260
	Benzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromochloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromodichloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromoform	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromomethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Carbon Disulfide	< MDL	ug/L	5.0	04/21/98	SW8260
	Carbon Tetrachloride	< MDL	ug/L	5.0	04/21/98	SW8260
	Chloroacetonitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Chlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260

ADEM CENTRAL LAB

05/04/98

ADEM CENTRAL LAB

To: ADEM
1751 Congress W. Dickinson Dr.
Montgomery, Al. 36109
CERCLA (Site Insp/Invest)

Source..... G E AEROSPACE
Location.. MW-3
Sample Collector.. JERREMY STAMPS
Sample Matrix..... WATER
Fund Code No..... 521

Date Collected..04/16/98
Date Submitted.. 04/17/98

Attention: JERREMY STAMPS

Sample No.	Analysis	Result	Units	MDL	Date Completed	Method
AA09383						
	Chloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Chloroform	11.4	ug/L	5.0	04/21/98	SW8260
	Chloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	DBCP(1,2-Dibromo-3-chloro	< MDL	ug/L	5.0	04/21/98	SW8260
	Dibromochloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Dibromomethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Dichlorodifluoromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Diethyl Ether	< MDL	ug/L	5.0	04/21/98	SW8260
	Ethyl Methacrylate	< MDL	ug/L	5.0	04/21/98	SW8260
	Ethylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Hexachlorobutadiene	< MDL	ug/L	5.0	04/21/98	SW8260
	Hexachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Isopropylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	MIBK (4-Methyl-2-pentanone)	< MDL	ug/L	5.0	04/21/98	SW8260
	MTBE [Methyl-tert-Butyl	< MDL	ug/L	5.0	04/21/98	SW8260
	Methacrylonitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Methyl Iodide	< MDL	ug/L	5.0	04/21/98	SW8260
	Methylacrylate	< MDL	ug/L	5.0	04/21/98	SW8260
	Methylene Chloride	< MDL	ug/L	5.0	04/21/98	SW8260
	Methylmethacrylate	< MDL	ug/L	5.0	04/21/98	SW8260
	Naphthalene	< MDL	ug/L	5.0	04/21/98	SW8260
	Nitrobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Pentachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Propionitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Styrene	< MDL	ug/L	5.0	04/21/98	SW8260
	THF [Tetrahydrofuran]	< MDL	ug/L	5.0	04/21/98	SW8260
	Tetrachloroethylene	< MDL	ug/L	5.0	04/21/98	SW8260
	Toluene	< MDL	ug/L	5.0	04/21/98	SW8260
	Trichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	Trichlorofluoromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Vinyl Chloride	< MDL	ug/L	5.0	04/21/98	SW8260
	cis-1,2-Dichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	cis-1,3-Dichloropropene	< MDL	ug/L	5.0	04/21/98	SW8260
	meta-Xylene	< MDL	ug/L	5.0	04/21/98	SW8260
	n-Butylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	n-Propylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	ortho-Xylene	< MDL	ug/L	5.0	04/21/98	SW8260
	para-Xylene	< MDL	ug/L	5.0	04/21/98	SW8260
	sec-Butylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	tert-Butylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	trans-1,2-Dichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	trans-1,3-Dichloropropene	< MDL	ug/L	5.0	04/21/98	SW8260
	trans-1,4-Dichloro-2-butene	< MDL	ug/L	5.0	04/21/98	SW8260

ADEM CENTRAL LAB

05/04/98

ADEM CENTRAL LAB

To: ADEM
1751 Congress W. Dickinson Dr.
Montgomery, Al. 36109
CERCLA (Site Insp/Invest)

Source..... G E AEROSPACE
Location.. MW-3
Sample Collector.. JERREMY STAMPS
Sample Matrix..... WATER
Fund Code No..... 521

Date Collected..04/16/98
Date Submitted.. 04/17/98

Attention: JERREMY STAMPS

Sample No.	Analysis	Result	Units	MDL	Date Completed	Method
AA09383						
	Trace Metals					
	Aluminum using ICP	< MDL	mg/L	0.200	04/30/98	EPA200.7
	Cadmium by ICP	< MDL	mg/L	0.0030	04/30/98	EPA200.7
	Chromium by ICP	< MDL	mg/L	.015	04/30/98	EPA200.7
	Copper by ICP	< MDL	mg/L	.020	04/30/98	EPA200.7
	Lead by Graphite Furnace	< MDL	mg/L	.0020	04/29/98	EPA239.2
	Nickel by ICP	< MDL	mg/L	.030	04/30/98	EPA200.7
	Zinc by ICP	0.041	mg/L	0.030	04/30/98	EPA200.7

ADEM CENTRAL LAB

05/04/98

ADEM CENTRAL LAB

To: ADEM
1751 Congress W. Dickinson Dr.
Montgomery, Al. 36109
CERCLA (Site Insp/Invest)

Source..... G E AEROSPACE
Location.. MW-4
Sample Collector.. JERREMY STAMPS
Sample Matrix..... WATER
Fund Code No..... 521

Date Collected..04/16/98
Date Submitted.. 04/17/98

Attention: JERREMY STAMPS

Sample No.	Analysis	Result	Units	MDL	Date Completed	Method
AA09384						
	VOLATILES BY PURGE AND TRAP GC/MS					
	1,1,1,2-Tetrachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1,1-Trichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1,2,2-Tetrachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1,2-Trichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloropropanone	< MDL	ug/L	5.0	04/21/98	SW8260
	1,1-Dichloropropene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,3-Trichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,3-Trichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,4-Trichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2,4-Trimethylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dibromomethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dichloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,2-Dichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,3,5-Trimethylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,3-Dichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1,3-Dichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	1,4-Dichlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	1-Chlorobutane	< MDL	ug/L	5.0	04/21/98	SW8260
	2,2-Dichloropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Butanone	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Chlorotoluene	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Hexanone	< MDL	ug/L	5.0	04/21/98	SW8260
	2-Nitropropane	< MDL	ug/L	5.0	04/21/98	SW8260
	4-Chlorotoluene	< MDL	ug/L	5.0	04/21/98	SW8260
	4-Isopropyltoluene	< MDL	ug/L	5.0	04/21/98	SW8260
	Acetone	< MDL	ug/L	5.0	04/21/98	SW8260
	Acrylonitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Ally Chloride	< MDL	ug/L	5.0	04/21/98	SW8260
	Benzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromochloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromodichloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromoform	< MDL	ug/L	5.0	04/21/98	SW8260
	Bromomethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Carbon Disulfide	< MDL	ug/L	5.0	04/21/98	SW8260
	Carbon Tetrachloride	< MDL	ug/L	5.0	04/21/98	SW8260
	Chloroacetonitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Chlorobenzene	< MDL	ug/L	5.0	04/21/98	SW8260

ADEM CENTRAL LAB

05/04/98

To: ADEM
1751 Congress W. Dickinson Dr.
Montgomery, Al. 36109
CERCLA (Site Insp/Invest)

Source..... G E AEROSPACE
Location.. MW-4
Sample Collector.. JERREMY STAMPS
Sample Matrix..... WATER
Fund Code No..... 521

ADEM CENTRAL LAB

Date Collected..04/16/98
Date Submitted.. 04/17/98

Attention: JERREMY STAMPS

Sample No.	Analysis	Result	Units	MDL	Date Completed	Method
AA09384						
	Chloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Chloroform	< MDL	ug/L	5.0	04/21/98	SW8260
	Chloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	DBCP(1,2-Dibromo-3-chloro	< MDL	ug/L	5.0	04/21/98	SW8260
	Dibromochloromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Dibromomethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Dichlorodifluoromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Diethyl Ether	< MDL	ug/L	5.0	04/21/98	SW8260
	Ethyl Methacrylate	< MDL	ug/L	5.0	04/21/98	SW8260
	Ethylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Hexachlorobutadiene	< MDL	ug/L	5.0	04/21/98	SW8260
	Hexachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Isopropylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	MIBK (4-Methyl-2-pentanone)	< MDL	ug/L	5.0	04/21/98	SW8260
	MTBE [Methyl-tert-Butyl	< MDL	ug/L	5.0	04/21/98	SW8260
	Methacrylonitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Methyl Iodide	< MDL	ug/L	5.0	04/21/98	SW8260
	Methylacrylate	< MDL	ug/L	5.0	04/21/98	SW8260
	Methylene Chloride	< MDL	ug/L	5.0	04/21/98	SW8260
	Methylmethacrylate	< MDL	ug/L	5.0	04/21/98	SW8260
	Naphthalene	< MDL	ug/L	5.0	04/21/98	SW8260
	Nitrobenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	Pentachloroethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Propionitrile	< MDL	ug/L	5.0	04/21/98	SW8260
	Styrene	< MDL	ug/L	5.0	04/21/98	SW8260
	THF [Tetrahydrofuran]	< MDL	ug/L	5.0	04/21/98	SW8260
	Tetrachloroethylene	< MDL	ug/L	5.0	04/21/98	SW8260
	Toluene	< MDL	ug/L	5.0	04/21/98	SW8260
	Trichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	Trichlorofluoromethane	< MDL	ug/L	5.0	04/21/98	SW8260
	Vinyl Chloride	< MDL	ug/L	5.0	04/21/98	SW8260
	cis-1,2-Dichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	cis-1,3-Dichloropropene	< MDL	ug/L	5.0	04/21/98	SW8260
	meta-Xylene	< MDL	ug/L	5.0	04/21/98	SW8260
	n-Butylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	n-Propylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	ortho-Xylene	< MDL	ug/L	5.0	04/21/98	SW8260
	para-Xylene	< MDL	ug/L	5.0	04/21/98	SW8260
	sec-Butylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	tert-Butylbenzene	< MDL	ug/L	5.0	04/21/98	SW8260
	trans-1,2-Dichloroethene	< MDL	ug/L	5.0	04/21/98	SW8260
	trans-1,3-Dichloropropene	< MDL	ug/L	5.0	04/21/98	SW8260
	trans-1,4-Dichloro-2-butene	< MDL	ug/L	5.0	04/21/98	SW8260

ADEM CENTRAL LAB

05/04/98

ADEM CENTRAL LAB

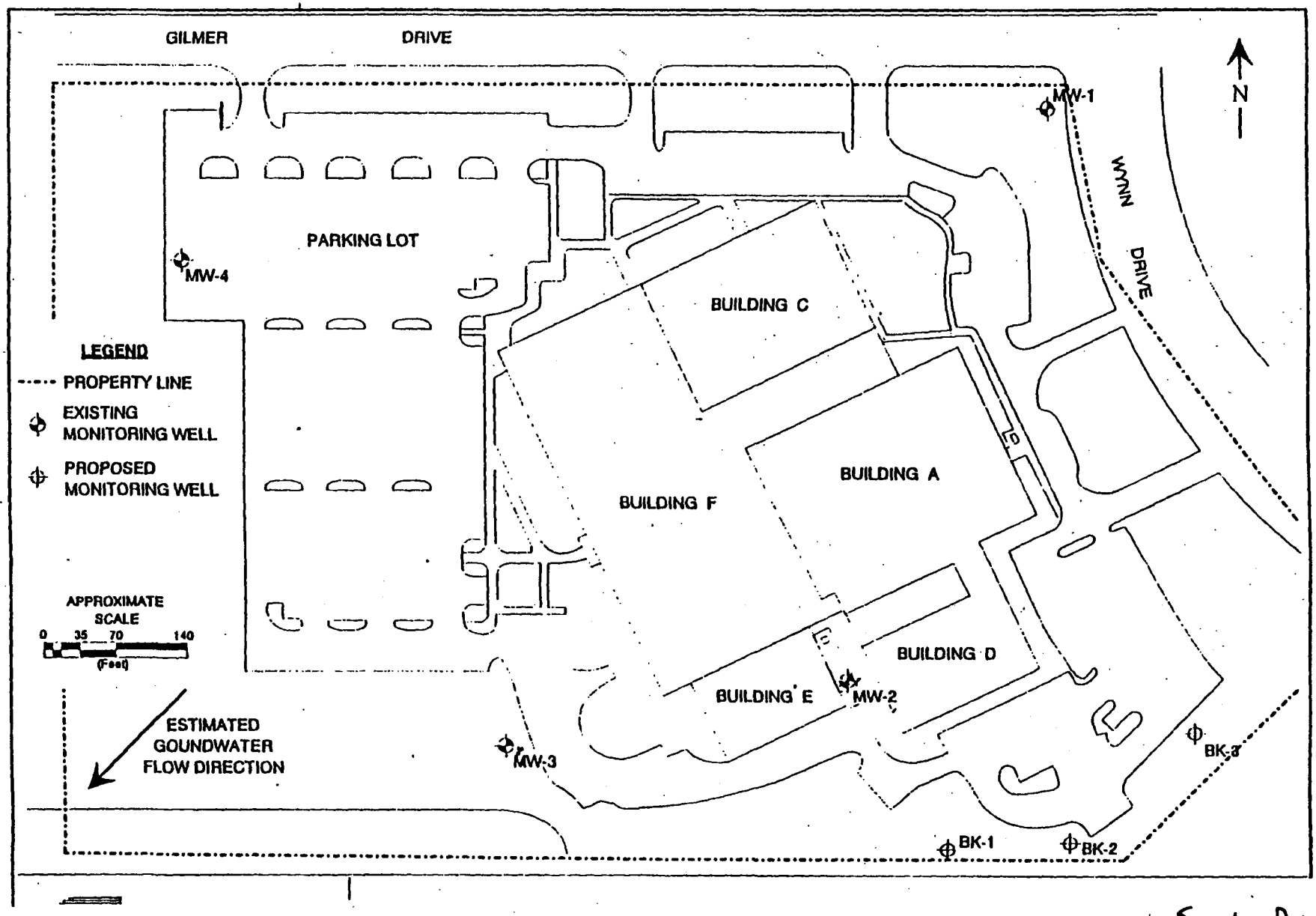
To: ADEM
1751 Congress W. Dickinson Dr.
Montgomery, Al. 36109
CERCLA (Site Insp/Invest)

Source..... G E AEROSPACE
Location.. MW-4
Sample Collector.. JERREMY STAMPS
Sample Matrix..... WATER
Fund Code No..... 521

Date Collected..04/16/98
Date Submitted.. 04/17/98

Attention: JERREMY STAMPS

Sample No.	Analysis	Result	Units	MDL	Date Completed	Method
AA09384						
	Trace Metals					
	Aluminum using ICP	0.448	mg/L	0.200	04/30/98	EPA200.7
	Cadmium by ICP	0.0054	mg/L	0.0030	04/30/98	EPA200.7
	Chromium by ICP	< MDL	mg/L	.015	04/30/98	EPA200.7
	Copper by ICP	< MDL	mg/L	.020	04/30/98	EPA200.7
	Lead by Graphite Furnace	< MDL	mg/L	.0020	04/29/98	EPA239.2
	Nickel by ICP	< MDL	mg/L	.030	04/30/98	EPA200.7
	Zinc by ICP	< MDL	mg/L	0.030	04/30/98	EPA200.7



Wells developed on 4-14-98

MW-1
TO H_2O 17.02'
Total Depth 17.16'

MW-2
TO H_2O 19.61'
Total Depth 25.00'
pH 5.26
Temp. 24.0°C
Cond. 20

MW-3
TO H_2O 12.48
Total Depth 18.39
pH 5.42
Temp. 19.1°C
Cond. 38

MW-4
TO H_2O 10.49
Total Depth 11.60
pH 5.24
Temp. 18.8°C
Cond. 35

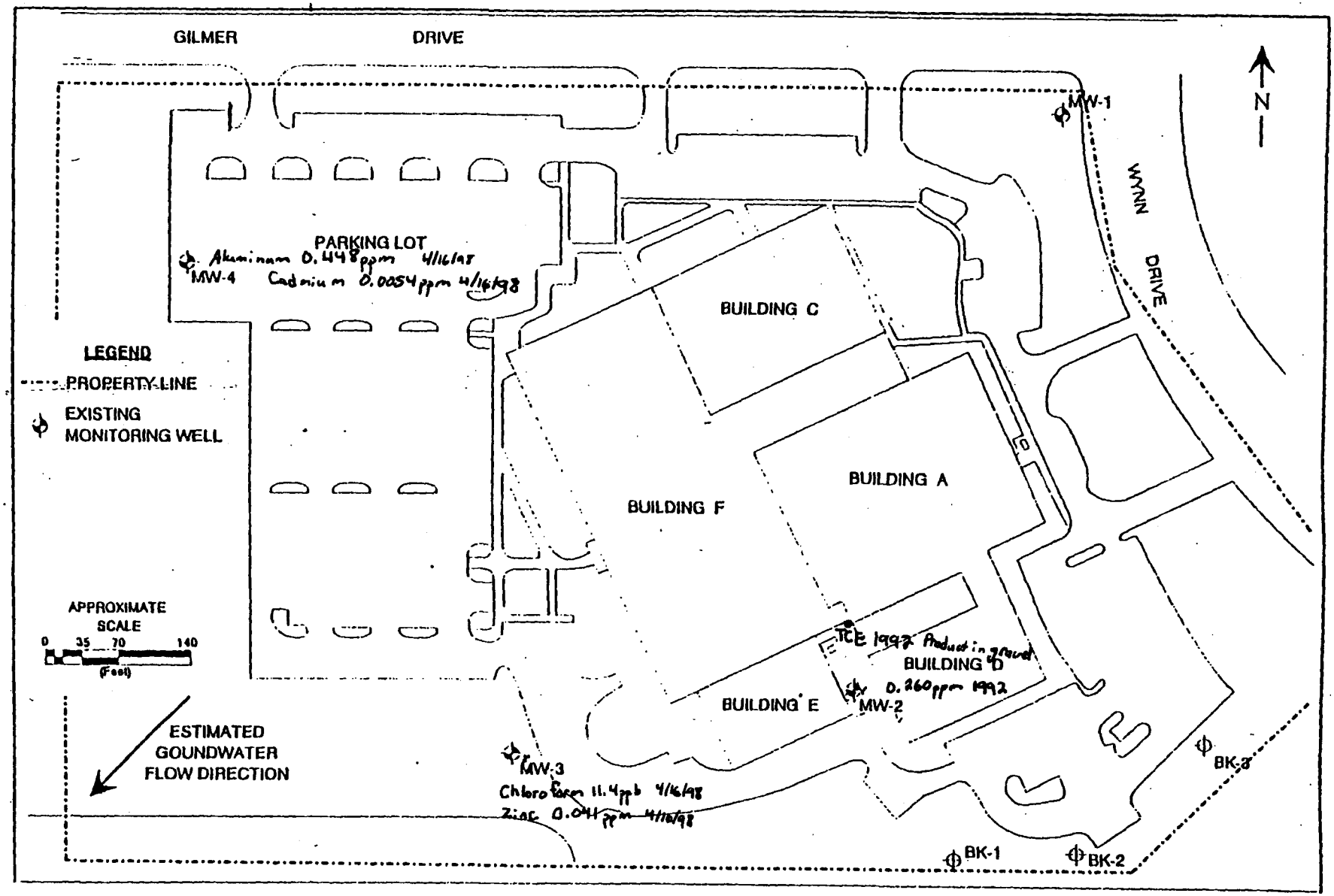
Sample Date 4-16-9

MW-1 No Sample (D
MW-2 10:05 AM
MW-3 10:00 AM
MW-4 9:50 AM

TABLE 1

TABLE 1
GROUNDWATER SAMPLING DATA

Constituent	Location	Date	Concentration (ppb)	Above MCL	3 X Background	Collector
TCE	MW-2	11/20/92	260	Yes	Yes	O'Brien
TCE	MW-2	11/20/92	22	Yes	Yes	O'Brien
TCE	MW-2	4/16/98	BDL	No	No	ADEM
TCE	MW-3	4/16/98	BDL	No	No	ADEM
TCE	MW-4	4/16/98	BDL	No	No	ADEM
Chloroform	MW-3	4/16/98	11.4	No	Yes	ADEM
Zinc	MW-3	4/16/98	41	No	Yes	ADEM
Aluminum	MW-4	4/16/98	448	Yes	Yes	ADEM
Cadmium	MW-4	4/16/98	5.4	Yes	Yes	ADEM



MCL

- Aluminum 200ppb
- Cadmium 5ppb
- Zinc 5000ppb
- Chloroform 100ppb
- TCE 5ppb

TABLE
2

TABLE 2
WATER LEVEL MEASUREMENTS

Well Number	Date	Depth to Water from Casing Top
MW-1	1/21/93	7.48'
MW-2	1/21/93	14.27'
MW-3	1/21/93	10.86'
MW-4	1/21/93	5.97'
MW-1	4/14/98	17.02'
MW-2	4/14/98	19.61'
MW-3	4/14/98	12.48'
MW-4	4/14/98	10.49'

Depth to Water

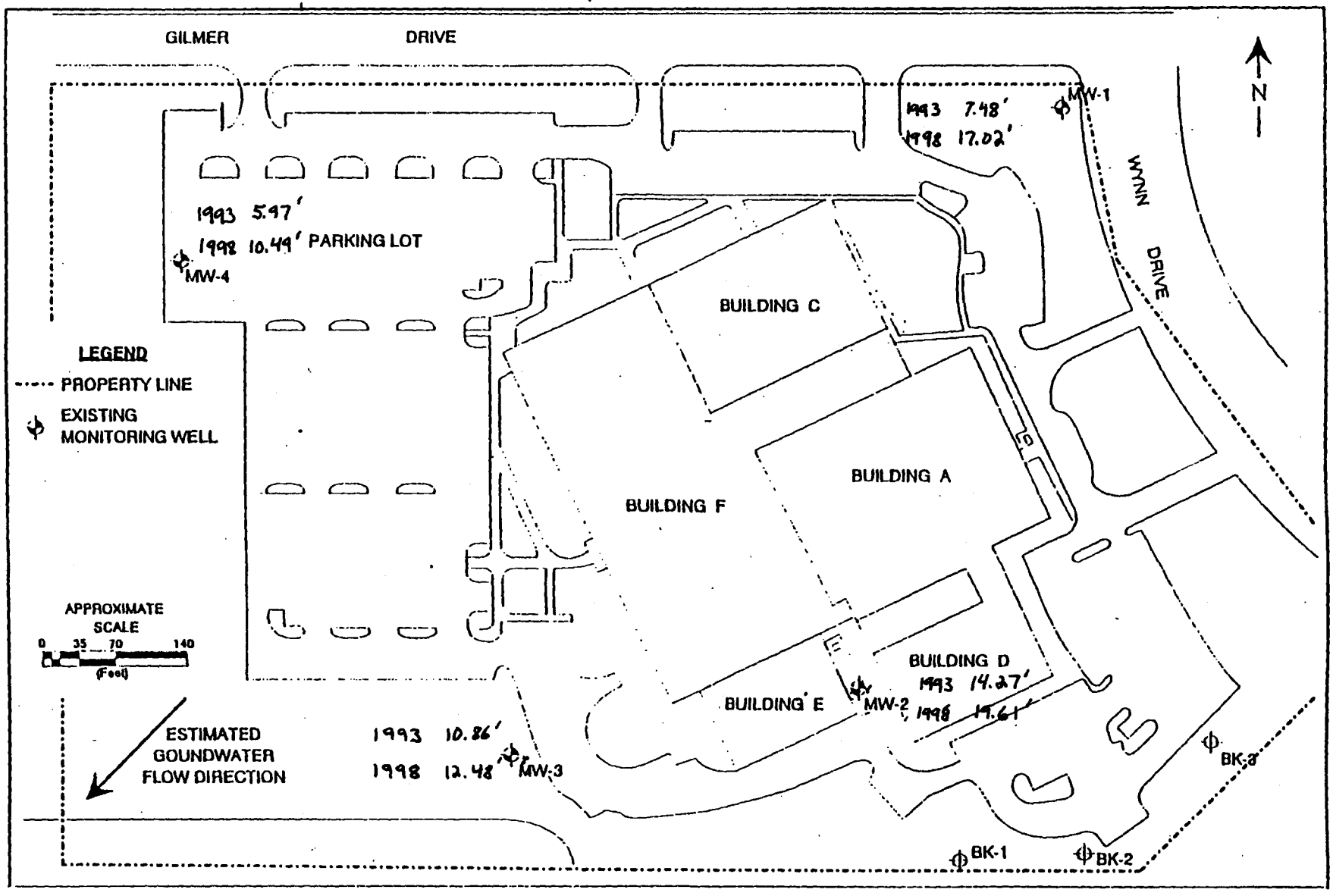
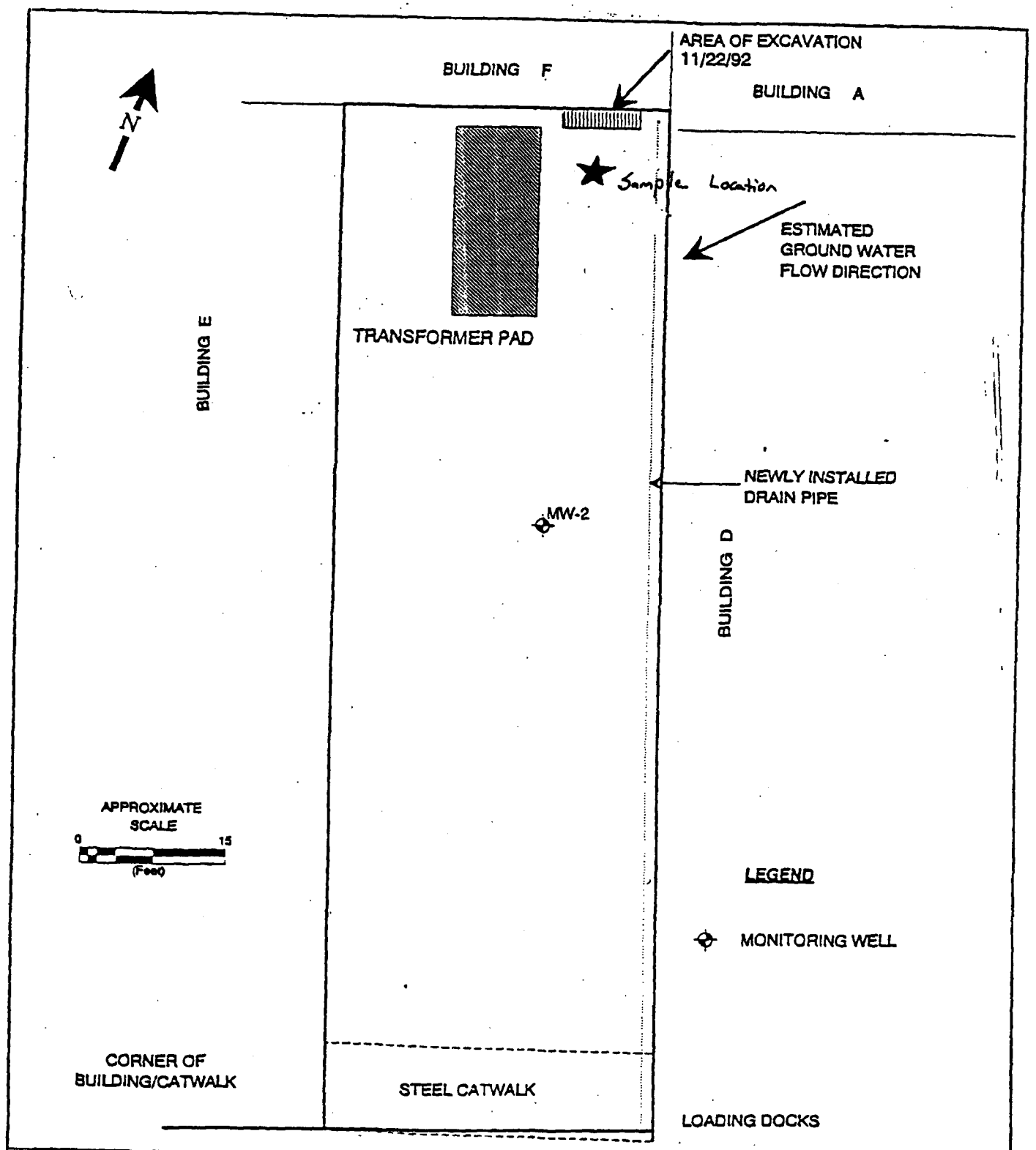


TABLE
3

TABLE 3
ANALYTICAL RESULTS

Description	Date	Constituent	Results
DNAPL	11/22/92	1,1,1-TCA	9.3%
DNAPL	11/22/92	TCE	89.5%
DNAPL	11/22/92	TPH	5.0%
Soil Composite	11/22/92	1,1,1-TCA	9.9 ppb
Soil Composite	11/22/92	TCE	4.92%
Soil Composite	11/22/92	TPH	316 ppb
Soil/Gravel	11/22/92	Cis-1,2-DCE	12 ppb
Soil/Gravel	11/22/92	1,2-DCA	17 ppb

Results from O'Brien & Gere



O'BRIEN & GERE
ENGINEERS, INC.
Tampa, Florida

Figure For Table 3

General Electric Company, Huntsville, AL

BASE MAP SOURCE: ERM, Nov. 1991.

PLATE
1

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

SOUTH
APR 29 4 13 PM 97

April 22, 1997

Mr. Brian Farrier
CERCLA PA/SI Regional Project Officer
USEPA Region IV
61 Forsyth St.
Atlanta, Georgia 30365

Dear Mr. Farrier:

Enclosed you will find Preliminary Assessment report for the following:

GE AEROSPACE / MARTIN MARIETTA

Should you have any questions, please do not hesitate to contact our office.

Sincerely,

Jymalyn E. Redmond

Jymalyn E. Redmond, Chief
Site Assessment Unit

JER/tpc

Fob James,
Gover

James W. W
Direc

1751 Cong W
Dickinson
Montgomery,
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Backup: 270-56
Air: 279-30
Land: 279-30
Water: 279-30
Gndwtr: 270-56
OEO: 213-43
Field Ops: 272-81

Field Offic

110 Vulcan Ro
Birmingham, A
35209-47
(205) 942-61
Fax: 941-16

400 Well St., N.
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Decatur, A
35602-09
(205) 353-17
Fax: 340-93

2204 Perimeter R
Mobile, A
36615-113
(334) 450-340
Fax: 479-259

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PRELIMINARY ASSESSMENT
GE AEROSPACE
HUNTSVILLE, MADISON COUNTY, ALABAMA
CERCLIS SITE REF. No.: 6633

Prepared By
Jerremy Stamps
Alabama Department of Environmental Management
Site Assessment Unit
Land Division

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Date:	***March 28, 1996***
Prepared by:	***Jerremy Stamps (Site Investigator)*** ***Site Assessment Unit*** ***ADEM - Land Division***
Site:	***GE Aerospace*** ***Huntsville, Madison County, Alabama***
EPA ID No.:	***AL009305608***
CERCLIS No.:	***6633***

S1 APPROVED BJ 6/11/97

1. INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) and a cooperative agreement between the U. S. Environmental Protection Agency and the Alabama Department of Environmental Management (ADEM), a Preliminary Assessment (PA) was conducted at the GE Aerospace site located in Huntsville, Madison County, Alabama. The purpose of this investigation was to collect information concerning conditions at the site sufficient to assess the threat posed to human health and the environment and to determine the need for additional investigation under CERCLA/SARA or other action. The scopes of the investigation included a review of available file information, a comprehensive target survey, and a site reconnaissance on March 20, 1997.

2. SITE DESCRIPTION, SITE HISTORY, AND WASTE CHARACTERISTICS

2.1 Location

The General Electric Aerospace site (GE Aerospace) is located at 110 Wynn Drive in Huntsville, Madison County, Alabama (Figure 1). More specifically, the site is a 13.25 acre parcel of land located within the Northwest 1/4 of Section 5, Township 4 South, Range 1 West (Reference 1). The geographic coordinates of the site are 34° 43' 18" North Latitude and 86° 39' 23" West Longitude (Reference 1).

The climate of Madison County is mild, temperate, and continental. It is characterized by long, hot, humid summers, with an average daily high of 89° F and an average daily low temperature of 68° F. Winter is mild and pleasant, and has an average daily high temperature of 52° F, and an average low temperature of 32° F. The average yearly rainfall is 51.7 inches, with a net yearly rainfall of 11.7 inches. The average yearly temperature is 60° F. Maximum temperatures exceed 100° F and minimum temperatures are less than -5° F. (Reference 14)

2.2 Site Description

The GE Aerospace site, 13.25 acres in size, is located in the Northwest 1/4 of Section 5, Township 4 South, Range 1 West in the town of Huntsville, Madison County, Alabama (Figure 1). The GE Aerospace site is bound on the north by Gilmer Road, on the south by commercial properties (U.S. Army Strategic Defense Command), on the southwest by a concrete lined drainage ditch and then by residential housing, on the east by Wynn Drive, and on the west by commercial properties (South Central Bell Field Maintenance Facility). The immediate area surrounding the subject property is generally comprised of commercial structures and single family residential neighborhoods.

The GE Aerospace site is at an elevation of approximately 650 to 665 feet above mean sea level. The site is relatively flat with a slope of 1 to 4 percent towards the southwest (see Figure 1). The site is outside the 500-year flood plain (Reference 5).

2.3 Operational History and Waste Characteristics

Since about 1966 the subject site (GE Aerospace) appears to have been used as a manufacturing, testing and research facility for small electrical components. The GE Aerospace property ownership and tenant occupancy history are as follows:

Prior to 1963, the subject site consisted of undeveloped farmland and a private residence owned by Miss Annie H. Bradford of 101 Clinton Avenue East, Huntsville, Alabama.

On September 9, 1963, the subject property was conveyed to the Research Site Foundation.

On November 21, 1966, University of Alabama, Huntsville Foundation (Formerly Research Site Foundation, Inc.) conveyed the 13.25 site to Huntsville Industrial Associates, Inc.

In 1966 Huntsville Industrial Associates, Inc. built a building on the site and leased it to Astro Space. Astro Space conducted research and development of mechanical and electrical models and test devices for the federal government.

In the early 1970's, Chrysler Corporation took up occupancy of the southern part of the building while the northern part of the building was vacant during this time period. Work by the Chrysler Corporation at this subject site involved updating electronic test equipment and manufacturing electrical performance equipment.

In the mid 1970's General Electric Corporation replaced Chrysler Corporation in the southern part of the building. Micrometrics occupied the northern part of the building during this same time period. Both these companies were involved in testing and updating electrical and mechanical equipment under contract by the U.S. Government.

In November 1981, Chrysler Corporation moved into the northern portion of the building. Chrysler was involved in design and testing of electrical and communication controls for high-speed trains.

In May of 1985 Huntsville Industrial Associates, Inc. sold the subject property to Wynn Drive Properties.

In November of 1987 Chrysler ceased operations and moved out of the building. General Electric continued to occupy the southern part of the building and expanded its occupancy beginning January

1, 1988 to the new 106,000 square foot addition. General Electric is involved is research, development and testing of computer equipment and other electrical devices.

In 1990, General Electric decided to relocate its Huntsville operation to Florida and to abandon or sublease the subject property. General Electric corporate policy dictated that before any abandonment or subleasing a base line environmental study should be performed.

Mr. Tyrone Samples is currently leasing the site to PEI Electronics. Mr. Samples current mailing address is Samples Properties, P.O. Box 264 Huntsville, Alabama 35804. Mr. Samples Telephone number is (205) 533-0003.

In May of 1991 GE's environmental study found high levels of TPH in soils around a transformer that had been refilled and retrofitted in 1988 or 1989. At this time groundwater analysis at the site showed no volatile or semi-volatile organic compounds. (Attachment 8)

In January of 1992, the TPH contaminated soil around the transformer was being removed. During the removal, a layer of gravel was encountered and an oily liquid seeped out into the excavation. The liquid was found to consist of approximately 90% TCE. Groundwater monitoring was performed again in late 1992, and for the first time TCE was found at 0.26 ppm (parts per million). (Attachment 8)

In March of 1993, General Electric reported to ADEM its findings of groundwater contamination. (Attachment 2)

On February 8, 1994, ADEM issued a Notice of Violation (NOV) to GE alleging that substances related to GE's operation have entered the groundwater, constituting an unpermitted discharge of pollutants to state waters. The NOV required that a groundwater quality assessment be performed in order to determine the horizontal and vertical extent of groundwater contamination. (Attachment 3)

On May 23, 1994 ADEM gave Martin Marietta/GE Aerospace an indefinite extension for the completion of the requirements of the November 8, 1994 Notice of Violation. GE testified that they never used a drop of TCE at the Huntsville site, but when they first occupied the site in the mid 1970's they had to have

drums containing TCE left behind by prior tenant disposed of at Chemical Waste Management's Emelle Alabama Facility. (Attachment 6)

In November of 1994 Martin Marietta Corp., successor in interest to GE Aerospace, appealed the NOV on the grounds that the TCE contamination did not come from GE's operation and therefore the GE should not be held responsible since it committed no unlawful discharge. (Attachment 8)

3. GROUND WATER PATHWAY

3.1 Hydrogeologic Setting

The GE Aerospace site is situated within the Highland Rim section of the Interior Low Plateau physiographic province. The Highland Rim section is characterized by an alternating landscape of stream valleys and gently rolling hills of slight to moderate relief. Portions of the Cumberland Plateau section of the Appalachian Plateaus is found within the 4-mile study area. The Cumberland Plateau has higher relief than the Interior Low Plateau due to submature dissection. The elevation of the land at the GE Aerospace site is approximately 665 feet above mean sea level.

The geology of the area surrounding the site consist of residuum layer overlying layered sedimentary rocks, while not subject to major tectonic forces, have been influenced by the Nashville Dome. The Nashville Dome is a domal structure centered around Nashville Tennessee that imparts a 20-30 feet per mile dip to the south and southwest on the sedimentary formations of north-central Alabama. Linear features, fractures and solution enlarged karst features are very common in Madison County. Much of the county, including the area in which the GE Aerospace site is located, is considered to be in an area in which sinkholes have occurred or can occur. Large springs, such as Brahan Spring and Byrd Spring, located in Huntsville indicate that karst processes are active in the area surrounding the site.

The source of water for all the public water supply wells and springs with the study area is the Tuscumbia-Fort Payne aquifer. Cavernous porosity is present in many places where dissolution has enlarged joints and bedding-planes in this carbonate rock aquifer. Wells that penetrate these features produce large quantities of water. For example, the William Well has pumped as much as 3,200 gallons per minutes. (Reference 3; Reference 12)

The Tuscumbia-Fort Payne aquifer can be considered a partially confined aquifer. The underlying Maury Formation and Chattanooga Shale makes the Tuscumbia-Fort Payne aquifer practically impermeable from below, and the presence of a low hydraulic conductivity residual mantle that overlies much of the study area decreases the likelihood of surface contamination entering into the aquifer from above. The Tuscumbia-Fort Payne aquifer is highly susceptible to surface contamination in areas where poorly drained land surfaces reside above the potentiometric surface of the aquifer. The Tuscumbia-Fort Payne aquifer is extremely susceptible to surface contamination in areas where dissolution processes have formed karst surface features such as sinkholes and disappearing streams. (Reference 3; Reference 12)

The Tuscumbia Limestone formation, which is Mississippian in age, is also known as the St. Louis or Huntsville Limestone. The general lithology of the Tuscumbia Limestone is light-gray micritic or bioclastic limestone with white chert nodules common. Dark gray chert is found within the unit but is less common. The average thickness of the Tuscumbia is about 200 feet. Many karst solution features are present in the Tuscumbia and it is common for these features to be vertically controlled. (Reference 3)

The Fort Payne Chert, which is Mississippian in age, is located stratigraphically beneath the Tuscumbia Limestone and Monteagle Limestone. The Fort Payne consist of thin bedded microcrystalline siliceous limestone unit with an average of about 50 percent blue-gray to smoky chert. In the study area, the Fort Payne can be as much as 150 feet thick. Many karst solution features are present in the Fort Payne. Weathering of the Fort Payne produces a thick residuum of yellowish-brown clay containing blocky chert. (Reference 3)

The Maury Formation, which is Mississippian in age, is located stratigraphically beneath the Fort Payne Chert. The Maury Formation consists of less than 5 feet of green fosiliferous clay shale that unconformibly lies above the Chattanooga Shale. (Reference 12)

Underlying the Maury Formation is the Chattanooga Shale of Devonian age. The Chattanooga Shale is brownish-black to grayish-black silty, organic shale, and lesser amount of light- to dark-gray fine-grained sandstone that may contain pyrite and phosphatic inclusions. These black petroliferous shales are slightly radioactive due to the trace presence of uranium. In Madison County, the Chattanooga Shale is only 1 to 13 feet thick. (Reference 12)

At the GE Aerospace site, 40-80 feet of Tuscumbia Limestone and Fort Payne Chert regolith overlies approximately 60-80 feet of Fort Payne Chert bedrock. At the base of the Fort Payne Chert is the Maury Formation and Chattanooga Shale. (Reference 12)

3.2 Ground Water Targets

The City of Huntsville area is served by Huntsville Utilities. All residence obtain potable water from the public water system. According to the water availability data from the city of Huntsville, one public water supply well and one spring used as a source of public water exists within a 4-mile radius of a site. The source of water for all of Huntsville Utilities wells and springs is the Tuscumbia-Fort Payne aquifer. The citizens of Huntsville are supplied water by the public water system of Huntsville, which is a blended well system. Public water is available throughout Huntsville, and therefore the use of private wells is probably almost non-existent. (Reference 3; Reference 4)

3.3 Ground Water Conclusions

Groundwater in the shallow residuum aquifer underneath the G E Aerospace site is known to be contaminated with TCE. The vertical and horizontal extent of the TCE contaminated plume is not currently known. Due to the karst nature of the underlying geology, the potential for widespread contamination is high if the TCE has entered the bedrock aquifer.

There are two public water supply wells with four miles of the site. However, because the two wells are located east of the site, and groundwater flow is to the south and southwest, they are not thought to be primary targets even if contamination is widespread.

4. SURFACE WATER PATHWAY

4.1 Geomorphologic Setting

Overland drainage from the GE Aerospace site enters the surface water pathway via Sherwood Branch, located to the south and southwest of the site. From the probable point of entry (PPE), Sherwood Branch flows southeast for 1.18 miles before being discharged into McDonald Creek. McDonald Creek then flows southeast for 5.64 miles before discharging into Huntsville Spring Creek. Huntsville Spring Creek then flows south for 1.81 miles before entering Wheeler

Lake of the Tennessee River. The remainder of the 15-mile surface water pathway remains within the Tennessee River.

The Tennessee River has an average flow of 42,940 cubic feet per second (cfs). The lowest flow to which the Tennessee River will decline during 7 consecutive days on an average of once every 2 years of normal flow (7-day Q2) is estimated to be 8570 cfs. The 7-day Q10 is estimated to be 4880 cfs. (Reference 6; Reference 13)

4.2 Surface Water Targets

Within the 15-mile surface water pathway, the Tennessee River is classified for water contact sports and for fish and wildlife (Reference 7). The GE Aerospace site, and the land along the banks of the Tennessee River and its intermittent tributaries might be critical to the support of many threatened and endangered terrestrial species (see list of terrestrial species in Section 5.2). The table below lists the aquatic wildlife that is thought to have a high probability of being exposed to contaminants from the site if it was to enter the surface water pathway:

Common Name	***Listing***	***Distribution in Alabama***
Orange-Footed Pearly Mussel	Endangered	Tennessee River
Pink Mucket Pearly Mussel	Endangered	Tennessee River
Rough Pigtoe Mussel	Endangered	Tennessee River
Cracking Pearly Mussel	Endangered	Tennessee River
Cumberland Monkeyface pearly Mussel	Endangered	Tennessee River
Fanshell	Endangered	Tennessee River
Little-Wing Pearly Mussel	Endangered	Tennessee River
Purple Cat's Paw Mussel	Endangered	Tennessee River
Ring Pink Mussel	Endangered	Tennessee River

Turgid-Blossom Pearly Mussel	Endangered	Tennessee River
White Wartback Pearly Mussel	Endangered	Tennessee River
Yellow-Blossom Pearly Mussel	Endangered	Tennessee River
Snail Darter	Endangered	Madison County
Slackwater Darter	Endangered	Madison County
Alabama Cave Shrimp	Endangered	Madison County
Fine-Rayed Pigtoe Mussel	Endangered	Madison County
Tan Riffle Shell Mussel	Endangered	Madison County
Shiny Pigtoe Mussel	Endangered	Madison County

(Reference 8; Reference 9)

4.3 Surface Water Conclusion

Fisheries, endangered aquatic wildlife and Wheeler National Wildlife Refuge are potential targets located within the 15-mile downstream surface water pathway. Due to the large quantity of water that flows through the Tennessee River, the concentration of any particular contaminant from the site is probably not great enough to have a noticeable impact on the fisheries or aquatic wildlife within the surface water pathway.

5. SOIL EXPOSURE AND AIR PATHWAY

5.1 Physical Conditions

The USDA Soil Survey indicates that the GE Aerospace site is underlain by Decatur and Cumberland silty clay loam soils. These soils consist of 5 to 6 inches of brownish-red silty clay loam. Below this layer is reddish-brown to dark-red firm to very firm subsoil that grades with depth from silty clay loam to silty clay. These soils have a medium internal drainage and a moderately high water holding capacity. Permeability and infiltration for this type of soil is also in the moderate range. (Reference 2)

5.2 Soil and Air Targets

The people living in the Sherwood Park residential community as well as the onsite and adjacent workers make up the major target that could be potentially impacted by soil and/or air contamination coming from the GE Aerospace site.

According to the Alabama 1990 census records (Reference 10), the average number of people living in homes located in Madison County is 2.56 residents per household. In the following table, the total population within the target area has been broken down into sub-populations that live within each specified distance radius from the site:

DISTANCE FROM SITE	*POPULATION*
0 TO 1/4 MILE	100
>1/4 TO 1/2 MILE	850
>1/2 TO 1 MILE	3,750
>1 TO 2 MILES	15,000
>2 TO 3 MILES	25,000
>3 TO 4 MILES	35,000
TOTAL POPULATION	**79,700**

None of the site is considered a wetland environment. Some parts of the Wheeler National Wildlife Refuge that lie within the 4-mile target area and the 15-mile surface water pathway might be considered wetlands. It is not known if the site is a critical habitat for federally designated endangered or threatened species, but the table below list the terrestrial species that may utilize the land and surface waters located within the specified target areas:

Common Name	*Listing*	*Distribution in Alabama*
Gray Bat	Endangered	Madison County
Indiana Bat	Endangered	Madison County
Bald Eagle	Endangered	Madison County
Red Wolf	Endangered	Statewide
Backman's Warbler	Endangered	Statewide
Eskimo Curlew	Endangered	Statewide
American Peregrine Falcon	Endangered	Statewide
American Burying Beetle	Endangered	Statewide
Florida Panther	Endangered	Statewide

Arctic Peregrine Falcon	Threatened	Statewide

(Reference 8; Reference 9)

5.3 Soil Exposure and Air Pathway Conclusion

Building foundations and asphalt parking lots cover most of the area where soil is suspected to be contaminated with TCE. The remainder of the site is landscaped with grass, shrubs and trees. Exposure to the contaminated soil at the site is anticipated to be almost impossible, and at most very short termed and infrequent. During the site visit, no dust or odors were humanly detectable in the air. Therefore, the likelihood of exposure via the air and soil pathways is believed to be very unlikely.

6. SUMMARY AND CONCLUSIONS

Since 1966, the GE Aerospace site has been used as a manufacturing, testing and research facility for small electrical components. In the 30 years that the facility has been in operation, four different companies have leased the property and there have been three different owners of the property. The current owner of the property is Mr. Tyrone Samples. Mr. Samples is currently leasing the property to PEI Electronics Inc.

In March of 1993, General Electric reported to ADEM its findings of TCE groundwater contamination. GE testified that they never used TCE in their operations at the site, but when they first occupied the site in the mid 1970's they disposed of drums containing TCE that were left behind by the previous tenant.

Currently the only known exposure pathway to exist at the GE Aerospace site is the groundwater pathway. Groundwater in the shallow residuum aquifer underneath the GE Aerospace site is known to be contaminated with TCE, but the vertical and horizontal extent of this contamination has yet to be determined. Due to the karst nature of the underlying geology, the potential for widespread contamination is very high. Therefore, ADEM recommends a Site Investigation be conducted in order to determine how extensive the groundwater contamination is and to determine if any other pathways pose a threat to human health or the environment.

7. REFERENCES

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3. Bossong, C. R. and Harris, Wiley F., 1987, Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 1: U.S. Geological Survey Water-Resources Investigations Report 87-4068.

4. Alabama Department of Environmental Management, Federal Reporting Data System (FRDS-II), Public Water Supply Summary.

5. Federal Emergency Management Agency, Flood Insurance Rate Maps, Madison County; Huntsville, Alabama. Panel Number 010153 0020 C.

6. Hayes, Eugene C., Geological Survey of Alabama, 1978, 7-Day Low Flows and Flow Duration of Alabama Streams Through 1973. Geological Survey of Alabama Bulletin 113.

7. Alabama Department of Environmental Management; Water Division - Water Quality Program, 1993, Water Use Classification for Interstate and Intrastate Waters, Chapter 335-6-11.

8. Department of Conservation and Natural Resources, 1991 Federally Listed Endangered/Threatened Species.

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11. State of Alabama-Department of Education, LEA Personnel System (EDLP471), 1992, Total Number of Pupils and Faculty by School and County

12. Doyle F. L., et. al., Geological Survey of Alabama, 1975, Environmental Geology and Hydrology, Huntsville and Madison County Alabama Geological Survey of Alabama Atlas Series 8.

13. Atkins J. B. Hayes and Pearman J. L., Geological Survey of Alabama, 1994, Low-Flow and Flow-Duration Characteristics of Alabama Streams. Geological Survey of Alabama Water-Resources Investigations Report 93-4186.

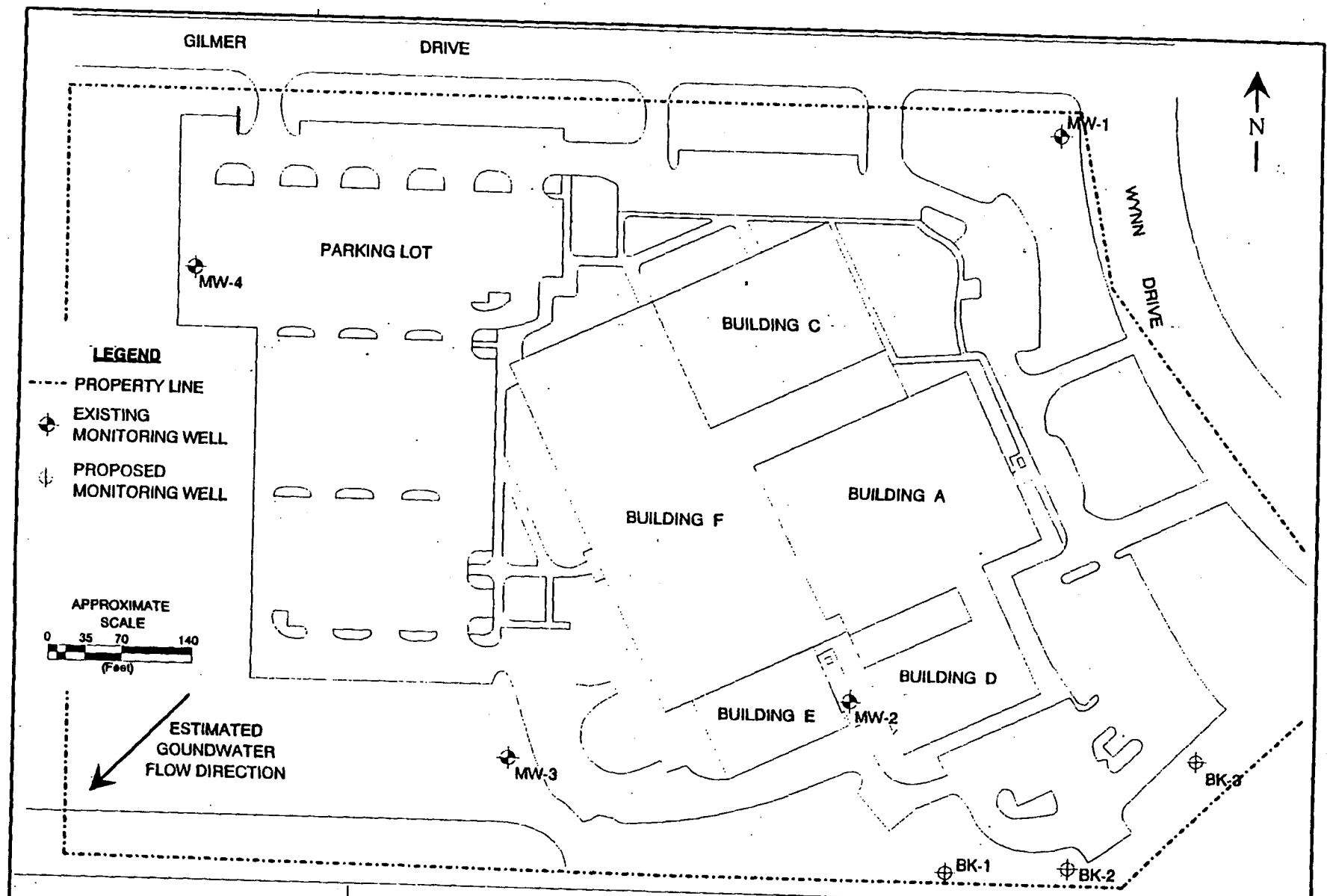
14. U. S. Department of Commerce, 1983, The Climate Atlas of the United States.

FIGURE
1

FIGURE 1
GE AEROSPACE SITE
(1-mile radius map)

Source: U. S. G. S. 7.5 Minute Topographic Quadrangle

FIGURE
2



O'BRIEN & GERE ENGINEERS, INC.
Tampa, Florida

FIGURE 1

SITE PLAN

General Electric Company, Huntsville, AL

BASE MAP SOURCE: ERM, Nov. 1991.

Figure 2

REFERENCE
1

see
Plate
1

REFERENCE
2

s 1947, No. 3

Issued February 1948

SOIL SURVEY

Madison County Alabama

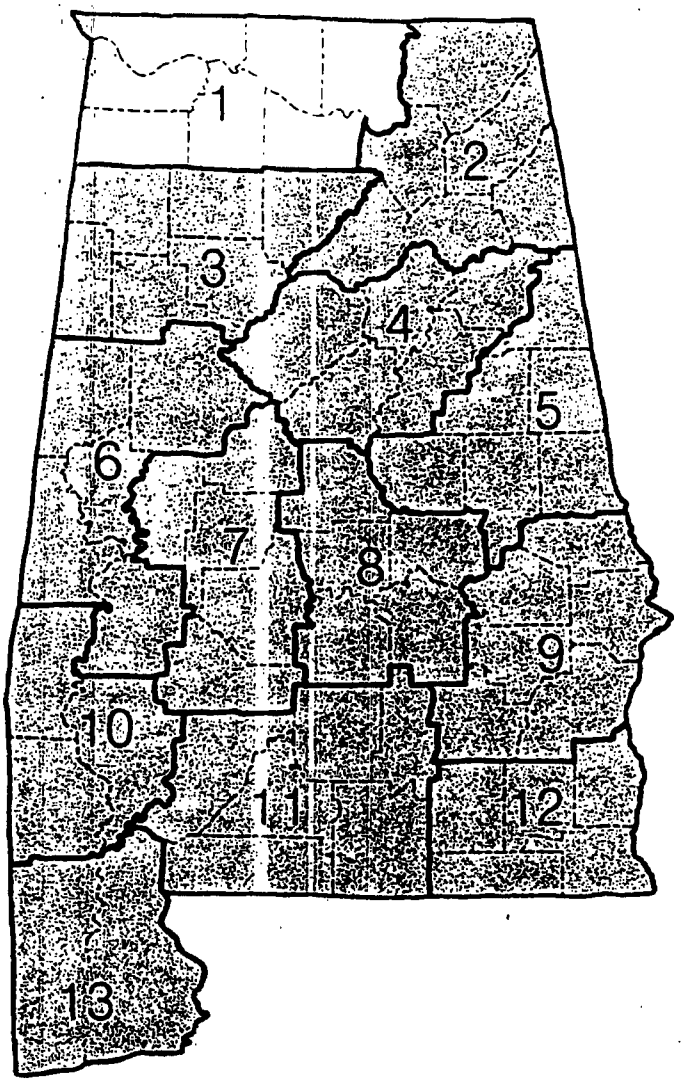
OUR SOIL — OUR STRENGTH

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES
ALABAMA AGRICULTURAL EXPERIMENT STATION
TENNESSEE VALLEY AUTHORITY

REFERENCE
3

WATER-RESOURCES INVESTIGATIONS REPORT 87-4068

GEOHYDROLOGY AND SUSCEPTIBILITY OF MAJOR AQUIFERS TO SURFACE CONTAMINATION IN ALABAMA; AREA 1



Prepared by
U.S. GEOLOGICAL SURVEY
in cooperation with the
ALABAMA DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT

REFERENCE
4

AL	0000882	002	BRAHAM SPRINGS 3.5 miles	SS
AL	0000882	003	WILLIAMS WELL out 7 miles	SG ✓
AL	0000882	004	DALLAS WELL out	SG ✗
AL	0000882	005	LINCOLN WELL out	SG ✗
AL	0000882	006	LOWE MILL WELL 3.5 miles	SG ✗
AL	0000882	007	TENNESSEE RIVER (S.W.)	SG ✓
AL	0000882	008	HAMPTON COVE WELL out	SS
AL	0000882	009	LINCOLN/DALLAS PLANT out	SG ✗
				PT ✗

REFERENCE
5

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF

HUNTSVILLE,

ALABAMA

MADISON COUNTY

PANEL 20 OF 50

(SEE MAP INDEX FOR PANELS NOT PRINTED)

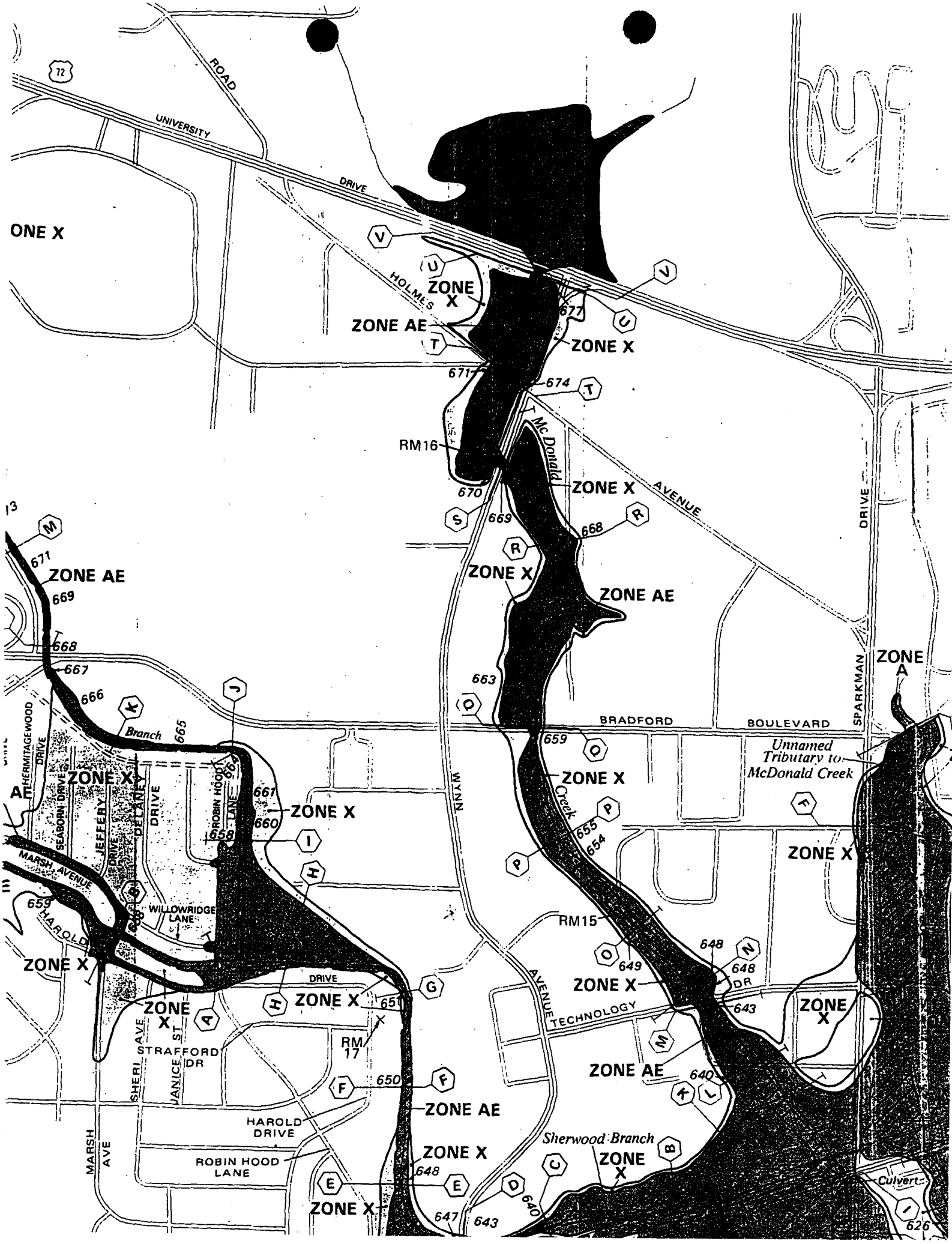
COMMUNITY—PANEL NUMBER:

010153 0020 C

MAP REVISED:

MARCH 2, 1993

Federal Emergency Management Agency



ONE X
UNIVERSITY
DRIVE
ROAD
HOLMES
ZONE X
ZONE AE
ZONE X
677
671
674
RM16
McDonald
ZONE X
AVENUE
670
669
668
ZONE X
ZONE AE
663
BRADFORD
BOULEVARD
SPARKMAN
DRIVE
ZONE A
Unnamed Tributary to McDonald Creek
ZONE X
Creek
655
654
ZONE X
WYNN
RM15
649
648
648
DR
ZONE X
643
ZONE X
TECHNOLOGY
AVENUE
ZONE AE
640
Sherwood Branch
ZONE X
Culvert
626
ZONE AE
669
668
667
666
Branch
665
HERMITAGEWOOD DRIVE
SEABORN DRIVE
JEFFERY DRIVE
DELANEY DRIVE
ROBIN HOOD LANE
664
661
660
658
ZONE X
MARSH AVENUE
WILLOWRIDGE LANE
HAROLD
ZONE X
DRIVE
ZONE X
651
ZONE X
STRAFFORD DR
SHERI AVE
JANICE ST
RM 17
650
ZONE AE
HAROLD DRIVE
ROBIN HOOD LANE
MARSH AVE
ZONE X
648
ZONE X
647
643
640

REFERENCE
6

7-DAY LOW FLOWS AND FLOW DURATION OF ALABAMA STREAMS THROUGH 1973

GEOLOGICAL SURVEY OF ALABAMA BULLETIN 113

REFERENCE
7

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Water Division - Water Quality Program

Chapter 335-6-11
Water Use Classifications
For Interstate and Intrastate Waters

SEP 1993
ADEM
SPECIAL PROJECTS

Table of Contents

335-6-11-.01 The Use Classification System
335-6-11-.02 Use Classifications

335-6-11-.01 The Use Classification System

(1) Use classifications utilized by the State of Alabama are as follows:

Public Water Supply	PWS
Swimming and Other Whole Body Water-Contact Sports	S
Shellfish Harvesting	SH
Fish and Wildlife	F&W
Agricultural and Industrial Water Supply	A&I
Industrial Operations	IO
Navigation	N
Outstanding Alabama Water	OAW

(2) Use classifications apply water quality criteria adopted for particular uses based on existing utilization, uses reasonably expected in the future, and those uses not now possible because of correctable pollution but which could be made if the effects of pollution were controlled or eliminated. Of necessity, the assignment of use classifications must take into consideration the physical capability of waters to meet certain uses.

(3) Those use classifications presently included in the standards are reviewed informally by the Department's staff as the need arises, and the entire standards package, to include the use classifications, receives a formal review at least once each three years. Efforts currently underway through local 201 planning projects will provide additional technical data on certain streams in the State, information on treatment alternatives, and applicability of various management techniques, which, when available, will hopefully lead to new decisions regarding use classifications. Of particular interest are those segments which are currently classified for any usage which has an associated degree of quality criteria considered to be less than that applicable to a classification of "Fish and Wildlife." As rapidly as it can be demonstrated that new classifications are feasible on these segments from an economic and technological viewpoint, based on the information being generated pursuant to staff studies and the planning efforts previously outlined, such improvement will be sought.

REFERENCE
8

ALABAMA

FEDERALLY LISTED ENDANGERED/THREATENED SPECIES

10/16/91

XA	PRIORITY	STATUS	COMMON/SCIENTIFIC NAMES	Distribution
mmals (7)	6C	E	Florida panther (Felis concolor coryi)	Statewide
	8	E	Gray bat (Myotis grisescens)	Tennessee Valley to Conecuh Co.
	5	E	Red wolf (Canis rufus)	Statewide
	3C	ECH	Alabama beach mouse (Peromyscus polionotus ammobates)	Coastal,Baldwin C
	8	ECH	Indiana bat (Myotis sodalis)	Extreme North
	3C	ECH	Perdido Key beach mouse (Peromyscus polionotus trissyllepsis)	Coastal,Baldwin C
	5C	ECH	West Indian (Florida) Manatee (Trichechus manatus)	Coastal waters
rds (9)	5	E	Bachman's warbler (Vermivora bachmanii)	Statewide
	5	E	Eskimo curlew (Numenius borealis)	Statewide
	5	E	Ivory-billed woodpecker (Campephilus principalis	South, west-centr
	8C	E	Red-cockaded woodpecker (Picoides borealis)	Statewide
	5C	E	Wood stork (Mycteria americana)	Statewide
	8C	E,T	Bald eagle (Haliaeetus leucocephalus)	Statewide
	5C	E,T	Piping plover (Charadrius melodus)	Coastal

REFERENCE
9

ENDANGERED AND THREATENED SPECIES

OF THE

SOUTHEASTERN UNITED STATES

(THE RED BOOK)

Introduction Section, Volume 1

Prepared by:

U.S. Fish and Wildlife Service
Southeast Region
Atlanta, Georgia

January 1992

Availability Unlimited
For Sale by Superintendent of Documents
Post Office Box 371954
Pittsburgh, PA 15250-7954

Stock Order Number: 924-003-00000-6

REFERENCE 10

Demographic Profile

1990 CENSUS
Alabama Counties and Cities By Race

Alabama State Data Center
Center for Business and Economic Research
College of Commerce and Business Administration
The University of Alabama

REFERENCE 11

Alabama School Populations
1992

to get total school populations add:

$\underbrace{\text{total faculty} + \text{total enrollment}}_{A} + \underbrace{\text{total staff}}_{B}$

9/22/93

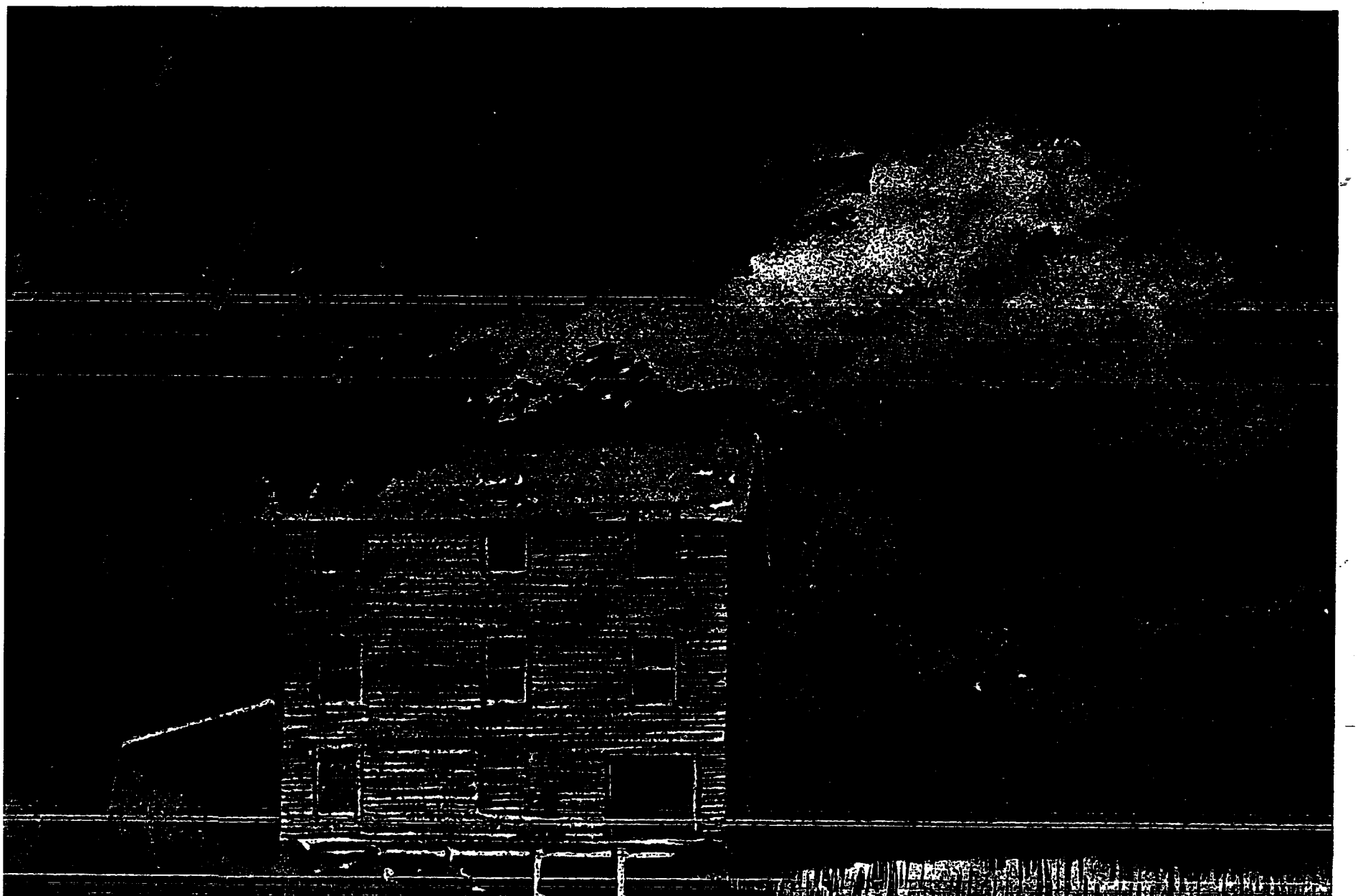
STATE OF ALABAMA - DEPARTMENT OF EDUCATION
LEA PERSONNEL SYSTEM (EDLPT471)

TOTAL NUMBER OF PUPILS AND FACULTY BY SCHOOL BY COUNTY

COUNTY	SCHOOL	TOTAL FACULTY	TOTAL ENROLLMENT
AUTAUGA COUNTY	AUTAUGA COUNTY ALT SCHOOL	1	
AUTAUGA COUNTY	AUTAUGAVILLE ELEMENTARY SCH	23	337
AUTAUGA COUNTY	AUTAUGAVILLE HIGH SCHOOL	22	288
AUTAUGA COUNTY	BILLINGSLEY HIGH SCHOOL	38	652
AUTAUGA COUNTY	MARBURY SCHOOL	36	649
AUTAUGA COUNTY	PRATTVILLE ELEMENTARY SCH	40	841
AUTAUGA COUNTY	PRATTVILLE INTERMEDIATE SCH	41	897
AUTAUGA COUNTY	PRATTVILLE JUNIOR HIGH SCH	43	846
AUTAUGA COUNTY	PRATTVILLE KINDERGARTEN SCH	32	483
AUTAUGA COUNTY	PRATTVILLE HIGH SCHOOL	71	1,343
AUTAUGA COUNTY	PRATTVILLE PRIMARY SCHOOL	52	839
BALDWIN COUNTY	BALDWIN COUNTY HIGH SCHOOL	71	1,326
BALDWIN COUNTY	BALDWIN CO REG DETENT CTR	2	11
BALDWIN COUNTY	BAY MINETTE MIDDLE SCHOOL	55	876
BALDWIN COUNTY	BAY MINETTE INTERMEDIATE	30	458
BALDWIN COUNTY	BAY MINETTE ELEMENTARY	47	723
BALDWIN COUNTY	NORTH BALDWIN ALT SCHOOL	3	
BALDWIN COUNTY	DAPHNE HIGH SCHOOL	51	1,010
BALDWIN COUNTY	DAPHNE MIDDLE SCHOOL	31	536
BALDWIN COUNTY	DAPHNE INTERMEDIATE SCHOOL	16	353
BALDWIN COUNTY	DAPHNE ELEMENTARY SCHOOL	42	705
BALDWIN COUNTY	DELTA ELEMENTARY SCHOOL	19	273
BALDWIN COUNTY	ELBERTA ELEMENTARY SCHOOL	37	605
BALDWIN COUNTY	ELSANOR SCHOOL	14	209
BALDWIN COUNTY	FAIRHOPE MIDDLE SCH	56	913
BALDWIN COUNTY	FAIRHOPE INTERMEDIATE SCH	38	727
BALDWIN COUNTY	FAIRHOPE RESOURCE CENTER	27	452
BALDWIN COUNTY	FAIRHOPE ELEMENTARY	65	952
BALDWIN COUNTY	FOLEY ELEMENTARY	55	768
BALDWIN COUNTY	FOLEY MIDDLE SCHOOL	34	594
BALDWIN COUNTY	FOLEY HIGH SCHOOL	70	1,256
BALDWIN COUNTY	FOLEY INTERMEDIATE	22	353
BALDWIN COUNTY	GULF SHORES MIDDLE SCHOOL	19	343
BALDWIN COUNTY	GULF SHORES ELEMENTARY SCH	27	457
BALDWIN COUNTY	LOXLEY ELEMENTARY	24	317
BALDWIN COUNTY	LOXLEY MIDDLE SCHOOL	7	125
BALDWIN COUNTY	PERDIDO ELEMENTARY SCHOOL	25	402
BALDWIN COUNTY	PINE GROVE ELEMENTARY SCH	24	312
BALDWIN COUNTY	ROBERTSDALE ELEMENTARY SCH	60	891
BALDWIN COUNTY	ROBERTSDALE HIGH SCHOOL	45	806
BALDWIN COUNTY	ROSINTON SCHOOL	6	121
BALDWIN COUNTY	SILVERHILL SCHOOL	24	405
BALDWIN COUNTY	SPANISH FORT SCHOOL	40	716
BALDWIN COUNTY	STAPLETON SCHOOL	9	107
BALDWIN COUNTY	SUMMERDALE ELEMENTARY SCH	26	390
BALDWIN COUNTY	SWIFT CONSOLIDATED ELEM SCH	7	132
BALDWIN COUNTY	VAUGHN SCHOOL	4	
BARBOUR COUNTY	BAKER HILL SCHOOL	17	247

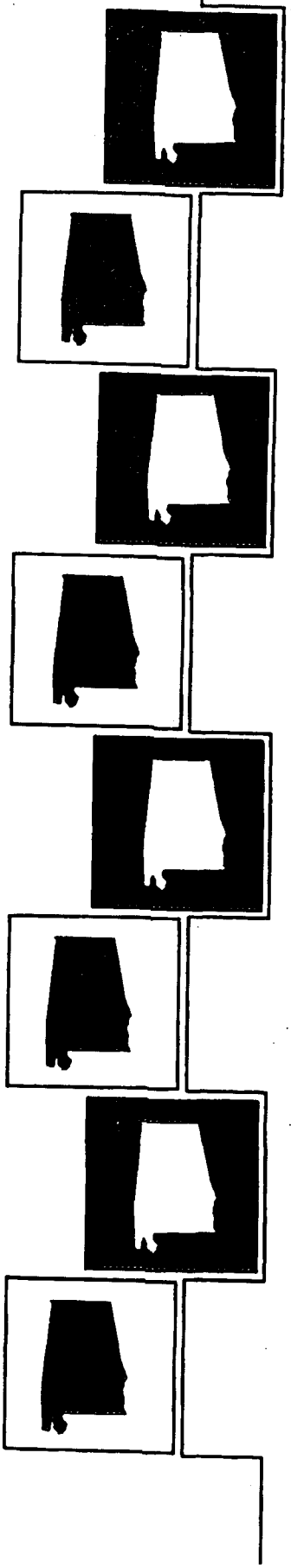
REFERENCE 12

ENVIRONMENTAL GEOLOGY AND HYDROLOGY
HUNTSVILLE AND MADISON COUNTY, ALABAMA



REFERENCE
13

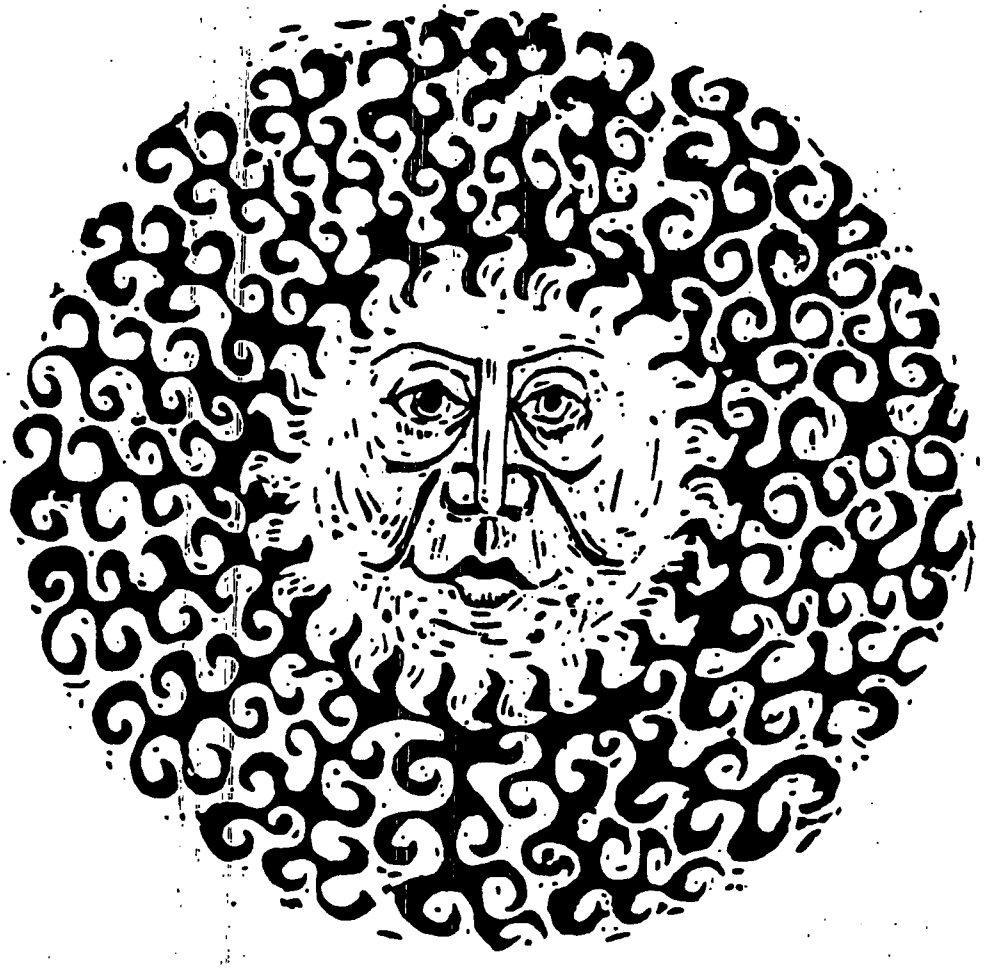
Water-Resources Investigations Report 93-4186



LOW-FLOW AND FLOW-DURATION CHARACTERISTICS OF ALABAMA STREAMS

Prepared by
the United States Department of the Interior, Geological Survey
In cooperation with
the Alabama Department of Environmental Management
and the Tennessee Valley Authority

REFERENCE
14



CLIMATIC ATLAS OF THE UNITED STATES

ATTACHMENT 1

STATE OF ALABAMA

WATER IMPROVEMENT COMMISSION

IRA L. MYERS, M. D.
CHAIRMAN
STATE HEALTH OFFICER

CLAUDE D. KELLEY
VICE CHAIRMAN
COMMISSIONER, DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES

JAMES W. WARR
CHIEF ADMINISTRATIVE OFFICER

749 STATE OFFICE BUILDING
MONTGOMERY, ALABAMA 36104
TELEPHONE 269-7971

November 15, 1973

Mr. David L. Hardy
Manager, MFI Division
Astro-Space Laboratories, Inc.
110 Wynn Drive, NW
Huntsville, Alabama 35806

Dear Mr. Hardy:

This is to advise you of action taken by the Water Improvement Commission on November 12, 1973, regarding Metal Finishing Industries. At that time, the Commission, acting on staff recommendations, approved the preliminary plans for pretreatment facilities to serve your plant, and further approved the following implementation schedule:

Approval of Preliminary Plans	November 12, 1973
Submission of Final Plans	December 12, 1973
Approval of Final Plans	January 1, 1974
Completion of Construction	May 1, 1974

It was stipulated that your discharge to the Huntsville sanitary sewerage system be limited to the following:

Flow	40,000 gallons per day
Aluminum	0.167 pounds per day
Cadmium	0.033 pounds per day
Chromium (+6)	0.033 pounds per day
Chromium (Total)	0.167 pounds per day
Cyanide	0.033 pounds per day
Nickel	0.167 pounds per day
Zinc	0.267 pounds per day
Suspended Solids	8.34 pounds per day
pH	6.0 - 9.0

If you should have any questions regarding this matter, please contact Mr. Larry Bryant or Mr. Charles Horn.

Yours very truly,

James W. Warr

James W. Warr
Chief Administrative Officer
Water Improvement Commission

NOV 16 REC'D

JWW/dds
cc: Mr. Woolsey Finnell
Mr. C. D. Black

COMMISSION MEMBERS
MARVIN O. BERGLIN DR. ROBERT M. BUCHER LOUIS GRABENSTEDER HENRY A. LESLIE ROBERT T. WRIGHT

STATE OF ALABAMA
WATER IMPROVEMENT COMMISSION

SEP 29 1973

IRA L. MYERS, M. D.
CHAIRMAN
STATE HEALTH OFFICER

CLAUDE D. KELLEY
VICE CHAIRMAN
COMMISSIONER, DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES

JAMES W. WARR
CHIEF ADMINISTRATIVE OFFICER

749 STATE OFFICE BUILDING

MONTGOMERY, ALABAMA 36104

TELEPHONE 269-7971

September 25, 1973

CERTIFIED MAIL
DELIVER TO ADDRESSEE ONLY
RETURN RECEIPT REQUESTED

Mr. Ed DeVault
Director, Container Division
Spaco, Incorporated
3016 University Drive, N.W.
Huntsville, Alabama 35805

Dear Mr. DeVault:

Recent samples collected by a member of the technical staff of the Commission reveal that wastewater discharged from your plant exceeds limits established by the staff for heavy metals. The chemical analysis revealed the following:

Chromium (Total) 25 mg/l

Act No. 1260, Acts of Alabama, Regular Session, 1971, requires that a permit be obtained from the Commission for discharge to the waters of the State whether the discharge is made directly or through a municipal or private treatment system. A copy of this law is enclosed for your information. The section referred to above appears on Page 9, Section (h).

The Commission, in official action, has adopted a policy requiring secondary treatment or its equivalent of all non-biodegradable wastes prior to discharge into the waters of Alabama. Such wastes are interpreted to include metal finishing wastes. Acting under provisions of Act No. 1260, you are hereby directed to submit to the Commission within 45 days of receipt of this communication a plan leading to the treatment of the waste discharged by your plant. The plan, which must be designed by a professional engineer registered in Alabama with experience in waste treatment design, should follow the Format of Engineering Report for Industrial Waste Proposals, a copy of which is enclosed. The plan should provide for the following:

COMMISSION MEMBERS

MARVIN O. BERGLIN FAIRHOPE | DR. ROBERT M. BUCHER MOBILE | LOUIS GRABENSTEDER HUNTSVILLE | HENRY A. LESLIE MONTGOMERY | ROBERT T. WRIGHT GADSDEN

1. Adequate treatment of aluminum, chromium and any other metals that may be present in your waste;

2. Means to collect and dewater solids produced in treatment, in a form suitable for landfill disposal;

3. Means to sample the treated effluent, record pH, measure flow, and to monitor those parameters specified by the AWIC below;

4. An effluent of the following quality:

Aluminum	0.5 mg/l
Chromium (+6)	0.1 mg/l
Chromium (Total)	0.5 mg/l
Total Suspended Solids	25 mg/l
pH	8.5 - 9.5

If the information requested is not received within the time frame specified, we will have no alternative but to bring this matter before the Commission for appropriate action.

If we can be of assistance, please contact Mr. Larry Bryant or Mr. Charles Horn.

Yours very truly,

James W. Warr
Chief Administrative Officer
Water Improvement Commission

JWW/dds

cc: Mr. Woolsey Finnell

Mr. C. D. Black

INSTRUMENTATION SYSTEMS
INERTIAL SYSTEMS
GYROSCOPES
ELECTRONICS
MED-ELECTRONICS
PRECISION FABRICATION

Astro-Space Laboratories, Inc.
Research Park
110 WYNN DRIVE N.W. / HUNTSVILLE, ALABAMA 35806 / 205/837-5830

File

October 5, 1973

State of Alabama
Water Improvement Commission
749 State Office Building
Montgomery, Alabama 36104
Attention: Mr. Larry Bryant
Assistant Sanitary Engineer
Water Improvement Commission

Dear Sir:

In response to your request to Mr. Dave Hardy of Astro-Space Labs, we are hereby replying to your letter of September 4, 1973 in which you made eight itemized comments on the ASL proposal submitted to you on 7 August 1973. It is anticipated that you will receive this correspondence by 8 October 1973.

Enclosed with this correspondence are ASL Drawings 401919, Sheet 1 - Industrial Waste Disposal Diagram, Sheet 2 - Sludge Filter, and Sheet 3 - Settling Tank. Listed below are the responses to your comments in the September 4, 1973 letter in that same order:

1. ASL Dwg. 401919, Sheet 2 shows a Sludge Filter for removing the water and leaving a solid waste suitable for landfill disposal. Astro-Space will dispose of their own waste, but before this can be done, a permit application will be submitted to the City of Huntsville for disposal of this solid waste at a site to be specified by them.

2. In our plating process, we feel that it is necessary to perform the following steps on the cyanide and chrome operations:

   Cyanide:

   A. Parts are removed from the cyanide plating tank and placed in a drag tank. That solution is added back to the plating tank to retain the chemicals.

OCT 8 RECD

B. Parts are then taken from the drag tank and placed in a chlorine dip tank. This tank will be checked every two hours for available chlorine maintained at a pH of approximately 12. The condition of this tank will be checked by the chemical lab every two hours of plating operation and the results recorded on a posted log sheet. These sheets will be filed and available for inspection. Note: All cyanide solutions contain a wetting agent to reduce drag out by approximately 60%.

C. After chlorine saturation, which occurs approximately every five days, the contents of the tank will be pumped into the pH adjusting tank.

D. The solution is then pumped into the proposed settling tank (Sheet 3) where the heavy metals are precipitated out.

Chrome:

A. The parts are dipped into a drag tank containing water.

B. Next, the parts are dipped into a drag tank containing sodium bisulfite and a pH of 2.0-4.0. The purpose of this tank is to neutralize hexavalent chrome.

C. Parts are dipped into a tank containing Hydrazine at a pH of 8.0-9.0, to convert the trivalent chrome to chromic hydroxide. Each of these tanks will be checked by the lab chemist every 4 hours when the line is in operation. These data will be logged and kept on file. A wetting agent is also used here to minimize drag out.

D. The tank solutions in (B) and (C) are weekly pumped into the pH Adjusting Tank, and when neutralized, then pumped into the Settling Basin.

E. The parts are dipped in a fresh water rinse as the final plating setp. This water is pumped into the pH Adjusting Tank for final treatment.

3. The polymers will be automatically metered with time. The quantity of these agents will be establish after installation by periodically taking samples of the water at the sewer entrance and examining these samples for heavy metal content. Samples will be evaluated by certified lab tests and also a Hach Meter. After a period of careful examination, the frequency of analysis will be reduced.

4. Reference ASL Dwg. 401919, Sheet 1: Lime is no longer used. Instead, two liquid agents will be used, a 20% solution of sodium hydroxide, and a 20% solution of sulfuric acid. These solutions will be injected with dispensing equipment controlled by the automatic pH controller/recorder.

5. Please refer to Item (1).

6. ASL Drawing 401919, Sheet 3, is a detailed drawing of the settling basin we propose to install. Only one tank of this type will be used.

   Upon consultation with the plating supervisor, it has been determined that with minor adjustments in our disposal processes, we can tolerate a wait of three hours for settling.

7. Please see Dwg. 401919, Sheet 1, which shows a continuous water sampler and flowmeter. The sample will be checked by laboratory analyses three times the first month after all equipment has been installed. ASL will purchase a Hach Model DR-EL/Z Water Test Kit (Ames, Iowa) for daily analysis of water samples for the first month, and three times per week thereafter. It should be noted that this Hach Kit is the same type used by the City of Huntsville for this type of water analysis. Results of these tests will be recorded on the applicable state forms and mailed to A.W.I.C. monthly.

8. As referred to above, a flowmeter will be installed and the daily volumetric water consumption will be recorded and transmitted with the water analysis data.

If after review of the above statements and the enclosed

drawings, you have further comments, please contact the undersigned.

Sincerely,

J.R. Loyd
Section Head
Mechanical Engineering Section

cc: Al St.Laurent
Bob Morgan
Dave Hardy
Woolsey Finnell
Dept. of Public Works
Huntsville, Alabama

JRL/rc

ATTACHMENT 2

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Jim Folsom
Governor

gh Pegues, Director

51 Cong. W. L.
ckinson Drive
ontgomery, AL
130-1463
05) 271-7700
X 271-7950
270-5612

eld Offices:

10 Vulcan Road
rmingham, AL
5209-4702
205) 942-6168
AX 941-1603

.O. Box 953
ecatur, AL
5602-0953
205) 353-1713
AX 340-9359

204 Perimeter Road
Mobile, AL
36615-1131
205) 450-3400
FAX 479-2593

June 11, 1993

M E M O R A N D U M

TO: Sonya Massey, Chief
Groundwater Branch
Water Division

THROUGH: Dave Davis, Chief
North Unit
RCRA Compliance Branch
Land Division

Dixie Beatty
North Unit
RCRA Compliance Branch
Land Division

FROM: Steven O. Jenkins, Chief
RCRA Compliance Branch
Land Division

RE: Referral of GE Aerospace (now Martin Marietta)
110 Wynn Drive, Huntsville, Alabama
USEPA Identification Number: ALD 009 305 608

GW-94-1-7

The RCRA Compliance Branch has reviewed the attached information on the above-referenced facility. It appears from the submitted information that the potential groundwater contamination at this site cannot be determined to be from a RCRA regulated hazardous waste but may, however, be subject to remediation under the provisions of the Water Pollution Control Act.

Should you have any questions regarding this matter, please contact me.

SOJ/DLB:mah:NE#90-19

Attachment(s)

File: GE Aerospace/Gen/Madison County

Printed on Recycled Paper

GE Aerospace

March 29, 1993

Ms. Dixie Beatty
Alabama Department of Environmental Management
Land Division
1751 Dickinson Dr.
Montgomery, AL 36130

MAR 1993
RECEIVED
ADEM
LAND DIVISION

RE: GE Aerospace Facility - Building "A"
110 Wynn Drive, Huntsville, AL

Dear Ms. Beatty,

Please find enclosed a field summary report by O'Brien and Gere Engineers, Inc. describing the investigative efforts at building "A", 110 Wynn Drive, Huntsville, Alabama. This investigation supports General Electric Company's divestiture and environmental assessment process upon exiting a property we have leased. During our operation of the facility we have been and continue to be registered with your office as a small quantity generator.

It is our understanding you are requesting this report for general information purposes. We are voluntarily providing the enclosed information to support your request and to keep you informed of our current activities. Should you have any questions relating to the enclosed material, please contact me at 904-239-2628.

Sincerely,

Christopher D. Parent
Environmental Engineer

cc N. Cosmos
J. Doyle
B. Wasser

O'BRIEN & GERE
ENGINEERS, INC.

March 23, 1993

MAR 1993
RECEIVED
ADEM
LAND DIVISION

Mr. Chris Parent
Environmental Health and Safety Engineer
GENERAL ELECTRIC COMPANY
GE AEROSPACE
1800 Volusia Avenue
Daytona Beach, FL 32114

Re: General Electric
Huntsville, Alabama

File: 5067.015.581

Dear Chris:

At the request of General Electric Company located in Daytona Beach, Florida (GE Daytona), O'Brien & Gere Engineers, Inc. (O'Brien & Gere) has prepared this letter report to summarize the Remedial Program conducted at the GE facility located in Huntsville, Alabama (GE Huntsville), per our scope of work dated May 4, 1991.

This letter report presents the information in three sections: I. Overview, II. Summary of Exploratory Activities, and III. Summary of Sampling Activities.

I. OVERVIEW

A Phase I Environmental Liability Assessment for the GE Huntsville facility was conducted by ERM, Inc. at the request of GE Huntsville. A final report of the findings was completed on November 21, 1990. The information obtained during the assessment was to be used to support facility closure plans. During the assessment, an area of concern was discovered adjacent to a transformer pad located in an open area bound by Buildings A, D, E, and F, as shown in Figures 1 and 2. Upon review of the revised Phase I Environmental Liability Assessment Report, GE Daytona requested sampling at selected areas, combined with the completion of a baseline environmental study, to assess environmental quality at the site. The objective of the study was to establish a baseline database of information concerning environmental quality of soil, surface water, and ground water at the property.

The results of the baseline study revealed the presence of total petroleum hydrocarbons (TPH) in the vicinity of the transformer pad. Based on the results of the field screening and laboratory analysis of sample borings in this area, ERM, Inc. recommended soil removal from the western, southern, and eastern sides of the transformer pad, in accordance with Alabama Department of Environmental Management (ADEM) guidelines. These guidelines, as presented in the *ADEM Guidelines for the Disposal of Non-hazardous Petroleum-contaminated Waste*, state that the soil action level for TPH is 100 parts per million (ppm).

O'Brien & Gere Engineers, Inc., an O'Brien & Gere Company
Sabal V, Suite 210 / 3922 Coconut Palm Drive / Tampa, FL 33619 / (813) 623-5225 FAX (813) 623-5448
. . . and offices in major U.S. cities

Excavation of the petroleum contaminated soils was completed and soil samples were collected and analyzed for TPH, to obtain confirmatory analytical data of the soil excavation program. One confirmatory sample collected in the northern wall of the east excavation area (see Figure 2A) indicated that additional soil removal was necessary. During excavation, a layer of gravel was exposed releasing small amounts of liquid into the excavation area. A sample of the liquid was collected and the excavation was lined with polyethylene sheeting and backfilled with clean soil. Analytical results of the liquid sample revealed the presence of TCE.

Based on information collected during preparation of the work plan, GE Daytona decided to conduct an exploratory excavation at the GE Huntsville site in an area east of the transformer where TCE was detected. The objectives of the excavation program included further evaluation of the area of concern, characterization of background soil, disposal of excavated contaminated soil, soil sample collection from the excavation area, and laboratory analysis of collected samples. The program proposed excavation to a depth of approximately five feet in an area 2 feet by 6 feet located northeast of the transformer and adjacent to the foundation of Building F (see Figure 2). O'Brien & Gere, with the assistance of OBG Technical Services Inc. (OBG Tech), conducted the proposed work from November 20 through November 23, 1992, followed by additional sampling performed on January 21, 1993. The following sections summarize the exploratory activities.

II. SUMMARY OF EXPLORATORY ACTIVITIES

Exploratory activities at the GE Huntsville site were conducted as follows:

November 20, 1992:

- O'Brien & Gere personnel met with the laboratory director of Technical Micronics Controls, Inc. (TMC), Huntsville, Alabama, to discuss analytical methods appropriate to the project, sampling schedules, necessary turnaround times, and analytical costs.
- O'Brien & Gere and OBG Tech personnel discussed site preparation activities, program objectives, direction, and scheduling, and performed an initial site inspection.
- In order to provide access to the excavation area, OBG Tech assisted in the removal of a catwalk using a crane and an operator from Empire Crane Services, Huntsville, Alabama.
- O'Brien & Gere and OBG Tech delineated and prepared contamination, contingency, decontamination, support, and drum staging areas.
- MW-2 was purged and sampled.

November 21, 1992:

- A soil staging area was prepared by OBG Tech under the supervision of O'Brien & Gere. Two layers of polyethylene plastic sheeting (7 mils each) were placed at two designated areas to serve as the staging areas for excavated soils.

- Electrical power to the transformer was disconnected by Huntsville Utilities and the excavation area was delineated as shown on Figure 2.

- Background soil headspace characterization was performed. Soil background data was gathered using a hand auger to collect soil samples at one (1) foot intervals up to five (5) feet from a minimum of three (3) boring locations, to be analyzed using a Photoionization Detector (PID) which analyzes organic vapors. An arithmetic average of 80 ppm was obtained from the recorded data and was used as the soil background value. Soil background boring locations (BK) are shown on Figure 1.

- Excavation of the proposed area was conducted by OBG Tech under the supervision of O'Brien & Gere. Excavation consisted of soil removal at one (1) foot intervals using a small backhoe at the beginning of excavation activities and later using shovels, noting changes in PID readings and soil discolorations. Soil with PID readings less than 80 ppm were to be considered "clean" and were staged in the "clean" staging area. Soil with PID readings equal to or greater than 80 ppm were placed in 55-gallon drums for staging at the drum staging area and for later disposal. The top one (1) foot of soil removed from the excavation area had a dark red appearance characteristic of local clays. The clays encountered during the excavation were dense and prolonged excavation activities. At approximately 3.5 feet from the soil surface, a 1.5 feet thick layer of gravel was discovered. The gravel layer consisted of grey, 1/2 inch crushed stone. Soil removal was accomplished while wearing "Modified Level D" protection, as described in the Health and Safety Plan (HASP). When PID readings exceeded 50 ppm, the excavation crew changed to "Level B" protection, as described in the HASP.

- A two-phase liquid was encountered at a depth of four (4) feet which created a small puddle at the center of the excavation. The light phase, which was brown in appearance, was believed to be aqueous based. The dense non-aqueous phase liquid (DNAPL) was black and had an oily appearance. Approximately eight (8) gallons of liquid were removed from the excavation using a glass jar, and was placed into a 55-gallon drum. Of the eight (8) gallons, approximately two (2) gallons were of the dense phase. Subsequent to its removal, the liquid continued to seep into the excavation through the south boundary. It was decided to allow the liquid to collect in the excavation for later removal.

- Further investigation of the southern excavation boundary revealed the presence of additional dense phase liquid which drained into the center of the excavation. Where a decreased flow of liquid was observed, it was decided to remove the remaining liquid. Approximately four (4) additional gallons of liquid were removed, of which approximately one (1) gallon was dense phase liquid.

November 22, 1992:

- Site cleanup efforts begin.

- A drainage system was installed inside the excavation to allow any potentially remaining dense phase liquid to drain into the lower point of the excavation (excavation center). The excavation was found to be mostly dry. An eight (8) inch diameter, six (6) inch deep cavity was excavated at the center of the excavation in which to place the drain pipe (see Figure 3). The remaining excavation was filled with grade four (4) lime rock (0 to 1/4 inch in size). The last two (2) feet of the excavation was covered with native clay soil. The area was cleaned, leveled, and seeded with grass. The roof drainage pipe located at the corner of Buildings D and F was extended to the parking lot to prevent erosion of the area previously excavated and to divert excessive stormwater runoff from the area, as shown on Figure 2. The drums were sealed, labeled and placed at the lined drum staging area. The work area was prepared for the next day's final cleanup activities. The limits of excavation are shown in Figure 4.

November 23, 1992:

- With the assistance of OBG Tech, the catwalk was restored to its original location, using the services of a crane and operator from Empire Crane Services, Huntsville, Alabama. Final cleanup of the work area was performed by OBG Tech.

- Three exploratory borings were excavated and soil samples were collected at locations shown in Figure 3. Soil sample head space was analyzed using a PID.

January 21, 1993:

- Ground water level measurements were collected at MW-1, MW-2, MW-3, and MW-4. A site walk-over in the vicinity of MW-2 was performed utilizing a PID; no positive results were obtained. In addition, ground water samples were collected at MW-2 for laboratory analysis for Volatile Organics (USEPA Method 601/602, 624), Base/Neutral Extractable Organics (USEPA Method 625), and Total Phenolics (USEPA Method 420.1).

- The excavation drainage system was sampled with a PID, with readings reported up to 35 ppm. A bailer was used to collect an aqueous sample from the drainage system. The collected sample did not indicate the presence of DNAPL, however, an unidentified odor was detected in the water.

III. SUMMARY OF SAMPLING ACTIVITIES

This section describes the sampling and analysis of soil and ground water which took place at the GE Huntsville facility as part of the exploratory study.

Soil Sampling and Analysis

- Twelve (12) background soil samples (BK) were collected on November 21, 1992 from three different borings for head space screening using a PID. Samples designated "BK" (BK-1, BK-2, and BK-3) were collected to evaluate background soil quality at the property. At each location, BK-1 through BK-3 were collected at depths up to four feet at one foot intervals. Each soil sample was placed in a glass jar and covered with aluminum foil for head space screening using a PID. Sample results are presented in Table 1 and Attachment 1.

- Two (2) soil samples (P) were collected on November 22, 1992 from the two piles of excavated soil for head space screening using a PID. Samples designated "P" were collected from two piles of soil generated during the excavation. The samples were collected with the purpose of determining if the soil from the piles was above or below background levels. Sample results are presented in Table 2.

- Six (6) soil samples (S) were collected on November 22, 1992 at the limits of the excavation to be analyzed for Halogenated and Aromatic Volatile Organics (using USEPA Methods 8010/8020) and Total Petroleum Hydrocarbons (using USEPA Method 418.1). Samples designated "S" were collected from the limits of the excavation once excavation activities were concluded. These samples were collected in order to evaluate soil quality conditions at the limits of excavation. Sample results are presented in Table 3 and Attachment 1.

- One (1) composite soil sample (SC) was collected from drummed soil on November 22, 1992 for the purpose of characterization. The sample designated "SC" was collected to determine the characteristics of the soil to be disposed. The soil sample was collected as a composite sample generated from collecting samples from each of the 55-gallon drums that were assigned for disposal. Sample results are presented in Table 4 and Attachment 1.

- Twenty six (26) soil exploratory samples (EX) were collected on November 23, 1992 from four different borings, as shown on Figure 3. Samples designated "EX" were collected from four (4) borings as shown in Figure 2, for the purpose of evaluating soil quality conditions at areas around excavation site. The soil samples were analyzed for VOCs in the head space using a PID. Sample results are presented in Table 5 and Attachment 1.

Liquid Sampling and Analysis

- One (1) dense non-aqueous phase liquid (DNAPL) sample was collected on November 21, 1992 for analysis using USEPA Method 8270. The dense non-aqueous phase liquid sample designated "DNAPL" was collected from liquid containerized in the 55-gallon drum for the purpose of identifying the presence and concentration of compounds potentially present in the liquid. Sample results are presented in Table 4 and Attachment 1.

Ground Water Sampling and Analysis

- Two (2) ground water (GW) samples were collected from monitoring well No. 2 (MW-2). One sample was collected on November 20, 1992 and analyzed for Volatile Organics and Base/Neutral Acid Extractables using USEPA Methods 624/625. One sample was collected on January 21, 1993 and analyzed for Total Phenolics using USEPA Method 420.1, in addition to USEPA Method 624/625. Water level data (January sampling event) and field measurements for pH and specific conductance (November sampling event) were also collected at the site. Well MW-2 revealed values of 5.5 s.u. for pH and 36.8 umhos/cm for specific conductance. Sample results are presented in Table 6 and Attachment 1. MW-2 was sampled on January 22, 1993 due to questionable quality control of the first ground water sample (laboratory blanks detected TCE). The sample was analyzed by Wadsworth/Alert Laboratories, Tampa, Florida for Priority Pollutant Volatile and Semi-volatile Organic Compounds using USEPA Methods 624/625, and Total Phenolics using USEPA Method 420.1. In addition, water level measurements were collected at MW-1 through MW-4, and the drainage collection system was inspected. Upon bailing the drainage collection system no DNAPL was observed. Sample results are presented in Table 6 and Attachment 1.

In total, fifty (50) samples were collected at the site. Forty seven (47) soil samples were collected, one (1) free product sample, and two (2) ground water samples. Refer to Figures 2 and 3 for sample locations and Tables 1 through 5 and Attachment 1 for analytical results.

We trust that this summary has provided GE Daytona with the information necessary to assess further action at the GE Huntsville facility. Should you have any questions, please feel free to contact Paul Seavy or me at your convenience.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

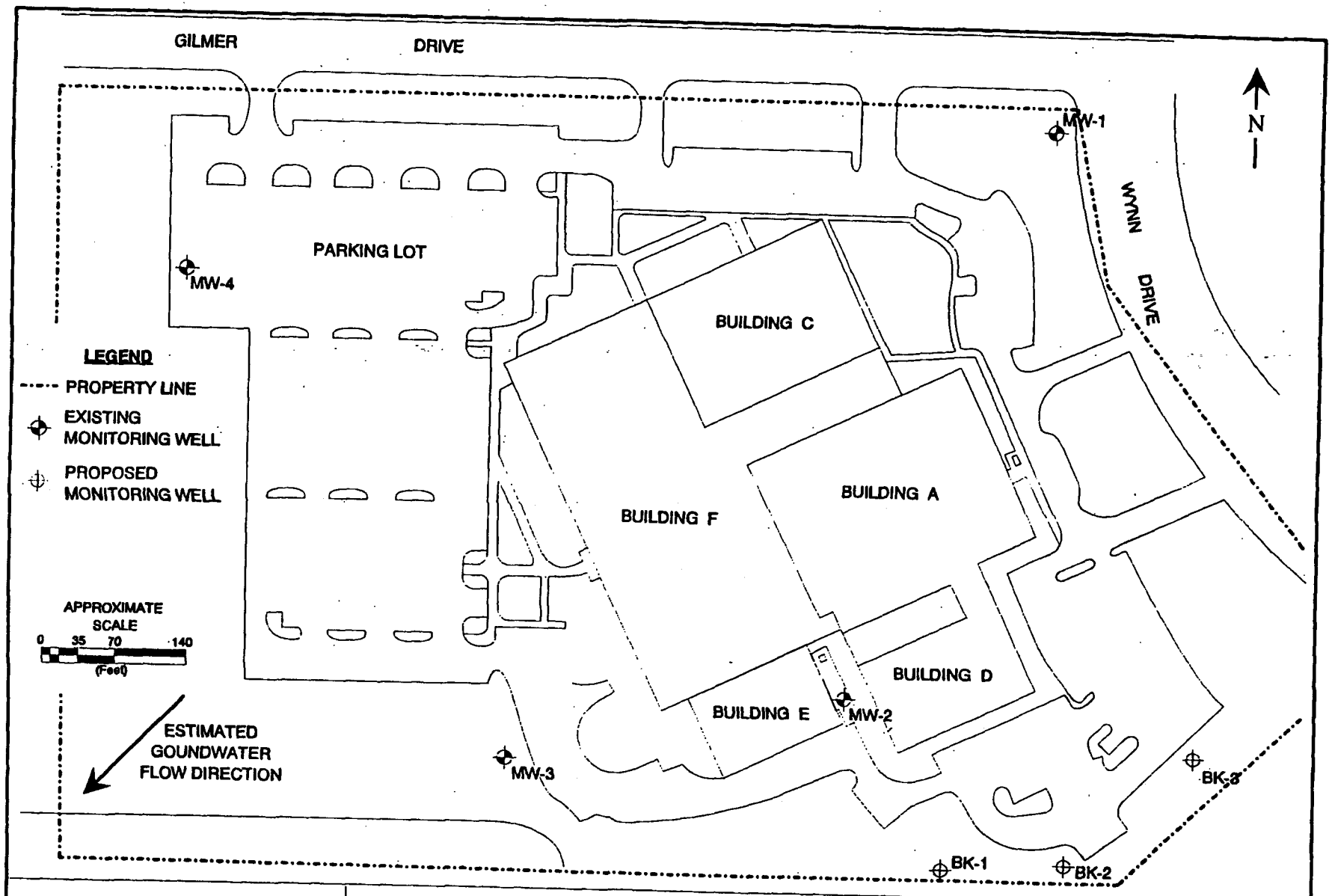
Steven R. Garver, P.E.
Vice President

SRG/arb

cc: P.R. Seavy, Jr., P.E., O'Brien & Gere Engineers, Tampa
R.E. Vargas, O'Brien & Gere Engineers, Cape Canaveral
D.R. Theoret, P.G., O'Brien & Gere Engineers, Cape Canaveral

HUNTLTR.RPT

FIGURES



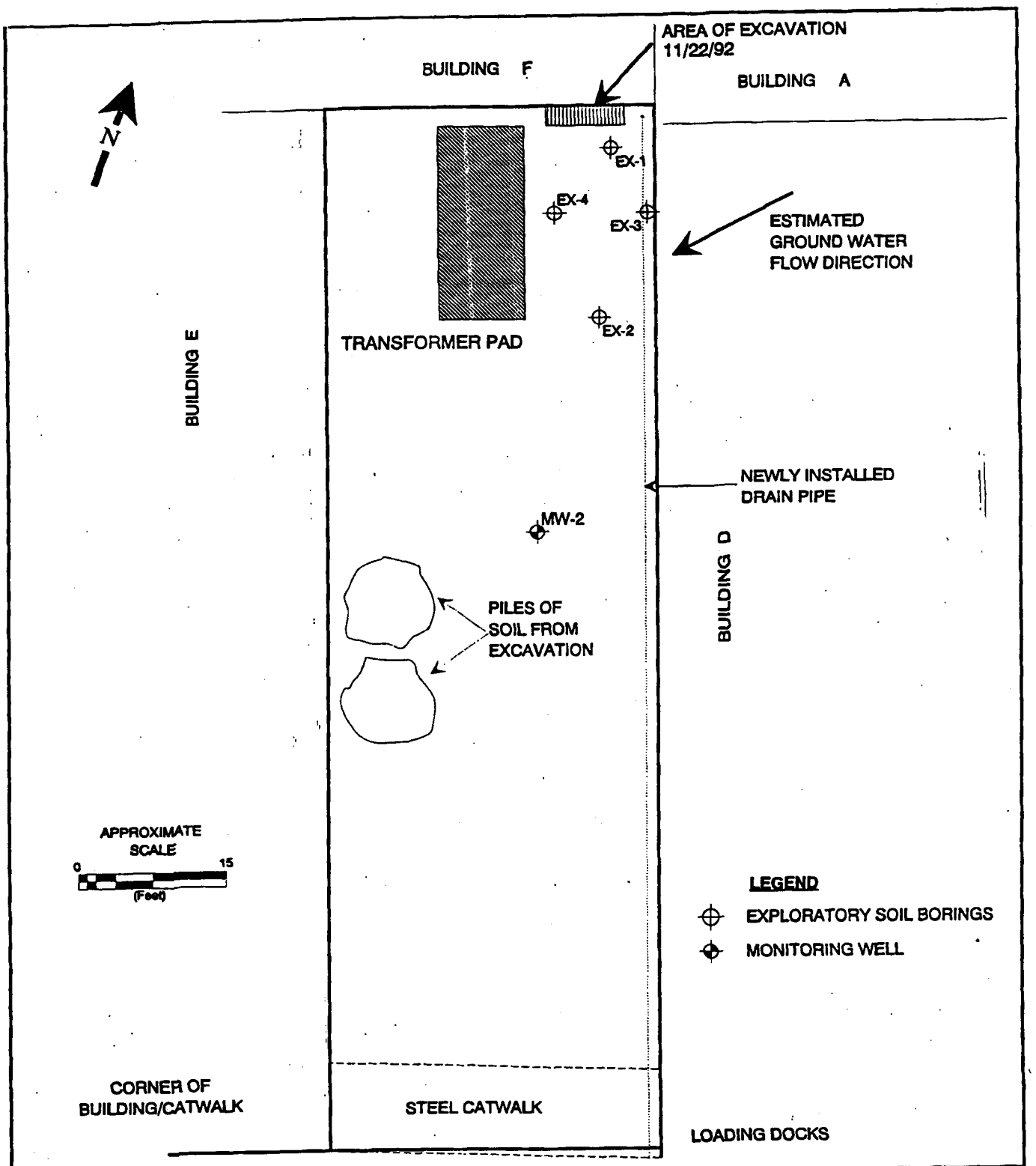
O'BRIEN & GERE ENGINEERS, INC.
Tampa, Florida

FIGURE 1

SITE PLAN

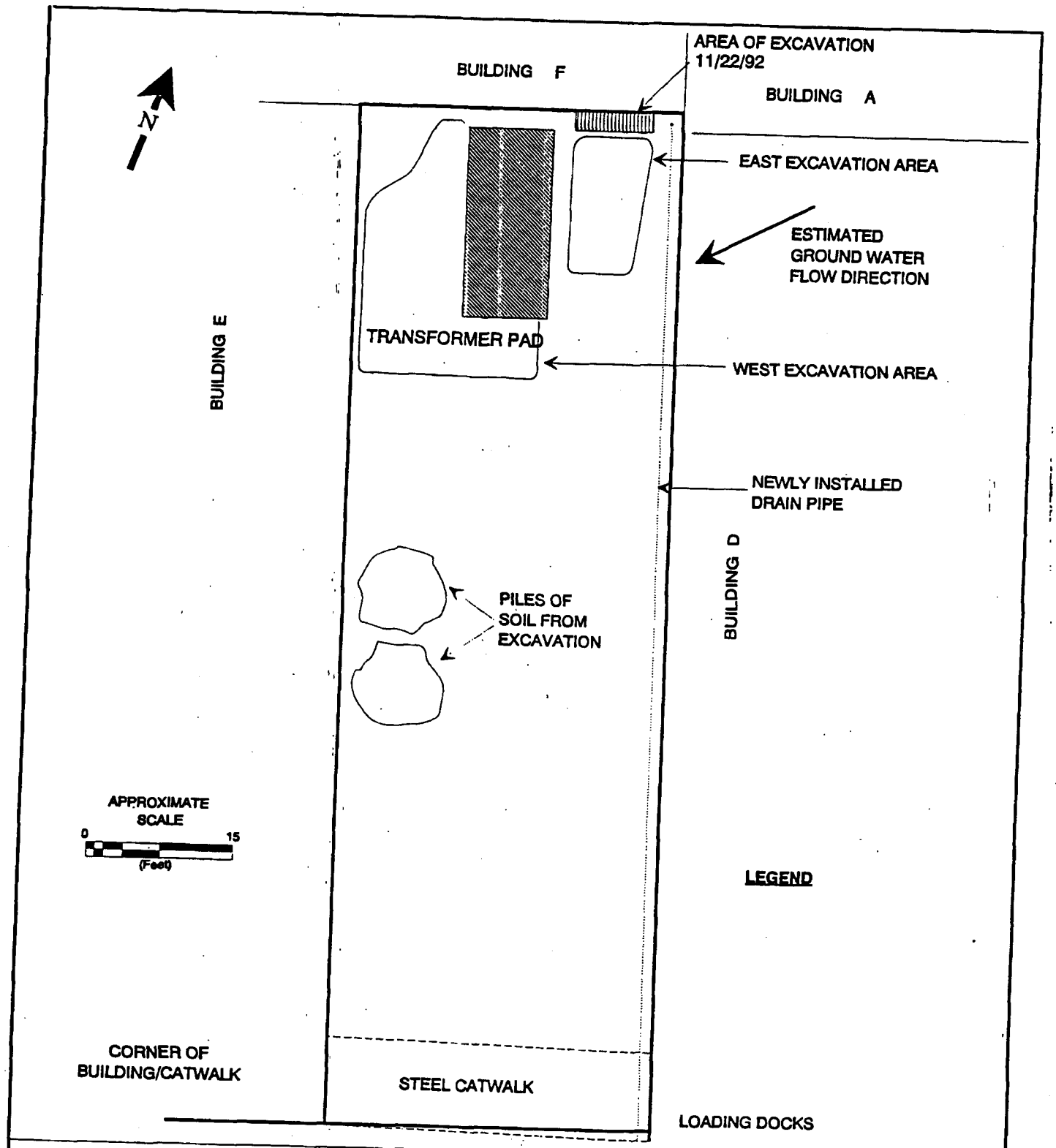
General Electric Company, Huntsville, AL

BASE MAP SOURCE: ERM, Nov. 1991



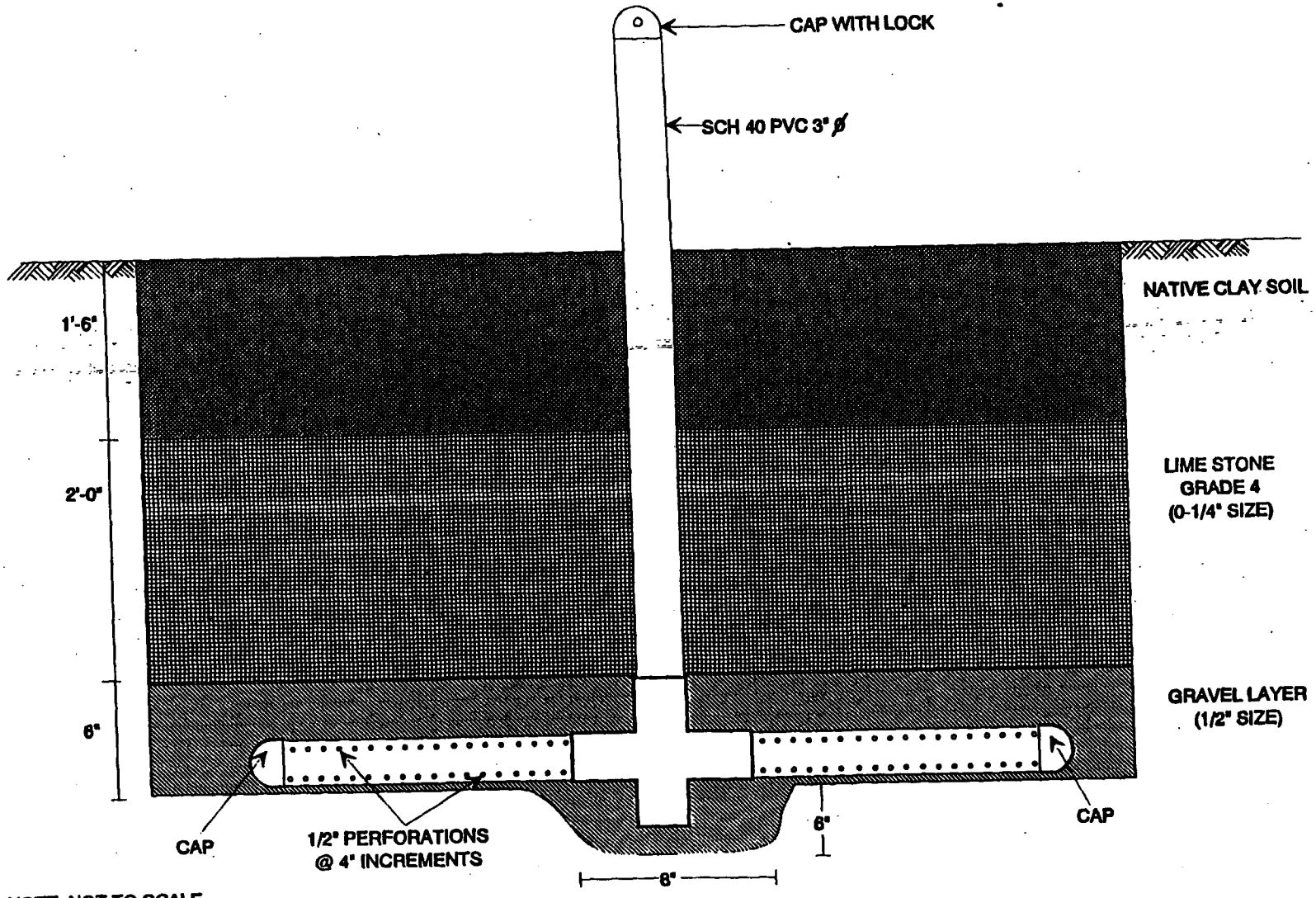
O'BRIEN & GERE
ENGINEERS, INC.
Tampa, Florida

FIGURE 2
AREA OF EXCAVATION
General Electric Company, Huntsville, AL
BASE MAP SOURCE: ERM, Nov. 1991:



O'BRIEN & GERE
ENGINEERS, INC.
Tampa, Florida

FIGURE 2A
AREA OF EXCAVATION
General Electric Company, Huntsville, AL
BASE MAP SOURCE: ERM, Nov. 1991:



NOTE: NOT TO SCALE

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Tampa, Florida

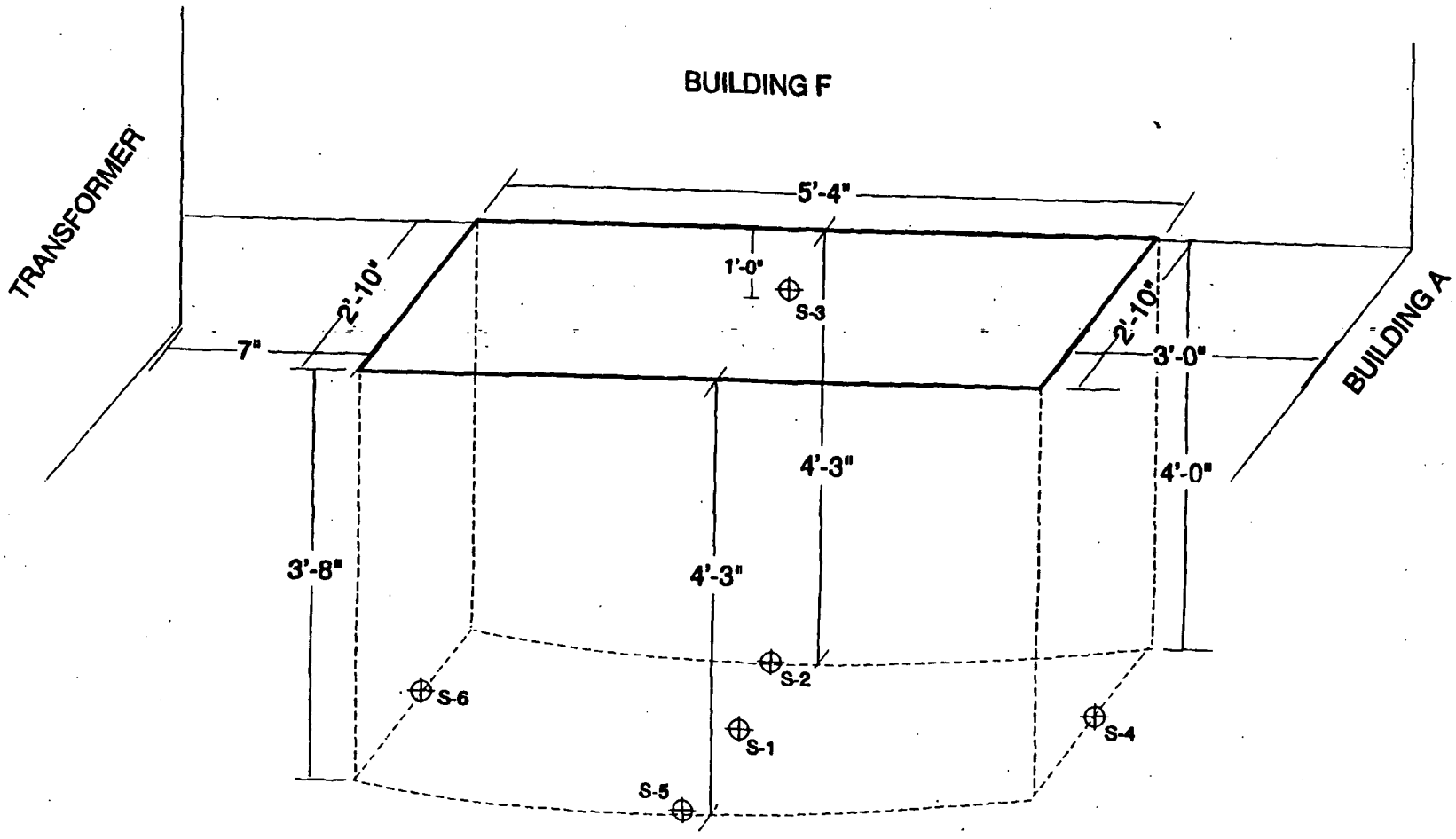
SEL 02/16/93

FIGURE 3

EXCAVATION DRAINAGE SYSTEM

General Electric Company, Huntsville, AL

5067015003



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Tampa, Florida

FIGURE 4
BUILDING F
EXCAVATION DIMENSIONS
General Electric Company, Huntsville, AL

TABLES

TABLE 1

Soil Background Sample Results

Boring Number	Event Number	Depth BGS (ft)	PID Reading (ppm)	Comments
BK-1	073	0-1	104	Dark red soil color,
	075	1-2	104	Soil Temperature, 57 F
	077	2-3	100	
	080	3-4	113	
		Average	**105.25**	
BK-2	083	0-1	51.4	Dark red soil color
	084	1-2	65.6	Soil Temperature, 57 F
	085	2-3	82.9	
	088	3-4	37.1	
		Average	**59.25**	
BK-3	089	0-1	27.8	Dark red soil color
	090	1-2	36.7	Soil Temperature, 57 F
	091	2-3	139	
	092	3-4	83.5	
		Average	**76.75**	
		OVERALL AVERAGE	**80.42**	

BGS = Below Ground Surface

TABLE 2

Soil Screening Results
(ppm)

Sample ID	Collection Date	Minimum	Maximum	Average
P-1	11/22/92	15.2	20.1	18.2
P-2	11/22/92	21.4	27.7	24.0

NOTE: PID was calibrated using: Zero Value = Ambient Air; Calibration gas = Isobuthelene, 100 ppm; Precision and Accuracy = isobuthelene, 25 ppm.

TABLE 3

Soil Excavation Limits Sample Results

Sample ID	Description	Detected Compounds	Detected Concentration (ppm)
S1	Soil-Bottom	TPH	180
		TCE	0.06
S2	Soil-North, Gravel	TPH	1000
		TCE	0.726
		cis-1,2-DCE	0.012
		1,2-DCA	0.017
S3	Soil-North, Foundation	TPH	96
		TCE	0.03
S4	Soil-East	TPH	100
		TCE	0.011
S5	Soil-South	TPH	173
		TCE	0.4
S6	Soil-West	TPH	242
		TCE	0.021

TPH - Total Petroleum Hydrocarbons (USEPA Method 418.1)
TCE - Trichloroethene (USEPA Method 8260)
DCE - Dichloroethene (USEPA Method 8260)
DCA - Dichloroethane (USEPA Method 8260)

TABLE 4

GE HUNTSVILLE - TMC ANALYTICAL RESULTS

Sample ID - Collection Date	Description	Results	
DNAPL - 11/21/92	Dense non-aqueous phase liquid	1,1,1-TCA TCE TPH	9.3% 89.5% 5.0%
SC - 11/22/92	Soil Composite	1,1,1-TCA TCE TPH	9.9 ppb 4.92% 316 ppm

TABLE 5

Soil Exploratory Sample Results

Boring Number	Event Number	Depth BGS (ft)	PID Reading (ppm)	Comments
EX-1	110	0-1	139	Dark red clay soil
	111	1-2	551	Soil temperature 53°F
	112	2-3	1,302	
	113	3-4	797	
	114	4-5	836	
	115	5-6	>9,999	
	117	6-7	>9,999	
EX-2	122	0-1	53	Dark red clay soil
	123	1-2	316	Soil temperature 53°F
	124	2-3	153	
	125	3-4	228	
	127	4-5	79	
	136	5-6	212	
	137	6-7	292	
EX-3	128	0-1	33.5	Dark red clay soil
	129	1-2	41.7	Soil temperature 53°F
	130	2-3	67.9	
	131	3-4	37.8	
	132	4-5	220	
	133	5-6	237	
	135	6-7	135	
EX-4	138	0-2	563	Dark red clay soil
	139	2-4	1,842	Soil temperature 53°F
	140	4-6	>9,999	

TABLE 6

Ground Water Sample Results

Sample ID - Collection Date	Detected Compounds	Detected Concentration (ppm)
MW-2 - 11/20/92	TCE	0.260
MW-2 - 01/22/93	TCE	0.022
Trip Blank - 11/20/92	TCE	0.010
Equipment Blank - 11/23/92	TCE	0.183
Trip Blank # 2 - 11/23/92	TCE	0.044
Trip Blank # 3 - 1/22/93 **	Not Detected	N/A

Monitoring Well	Water Level Measurement Data*	Date Collected
MW-1	7.48/7.47	01/21/93
MW-2	14.27/14.27	01/21/93
MW-3	10.86/10.87	01/21/93
MW-4	5.97/5.97	01/21/93

TCE - Trichloroethene (USEPA Method 624)
* - data collected 12:30 p.m./1:30 p.m.; presented as depth to water below PVC.
** - Performed to questionable quality control of ground water samples for 11/20 and 11/22, 1993.

ATTACHMENT 3

ADEM

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Jim Folsom
Governor

es W. Warr, Director

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February 8, 1994

CERTIFIED MAIL P 014 549 677
RETURN RECEIPT REQUESTED

Christopher D. Parent
Simulation & Control Systems Dept.
General Electric Company
Post Office Box 2825
Daytona Beach, Florida 32115-2825

Dear Mr. Parent:

RE: **NOTICE OF VIOLATION**
GW Incident Number GW 94-1-7
GE Aerospace
110 Wynn Drive
Huntsville, Madison County, Alabama
USEPA Identification Number: ALD 009 305 608

On March 29, 1993, the Alabama Department of Environmental Management (ADEM) received a letter containing Phase I Environmental Liability Assessment report for the above referenced facility. This information indicates that substances related to the operations at the GE Aerospace facility have entered the groundwater.

This is to provide notification that the unpermitted discharge of pollutants to Waters of the State is a violation of Alabama law, specifically Title 22 §§ 22-22 9(i)(3)., (1990 Replacement Volume) Code of Alabama (1975).

Therefore, the Department has determined that the following actions should be taken:

1. The facility must conduct a groundwater quality assessment by fully defining the vertical and horizontal extent of groundwater contamination. This should be demonstrated by installing monitoring wells which can be verified or projected to be clean at the down-gradient limit of the plume and vertically at depth. The assessment should also include a monitoring plan for determining rate, extent and concentrations of contamination on a quarterly basis. The facility will have forty-five (45) days from the date this letter to submit an assessment plan, and will have ninety (90) days from the approval date of the assessment plan to conduct the assessment and submit a finalized groundwater quality assessment report.

2. Upon review of the groundwater quality assessment report, the Department will make a determination whether corrective actions will be required.

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The investigation must be conducted in accordance with accepted geological practices by a geologist or engineer experienced in hydrogeological investigations.

Should there be any questions concerning these requirements, please contact J. Wayne Payton at (205)271-7849.

Sincerely,

Charles R. Horn, Chief
Water Division

CRH/JWP/rlb

ATTACHMENT 4

MAYNARD, COOPER & GALE, P.C.

ATTORNEYS AT LAW

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MELISSA S. BIRDSONG
WILLIAM B. WAHLHEIM

March 3, 1994

MAR 1994
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GROUNDWATER
SECTION

VIA FACSIMILE 205-271-7950

Mr. J. Wayne Payton
Groundwater Section
Alabama Department of Environmental Management
1751 Cong. W. L. Dickinson Drive
P.O Box 301463
Montgomery, AL 36130-1463

Re: Martin Marietta Corp., Successor in Interest To GE Aerospace; February 8, 1994 Notice of Violation for Groundwater Incident No. GW 94-1-7

Dear Mr. Payton:

This letter follows up my conversation with you and Jim Stevens yesterday and my conversation with Sonya Massey and Jim Stevens today. As we discussed, this firm is representing Martin Marietta Corporation, as successor in interest to GE Aerospace, which received the above-referenced Notice of Violation on February 19, 1994. As we also discussed, and as I also relayed to Jim and Sonya, Martin Marietta has grave doubts that it is in any way responsible for the organic contamination discovered by it and reported to you last year. I am in the process of investigating the prior and concurrent usage of the property in question by other tenants. In order to protect the rights of Martin Marietta, I will be filing shortly a Request for Hearing and Immediate Stay. Sonya has confirmed for me that the time for appeal expires after Monday, March 7, 1994.

As I mentioned to you, it would of great help to Martin Marietta if the Department would extend the time in the NOV for submitting any groundwater quality assessment plan from 45 to 90 days. Although Martin Marietta may still need to pursue a stay, it would aid our ability to properly and fully investigate this issue if the time were extended.

If the parties later disagree over the identity of the responsible party, or disagree over any other issue, then the request for a stay can be pursued at that time. However, to avoid having to reach the stay issue too early in the investigative process, we would like to have the Department go ahead and agree to extend the time for submitting any assessment plan from 45 to 90 days. Please understand that this request for an extension is not an acknowledgement of the validity of the NOV, nor an acquiescence to the terms of the NOV. The request is simply a means of accomplishing our mutual goal, to determine the correct party to take the necessary corrective action, without diverting our time and energy with the stay process.

If you have any questions, please feel free to call. Since I have also had discussions with Sonya and Jim, I am also faxing them a copy of this letter. I will be in Atlanta tomorrow, but would appreciate your letting my office know of any decision that is made. I look forward to working with you and the Groundwater Branch toward a resolution of this issue.

Very truly yours,

Jarred O. Taylor II

JOTII/cnb
cc: Ms. Sonya Massey (via facsimile)
James Stevens, Esq. (via facsimile)

ATTACHMENT 5

ADEM
ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Jim Folsom
Governor

James W. Warr, Director

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April 29, 1994

Mr. Jarred O. Taylor II
Maynard, Cooper & Gale, P.C.
1901 Sixth Avenue North
Suite 2400 AmSouth/Harbert Plaza
Birmingham, Alabama 35203-2602

Re: Request for Extension for Submission of Groundwater Assessment Plan; Notice of Violation for Groundwater Incident No. GW 94-1-7, April 13, 1994

Dear Mr. Taylor:

The Department has reviewed the above referenced request made on behalf of Martin Marietta Corporation, Successor in Interest to GE Aerospace at 110 Wynn Drive, Huntsville, Alabama. The Department has determined that the request is reasonable and hereby grants an extension of thirty (30) days from the previously extended date of compliance. The Groundwater Assessment Plan for Groundwater Incident No. GW 94-1-7 will be due one hundred and twenty (120) days from the date of the Notice of Violation (NOV) letter. All of the other requirements as set forth in the NOV remain the same.

Should you require additional information regarding this matter, please contact me at 271-7849.

Sincerely,

J. Wayne Payton

J. Wayne Payton, Hydrogeologist
Hydrogeology Unit

cc: Sonja Massey, Chief
Groundwater Branch

Fred Mason, Chief
Hydrogeology Unit

James Stevens, Attorney
Office of General Counsel

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ATTACHMENT 6

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Jim Folsom
Governor

James W. Warr, Director

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May 23, 1994

Mr. Jarred O. Taylor II
Maynard, Cooper & Gale, P.C.
1901 Sixth Avenue North
Suite 2400 AmSouth/Harbert Plaza
Birmingham, Alabama 35203-2602

Re: Meeting to Discuss Notice of Violation for Groundwater Incident No. GW 94-1-7, February 8, 1994
GE Aerospace

Dear Mr. Taylor:

The Department appreciates having had the opportunity to discuss the above referenced matter with you and your clients Ms. Wasser and Mr. Parent. The meeting was informative and several points were raised which will require further review by Groundwater Branch staff.

During the meeting, pertinent information was provided regarding prior tenancy of the property, ownership of said property and chemical compounds utilized by the current tenant. Copies of such information will facilitate the Department's review of the Notice of Violation of February 8, 1994. Please forward the following information to the Department at the address above:

1. Documents showing past and present ownership and tenancy of property;

2. Statement that GE Aerospace did not use Trichloroethylene (TCE) and supporting documentation;

3. Statement of the solvent utilized in cleaning printed circuit boards, how it is employed, amount of solvent used, amount of solvent recycled, and supporting documentation;

The Groundwater Branch will review this information in order to determine the proper course of action. Until further notice, an indefinite extension is given for completion of the requirements of the Notice of Violation of February 8, 1994.

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Should you require additional information regarding this matter, please contact Wayne Payton at 271-7849.

Sincerely,

Sonja Massey, Chief
Groundwater Branch

cc: James Stevens, Attorney
Office of General Counsel

Fred Mason, Chief
Hydrogeology Unit

J. Wayne Payton, Hydrogeologist
Hydrogeology Unit

ATTACHMENT 7

7

MARTIN MARIETTA
SIMULATION & AUTOMATED SYSTEMS

POST OFFICE BOX 2825
DAYTONA BEACH, FLORIDA 32120-2825
TELEPHONE (904) 239-2511

June 3, 1994

Maynard, Cooper & Gale, P.C.
1901 Sixth Avenue North
Suite 2400
Birmingham, Alabama 35203-2602
Attention: Jared O. Taylor, II

NOV 1994
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SECTION

Dear Mr. Taylor:

As part of my review of records from GE Aerospace's former facility at 110 Wynn Drive, Huntsville, Alabama, I have reviewed approximately one hundred and fifty (150) Material Safety Data Sheets (MSDSs) for materials in use at that site. Along with the MSDSs I have reviewed material inventories for the GE Aerospace operating units at that site. These inventories are dated from 1986 through 1990.

I found no reference to trichloroethylene (CAS 79-01-6) on any of the MSDSs or any of the inventories. I did locate several sheets indicating that methyl chloroform (CAS 71-55-6) was in use at the site, as well as xylene, methylene chloride, isopropyl alcohol, and a variety of other chemicals. Trade names, common names, synonyms, and Chemical Abstract Services numbers (CAS) were used to determine the identities of the materials reported on each MSDS and inventory.

The GE Aerospace operations reported to have taken place at the site were related to engineering design, repro graphics, and limited production, with the printed circuit board (board) manufacturing area associated with the most intensive use of chemicals. Trichloroethylene would not normally have been used for the cleaning of the boards because the method specified required the use of nonflammable materials: trichloroethylene is a class 1C flammable liquid.

The method specified for board cleaning was cold vapor-phase degreasing. This method required that the cleaning material be heated to boiling, generating vapor which was then chilled by the refrigeration coils, creating a cold vapor cloud. The boards were emersed into the cold cloud of vapor, with the resulting condensate allowed to run off the boards, carrying any contaminants with it. Trichloroethylene could not be used for this type of operation because its flash point is only three (3) degrees Fahrenheit higher than its boiling point, creating a substantial fire hazard.

Because cold vapor-phase degreasing units are designed to contain the vapor cloud, emissions are minimal; when the systems are not in use, covers typically are employed to reduce losses. Under these circumstances, the use of one or two drums of cleaning material a year would have been typical. GE Aerospace sites used methyl chloroform or methylene chloride, because the are nonflammable liquids.

If you have any questions please contact me at (904) 239-2612 or (407) 826-6704.

Sincerely,

Bernadine M. Wasser, CIH
Manager - EHS

pc: N. Varney

ATTACHMENT
8

MAYNARD, COOPER & GALE, P.C.

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NOV 1994 RECEIVED ADEM GROUNDWATER SECTION

November 22, 1994

Ms. Sonja Massey, Chief
Groundwater Branch
Alabama Department of Environmental Management
P.O. Box 301463
Montgomery, AL 36130-1463

RE: Notice of Violation, Groundwater Incident No. GW 94-1-7, February 8, 1994

Dear Sonja:

Representatives of Martin Marietta and I met with you, Jim Stevens and other representatives of the Department in May. At that meeting, we explained to you the results of our investigation into Martin Marietta's discovery of TCE in the groundwater beneath the leased facility in Huntsville. That investigation included an assessment of the past and present ownership and tenancy of the property, and the fact that GE Aerospace did not use TCE during its tenure at the leased facility. The bottom line was that we had concluded that the TCE found in the groundwater did not originate from any operation of GE Aerospace at the facility. Based on these representations, the Department was kind enough to provide an indefinite extension or stay of the requirements set out in the referenced Notice of Violation. You asked, however, that we provide you whatever documentation we had, or further detail in writing, to support our conclusions. Please accept this letter and the enclosures as such further detail.

Background

The current facility is a conglomeration of buildings that have been built over the years. The original owner, Huntsville Industrial Associates ("HIA"), built the original building in 1966 and leased it to Astro Space Laboratories. Astro Space did research and development of mechanical and electrical devices. Astro Space had a laboratory and a machine shop as part of its operations. As best we can tell, Astro Space went out of business in the early 1970's. Sometime in 1974, the interior to the original building was altered. Chrysler next leased the

space, manufacturing electrical equipment. Chrysler occupied the premises thereafter, until 1981.

On June 1, 1980, GE signed a lease with HIA, but interviews with current and former GE employees reveal that GE did not actually occupy the site until sometime in 1981. At this time, only part of the original building was being leased by GE. Later, various other leases were executed between GE and HIA. During this period, GE's activities included production of printed circuit boards.

In May, 1985, HIA sold the property to the current owner, Wynn Drive Properties. All leases executed by GE thereafter were with Wynn Drive Properties.

In 1990, GE made the decision to relocate its Huntsville operation to Florida. This relocation would entail abandoning or subleasing the Huntsville site. Corporate policy dictated that before any abandonment or subleasing was consummated, a baseline environmental study should be performed. This would include a Phase I and limited soil, surface and groundwater sampling program. Such a program was implemented in the fall of 1990 through early 1991, with the sampling of the groundwater monitoring wells occurring in March, 1991.

Two reports were generated from this activity. First, the November, 1990 Phase I report notes disturbed soil around a transformer in the area in question and recommends the area be more closely studied to use as a baseline. The May 13, 1991 baseline report revealed high levels of TPH in the soil around the transformer. Interviews revealed that this transformer was refilled, retrofitted, or repaired sometime in 1988 or 1989. These high levels of TPH range from 4,670 ppm to 9,550 ppm. At that time the groundwater analysis showed no volatile or semi-volatile organic compounds, including a total absence of TCE.

The follow-up investigation was designed to find the vertical and horizonal extent of this TPH contamination. The September 16, 1991 report recommended that the TPH-contaminated soil be removed and properly disposed. GE elected to go forward despite the fact the TPH contamination was not caused by it.

In January of 1992, the TPH-contaminated soil was excavated and confirmatory samples taken. One such sample next to the northern wall of the excavation (which was at the southern wall of Building F) showed more soil needed to be removed. During this removal, a layer of gravel was encountered and an oily liquid seeped out into the excavation. GE communicated this incident to ADEM. The liquid was sampled and found to consist of approximately 90% TCE. Groundwater monitoring also performed in late 1992 found, for the first time, TCE in the groundwater. The level at this time was .26 ppm. In January, 1993,

GE's contractor resampled the well, finding .022 ppm TCE. In March of 1993, GE forwarded to ADEM its investigatory report. Eleven months later, ADEM issued a Notice of Violation to GE alleging that substances related to GE's operation have entered the groundwater, constituting an unpermitted discharge of pollutants to state waters. The NOV further directs that a groundwater quality assessment be performed.

As you know, GE/Martin Marietta appealed the NOV on the ground that the TCE contamination did not come from GE's operation and that GE should not be held responsible since it committed no unlawful discharge.

Discussion

To the best of our knowledge and belief, GE never purchased nor used at this location the first drop of TCE. Enclosed with this letter is a letter to me from Bernadine M. Wasser of Martin Marietta, who was also present at our meeting in May. As you can see, Ms. Wasser summarizes her investigation and review of records from the facility in Huntsville. As is clearly stated in her letter to me, no reference to TCE has been found in any of GE's records. Moreover, the method specified for the activity engaged in by GE would have been inconsistent with the use of TCE. We can provide you with copies of the several hundred MSDS sheets, if you so desire.

One of the most recent discoveries, from several interviews and a few documents, which are enclosed, is that when GE first occupied the premises, it discovered drums that had been left behind by a prior tenant, Astro Space or Chrysler. GE had these drums analyzed and at least one of them contained TCE. GE established a profile with Chemical Waste Management at Emelle to ship this material to Chemical Waste Management. This is indicative both of TCE use by other parties as well as of GE's good corporate citizenship regarding environmental compliance. These shipments to CWM of the prior tenant's TCE are reflected in the 1982 documents enclosed.

Also during our investigation, we learned that Wynn Drive Properties' insurance company required an assessment of the property in 1988. This assessment is memorialized in a report prepared by Bhate Engineering Corporation on behalf of New England Mutual Life Insurance Company and Wynn Drive Properties dated December 21, 1988. In this report, some of the prior tenancy and ownership information is listed, although there is some conflict between our understanding and the information presented in this report. It is interesting, however, to note that TCE is nowhere mentioned in the report, although TCA is. Please also note that the loading dock referenced in this report is nowhere near the area of concern. This report, prepared by an independent source, confirms many of the facts being relayed to you in this

letter. I am enclosing with this letter, in addition to the specific documents mentioned herein, certain other documents you may find of interest or containing information to confirm statements made to you either at the meeting or in this letter. If you have any questions about any of the enclosed information or this letter, please do not hesitate to call me.

I look forward to hearing from you at your convenience regarding your assessment of this information and the confirmation by the Department that it no longer holds GE Aerospace/Martin Marietta responsible for the contamination found at the referenced facility.

Very truly yours,

Jarred O. Taylor II

Enclosures
JOTII/cnb

cc: James Stevens, Esquire (w/encls.)

176072 TAYLOJ

ATTACHMENT 9

9

NOV 1994
RECEIVED
ADEM
GROUNDWATER
SECTION

1100 WYNN DRIVE
HUNTSVILLE, ALABAMA
BEC PROJECT NUMBER: 280118

Prepared for:

NEW ENGLAND MUTUAL
LIFE INSURANCE COMPANY
AND WYNN DRIVE PROPERTIES
C/O MORRIS, SMITH, SINIARD, CLOUD,
AND FEES, P.C.
300 CLINTON AVENUE WEST, SECOND FLOOR
HUNTSVILLE, ALABAMA 35901

ATTENTION: ATTORNEY CHARLES SMITH

BEC
Bhate Engineering Corporation
Geotechnical. Materials. Environmental Engineers

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5217 5th Avenue South
Birmingham ■ Alabama ■ 35212-3815
(205) 591-7062

December 21, 1988

New England Mutual Life Insurance Company
and Wynn Drive Properties
C/O Morris, Smith, Siniard, Cloud & Fees, P.C.
300 Clinton Avenue West, Second Floor
Huntsville, Alabama 35901

Attention: Attorney Charles Smith

Subject: Environmental Site Assessment
Property at 110 Wynn Drive
Huntsville, Alabama
BEC Project Number: 280118

Dear Attorney Smith:

Bhate Engineering Corporation's Environmental Group is pleased to submit the following Environmental Site Assessment for the subject project. The objective of this study was to evaluate past and present site specific environmental factors which may have an impact on the subject property. The findings of this study are presented in the following sections.

We appreciate the opportunity to work with you on this project. If you have any questions regarding the information contained in this report, please contact us at your convenience.

Respectfully submitted,

BHATE ENGINEERING CORPORATION
ENVIRONMENTAL GROUP

Walter B. Raymond
Environmental Geologist

John B. Milledge
Environmental Geologist

Donald A. Cables
Environmental Division Manager

Willie M. NeSmith, P.E.
Operations Manager

/rp

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APPENDIX

1.0 SCOPE OF WORK

The primary objective of this study was to evaluate the past and present site specific environmental factors which may have an impact on the subject property. The overall Environmental Site Assessment included the following.

1. Review of the property's chain of ownership.

2. Review of the historical usage of the property.

3. Review of the previous building tennants and their use of the subject structure.

4. Review of the applicable Alabama Department of Environmental Management (ADEM) and the U.S. Environmental Protection Agency's (EPA) listings.

5. Identification of suspect asbestos containing building materials (ACBM) during a preliminary asbestos survey.

6. Sampling and laboratory analysis of suspect ACBM to determine the presence of asbestos.

7. A visual survey of the subject structure and grounds for indications of the presence of hazardous waste and chemicals.

8. A visual survey of the subject structure and grounds for indications of the presence of Polychlorinated Biphenyls (PCB) containing electrical transformers.

2.0 SITE LOCATION AND DESCRIPTION

2.1 SITE LOCATION

The subject property is located on the southwest corner of the intersection of Wynn Drive and Gilmer Street in Huntsville, Madison County, Alabama. Presently the property is occupied by a large commerical/office structure which is discussed in detail in the following section. The subject property is bounded on the north by Gilmer Street, on the south by a multi-story offical commercial structure which houses the U.S. Army Stratigic Defence Command, on the southwest by a concrete lined drainage ditch and adjacent single family residential structures, on the east by Wynn Drive and on the west by a South Central Bell Field Maintenance Facility (Figure 1). The immediate area surrounding the subject property is generally comprised of office/commercial structures and single family residential neighborhoods.

2.2 BUILDING DESCRIPTION

Information previded by Mr. Newman McCown, Facilities Administrator for General Electric, indicates that the structure contains approximately 166,000 ft^2 of floor space. Approximately 24,000 ft^2 of the total structure, referred to as the Chrysler Building, was vacant during the time this site assessment was conducted. It is our understanding that the existing structure is actually a composite of five individual structures which were constructed at different times beginnning about 1966 through 1987. The five individual buildings, are discussed in detail in the following paragraphs and are illustrated on Figure 2. The total building is referred to as the subject structure in the text of this report.

Based on information provided by Mr. Newman McCown, Facilities Administrator, G.E., it is our understanding that the subject structure is served by all public utilities (water, sewer, gas and electricity). Floor drains are located within the restrooms, the new cafeteria area and the PC Board Plating Room. These drains are connected to the sanitary sewer system. No septic systems or wells of any type are present on the property. Solid waste disposal is provided by BFI, Huntsville, Alabama. We also understand that G.E. has four vehicles at this site. They include a van, a car, a station wagon, and 1 1/2 ton pickup truck. These vehicles are not maintained or serviced at this location. No underground storage tanks are present on the site.

The eastcentral protion of the subject structure, referred to in this report as the Old G.E. Building, is the oldest of the five buildings and was constructed around 1966. Information provided by Mr. Newman McCown revealed that this portion of the strucutre underwent extensive renovation and remodeling several years ago at which time most of the ceiling panels were removed and replaced. This one story building is constructed with concrete block exterior walls, a concrete floor slab and a metal roof with steel bar joints.

The northeastern portion of the structure, referred to as the Chrysler Building, contains approximately 24,000 ft.^{2} of floor space. No date of construction was available for this structure. This one story building is constructed with a concrete slab on grade with the roof system supported by metal joist. The underside of the roof decking is insulated with a yellow-orange fiberglass material. The east exterior wall is composed of brick. Metal siding is present along the north side of the structure.

The southeastern portion of the subject structure referred to as the Southeast Butler Building is a metal frame building with metal siding which is utilized for office space. Mr. McCown noted that this portion of the structure was constructed around 1982.

The southwest portion of the structure, referred to as the Cafeteria Building, is also a metal frame building. At the time our site assessment was conducted, this area of the subject structure was being remodeled to provide an employee cafeteria. It is our understanding that this building was constructed about 1985.

The western half of the subject structure, referred to as the New Addition in this report, is the newest building. This structure was added in 1987 resulting in an additional 106,000 ft^2 of floor space. This two story structure, is constructed with concrete floor slabs and a roof system supported by metal joist. The outside of the building covered with a Drive It exterior.

2.3 GROUNDS DESCRIPTION

The majority of the grounds of the subject property are occuppied by asphalt parking and drives with landscaped and natural areas surrounding the perimeter of the property. A concrete lined drainage ditch (approximately 40'-50' wide and 10'-12' deep) is present adjacent the southwest corner of the subject property (Plate No. 1). This drainage creek flows in an easterly direction at the southwest corner of the property. Information provided by Mr. Newman McCown indicates that this drainage ditch is dry during the summer months. Surface runoff from the west parking lot enters this concrete line drainage ditch by way of two concrete flumes present along the south side of the west parking lot (Plate No 2). A natural area within the southwest corner of the site is covered with grass and submature to mature hardwoods (Figure 1).

Several pole mounted transformers and 3 capacitors are present along the west property boundary. This area is also underlain by a buried electrical cable as revealed by posted signs (Figure 1).

During the site reconnaissance, a pad mounted electric air compressor was noted adjacent the southwest corner of the subject structure (Plate No. 3). This unit is mounted on a wooden pallet and is resting on a concrete slab within a fenced area. Four quarts of Dayton Air Compressor Oil were noted on the concrete slab. Visible signs of leaking compressor oil were observed. Oil was observed on the compressor motor. Oil staining was noted on the concrete pad and the adjacent ground surface. A BFI dumpster is also present adjacent the southwest corner of the subject structure (Figure 1).

A small grassed lined drainage ditch is present along the southern property boundary, directly south of the metal frame building currently being renovated for use as an employee cafeteria. This ditch is fed by a 12-18 inch diameter concrete pipe which runs under the south parking lot. Apparently the pipe connects to the storm drain inlets present within the south and east asphalt parking lots. This small drainage ditch discharges into the concrete lined ditch directly south of the southwest corner of the subject structure. This small drainage ditch was dry on the dates the site reconnaissance was conducted (Figure 1).

A loading dock is present along the central area of the south end of the subject structure. On the date the site reconnaissanc was conducted, three (3) empty 55 gallon drums of 111 Tricholroethane were present on the dock (Plate No. 4). In addition, one (1) full 55 gallon drum of Isopropanol Anhydrous was also present. A 55 gallon drum inside a Bondico Poly-overpack Salvage Drum was also present (Plate No. 5). Information obtained from Mr. Newman McCown and Mr. Chuck Reyna, General Electric, revealed that this drum contained a mixture of 111Tricholroethane and acid which had been used in the P.C. board etching process. Apparently, the steel 55 gallon drum was placed inside the plastic salvage drum when signs of corrosion were observed. Two pad mounted electrical transformers are also present directly north of the loading dock, between the two metal frame buildings (Figure 1).

A small portable electrical equipment shelter, (approximately 10' x 22' x 8') is present adjacent the loading dock along the south wall of the southeast Butler building. Information provided by Mr. Chuck Reyna revealed that this portable shelter contains automatic testing equipment. No chemicals are stored in the shelter (Figure 1).

A pole mounted electrical transformer is present at the southeast corner of the subject property. The eastern side of the property is grassed and landscaped.

Two pad mounted elelctrical transformers are present along the north side of the subject structure. An entrance canopy is present along the north side of the Chrysler Building. Asbestos containings ceiling panels were identified in this canopy (Plate Nos. 6 & 7).

3.0 CHAIN OF OWNERSHIP AND TENNANT OCCUPANCY

3.1 GENERAL

The chain of ownership, land use and tennant occupancy history presented in Section 3.0 of this report is based on information obtained from records on file in the Madison County Court House, Huntsville, Alabama and information provided by Morris, Smith, Siniard, Cloud & Fees, P.C., Attorney's at Law, Huntsville, Alabama. A telephone conversation with Lieutenant General Charles W. Eifler at 10011 San Ramon Drive SE, Huntsville, Alabama 35802, also provided information about tennant occupancy and tennant use of the building. The historical review of tennant occupancy and the review of past ownership represents a good faith only effort to be used in assessing the environmental impact of past land usage on future development. This review is in no way intended to represent a complete search for clear title to the property, nor is the completeness or accuracy guaranteed.

3.2 PAST LAND USAGE

Prior to about 1966, the subject site consisted of undeveloped land that was farmed, and a private residence as described in Section 3.3.

3.3 CHAIN OF OWNERSHIP

The title to the subject site prior to 1963 was retained by Miss Annie H. Bradford of 101 Clinton Avenue East, Huntsville, Alabama. A 1963 Tax Return List (Exhibit A in the Appendix) indicates that in 1963 the subject property consisted of undeveloped land, an 8 room house, 3 cabins and 2 barns.

The title to the subject site after 1963 is as set forth below:

1. On September 9, 1963, this property was conveyed to Research Sites Foundation by Deed recorded in Deed Book 328 at Page 239 in the Probate Records of Madison County, Alabama.

2. On November 21, 1966, University of Alabama, Huntsville Foundation (formerly Research Sites Foundation, Inc.) conveyed the 13.25 acre site (which is the present size of the subject site) to Huntsville Industrial Associates, Inc. by Deed recorded in Deed Book 387 at Page 243 in the Probate Records of Madison County, Alabama. At the time this Deed was conveyed, it was expressly agreed by and between the parties that this property shall be the site of a telephone communications center or a

research or development or testing or related facility (including facilities for general office purposes). It was also expressly agreed that this property shall not be used or maintained as a dumping ground or for the storage of rubbish, trash, junk, scrap iron or like material. All trash, garbage and other waste would be kept in closed, sanitary containers pending removal from the premises.

In 1966 Huntsville Industrial Associates, Inc. built a building on the site. A copy of the City of Huntsville Inspection Record, dated December 22, 1966, which sets forth the building activity is included in the Appendix as Exhibit B. This building was leased to Astro Space as noted in the Tennant Occupancy History presented in Section 3.4 of this report.

3. Huntsville Industrial Associates, Inc. retained title to the subject property until it was conveyed to Wynn Drive Properties in May of 1985 as recorded in Deed Book 630 at Page 536 in the Probate Records of Madison County, Alabama.

4. Since 1985, Wynn Drive Properties has continued to own the subject property.

It appears that the subject site has been used as a manufacturing facility for small electrical components, and a testing and research center since the initial building was constructed in about 1966.

3.4 TENNANT OCCUPANCY

The building at 110 Wynn Drive, Huntsville, Alabama is actually a composite of four phases of construction activity that have occurred from about 1966 through 1987. The initial building was built in 1966 by Huntsville Industrial Associates, Inc. A history of the building occupancy and the use of the building by those occupants is presented below.

1. In 1966 Huntsville Industrial Associates, Inc. leased to Astro Space. Astro Space was involved in research and development of mechanical and electrical models and test devices for the federal government.

2. Chrysler Corporation was the next entity that occupied the building in the early 1970's. Chrysler occupied the southern part of the building while the north part of the building was vacant during this time period. Work at the Chrysler facility involved updating electronic test equipment and manufacturing electrical performance equipment.

3. General Electric Corporation replaced Chrysler Corporation in the southern part of the building in the mid 1970's and Micrometrics occupied the northern part of the building during this same time period. These firms were involved with testing and updating electrical and mechanical equipment under contract by the U.S. Government.

4. Chrysler Corporation moved back into the northern portion of the building (24,000 square feet) in November, 1981. Work performed by Chrysler involved design and testing of electrical and communication controls for high speed trains. The floor in a portion of the building was modified to accomodate high technology computer equipment.

5. Chrysler ceased operations and moved out of the building in November, 1987. However, General Electric continued to occupy the southern part of the building and expanded its operations to include occupancy beginning January 1, 1988 of the new 106,000 square foot addition. General Electric is involved is research, development and testing of computer equipment and other electrical devices.

4.0 REVIEW OF ADEM AND EPA LISTINGS

During preparation of this report, the EPA Facility Index System (FINDS) listing, EPA Comprehensive Environmental Response, Compensation, Liability Act Information System (CERCLIS) listing and the ADEM Hazardous Waste Data Management System (HWDMS) listing were reviewed. The FINDS listing is a tabulation of all sites or facilities which are subject to EPA regulations. The CERCLIS listing is a summary of actual, suspected or alleged locations of environmental impairment. The HWDMS listing is a list of generators, transporters, and treatment and storage facilities of hazardous waste which require a permit and are closely regulated by the Alabama Department of Environmental Management.

General Electric at 110 Wynn Drive, Huntsville, Alabama is listed on the U.S. Environmental Protection Agency Facility Index System (FINDS) and the Alabama Department of Environmental Management Hazardous Waste Data Management System (HWDMS) listings. This property is not included on the EPA CERCLIS list for Madison County.

The EPA and State Hazardous Waste genarator numbers as provided by Mr. C.W. Reyna are as follows:

EPA I.D.# ALD009305608
Alabama I.D.# 0000000511

5.0 HAZARDOUS WASTE SURVEY

On December 16 and 19, 1988, a hazardous waste survey was conducted at the subject property by Mr. John Milledge and Mr. Walter Raymond of Bhate Engineering's Environmental Group. This survey consisted of a visual inspection of the interior of the subject structure and the grounds of the property for indications of the presence of hazardous waste. This survey concentrated on identification of substances classified as either "characteristic wastes" or "listed wastes" by the Resource Conservation Recovery Act of 1976 (RCRA). RCRA defines characteristic wastes as those which are ignitiable, corrosive, reactive, or toxic. Listed wastes are those substances which have been determined to be hazardous by the Environmental Protection Agency (EPA) and are included on lists published by the EPA.

During the hazardous waste survey conducted within the interior of the subject structure, two areas of chemical use were identified by Mr. Newman McCown and Mr. Chuck Reyna, General Electric. These areas included the PC Board Plating Room located within the Old G.E. Building and the production area within the lower level of the new 106,000 ft^2 addition.

Within the PC Board Plating Room, twelve (12) containers of small quantities of potentially hazardous chemicals, no longer used, were noted. Many of these containers have never been opened. An inventory of the chemical noted on December 19, 1988, prepared by Mr. Chuck Reyna, General Electric, has been included in the Appendix of this report. Information provided by Mr. Reyna revealed that this plating operation has not been utilized for over two years. General Electric is presently in the process of dismantling this laboratory and disposing of these chemical substances. These chemicals are not considered a sever environmental threat provided they are properly disposed of.

111 Trichloroethane is used in the production area witin the lower level of the new 106,000 $ft.^2$ addition. This substance is used within a Branson Cleaning Machine for the purpose of cleaning flux from solder boards.

Mr. McCown noted that the interior of the subject structure is sprayed on a monthly basis by Dixie Pest Control. Information obtained from Jackie Glass, Dixie Pest Control, revealed that the chemicals routinely used within the structure include Darsban, Malathion, and Demon EC. Information obtained from Mr. Arnie Grigsby, U.S. EPA, Region IV, revealed that these products have not been banned by the EPA nor has their use been restricted provided they are applied as per the manufacturers instructions.

Mr. McCown also noted that a contract cleaning service was retained to maintain the interior of the subject structure. Information provided by Mr. Morty Banks, Huntsville Professional Maintenance Service, indicates that general purpose cleaners such as glass cleaner, floor stripper, floor finish and disinfectant were used in the building. Mr. Banks stated he would supply Material Safety Data Sheets on the various products used if necessary.

No other suspect areas were identified during the hazardous waste survey conducted within the subject structure or during interviews with Mr. McCowen and Mr. Reyna. Likewise, no suspect areas were identified within the unoccupied portion of the building referred to as the Chrysler Building.

While on site, a hazardous waste survey was also conducted on the ground of the subject property. Typically, during a hazardous waste survey, areas of possible environmental impairment are documented and sampled and analyzed as deemed necessary. When conducting an environmental site assessment suspect areas to be investigated include, but are not limited to, areas of distressed vegetation, areas of discolored soil or standing water and areas which exhibit unusual or chemical odors.

Information obtained during the preparation of this report revealed that the grounds of the subject property are maintained by Webster's Lawn Care. Information provided by Mr. Lee McBride, Webster's Lawn Care, revealed that the chemicals reoutinely applied to the grounds of the subject property include Iron Chelates, MSMA, Basagran, Pendimethalin, Surflan, and Trimac. Information provided by Mr. Arnie Grigsby, U.S. EPA revealed that these products have not been banned by the EPA nor has their use restricted provided they are applied as per the manufactures instructions.

As discussed in Section 2.3, a small electric air compressor was observed adjacent the southwest corner of the subject structure. This unit appears to be leaking oil as evidenced by the presence of oil on the exterior or the compressor motor and oil staining on the concrete pad and adjacent ground surface. This leakage appears to be minor and should not pose a severe environmental threat. However, the source of the leak should be repaired or replaced or an appropriate containment system should be constructed. No other areas of possible environmental impairment were noted in the grounds of the subject property on the date the hazardous waste survey was conducted.

6.0 ASBESTOS SURVEY

On December 16 and 19, 1988, and asbestos survey was conducted at the subject property by Mr. John Milledge and Mr. Walter Raymond of Bhate Engineering Corporation's Environmental Group. This survey consisted of visually inspecting the interior and exterior of the subject structure for the presence of asbestos containing building materials. We note that although a prudent effort was made to obtain and analyze at least one sample of each suspect material noted, there is no assurrance that all suspect asbestos containing building materials were identified during the asbestos survey. This is due in part to the vastness of the structure with regard to budgetary restraints, as well as possible past renovations and repairs within the structure as the result of fires, plumbing repairs, remodeling, or vandalism.

In the past, asbestos has been used in literally thousands of products, collectly referred to as asbestos containing materials. These products include building materials such as ceiling tiles, floor tiles, pipe insulation, fireproofing and acoustical plaster. Asbestos gained wide spread use because it is plentiful, readily available, low in cost and because of its unique properties, i.e., it does not burn, it is strong, it conducts heat and electricity poorly, and it is impervious to chemical corrosion.

One of the most common uses for asbestos was a fireproofing material. It was sprayed on steel beams used in construction of multi-storied buildings to prevent structural members from warping or collapsing in the event of fire. Asbestos is also added to a variety of building materials to enhance strength. It is found in concrete and concrete-like products such as sideing, roofing shingles, and pipes. Asbestos has also been added to asphalt, vinyl, and other materials to make products like roofing felts, floor tiles, joint compounds and adhesives. Asbestos also received wide spread use for thermal insulation and condensation control. Asbestos has also been used as a component of acoustical and decorative plaster.

During the asbestos survey conducted at the subject structure on December 16 and 19, 1988, forty-one (41) suspect asbestos containing building materials were identified and sampled. These materials included ceiling panels, floor tiles and adhesive mastic, vinyl baseboards and adhesive mastic, pipe and duct insulation, ceiling insulation, roof insulation, and a textured exterior surfacing material. The bulk samples were analyzed by Environmental Management and Engineering, Inc. (EME) and Environmental Material Consultants (EMC) for asbestos content using polarized light microscopy (PLM). The asbestos bulk sample analysis reports, prepared by EME and EMC have been included in the Appendix.

Table 1 summarizing the sample locations, descriptions and laboratory test results for each suspect material analyzed, has also been included in the Appendix of this report. In summary, asbestos was identified in six (6) samples of the forty-one (41) samples collected and analyzed. A summary of the samples which were determined to be positive for asbestos content is presented below. Analysis of the remaining samples submitted for identification did not reveal the presence of asbestos.

Summary of Samples Determined to Contain Asbestos

BEC Sample No.	Sample Description	Location of Sample
JM-13	White Ceiling Panel	PC Board Plating Room Old GE Bldg. Sample from ceiling panel though which exhaust vent is extended.
JM-15	Off-white Ceiling Panel (Hard Textured)	PC Board Plating Room Old GE Bldg.
JM-26	Floor Tile Adhesive (Floor Tile does not contain asbestos)	Janitors closet within SE Bulter Bldg. (Probably same material used in adjacent restrooms in this bldg.
JM-27	Floor Tile & Adhesive (white with black streaks)	Hallway of Chrysler Bldg. (SE corner)
JM-33	Backing of rolled vinyl flooring (top is vinyl)	4th Room on Left from SE corner of Chrysler Bldg.
JM-41	White Ceiling Panel (Hard, textured)	Entrance canopy, north side of Chrysler Bldg.

7.0 POLYCHLOCINATED BYPHENYL (PCB) ELECTRICAL EQUIPMENT

During the hazardous waste survey conducted on December 16 and 19, 1988, the subject structure and grounds were also visually inspected for the presence of Polycholorinated Biphenyl (PCB) labeled electrical equipment. Electrical equipment which possibly contain PCB dielectric fluids include distribution transformers, capacitors, and rectifiers.

Information provided by Mr. Newman McCown, G.E. Facilities Administrator, indicates that some dry-type step down transformers are present inside the subject structure, however, no oil filled transformers are present inside. During the exterior hazardous waste survey, several pad mounted and pole mounted distribution transformers were observed. In addition, a pole mounted capacitor bank was also noted along the west side of the property. These units are the property of Huntsville Utilities.

The three pole mounted capacitors located on the west property boundary are clearly labled as non-PCB units. However, information obtained from Mr. Jack Mathis, Huntsville Utilities Company, revealed that not all of Huntsville Utilities distribution transformers have been tested for PCB content. Mr. Mathis noted that ususally units are not tested for PCB's unless they are returned to the shop for maintenance. Therefore, Huntsville Utility distribution transformers must be considered as PCB contaminated.

8.0 CONCLUSIONS AND RECOMMENDATIONS

1. Several containers of potentially hazardous chemicals were observed within the PC Board Plating Room of the Old G.E. Building. It is our understanding that this plating operation has not been utilized for several years. G.E. is presently in the process of dismantling this laboratory and disposing of these chemical substances. These chemical are not considered a environmental threat provided they are properly stored and disposed of.

2. 111 Trichloroethone is used in the production area within the lower level of the new 106,000 ft^2 addition. This substance is used within a Branson Cleaning Machine for the purpose of removing flux from solder boards. This substance should be used following all applicable safety precautous as outlined in the MSDS. Likewise, the manufactures instructions should be followed when using this substance in the Branson Cleaning Machine.

3. It is our understanding that the empty 55 gallon drums (previously containing 111 Trichloroethane) noted in the south loading dock are used to return the spent solvent to the chemical manufacturer. These drums should be stored in a secured area until needed since the empty container may contain potentially hazardous residue in the form of solids, liquids, or vapors. Drums which will not be used to return spent product should be properly disposed of.

4. The chemical substance contained within the salvage drum on the south loading dock should be properly disposed of to prevent possible environmental contamination if accidently or intentionally overturned. Likewise, no use for the Isopropanol Anhydrous was identified during our interview with G.E. personnel. This 55 gallon drum should be properly disposed of or stored in an approved storage area.

5. A small electric air compressor was noted along the southwest corner of the subject structure. Oil was observed on the exterior of the compressor motor. Likewise, oil staining was observed on the concrete pad and adjacent ground surface. The source of the leak should be repaired or replaced or an appropriate containment system should be installed to prevent possible environmental contamination.

6. Numberous pad-mounted and pole-mounted electrical distribution transformers are present on the property or on the property boundaries. Information obtained from Huntsville Utilities indicates that these units have not been tested for PCB content and therefore are classified as PCB contaminated. Although these units are the property of Huntsville Utilities, they should be sampled and analyzed to determine PCB content since a leak or explosion of a distribution transformer containing PCB dielectric fluid could greatly impact the subject property.

7. Asbestos containing building materials were identified in six of bulk samples collected and analyzed during the asbestos survey. Specific asbestos recommendation are presented below:

   1. An operations and maintenance program should be implemented in accordance with the Occupational Safety and Health Administration (OSHA) Asbestos Construction Standard, 29 CFR 1926.58, and the EPA publication entitled Guidance for Controlling Asbestos-Containing Materials in Buildings. The purpose of such a program is to ensure the appropriate engineering, work practice and personnal protective equipment controls are used when maintenance, renovation and/or housekeeping tasks are performed on or in the vacinity of asbestos-containing materials in order to minimize the potential for the release and exposure to airborne asbestos fibers.

   2. If an asbestos clean-up abatement or removal project is undertaken, regardless of size or scope, such a project should be carried out in accordance with the above OSHA regulation and EPA guideline, and EPA regulation 40 CFR 61, Subpart M, which specifies additional requirements for the renovation of buildings with asbestos-containing materials and the disposal of asbestos-containing waste.

   3. As per the requirements of the Occupational Safety and Health Adminsitration (OSHA) Asbestos Construction Standard, 29 CFR 1926.58, the materials determined to contain asbestos should be labeled as follows:

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

9.0 CLOSING REMARKS

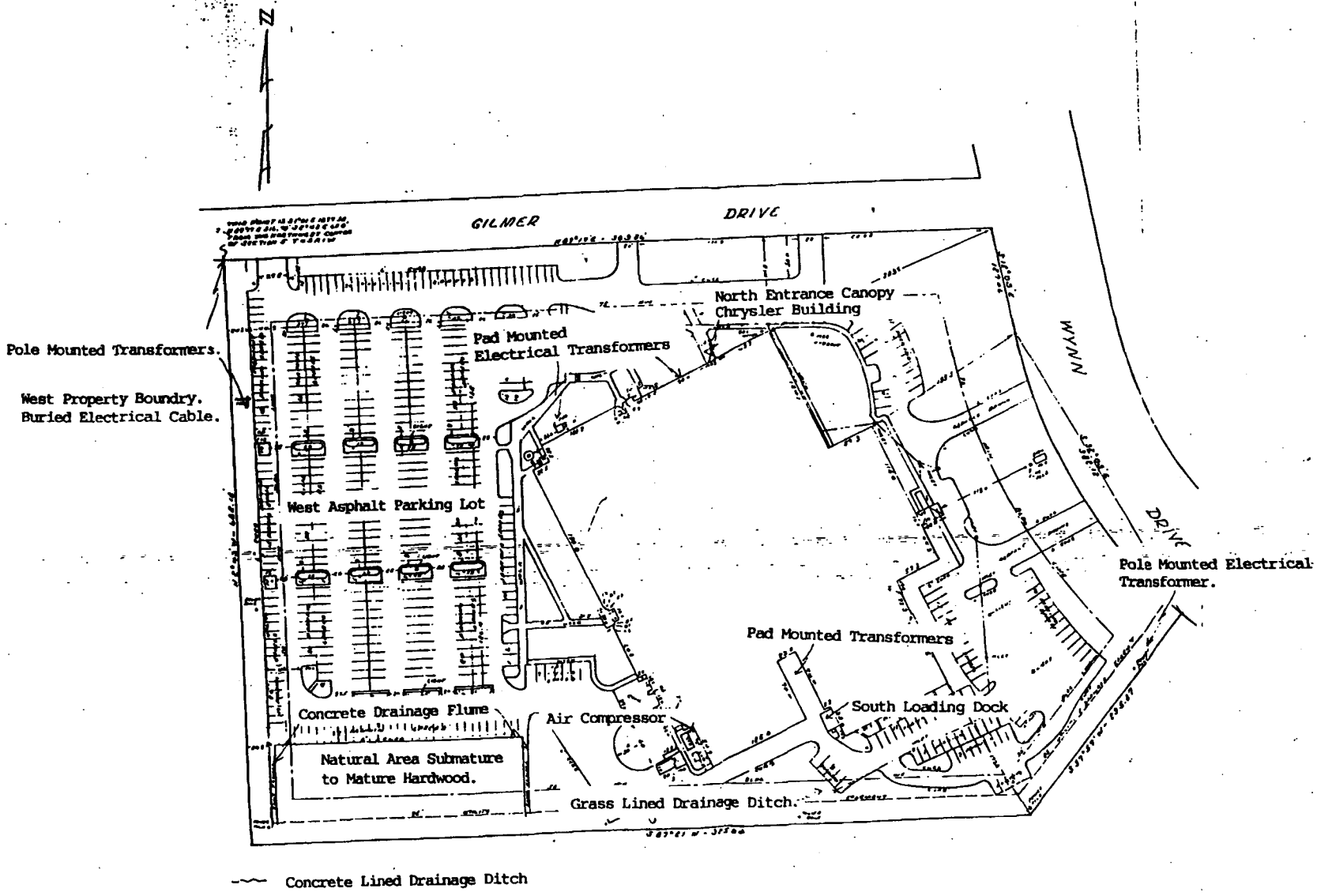
This environmental site assessment and asbestos survey has been prepared for the exclusive use of Morris, Smith, Siniard, Cloud & Fees, P.C., their client, their legal counsel and their lending institution for specific application to the subject site. The information presented in this report is based solely on a review of the available records as noted within, observations made during the site reconnaissance and asbestos survey, and laboratory analyses as noted within. Interview with local residents and General Electric employees represents a good faith only effort used in assessing the environmental impact of past land usage and current operational procedures. No warranty to the completeness or accuracy of these personnal communications is expressed or implied. A listing of the information sources noted within this report has been included as Table 2 in the Appendix.

The scope of this study was limited to an examination of conditions within the site boundaries. No specific soil or groundwater contaminants were tested for during the preparation of this report. Possible future contamination from off-site sources was not evaluated.

Future environmental conditions can change subject to, but not limited to, construction activity in the area, renovation/construction activity or future building use. The opinions and findings in this report represent those conditions apparent at the time this study was conducted.

APPENDIX A

FIGURES 1 Through 3



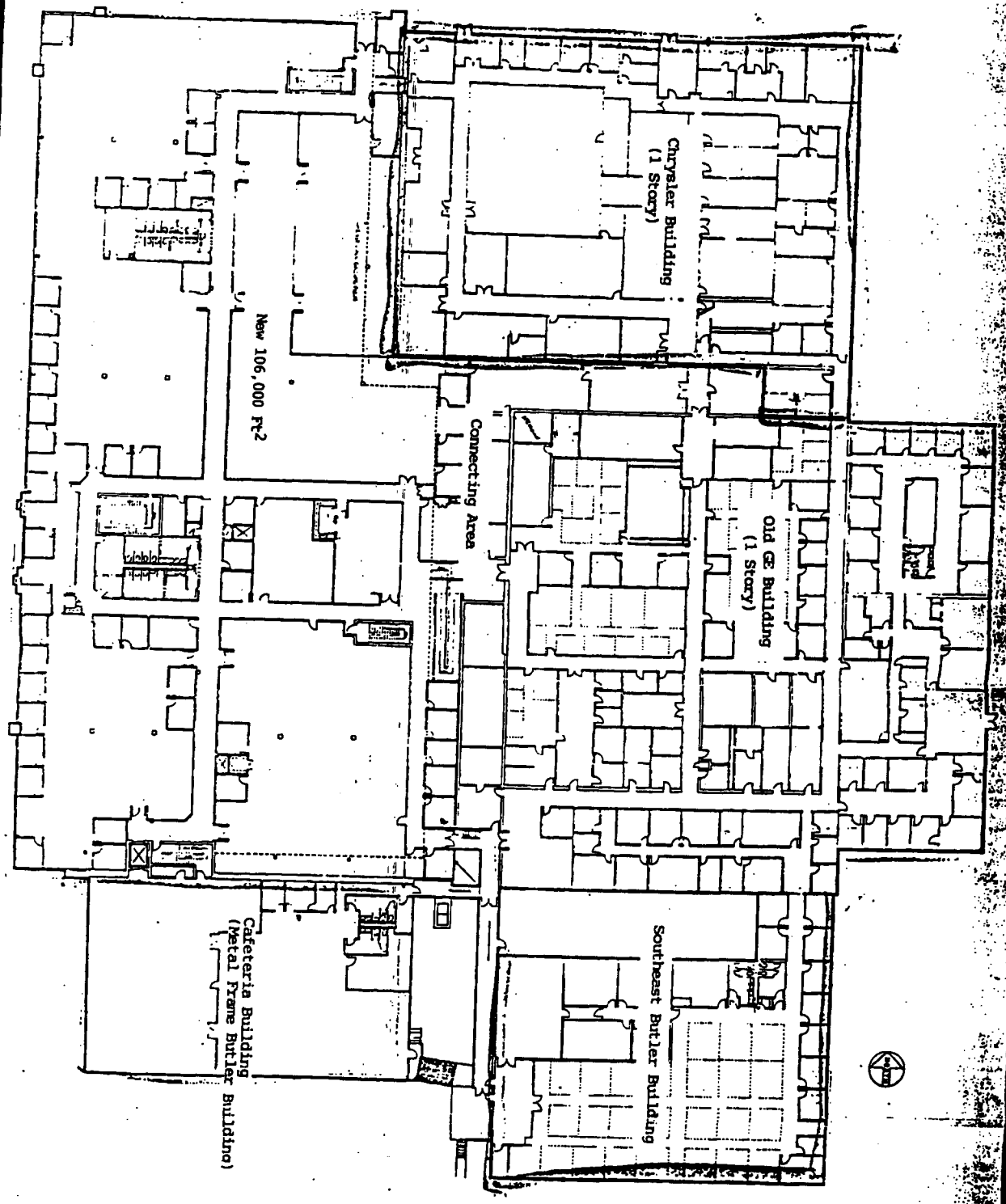
ENVIRONMENTAL SITE
ASSESSMENT
PROPERTY AT
110 WYNN DRIVE
HUNTSVILLE, ALABAMA

Figure 1

SITE PLAN

PROJECT NO.	SCALE	DATE	DRAWN BY:	CHECKED BY:
280118	1"=120'	12-21-88	AEM	JBM

Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers



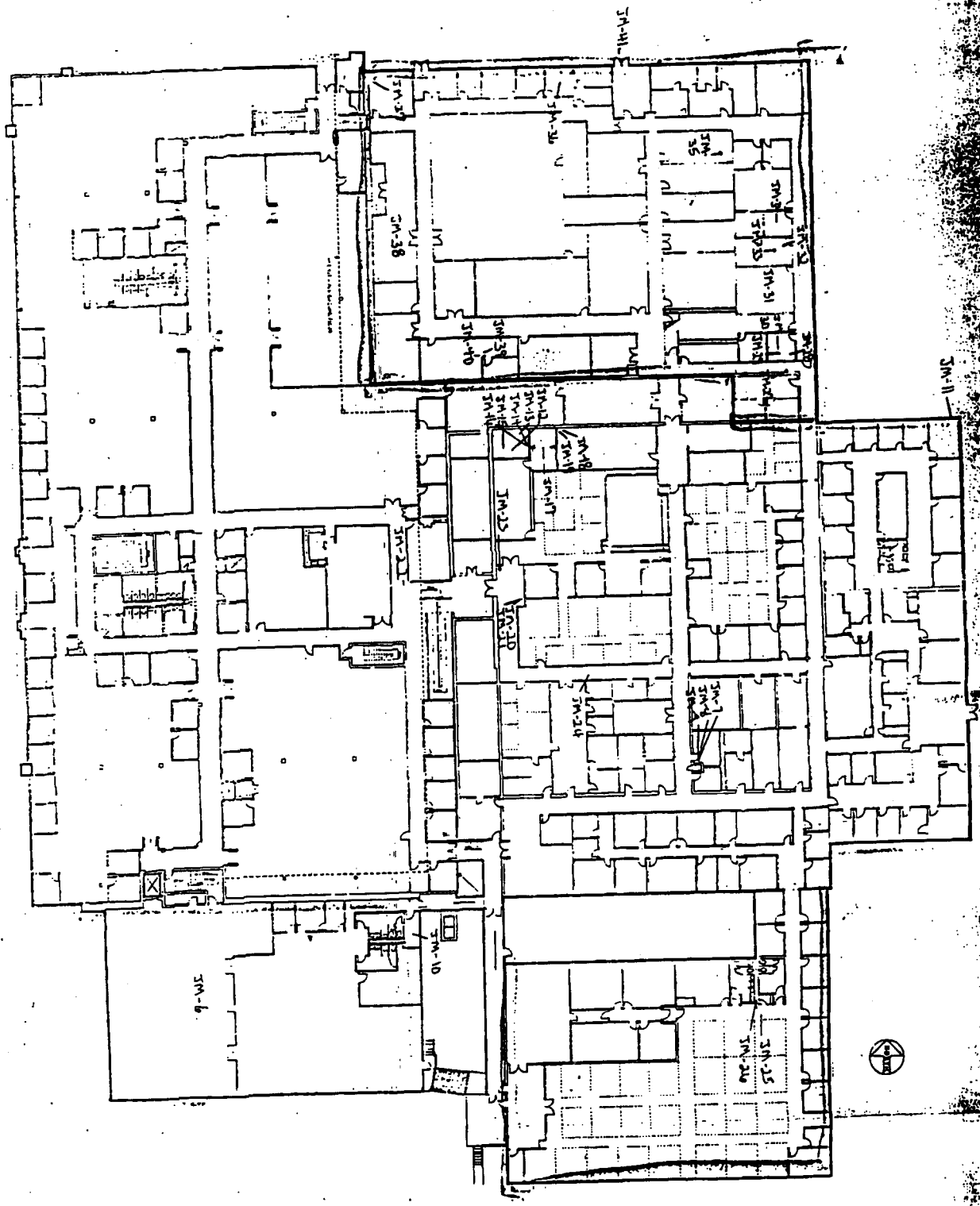
Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers

BUILDING PLAN

PROJECT NO.	SCALE	DATE	DRAWN BY:
280118	NTS	12-21-88	AEW
			CHECKED BY: JBM

ENVIRONMENTAL SITE ASSESSMENT
PROPERTY AT
110 WYNN DRIVE
HUNTSVILLE, ALABAMA

Figure 2



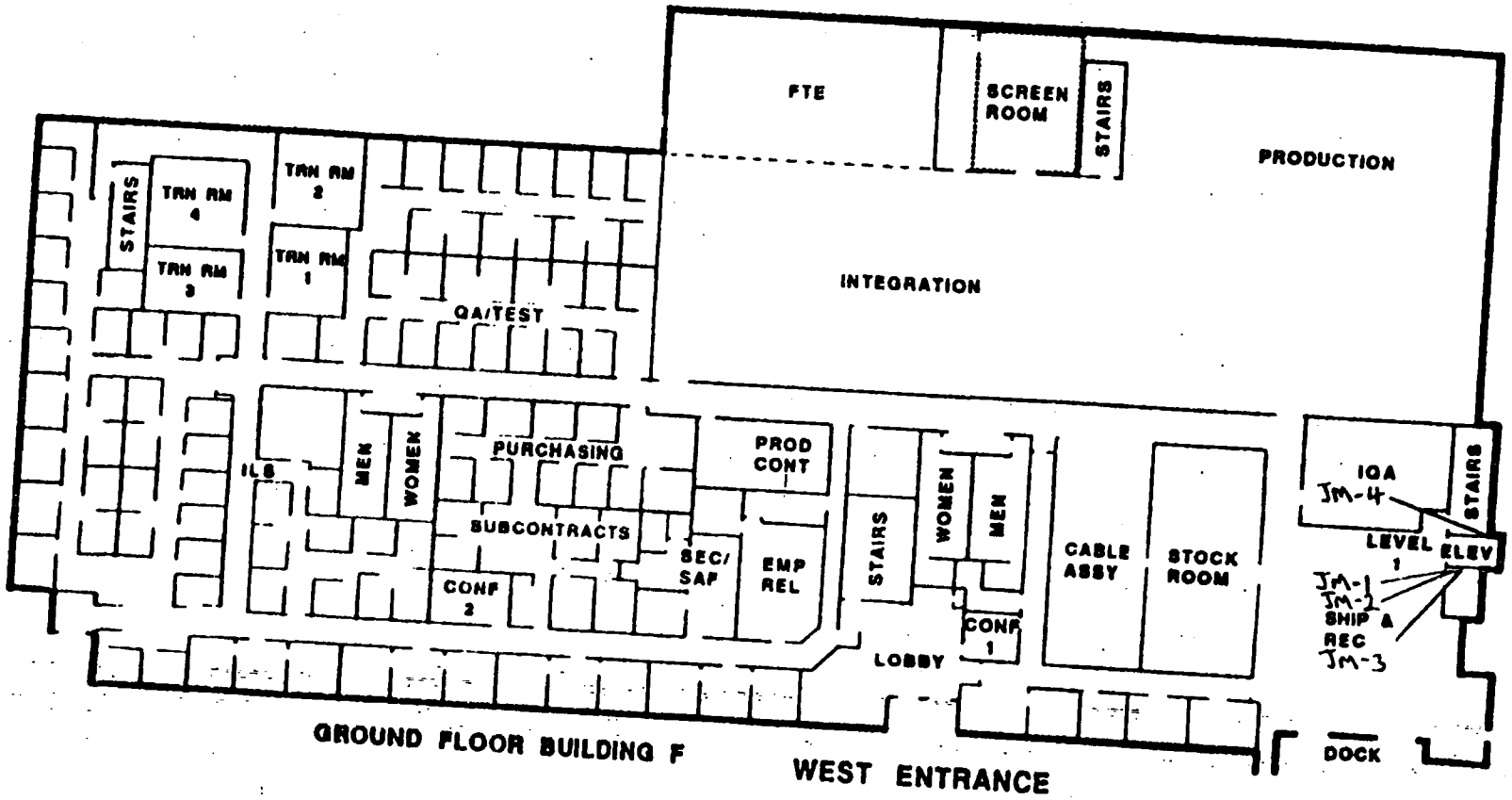
Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers

ASBESTOS BULK SAMPLE LOCATION DIAGRAM

PROJECT NO.	SCALE	DATE	DRAWN BY: AEW
280118	NTS	12-21-88	CHECKED BY: JEM

ENVIRONMENTAL SITE ASSESSMENT
PROPERTY AT
110 WYNN DRIVE
HUNTSVILLE, ALABAMA

Figure 3



Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers

ASBESTOS BULK SAMPLE LOCATION DIAGRAM

PROJECT NO.	SCALE	DATE	DRAWN BY: AEM
280116	NTS	12-21-88	CHECKED BY: JEM

ENVIRONMENTAL SITE ASSESSMENT
PROPERTY AT
110 WYNN DRIVE
HUNTSVILLE, ALABAMA
Figure 3A

APPENDIX B

PHOTOGRAPHIC PLATES 1 Through 7

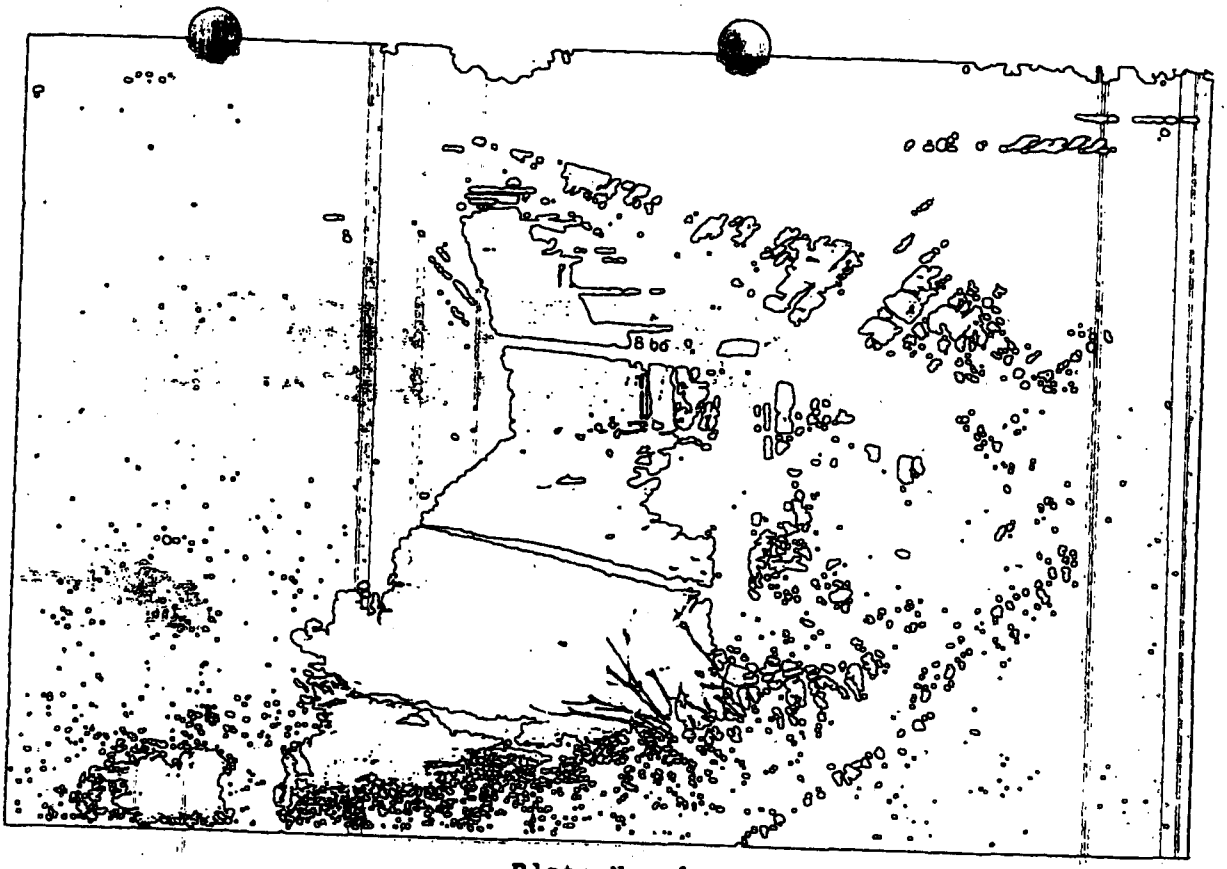


Plate No. 1
— Drainage Ditch Along Southwest —
quadrant of subject site.

Plate No. 2
— Drainage Plume near Southwest —
Corner of west asphalt parking lot

Plate No. 3
Air Compressor Located Near Southeast
Exterior Wall of Building.

Note Oil Stains.

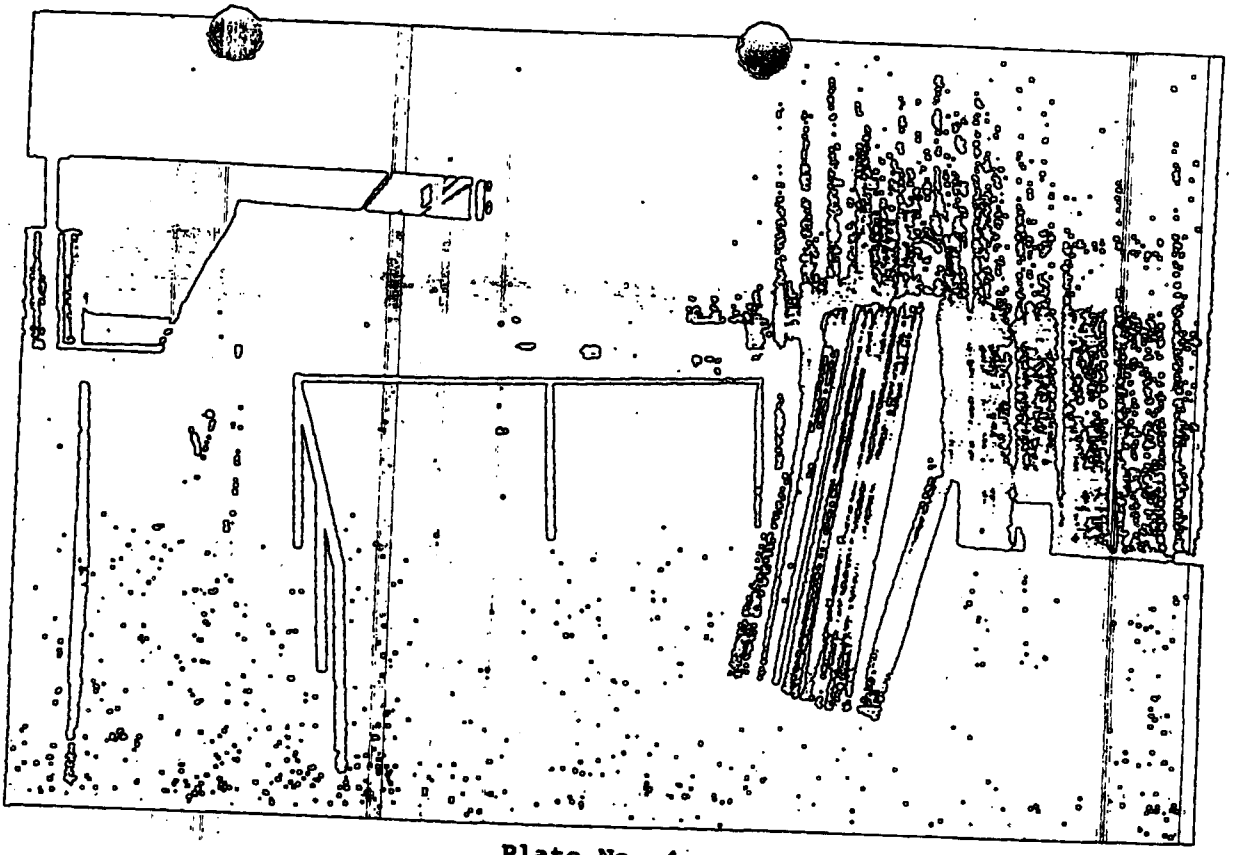


Plate No. 4
Loading Dock near Southcentral
Exterior of building. Black
drum is empty.

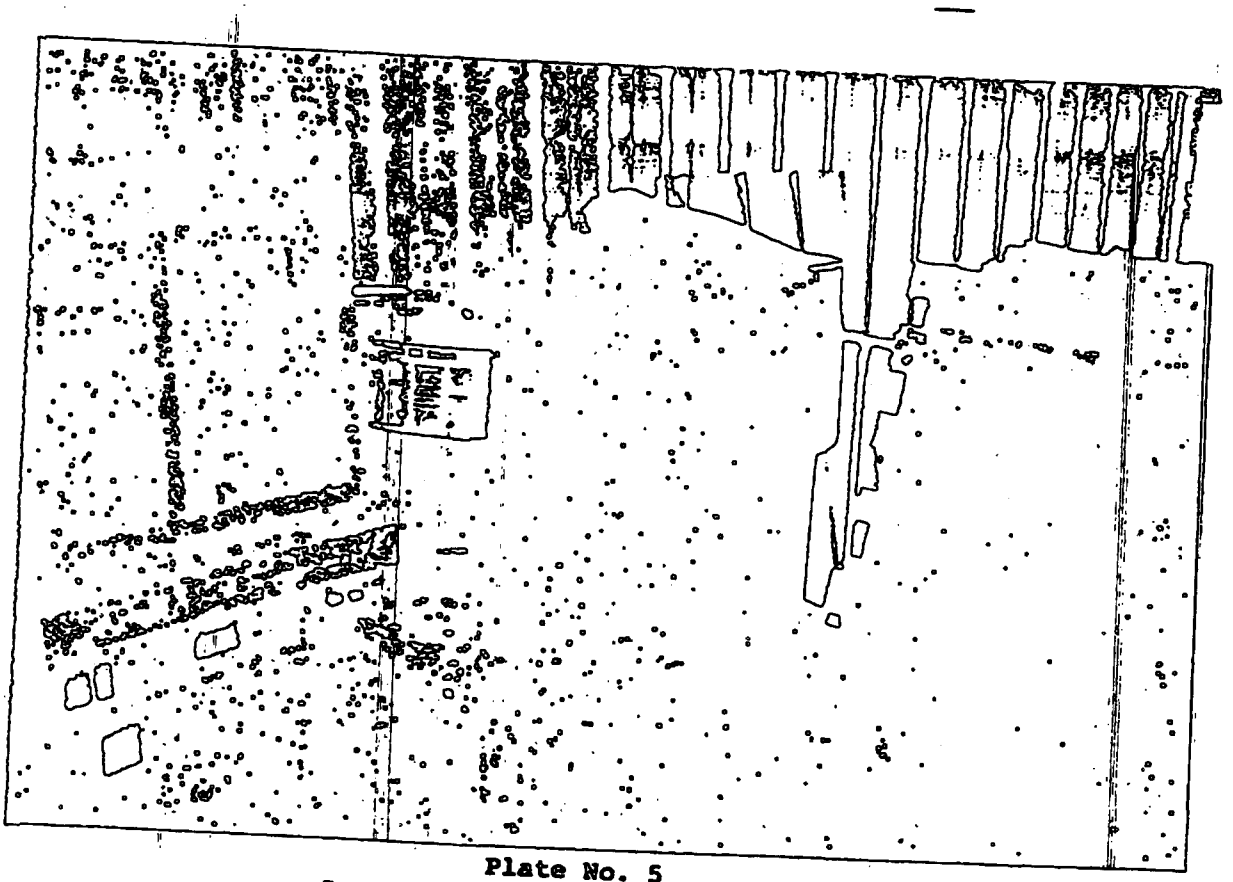


Plate No. 5
Loading Dock near Southcentral
Exterior of building. Yellow
drum contains acid mixture

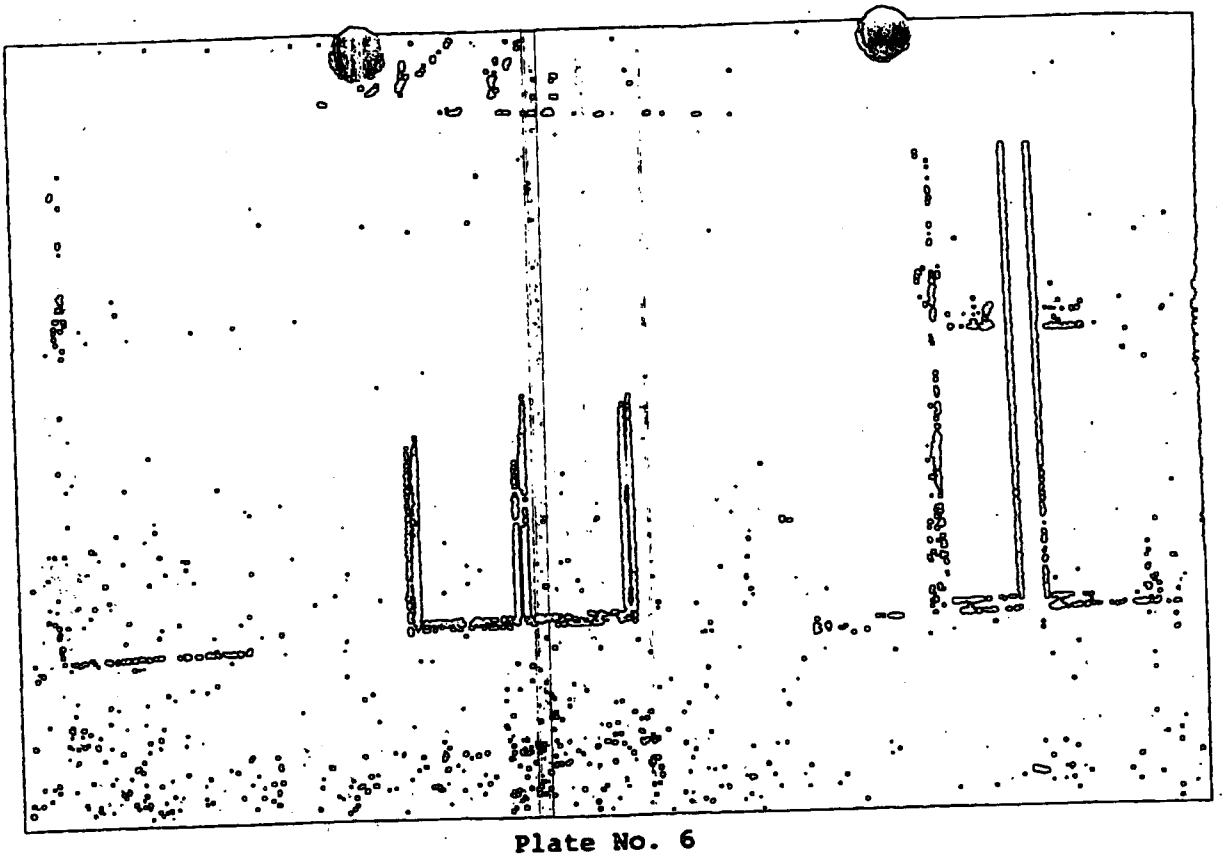


Plate No. 6
Entrance Canopy North Side of Building

Plate No. 7
Entrance Canopy North Side of building showing detail of white transite asbestos panel

PLATES

PLATE
1

U.S. EPA REGION IV

SDMS

Unscannable Material Target Sheet

DocID: 10603192 Site ID: ALD009305608

Site Name: MC Aerospace / Martin Marietta

Nature of Material:

Map:	☑	Computer Disks:	☐
Photos:	☐	CD-ROM:	☐
Blueprints:	☐	Oversized Report:	☐
Slides:	☐	Log Book:	☐

Other (describe): Radius Map

Amount of material:

* Please contact the appropriate Records Center to view the material *