B&V WASTE SCIENCE AND TECHNOLOGY CORP.

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#26956

US EPA - REGION IV
ITT Suspension Systems Division
Work Assignment No. 12

BVWST Project 52011.045
BVWST File
July 16, 1993

U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, GA 30365

Subject: Final Phase I Site Inspection
ITT Suspension Systems Division
Macon, Bibb County, Georgia
EPA ID № GAD098584063

Attention: Mr. Narindar Kumar
Chief, Site Assessment

Gentlemen:

Enclosed are three copies of the Final Phase I Site Inspection Report for the ITT Suspension Systems Division located in Macon, Bibb County, Georgia. Mr. John McKeown, the site assessment manager for georgia has three copies of the corresponding references.

If you have any questions or comments, please contact me by telephone at 901-5147.

Very truly yours,

B&V WASTE SCIENCE AND TECHNOLOGY CORP.

Dan Keck
Project Engineer

Enclosures

cc: Mr. Doug Thompson, EPA PO w/o enclosure
Mr. Keith Mills, EPA CO w/o enclosure
Mr. Hubert Wieland, BVWST w/o enclosure

Phase I
SITE INSPECTION

ITT Suspension Systems Division
Macon, Bibb County, Georgia
EPA ID № GAD098584063
WasteLAN Reference № 01632

EPA Work Assignment Contract № 11
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Prepared for
U.S. Environmental Protection Agency
Region IV

Prepared by
B&V Waste Science and Technology Corp
BVWST Project № 52011.045

July 16, 1993

Prepared by:	Reviewed by:	Approved by:
Dan Keck	Scotti Holcombe	Hubert Wieland
Site Manager	Technical Reviewer	Project Manager

PHASE I
SITE INSPECTION
ITT Suspension Systems Division
Macon, Bibb County, Georgia

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PHASE I SITE INSPECTION
ITT Suspension Systems Division
Macon, Bibb County, Georgia
EPA ID № GAD09584063

WasteLAN № 01632

1.0 Introduction

B&V Waste Science and Technology was tasked by the U.S. Environmental Protection Agency (EPA), Waste Management Division to conduct a Phase I Site Inspection for the ITT Suspension Systems Division in Macon, Bibb County, Georgia. The inspection was performed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Sources of information for this report were the U. S. Environmental Protection Agency, the Georgia Department of Natural Resources Environmental Protection Division, B&V Waste Science and Technology Site reconnaissance on May 27, 1992, and local City and County offices which provided property, water supply, historical, and other pertinent information.

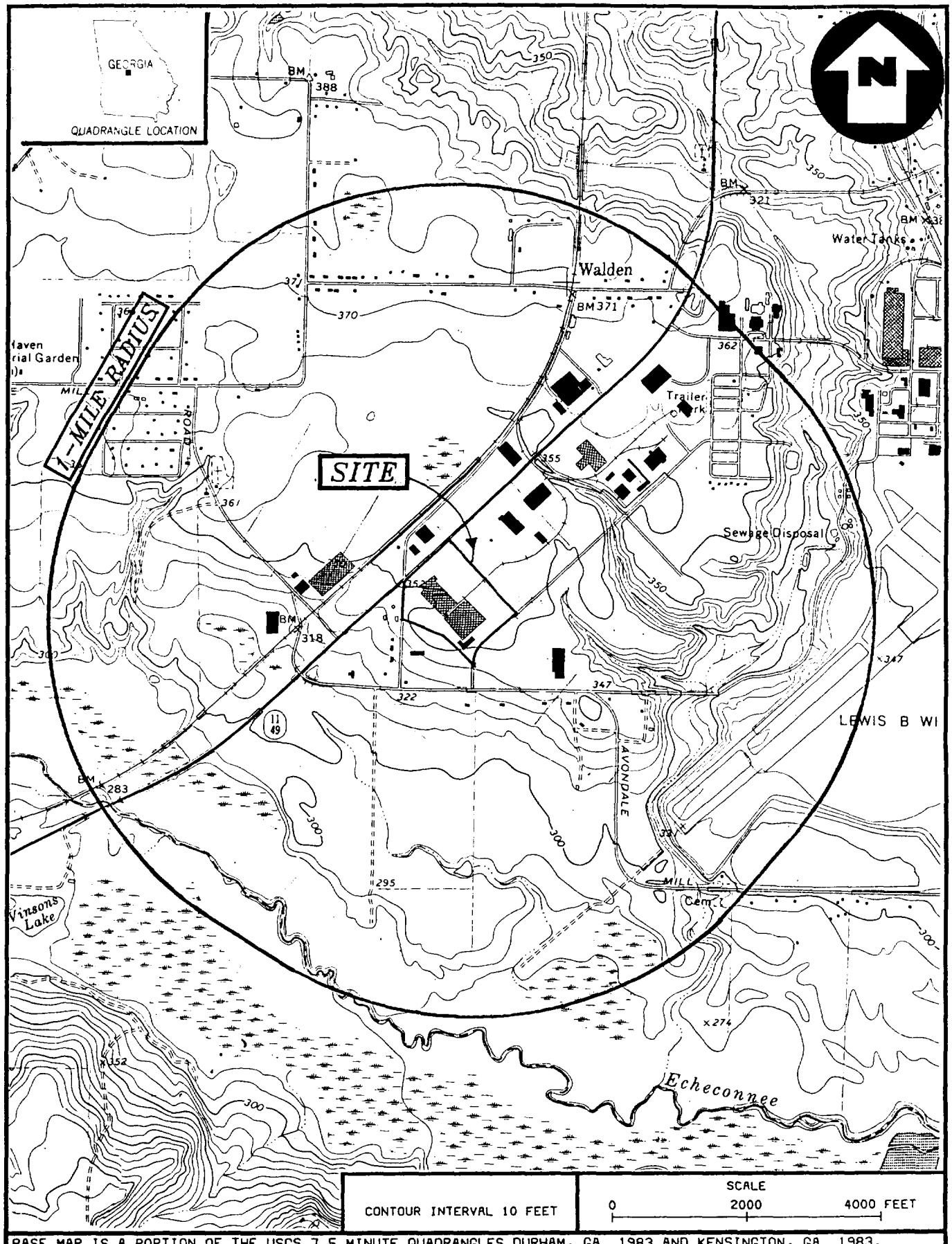
1.1 Objectives

The objectives of this study were to determine the nature of contaminants possibly located on the site and to determine if a release of these contaminants to the environment may occur. If a release to the environment was found likely to occur, the possible pathways for contaminant migration were to be evaluated with the affected populations and their environments. From the realization of these objectives, a recommendation for future activities at the site will be presented.

2.0 Site Description, History, and Waste Characteristics

2.1 Location

The ITT Suspension Systems site is located in the southern portion of Bibb County, approximately one mile north of the Bibb-Houston county line. The eastern corners of Crawford, and Peach counties, as well as the western edge of Twiggs County, all lie within the four-mile radius of the site (see Figure 1). The geographic coordinates



BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE QUADRANGLES DURHAM, GA. 1983 AND KENSINGTON, GA. 1983.

SITE LOCATION MAP
ITT SUSPENSIONS
SOUTHERN BIBB COUNTY, GEORGIA

FIGURE 1

of the site are 32° 41' 45.0" north latitude and 83° 40' 23.0" west longitude (Ref. 1). The facility address is 7980 Industrial Highway, Macon, Georgia 31206.

The site is relatively flat with little or no slope, but drainage does flow in a generally southern direction. The site is situated at approximately 350 feet above mean sea level (amsl)(Ref. 1).

The climate of the study area is characteristically humid and temperate. The mean annual precipitation, which is almost all rainfall, is approximately 45 inches (Refs. 2, 3). Precipitation is fairly well distributed throughout the entire year with the lowest rainfall occurring in late fall and early winter. Even during these months, rainfall seldom is less than two inches (Ref. 2). The 2-year, 24-hour rainfall for the area is approximately four inches (Ref. 4). Due to the temperate climate of the region, the mean annual lake pan evaporation averages about 43 inches. This produces a net annual rainfall of two inches for the area (Ref. 3).

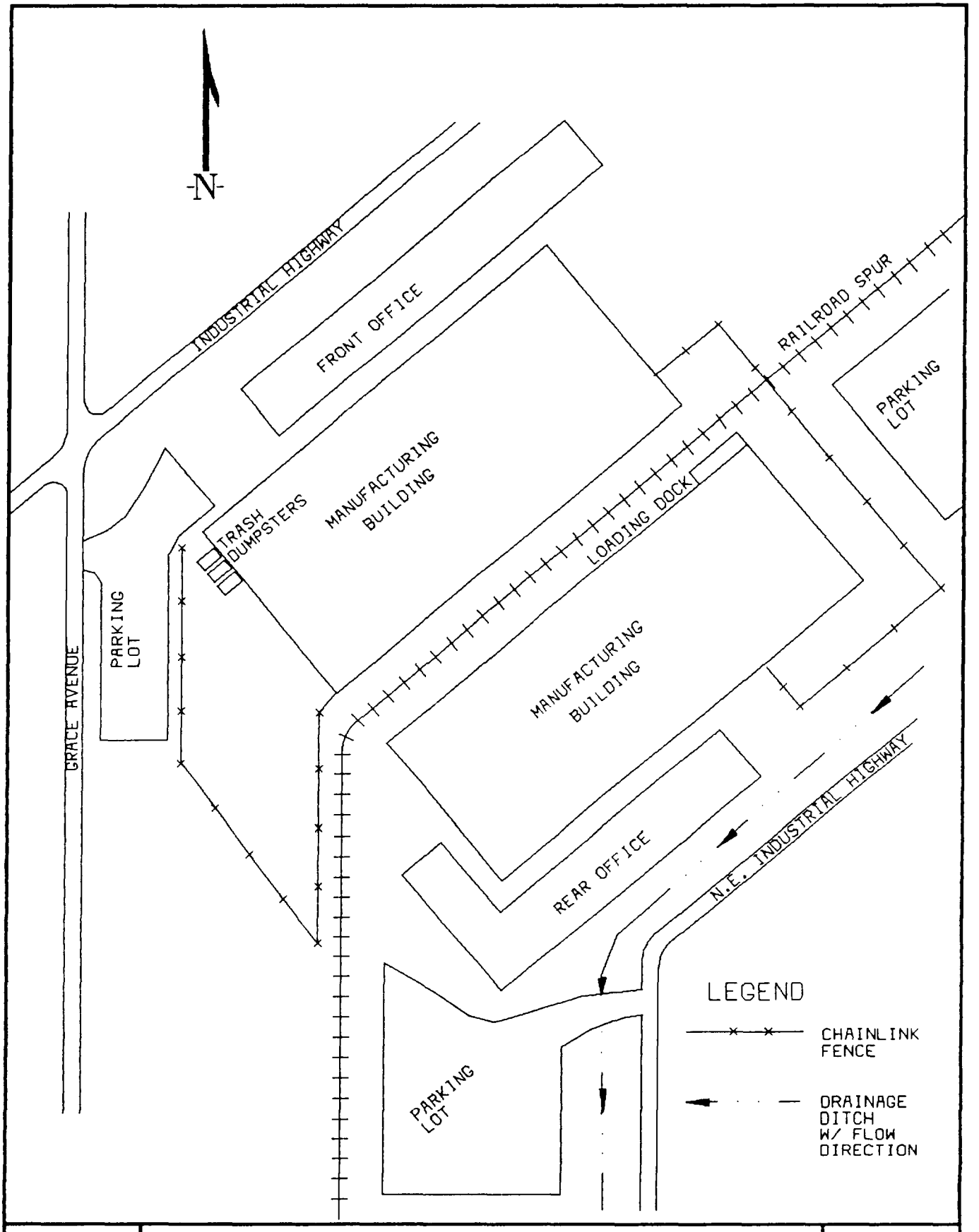
2.2 Site Description

The ITT Suspension Systems facility is situated on approximately 32 acres of land, 1 mile north of the nearest river, Echeconnee Creek (Ref. 1). There are four buildings on the active site, all are interconnected. Two of the buildings are very large and contain the manufacturing processes while the remaining two are smaller and contain offices (see Figure 2).

The entire site is well maintained with no signs whatsoever of stressed vegetation. Access to areas where outside activities occur (loading and unloading) is restricted by a 10-foot chain-link fence with access controlled by a manned guard post (Ref. 5). Access to either of the manufacturing buildings must be through the chain-link fence or through one of the office buildings. No manufacturing processes occur outside nor are there any outside chemical storage areas (Ref. 5).

2.3 Operational History and Waste Characteristics

The ITT Suspension Systems Division facility began operation shortly after its construction in 1980. The facility manufactured and assembled automobile suspension struts and shock absorbers. The manufacturing of these parts required metal working processes which included threading, machine finishing, solvent washing, metal plating (chrome), and painting. As a result of these processes, several waste products were generated. These included: (1) chromic acid sludge which was



SITE LAYOUT MAP
ITT SUSPENSION SYSTEM DIVISION
BIBB COUNTY, GEORGIA

FIGURE 2

transported and disposed of by Chem-Waste Management of Alabama; (2) spent methylene chloride and 1,1,1-trichloroethane solvents which were disposed of by Ramsey Chemical Company of Valdosta, Georgia; (3) metal grinding sludge and waste cutting oil, which were disposed of by Browning Ferris and Carl Durden Waste Oil Company of Warner Robins, Georgia (Ref. 6).

A RCRA Part A application was filed in October of 1980 (Ref. 7). The Part A application was subsequently withdrawn in April of 1984 when the facility was classified as a RCRA hazardous waste generator (Ref. 8). During ITT Suspension Systems Division's operation of the facility, a complaint from a former employee concerning improper disposal of waste oil was investigated during an inspection. The inspection showed no violations or deficiencies in the facilities manifests, however several violations were found in their contingency plan. These were later corrected (Ref. 9). The improper disposal of waste oil by Carl Durden Waste Oil Company was also discontinued and all relations with the contractor ceased (Ref. 10).

During the same inspection, "a thick black substance" was observed coating the drainage ditch along side of the property. There was also a small discharge of "relatively clear liquid" flowing from the plants cooling tower. The black substance was explained to be a metal grinding dust and cutting oil sludge produced in the grinding operation. This sludge was routinely placed in dumpsters and hauled to a municipal landfill. Leakage from these dumpsters was producing the residue in the drainage ditch (Ref. 11). As a result of these findings, the following actions were taken to correct the problem: (1) All grinding sludge was stored in leak proof containers before disposal to the county landfill. (2) Discharge from the cooling tower was piped closed and connected to the sanitary sewer. (3) All wastes in the drainage ditch were determined to be non-hazardous and were excavated and disposed of in the county landfill (Ref. 12).

All process wastewaters within the plant were sent through a wastewater treatment system in the building. Wastewater from the chrome plating operation was converted from hexavalent to trivalent chromium using sodium bisulfite (Ref. 13).

The entire chrome plating operation rested on the reinforced concrete floor of the building with a 10-inch concrete berm surrounding it. All floor drains inside and outside the bermed area lead into the wastewater treatment system (Ref. 13).

In August of 1984, a spill of chromic acid allegedly occurred inside the manufacturing building. The acid was pumped from the floor back into a storage tank (Ref. 6). It is unknown if any spilled material left the building, but the possibility is remote due to the bermed area around the chrome plating operation and the fact that all drains within the facility lead to the wastewater treatment system. Two vats, one 3,000-gallons, the other 3,500 gallons, contain the chromic acid sludge. It is unknown what volume of chromic acid was spilled. The total volume of annually generated wastes from all processes was 80-cubic yards (Ref. 6).

In January of 1990, Boeing Corporation purchased the property from ITT Suspension Systems Division (Ref. 14). Boeing is currently manufacturing and machining aircraft parts at the site (Ref.). It is unknown whether the previously existing waste streams still exist, but the facility as listed in the RCRA notifiers list no longer engages in the activity of generating hazardous waste. Boeing also does not engage in any other RCRA regulated activity at this site (Refs. 15, 16).

The only possible waste source areas remaining on the site, are localized cases of soil contamination occurring from de-minimus losses during loading/unloading and 90-day storage of waste material. The possibility of soil contamination from the 1984 chromic acid spill does exist but appears very unlikely due to internal containment structures.

3.0 Groundwater Pathway

3.1 Hydrogeologic Setting

The ITT Suspension Systems Division is situated within the Coastal Plain physiographic province approximately ten miles below the arbitrary line generally known as the Fall Line, which separates the Coastal Plain from the Piedmont province. This region of the Coastal Plain is underlain by formations from the Cretaceous period which overly crystalline bedrock of chiefly granitic, dioritic, and gneissic constituency. In the southern portion of Bibb County, as well as the northern portion of Houston County, a distinctive type of topography, referred to as the Sand Hills, is the most prominent geological feature. The Sand Hills represent the outcrop areas of the Tuscaloosa Formation and are characterized by a topography which is very hilly and mantled with loose, incoherent, and lightly colored sand. The area comprises a series of rolling divides between the large creeks which flow in east to west courses toward

the Ocmulgee River (Ref. 2). Alluvial deposits bordering the Ocmulgee River and some parts of the larger creeks are the youngest sediments in Bibb County. They are of Pleistocene and Recent age. These deposits are composed of unsorted clay, sand, and gravel, which in most places are less than 40 feet thick and extend 1 or 2 miles on each side of the river (Ref. 2).

The specific soil type beneath the facility is Norfolk sandy loam and is well drained occurring on nearly level to gently sloping broad ridge tops found in coastal Plain uplands. A portion of the property resides on Grady sandy loam which is poorly drained and nearly level (Ref. 17). It is probable that the soil types have been altered during grading, paving, and construction of the facility, and they may now be a non-descript soil type. Below the site lies 5 feet of soil which is immediately underlain by 495 feet of Tuscaloosa Formation (Ref. 2).

The Tuscaloosa Formation is composed of fine to coarse sand, in places mingled with white kaolin and in others separated by lenticular and generally pure kaolin masses. The base of the Tuscaloosa dips southeast at a rate of approximately 30 feet per mile. It contacts the underlying crystalline bedrock at 500 feet below land surface (bls) at Cochran Field, just one mile east of the site (Ref. 2).

Groundwater wells tapped into the Tuscaloosa Formation aquifer supply virtually all domestic water sources south of the Fall Line. In some places, the Tuscaloosa becomes confined by overlying clay layers for brief periods of time producing a slight to moderate artesian head.

Where the Tuscaloosa Formation extends south of U.S. Highway 80 and west of the Ocmulgee River, water supplies from drilled wells can be readily obtained. The number of sand beds increases southward, resulting in an increase in the availability of water to wells southward. Some domestic drilled wells are only two inches in diameter and less than 70 feet deep, these wells satisfying local requirements of only a few gallons of water per minute. Other wells in the area have yields as high as 60 gpm (Ref. 2). Depth to groundwater beneath the site is estimated from topographic analysis and from water levels in area wells to be approximately 70 feet bls (Refs 1, 2). The hydraulic conductivity of the Tuscaloosa Formation is estimated to be 1×10^{-3} cm/sec (Ref. 18).

3.2 Groundwater Targets

There are four municipal water systems which distribute water within the four-mile radius of the site. The Macon-Bibb County Water Authority withdraws water from the Ocmulgee River above Macon. Of the three remaining systems (Houston County Water Department, Warner Robins Water Authority, and Centerville Water Company) all withdraw water exclusively from groundwater sources. All three have multiple wells utilized as part of a blended system (with generally equal apportionment), with Centerville and Warner Robins each having one well in the four-mile radius, and Houston county having two-wells within the study area (Ref. 1, 5, 19).

All residences that are not within one of the four municipal systems' service area are assumed to be utilizing groundwater for their potable water supplies. It is estimated that there are approximately 10,141 persons receiving drinking water from groundwater sources within the four-mile radius of the site. This estimate includes the 15 permitted community wells that are located within the 4-mile radius as well as the assumed private wells that exist within the study area (Ref. 1, 5, 19, 20).

The nearest private well is located at the B&G Thornhill subdivision on Nob Hill Drive. This community well serves approximately 60 persons and is located 1.4 miles west of the site (Ref. 1). It should be noted that the direction of groundwater flow, as indicated from topographic analysis, is generally to the southeast (Ref. 1).

4.0 Surface Water Pathway

4.1 Hydrologic Setting

Surface water runoff from the site flows in a south-southeast direction approximately 0.75 miles to an intermittent unnamed stream. This stream flows into a wetland area which feeds Echeconnee Creek. The 15-mile surface water pathway begins approximately 0.9 miles from the site in the wetland fringe areas of Echeconnee Creek. This area extends 0.2 miles to Echeconee Creek which flows 5.4 miles to the confluence with the Ocmulgee River (Ref. 1). The estimated flow rate for Echeconnee Creek is 20 cubic feet per second (cfs), and that of the Ocmulgee River is estimated to be 500 cfs (Ref. 21). The site has a mean elevation approximately 80 feet above Echeconnee Creek which precludes it from the Echeconnee or Ocmulgee flood plains (Ref. 1).

4.2 Surface Water Targets

There are no surface water intakes located on Echeconnee Creek or the Ocmulgee River that lie within the 15-mile surface water pathway of ITT Suspensions (Refs. 1, 21). However, the entire 15-mile pathway contains adjacent wetlands (Ref. 1). It is estimated that there are approximately four square miles of wetlands providing an estimated 30 river miles of wetland frontage. The Ocmulgee River is utilized as a recreational fishery, as is Echeconnee Creek to a lesser extent (Ref. 22). There are no known habitats of federally endangered or threatened species located within four miles of the site, although the wood stork may possibly inhabit the surrounding wetlands.

5.0 Soil Exposure and Air Pathways

5.1 Physical Conditions

The immediate area surrounding the site contains several light-industry manufacturing and shipping companies. There are several residences within 1,000 feet south of the property, but those are the only non-commercial buildings within a half-mile of the site (Refs. 1, 5). As stated previously, the entire site is well maintained with no signs of stressed vegetation. Access to areas where activity occurs is restricted by the presence of a 10-foot chainlink fence. Movement through the fence is controlled by a manned guard post (Ref. 5).

5.2 Soil and Air Targets

It is estimated that at least 200 workers are onsite during process operations. These employees work almost exclusively within the manufacturing and office buildings (Refs. 5). The nearest residence is located approximately 500 feet south of the site (Refs. 1, 5). The nearest school is the Heard School located 1.9 miles to the northwest (Ref. 1). There are several endangered and threatened terrestrial species listed for the State of Georgia. They are the Florida panther, bald eagle, Bachman's warbler, red-cockaded woodpecker and the Eastern indigo snake. It is uncertain whether these species inhabit areas within the four-mile radius of the site (Ref. 23). The total area of wetlands within the four mile radius of the site is estimated to be approximately six square miles (3,480 acres) (Ref. 1).

The total population within four-miles of the site is estimated to be 15,676 persons. This includes 21 persons living within ¼ mile of the site, five persons living between

¼ mile and ½ mile, 255 persons between ½ mile and 1 mile, 3,630 persons between 1 and 2 miles, 1,058 persons between 2 and 3 miles, and 10,707 persons between 3 and 4 miles of the site (Refs. 1, 20, 24).

6.0 Summary and Conclusions

The ITT Suspension Systems Division site was evaluated to assess the threat posed to human health and the environment and to determine the need for further investigation. From the information gathered in the study, it is recommended that no further action be planned for the site at this time. The recommendation is based on the probability that only minor contamination of soils actually exists, and that the chromic acid spill that occurred in 1984 most likely never left the containment area where the spill occurred. The enclosed structures onsite provides substantial containment for any process activities which occur. The ITT Suspensions Systems Division does not appear to pose a substantial threat to the surrounding population or environment.

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CONFIDENTIAL
Hazard Ranking System Preliminary Score
ITT SUSPENSION SYSTEMS DIVISION
Macon, Bibb county, Georgia

This preliminary score was calculated using the November 6, 1991 Draft SI Worksheets. Scoring involved the evaluation of groundwater, surface Water, soil exposure, and air migration pathways. Since no sampling data was available, as per the Phase I Site Inspection Scope of Work, contaminant concentrations were assumed. These contaminants included compounds known to be utilized during process operations as well as compounds that are common to other metal working processes. The assumed contaminants were:

(1) Arsenic
(2) Barium
(3) Cadmium
(4) Chromium III & VI
(5) Lead
(6) Mercury
(7) Methylene Chloride
(8) Phenol
(9) Selenium
(10) Silver
(11) 1,1,2-Trichloroethane

A hazardous waste quantity of 10 was assigned based on the assumption that the source area is the entire site (approximately 32 acres). The source was assumed to be contaminated soils based on a chromic acid spill which occurred in August of 1984, and also on assumed de-minimus losses that occurred during loading and 90-day storage of hazardous waste. It is probable that the chromic acid spill never left the building where it occurred, however the assumption that it did leave the building and enter the environment is the primary basis for the HRS score.

The groundwater pathway is the primary driver of the score. This is due in part to the moderate number of groundwater users within the study area, and also to the high toxicity and mobility of the assumed contaminants. An observed release was assumed to have been determined onsite, but population targets were assumed to be potential. This is due to the distance to the nearest private well (1.5 miles). It would be difficult to attribute contamination found at this distance to ITT since the site resides within an industrial park. It should be noted however that a level I

contamination at the nearest well (1.5 miles away) will produce a score sufficiently high to list the site on the National Priorities List. It should also be noted that this well is upgradient of groundwater flow direction and any contamination from ITT would be highly unlikely.

the surface water pathway was also evaluated on potential contamination targets since the distance to the nearest flowing water body is 0.9 miles and attribution of contamination to ITT would be very difficult. It is also unlikely that contamination could travel such a distance overland and still maintain any significant portion of it's original concentration. There are no drinking water intakes downstream of the site, but wetlands are present on the entire length of the 15-mile pathway. It should be noted that an observed release to the surface water pathway will produce a score sufficiently high to list the site on the National Priorities List.

The soil exposure pathway is only a minor contributor to the overall score since there are few residences near the site. Only the estimated 200 workers present onsite would bear the risk of exposure. Likewise, the air exposure pathway contributes little to the overall score.

The scenarios explored for this HRS score all assumed that groundwater, surface water, and air were utilized as resources in the area. It is believed that the score as presented is the most realistic scenario given the unlikely situation that contamination does exist in the quantity and concentrations assumed in the scoring. The individual pathway scores and the overall score were as follows:

S_{gw}	=	9.84
S_{sw}	=	1.85
S_{se}	=	2.20
S_a	=	2.97
Overall Score	=	**5.34**

From the basis of this score, and the likelihood that contamination at the site is much less than that assumed in the scoring model, no further action is recommended for this site.

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

GROUND WATER MIGRATION PATHWAY SCORESHEET

FACTOR CATEGORIES AND FACTORS

Likelihood of Release to an Aquifer	Maximum Value	Value Assigned	
1. Observed Release	550	550	
2. Potential to Release			
2a. Containment	10	--	
2b. Net Precipitation	10	--	
2c. Depth to Aquifer	5	--	
2d. Travel Time	35	--	
2e. Potential to Release [lines 2a x (2b + 2c + 2d)]	500	--	
Likelihood of Release (higher of lines 1 and 2e)	550		550
Waste Characteristics			
4. Toxicity/Mobility	a	10,000	
5. Hazardous Waste Quantity	a	10	
6. Waste Characteristics	100		18
Targets			
7. Nearest Well	50	5	
8. Population			
8a. Level I Concentrations	b	0	
8b. Level II Concentrations	b	0	
8c. Potential Contamination	b	72	
8d. Population (lines 8a + 8b + 8c)	b	72	
9. Resources	5	5	
10. Wellhead Protection Area	20	0	
11. Targets (lines 7 + 8d + 9 + 10)	b		82
Ground Water Migration Score for an Aquifer			
12. Aquifer Score [(lines 3 x 6 x 11)/82,500][c]	100		9.84
Ground Water Migration Pathway Score			
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)[c]	100		9.84

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor Categories and Factors	Maximum Value	Value Assigned	
DRINKING WATER THREAT			
Likelihood of Release			
1. Observed Release	550	--	
2. Potential Release by Overland Flow			
2a. Containment	10	--	
2b. Runoff	25	--	
2c. Distance to Surface Water	25	--	
2d. Potential to Release by Overland Flow [lines 2a x (2b + 2c)]	500	--	
3. Potential to Release by Flood			
3a. Containment (Flood)	10	--	
3b. Flood Frequency	50	--	
3c. Potential to Release by Flood (lines 3a x 3b)	500	--	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	--	
5. Likelihood of Release (higher of lines 1 and 4)	550		100
Waste Characteristics			
6. Toxicity/Presistence	a	10,000	
7. Hazardous Waste Quantity	a	10	
8. Waste Characteristics	100		18
Targets			
9. Nearest Intake	50	0	
10. Population			
10a. Level I Concentrations	b	0	
10b. Level II Concentrations	b	0	
10c. Potential Contamination	b	0	
10d. Population (lines 10a + 10b + 10c)	b	0	
11. Resources	5	5	
12. Targets (lines 9 + 10d + 11)	b		5
Drinking Water Threat Score			
13. Drinking Water Threat Score [(lines 5 x 8 x 12)/82,500, subject to a maximum of 100)	100		0.11

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
(continued)

Factor Categories and Factors	Maximum Value	Value Assigned	
HUMAN FOOD CHAIN THREAT			
Likelihood of Release			
14. Likelihood of Release (same value as line 5)	550		100
Waste Characteristics			
15. Toxicity/Persistence/Bioaccumulation	a	500,000,000	
16. Hazardous Waste Quantity	a	10	
17. Waste Characteristics	1,000		180
Targets			
18. Food Chain Individual	50	0	
19. Population			
19a. Level I Concentrations	b	0	
19b. Level II Concentrations	b	0	
19c. Potential Human Food Chain Contamination	b	3	
19d. Population (lines 19a + 19b + 19c)	b	3	
20. Targets (lines 18 + 19d)			3
Human Food Chain Threat Score			
21. Human Food Chain Threat Score [(lines 14 x 17 x 20)/82,5000, subject to a maximum of 100)	100		0.65
ENVIRONMENTAL THREAT			
Likelihood of Release			
22. Likelihood of Release (same value as line 5)	550		100

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
(continued)

Factor Categories and Factors	Maximum Value	Value Assigned	
ENVIRONMENTAL THREAT, (concluded)			
Waste Characteristics			
23. Ecosystem Toxicity/Persistence/Bioaccumulation	a	500,000,000	
24. Hazardous Waste Quantity	a	10	
25. Waste Characteristics	1,000		180
26. Sensitive Environments			
26a. Level I Concentrations	b	0	
26b. Level II Concentrations	b	0	
26c. Potential Contamination	b	5	
26d. Sensitive Environments (lines 26a + 26b + 26c)	b	5	
Targets			
27. Targets (value from line 26d)			5
Environmental Threat Score			
28. Environmental Threat Score [(lines 22 x 25 x 27)/82,500, subject to a maximum of 60]	60		1.09
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE FOR A WATERSHED			
29. Watershed Score[c] (lines 13 + 21 + 28, subject to a miximum of 100)	100		1.85
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE			
30. Component Score (S_{OF})[c] (highest score from line 29 for all watersheds evaluated, subject to a maximum of 100)	100		1.85

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

SOIL EXPOSURE PATHWAY SCORESHEET

	Factor Categories and Factors	Maximum Value	Value Assigned	
RESIDENT POPULATION THREAT				
	Likelihood of Exposure			
1.	Likelihood of Exposure	550		550
	Waste Characteristics			
2.	Toxicity	a	10,000	
3.	Hazardous Waste Quantity	a	10	
4.	Waste Characteristics	100		18
	Targets			
5.	Resident Individual	50	0	
6.	Resident Population			
	6a. Level I Concentrations	b	0	
	6b. Level II Concentrations	b	0	
	6c. Resident Population (lines 6a + 6b)	b	0	
7.	Workers	15	10	
8.	Resources	5	0	
9.	Terrestrial Sensitive Environments	c	0	
10.	Targets (lines 5 + 6c + 7 + 8 + 9)	b		10
	Resident Population Threat Score			
11.	Resident Population Threat (lines 1 x 4 x 10)/82,500	b		1.2
NEARBY POPULATION THREAT				
	Likelihood of Exposure			
12.	Attractiveness/Accessibility	100	--	
13.	Area of Contamination	100	--	
14.	Likelihood of Exposure	500		--
	Waste Characteristics			
15.	Toxicity	a	10,000	
16.	Hazardous Waste Quantity	a	10	
17.	Waste Characteristics	100		18

Site Name: ITT Suspension Systems Division *p174Y

Location: Macon, Bibb County, Georgia

SOIL EXPOSURE PATHWAY SCORESHEET
(contiued)

Factor Categories and Factors	Maximum Value	Value Assigned	
NEARBY POPULATION THREAT, (continued)			
Targets			
18. Nearby Individual	1	--	
19. Population Within 1 Mile	b	--	
20. Targets (lines 18 + 19)	b		--
Nearby Population Threat Score			
21. Nearby Population Threat (lines 14 x 17 x 20)	b		1
SOIL EXPOSURE PATHWAY SCORE		Nearby Population Threat: (Default Value)	2
22. Soil Exposure Pathway Score[d] (S_s), (lines [11 + 21] subject to a maximum of 100)	100		2.2

a Maximum value applies to waste characteristics category.
b Maximum value not applicable.
c No specific maximum value applies to factor. However pathway score based solely on sensitive environments is limited to maximum of 60.
d Do not round to nearest integer.

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

AIR MIGRATION PATHWAY SCORESHEET

FACTOR CATEGORIES AND FACTORS

	Likelihood of Release	Maximum Value	Value Assigned	
1.	Observed Release	550	--	
2.	Potential to Release			
	2a. Gas Potential to Release	500	--	
	2b. Particulate Potential to Release	500	--	
	2c. Potential to Release (higher of lines 2a and 2b)	500	--	
3.	Likelihood of Release (higher of lines 1 and 2c)	a		500
	Waste Characteristics			
4.	Toxicity/Mobility	a	2,000	
5.	Hazardous Waste Quantity	a	10	
6.	Waste Characteristics	100		10
	Targets			
7.	Nearest Individual	50	20	
8.	Population			
	8a. Level I Concentrations	b	0	
	8b. Level II Concentrations	b	0	
	8c. Potential Contamination	b	24	
	8d. Population (lines 8a + 8b + 8c)	b	24	
9.	Resources	5	5	
10.	Sensitive Environments			
	10a. Actual Contamination	c	0	
	10b. Potential Contamination	c	0	
	10c. Sensitive Environments (lines 10a + 10b)	c	0	
11.	Targets (lines 7 + 8d + 9 + 10c)	b		49
	Air Migration Pathway Score			
12.	Pathway Score (S_a) [(lines 3 x 6 x 11)/82,500][d]	100		2.97

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] No specific maximum value applies to factor. However pathway score based solely on sensitive environments is limited to maximum of 60.
[d] Do not round to nearest integer.

Phase I
SITE INSPECTION

ITT Suspension Systems Division
Macon, Bibb County, Georgia
EPA ID № GAD098584063
WasteLAN Reference № 01632

EPA Work Assignment Contract № 11
EPA Contract № 68-W9-0055

Prepared for
U.S. Environmental Protection Agency
Region IV

Prepared by
B&V Waste Science and Technology Corp
BVWST Project № 52011.045

July 16, 1993

Prepared by:	Reviewed by:	Approved by:
Dan Keck	Scotti Holcombe	Hubert Wieland
Site Manager	Technical Reviewer	Project Manager

PHASE I
SITE INSPECTION
ITT Suspension Systems Division
Macon, Bibb County, Georgia

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PHASE I SITE INSPECTION
ITT Suspension Systems Division
Macon, Bibb County, Georgia
EPA ID № GAD09584063

WasteLAN № 01632

1.0 Introduction

B&V Waste Science and Technology was tasked by the U.S. Environmental Protection Agency (EPA), Waste Management Division to conduct a Phase I Site Inspection for the ITT Suspension Systems Division in Macon, Bibb County, Georgia. The inspection was performed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Sources of information for this report were the U. S. Environmental Protection Agency, the Georgia Department of Natural Resources Environmental Protection Division, B&V Waste Science and Technology Site reconnaissance on May 27, 1992, and local City and County offices which provided property, water supply, historical, and other pertinent information.

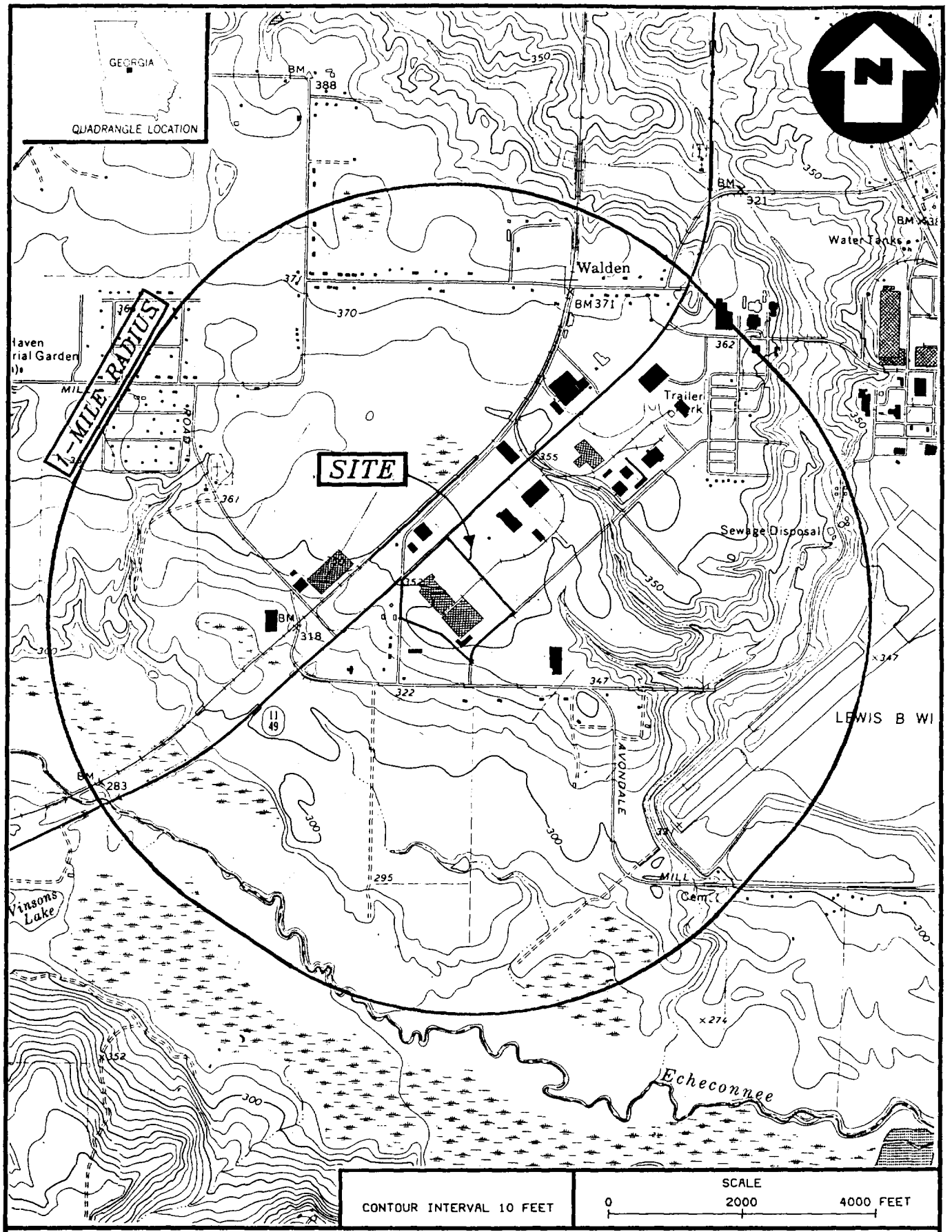
1.1 Objectives

The objectives of this study were to determine the nature of contaminants possibly located on the site and to determine if a release of these contaminants to the environment may occur. If a release to the environment was found likely to occur, the possible pathways for contaminant migration were to be evaluated with the affected populations and their environments. From the realization of these objectives, a recommendation for future activities at the site will be presented.

2.0 Site Description, History, and Waste Characteristics

2.1 Location

The ITT Suspension Systems site is located in the southern portion of Bibb County, approximately one mile north of the Bibb-Houston county line. The eastern corners of Crawford, and Peach counties, as well as the western edge of Twiggs County, all lie within the four-mile radius of the site (see Figure 1). The geographic coordinates



BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE QUADRANGLES DURHAM, GA. 1983 AND KENSINGTON, GA. 1983.

BASTE SCIENCE AND TECHNOLOGY CORP.

SITE LOCATION MAP
ITT SUSPENSIONS
SOUTHERN BIBB COUNTY, GEORGIA

FIGURE 1

of the site are 32° 41' 45.0" north latitude and 83° 40' 23.0" west longitude (Ref. 1). The facility address is 7980 Industrial Highway, Macon, Georgia 31206.

The site is relatively flat with little or no slope, but drainage does flow in a generally southern direction. The site is situated at approximately 350 feet above mean sea level (amsl)(Ref. 1).

The climate of the study area is characteristically humid and temperate. The mean annual precipitation, which is almost all rainfall, is approximately 45 inches (Refs. 2, 3). Precipitation is fairly well distributed throughout the entire year with the lowest rainfall occurring in late fall and early winter. Even during these months, rainfall seldom is less than two inches (Ref. 2). The 2-year, 24-hour rainfall for the area is approximately four inches (Ref. 4). Due to the temperate climate of the region, the mean annual lake pan evaporation averages about 43 inches. This produces a net annual rainfall of two inches for the area (Ref. 3).

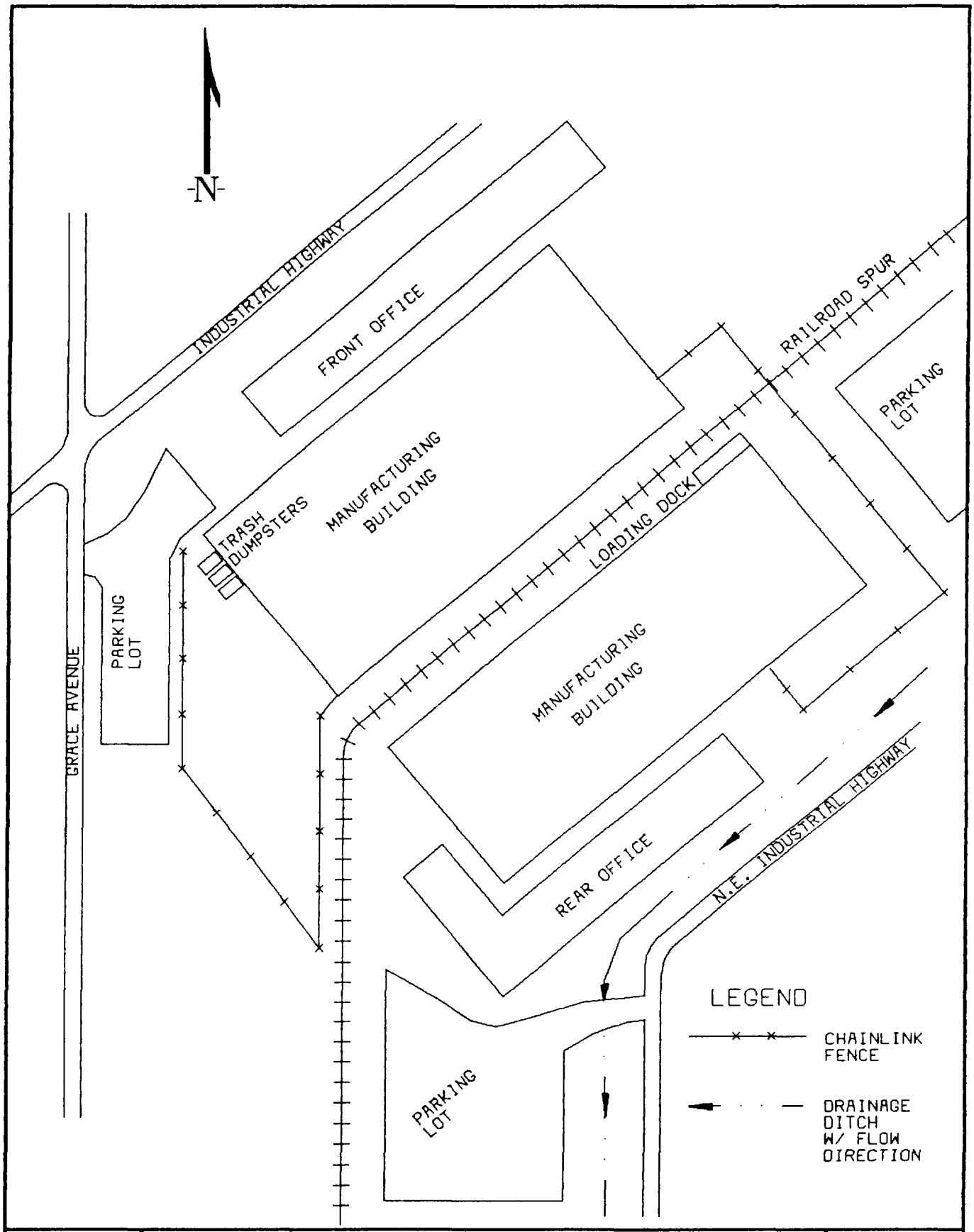
2.2 Site Description

The ITT Suspension Systems facility is situated on approximately 32 acres of land, 1 mile north of the nearest river, Echeconnee Creek (Ref. 1). There are four buildings on the active site, all are interconnected. Two of the buildings are very large and contain the manufacturing processes while the remaining two are smaller and contain offices (see Figure 2).

The entire site is well maintained with no signs whatsoever of stressed vegetation. Access to areas where outside activities occur (loading and unloading) is restricted by a 10-foot chain-link fence with access controlled by a manned guard post (Ref. 5). Access to either of the manufacturing buildings must be through the chain-link fence or through one of the office buildings. No manufacturing processes occur outside nor are there any outside chemical storage areas (Ref. 5).

2.3 Operational History and Waste Characteristics

The ITT Suspension Systems Division facility began operation shortly after its construction in 1980. The facility manufactured and assembled automobile suspension struts and shock absorbers. The manufacturing of these parts required metal working processes which included threading, machine finishing, solvent washing, metal plating (chrome), and painting. As a result of these processes, several waste products were generated. These included: (1) chromic acid sludge which was



SITE LAYOUT MAP
ITT SUSPENSION SYSTEM DIVISION
BIBB COUNTY, GEORGIA

FIGURE 2

transported and disposed of by Chem-Waste Management of Alabama; (2) spent methylene chloride and 1,1,1-trichloroethane solvents which were disposed of by Ramsey Chemical Company of Valdosta, Georgia; (3) metal grinding sludge and waste cutting oil, which were disposed of by Browning Ferris and Carl Durden Waste Oil Company of Warner Robins, Georgia (Ref. 6).

A RCRA Part A application was filed in October of 1980 (Ref. 7). The Part A application was subsequently withdrawn in April of 1984 when the facility was classified as a RCRA hazardous waste generator (Ref. 8). During ITT Suspension Systems Division's operation of the facility, a complaint from a former employee concerning improper disposal of waste oil was investigated during an inspection. The inspection showed no violations or deficiencies in the facilities manifests, however several violations were found in their contingency plan. These were later corrected (Ref. 9). The improper disposal of waste oil by Carl Durden Waste Oil Company was also discontinued and all relations with the contractor ceased (Ref. 10).

During the same inspection, "a thick black substance" was observed coating the drainage ditch along side of the property. There was also a small discharge of "relatively clear liquid" flowing from the plants cooling tower. The black substance was explained to be a metal grinding dust and cutting oil sludge produced in the grinding operation. This sludge was routinely placed in dumpsters and hauled to a municipal landfill. Leakage from these dumpsters was producing the residue in the drainage ditch (Ref. 11). As a result of these findings, the following actions were taken to correct the problem: (1) All grinding sludge was stored in leak proof containers before disposal to the county landfill. (2) Discharge from the cooling tower was piped closed and connected to the sanitary sewer. (3) All wastes in the drainage ditch were determined to be non-hazardous and were excavated and disposed of in the county landfill (Ref. 12).

All process wastewaters within the plant were sent through a wastewater treatment system in the building. Wastewater from the chrome plating operation was converted from hexavalent to trivalent chromium using sodium bisulfite (Ref. 13).

The entire chrome plating operation rested on the reinforced concrete floor of the building with a 10-inch concrete berm surrounding it. All floor drains inside and outside the bermed area lead into the wastewater treatment system (Ref. 13).

In August of 1984, a spill of chromic acid allegedly occurred inside the manufacturing building. The acid was pumped from the floor back into a storage tank (Ref. 6). It is unknown if any spilled material left the building, but the possibility is remote due to the bermed area around the chrome plating operation and the fact that all drains within the facility lead to the wastewater treatment system. Two vats, one 3,000-gallons, the other 3,500 gallons, contain the chromic acid sludge. It is unknown what volume of chromic acid was spilled. The total volume of annually generated wastes from all processes was 80-cubic yards (Ref. 6).

In January of 1990, Boeing Corporation purchased the property from ITT Suspension Systems Division (Ref. 14). Boeing is currently manufacturing and machining aircraft parts at the site (Ref.). It is unknown whether the previously existing waste streams still exist, but the facility as listed in the RCRA notifiers list no longer engages in the activity of generating hazardous waste. Boeing also does not engage in any other RCRA regulated activity at this site (Refs. 15, 16).

The only possible waste source areas remaining on the site, are localized cases of soil contamination occurring from de-minimus losses during loading/unloading and 90-day storage of waste material. The possibility of soil contamination from the 1984 chromic acid spill does exist but appears very unlikely due to internal containment structures.

3.0 Groundwater Pathway

3.1 Hydrogeologic Setting

The ITT Suspension Systems Division is situated within the Coastal Plain physiographic province approximately ten miles below the arbitrary line generally known as the Fall Line, which separates the Coastal Plain from the Piedmont province. This region of the Coastal Plain is underlain by formations from the Cretaceous period which overly crystalline bedrock of chiefly granitic, dioritic, and gneissic constituency. In the southern portion of Bibb County, as well as the northern portion of Houston County, a distinctive type of topography, referred to as the Sand Hills, is the most prominent geological feature. The Sand Hills represent the outcrop areas of the Tuscaloosa Formation and are characterized by a topography which is very hilly and mantled with loose, incoherent, and lightly colored sand. The area comprises a series of rolling divides between the large creeks which flow in east to west courses toward

the Ocmulgee River (Ref. 2). Alluvial deposits bordering the Ocmulgee River and some parts of the larger creeks are the youngest sediments in Bibb County. They are of Pleistocene and Recent age. These deposits are composed of unsorted clay, sand, and gravel, which in most places are less than 40 feet thick and extend 1 or 2 miles on each side of the river (Ref. 2).

The specific soil type beneath the facility is Norfolk sandy loam and is well drained occurring on nearly level to gently sloping broad ridge tops found in coastal Plain uplands. A portion of the property resides on Grady sandy loam which is poorly drained and nearly level (Ref. 17). It is probable that the soil types have been altered during grading, paving, and construction of the facility, and they may now be a non-descript soil type. Below the site lies 5 feet of soil which is immediately underlain by 495 feet of Tuscaloosa Formation (Ref. 2).

The Tuscaloosa Formation is composed of fine to coarse sand, in places mingled with white kaolin and in others separated by lenticular and generally pure kaolin masses. The base of the Tuscaloosa dips southeast at a rate of approximately 30 feet per mile. It contacts the underlying crystalline bedrock at 500 feet below land surface (bls) at Cochran Field, just one mile east of the site (Ref. 2).

Groundwater wells tapped into the Tuscaloosa Formation aquifer supply virtually all domestic water sources south of the Fall Line. In some places, the Tuscaloosa becomes confined by overlying clay layers for brief periods of time producing a slight to moderate artesian head.

Where the Tuscaloosa Formation extends south of U.S. Highway 80 and west of the Ocmulgee River, water supplies from drilled wells can be readily obtained. The number of sand beds increases southward, resulting in an increase in the availability of water to wells southward. Some domestic drilled wells are only two inches in diameter and less than 70 feet deep, these wells satisfying local requirements of only a few gallons of water per minute. Other wells in the area have yields as high as 60 gpm (Ref. 2). Depth to groundwater beneath the site is estimated from topographic analysis and from water levels in area wells to be approximately 70 feet bls (Refs 1, 2). The hydraulic conductivity of the Tuscaloosa Formation is estimated to be 1×10^{-3} cm/sec (Ref. 18).

3.2 Groundwater Targets

There are four municipal water systems which distribute water within the four-mile radius of the site. The Macon-Bibb County Water Authority withdraws water from the Ocmulgee River above Macon. Of the three remaining systems (Houston County Water Department, Warner Robins Water Authority, and Centerville Water Company) all withdraw water exclusively from groundwater sources. All three have multiple wells utilized as part of a blended system (with generally equal apportionment), with Centerville and Warner Robins each having one well in the four-mile radius, and Houston county having two-wells within the study area (Ref. 1, 5, 19).

All residences that are not within one of the four municipal systems' service area are assumed to be utilizing groundwater for their potable water supplies. It is estimated that there are approximately 10,141 persons receiving drinking water from groundwater sources within the four-mile radius of the site. This estimate includes the 15 permitted community wells that are located within the 4-mile radius as well as the assumed private wells that exist within the study area (Ref. 1, 5, 19, 20).

The nearest private well is located at the B&G Thornhill subdivision on Nob Hill Drive. This community well serves approximately 60 persons and is located 1.4 miles west of the site (Ref. 1). It should be noted that the direction of groundwater flow, as indicated from topographic analysis, is generally to the southeast (Ref. 1).

4.0 Surface Water Pathway

4.1 Hydrologic Setting

Surface water runoff from the site flows in a south-southeast direction approximately 0.75 miles to an intermittent unnamed stream. This stream flows into a wetland area which feeds Echeconnee Creek. The 15-mile surface water pathway begins approximately 0.9 miles from the site in the wetland fringe areas of Echeconnee Creek. This area extends 0.2 miles to Echeconee Creek which flows 5.4 miles to the confluence with the Ocmulgee River (Ref. 1). The estimated flow rate for Echeconnee Creek is 20 cubic feet per second (cfs), and that of the Ocmulgee River is estimated to be 500 cfs (Ref. 21). The site has a mean elevation approximately 80 feet above Echeconnee Creek which precludes it from the Echeconnee or Ocmulgee flood plains (Ref. 1).

4.2 Surface Water Targets

There are no surface water intakes located on Echeconnee Creek or the Ocmulgee River that lie within the 15-mile surface water pathway of ITT Suspensions (Refs. 1, 21). However, the entire 15-mile pathway contains adjacent wetlands (Ref. 1). It is estimated that there are approximately four square miles of wetlands providing an estimated 30 river miles of wetland frontage. The Ocmulgee River is utilized as a recreational fishery, as is Echeconnee Creek to a lesser extent (Ref. 22). There are no known habitats of federally endangered or threatened species located within four miles of the site, although the wood stork may possibly inhabit the surrounding wetlands.

5.0 Soil Exposure and Air Pathways

5.1 Physical Conditions

The immediate area surrounding the site contains several light-industry manufacturing and shipping companies. There are several residences within 1,000 feet south of the property, but those are the only non-commercial buildings within a half-mile of the site (Refs. 1, 5). As stated previously, the entire site is well maintained with no signs of stressed vegetation. Access to areas where activity occurs is restricted by the presence of a 10-foot chainlink fence. Movement through the fence is controlled by a manned guard post (Ref. 5).

5.2 Soil and Air Targets

It is estimated that at least 200 workers are onsite during process operations. These employees work almost exclusively within the manufacturing and office buildings (Refs. 5). The nearest residence is located approximately 500 feet south of the site (Refs. 1, 5). The nearest school is the Heard School located 1.9 miles to the northwest (Ref. 1). There are several endangered and threatened terrestrial species listed for the State of Georgia. They are the Florida panther, bald eagle, Bachman's warbler, red-cockaded woodpecker and the Eastern indigo snake. It is uncertain whether these species inhabit areas within the four-mile radius of the site (Ref. 23). The total area of wetlands within the four mile radius of the site is estimated to be approximately six square miles (3,480 acres) (Ref. 1).

The total population within four-miles of the site is estimated to be 15,676 persons. This includes 21 persons living within ¼ mile of the site, five persons living between

¼ mile and ½ mile, 255 persons between ½ mile and 1 mile, 3,630 persons between 1 and 2 miles, 1,058 persons between 2 and 3 miles, and 10,707 persons between 3 and 4 miles of the site (Refs. 1, 20, 24).

6.0 Summary and Conclusions

The ITT Suspension Systems Division site was evaluated to assess the threat posed to human health and the environment and to determine the need for further investigation. From the information gathered in the study, it is recommended that no further action be planned for the site at this time. The recommendation is based on the probability that only minor contamination of soils actually exists, and that the chromic acid spill that occurred in 1984 most likely never left the containment area where the spill occurred. The enclosed structures onsite provides substantial containment for any process activities which occur. The ITT Suspensions Systems Division does not appear to pose a substantial threat to the surrounding population or environment.

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OVERSIZED

DOCUMENT

REFERENCE 2

GEORGIA
STATE DIVISION OF CONSERVATION

DEPARTMENT OF MINES, MINING AND GEOLOGY
GARLAND PEYTON, Director
19 Hunter Street, Atlanta, Georgia

THE GEOLOGICAL SURVEY
Bulletin No. 72

GEOLOGY AND GROUND-WATER RESOURCES OF THE MACON AREA, GEORGIA

by

H. E. LeGrand

Prepared by the
United States Geological Survey
in cooperation with
Georgia Department of Mines, Mining, and Geology
ATLANTA
1962

GEOGRAPHY

The area described in this report lies along the inner margin of the Coastal Plain. The northern part of Bibb, Crawford, and Taylor Counties is in the Piedmont province. Separating the Piedmont from the Coastal Plain is an arbitrary line generally known as the Fall Line, along which, in some States, streams descend in a zone of falls from rather resistant crystalline rocks of the Piedmont to less resistant rocks of the Coastal Plain. In the area studied, no falls occur along the streams in this zone, but the term Fall Line may be retained to delimit the two provinces generally.

The Piedmont province is an upland area of moderate relief, the highest parts of which rise to about 800 feet above sea level in the area studied. The land slopes gently to the south, and the major drainage is southward. Locally the tributary streams are closely spaced and fan out in random style. In the interstream area, the gently rolling terrane is mantled by thick soils of moderate fertility.

South of the Piedmont province, deposits of Cretaceous age crop out in an east-west belt (fig. 2), producing a distinctive type of topography and referred to as the Sand Hills. The area is mantled by loose, incoherent sand and is very hilly; the light-colored sandy hills rise to nearly 800 feet in western Taylor County. Streams are more widely spaced in the Piedmont and have cut valleys as deep as 300 feet below the upland. Deep, precipitous gullies are actively encroaching upon the upland areas, where sand is removed at the gully heads by rainwash and deposited in the gully bottoms as subaerial deltas (Veatch and Stephenson, 1911, p. 30) or "sand streams." The sand of the undisturbed Cretaceous deposits and the "sand streams" are so permeable that runoff from precipitation is slight. Rain may move the sandy material downslope a short way, but the downward percolation of water limits its erosive power. Parts of the interstream areas have not yet been attacked by advancing gullies and stand fully as high as the hills of the Piedmont farther north. Moisture is not readily retained in the infertile sandy soils, resulting in a sparser cover of vegetation than is generally found in the southeastern States.

The Fort Valley Plateau represents the outcrop area of Eocene deposits. The plateau forms a belt south of the Sand Hills and is characterized by deep-red clayey soil and flat topography which is only slightly dissected. It is typically displayed in Peach County near Fort Valley. The plateau appears to be a

plain of solution, beneath the surface of which ground water has dissolved a layer of preexisting limestone. A few shallow depressions on the plateau are evidence of the solution action. The flatness of the area has helped to retard leaching of the soil, and crops tend to grow better than on the leached soils of the Sand Hills area farther north. The Fort Valley Plateau is the peach-growing center of the State, the northern limit of peach orchards representing the northern limit of the plateau.

An upland area in the southern part of Houston County is separated from the lower lying Fort Valley Plateau by a north-facing escarpment. This upland is similar to the Tifton Upland, which covers much of the Coastal Plain southward. The upland has not been subjected to solution subsidence as has been the Fort Valley Plateau, and the difference in altitude of these two subprovinces of the Coastal Plain approximates the thickness of limestone removed by solution near the base of the scarp.

Drainage

The Macon area lies within the drainage basins of the Ocmulgee and Flint Rivers, which flow in more or less parallel courses southward in consequence of the regional slope. Both rivers rise in the Piedmont Plateau near Atlanta.

The Ocmulgee River flows southward through eastern Bibb County and forms the eastern boundary of Houston County. The streams flowing into the Ocmulgee have prevailing southeast courses and include Tobesofkee, Echeconnee, and Big Indian Creeks. These creeks rise very close to the Flint River and appear to have pushed the divide between the Flint and Ocmulgee westward. Almost all small tributaries flow southward to join the larger creeks at an acute angle. The flood plain of the Ocmulgee is generally about 2 miles wide.

Flint River separates Crawford from Taylor County and flows southward through Macon County. Like the Ocmulgee, Flint River has no large tributaries from the east. The larger tributaries, all flowing southeastward to join the Flint, are Patsiliga, Whitewater, and Buck Creeks. The water of these tributaries is clear because of the purity of sands over which it flows. The scarcity of streams from the east has minimized erosion to the extent that a pronounced west-facing escarpment is close to the river; on the east side of the river north of Montezuma the flood plain is either narrow or nonexisting.

Precipitation

The climate of the Macon area is characteristically humid and temperate. The annual precipitation, which at Macon averages 44.60 inches, is adequate for the growth of many varieties of crops. The precipitation is almost all rainfall and is fairly well distributed throughout the year. The lowest rainfall is generally during September, October, and November, but rarely does any month receive less than 2 inches.

GEOLOGY

Development of the Coastal Plain Province

The Coastal Plain of the area studied is a part of a large coastal province extending from Long Island, N. Y., to the Mexican border and southward to Guatemala. Its development has resulted from the interdependence of three great natural processes — differential earth movement, erosion, and sedimentation. At the beginning of Cretaceous time, and for a long time previously, southern and eastern Georgia was a land area of igneous and metamorphic rocks, like those of the Piedmont providence, and of consolidated sedimentary rocks of Paleozoic age, like those of northwestern Georgia. Soon the margin of the continent was depressed, allowing the sea to encroach on the land. Since this advance in Cretaceous time, the sea has retreated and advanced to varying positions many times. As it came close to the present Piedmont province, the sea became a resting place for material eroded from the land area. Rocks of the Piedmont disintegrated and decayed into soil and rock fragments, which were washed by rain into streams and carried to the sea. Much of the Cretaceous sediments were deposited on lowland margins of the plain before reaching the sea. Some of these nonmarine deposits were eroded and redeposited in the sea, but some were buried and preserved by the deposits of an advancing sea. In addition to clay and sand that was eroded from the land area and deposited, some marl and limestone were formed as the result of the precipitation of chemical matter from the sea water and the settling of dead marine organisms. Whether deposited in the sea or along marginal land areas, the sediments tend to be preserved in nearly flat, but gently coastward-dipping layers (fig. 3).

General Stratigraphy

The stratigraphy was studied in order to understand the occurrence and movement of ground water. The rock materials are conventionally grouped into formations according to their lithology. A formation is named after a place where it is typically exposed. For example, the Providence sand was named for Providence Canyons in Stewart County. A formation may be only a few feet thick or many hundreds of feet thick, and it may be composed almost entirely of clay, sand, or limestone. Most formations contain a variety of beds, but some feature is commonly present to distinguish it from the overlying and un-

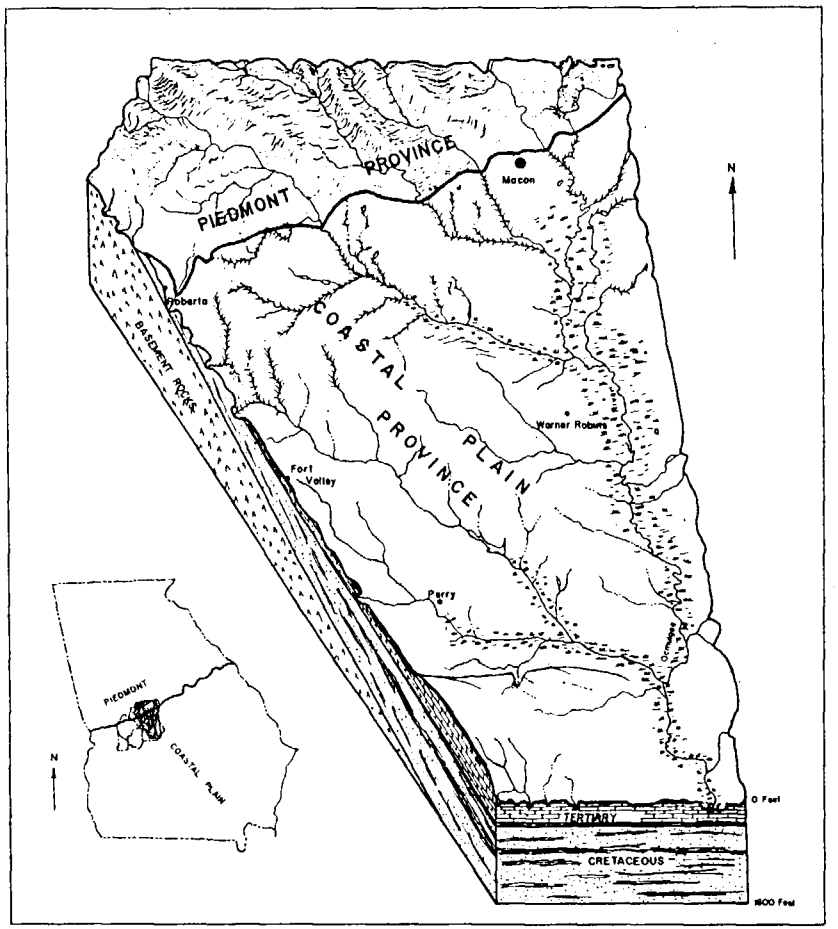


Figure 3.—Diagram showing generalized surface and subsurface features in the eastern half of the Macon area. (Tertiary materials are chiefly limestone, with lesser amounts of sand and clay; Cretaceous materials are sand and clay).

derlying formations. As a result of changes in conditions of deposition, all formations change in character along the beds. A common change is a gradual transition from a bed composed chiefly of sand to one composed chiefly of clay.

At varying distances from a place where a formation is typically exposed, the character of its material changes to such an extent that its name and its description are no longer appropriate. Thus, different names may be applied to rock materials that were deposited at the same time at different places. For example, several distinctive Cretaceous formations occur in the Chattahoochee Valley of western Georgia where they were de-

posited under marine conditions. Eastward, some of these formations contain nonmarine beds, and in the area studied, difficulty was experienced in tracing them (Eargle, 1955, p. 1).

Development of Soils

Different kinds of soil occur in the Coastal Plain province, and their development has been controlled by geologic conditions. Insofar as such development is concerned, the deposits may be classified by four categories. These include (1) slopes and hills on outcropping Cretaceous formations, (2) broad flat uplands on outcropping Tertiary formations, (3) slopes extending from the flat uplands to valleys, and (4) flat alluvial soils of lowland areas.

In the Sand Hills area, characterizing the Cretaceous outcrop belt, loose surface sand is widespread. This is underlain at many places by a zone of sand with interstitial clay, which in turn is underlain by its parent Cretaceous clay or clayey sand. The writer considers these three zones as representing the A, B, and C horizons of the normal soil profile. The zones are so distinctive in character and color that some geologists tend to regard them as separate geologic formations. It appears to the writer that clay originally present in the surface zone has been carried down by per percolation water into the B horizon, where a pink or red hardpan has developed. Some of the surface sand has been transported by wind, an action that may have been prominent during some dry climatic period of the Pleistocene epoch. These soils are so well drained and coarse textured that they have low fertility.

The soils of the broad, relatively flat areas of Tertiary formations vary in color from light gray to deep red. The surface soils are predominantly sand, but they are not leached as much as the surface soils of the Sand Hills area. Either clayey subsoil or parent material lies within a few feet of the surface in most places, resulting in moderately well drained soils suitable for growing crops.

The slopes extending from the relatively flat uplands to the streams cut across beds of clay and sand. As erosion is fairly active on these slopes, the soil profile rarely gets a chance to develop to maturity. In some places the parent materials are exposed, and in many places surface material from upland areas has migrated toward the valleys and now mantles the parent

material. Soils on these slopes vary greatly in character and are not easily classified.

The major streams are bordered by flat areas, or flood plains, which are underlain by clay, sand, and gravel. As the flood plains lie only a few feet above normal stream level, their soils are subject to overflow and to the deposition of "new" soil material. The soils vary from moderately well drained to poorly drained, but they contain more organic matter than other soils of the area. Natural vegetation is abundant on these lowland soils.

GROUND-WATER HYDROLOGY

Summary of Hydrologic Cycle

The precipitation that reaches the ground in the Macon area takes diverse courses. Much of it infiltrates the sandy surface, but some flows overland immediately after each rain into rivers and creeks. Some precipitation immediately evaporates, whereas some seeps into the soil only to be evaporated later or transpired by vegetation. If the rain is prolonged, some water passes downward below the root zone, but some of this water is thwarted in its vertical movement by clay beds and is shunted laterally above the water table to a surface slope where it is evaporated; the remaining water continues downward to the water table, which is the top of the zone of saturation, in which all the open spaces in the sand, clay, and limestone beds are filled with water. Upon reaching the water table, its progress is retarded, but it still moves by gravity to some low place where it discharges from the ground. Ground water discharges in low areas as seeps and springs and as evapotranspiration (direct evaporation and transpiration by vegetation).

Occurrence and Movement of Ground Water

Almost all the materials of the Coastal Plain in the area studied are loose and unconsolidated. Thus, the quantity of water that can be stored underground between the mineral grains is great. The sand and clay, which represent the bulk of the materials, differ in their ability to store and transmit water. Clay has a high percentage of pore space, but the openings are so small that water tends to be retained against the pull of gravity. In contrast, sand may have less pore space than an equivalent volume of clay, but the openings are larger and allow a quicker movement of water.

All the southward-thickening wedge of sediments is saturated with water except for a layer of air-filled materials a few feet or a few tens of feet thick lying between the ground surface and the water table. The change in storage of ground water is reflected in the change in position of the water table. The depth to the water table depends on the frequency, duration, and intensity of the precipitation. The position of the water table depends also on the topography and on the ability of the sediments to transmit water. The water table beneath the upland areas is higher than the stream valleys. This results in a hydraulic gradient toward the valleys, where ground water dis-

charges into streams and swampy areas. In areas of relatively flat topography underlain by poorly permeable materials such as clay, sandy clay, or fine sand, the water table is within a few feet of the land surface. The continuous movement of ground water into stream valleys results in a tendency toward a continually declining water table. However, periods of precipitation are rather numerous and fairly evenly distributed throughout the year; during and immediately after the periods of precipitation, the amount of water entering the ground-water reservoir exceeds the amount moving out into the valleys, and the water table rises.

Artesian System

The Coastal Plain formations are ideally disposed for the occurrence of artesian water. Contrary to popular belief artesian water does not, at every place, come from great depths; some artesian water in the counties studied occurs at depths of less than 50 feet below the land surface.

To understand artesian conditions in the area, it is necessary to understand the relation between the profiles of the water table, the land surface, and the geologic formations. The water table is present throughout the Coastal Plain, lying in sand in some places and in clay or limestone in others. Both the beds and the land surface are inclined toward the southeast, but the inclination of the beds is steeper. As the water table is roughly parallel to the regional land surface, the number of clay and sand beds beneath the water table increases toward the southeast. The clay beds are relatively impermeable and tend to confine water under pressure that lies beneath them. The water enters the ground, reaches the water table, and flows "* * * down with the slope of the water table to a point where the zone of saturation is interrupted by an impermeable bed. Part of the water may pass above the bed and continue to flow under water-table conditions, and part of it flows beneath the bed. Now it is confined, pressing upward against the impermeable bed with a head equivalent to the difference in elevation between that point and the elevation of the water table in the area of recharge, less the loss of head resulting from friction in movement. This is confined or artesian water; it will rise in a tightly cased well to a height above the bottom of the confining bed equivalent to the pressure head at that point. If the head happens to be above the land surface, as it commonly is in the valleys or along the coast * * *, the well will flow" (McGuinness, 1951, p. 12-13).

Beds composed of coarse to medium sand are the most permeable in the area; these beds, which allow water to pass through them readily, are referred to as aquifers. The least permeable beds are composed of clay. Limestone, which occurs in the southeast corner of the area, contains some permeable beds, and southward beyond the area studied it is an aquifer of great importance. The interlayering of sand and clay results in a composite artesian system consisting of several artesian sand aquifers and intervening clay confining beds. Some geologic formations tend to be composed chiefly of sand, others of clay, and others of limestone. Yet, graduations of materials are common, and some formations contain several aquifers and confining beds. The coastward homoclinal slope of the beds results in a specific artesian aquifer becoming more deeply buried toward the coast; the number of artesian aquifers below a specific place also is greater coastward. To some extent each artesian aquifer acts as a pipe or conduit to transmit water from a place of recharge at a high elevation to a place of discharge at a low elevation. The analogy may be useful in the area studied, but it tends to break down if the entire coastward part of the artesian system is considered, because water at great depth can discharge only by slow upward movement through relatively impermeable beds.

Relation of Geology and Ground Water to Streamflow

In referring to the earth materials as an underground reservoir, it must be borne in mind that the water underground is in temporary or transient storage because it is moving slowly toward an outlet. It tends to move through permeable sand and around the relatively impermeable clay, following courses of least resistance from points of high elevation to points of low elevation. However, some water moves through seemingly impermeable clay, and there is some interchange of water between aquifers throughout the Coastal Plain system. Where the water table is higher than the pressure surface of the uppermost artesian aquifer, as in much of the interstream area, water tends to move downward from the water-table aquifer to the artesian aquifer even through beds of clay. In most of the stream valleys the relations are reversed, and water from the

uppermost artesian aquifer tends to leak upward into the water-table aquifer or into the stream.

The erosive power of streams has resulted in their channels being lowered as much as 50 to 150 feet below the upland interstream areas. Thus, the water-table aquifer and the uppermost artesian aquifer are incised, and much water "bleeds," or discharges from them. Ground water discharges as evapotranspiration, springs, and seepage into the stream channels (fig. 4). Both the water-table aquifer and the uppermost artesian aquifer lose water to the stream.

All the rivers and larger creeks in the Macon area cut into both the water-table aquifer and the uppermost artesian aquifer, which are thus a good source of water for the streams in dry weather. It seems likely that the uppermost ground water — that within about 100 feet of the land surface — moves relatively rapidly; ground water near some streams may move as much as several tens of feet per day. However, beneath the broad interstream areas the movement is slower. The deep-lying artesian water in the southern part of the area may move no faster than a few feet or a few tens of feet a year.

Whitewater Creek, in the Sand Hills of Taylor County, has a remarkably high and stable flow (Carter and Lendo, in LeGrand and Furcron, 1956, p. 129). This creek drains an area of loose Cretaceous sand where infiltration of precipitation is great and evapotranspiration and surface runoff after storms are slight. It has an average flow of 950,000 gpd (gallons per day) per square mile, and a minimum flow of 770,000 gpd per square mile that is expected only 1 day in every 20 years (Thomson and others, 1956, p. 154).

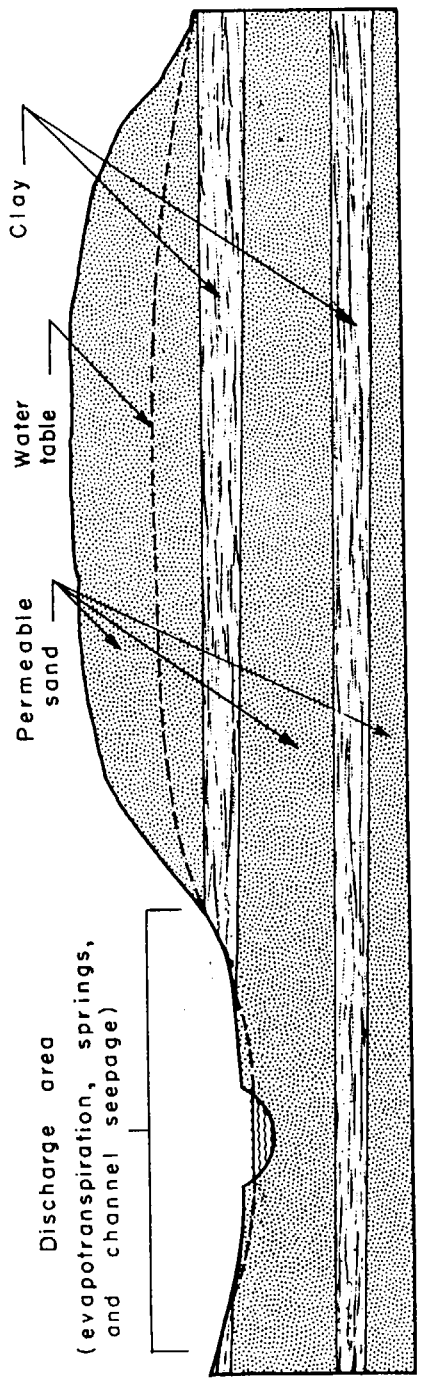


Figure 4.—Diagram showing the common occurrence of a stream cutting through a water-table aquifer and into the uppermost artesian aquifer. The stream and valley vegetation gain water from both aquifers.

METHODS OF WITHDRAWING GROUND WATER

In the days of the early settlers, springs were a major source of water. Springs are still common in low ground near streams, and they furnish water extremely low in dissolved mineral matter. The excellent character of almost all water from springs in the area is due to the rather rapid circulation at shallow depths through sandy deposits. Nearly all of the springs yield less than 10 gpm (gallons per minute), and in fact, most yield 1 or 2 gpm. Since springs emerge from coves or reentrant, near the bottom of a hill, they are not readily accessible to most water users, who tend to live on upland areas.

Dug wells 20 to 70 feet deep were common sources of water during past generations, but these wells have decreased in number within recent years.

Drilled wells are increasing in number and are used throughout the area. Wells penetrating igneous and metamorphic rocks in the northern part of the area are cased to the top of hard rock to depths ranging from a few feet to 100 feet; the hole is open in the rock, and water enters the well from fracture-type openings in the rock.

Almost all the drilled wells of the Coastal Plain draw water from beds of sand. Many wells no larger than 3 inches in diameter have an open end which allows sand to flow into the well. Excessive pumping causes these wells to fill with sand and thus to decline in yield. Other wells have a screen or strainer at the bottom, the screen holding back the sand that otherwise would come into the well. Almost all municipal and many industrial wells are of the multiple-screen type. These wells are furnished with several screens that are placed opposite the beds of sand. Many of the multiple-screen wells have gravel inserted as an envelope around them so that the pore space around the wells will be large enough to allow water to move into the wells readily; these are referred to as gravel-walled or gravel-packed wells. Multiple-screen wells for which the sizes of the screens are properly selected, and in which the screens are carefully set opposite the beds of sand, yield the maximum amount of water.

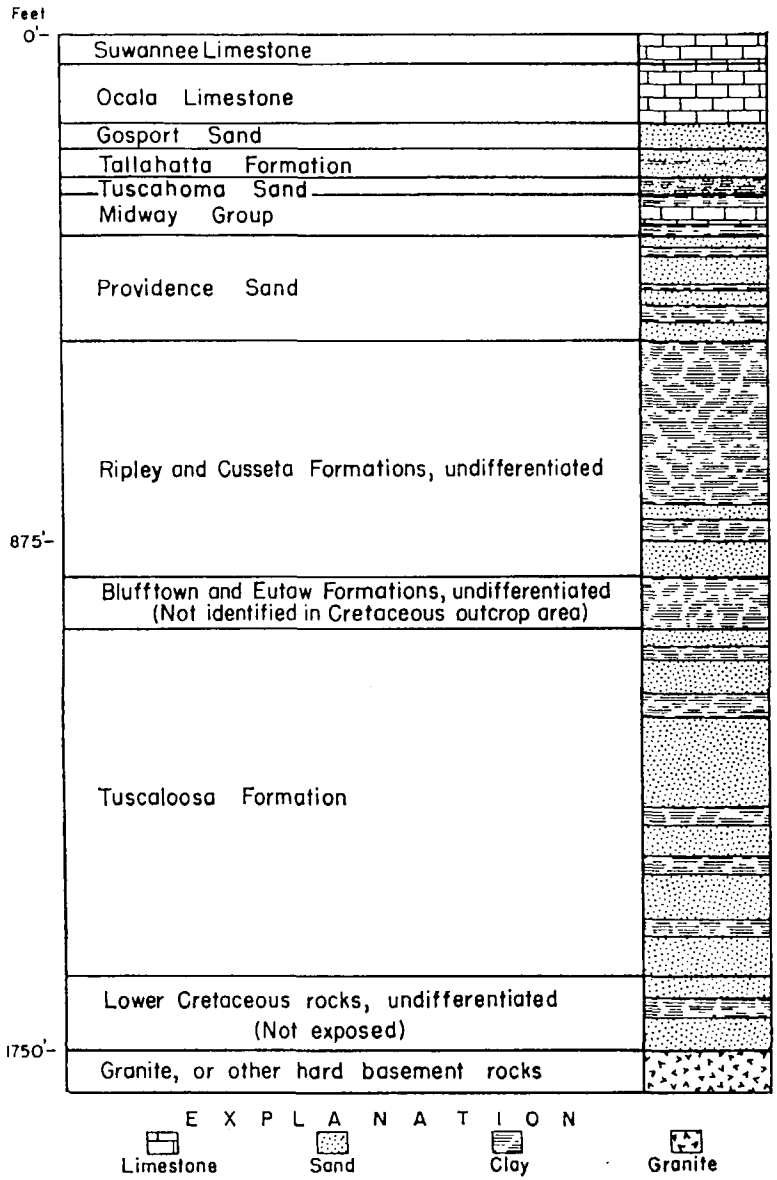
GEOLOGIC FORMATIONS AND THEIR WATER-BEARING PROPERTIES

The areal distribution of the formations underlying the Coastal Plain of the Macon area is shown on the geologic map (fig. 2) and their stratigraphic sequence is illustrated in figure 5. A description of the geologic features and water-bearing properties of these formations follows.

Pre-Cretaceous Rocks

Igneous and metamorphic rocks of Paleozoic and older age lie beneath the sedimentary materials of the Coastal Plain and are exposed in the extreme northern part of the area studied. These so-called crystalline rocks were not separately mapped and were not studied in detail. Many of them are granitic, being (1) true granite, (2) biotite-granite gneiss, or (3) a granite component in a diorite injection complex. Slate and altered volcanic rocks occur in at least one northeast-trending belt. All these rocks are highly weathered and where exposed are generally soft and friable.

As only a few drilled wells in the Macon area derive water from the igneous and metamorphic rocks, few data are available from which to determine the water-bearing properties of these rocks. However, although some wells yield as much as 100 gpm and others as little as 1 gpm, information derived from a study of similar rocks in other parts of Georgia indicates that they yield only small supplies of water. The average expected yield does not greatly exceed 20 gpm.



(Sketch indicates approximately the proportion of rock material, but thickness and position of individual beds are not realistic. If it were possible to find all the sedimentary formations stacked one upon the other in a single cliff, the array would approximate that shown above. In the northern part of the area, only the lower, and older, formations occur. The column of formations is more nearly represented beneath the southern boundary of the area.)

Figure 5.– Columnar sketch of formations in the Macon area.

CRETACEOUS DEPOSITS

Tuscaloosa Formation

The Tuscaloosa formation is the oldest outcropping formation of the Coastal Plain of Georgia. It extends into Georgia from the vicinity of Tuscaloosa, Ala., where it is typically exposed (Cooke, 1943, p. 8). It crops out as an irregular band, generally less than 15 miles wide, bordering the Piedmont province.

The south boundary of the Tuscaloosa, where it is in contact with a younger overlying formation, is not precisely distinguishable in the area studied. This is due to the lithologic similarity of Cretaceous formations in their updip areas. Considerable difficulty was experienced in mapping the Cretaceous deposits in Taylor County, where only the area north of the Central of Georgia Railroad is known with certainty to be underlain by the Tuscaloosa formation. Of the area mapped as undifferentiated Cretaceous, the stratigraphically lowest part is of Tuscaloosa age. Study of stratigraphic relations in the area indicates that the Tuscaloosa is not overlapped by younger deposits but crops out continuously across the area.

The Tuscaloosa formation consists of light-colored sand, sandy clay, and lenticular masses of clay. It is not well bedded and no individual beds have been traced far. The beds do not indicate regular or cyclic deposition, and hence the basal part of the formation may be lithologically similar to the top. The Tuscaloosa thickens southward, and where it is covered by younger material it may be as much as 600 feet thick.

The Tuscaloosa formation in its outcrop area lies on crystalline rocks of Paleozoic and older age. It is possible that deposits of early Cretaceous age underlie the Tuscaloosa in Southern Houston County. The Cusseta sand of late Cretaceous age overlies the Tuscaloosa in southern Taylor County. Southward, beds of the Blufftown and Eutaw formations tend to be wedged between the Cusseta and Tuscaloosa. Eargle (1955, p. 23-31) mapped the Eutaw and Blufftown formations in Taylor County, but the writer does not believe that they can be distinguished from the overlying and underlying formations. It is possible that younger Cretaceous deposits, either the Ripley or the Providence formation, overlie the Tuscaloosa in Peach County and on the uplands in central Taylor County. As far as could be determined, the Tuscaloosa is overlain by the Providence sand in Houston County.

Cusseta Sand

The Cusetta sand was named by Veatch (1909, p. 82-90) from the town of Cusseta in Chattahoochee County. It is not distinguishable from the Tuscaloosa, which underlies it, or from the updip part of the Ripley, which overlies it in the outcrop area. Therefore, it has not been mapped separately but is included in the undifferentiated deposits of Cretaceous age. The Cusseta is composed chiefly of loose yellow sand, although clay beds are common in the upper part. In fact, the deposits of Cusseta grade upward into interlaminated yellow clay and fine sand of the Ripley formation with which it is apparently conformable. Although the Cusseta is about 110 feet thick at Perry, Houston County, it is probably not represented in the Cretaceous outcrop areas of Houston and Bibb Counties.

Ripley Formation

The Ripley formation is exposed in the deeper stream valleys of Schley County and in a few places in Taylor and Macon Counties. It is not definitely known east of the divide between the Flint and Ocmulgee Rivers, although beds in stratigraphic position corresponding to the Ripley crop out in northern Peach County. Although distinctive in Schley County, it cannot be separated from other Cretaceous formations in parts of Taylor, Crawford, and Peach Counties, and consequently may occur in the stratigraphically high parts of the area mapped as undifferentiated Cretaceous.

In its outcrop area, the Ripley probably does not exceed 80 feet in thickness, and downdip under cover it does not thicken as much as other Cretaceous formations. Where erosion has exposed the Ripley in valleys in Schley and Macon Counties, it is composed of dark-gray clay interlaminated with lesser amounts of fine sand. After long exposure, the color becomes lighter, and outcrops in Taylor County are light yellow or white In outcrops in Taylor County, the Ripley is sandy. Massive white kaolin in Taylor County may be a part of the Ripley formation.

Providence Sand

The Providence sand was named by Veatch (1909, p. 86) from the settlement of Providence in Stewart County. It is the youngest and uppermost Cretaceous formation in Georgia and consequently forms the southernmost part of the Cretaceous belt in the area studied. It is well exposed west of the Flint River in northern Schley and Macon Counties, and it also caps some of the hills in Taylor County. It has been mapped eastward through Peach and Houston Counties to the Ocmulgee River. The Providence lies on the Ripley formation except in southern Bibb and northern Houston Counties, where it overlaps the Ripley to rest on the Tuscaloosa formation.

The dip at the top of the Providence formation, as estimated from outcrops and a study of wells in Schley County, is slightly less than 15 feet per mile. If this dip is projected northward, it is apparent that the ridge at Mauk, in Taylor County, is underlain by the Providence.

The Providence is less than 120 feet thick in its outcrop area, although it thickens under cover of other sediments southward. It consists of light-colored sand and masses of white clay. In lithology it is similar to the Tuscaloosa, with which it is in contact in northern Houston County. Except in Taylor County its deposits are strikingly different from the dark-colored bedded clay and sand of the underlying Ripley formation.

Ground Water in the Cretaceous Formations

In the Macon area the deposits of Cretaceous age furnish adequate water supplies to present users and are capable of yielding enormous supplies to future developers. Water is derived from beds of sands which characterize all the Cretaceous formations except the Ripley. The water contains little mineral matter because of the comparative insolubility of the minerals through which it passes.

The surface of the Cretaceous deposits in their outcrop areas is generally mantled by loose sandy soil containing very little interstitial clay. This sandy surface, despite its irregularities, permits rain water to percolate downward into the ground rather than to run off. Thus, of about 45 inches of precipitation on the area yearly, practically all goes directly into the ground. The Cretaceous deposits are capable of temporarily retaining much of this water before it drains laterally into the stream valleys. If the pumping of ground water increases, the amount of drainage into the valleys will decrease. Therefore, in the outcrop area most of the precipitation is available for development, in addition to water already in storage in the ground.

South of and downdip from the outcrop area, the water-bearing beds of sand are covered by impermeable clay, and the water is under artesian pressure. The beds of sand are lenticular and consequently cannot be traced easily. However, as several beds of sand may be penetrated in a well at least 300 feet deep, the discontinuity of beds at a particular horizon does not impair the development of ground water.

The beds near the base of the Cretaceous deposits dip more than 35 feet per mile toward the south and southeast, and those at the top dip a little more than 15 feet per mile in the same direction. Inasmuch as the overall slope of the land surface is slightly less than 15 feet per mile to the southeast, the Cretaceous deposits become buried at a progressively greater depth in that direction. They lie within 150 feet of the surface except beneath the upland in Houston County, where as much as 250 feet of Tertiary sediments overlie them.

The Cretaceous deposits have yielded as much as 1,000 gpm to several individual wells without drawing the water level down more than 40 feet. Where large amounts of water are required, it may be advantageous to place screens at the level of two or more sand beds. The practice of placing two or more screens in a well, especially for municipal or industrial use, results in a composite water level of all aquifers used and does not represent that of an individual aquifer.

TERTIARY DEPOSITS

Midway Group

Deposits of the Midway Group of Paleocene age overlie the Providence formation. The area of outcrop narrows eastward and is completely overlapped near Perry, in Houston County. The Midway does not have a broad continuous outcrop but instead occupies long narrow bands in the valleys of the southern parts of Schley, Macon, and Peach Counties and small outliers north of Buck Creek in Macon County.

The Midway Group, as mapped, consists of one or more thin beds of white sandy fossiliferous limestone of the Clayton formation and bedded dark-brown clay. The beds are less than 75 feet thick in the outcrop area. Stephenson and Veatch (1915, p. 69) estimate its thickness along the Flint River to be 300 to 400 feet, but this thickness doubtless includes deposits of Eocene age. Owen (1959, p. 48) refers to bauxite in kaolinitic clay of the Midway Group in Sumter County, which lies south of Schley County. Bauxite appears to have developed on the uppermost weathered parts of the dark-colored clay of the Midway Group in both Sumter and Schley Counties.

The limestone beds in the Midway Group are too thin to be aquifers in the Macon area. The beds of clay in the subsurface are everywhere in the area south of their outcrop area, and their relatively low permeability almost prevents any transfer of water between the underlying Cretaceous aquifers and the overlying Tertiary aquifers. So far as is known, no drilled well in the Macon area derives water entirely from the Midway Group.

Tuscahoma Sand

Beds equivalent in age to the Tuscahoma sand of Alabama (Toulmin and others, 1951, p. 62-65) occur in southern Schley County, according to Herrick (personal communication). The formation, of early Eocene age, consists of dark-colored glauconitic silt and silty glauconitic sand. It probably does not exceed 25 feet in thickness and is exposed only in stream valleys near the Sumter County line. Owing to its low permeability, its local occurrence, and its thinness, the Tuscahoma sand is not considered important hydrologically.

Tallahatta Formation

In the early part of the field work, the writer did not recognize the Tallahatta formation. The work by Owen (1959, p. 48)

COUNTY DESCRIPTIONS

In the following pages, the geography, geology, and ground-water conditions in each county are described briefly. Tables of representative wells and chemical analysis of water samples are given. Some wells listed furnish domestic supplies, but information about the yield of each well is not available because the amount of water actually needed for home use is small and may be only a fraction of the potential yield of the well.

The wells for which data were collected are numbered consecutively by counties; the numbers in the well tables and the chemical-analyses table correspond to the well numbers in figure 6, and in the text of the report.

BIBB COUNTY

Area: 251 square miles. Population: 139,999*

Geography

Bibb County forms the northeast corner of the area of this report. Macon, the county seat and only municipality, as well as the largest city of the area studied, has a population of 68,860. It is an important manufacturing, railroad, and agricultural exchange point for the central part of Georgia. The county is well served by rail, and the highway and community roads are good. The kaolin deposits of Georgia extend into the county, and considerable kaolin is mined from the Cretaceous deposits east of Ocmulgee River along the Twiggs County line. Some sand is recovered from the Tuscaloosa formation south of Macon. Excellent road material for secondary roads is taken from disintegrated granite about 10 miles west of Macon.

The Piedmont Plateau occupies the northern half of the county. The topography is rolling to hilly; the main streams, having adjusted their courses to the structure of the underlying crystalline rocks, flow eastward to join the through-flowing Ocmulgee River, which receives the entire drainage of the county. Owing to the variety of rocks underlying the Piedmont, the soils differ from place to place, but in general they are deep red and reasonably fertile.

The Sand Hills represent the outcrop area of the Tuscaloosa formation and occupy the Coastal Plain part of the county. This part of the county comprises a series of rolling divides between the large creeks, the creeks flowing in east-west courses to the Ocmulgee River. The rather flat upland between Tobesofkee and Echeconnee Creeks may be due to less erratic but more thorough stripping of overlying deposits elsewhere. The upland east of the Ocmulgee River is higher than that west of the river. The Ocmulgee River in deepening its channel has left patches and wide expanses of alluvium as river-cut terraces on both sides. The business section of Macon is built on a terrace about 75 feet above the river.

*Population figures cited for all counties and the city of Macon are preliminary figures for 1960 from the U. S. Bureau of the Census. Figures for the cities of Fort Valley, Montezuma, and Perry are from the 1959 population estimates of the Georgia Department of Public Health. All other population figures are from the 1950 Census Bureau records.

Geology

The Tuscaloosa formation occupies the southern two-thirds of the county, forming a southward-thickening wedge of sediments. The Tuscaloosa is composed of fine to coarse sand, in places mingled with white kaolin and in others separated by lenticular and rather pure kaloin masses. The base of the Tuscaloosa dips slightly east of the south at approximately 30 feet per mile, its contact with the underlying crystalline rocks being 141 feet below sea level, or 500 feet below the land surface, at Cochran field in the southern part of the county.

East of Ocmulgee River, outlying bodies of late Eocene age occur along the interstream area. These deposits consist of (1) the Barnwell formation which is composed of massive deep-red, clayey sand, (2) one or more beds of green or gray fullers-earth-type clay, and (3) beds of limestone having only spotty outcrops. The limestone beds are limited to the area adjacent to Twiggs County on the southeast. The red sands of the Barnwell formation on the interstream areas have slumped and crept downslope so as to drape over the Tuscaloosa formation in many places. This draping has been so prevalent that it is not unusual to see a contact between the Barnwell and the underlying Tuscaloosa at one point on a slope and to see what appears to be the same contact at a considerably higher point on the same slope, the higher point being the true contact and the lower one being a false or "drape" contact. Beds of sand capping the low-lying upland south of Tobesofkee Creek near U. S. Highway 41 may be a part of the Barnwell formation, although they have not been so mapped. They appear too low stratigraphically to be Barnwell. Inasmuch as these beds are less than 25 feet thick in most places and are present only locally, they have been placed in the Tuscaloosa.

Alluvial deposits bordering the Ocmulgee River and some parts of the larger creeks are the youngest sediments in the county. They are of Pleistocene and Recent age. These deposits are composed of unsorted clay, sand, and gravel, which in most places are less than 40 feet thick and extend 1 or 2 miles on each side of the river.

Ground Water

Dug wells furnish practically all water used in the northern part of Bibb County underlain by crystalline rocks. Generally

they are about 30 inches in diameter, 20 to 60 feet deep, and yield approximately 1 to 15 gpm from the weathered material above bedrock.

Where the Tuscaloosa formation extends south of U. S. Highway 80 and west of Ocmulgee River, water supplies from drilled wells can be obtained readily. The number of sand beds increases southward, resulting in an increase in the availability of water to wells southward. The Tuscaloosa furnishes water to all drilled wells on the Coastal Plain of Bibb County except in the immediate area around Macon where sands of the Tuscaloosa may be too thin. Some domestic drilled wells are only 2 inches in diameter and less than 70 feet deep, these wells satisfying local requirements of only a few gallons of water per minute.

Development of ground water during World War II at Cochran Flying Field in the southern part of the county has produced considerable information concerning the depth of the Tuscaloosa and its water-bearing sands and the yield of water from them. In well 39 the sands above the 220-foot level were screened at the following intervals: 106-121, 126-146, 174-179, and 210-220. When the static water level in the well was 64 feet in 1942, about 550 gpm was pumped and the water level was drawn down about 35 feet.

During World War II, efforts to develop a ground-water supply at Camp Wheeler, about 6 miles east of Macon, were apparently successful, although this potential supply was not fully utilized. Here, well 12 was drilled through 333 feet of sediments of the Tuscaloosa before ending on bedrock. Several screens were set opposite the better sands, which resulted in a yield of 535 gpm and a drawdown of 45 feet.

The water in the two wells just cited was under only slight artesian head, owing to the small difference between the elevation of the aquifers at the well and that at the intake area a few miles farther north. Flowing wells with slight artesian head may be realized from the Tuscaloosa in the lowland areas south of Macon.

The deposits of Eocene age are too thin to furnish water to drilled wells, and they have no water-bearing significance in Bibb County. Alluvial deposits along the Ocmulgee River should furnish water to industrial wells where these deposits are of sufficient thickness. The alluvium probably is similar in water-

yielding properties to the Tuscaloosa formation, which underlies it south of Macon.

A record of wells inventoried in Bibb County during the investigation is shown in table 3.

CRAWFORD COUNTY

Area: 313 square miles. Population: 5,796

Geography

Crawford County is almost entirely rural. Roberta, with a population of 673, is the only town, although Knoxville, an adjacent settlement, is the county seat. Agriculture is the chief occupation and peaches and cotton are important crops. Much uncultivated land is suitable for the growth of timber. Kaolin is abundant in the Tuscaloosa formation, the major prospects having been described by Smith (1929, p. 74-91). Limestone of the Ocala formation has been quarried at Rich Hill, 5 miles east-southeast of Roberta.

The northern half of Crawford County lies in the Piedmont province, the southern half in the Coastal Plain. The Piedmont, for the most part, is very hilly, owing to the headward growth of many small streams on the upland. Some land lies at an altitude of about 600 feet, especially along the divide which Georgia Highway 7 follows. This divide separates the drainage basin of the Flint River on the west from that of the Ocmulgee River on the east.

The Coastal Plain extends northward to the vicinity of Roberta, at which place its feather edge has been made irregular by erosion by south-flowing streams; thus, peninsulas of the Tuscaloosa formation lie on the crystalline rocks of the Piedmont, producing a different outcrop pattern from that of other counties along the Fall Line in which outliers are common. The Sand Hills, representing the outcrop area of Cretaceous deposits, form most of the southern half of the county. The topography is hilly, owing to the fact that both the Flint River on the west border and Echeconnee Creek on the east border have channels considerably lower than the general upland. The erosion by tributaries of these two streams has left a divide trending southeastward from Roberta; the divide rises to more than 700 feet above sea level at Rich Hill. The surface soil zone in the

TABLE 3.—RECORDS OF WELLS IN BIBB COUNTY

Well No.	Location	Owner	Type of well	Depth (ft.)	Diameter (in.)	Depth of casing (ft.)	Water-bearing unit (sand unless specified otherwise)	Water level (ft.)	Topography	Remarks
1	8 miles NW. of Macon	Southern Natural Gas Co.	Open end	600	8	25	Granite (rock)	.....	Slope	Yield, 100 gpm.
2	do	do	do	593	8	24	do	.....	do	Yield, 78 gpm. Yield affected by pumping of well 1.
3	do	do	do	600	8	67	do	41	do	Yield, 46 gpm; drawdown 100 ft.
4	7 miles NW. of Macon	Stewart-McElreath Lumber Co.	do	61	6	.....	do	36	Valley	Well furnishes 10,000 gpd.
5	8 miles W. of Macon	Curtis Watson	do	52	3	.....	Granite and diorite (rock)	38	Slope	.....
6	5 miles E. of Macon	McAfee Candy Co.	Screened	245	10	.....	Cretaceous (undifferentiated)	30	Flat plain	Screens set at 100-110, 178-188, 200-220, 232-242 ft. Yields, 1,140 gpm.
7	Macon	Dempsey Hotel	Open end	235	10	50	Granite (rock)	35	Terrace	Yield, 150 gpm. Well not used.
8	do	Proctor & Gamble	Screened	60	7 ft.	60	Cretaceous (undifferentiated)	21	do	Water used for cooling. T. 70°F.
9	3 miles S. of Macon	McAfee Candy Co.	do	114	6	.....	do	35	do	Yield, 25 gpm.
10	do	do	Open end	560	6	.....	Granite (rock)	45	Flat plain	Yield, 5 gpm. Well abandoned.
11	do	Atlantic Ice Co.	Screened	60	6	.....	Cretaceous (undifferentiated)	.....	do	Yield, 325 gpm.
12	4 miles E. of Macon	U.S. Army (Camp Wheeler)	do	239	10	.....	do	28	do	Yield, 535 gpm; drawdown 45 ft.
13	5 miles SE. of Macon	B. E. Willingham	do	200	4	.....	do	.....	Flood plain	Flows 30 gpm. T. 66°F.
14	do	do	do	185	6	.....	do	.....	do	Flows 50 gpm. T. 66°F.
15	do	do	do	200	8	.....	do	.....	do	Flows 8 ft. above ground into swimming pool. Flows 300 gpm.
16	4 miles S. of Macon	Stritmann Biscuit Co.	Gravel-packed	303	8	200	do	.....	Slope	Yield, 448 gpm; drawdown 94 ft.
17	do	U.S. Navy Ordnance Plant	Screened	287	8	287	do	53	do	Yield, 400 gpm.
18	do	Macon Kraft Co.	Gravel-packed	282	8	282	do	48	do	Screens set at 123-128, 147-152, 163-168, & 182-187 ft. Yield, 340 gpm.
19	10 miles SW. of Macon	Bethel Church	Open end	38	2½	38	do	25	do	.....
20	do	J. Singleton	do	88	2	.....	do	73	Upland	.....
21	4 miles S. of Macon	Armstrong Cork Co.	Gravel-packed	230	8	243	do	.....	Slope	Screens at 117-125, 145-155, 195-200, & 235-260 ft. Yield, 430 gpm.
22	do	do	do	243	8	243	do	.....	do	Yield, 200 gpm. See analysis.
23	do	do	do	265	8	265	do	42	do	Yield, 635 gpm; drawdown 80 ft.
24	5 miles S. of Macon	Peach State Lodge	Screened	103	2	.....	do	50	Upland	.....
25	10 miles SW. of Macon	Lee Honeycutt	do	44	2	.....	do	22	Slope	.....
26	do	J. Sowells	do	144	2½	.....	do	.....	do	.....
27	do	Clint Jones	do	69	2½	.....	do	55	do	.....
28	10 miles SW. of Macon	Henry Gentry	do	127	2½	.....	do	107	Upland	.....
29	do	Zeke Stokes	do	40	2½	.....	do	18	Upland plain	.....
30	do	E. L. Tanner	do	179	2½	.....	do	125	do	.....
31	8 miles S. of Macon	W. J. Bryant	do	90	2½	.....	do	55	do	.....
32	do	L. O. Stokes	do	63	2½	.....	do	56	do	.....

TABLE 3.—RECORDS OF WELLS IN BIBB COUNTY—CONTINUED

Well No.	Location	Owner	Type of well	Depth (ft.)	Diameter (in.)	Depth of casing (ft.)	Water-bearing unit (sand unless specified otherwise)	Water level (ft.)	Topography	Remarks
33	do	Standard Oil Co.	do	191	6	142	do	70	Slope	Screens at 142-147 & 157-162 ft.
34	9 miles S. of Macon	W. W. Herndon	do	95	2	.....	do	38	do	.....
35	do	Grady Wilcoxon	Screened	75	2½	.....	do	60	Upland plain	.....
36	10 miles S. of Macon	George Avant	do	75	2	.....	do	50	do	.....
37	do	Dewey Skippers	do	75	2½	.....	do	60	do	.....
38	do	Cochran Flying School	Gravel-packed	373	10	373	do	95	do	Yield 620 gpm; drawdown 60 ft. Screens at 105-110, 132-147, 224-234, 314-319, & 353-368 ft. See analysis.
39	do	do	do	225	10	225	do	64	do	Yield 550 gpm; drawdown 35 ft. See analysis.
40	13 miles S. of Macon	H. G. Hamlin	do	86	2	.....	do	45	do	.....
41	do	J. D. Bradley	do	105	2	.....	do	51	do	.....

Sand Hills is generally so sandy that crops do not thrive in it.

The Fort Valley Plateau, underlain by Eocene deposits, forms the upland area in the extreme southeastern part of the county. In comparison with the hilly terrain of the adjacent Sand Hills, this area is very flat and locally is poorly drained. The soil is relatively rich.

Geology

Of the Cretaceous deposits in Crawford County, the Tusaloosa formation is by far the most extensive, its outcrop covering most of the area south of the Fall Line. It consists chiefly of white coarse sand, sand mingled with kaolin, and lenses of kaolin. It thickens from less than 50 feet at Roberta to perhaps more than 300 feet in the southern part of the county. No record is available of any well having been drilled through the Tuscaloosa to the crystalline rocks south of the Roberta area. The Ripley formation barely extends into the southern part of the county. It consists of yellow laminated sand and clay beds, white sand, and some kaolin. Owing to the lithologic similarity between it and other Cretaceous formations in updip areas, its contact is not definite. The Providence sand overlies the Ripley formation, but as its updip beds barely enter the southeastern part of the county, it is probably less than 70 feet thick. Outcrops are limited to a few valley slopes.

Of the Eocene deposits, the Gosport sand lies under the residuum in the southern part of the county, but its extreme thinness and the draping effect of the overlying residuum generally prevents its exposure. The residuum also is relatively thin. It is a veneer of red sandy clay, in few places more than 50 feet thick, which forms the Fort Valley Plateau. The Ocala limestone farther north at Rich Hill, equivalent in age to the residuum, is a small outlier more than 660 feet above sea level. Rich Hill is a noted geologic locality consisting of soft white fossiliferous limestone more than 20 miles updip from the main body of Ocala. Some dense gray clay, similar to the Twiggs Clay member of the Barnwell formation in Twiggs County, occurs above the Ocala here. The presence of limestone here gives evidence that the red sandy clay in stratigraphic alinement farther south represents the residuum of dissolved Ocala limestone.

Alluvial deposits occur along the east side of the Flint River and are especially prominent at the village of Nakomis.

HOUSTON COUNTY

Area: 379 square miles. Population: 38,953

Geography

Houston County forms the southeast corner of the project area. As in most counties on the Coastal Plain, the economy centers around agriculture, major products being peaches and cotton. The Ocala limestone has been quarried at Clinchfield, the lime being used chiefly in the production of cement. Deposits of kaolin, fuller's earth, and sand also occur in the county. Perry (population 6,000), the county seat, is an important tourist center. Warner Robins, the only other town in Houston County, increased in population considerably during World War II, owing to the rapid development of Warner Robins Air Base on the terrace bordering the Ocmulgee River.

All of Houston County lies in the Coastal Plain province, the upland area north of Perry belonging to the Fort Valley Plateau. This plateau has a gentle southeastern slope and is rather smooth except where stream erosion has incised the surficial deposits of red clayey sand. The larger creeks flow eastward to the Ocmulgee, thereby forming long and narrow, but not necessarily deep, eastward-trending valleys. A north-facing escarpment occurs south of Limestone Creek, this escarpment expressing the difference in degree of solution of limestone which this area has undergone. The lowland on the north side of the escarpment lies as much as 150 feet below the upland. That solution of the limestone is less active than formerly is indicated by the fact that no large springs or surface streams emerge from the limestone now. This solution escarpment is a part of the great solution escarpment extending southwestward through Georgia. The upland area south of the escarpment is the northern extension of the Tifton Upland.

The Ocmulgee River forms the east boundary of Houston County. The streams within the county flow through rather straight courses to the Ocmulgee, the entire county lying within its drainage area.

Geology

In the outcrop belt the deposits of Cretaceous age in Houston County are not readily distinguishable. The Tuscaloosa formation probably occupies the valley of Echeconnee Creek; it underlies the entire county and increases in depth and thickness toward the southeast. The remaining outcropping strata of the Cretaceous, in the lowlands of the northern part of the county, are tentatively assigned to the Providence sand, which overlaps intervening formations to rest unconformably on the Tuscaloosa in the area of outcrop. These two formations are lithologically similar, both being composed of massive kaolinitic sand and lenticular deposits of almost pure sand and rather pure kaolin.

The log of well 23, listed below, reveals the presence of the Ripley and Cusseta formations, although they are overlapped by the Providence sand in the northern part of the county.

The Midway Group overlies the Providence sand except in the extreme northern part of the county, where the Gosport sand overlaps the Midway and lies on the Providence sand. The Midway is exposed in several places in creek valleys near Perry, but southward it is concealed below younger beds. According to a driller's log, 72 feet of chocolate-colored clay (presumably of the Midway) was penetrated below the 60-foot level in well 28 at Clinchfield.

Log of well 23 drilled in 1952 at town of Perry, two blocks west of New Perry Hotel. Elevation of ground 318 feet. Description by S. M. Herrick.

	Thickness (feet)	Depth (feet)
Middle and Lower Eocene (Undifferentiated):		
Sand, fine- to coarse-grained, limonitic, interbedded with thin stringers of clay; gray, lignitic, micaceous	90	90
Paleocene:		
Midway Group:		
Clayton Formation:		
Clay, dark-gray, hackly, lignitic	6	96
Upper Cretaceous:		
Providence Sand:		
Clay (or kaolin), white to pink (mottled), micaceous, somewhat sandy, interbedded with thin tongues of sand. Sand is fine- to coarse-grained, arkosic, pyritiferous, sideritic	47	143

Sand, fine- to coarse-grained, arkosic, pyritiferous, sideritic, interbedded with thin stringers of gray to red (mottled) sandy, micaceous clay (or kaolin)	73	216
Ripley and Cusseta Formations (Undifferentiated):		
Marl, bluish-gray, lignitic, micaceous, sandy, sideritic, pyritiferous	29	245
Sand, fine- to coarse-grained, rather massive, angular grains, arkosic, interbedded with occasional stringers of gray micaceous, somewhat sandy clay (or kaolin)	245	490
Blufftown Formation:		
Clay, dark-brown, fissile, lignitic, micaceous sandy	14	504
Sand, fine- to coarse-grained, massive, angular, arkosic, micaceous, pyritiferous, interbedded with thin stringers of dark-brown fissile, lignitic, micaceous, sandy clay	120	624

The Gosport sand underlies the uplands north of Indian Creek, but it lies above the larger creeks. On the uplands it is mantled by residuum or other deposits. It consists chiefly of clean sand, but some calcareous materials are present in the southern part of the county. Its thickness does not exceed 100 feet, except possibly in the southernmost part of the county.

Deposits of late Eocene age, present throughout the county, but somewhat eroded, are more varied lithologically in Houston County than in any other part of the Macon area. Along U. S. Highway 41 about 3 miles south of Echeconnee Creek, red sand of the Barnwell formation is exposed. It is not separately mapped, owing to its similarity to the residual deposits of Ocala limestone, which is its downdip equivalent. The Ocala is exposed at Clinchfield and at isolated localities, especially near Limestone Creek. Beds of limestone are interlayered with green and gray clay of the Twiggs clay member of the Barnwell formation. In the extreme southern part of the county, the Twiggs clay is thin or absent, so that southward the upper Eocene units are all Ocala limestone.

Overlying the Ocala in the southern part of the county is the Suwannee limestone of Oligocene age. It is generally mantled by residual soil weathered from it. Outcrops of the Suwannee are not abundant.

Alluvial deposits are mostly confined to the area bordering the Ocmulgee River. These deposits, on which Warner Robins Air Base is located, form a low terrace about 3 miles wide extending westward from the river to Warner Robins.

Ground Water

In the northern two-thirds of the county nearly all drilled wells derive water from one or more sand beds in the Providence Sand. Sand of the Providence underlies the entire county except the valley of Echeconnee Creek; it is exposed in valleys in the northern part of the county and is buried beneath younger formations, at a progressively greater depth, toward the south. Wells 150 feet deep, or less, penetrate the Providence sand north of Limestone Creek. Water from the Providence is under artesian conditions in the area around Mossy Creek and southward. Flowing wells from this formation can be obtained in the lowland areas bordering Big Indian Creek and Mossy Creek. Water from the several flowing wells along Mossy Creek at Lake Houston is derived from sand of the Providence.

Underlying the Providence, and almost indistinguishable from it so far as ground-water properties are concerned, are other Cretaceous formations containing water-bearing sand and clay. Owing to the lenticularity of the sand and clay and to the sparsity of wells penetrating the Cretaceous deposits, correlation of specific sand beds between two wells is not possible, except locally. This is of no consequence, because several sand beds are present everywhere, all of which, if properly developed, will yield large quantities of water. Both the city of Perry and the Air Base at Warner Robins utilize various sand beds of the Cretaceous deposits, and, with the exception of these two centers, the amount of water that can be withdrawn from these deposits has not been tested.

Overlying the sand beds of the Providence in the southern two-thirds of the county and acting as a confining layer for the water in the sand, is bedded chocolate-colored clay of the Midway Group. The clay yields very little water and is relatively impermeable. The Midway Group is less than 75 feet thick in the vicinity of Perry.

The Gosport sand and the overlying residuum, taken as a unit, constitute most of the upland surficial deposits north of Limestone Creek. These deposits yield water to dug wells and to some drilled wells south of Big Indian Creek. The sand of the Gosport is loose and porous, but little water is derived from either the Gosport or the residuum north of Big Indian Creek, owing to the drainage of water from the sand into the valleys of Mossy and Big Indian Creeks. Several flowing wells of small yield obtain water from the Gosport sand along Limestone Creek near Clinchfield. The shallowest of these is 35 feet deep.

South of Flat Creek the Ocala limestone occurs in sufficient thickness to be important as a reservoir for ground water. Despite its gentle southern dip, the Ocala is buried beneath younger deposits under the limestone cuesta in the southern part of the county and is not within easy reach of shallow drilled wells. Green relatively impermeable clay of the Twiggs clay member of the Barnwell formation separates the Ocala from the overlying Suwannee limestone; (therefore, each limestone unit has a separate water table). The water level in the Suwannee limestone lies approximately 45 feet below the surface; that in the Ocala lies much deeper. Very few wells penetrate the Ocala limestone because adequate domestic supplies can be obtained from the Suwannee. South of Houston County, in Dooly and Pulaski Counties, the Twiggs clay member is absent, allowing the Ocala and Suwannee limestone to act as a hydrologic unit.

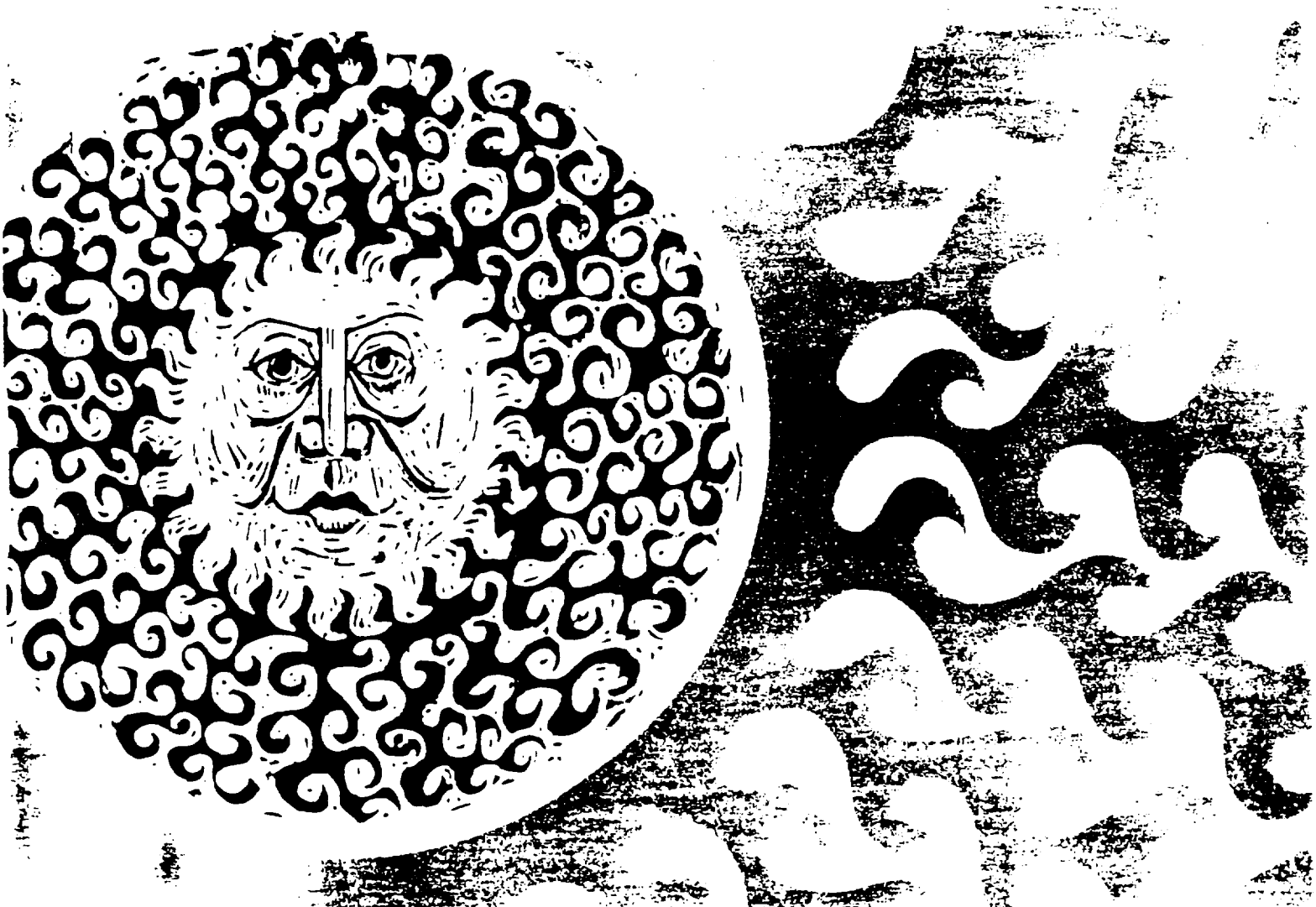
Water from the Providence and other Cretaceous deposits of Houston County is similar in quality to that from Cretaceous sand in adjacent counties. Well 24 yields water representative of the Providence, having 25 ppm dissolved solids. The corrosiveness and high-iron content of some water from the Cretaceous deposits are generally the only objectionable aspects. The Gosport sand fields soft water of good quality. Water from the Ocala and Suwannee limestones is moderately hard.

A record of wells in Houston County is shown in table 5.

TABLE 5.—RECORDS OF WELLS IN HOUSTON COUNTY

Well No.	Location	Owner	Type of well	Depth (ft.)	Diameter (in.)	Depth of casing (ft.)	Water-bearing unit (sand unless specified otherwise)	Water level (ft.)	Topography	Remarks
1	Warner Robins	U. S. Government	Gravel-packed	311	8	.....	Cretaceous (undifferentiated)	45	Low terrace	Yield, 800 gpm; drawdown, 19 ft.
2	do	do	do	290	12	250	do	32	do	Yield, 885 gpm; drawdown, 23 ft.
3	do	do	do	375	12	375	do	24	do	Yield, 1,000 gpm; drawdown, 36 ft. See analysis.
4	do	do	do	370	12	.....	do	32	do	Yield, 800 gpm; drawdown, 41 ft.
5	do	do	do	239	12	233	do	34	do	Yield, 1,010 gpm.
6	do	Town of Warner Robins	do	390	12	.....	do	.....	do	Yield, 790 gpm.
7	do	do	do	375	12	375	do	.....	do	Yield, 800 gpm.
8	do	do	do	418	12	.....	do	.....	do	Screens set at 226-256 and 380-400 ft.
9	do	do	do	390	12	390	do	115	Slope	Yield, 1,500 gpm. Screens set at 240-250, 320-330, and 360-380 ft.
10	6 miles NW. of Warner Robins	Georgia Forestry Commission	Screened	285	4	285	do	150	Upland plain	Yield, 75 gpm.
11	do	do	Gravel-packed	470	12	475	do	154	do	Yield, 1,850 gpm.
12	7 miles SW of Warner Robins	Jack Thorpe	Screened	150	3	.....	do	80	do	T. 67°F.
13	do	Floyd Tabor	Open-end	124	3	124	do	.....	do	.....
14	5 miles SW. of Warner Robins	Kersey Brothers	Screened	140	4	.....	do	30	Slope	.....
15	do	Mrs. C. L. Kersey	do	50	3	.....	Providence	40	do	.....
16	5 miles S. of Warner Robins	G. E. Perdue	do	65	2	.....	do	45	Upland plain	.....
17	5 miles NE. of Perry	Ethel Davis	Open-end	116	2	116	do	.....	Valley	Well flows 40 gpm, 8 ft. above ground.
18	do	H. A. Merker	do	150	3	150	do	.....	do	Well flows 65 gpm, 8 ft. above ground.
19	do	J. H. Davis	do	200	3	200	do	.....	do	Well flows 45 gpm, 7 ft. above ground.
20	do	J. D. Graham	do	250	3	250	do	.....	do	Well flows 50 gpm.
21	6 miles NE. of Perry	Town of Perry	Screened	70	3	.....	do	25	Upland plain	.....
22	do	do	Gravel-packed	450	8	450	Cretaceous (undifferentiated)	.....	Valley	Flows 470 gpm.
23	do	do	do	470	8	470	do	.....	do	Screens set at 195-200, 310-320, 375-385, 425-435, 445-455, and 460-465 ft.
24	do	do	do	488	8	488	do	18	Slope	Yield, 1,200 gpm.
25	do	do	Screened	360	6	.....	do	.....	Valley	Well flows 20 ft. above ground. T. 66°F.
26	3 miles S. of Perry	Blue Diamond Cafe	do	95	3	.....	Providence	65	Upland plain	.....

REFERENCE 3



LIMATIC ATLAS OF THE UNITED STATES

U.S. DEPARTMENT OF COMM
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ENVIRONMENTAL SCIENCE SERVICES ADMI
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JUNE 1968

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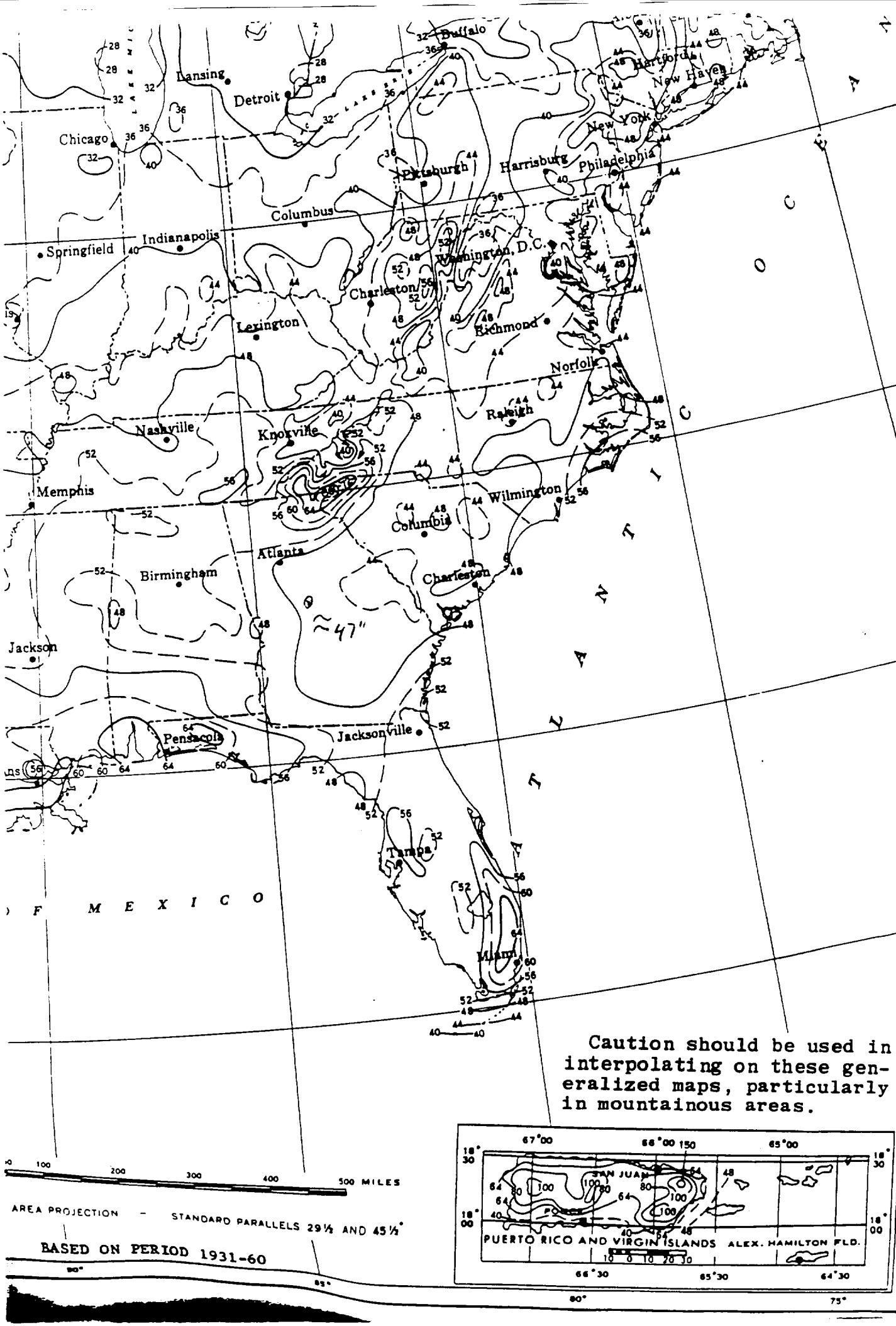

Caution should be used in interpolating on these generalized maps, particularly in mountainous areas.

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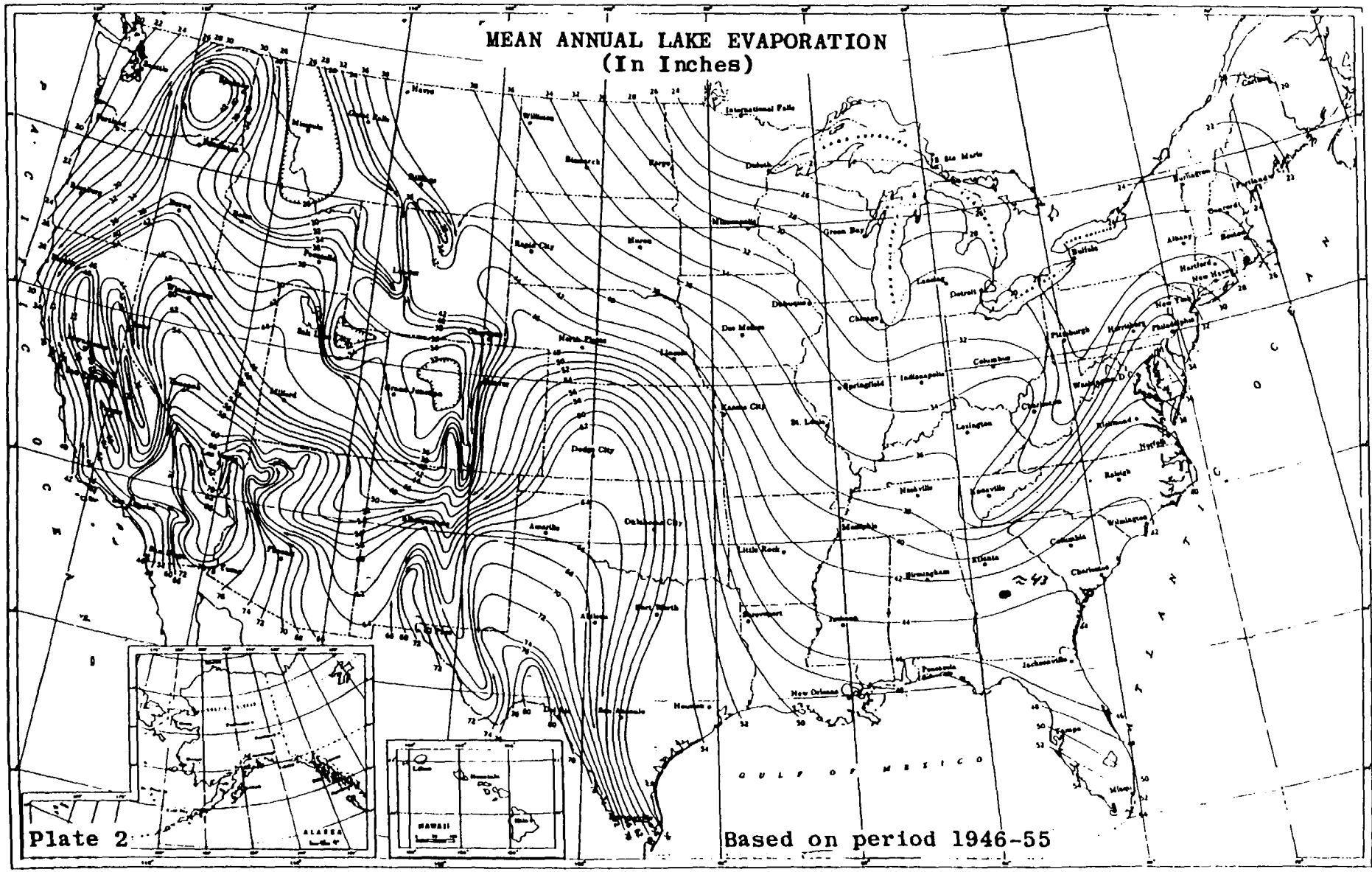
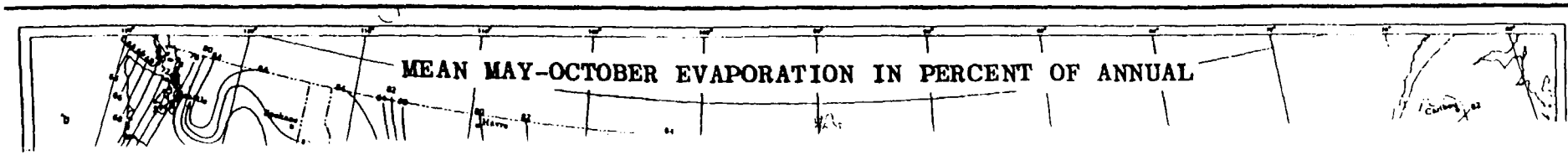
LAKE EVAPORATION





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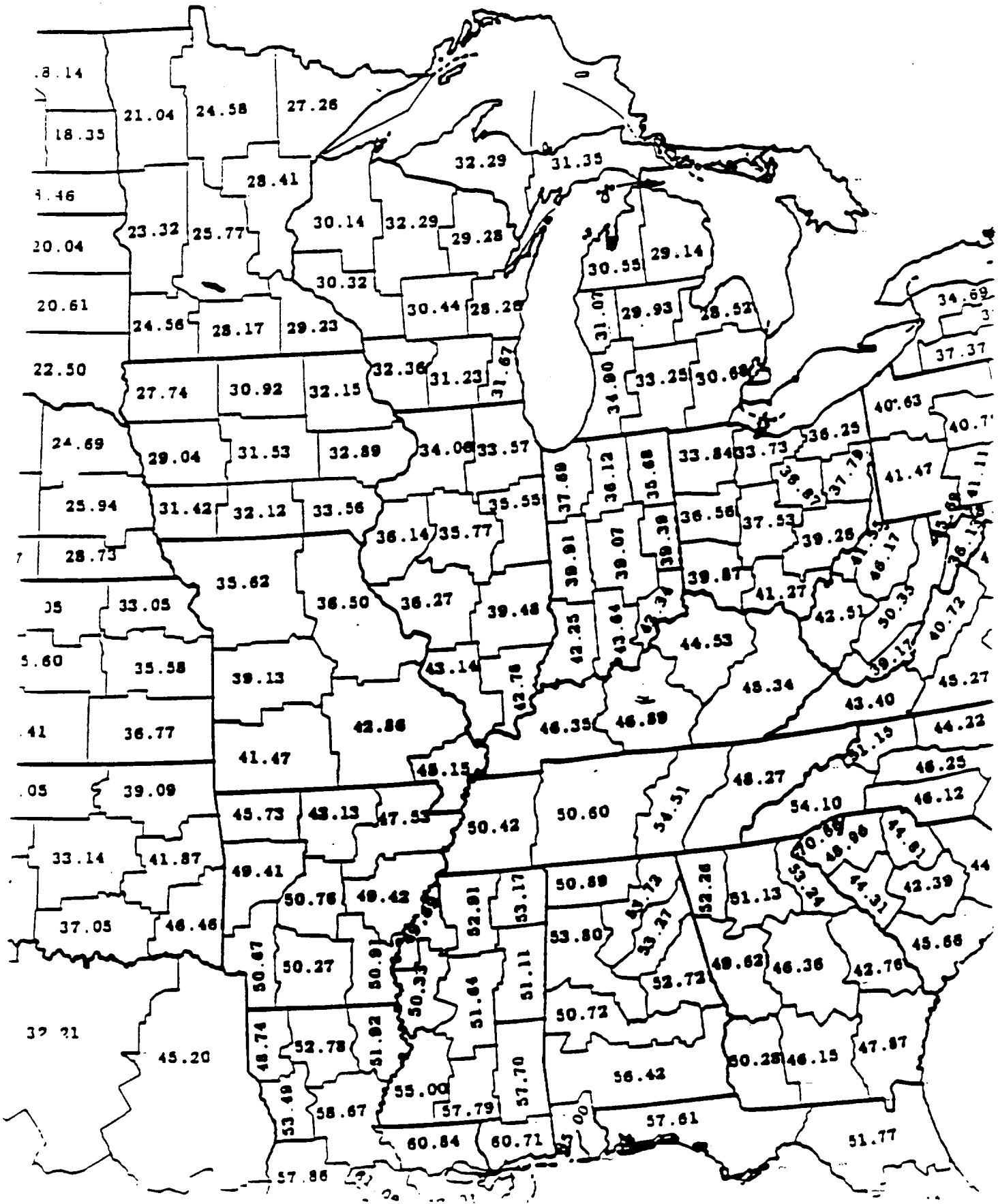


DEPARTMENT OF COMMERCE
[illegible] Hodges, Secretary

WEATHER BUREAU
F. W. Reichelderfer, Chief

REFERENCE 4

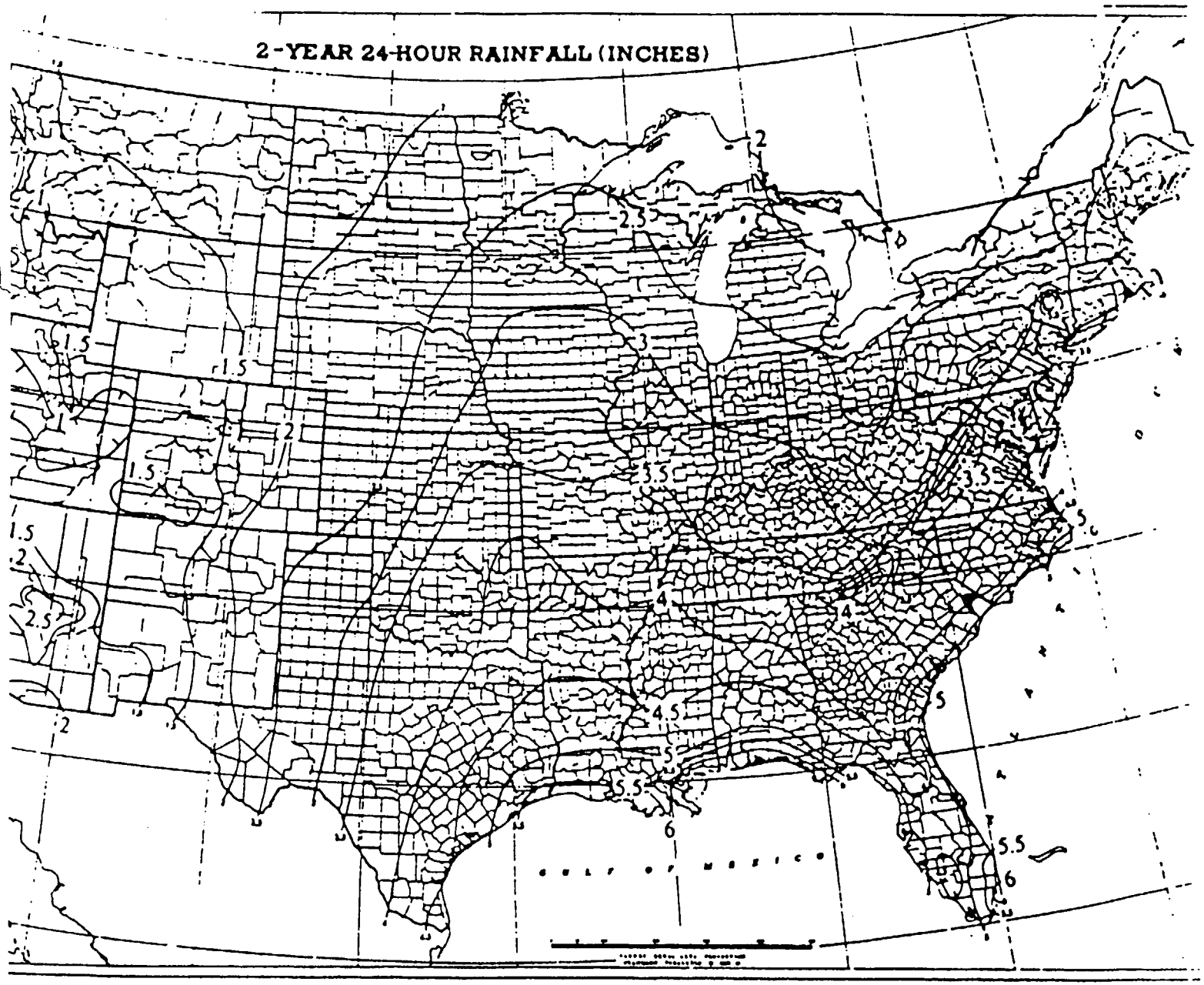
TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

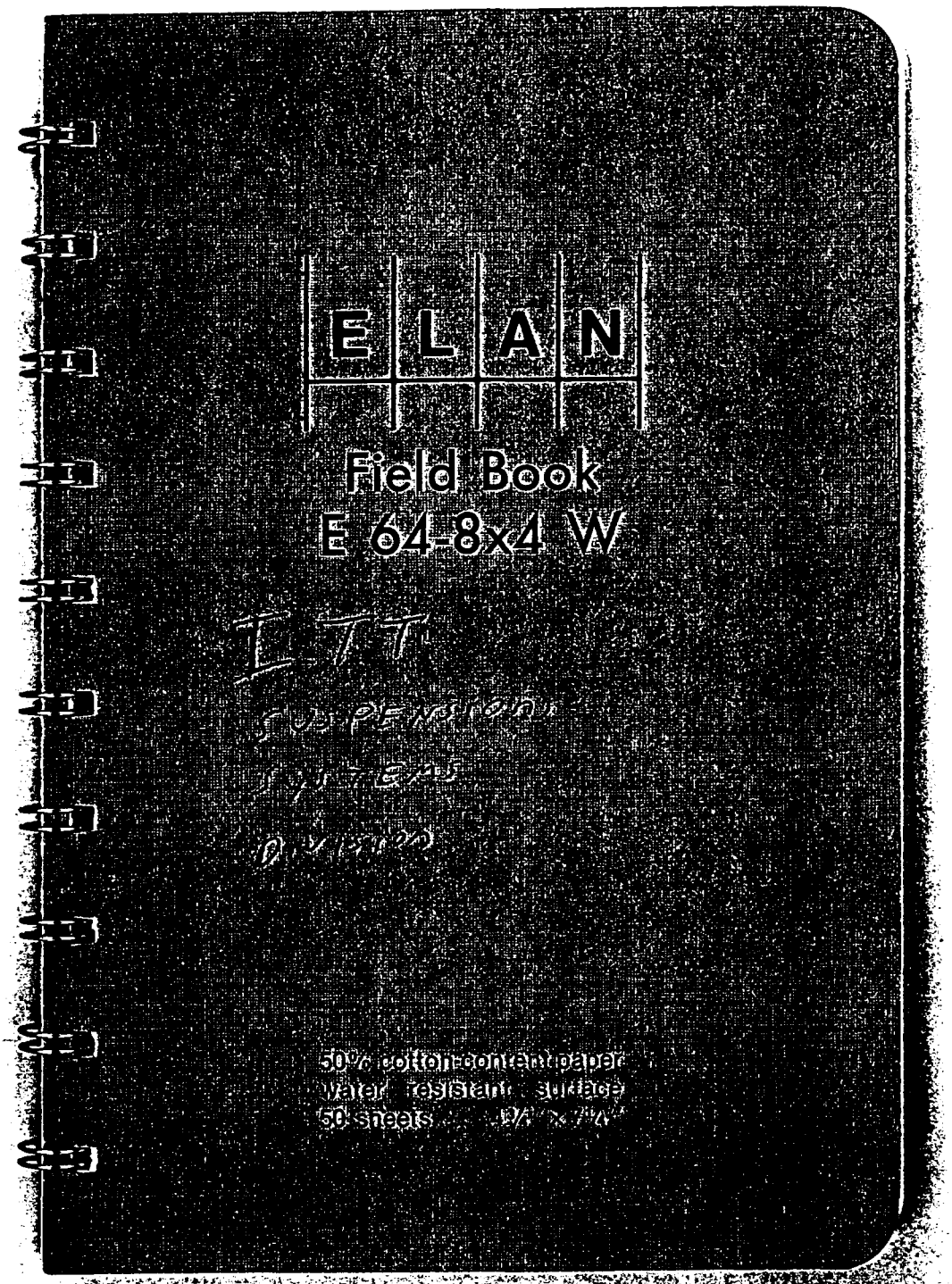
for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

PROPERTY OF EPA
FIT IV


2-YEAR 24-HOUR RAINFALL (INCHES)
2
2.5
3
3.5
4
4.5
5
5.5
6
1.5
1

REFERENCE 5


ELAN
Field Book
E 64-8x4 W
50% cotton content paper
water resistant surface
50 sheets

WED 5/27

10:15 Arrive at Macon COC.

10:50 Arrive @ Tax Assessor
ITT Suspension System Div
Sold property to Boeing
Aircraft manufacturing division
obtained copy of ownership
document and photocopy of
plat layout

Boeing Georgia, Inc. Bought
the property on 1/23/90
See attached tax record.

11:15 Arrive Post Office bld.
obtained copy of Bibb Co
Soil Survey.

12:25 arrive MBCWSA
Met with John Rector
who helped me identify distribution
lines in affected area
Also said that intake is on

D.K.

② 5/27

Cont the acmulgee in Macon at the ok end of Pierce Street

Don Thompson Dir. of operation services or Don Arnold, Plant Manager could help with water info! ph # 741-2625.

Mr Rector gave me directions to Houston Co. Water Authority

Houston Co. Water
922-4471 ext. 315
Mr Tom Pounds HCWA
542-2120

leave @ 1:25 to go to site.

5/27 ③

13:55 Located Boeing @ 7979 NE industrial Hwy

Site is very large, has access from both industrial Hwy and NE industrial Hwy

Pictures

① Facing East picture of track bins on west side of bld

② Front office on Industrial Hwy facing east

③ More dumsters on west side of bld. facing east

④ Continuation of bld back from street toward NE I. Hwy.

⑤ Abandoned RR track leading up to bld (facing N)

⑥ Walnut Grove immediately south of site (facing N)

DK

(4) 5/27

(7) (Facing west) north edge of bld
Loading Docks

Drainage ditches flow south along
NE I. Hwy.

entire site is clean & well kept,
no outside tank farms, storage (drum)
areas, or wast ponds were
evident. All processes appear to
occur within manufacturing bld.

(8) (Facing west) east side of
bld Loading docks & outside
storage of crates/Pallates

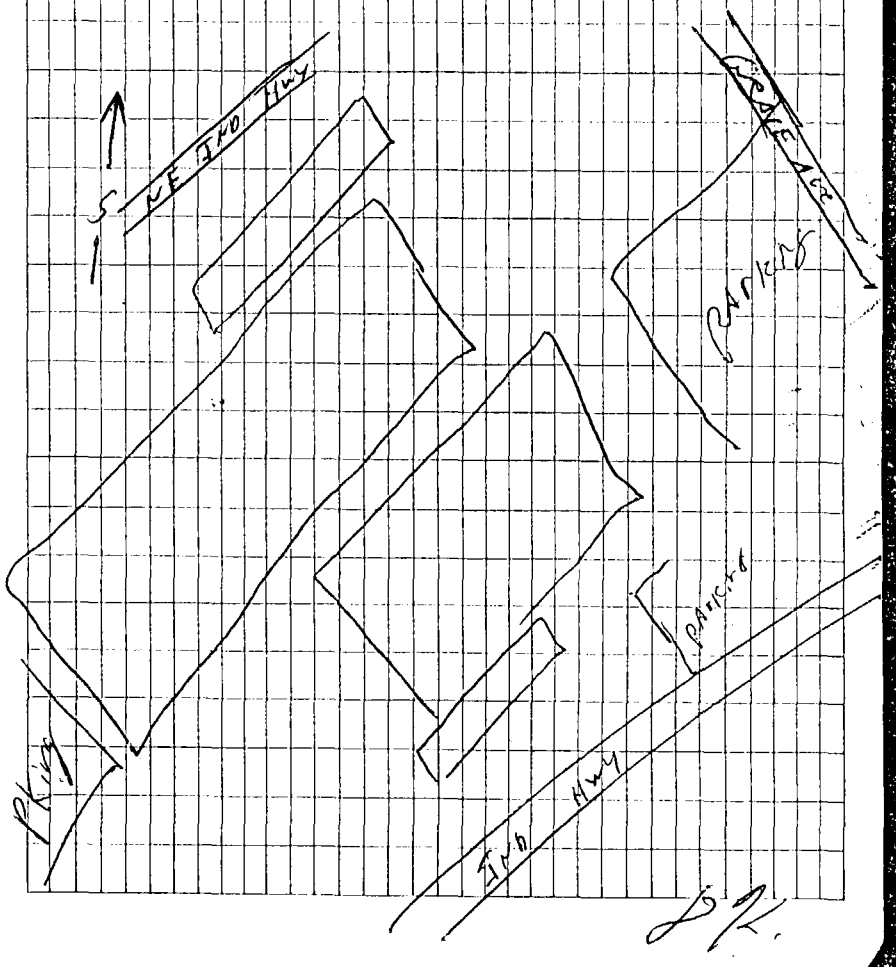
entire area surrounding site
is highly industrialized
Some industries are Georgia Pacific,
metal finishers, and more

DK.

5/27 (5)

(9) (Facing South) covered outside
Trash Dumpsters

Address on NW face of bld
say 7980 Industrial Hwy.



DK.

(6) 5/27

other industries are
Diamond Plastic Company.

There could be a waste pond
area north of bldings; area
is outlined and obscured by
trees vegitation. Cant be sure.

leave site: 14:40

On way out, nearest residences
are ~ 1/2 mi south of plant
on Avondale Mill Rd.
Locations are confirmed on topo map
cant determine if wells are utilized.

DK

5/27 (7)

15:01 arrive Houston County
Annex (water dept)

met w/ Ronnie Roberts
Director Houston Co Water Dept

Total of 9 wells.

northernmost well on elberta st
≈ 300 gpm, system is kept
isolated, 1224 connections
≈ 1000 gpm on Dunbar a
no regulation for mandatory hookup.

Henry Chiles Centerville
water
Clint Waals Warner Robbins
929 - 1904
Air Force base is different
water system.

Houston County distribution
extends to Perry Ga.

DK

(8) 5/27

OMI company
Controls water plant &
distribution of system
186 Woodard road
Cathlane GA 31047
987-0462

leave Houston County water
Dept. @ 15:46

Leave For Atlanta.

18:02
arrive Vehicle Lockup.

D.K.

6/1/92

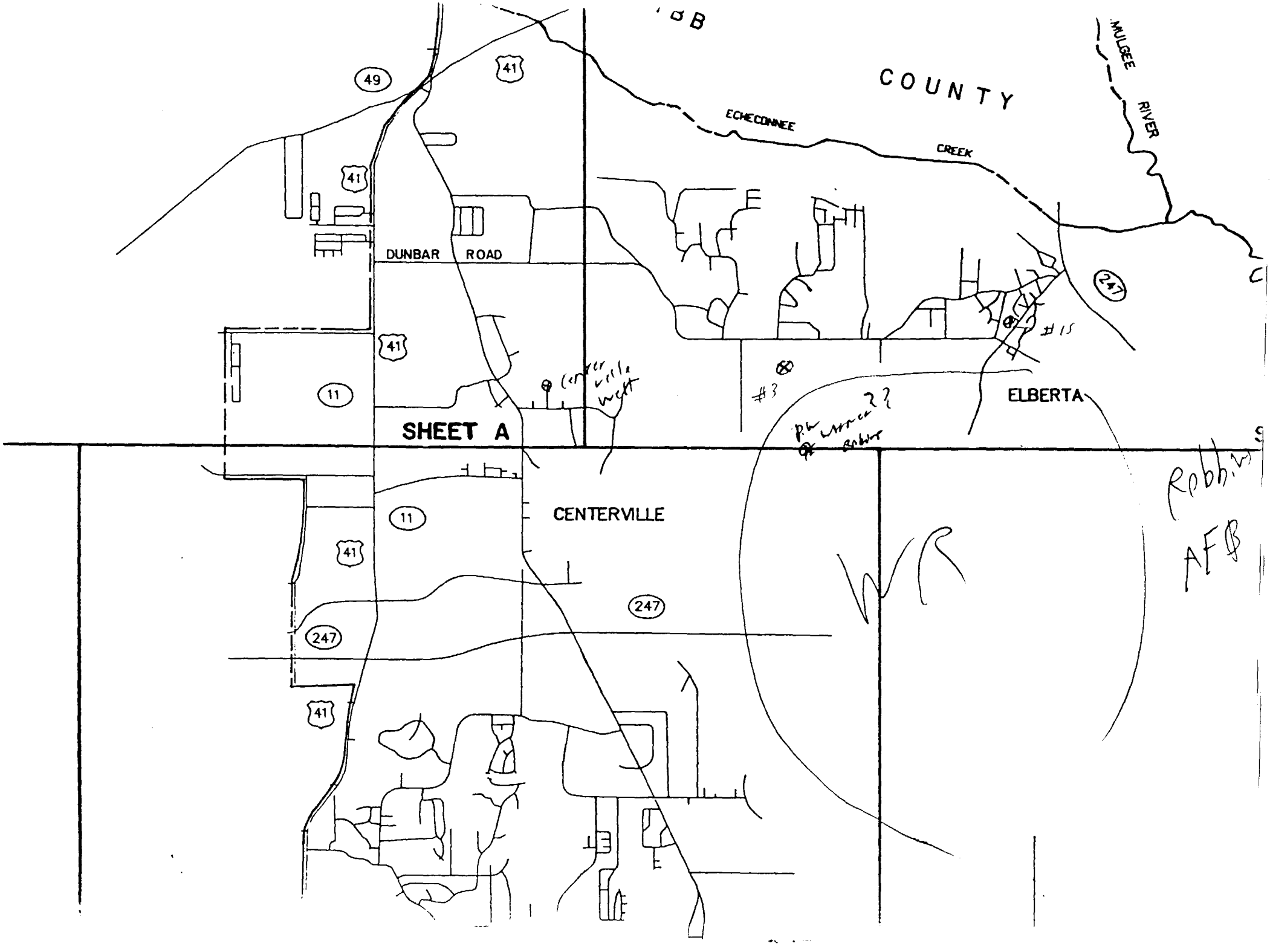
After reading through log,
some additions need to be made.

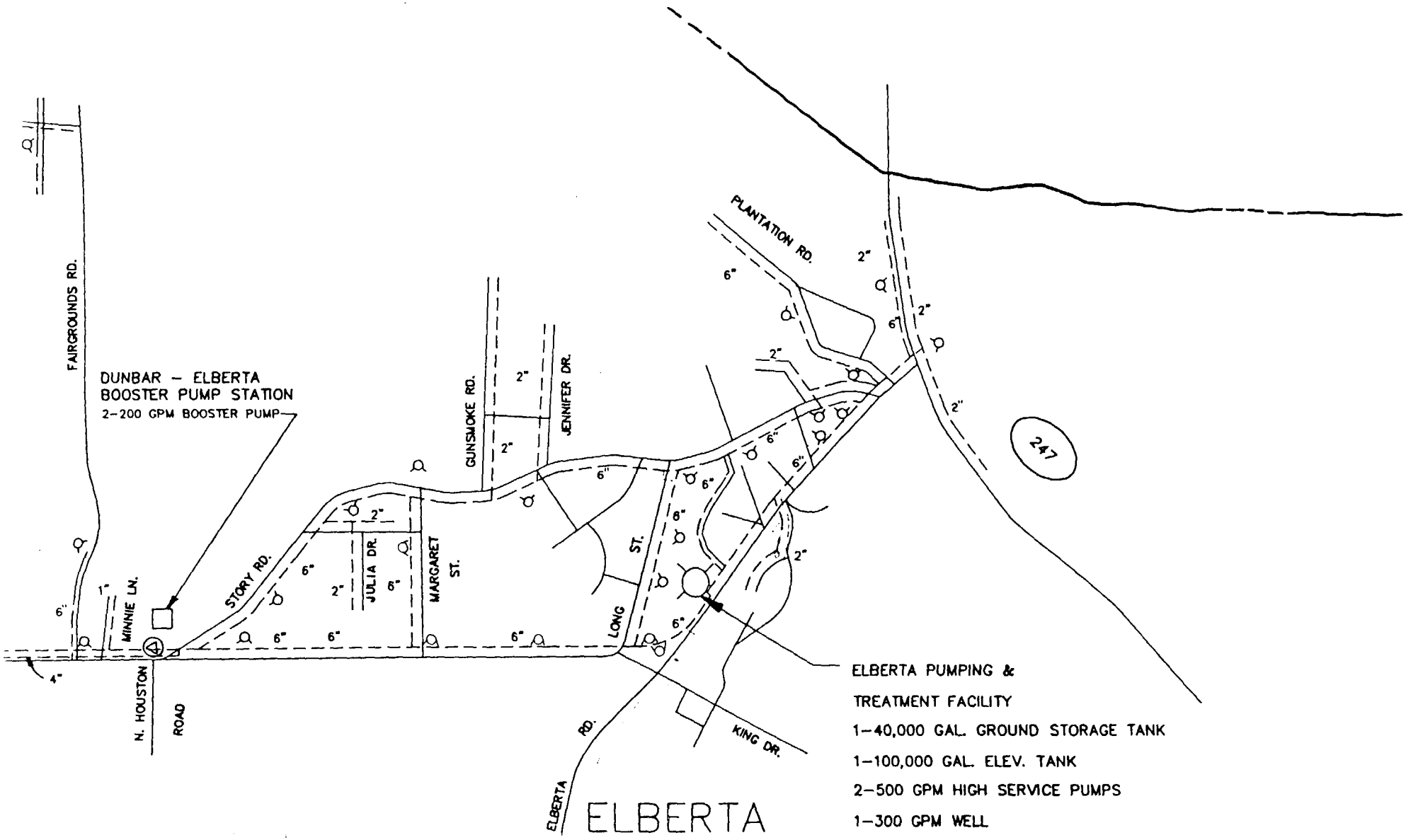
durring the reconaissance, I
inspected the drainage ditches
around the building. They appeared
free of contamination with no
visible sign of stressed vegitation.

An estimation of the # of
employees working onsite is
about 200, based on large
# of cars in parking lots.

The site was access restricted by
a fence surrounding most of
buildings. A guard post controled
access through the fence.

D.K.


COUNTY
ECHECONNEE
CREEK
MULGEE
RIVER
DUNBAR ROAD
SHEET A
CENTERVILLE
ELBERTA
49
41
11
247
#3
#15
Robbins AFB


FAIRGROUNDS RD.
DUNBAR – ELBERTA
BOOSTER PUMP STATION
2-200 GPM BOOSTER PUMP
MINNIE LN.
STORY RD.
JULIA DR.
MARGARET ST.
GUNSMOKE RD.
JENNIFER DR.
LONG ST.
PLANTATION RD.
N. HOUSTON ROAD
ELBERTA RD.
KING DR.
247
ELBERTA PUMPING &
TREATMENT FACILITY
1-40,000 GAL. GROUND STORAGE TANK
1-100,000 GAL. ELEV. TANK
2-500 GPM HIGH SERVICE PUMPS
1-300 GPM WELL
ELBERTA

REFERENCE 6

PHOTOLOG
ITT Suspension System Division

RECONNAISSANCE ON
May 27, 1992

BVWST Project № 52011.045

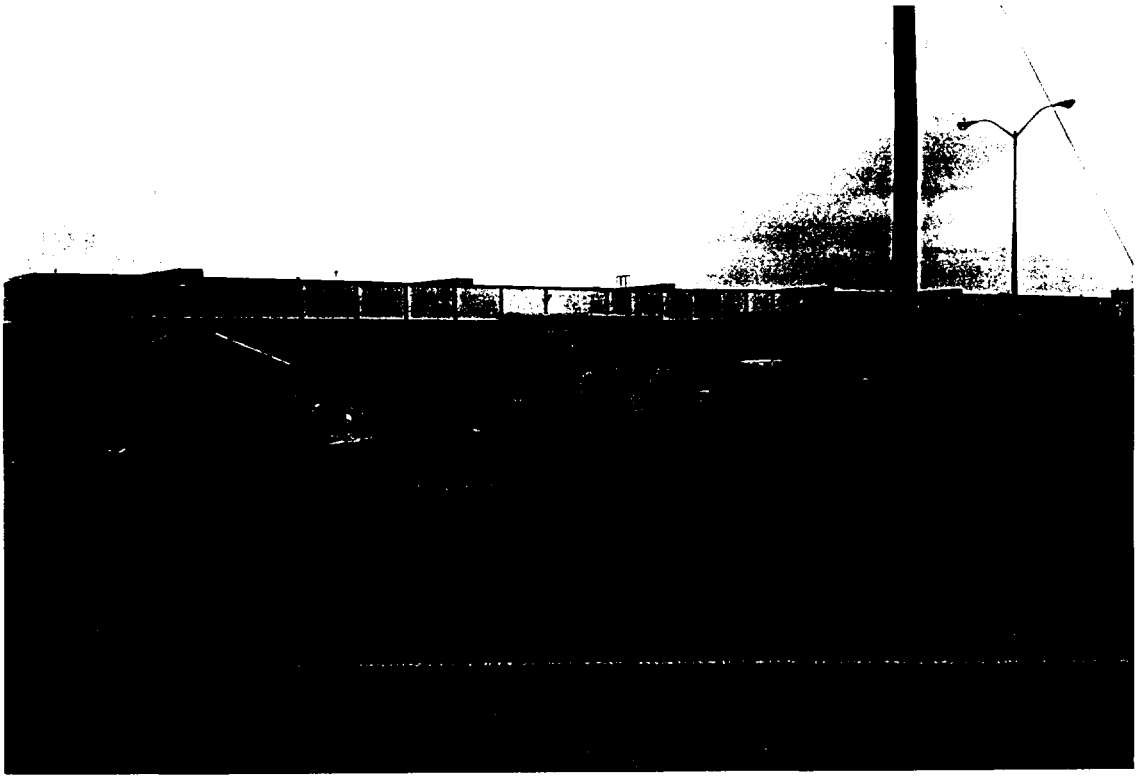


Photo № 1: Picture facing east: shown is west side of building with covered trash dumpsters.

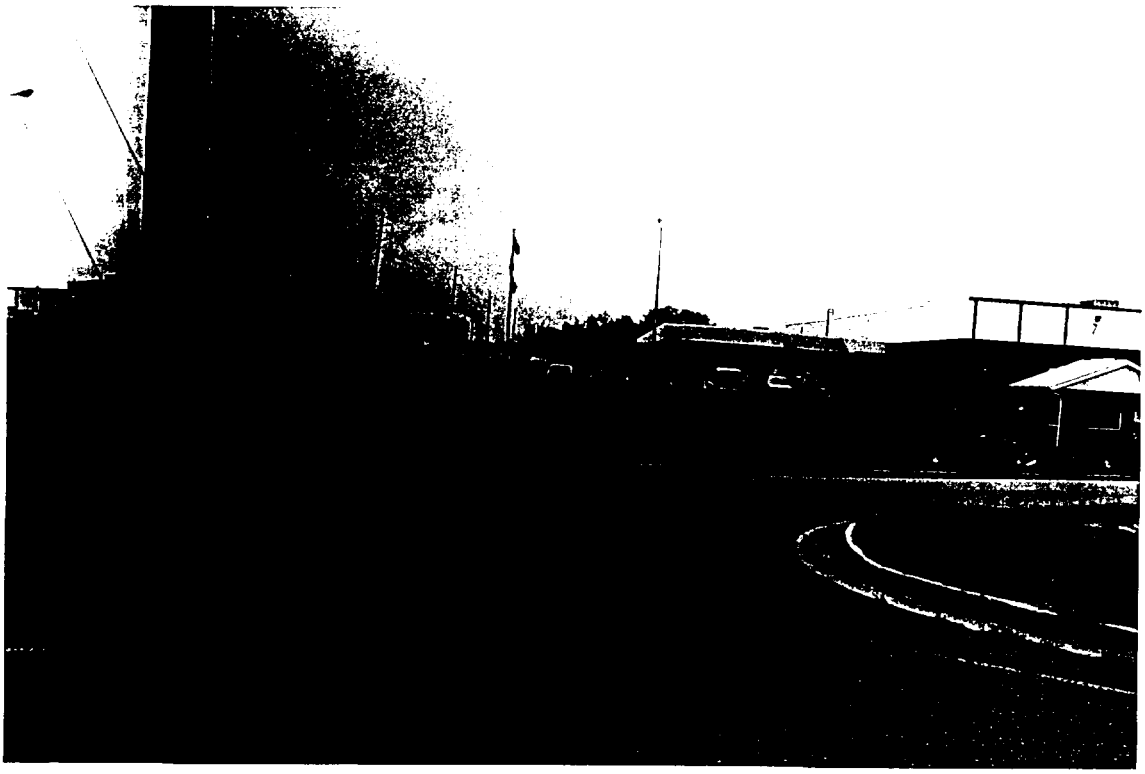


Photo № 2: Facing east: front/main office on Industrial Highway

Photo № 3: Facing east: More covered dumpsters on west side of building

Photo № 4: Continuation of building back from street toward NE Industrial Highway.

Photo № 5: and № 6 — Facing North: abandoned railroad track leading up to building and Walnut Grove to the right of tracks.

Note: Photo 6 was exposed and could not be developed. Its main content (the Walnut Grove) is shown on Photo № 5

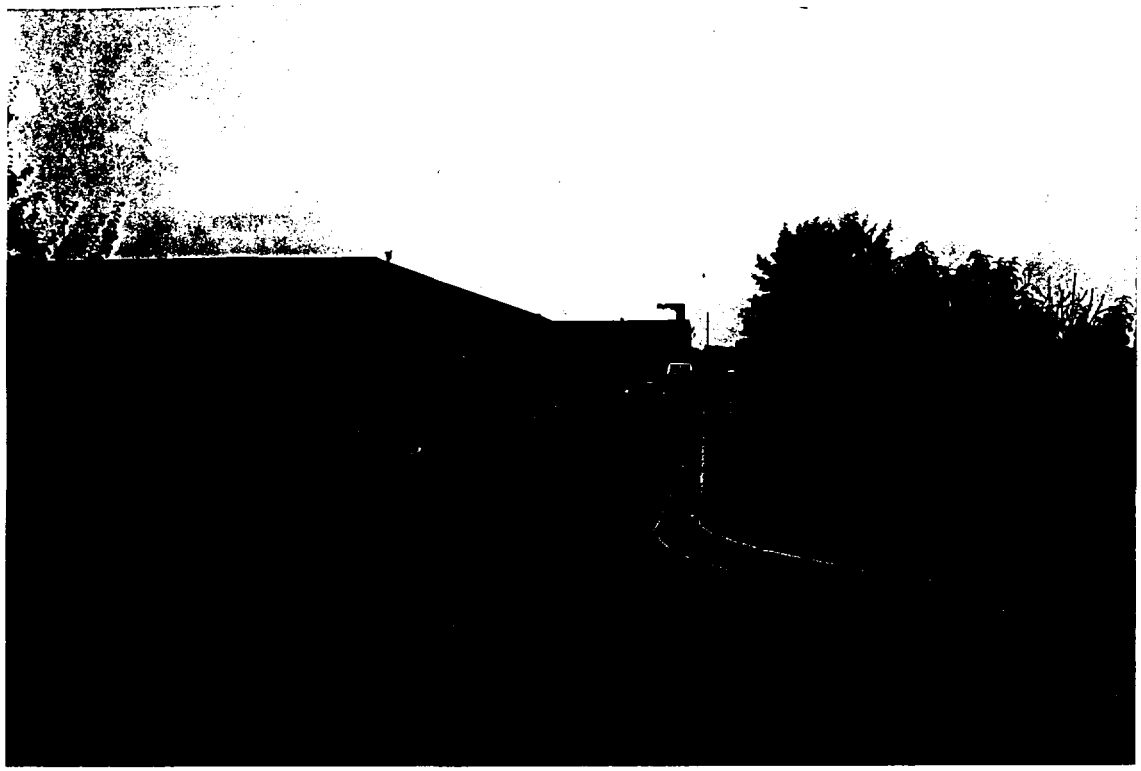


Photo № 7: Facing west: Loading docks on north edge of building

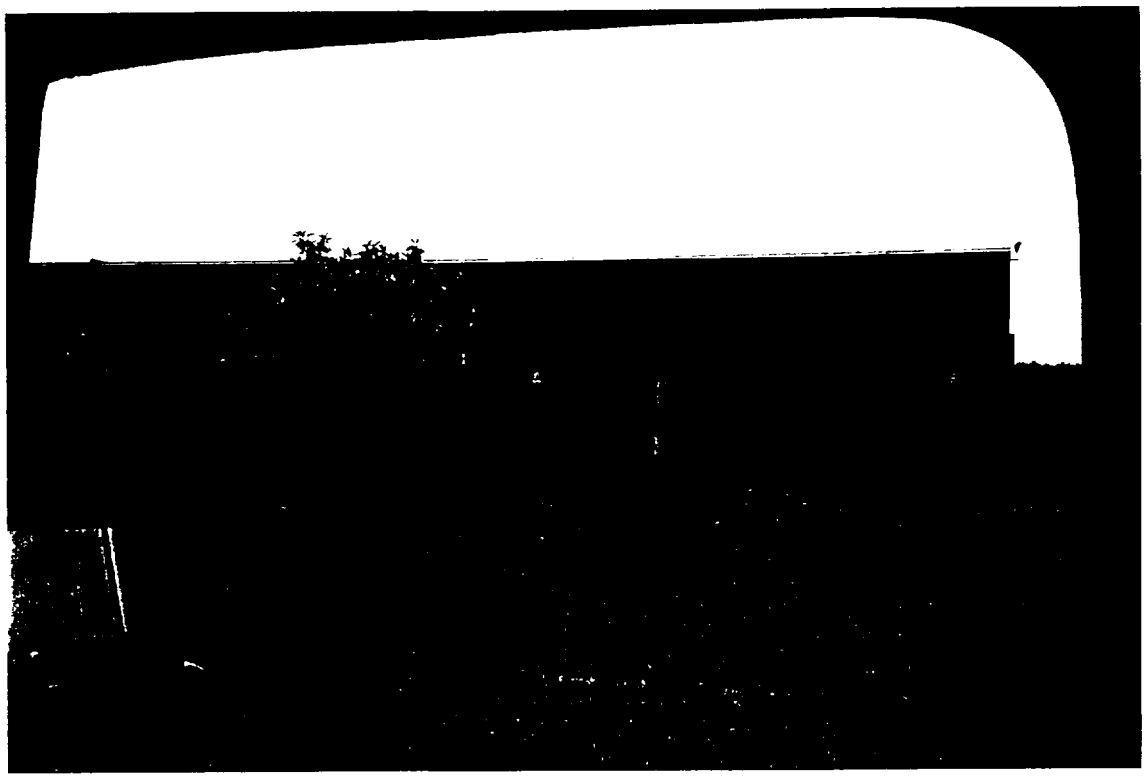


Photo № 8: Facing west: Loading docks on northeast corner of building with outside storage of crates and palets

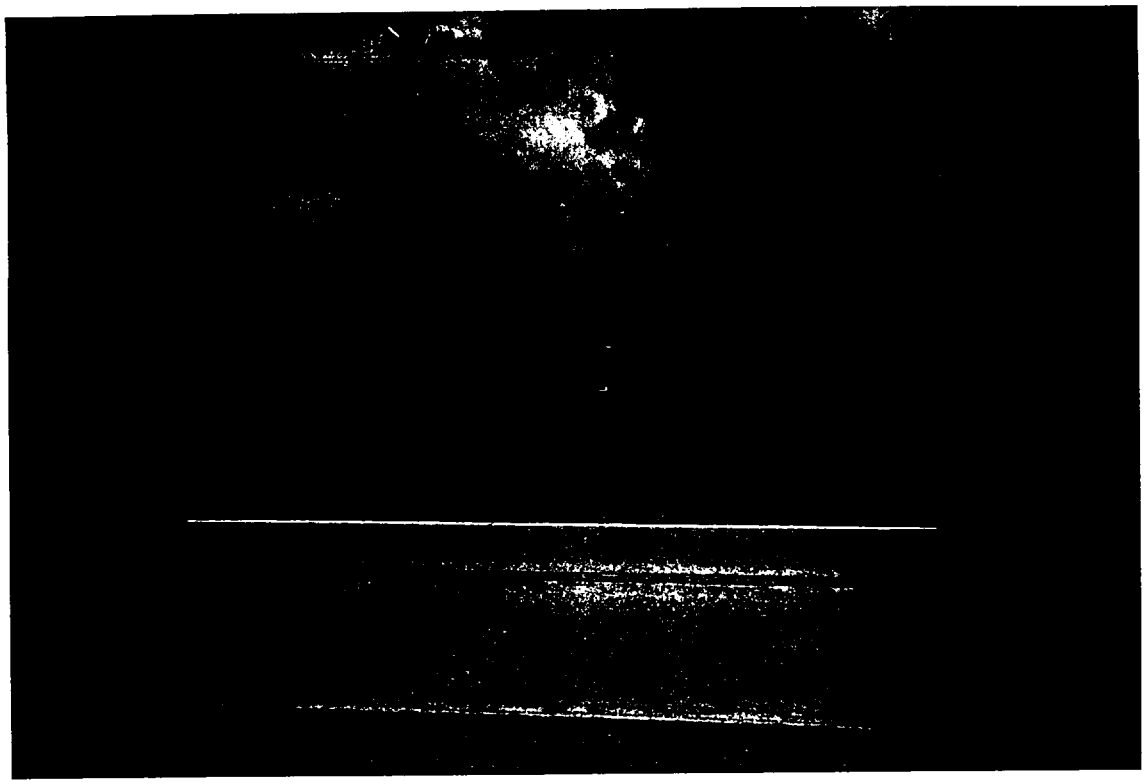


Photo № 9: Facing south: covered outside trash dumpsters

PRELIMINARY ASSESSMENT COVER SHEET
ITT SUSPENSION SYSTEMS DIVISION
GAD098584063

I. HISTORY OF SITE

The ITT Suspension Systems Division is located at 7980 Industrial Highway in Macon, Georgia 31206. It has been owned and operated by ITT Suspension Systems Division since it was constructed in 1980. This facility manufactures and assembles automobile suspension struts and shock absorbers. The basic manufacturing process involves threading, machine finishing, washing and plating steel rods to which other components are attached to form the core of the shock or strut. The core of the strut is enclosed in a painted steel casing. Waste streams generated are: 1) chromic acid sludge, which is transported and disposed of by Chem Waste Management of Alabama; 2) spent methylene chloride and 1,1,1 trichlorethane solvents which are disposed of by Ramsey Chemical Company of Valdosta, GA; and 3) metal grinding sludge and waste cutting oil, which are disposed of by Browning Ferris and Carl Durden Waste Oil Co. of Warner Robins, GA respectively. The Part A Application for this facility has been withdrawn and it is currently classified as a generator of hazardous waste.

II. NATURE OF HAZARDOUS MATERIALS

Hazardous materials generated are chromic acid sludge, spent solvents (methylene chloride, 1,1,1 trichloroethane), metal grinding sludge and waste cutting oil (non-hazardous). Materials are stored in drums until disposal. Total volume of wastes generated annually is 80 cubic yards. Individual quantities of wastes are unknown.

III. DESCRIPTION OF HAZARDOUS CONDITIONS, INCIDENTS, PERMIT VIOLATIONS

There was a complaint filed by a former ITT employee concerning improper disposal of waste oils. The complaint was investigated by GA EPD in October of 1984. Soil samples from the disposal areas were taken and analyzed and it was determined that there was no significant contamination. According to Mr. Carl Durden, of Carl Durden Waste Oil Co., there was a spill at ITT Suspension System Division of chromic acid, in August of 1984, after which he pumped the acid from the floor of the plant back into a storage tank. It is not known if any of this spilled material left the building. According to Mr. David Benson, Chemist, ITT Suspension Systems Division, no spills occurred on site prior to November 19, 1980.

IV. ROUTES OF CONTAMINATION

It is not known if the chromic acid spill in 1984 left the building and entered the environment. Soil contamination may have occurred if de minimus losses have occurred.

V. POSSIBLE AFFECTED POPULATION AND RESOURCES

Unknown - there has been no evidence that past waste handling practices at the facility have affected residents in the area.

VI. RECOMMENDATIONS AND JUSTIFICATIONS

This site is assessed a "Low" priority for a Site Inspection because of limited information concerning the 1984 chromic acid spill and waste handling practices prior to November 19, 1980.

VII. REFERENCE TO SUPPORTING DATA SOURCES

1. EPA Form 3510-1, 3510-3 (6/80), 11/13/80.
2. Letter, 10/20/81, RE: Groundwater Monitoring - from GA EPD.
3. Action Report, 3/16/82.
4. GA EPD Trip Reports: 11/22/82, 1/31/84, 10/30/84, 1/24/85, 5/7/85.
5. Waste Management Data Sheet, 1/23/84.
6. Georgia Annual Hazardous Waste Report for 1983.
7. Letter, 4/3/84, RE: Withdrawal of Part A Application for ITT Suspension Systems Division.
8. Letter, 4/11/84, RE: Acknowledgement of Withdrawal and Warranted Status Change to Generator from GA EPD.
9. Complaint Record, 9/4/84.
10. Generator Standards Inspection Checklist, 10/30/84.
11. Letter, 1/31/85, RE: Chromic Acid Operation - ITT Suspension Systems Division.
12. Memorandum, 4/18/85, RE: Telephone Conversation - ITT SSD.
13. Sample Sketch Sheet, 5/7/85.
14. Hazardous Waste Analysis Request Form, 5/7/85.
15. GA EPD Laboratory Report, 5/7/85.
16. GA EPD Chain of Custody Form, 5/16/85.
17. Letter, 6/12/85, RE: Sampling Inspection - from GA EPD.
18. Lab Report, 6/5/85, from Industrial & Environmental Analysts, Inc.
19. Letter, 6/27/85, RE: Sampling Inspection - from GA EPD.
20. Telephone Conversation Record, 10/22/85.

GAK/mcw033
File - ITT Suspension Systems Division (B)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D098584063

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
ITT Suspension Systems Division	7980 Industrial Hwy., P. O. Box 10278				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Macon	GA	31206	Bibb	021	08
09 COORDINATES LATITUDE	LONGITUDE				
32° 41' 45.0"	083° 40' 23.0"				

10 DIRECTIONS TO SITE (Starting from nearest public road)

From the intersection of US Route 41 and Liberty Church Road, proceed 3.0 miles south on Route 41; turn left (east) onto Industrial Hwy. and continue for 500 feet. Facility is on your right (west).

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
ITT Suspension Systems Division	P. O. BOx 6156		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Macon	GA	31208	(912) 781-0170
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)		
Same as above			
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☒ A. RCRA 3001 DATE RECEIVED: 11/13/80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 11 22 82 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)

☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1980 (BEGINNING YEAR) | present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Chromic acid sludge, spent solvents (methylene chloride, 1,1,1 trichloroethane), metal grinding sludge and waste cutting oil.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Details of 1984 spill of chromic acid are incomplete. Facility has been operated in compliance with Generator Standards of the Georgia Hazardous Waste Management Act.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
David Benson	ITT Suspension Systems Division		(912) 781-0170
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Gilda A. Knowles G.A.K.	DNR-EPD	RAU	(404) 656-7404	10 22 85 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

J. Surowiec

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D098584063

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A SOLID
- ☐ B POWDER, FINES
- ☒ C SLUDGE
- ☐ D OTHER _____ (Specify)
- ☐ E SLURRY
- ☒ F LIQUID
- ☐ G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____

CUBIC YARDS _____

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☒ A TOXIC
- ☐ B CORROSIVE
- ☐ C RADIOACTIVE
- ☒ D PERSISTENT
- ☒ E SOLUBLE
- ☐ F INFECTIOUS
- ☐ G FLAMMABLE
- ☐ H IGNITABLE
- ☐ I HIGHLY VOLATILE
- ☐ J EXPLOSIVE
- ☐ K REACTIVE
- ☐ L INCOMPATIBLE
- ☐ M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	unknown		approximate annual volume of all
OLW	OILY WASTE	unknown		substances 80 cubic yards.
SOL	SOLVENTS	unknown		
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SLU	chromic acid	7738-94-5	Chem. Waste Management	-----	-----
SOL	methylene chloride	-----	Ramsey Chem. Co.	-----	-----
SOL	1,1,1 trichloroethane	15323-89-1	Ramsey Chem. Co.	-----	-----

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	arsenic	7440-38-2	FDS	mercury	7439-97-6
FDS	barium	-----	FDS	silver	-----
FDS	cadmium	7440-43-9	FDS	selenium	-----
FDS	lead	-----	FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

GA EPD State Files.
ITT Suspension System Division, Macon, GA.
Telephone Conversation Record, 10/22/85.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D098584063

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Possible spills from storage chromic acid and spent solvents.

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Possible spills from storage chromic acid and spent solvents.

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [X] F. CONTAMINATION OF SOIL — 02 [X] OBSERVED (DATE: 9/4/84) — [ ] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) — 04 NARRATIVE DESCRIPTION

Possible from chromic acid spill.

01 [ ] G. DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D098584063

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills, runoff, standing liquids, leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None

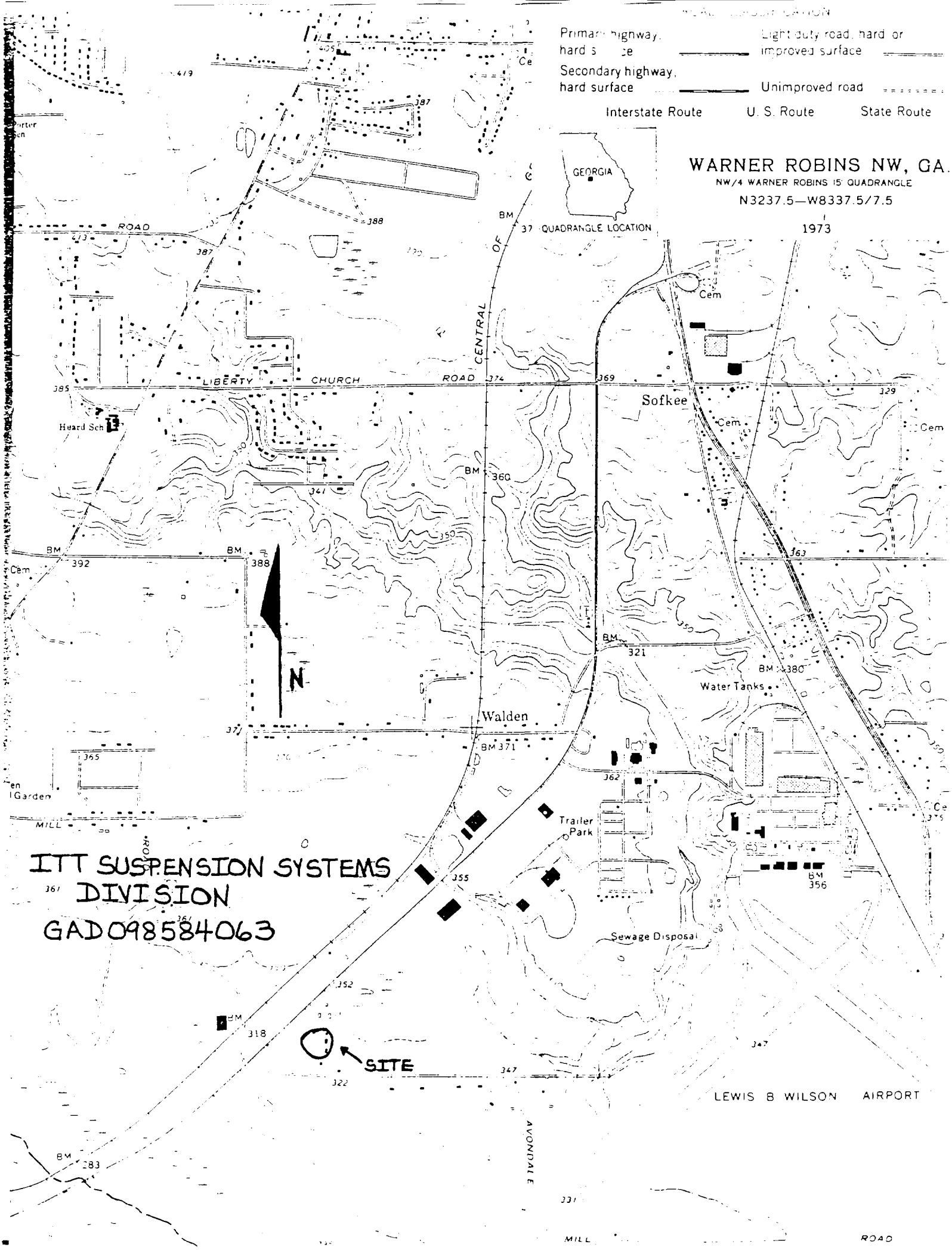
III. TOTAL POPULATION POTENTIALLY AFFECTED: unknown

IV. COMMENTS

None

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

GA EPD State Files.
ITT Suspension Systems Division, Macon, GA.
Telephone Conversation Record, 10/22/85.


Primary highway, hard surface
Light duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route
GEORGIA
QUADRANGLE LOCATION
WARNER ROBINS NW, GA.
NW/4 WARNER ROBINS 15' QUADRANGLE
N3237.5—W8337.5/7.5
1973
ROAD
LIBERTY CHURCH ROAD
CENTRAL OF
Sofkee
Cem
Heard Sch
Walden
Water Tanks
Trailer Park
Sewage Disposal
LEWIS B WILSON AIRPORT
AVONDALE
MILL ROAD
SITE
N
ITT SUSPENSION SYSTEMS
DIVISION
GAD098584063

PRELIMINARY ASSESSMENT
TELEPHONE CONVERSATION RECORD

Site Name: ITT Suspension Division I.D.# GAD 982584063

Location Address: 7980 Industrial Highway; Macon, Ga. 31297

Phone: (912) 781 - 0170.

Contact: ~~Mr. Joe Hyder~~ NO LONGER WITH CO. / David Benson (current) Title: Chemist/EQC

Address: 7980 Industrial Hwy. P.O. Box 10278; Macon, Ga 31297

Phone: (912) 781 - 0170.

Authority: Section 3012 of CERCLA, Comprehensive Environmental Response, Compensation and Liability Act.

Facility has notified EPA via - RCRA 3001 site is in HWDMS
CERCLA 103c site is in NOTIS

Need Information concerning waste generation and disposal prior to Nov. 19, 1980.

How long has facility been in operation? January of 1980

What kind of wastes were generated and how much?

May 28, 1980 Chromic Acid solution 3,000 gals
May 29, 1980 Chromic Acid solution 3500 gals

Was it disposed on site and where?

No, waste never disposed of on site.

Was it transported offsite and where?

5-28-80 3,000 gal 5-29-80 3500 gal Chem Waste Management Emelle, Alabama

Was it treated and how?

Yes, chemical settlement operation Chromic Acid converted to Chromium Hydroxide then precipitation process

Have there been any past spills? Describe.

No spills, prior to Nov. 19, 1980

Date of call: 10-22-85 Time: 11:05 AM.

Spoke with current Chemist/EQC, Mr. David Benson, posed questions to him. He will be calling me back with information.

10-22-85 1:25 PM - Mr. Benson returned call and answered questions.

H. A. Knowles

(Fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F GAD098584063

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

REFERENCE 7

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affi it in the designated space. Review the inform ation carefully; if any of it is incorrect, cro through it and enter the correct data in th appropriate fill—in area below. Also, if any c the preprinted data is absent *(the area to th left of the label space lists the informatio that should appear)*, please provide it in th proper fill—in area(s) below. If the label complete and correct, you need not complet Items I, III, V, and VI *(except VI-B whic must be completed regardless)*. Complete a items if no label has been provided. Refer t the instructions for detailed item descrip tions and for the legal authorizations unde which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold—faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	MARK 'X' NO	MARK 'X' FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** *other than those described in* A or B above? (FORM 2C)		X	
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP I T T/ SUSPENSION SYSTEMS DIVISION

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*	
2 PARRISH, EUGENE ENVIRONMENTAL QUALITY COORDINATOR	912 781	0170

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 P.O. BOX 6156

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 MACON	GA	31208

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 7980 INDUSTRIAL HIGHWAY

B. COUNTY NAME

BIBB

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 MACON	GA	31206	

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
C 7 3714 (specify) Shock Absorbers, Motor Vehicles	C 7 (specify)
C. THIRD	**D. FOURTH**
C 7 (specify)	C 7 (specify)

VIII. OPERATOR INFORMATION

A. NAME: C 8 ITT/SUSPENSION SYSTEMS DIVISION

B. Is the name listed in Item VII-A also the owner? [X] YES [ ] NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL, S = STATE, P = PRIVATE, M = PUBLIC (other than federal or state), O = OTHER (specify)
P (specify) N/A

D. PHONE (area code & no.): C A 912 781 0170

E. STREET OR P.O. BOX: 7980 INDUSTRIAL HIGHWAY

F. CITY OR TOWN: C B MACON

G. STATE: GA

H. ZIP CODE: 31206

IX. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water): C 9 T N I NA	D. PSD (Air Emissions from Proposed Sources): C 9 T P I NA
B. UIC (Underground Injection of Fluids): C 9 T U I NA	E. OTHER (specify): C 9 T I NA (specify) NA
C. RCRA (Hazardous Wastes): C 9 T R I	E. OTHER (specify): C 9 T I NA (specify) NA

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Automotive suspension systems part manufacturing

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
D.A. Mynatt, Director of Operations	D.A. Mynatt	9/22/82

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e. characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

F G A D 0 9 8 5 8 4 0 6 3 3

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

[ ] 2. NEW FACILITY *(Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

C	YR.	MO.	DAY
8	8 0	0 1	0 1

FOR NEW FACILITIES PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR IS EXPECTED TO BEGIN

YR.	MO.	DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[ ] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code*(s)* in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR: GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP T/A C 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S 0 4	2 0 5 5	G		7				
2	T 0 1	7 2 0 0	U	✓	8				
3	S 0 1	5 5 0 0	G		9				
4					10				

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. **EPA HAZARDOUS WASTE NUMBER** – Enter the four–digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four–digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. **ESTIMATED ANNUAL QUANTITY** – For each **listed waste** entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each **characteristic** or **toxic contaminant** entered in column A estimate the total annual quantity of all the non–listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. **UNIT OF MEASURE** – For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. PROCESS CODES:
   For listed hazardous waste: For each **listed** hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non–listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate **all** the processes that will be used to store, treat, and/or dispose of all the non–listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non–listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K 0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2				*included with above*

CONTINUE ON PAGE 3

Continued from page 2.
NOTE: Photocopy this page before complet... if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
W G A D 0 9 8 5 8 4 0 6 3 T/A 3 C 1	W DUP T/A C 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	F001	1.2	T	S01	
2	F006	70	T	T01 S01	S02 NOT SHOWN ?
3	F007	30	T	S04 T01	
4	F008	100	P	S01	
5	F009	42	T	S04 T01	
6	D007	2304	T	S04 T01	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

Continued from page 2.
NOTE Photocopy this page before completi[illegible] if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL U[illegible] ONLY
W GAD098584063 T/A 1	W DUP T/A 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	F 001	2	T	S01	[illegible]
2	F 006	103	T	T01 S02	[illegible]
3	F 007	30	T	T01 S02	[illegible]
4	F 008	100	P	S02	[illegible]
5	F 009	15	T	T01 S02	[illegible]
6	D 007	2700	T	T01 S02	[illegible]
7					
8					
9					
10					
11					
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24					
25					
26					

Continued from the front

IV. DESCRIPTION OF HAZARDOUS W TES (continued)

E. USE THIS SPACE TO LIST ADDITI AL PROCESS CODES FROM ITEM D(1) ON . .GE 3.

EPA I.D. NO. (enter from page 1)

F GAD098584063 T/N C 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)	LO: TUDE (degrees, minutes, & seconds)
32 41 45 N	083 40 23 W

VIII. FACILITY OWNER

X A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General In: ation", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the ollowing items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. (area code & no.)
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the inf ion submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for ining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant alties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
D.A. Mynatt	D A Mynatt	9/22/82

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

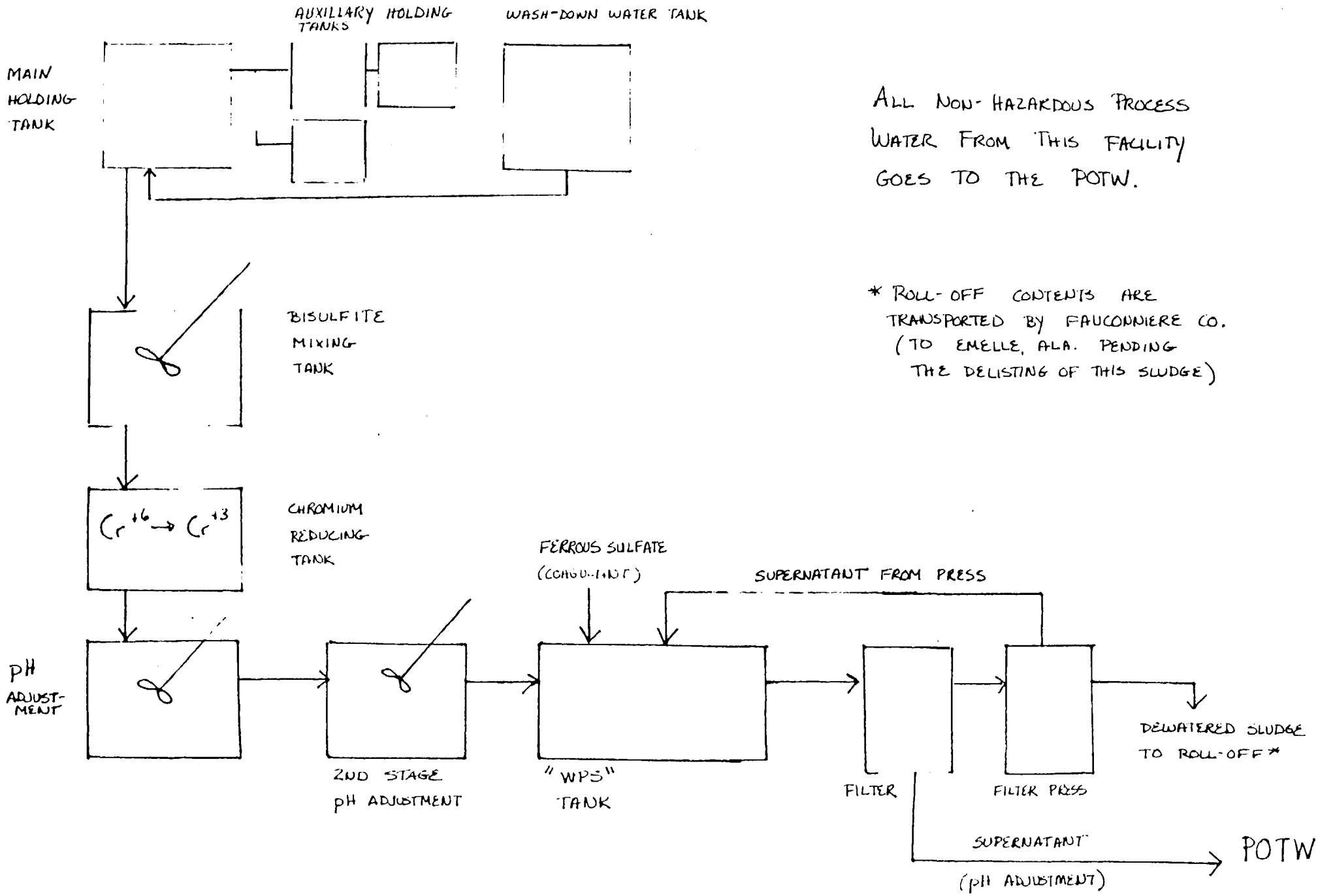
A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED

V. FACILITY DRAWING (see page 4)

For facility drawing please refer to plot plan and plan of waste treatment building.

ITT SUSPENSION SYSTEMS DIVISION
HAZARDOUS WASTE TANK TREATMENT SYSTEM
(NOT DRAWN TO SCALE)

M. Markey 11/29/02



ALL NON-HAZARDOUS PROCESS WATER FROM THIS FACILITY GOES TO THE POTW.

* ROLL-OFF CONTENTS ARE TRANSPORTED BY FAUCONNIERE CO. (TO EMELLE, ALA. PENDING THE DELISTING OF THIS SLUDGE)

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*

F G A D 0 9 8 5 8 4 0 6 3 3 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail)*.

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
32 41 45 N	083 40 23 W

VIII. FACILITY OWNER

[X] A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO *(area code & no.)*
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
DAVID K. SIMPSON	David K. Simpson	11/13/80

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

April 11, 1984

Mr. William M. Churchill
ITT Suspensions Company
P. O. Box 10278
7980 Industrial Hwy.
Macon, Georgia 31297

REFERENCE 8

Re: Request for Facility Status Change for the ITT Suspensions Company Plant, 1980 Industrial Hwy., Macon, Georgia EPA ID# GAD098584063

Dear Mr. Churchill:

This will acknowledge receipt of your request for withdrawal of your application for a Hazardous Waste Facility permit.

Based on the information provided, withdrawal of your application is warranted and your permit application has been placed in our inactive files.

As requested, your status has been changed to a hazardous waste generator and your EPA Identification Number has been retained. (Note: As a generator of hazardous waste you will be required to comply with Part 262 of Georgia's Rules for Hazardous Waste Management.)

Please be advised that withdrawal of your permit application invalidates any variance that you received to continue existing hazardous waste treatment, storage or disposal during the permit review process and that based on our concurrence with your withdrawal request, the Federal Environmental Protection Agency will terminate your facility's interim status.

Should you wish to treat, store or dispose of hazardous waste in the future it will be necessary that a hazardous waste handling permit be issued, prior to the construction of such facilities, under authority of Section 8 of the Georgia Hazardous Waste Management Act and Section 391-3-11-.10 of Georgia's Rules for Hazardous Waste Management.

If further clarification is needed on this matter, please feel free to contact Alan Laros at 404/656-7802.

Sincerely,

John D. Taylor, Jr.
Program Manager
Industrial & Hazardous Waste
Management Program

JDT:alg:3303B
cc: James H. Scarbrough
Alan Laros

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

REFERENCE 9

nurces

N

270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

TRIP REPORT
November 28, 1984

SITE NAME AND LOCATION:.....ITT Suspension Systems Divison
P. O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170

TRIP BY:.....Tim Cash

Accompanied by:.....None

DATE OF TRIP:.....October 30, 1984

OFFICIAL CONTACTED:.....Mr. Joe Hyder
Plant Chemist
ITT-SSD Macon

REFERENCE:.....Complaint Log Number 5-60 dated 9/4/84
Trip Report dated 2/7/84

COMMENTS:

I. FACILITY MANUFACTURING PROCESSES

This facility manufactures and assembles McPherson struts and shock absorbers. The basic manufacturing process involves threading, machine finishing, washing, and plating steel rods to which other components are attached to form the core of the shock or strut. The core of the strut is enclosed in a steel casing and painted for the finished product.(Refer to "Figure 1/Process Diagram.")

II. WASTES GENERATED

1. The following wastes streams were identified:

a. Wastewater treatment plant filter press sludge.(F006) The waste is generated from the treatment of wastewater resulting from the chrome plating operation. (Refer to "Figure 3/Schematic Diagram of Wastewater Treatment Plant.")

b. Grindings and shavings. These wastes are generated in the screw machine and grinding units (units 1 and 4, Figure 1) In the screw machine unit, the shavings are separated from waste cutting oils by centrifuge and are sold to Macon Iron and Paper Stock for recycling. Grindings from the grinding

unit are filtered from the waste cutting oil onto a paper filter. The paper filter is collected in a bin, allowed to drain and is then dumped into a large BFI metal roll off bin where it is disposed of by sanitary landfilling.

c. Waste oils. Waste oils are generated at numerous locations throughout the plant as indicated on Figure 1. The waste oils are consolidated in a storage tank inside the plant. An analysis of the waste oils indicates them to be non-hazardous.

d. Spent solvents. Small amounts of spent solvents (methylene chloride and 1,1,1 trichloroethane) are generated from hand wiping and cleaning of parts.

e. Dip tank sludge. Products are painted with a black enamel by dipping in a tank. Periodically the tank is cleaned out which results in the generation of a sludge. No generation volumes were available but Mr. Hyder stated that the tank is rarely cleaned and only small amounts of waste are generated. An analysis of the sludge requested by Alan Laros during his January 31, 1984 visit indicated a chromium content of 36 ppm.

III. PLANT INSPECTION

a. The primary purpose for this inspection was as a response to a complaint received on September 4, 1984. (Refer to Complaint Log Number 5-60.) The complainant was (b)(6)(b)(6), (b)(6) (b)(6)(b)(6) who alleged that an unknown hauler picked up and disposed acids on a local farm. On September 20, 1984 (b)(6) (b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6) (b)(6) stated that a tanker would periodically come into the plant and pump a water soluble oil or acid from a floor tank in the plant and dispose of the waste by spreading it on the ground at a local farm around Byron. (b)(6) (b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6) and that (b)(6) (b)(6) had last witnessed this act in April, 1984. (b)(6) stated that (b)(6) (b)(6) had spoken to (b)(6) supervisors at ITT about this practice and that (b)(6) (b)(6) had been threatened with dismissal. (b)(6) stated that the following ITT individuals were aware of this practice:

Eugene Parrish - Quality Control Analyst
Tom Pidgeon - Engineering
Bobby Copeland - Purchasing
Joe Hyder - Plant Chemist

b. During the inspection I questioned Mr. Hyder regarding the handling of all waste oil at the facility. Mr. Hyder stated that Carl Durden, (b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6) pumped out the waste oil tank about once per month. He was not aware of the final disposition of the waste oil other than it was disposed of by dumping on land in the Byron area.

c. Upon entering the plant property I observed a milky liquid in a drainage ditch along Industrial Highway. The liquid appeared to be a mixture of cooling water and leachate from the plant's solid waste roll off bin. During the inspection, it was learned that this leachate results from the waste oil exuding from the filter paper used to filter grindings and shavings. After the filter paper is placed in the bin, waste oil continues to drip off the filter and leak through the bottom of the bin. Mr. Hyder was informed that provisions would have to be made to eliminate this problem. While on a visit to the Middle Georgia Region EPD office on November 13, 1984, I spoke with Karen Gottwald, Environmental Specialist, who stated that she had responded to a complaint regarding this problem and had sent ITT a letter requesting corrective action. I have requested that a copy of this correspondence be sent to this office in order to coordinate compliance activities.

d. No violations were observed with regard to any hazardous waste handling.

IV. RECORDS EXAMINATION

a. A review of the facility's manifests indicated no violations or deficiencies.

b. A review of the facility's contingency plan indicated the following violations:

1. For failure to describe facility personnel actions.

2. For failure to describe local authorities agreements.

3. For failure to include a list of home addresses for emergency coordinators.

4. For failure to include an evacuation plan.

5. For failure to provide a list of all emergency equipment including the location and a physical description of each.

CONCLUSIONS:

1. Facility may be improperly disposing of waste oils.

2. Facility in violation of Part 265 generator requirements as outlined in Notice of Violation.

RECOMMENDATIONS AND FOLLOWUP REQUIRED:

1. Conduct investigation to determine disposition of waste oil by Carl Durden.

2. Send Notice of Violation regarding Part 265 generator requirements.

3. Coordinate with Region to ensure that waste oil runoff is corrected.

REVIEWED BY: [illegible]

ATTACHMENTS: 4

FILE: ITT Suspension Systems (R)

TC/mcw014

Suspension Systems Division
P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4508

January 31, 1985

Mr. Tim Cash
Hazardous Waste Management Program
Environmental Protection Division
270 Washington Street, S. W.
Atlanta, Georgia 30334

Dear Tim:

The chromic acid which we use in our chrome-plating operation at ITT Suspension Systems Division is received from the manufacturer in 100 pound containers. Some of these containers are heavy-duty cardboard drums and others are metal, 5 gallon size drums. Both kinds of these containers contain polyethylene bag liners which we are shipping to Emille, Alabama via Chemical Waste Management. The empty drums with liners removed are not considered hazardous waste and are being disposed of locally.

This method of handling is according to our understanding of 40 CFR 261.7 (a) (1) and 40 CFR 261.7 (b) (3) (iii).

Please advise us of Georgia E.P.D.'s approval or disapproval of this practice.

Sincerely,

David Vinson

David Vinson
Chemist

DV:djp

ITT

Suspension Systems Division

P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4508

REFERENCE 10

February 21, 1985

Mr. Tim Cash
Hazardous Waste Program
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334

Dear Tim:

This letter is in response to your letter of 11 February 85 concerning the handling of wastes from our holding tank.

In the past, we have used this tank to hold used cutting fluids, contaminated oil, and floor cleaning compounds. Whenever a significant quantity accumulated, a waste handler was paid to pump, haul and dispose of these wastes.

Prior to your notification, ITT has no reason to consider any of these products as fitting the definition of "hazardous wastes"; nor did we have any knowledge that our waste handler was "improperly disposing" of our wastes, as you state in your letter.

Since your inspection on 24 January 85 and subsequent instructions, ITT has ceased to do business with the waste handler in question. None of the wastes from this tank have been taken from our facility since December 84.

We have initiated several operational changes which will: Change the status of the contents of this tank to non-hazardous; reduce the volume of fluids placed in the tank; and hopefully to completely eliminate our use of the tank for this purpose.

We have repaired our high water level alarm on the cutting fluid tank. This will help reduce the volume in the holding tank by preventing run-over of the fluid tank onto the floor.

Contaminated shock absorber oil will no longer be put into this tank as we have begun a program of reducing the volume of this oil and we are segregating the remaining quantity to market as a waste oil.

A portable air pump was being used as a substitute for a broken recirculation pump in our chrome plating tank. We have found that some of our personnel had been using this portable pump to transfer contaminated oil to the holding tank. This procedure has been stopped. We feel that this must be the source of the chrome and lead which was revealed by the test made on the contents of the tank.

We are changing our cutting fluid to one which does not contain any phenolic compounds and will no longer use this product at our facility.

Since the test results indicated possible unacceptable levels of some components, we will send this waste to a permitted hazardous waste landfill for disposal.

A copy of the test results from this tank is attached. If we can provide any additional information, please call.

Sincerely,

David A. Vinson

David A. Vinson
Chemist

DAV:djp

Enclosure

HARMON ENGINEERING & TESTING

AUBURN INDUSTRIAL PARK, AUBURN, AL 36830-4399 (205) 821-9250

LABORATORY RESULTS

ITT
Suspension Systems Division
Post Office Box 10278
7980 Industrial Hwy.
Macon, GA 31297

Attention: David Vinson

HE&T PROJECT 623-05

DATE SAMPLE RECEIVED 1-29-85

DATE DATA TRANSMITTED 2-12-85

CLIENT JOB REFERENCE Purchase Order #3732

HE&T Sample Number	Client Sample Identification	Ag mg/L	As mg/L	Ba mg/L	Cd mg/L	Cr mg/L	Hg mg/L	Pb mg/L	Se mg/L
1024	Holding Tank Sludge	0.1	<0.005	15.6	0.6	20.6	<0.002	19.7	<0.005

		Corrosivity pH S.U.	Reactivity	Phenol mg/L
1024	Holding Tank Sludge	9	Neg.	77

Approved for Transmittal

Laboratory Manager

Request for: [ ] Technical Assistance [X] Resolution of Complaint

Program: [X] WQ [ ] WS [ ] SW [ ] AQ

Location of problem: Address ITT Suspension Systems - Highway 41

City Macon County Bibb

Owner David Mynatt, Manager Tel. No. 912/781-0170

Request by: Name Anonymous Tel. No.

Address City

Other persons involved: Tim Cash, Hazardous Waste Section

Received by: Karen Gottwald Date 11-8-84

Dispatched to: Karen Gottwald Date 11-8-84

Conditions reported:

Black thick substance in drainage ditch along Highway 41 just inside the Bibb Co. line.

REFERENCE 11

Action Taken:

On November 9, 1984 I visited the ITT Suspension Systems plant on Highway 49. I met with Jim Shelton, the Quality Control Manager, Joe Hyder, Plant Chemist, and Dave A.Mynatt, General Manager. Jim Shelton and other unnamed plant personnel were extremely uncooperative. A thick black substance clogged the drainage ditch across the plant property and the drainage ditch downstream along Highway 41. Fine particles of the black substance floated on water standing in the ditches. Plant personnel observing the ditch with me denied seeing anything in the ditch and denied that any problem existed until I insisted on speaking with the Plant Manager. Photographs were taken for documentation. There was a steady discharge of relatively clear water from the plant's cooling tower to the same drainage ditch. I notified the managers that this cooling water discharge must be eliminated. I suggested that they tie the discharge line into their sanitary sewer. The company adds a cooling water treatment compound called "Aqua Blue" made by Oxford Chemicals, Inc., Atlanta, Ga. to their cooling tower water.

RECEIVED

Follow-up:

Complainant advised of action taken [ ]

Action Completed by: Karen Gottwald Date Nov. 26, 1984

/78

ITT Suspension Systems
Bibb County - Water Quality

Action Taken:

Approximately 25 drums (55 gal.) of used oil were stored in the company parking lot above the drainage area. The asphalt parking lot was covered with oil in the area around the drums. A hazardous chemical storage area is located next to the used oil drums. There did not appear to be any leakage or spillage from the bermed area for hazardous materials.

Joe Hyder, the plant chemist, was very helpful and cooperative.He explained that the black substance was a mixture of black grinding dust and cutting oil from their hydromation process. A sludge-like substance is created during the grinding operation. This "sludge" is routinely disposed of in the BFI dumpsters next to the used oil storage area. The dumpsters leak and the greenish oil runs across the parking lot to the drainage ditch. Joe Hyder stated that the dumpsters were also the source of the grinding dust-sludge. There is no containment wall around the dumpsters or the used oil storage area. Joe Hyder provided me with the attached copies of the toxicity analyses for the new and used cutting oil (fluid). The used cutting oil contains 2.4 mg/l chromium.

I met with the Plant Manager, David A. Mynatt, and explained to him that ITT was in violation of the Water Quality Control Act. I advised him to remove all of the waste from the storm drainage ditches. He said that he would do so .

Containers of the grinding oil were marked with the following information:

Cimperial green 1011
Metal working fluid concentrate for grinding
Made by Cincinnati Milacron, Cincinnati, Ohio
Emergency #513/841-8181

ITT address:

David Mynatt
ITT Suspension Systems Division
7980 Industrial Highway
P. O. Box 6156
Macon, Georgia 31208
912/781-0170

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

December 17, 1984

Mr. David A. Mynatt
ITT Suspension Systems
P. O. Box 6156
Macon, Georgia 31208

Re: Waste material in storm drainage ditch from
ITT Suspension Systems - Bibb County, Georgia

Dear Mr. Mynatt:

As we discussed during our meeting on November 9, 1984 waste material from your company's hydromation process was discharged to the storm drainage ditch in front of your plant and along Highway 41. This discharge was found to be in violation of the Georgia Water Quality Control Act and the Rules and Regulations for Water Quality Control, Chapter 391-3-5-.06.

It appears that your disposal practices for your grinding fluid waste are inadequate. Joe Hyder, your plant chemist, explained that this waste is placed in the BFI dumpsters and then leaks out onto the parking lot and eventually to the drainage ditch.

In addition, I noticed that your cooling tower water containing "Aqua Blue" discharges to this same drainage ditch. This also constitutes a violation of Chapter 391-3-5-.06 of the Rules and Regulations for Water Quality Control. This discharge could be tied into the sanitary sewer for proper disposal.

You are hereby requested to remove all of the waste from the storm drainage ditches and to dispose of it properly. You should notify this office in writing within thirty (30) days of the date of this letter of your plans for the proper disposal of these wastes. Failure to do so will be interpreted as an unwillingness on your part to comply with the Act and Rules.

If you have any questions regarding this matter, contact me at 912/744-3206.

Sincerely,

Karen S. Gottwald

Karen S. Gottwald
Environmental Specialist
Middle Georgia Region

KSG:pj

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

HARMON ENGINEERING & TESTING

AUBURN INDUSTRIAL PARK, AUBURN, AL. 36830 (205) 821-9250

SOLID WASTE ANALYSIS

ITT Suspension Systems
P. O. Box 6165
Macon, GA 31208

Project No.: 623-04

Date: 3/19/84

HE&T Sample Number: 9968 Client Identification: Cutting Fluid

Date Received: 2/6/84 Sample Condition on Arrival: OK

Extraction Procedures

Initial Sample Wt (g)	*
Filtrate Volume (mL)	*
Sample Wt Extracted (g)	*
Water Added (mL)	*
Initial pH (S.U.)	*
Solids Content of Extracted Sample @ 105°C	
pH After 24 Hrs Extraction	*
Filtrate Recombined (mL)	*
Filtrate pH	8.3
Final Volume (mL)	*
pH After Acidification	

EP pH Adjustments

Time	Acid (mL)	pH_I	pH_F
*	*	*	*

Analytical Results

Parameter	Conc (mg/L)	Allowable Conc (mg/L)
Toxicity		
Arsenic	<1	5.0
Barium	<20	100
Cadmium	<0.2	1.0
Chromium	<1	5.0
Lead	<1	5.0
Mercury	<0.05	0.2
Selenium	<0.2	1.0
Silver	<1	5.0
Lindane	NR	0.4
Endrin	NR	0.02
Toxaphene	NR	0.5
Methoxychlor	NR	10
2,4-D	NR	10
2,4,5-TP (Silvex)	NR	1.0
Corrosivity	NR	
Ignitability	NR	
Reactivity		
Chemical	NR	
Physical	NR	
Thermal	NR	

Total Acid Added (mL)

Additional Water Added (mL)

*Solids content <0.5%. Sample filtered and analysis on filtrate.

Approved for Transmittal

Laboratory Manager

S-006 4/83

HARMON ENGINEERING & TESTING

AUBURN INDUSTRIAL PARK, AUBURN, AL. 36830 (205) 821-9250

SOLID WASTE ANALYSIS

ITT Suspension Systems
P.O. Box 6165
Macon, GA 31208

Project No.: 623-04

Date: 3/19/84

HE&T Sample Number: 9970 Client Identification: Cutting Oil

Date Received: 2/6/84 Sample Condition on Arrival: _____

Extraction Procedures

Initial Sample Wt (g)	435.8
Filtrate Volume (mL)	435
Sample Wt Extracted (g)	7.6
Water Added (mL)	122
Initial pH (S.U.)	8.5
Solids Content of Extracted Sample @ 105°C	-
pH After 24 Hrs Extraction	5.1
Filtrate Recombined (mL)	587
Filtrate pH	8.4
Final Volume (mL)	152
pH After Acidification	-

EP pH Adjustments

	Time	Acid (mL)	pH_I	pH_F
2/14/84	1130	5	8.5	4.9
	1145	1	5.3	4.9
	1215	0	5.0	-
	1315	1	5.1	4.9
	1415	0	4.9	4.9
	1515	0	5.0	5.0
	1615	0	5.0	5.0
	1715	0	5.0	5.0
2/15/84	0800	0	5.0	5.0
	1130	0	5.1	5.1

Total Acid Added (mL) 7 (30)

Additional Water Added (mL) 23

Analytical Results

Parameter	Conc (mg/L)	Allowable Conc (mg/L)
Toxicity		
Arsenic	<1	5.0
Barium	<20	100
Cadmium	<0.2	1.0
Chromium	2.4	5.0
Lead	<1	5.0
Mercury	<0.05	0.2
Selenium	<0.2	1.0
Silver	<1	5.0
Lindane	NR	0.4
Endrin	NR	0.02
Toxaphene	NR	0.5
Methoxychlor	NR	10
2,4-D	NR	10
2,4,5-TP (Silvex)	NR	1.0
Corrosivity	NR	
Ignitability	NR	
Reactivity		
Chemical	NR	
Physical	NR	
Thermal	NR	

Approved for Transmittal

Laboratory Manager

S-006 4/83

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S W
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

December 17, 1984

MEMORANDUM

TO: Harold C. Gillespie, Regional Manager
Middle Georgia Region

FROM: Karen S. Gottwald, Environmental Specialist KSG
Middle Georgia Region

SUBJECT: ITT Suspension Systems - Wastewater Discharge
Bibb County, Georgia

On November 16, 1984 a return visit was made to the ITT Suspension Systems Plant on Highway 49 in Macon to determine if the hydromation process waste had been cleaned up. No work had been done to clean out the storm drainage ditches. The black waste still lined the ditches. Green grinding fluid was ponded in the parking lot near the BFI dumpsters. The cooling tower was not discharging at that time; however, there was a greater volume of water in the drainage ditch than there was during my first visit. I did not meet with company officials as it was late in the day.The attached letter was sent to the plant manager.

KSG:pj

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S W
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

December 19, 1984

MEMORANDUM

TO: Harold C. Gillespie, Region Manager
Middle Georgia Region

FROM: Karen S. Gottwald, Environmental Specialist KSG
Middle Georgia Region

SUBJECT: ITT Suspension Systems, Macon
Bibb County, Georgia

On December 18, 1984, a follow-up visit was made to the ITT Suspension Systems plant in Macon to determine if the ditch had been cleaned and the discharge problem resolved. No attempt had been made to clean the black hydromation sludge out of the storm drainage ditch. The dumpsters continued to leak green grinding fluid. Follow-up enforcement action should be initiated once the plant manager, David Mynatt, has a chance to respond to our written request for compliance.

HCG:pj

LED PAPER

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

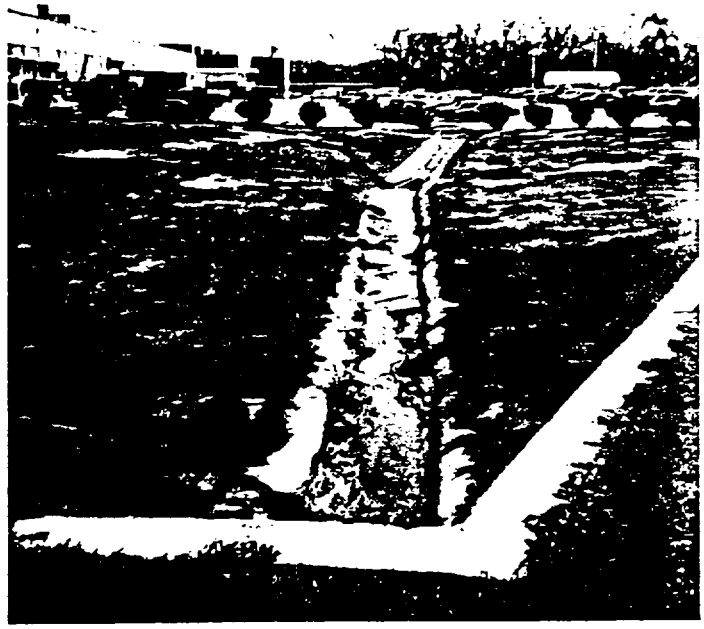
PHOTOGRAPHS

ITT SUSPENSION SYSTEMS

MACON

BIBB COUNTY

NOVEMBER 16, 1984



Suspension Systems Division
P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4

REFERENCE 12

MIDDLE GEORGIA REGION
JAN 7 1985
ENVIRONMENTAL PROTECTION DIVISION

January 3, 1985

Ms. Karen S. Gottwald
Environmental Specialist
Middle Georgia Region

Re: Waste material in storm drainage ditch from ITT Suspension Systems - Bibb County, Georgia

Dear Ms. Gottwald:

In response to your letter of December 17, 1984 the following actions have been taken to eliminate the problem.

1. All grinding fluid wastes are now stored in leak proof containers and disposed in the Macon Bibb County disposal site.

2. The aqua blue discharge from the cooling tower has been piped closed. The connection of this to the sanitary drain will be completed by January 7, 1985.

3. The drainage ditch was removed of all wastes and disposed of in the Macon Bibb County disposal site per Mr. Gillespie's direction (letter attached).

Sincerely,

D.A. Mynatt
General Manager

Enc.

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

December 20, 1984

Mr. Bobby Copeland
ITT Suspension Systems
P. O. Box 61566
Macon, Georgia 31208

Re: Waste Material in Storm Drainage Ditch from
ITT Suspension Systems - Bibb County, Georgia

Dear Mr. Copeland:

The purpose of this letter is to confirm our telephone conversation on December 19,1984 whereby this office approved the disposal of this waste material in the Macon-Bibb County disposal site. This approval is based upon the lab analysis of the material previously submitted to this office which indicated the presence of no hazardous materials.

If you have questions regarding this matter, please feel free to contact this office.

Sincerely,

Harold C. Gillespie

Harold C. Gillespie, P. E.
Regional Manager
Middle Georgia Region

JAN 7 1985

HCG:pj

cc: Tim Cash
Sid Gibbs

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

TRIP REPORT
February 7, 1984

REFERENCE 13

SITE NAME & LOCATION: ITT Suspension Systems Division, Macon, Georgia

TRIP BY: Alan R. Laros ARL

ACCOMPANIED BY: None

DATE OF TRIP: January 31, 1984, 9:[illegible]

OFFICIALS CONTACTED: Joe Hyder, Plant Chemist, P.O.Box 10278, Macon, GA 31208 Phone: 912/781-0170
Eugene Parrish, Quality Control Analyst, P.O.Box 10278, Macon, GA 31208 Phone: 912/781-0170

REFERENCE: Trip Report, letter and ISS Inspection report dated 12/21/82

COMMENTS:

This facility manufactures shock absorbers and McPherson struts for the Ford Motor Company. A chroming process is used for plating the steel support rods used in both applications and as a result (F006) chromic acid sludge is generated (see enclosed diagram of plating operation). Liquid waste, including drag-out and wash and rinse water, is run through a wastewater treatment system. Wastewater is converted from hex to tri-valent chrome using sodium bisulfite.

The liquid is then run through a filter press, is pH adjusted, and finally is disposed via a POTW. The dewatered (F006) sludge is deposited in a 20 cubic yard roll-off container for temporary storage. ITT, Macon, is now using Chem Waste Management of Alabama both as transporter and as disposer of this sludge.

As per Georgia's Rules for Hazardous Waste Management §§264.1g(6) and 265.1(c)(10), the wastewater treatment system, including the filter press does not need a hazardous waste facility permit (See Georgia RIM #1 dated 11/22/83). The wastewater treatment system is, however, regulated by and was inspected for the requirements under Subpart B §266.10.

The process chromic acid tanks are drained yearly during Christmas week. The chromic acid is put into temporary holding tanks while the sludge is removed from the primary tanks. This sludge is then run through the waste treatment process and the chromic acid is put back into the process tanks for re-use. The entire chrome plating operation, consisting of a series of steel tanks, rests on a reinforced concrete floor with a 10 inch concrete berm surrounding it. All floor

drains, both inside and outside the bermed area, lead into the wastewater treatment system.

In addition to the above, this facility generates (F002) wastes in the form of spent Methylene Chloride and 1,1,1, Trichloroethane solvents. These solvents are generated in small amounts (only 12 drums have accumulated in the drum storage area since February 11, 1982). On that date Ramsey Chemical Company removed a load of spent solvents from the facility "as documented by manifest". Minor corrections in drum storage practices were recommended during my inspection.

An additional filter press system is used to separate metal grinding sludge from waste cutting oil. The oil is removed from the facility by Carl Durden Waste Oil Company of Warner Robins, Georgia. The metal grindings are disposed along with all non-hazardous solid wastes by Browning Ferris.

Shock absorbers are painted via a dip tank. The only waste which is generated by this process is a sludge from periodic clean-out of the dip tank. I have requested EP and flash point tests on both the paint sludge and the cutting oil.

All paperwork violations noted by Margaret Markey on her 11/22/83 inspection have been corrected.

CONCLUSIONS:

This facility qualifies as a generator of hazardous waste and has the option of withdrawing their Part A application for treatment and storage of hazardous waste.

RECOMMENDATIONS & FOLLOW-UP REQUIRED:

This company does not plan to continue trying to delist its (F006) sludge. Following receipt of my inspection report and compliance status letter they plan to request withdrawal of their Part A application.

PHOTOGRAPHS: None

REVIEWED BY: KLO 2/8/84

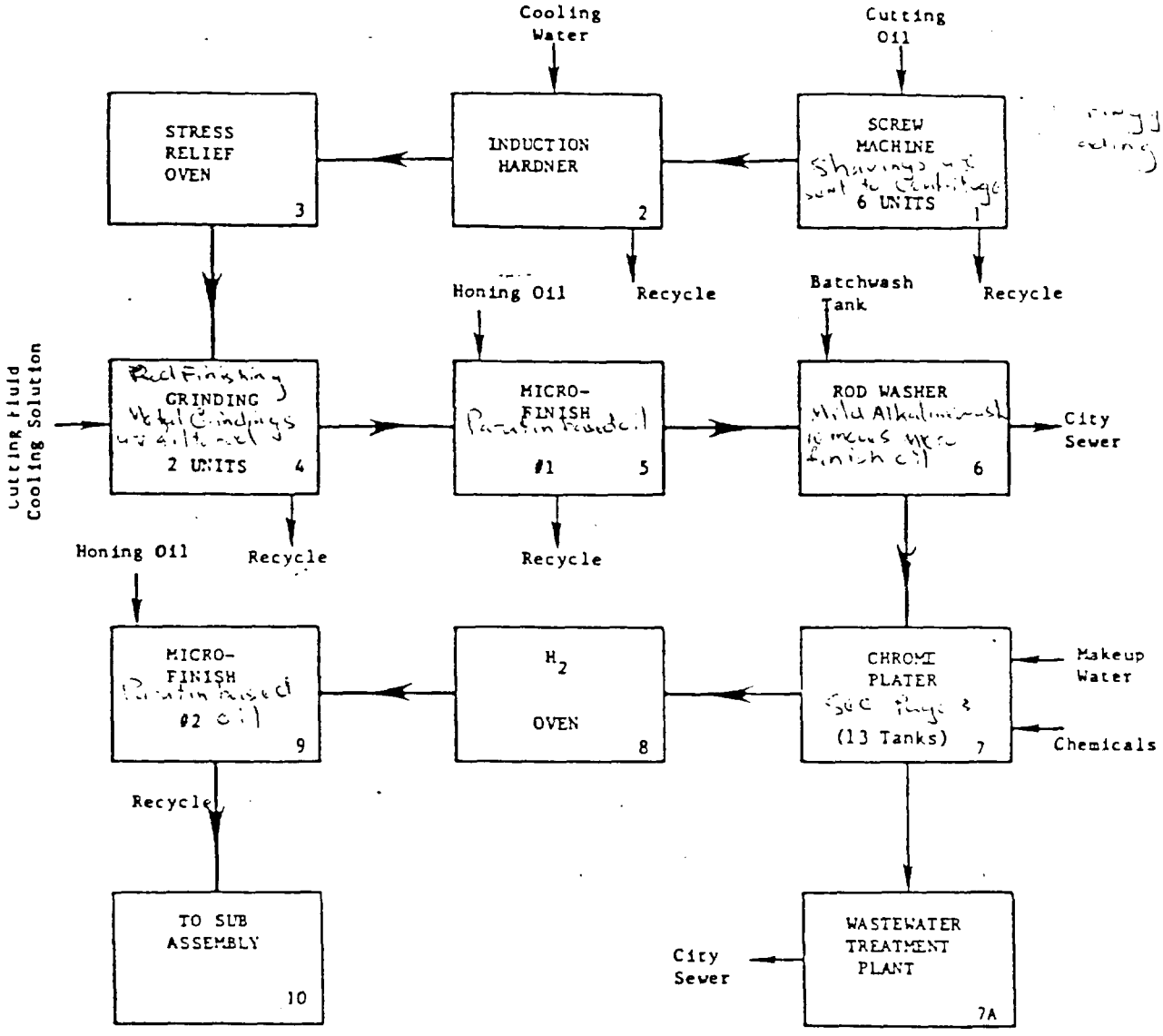
ATTACHMENTS: Copies of drawings for (1) process flow; (2) chrome plater flow; (3) schematic of wastewater treatment plant; and (4) Material Safety Data Sheet for shock absorber paint.

FILE: ITT Suspension Systems Division, Macon (R)

AL:mg:3122B

FIGURE 1

PROCESS DIAGRAM



Notes:

(1) Honing & Cutting Oils are centrifuged to remove metal shavings and recycled.
(2) Cooling water is recycled by use of cooling tower.
(3) Rod washer is batch process discharged directly to city sewer.

PT-61 (Rev. 8/89) REAL ESTATE TRANSFER TAX DECLARATION (Please Type or Print)

SECTION A-SELLER NAME
ITT CORPORATION

MAILING ADDRESS (Street and number)
320 Park Avenue

CITY, STATE and ZIP CODE
New York, New York 10022

SECTION B-BUYER NAME
BOEING GEORGIA, INC.

MAILING ADDRESS (Street and number)
P.O. Box 7730, MSKII-60

CITY, STATE AND ZIP CODE
Wichita, Kansas 67277-7730

SECTION C-PROPERTY IDENTIFICATION

1. LOCATION (Street, Route, Hwy. etc.) 7900 Industrial Highway
2. COUNTY Bibb
3. IF WITHIN CITY LIMITS GIVE CITY NAME
4. ACRES
5. DISTRICT 4th
6. LAND LOT 172
7. SUB LOT AND BLOCK
8. LAST LISTED ON AD VALOREM TAX DIGEST UNDER THE NAME OF
9. YEAR 90 BILL NUMBER
10. MAP AND PARCEL NUMBER 015-200-B-0035

SECTION D-SALE INFORMATION

1. DATE 1/23/90
2. SALE CONDITIONS
3. CHECK INTENDED USE [ ] R [ ] A [ ] C [X] I

SECTION E-RECORDING INFORMATION

1. DATE
2. DEED BOOK 1828 PAGE 240
3. PLAT BOOK PAGE

SECTION F-TAX COMPUTATION

1. Actual value of consideration received by seller (Fill out 1a below only when value is not known)	2,875,000	00
REFERENCE 14		
4. Net Taxable Value (1 minus 2 minus 3)	2,875,000	00
5. TAX DUE at 10¢ per $100 or fraction thereof. (Minimum $1.00)	2,875	00

SECTION G-SELLER CERTIFICATION

I hereby certify that all the items of information entered on this transfer form PT-61 are true and correct to the best of my knowledge and belief.

Signature JAMES N. GEIGER (Seller or Authorized Agent) 1/23/90 (Date)

SECTION H-CLERK OF COURT CERTIFICATION

I hereby certify that the recording information in Section E is correct and that the tax due in Section F5 is computed correctly based upon the information supplied in Section F by the seller or his authorized agent.

Signature Aline T. Byrd (Clerk of Superior Court) 1-25-90 (Date)

TAX ASSESSOR'S COPY

137,280 = 151,980 ⊔ 18.92 ⊔
14,700

NOTE: THE CONTENTS OF THIS DISCLOSURE (FORM PT-61) SHALL BE CONFIDENTIAL AND SHALL NOT BE SUBJECT TO INSPECTION BY ANY PERSON OTHER THEN AUTHORIZED PERSONNEL OF APPROPRIATE TAX OFFICIALS.

TO BE COMPLETED BY THE TAX ASSESSOR'S OFFICE

SECTION I - ASSESSMENT INFORMATION

Map and Parcel # Assigned 00150-0035

Sales Conditions FMV

Intended Use ( ) R ( ) A ( ) C (X) I

ASSESSMENTS

Code	Assessed Value
I-1, I-4	$ 153395
	$
	$ Whse / Mfg
	$
	$
	$
	$
	$
	$
	$

COMMENTS

SECTION J-OPTIONAL INFORMATION

Adjusted Sales Price $ 2875000

Reason for Adjustment

Vacant/Improved I

Sq. Ft. Primary Improvement (Heated) (Unheated)

Economic Age Primary Improvement

Value of Primary Improvement $

Sq. Ft. Assessory Improvements $

Economic Age Assessory Improvements

Value of Assessory Improvements $

Financing Interest Rate

Down Payment $

New Money Borrowed $

Construction Quality

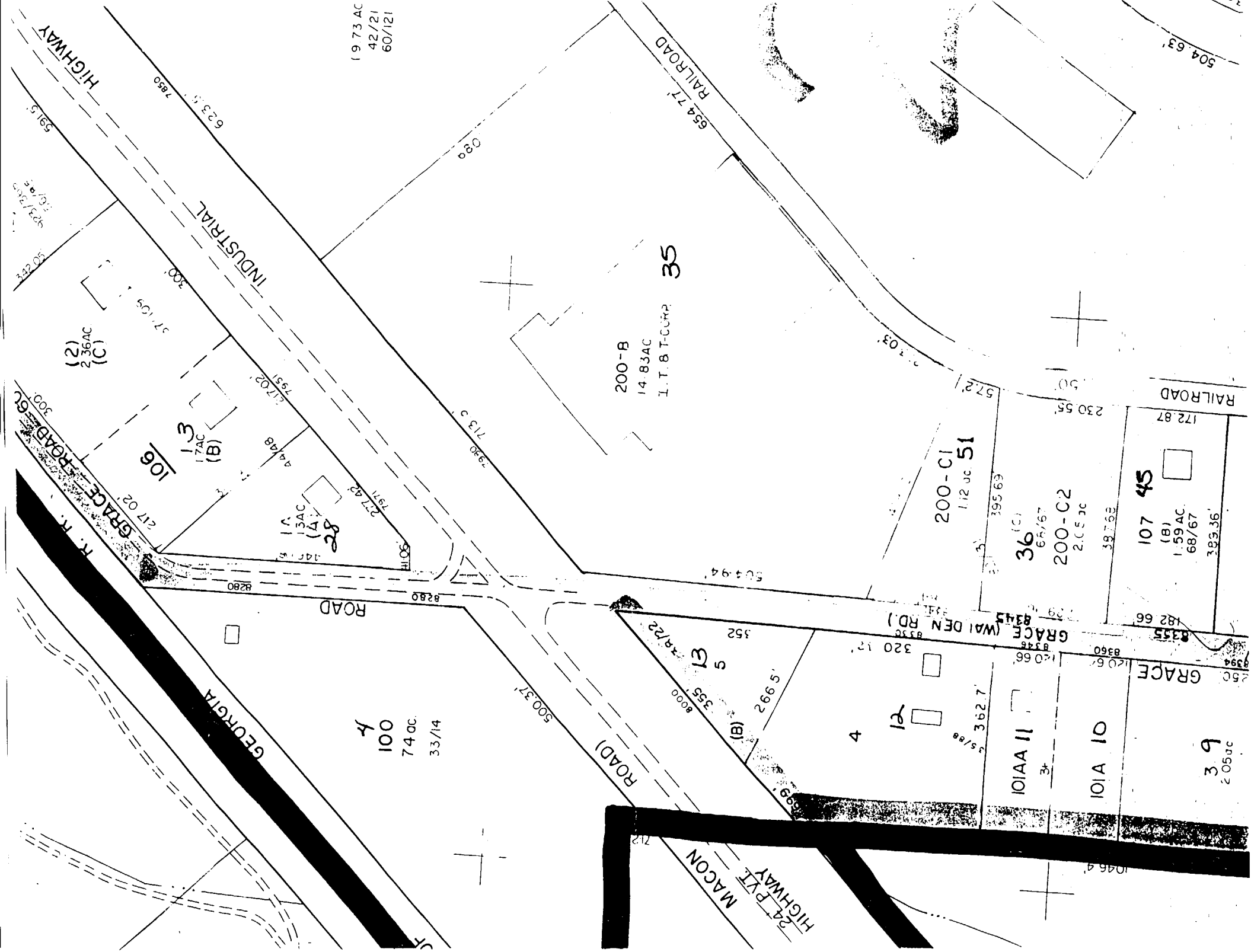
Excellent ( ) Good ( ) AVG ( ) Fair ( ) Poor ( )

Neighborhood Code

SECTION K - ASSESSOR'S CERTIFICATION

I hereby certify that the assessment information in Section I is true and correct to the best of my knowledge and belief.

Signature (Assessor or Appraiser) 2-21-90 (Date)



HIGHWAY
INDUSTRIAL
RAILROAD
GRACE ROAD
GEORGIA
ROAD
MACON
HIGHWAY
GRACE (WALDEN RD.)
GRACE
RAILROAD
200-B
14.83AC
I.T.&T-CORP
35
200-C1
51
200-C2
36
107
45
106
13
28
100
74 ac
33/14
4
12
13
5
101AA
11
101A
10
3
9
(2)
2.36AC
(C)
1.7AC
(B)
1.59AC
68/67

**** RCRA Notifiers List ****

Run 15.23.54 , 11/13/91 by Joyce Brittian

Data from the Region IV Merge Database.

This run used the following selection criteria (blank means all values accepted, except for facility types):

States:	(Select 1 - 3 or all)
Counties:	(Select 1 - 4 or all)
ZIP Codes:	(Select 1 - 5 or all)
Facility:	(Select one or all)
Leg. district:	(Select one or all)

Facility types: LQG: X SQG: X CEG: X
(X - selected) TSD: X Trans.: X BBL: X REC: X

* NOTE: '-N-' in the report indicates the facility notified for that activity but is not now engaged in that activity. *

Sort:	State, Name, ID	(See below for sort choices)
TC Rule facilities:		(Waste codes D018 - D043)
Waste codes:		(Select 1 - 6 or all)
SIC Codes		(Select 1 - 5 or all)
Owner type:		(Select one or all)
Facilities which accept wastes from offsite:		
Notification date range: from 010180 to 111391		

Individual ID's selected: (1 - 15)

LQG - Large quantity generator (more than 1000 kg per month)
SQG - Small quantity generator (100 - 1000 kg permonth).
CEG - Limited quantity generator (less than 100 kg per month)
TSD - Treat, store, or disposal facility
Trans.- Transporter
BBL - Burner/blender
REC - Recycler

Sort choices:
1 - State, Name, ID
2 - State, County, Name, ID
3 - State, ZIP, Name, ID
4 - State, Legislative District, ID
5 - Name, ID
6 - ID Number

Owner type choices:
P - Private
F - Federal
S - State
C - County
M - Municipal

Total number of handlers is 40268

REFERENCE 15

RCRA Notifiers List State: TN Region IV Merge Database Run 18.13.09 11/13/91

Facility/ID Leg. Dist		Contact - Name		- Phone	Notif.Date	Facil. Type TSD	GEN	TRNS	BBL	REC
BLUE BIRD BODY COMPANY		DOUGLAS MILLER		(912)825-2021	08/26/83	TSD	LQG	-	-	-
GAD980729974	Facil.: NORTH CAMELLIA BLVD		FORT VALLEY	GA	31030 PEACH CO.					
VB	Mail: P O BOX 937		FORT VALLEY	GA	31030					
BLUE BIRD NORTH GEORGIA		ROBERT JOYNER		(404)638-8383	09/02/83	-	LQG	-	-	-
GAD042710590	Facil.: SHATTUCK IND BLVD		LAFAYETTE	GA	30728 WALKER CO.					
JO	Mail: PO BOX 807		LAFAYETTE	GA	30728					
BLUE BIRD WANDERLODGE		GARY REVIS		(912)825-2021	08/19/88	-	LQG	-	-	-
GAD981247984	Facil.: #1 WANDERLODGE WAY		FORT VALLEY	GA	31030 PEACH CO.					
	Mail: P O BOX 937		FORT VALLEY	GA	31030					
BLUE RIBBON CLEANERS		JERRY GREEN		(912)234-8155	07/13/89	-	SQG	-	-	-
GAD981267560	Facil.: 2021 MONTGOMERY RD		SAVANNAH	GA	31405 CHATHAM CO.					
	Mail: 2021 MONTGOMERY RD		SAVANNAH	GA	31405					
BLUE RIDGE MTN CONTRACT CARRIERS		NORRIS KILGORE		(404)226-2525	08/07/87	-	-N-	-	-	-
GAD981236615	Facil.: 835 SHUGART RD		DALTON	GA	30720 WHITFIELD CO.					
	Mail: P O BOX 1947		DALTON	GA	30722					
BMW OF NORTH AMERICA INC		KARL KRUEGER		(912)267-4000	12/21/89	-	SQG	-	-	-
GAD981272370	Facil.: 106 JOE FRANK HARRIS BLVD		BRUNSWICK	GA	31520 GLYNN CO.					
	Mail: 106 JOE FRANK HARRIS BLVD		BRUNSWICK	GA	31520					
BOB & BOBS PAINT & BODY SHOP		BOB HOLLINS		(404)736-3323	10/14/86	-	SQG	-	-	-
GAD981222441	Facil.: 2031 GORDON HWY		AUGUSTA	GA	30909 RICHMOND CO.					
JO	Mail: 2031 GORDON HWY		AUGUSTA	GA	30909					
BOB CAT EQUIPMENT CO		BRAD REDDING		(404)373-2179	01/29/91	-	SQG	-	-	-
GAD981282783	Facil.: 295 PATTERSON AVE		SCOTTSDALE	GA	30079 DE KALB CO.					
	Mail: 295 PATTERSON AVE		SCOTTSDALE	GA	30079					
BOB MADDOX CHRY-PLY		PERRY LANIER		(404)361-6550	10/21/86	-	SQG	-	-	-
GAD981223639	Facil.: 330 FOREST PKWY		FOREST PARK	GA	30050 CLAYTON CO.					
JO	Mail: 330 FOREST PKWY		FOREST PARK	GA	30050					
BOB'S CANDIES INC		GENE SHARP		(912)430-8300	10/15/90	-	SQG	-	BBL	-
GAD981281884	Facil.: 1315 OAKRIDGE DRIVE		ALBANY	GA	31707 DOUGHERTY CO.					
	Mail: P.O. BOX 3170		ALBANY	GA	31708					
BOEING MACHINE PRODUCTS		ROBERT BARRETT		(912)781-3000	08/18/80	TSD	-N-	-	-	-
GAD000615914	Facil.: 7898 41ST HWY S		MACON	GA	31201 BIBB CO.					
JO	Mail: PO BOX 10248 WILSON AIRPORT		MACON	GA	31201					
BOLD CORP		JACK HARTLEY		(912)386-1495	06/26/80	-	-N-	-	-	-
GAD010122364	Facil.: VERNON DR		TIFTON	GA	31794 TIFT CO.					
TR	Mail: PO BOX 1463		TIFTON	GA	31793					

RCRA Notifiers List State: TN Region IV Merge Database Run 18.13.09 11/13/91

Facility/ID Leg. Dist		Contact - Name		- Phone	Notif.Date	Facil. Type TSD	GEN	TRNS	BBL	REC
ISOLYSER CO INC		TRAVIS.W HONEYCUTT		(404)381-7566	06/19/89	-	-	TRNS	-	-
GAD981267180	Facil.: 4350 INTERNATIONAL BLVD NW		NORCROSS	GA	30093 GWINNETT CO.					
	Mail: 4350 INTERNATIONAL BLVD NW		NORCROSS	GA	30093					
ITAPCO COLUMBUS TERMINAL COMPANY		MIKE BLEVINS		(713)580-6101	11/19/80	-	SQG	-	-	-
GAD042816256	Facil.: 5225 MILLER ROAD		COLUMBUS	GA	31909 MUSCOGEE CO.					
	Mail: 616 FM 1960 WEST SUITE 604		HOUSTON	TX	77090					
ITE ELECTRICAL PROD DIV OS SEIMENS-ALLIS		RYAN.H. GARNER		(404)493-1231	07/15/85	-	SQG	-	-	-
GAD981028988	Facil.: 2140 FLINTSTONE DR		TUCKER	GA	30085 DE KALB CO.					
BB	Mail: 2140 FLINTSTONE DR		TUCKER	GA	30085					
ITT - AUTO ELECTRICAL DIV		DAVID BRINSON		(912)377-5570	01/24/85	-	CEG	-	-	-
GAD061427639	Facil.: 20TH & 2ND ST NE		CAIRO	GA	31728 GRADY CO.					
BB	Mail: RTE 2 BOX 477		CAIRO	GA	31728					
ITT GRINNELL CORP		DAVID WILLIAMS		(912)587-2212	11/01/83	-	SQG	-	-	-
GAD065330151	Facil.: US HWY 301 N		STATESBORO	GA	30458 BULLOCH CO.					
BS	Mail: PO BOX 427		STATESBORO	GA	30458					
ITT RAYONIER INC		ROBERT MCCRARY		(912)427-5280	08/18/80	-	LQG	-	BBL	-
GAD075854349	Facil.: US HWY 301 N		JESUP	GA	31545 WAYNE CO.					
WS	Mail: PO BOX 207		JESUP	GA	31545					
ITT SUSPENSION SYSTEMS DIV		DAVID VINSON		(912)781-0170	10/27/80	-	-N-	-	-	-
GAD098584063	Facil.: 7980 INDUSTRIAL HWY		MACON	GA	31208 BIBB CO.					
JO	Mail: PO BOX 6156		MACON	GA	31208					
ITT THOMPSON IND METALS DIVISION		CASH REGISTER		(912)242-4360	08/12/80	-	-N-	-	-	-
GAD000465138	Facil.: 1101 WEST SAVANNAH AVE		VALDOSTA	GA	31601 LOWNDES CO.					
BS	Mail: PO BOX 928		VALDOSTA	GA	31601					
ITT THOMPSON INDUSTRIES DIV		TERRY REESE		(912)242-5228	11/13/80	-	-N-	-	-	-
GAD003301983	Facil.: CLAY RD		VALDOSTA	GA	31601 LOWNDES CO.					
JO	Mail: P O BOX 5307		VALDOSTA	GA	31601					
ITT THOMPSON INDUSTRIES DIV		CASH REGISTER		(912)242-4360	11/19/80	-	-N-	-	-	-
GAD991276189	Facil.: 501 HIGHLAND DR		VALDOSTA	GA	31601 LOWNDES CO.					
	Mail: P O BOX 928		VALDOSTA	GA	31601					
ITW MIMA		JIMMY RUTLEDGE		(404)489-7510	09/20/91	-	SQG	-	-	-
GAD984300103	Facil.: 1320 LESLIE DR		DOUGLASVILLE	GA	30134 DOUGLAS CO.					
	Mail: 1320 LESLIE DR		DOUGLASVILLE	GA	30134					
IVY-COILE MOTORS		DAN.M. BARRETT		(404)549-7555	03/18/86	-	SQG	-	-	-
GAD033498536	Facil.: 3640 ATLANTA HWY		ATHENS	GA	30606 CLARKE CO.					
JO	Mail: P O BOX 5338		ATHENS	GA	30604					

B&V WASTE SCIENCE AND TECHNOLOGY CORP.

REFERENCE 16

TELEPHONE MEMORANDUM

USEPA
ARCS IV Site Assessment
RCRA Status of ITT Suspension Sys.

BVWST Project 52011.045
BVWST File E.1
June 10, 1992
1:05 PM

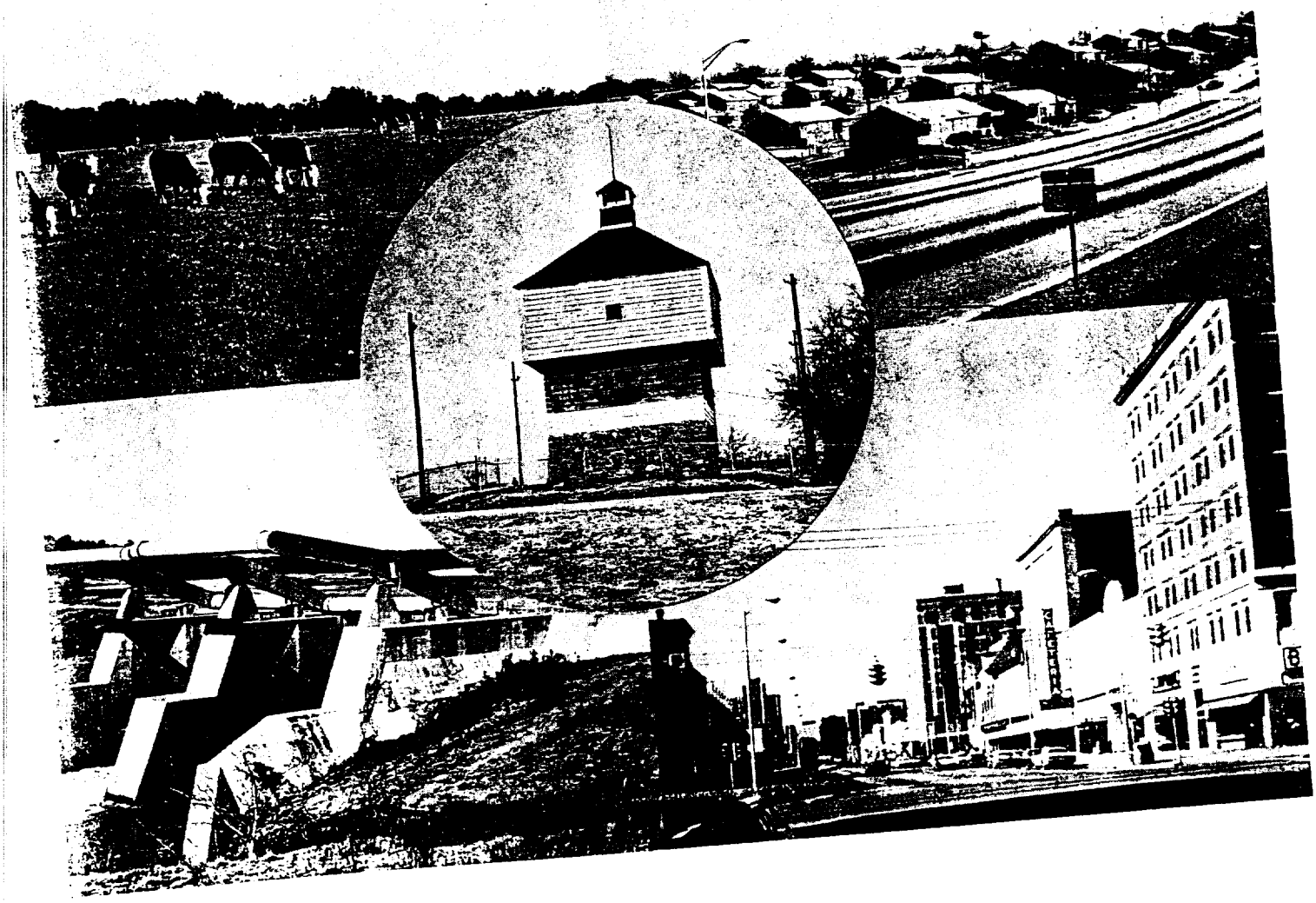
To: Harry Desai
Company: USEPA, RCRA Division
Phone No.: (404)347-3433

Recorded by: Bryan Williams

I spoke with Harry Desai, the Georgia contact with RCRA downtown concerning the status of the ITT Suspension Systems facility. He stated that Boeing Machine is indeed a TSD facility and separate from the ITT site they purchased in 1990. He also said that if the facilities have two distinct EPA ID №s then they cannot be the same facility or site.

REFERENCE 17

SOIL SURVEY OF
Bibb County, Georgia



United States Department of Agriculture
Soil Conservation Service

In cooperation with
University of Georgia, College of Agriculture
Agricultural Experiment Stations

cover crops, and grasses and legumes in the cropping system help to reduce runoff and control erosion.

This Faceville soil has high potential for loblolly pine and slash pine. Limitations for woodland use and management are not significant.

This soil has high potential for most urban uses. The clayey subsoil is a limitation for some uses. In most places, this limitation can be overcome by good design and construction. Capability subclass IIIe; woodland group 3o.

FsB—Fuquay loamy sand, 1 to 5 percent slopes. This well drained, nearly level or very gently sloping soil is on ridgetops and hillsides on Sand Hills uplands. Slopes are mostly smooth and convex. Areas are 5 to 60 acres in size.

Typically, the surface layer is dark grayish brown loamy sand and about 7 inches thick. The subsurface layer is loamy sand and extends to a depth of 24 inches; it is brown in the upper part and yellowish brown in the lower part. The subsoil extends to a depth of more than 65 inches. The upper part of the subsoil is yellowish brown sandy loam, the middle part is yellowish brown sandy clay loam and has red and light yellowish brown mottles, and the lower part is sandy clay loam and is mottled strong brown, light yellowish brown, and red. Plinthite is in the subsoil beginning at a depth of about 40 inches. It makes up 5 to 15 percent of the lower part of the subsoil. Nodules of ironstone are in the soil to a depth of about 40 inches.

Included with this soil in mapping are a few areas of Cowarts, Lakeland, and Norfolk soils and some areas of soils that have 5 to 15 percent nodules of ironstone in the upper part.

This soil is low in natural fertility and in content of organic matter. It is strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops, small grain, hay, and pasture. Low available water capacity and low fertility are limitations. Returning crop residue to the soil helps to overcome these limitations.

This Fuquay soil has medium potential for loblolly pine and slash pine. Equipment limitations and seedling mortality are management concerns on this soil.

This soil has high potential for most urban uses. The lower part of the subsoil percs slowly, and this is a limitation for septic tank absorption fields. In most places, this limitation can be overcome by increasing the size of the absorption areas or modifying the filter field. Capability subclass IIs; woodland group 3s.

FsC—Fuquay loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on hillsides on Sand Hills uplands. Slopes are mostly smooth and convex. Areas are 5 to 30 acres in size.

Typically, the surface layer is grayish brown loamy sand about 6 inches thick. The subsurface layer is light yellowish brown loamy sand and extends to a depth of 26 inches. The subsoil extends to a depth of more than 65 inches. The upper part of the subsoil is brownish yellow sandy loam, the middle part is yellowish brown sandy clay loam and has red, strong brown, and light yellowish brown mottles, and the lower part is sandy clay loam and is mottled strong brown, yellowish brown, red, and light gray. Plinthite is in the subsoil beginning at a depth of about 45 inches, and makes up 5 to 15 percent of the lower part. Nodules of ironstone extend to a depth of about 45 inches.

Included with this soil in mapping are a few areas of Cowarts and Lakeland soils. Also included are small areas of soils that have 5 to 15 percent nodules of ironstone in the upper part of the soil.

This soil is low in natural fertility and in content of organic matter. It is strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops, small grain, hay, and pasture. Slope, low available water capacity, and low fertility are limitations. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, cover crops, grasses and legumes in the cropping system, and returning crop residue to the soil help to overcome these limitations.

This Fuquay soil has medium potential for loblolly pine and slash pine. Equipment limitations and seedling mortality are management concerns on this soil.

This soil has high potential for most urban uses. The lower part of the subsoil percs slowly, and this is a limitation for septic tank absorption fields. In most places, this limitation can be overcome by good design and construction. Capability subclass IIIe; woodland group 3s.

Gr—Grady sandy loam. This poorly drained, nearly level soil is in saucer-shaped depressions and sinks in the Coastal Plain. Areas are 2 to 30 acres in size.

Typically, the surface layer is very dark grayish brown sandy loam about 6 inches thick. The subsoil extends to a depth of 60 inches or more. The upper few inches of the subsoil is gray sandy clay loam and has strong brown mottles, the middle part is gray sandy clay and clay and has yellowish brown mottles, and the lower part is gray sandy clay and has yellowish brown and red mottles.

Included with this soil in mapping are small areas of Grady clay loam and a few areas of Osier soils.

This soil is low in natural fertility and medium in content of organic matter. It is very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is slow, and available water capacity is medium. Tilth is good. This soil is commonly saturated or flooded during winter and spring, limiting the growth of plants.

This soil has low potential for cultivated crops. Wetness and flooding are limitations. Potential for pasture is medium.

This Grady soil has high potential for loblolly pine, slash pine, sweetgum, and water tupelo. Wetness is the main limitation to equipment use in managing and harvesting trees. Logging during the drier seasons helps to overcome this limitation. Drainage measures are needed to help overcome high seedling mortality.

This soil has very low potential for most urban uses. Wetness and flooding are limitations and are difficult to overcome. Capability subclass Vw; woodland group 2w.

HyB—Helena sandy loam, 2 to 6 percent slopes. This moderately well drained, very gently sloping soil is mainly on ridgetops on Piedmont uplands. Slopes are smooth and convex. Areas are 10 to 60 acres in size.

Typically, the surface layer is dark grayish brown sandy loam about 7 inches thick. The subsurface layer is light yellowish brown sandy loam and extends to a depth of 11 inches. The subsoil extends to a depth of 40 inches. The upper few inches of the subsoil is strong brown sandy clay and has light brownish gray mottles, the middle part is strong brown clay and has light brownish gray and grayish green mottles, and the lower part is yellowish brown sandy clay loam and has strong brown and light brownish gray mottles. The underlying material, to a depth of 60 inches or more, is strong brown sandy loam and has brownish yellow mottles. The middle part of the subsoil is very firm, sticky, and very plastic.

Included with this soil in mapping are areas of soils in which bedrock is at a depth of less than 40 inches. These areas make up about 15 percent of the map unit. Also included are soils that have less clay in the subsoil and are less sticky and plastic than this Helena soil. These areas make up about 10 percent of the mapping unit. Also included are a few areas of Helena sandy clay loam that is eroded and a few areas of Vance and Wilkes soils.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is slow, and available water capacity is medium. This soil has good tilth. Root penetration is somewhat limited because of the firm, sticky, and plastic subsoil. The water table commonly is high in winter.

Most areas of this soil are wooded; a few areas are in pasture. This soil has medium potential for farming. It has medium potential for loblolly pine and yellow-poplar. Wetness is the main limitation to use of equipment in managing and harvesting trees. This limitation can be overcome by logging during the drier seasons.

This soil has low potential for most urban uses. The clayey, sticky, and plastic subsoil percs slowly. In addition, seasonal wetness and shrink-swell potential are limitations and are difficult to overcome. The hazard of erosion is moderate prior to establishing vegetative cover. Capability subclass IIe; woodland group 3w.

HyC—Helena sandy loam, 6 to 10 percent slopes. This moderately well drained, gently sloping soil is on ridgetops and hillsides on Piedmont uplands. Slopes are smooth and convex. Areas are 10 to 40 acres in size.

Typically, the surface layer is light brownish gray sandy loam about 6 inches thick. The subsoil extends to a depth of 40 inches. The upper part of the subsoil is brownish yellow sandy clay loam, and the lower part is yellowish brown clay and clay loam and has gray and red mottles. The underlying material, to a depth of 60 inches or more, is strong brown sandy loam and has brownish yellow and light gray mottles. The lower part of the subsoil is firm, sticky, and plastic.

Included with this soil in mapping are small areas of Vance and Wilkes soils and areas of soils in which bedrock is at a depth of 20 to 40 inches. These areas make up about 15 percent of the map unit. Also included are a few eroded areas of Helena sandy clay loam.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is slow, and available water capacity is medium. Tilth is good. Root penetration is somewhat limited because of the firm, sticky, and plastic subsoil. The water table is commonly high in winter.

Most areas of this soil are wooded, but a few areas are in pasture. This soil has medium potential for loblolly pine and yellow-poplar. Wetness is the main limitation for use of equipment in managing and harvesting trees, but this limitation can be overcome by logging during the drier seasons.

This soil has low potential for farming and most urban uses. The clayey, sticky, and plastic subsoil percs slowly. Seasonal wetness and shrink-swell potential are limitations and are difficult to overcome. The hazard of erosion is severe on slopes prior to establishing vegetative cover. Tillage operations across the slope and winter cover crops help to control erosion in vegetable gardens. Capability subclass IIIe; woodland group 3w.

HZ—Hydraquents. These very poorly drained, nearly level soils are in low areas at the base of foothills and in depressions on flood plains of the Ocmulgee River and some of its tributaries. Areas are irregular in shape and range from about 40 acres to 500 acres in size. Hydraquents are frequently flooded for very long periods throughout the year. Floodwater is ponded to a depth of 1 foot to 6 feet in most areas (fig. 7).

Commonly, Hydraquents are gray silty clay loam to a depth of 36 to 48 inches. This material is sticky and contains a large amount of matted roots. In most places, it is underlain with brown organic material.

Hydraquents are mainly wooded with water tupelo, sweetbay, and a few swamp maple and green ash. Also many water-tolerant shrubs and aquatic plants are present.

These soils have very low potential for common uses in which flooding, wetness, and low strength are limitations. These limitations can be overcome only by major flood control and drainage measures.

These soils have very high potential for wetland plants and for developing shallow water areas for wetland wildlife. Ducks, alligators, and crayfish are common wildlife in areas of these soils. Capability subclass VIIIw; woodland group 3w.

LaC—Lakeland sand, 2 to 8 percent slopes. This excessively drained, very gently sloping or gently sloping soil is on ridgetops and hillsides on Sand Hills uplands. Areas are 40 to 300 acres in size.

Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying material to a depth of 80 inches is sand; the upper and middle parts are yellowish brown, and the lower part is very pale brown (fig. 8).

Included with this soil in mapping are small areas of Ailey, Cowarts, Fuquay, and Vaucluse soils. Also included are small areas of soils that have a higher clay content between the depths of 60 to 80 inches than is common to Lakeland soils. Included soils make up less than 15 percent of this map unit.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is very rapid, and available water capacity is low. Tilth is good. The root zone is very deep and easily penetrated by plant roots.

This soil has low potential for row crops, small grain, hay, and pasture. Low fertility and low available water capacity are limitations. Returning crop residue to the soil helps to overcome these limitations.

This Lakeland soil has low potential for loblolly pine, slash pine, and longleaf pine. Equipment limitation and seedling mortality are management concerns on this soil.

This soil has medium potential for most urban uses. It is too sandy for most recreational uses, and seepage is a limitation for most sanitary facilities. Capability subclass IVs; woodland group 4s.

LaD—Lakeland sand, 8 to 17 percent slopes. This excessively drained, sloping or strongly sloping soil is on narrow ridgetops and hillsides on Sand Hills uplands. Areas are 20 to 60 acres in size.

Typically, the surface layer is dark grayish brown sand about 4 inches thick. The underlying material to a depth of 80 inches is sand; the upper part is yellowish brown, the middle part is light yellowish brown, and the lower part is very pale brown.

Included with this soil in mapping are areas of soils that have a higher clay content between the depths of 70 to 80 inches than is common to Lakeland soils. Also included are a few areas of Ailey, Cowarts, and Vaucluse soils. The included soils make up about 10 to 15 percent of this map unit, and generally are less than 1 acre.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is very rapid, and available water capacity is low. Tilth is good. The root zone is very deep and easily penetrated by plant roots.

This soil has low potential for loblolly pine, longleaf pine, and slash pine. Equipment limitations and seedling mortality are management concerns on this soil.

This soil has low potential for farming and most urban uses. It is too sandy for many recreational uses, and seepage is a limitation for most sanitary facilities. In addition, slope is a limitation for septic tank absorption fields and sewage lagoons and for dwellings, small commercial buildings, and playgrounds. Capability subclass VIIs; woodland group 4s.

NhA—Norfolk sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on Coastal Plain uplands. Areas are 10 to 80 acres in size.

Typically, the surface layer is grayish brown sandy loam about 8 inches thick. The subsurface layer is yellowish brown sandy loam and extends to a depth of 12 inches. The subsoil is sandy clay loam and extends to a depth of 60 inches or more. The upper part of the subsoil is yellowish brown, the middle part is brownish yellow and yellowish brown, and the lower part is yellowish brown and has light yellowish brown and red mottles.

Included with this soil in mapping are a few areas of Cowarts, Faceville, and Orangeburg soils. Also included are soils in slight depressions that have a darker surface layer and are wetter than this Norfolk soil. The included soils make up about 10 to 15 percent of this map unit, and areas are generally less than 1 acre.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for row crops, small grain, hay, and pasture, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Grasses and legumes in the cropping system help to conserve moisture and maintain the content of organic matter.

This Norfolk soil has high potential for loblolly pine and slash pine. Limitations for woodland uses and management are not significant. This soil has high potential for most urban uses. Capability class I; woodland group 2o.

NhB—Norfolk sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on Coastal Plain uplands. Slopes are smooth and convex. Areas are 10 to 100 acres in size.

Typically, the surface layer is grayish brown sandy loam about 8 inches thick. The subsurface layer is pale brown sandy loam and extends to a depth of about 12 inches. The subsoil is sandy clay loam and extends to a depth of about 70 inches. The upper part of the subsoil is yellowish brown, the middle part is yellowish brown and has strong brown and pale brown mottles, and the lower part is mottled yellowish brown, strong brown, pale brown, yellowish red, and light brownish gray.

Included with this soil in mapping are a few areas of Cowarts, Faceville, Fuquay, and Orangeburg soils. Also included are soils in slight depressions that have a darker surface layer and are wetter than this Norfolk soil. The included soils make up less than 15 percent of this map unit.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in the surface layer in areas that have been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This Norfolk soil has high potential for row crops, small grain, hay, and pasture, and good crop growth can be obtained. Good tilth is easily maintained by returning crop residue to the soil. The hazard of erosion is moderate if cultivated crops are grown. Conservation tillage, cover crops, and grasses and legumes in the cropping system help to reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. Limitations for woodland uses and management are not significant. This soil has high potential for most urban uses. Capability subclass IIe; woodland group 2o.

OcA—Orangeburg sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on Coastal Plain uplands. Areas are 15 to 60 acres in size.

Typically, the surface layer is dark grayish brown sandy loam about 8 inches thick. The subsoil is sandy clay loam and extends to a depth of 60 inches or more. The upper few inches is yellowish red, and below this the subsoil is red. Included with this soil in mapping are a few areas of Faceville and Norfolk soils.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This Orangeburg soil has high potential for row crops, small grain, hay, and pasture, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Conservation tillage, cover crops, and grasses and legumes in the cropping system help to conserve moisture and maintain organic matter content.

This soil has high potential for loblolly pine and slash pine. Limitations for woodland uses and management are not significant. This soil has high potential for most urban uses. Capability class I; woodland group 2o.

OcB—Orangeburg sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on Coastal Plain uplands. Slopes are smooth and convex. Areas are 10 to 100 acres in size.

Typically, the surface layer is yellowish brown sandy loam about 7 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more. The upper few inches of the subsoil is strong brown, and below this the subsoil is red.

Included with this soil in mapping are a few areas of Faceville and Norfolk soils. Also included are a few areas of soils that have a sandy clay loam surface layer and are eroded.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This Orangeburg soil has high potential for row crops, small grain, hay, and pasture, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. The hazard of erosion is moderate if cultivated crops are grown. Conservation tillage, cover crops, and grasses and legumes in the cropping system help to reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. No significant limitations are present for woodland uses and management. This soil has high potential for most urban uses. Capability subclass IIe; woodland group 2o.

OcC—Orangeburg sandy loam, 5 to 8 percent slopes. This well drained, gently sloping soil is on ridgetops and hillsides on Coastal Plain uplands. Slopes are commonly smooth and convex. Areas are 5 to 40 acres in size.

Typically, the surface layer is sandy loam about 11 inches thick. In the upper part it is brown, and in the lower part it is pale brown. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more. In the upper part it is yellowish red, and in the lower part it is red.

Included with this soil in mapping are a few areas of Faceville and Norfolk soils. Also included are a few small areas of soils that have a sandy clay loam surface layer and are eroded.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. The root zone is deep and easily penetrated by plant roots.

This Orangeburg soil has medium potential for row crops and small grain. Slopes and the small size of some areas are limitations. Potential for hay and pasture is high. Good tilth is easily maintained by returning crop residue to the soil. If cultivated crops are grown, the hazard of erosion is severe. Terracing, conservation tillage, cover crops, and including grasses and legumes in the cropping system help to reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. No significant limitations are present for woodland uses and management.

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

Month	Temperature*						Precipitation*				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days**	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	58.2	36.1	47.2	78	13	104	4.07	1.98	5.77	7	0.2
February---	61.1	37.8	49.5	80	16	120	4.77	2.75	6.41	8	.9
March------	68.4	44.1	56.3	86	25	239	4.85	2.62	6.67	8	0
April------	78.2	52.4	65.4	92	34	462	3.48	1.76	4.87	5	0
May--------	85.3	60.1	72.8	98	42	707	3.69	1.76	5.26	5	0
June-------	90.3	67.3	78.8	101	52	864	4.09	2.48	5.53	7	0
July-------	92.1	70.5	81.3	101	62	970	4.54	2.56	6.14	9	0
August-----	91.9	69.9	80.9	100	59	958	3.77	2.36	5.04	7	0
September--	86.9	64.7	75.8	98	48	774	2.98	1.24	4.38	5	0
October----	78.3	52.6	65.5	93	32	481	2.02	0.39	3.30	4	0
November---	67.9	42.0	55.0	85	23	171	2.23	1.07	3.18	4	0
December---	60.3	37.4	48.8	79	17	107	4.36	2.31	6.04	7	0
Year-----	76.6	52.9	64.8	103	11	5,957	44.85	38.05	51.39	76	1.1

* Recorded in the period 1951-74 at Macon, Georgia.
** A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

SOIL LEGEND

The first letter, always a capital, is the initial letter of the soil name. The second letter is a capital if the mapping unit is broadly 1/ defined; otherwise, it is a small letter. Capitlaized third or fourth letter connotes slope class. Symbols without a slope letter are for level soils. A final number, 2, in the symbol shows the soil is eroded.

SYMBOL	NAME
AgB	Ailey loamy sand, 2 to 6 percent slopes
CeB	Cecil sandy loam, 2 to 6 percent slopes
CeC	Cecil sandy loam, 6 to 10 percent slopes
CeD	Cecil sandy loam, 10 to 17 percent slopes
CeuC	Cecil-Urban land complex, 2 to 10 percent slopes
CK	Chewacla association
Co	Congaree silt loam
CwB	Cowarts sandy loam, 2 to 5 percent slopes
CwC	Cowarts sandy loam, 5 to 8 percent slopes
DgB	Davidson loam, 2 to 6 percent slopes
DhC2	Davidson clay loam, 6 to 10 percent slopes, eroded
DhD2	Davidson clay loam, 10 to 17 percent slopes, eroded
FdA	Faceville sandy loam, 0 to 2 percent slopes
FdB	Faceville sandy loam, 2 to 5 percent slopes
FdC	Faceville sandy loam, 5 to 8 percent slopes
FsB	Fuquay loamy sand, 1 to 5 percent slopes
FsC	Fuquay loamy sand, 5 to 8 percent slopes
Gr	Grady sandy loam
HyB	Helena sandy loam, 2 to 6 percent slopes
HyC	Helena sandy loam, 6 to 10 percent slopes
HZ	Hydraquents
LaC	Lakeland sand, 2 to 8 percent slopes
LaD	Lakeland sand, 8 to 17 percent slopes
NhA	Norfolk sandy loam, 0 to 2 percent slopes
NhB	Norfolk sandy loam, 2 to 5 percent slopes
OcA	Orangeburg sandy loam, 0 to 2 percent slopes
OcB	Orangeburg sandy loam, 2 to 5 percent slopes
OcC	Orangeburg sandy loam, 5 to 8 percent slopes
OcD	Orangeburg sandy loam, 8 to 12 percent slopes
OcuC	Orangeburg-Urban land complex, 0 to 8 percent slopes
Os	Osier loamy sand
Pt	Pits
UD	Urban land
VaB	Vance sandy loam, 2 to 6 percent slopes
VaC	Vance sandy loam, 6 to 10 percent slopes
VbD2	Vance sandy clay loam, 10 to 17 percent slopes, eroded
VeC	Vaucluse loamy sand, 4 to 8 percent slopes
VeD	Vaucluse loamy sand, 8 to 17 percent slopes
VuC	Vaucluse-Urban land complex, 2 to 8 percent slopes
VuD	Vaucluse-Urban land complex, 8 to 15 percent slopes
WvC	Wilkes gravelly sandy loam, 5 to 10 percent slopes
WvD	Wilkes gravelly sandy loam, 10 to 17 percent slopes

Mines and Quarries that are not delineated (less than about 3 acres) will exhibit proper miscellaneous cultural features.

1/ The composition of broadly defined units is more variable than that of the others in the survey area, but the survey has been controlled well enough to be interpreted for the expected use of soils.

CULTURAL

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national fore state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & ne

AD HOC BOUNDARY (label)

- Small airport, airfield, park cemetery, or flood pool

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEMS & DESIGNA

- Interstate
- Federal
- State
- County, farm or ranch

RAILROAD

POWER TRANSMISSION LINI (normally not shown)

PIPE LINE (normally not shown)

Underground Cable

LEVEES

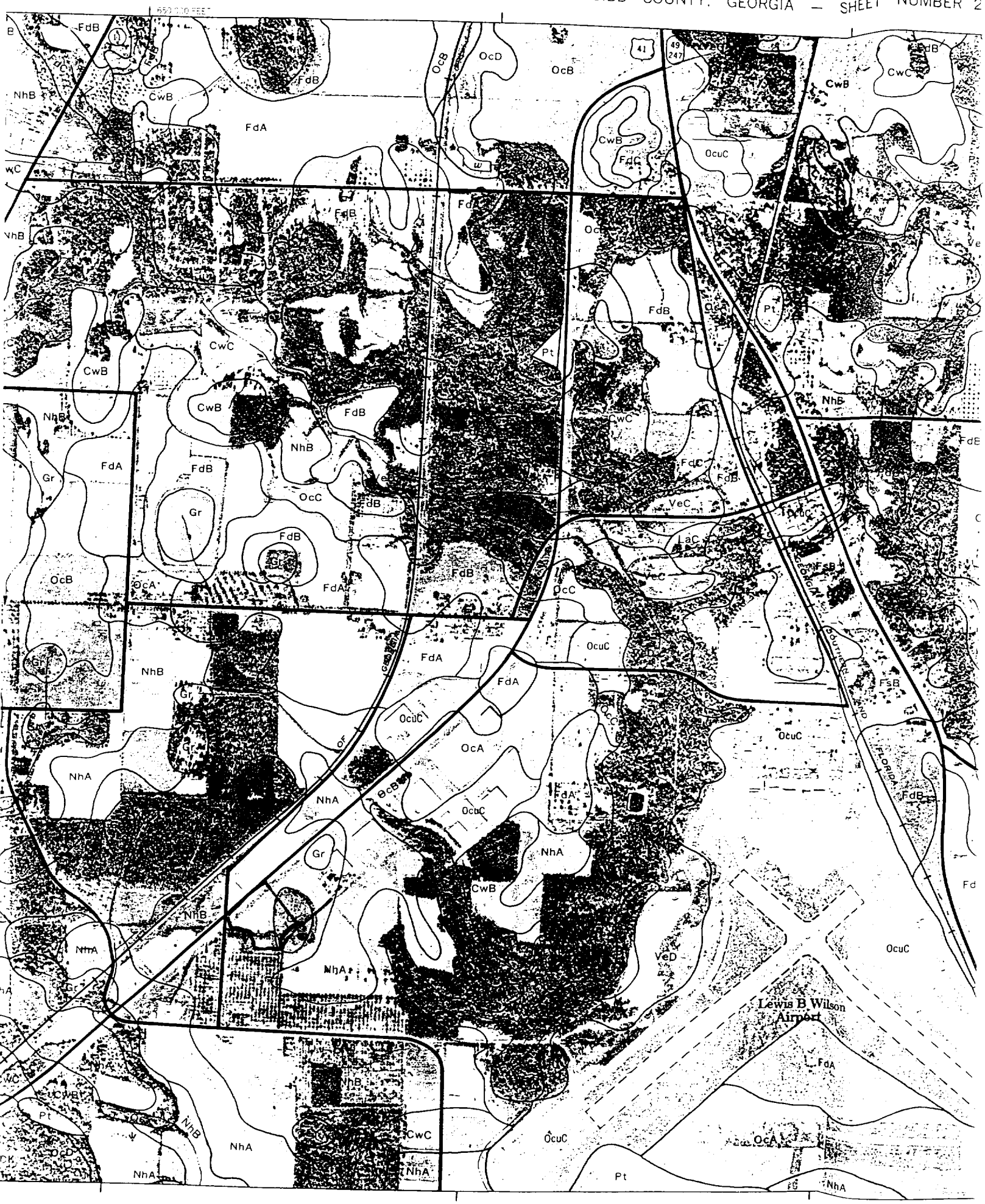
- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small

PITS

- Gravel pit
- Mine or quarry


FdB
NhB
CwB
FdA
OcB
OcD
OcB
41
49
247
CwB
CwC
FdC
OcuC
FdB
Pt
CwC
CwB
NhB
FdB
NhB
FdA
FdB
Gr
OcC
FdB
Gr
FdB
OcB
OcA
FdA
FdB
OcC
VeC
LaC
OcuC
FsB
FdA
NhB
Gr
OcuC
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NhA
NhA
OcB
OcuC
FdA
NhA
Gr
CwB
NhB
NhA
NhA
VeD
OcuC
Lewis B Wilson
Airport
FdA
NhB
CwC
OcuC
OcA
Pt
NhA
NhA
NhA
Pt
NhA

REFERENCE 18

GROUNDWATER

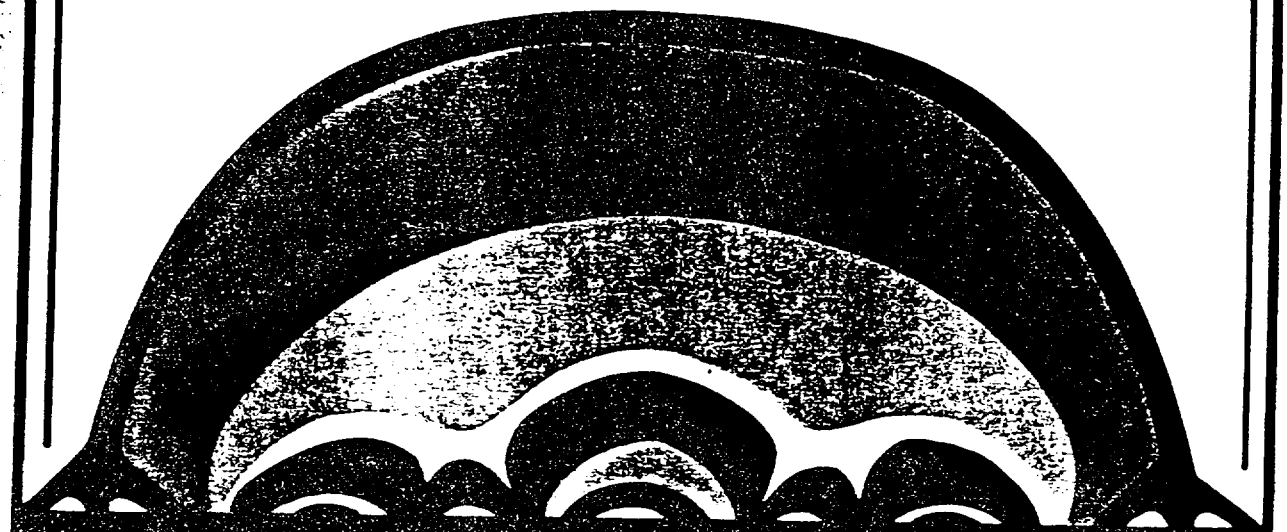

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Table 2.2 Range of Values of Hydraulic Conductivity and Permeability

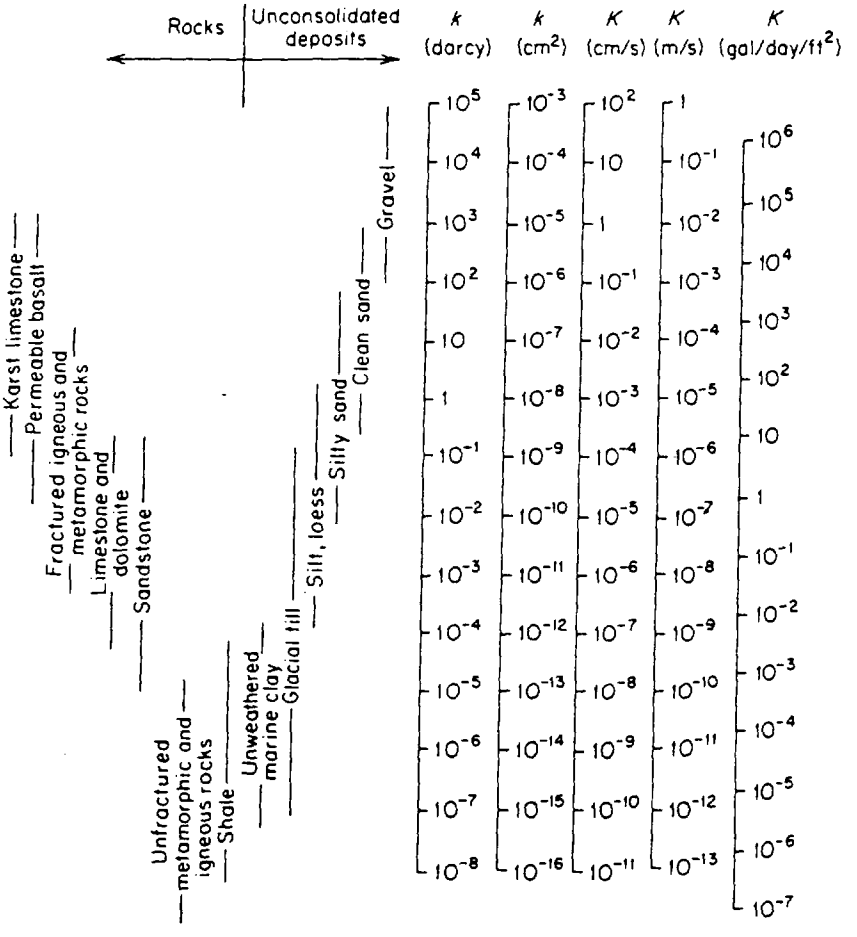


Table 2.3 Conversion Factors for Permeability and Hydraulic Conductivity Units

	Permeability, k*			Hydraulic conductivity, K		
	cm^2	ft^2	darcy	m/s	ft/s	gal/day/ft^2
cm^2	1	1.08×10^{-3}	1.01×10^{8}	9.80×10^{2}	3.22×10^{3}	1.85×10^{9}
ft^2	9.29×10^{2}	1	9.42×10^{10}	9.11×10^{5}	2.99×10^{6}	1.71×10^{12}
darcy	9.87×10^{-9}	1.06×10^{-11}	1	9.66×10^{-6}	3.17×10^{-5}	1.82×10^{1}
m/s	1.02×10^{-3}	1.10×10^{-6}	1.04×10^{5}	1	3.28	2.12×10^{6}
ft/s	3.11×10^{-4}	3.35×10^{-7}	3.15×10^{4}	3.05×10^{-1}	1	5.74×10^{5}
gal/day/ft^2	5.42×10^{-10}	5.83×10^{-13}	5.49×10^{-2}	4.72×10^{-7}	1.74×10^{-6}	1

*To obtain k in ft^2, multiply k in cm^2 by 1.08×10^{-3}.

C = CLASS
L

0- Inactive
1- All systems with surface water sources.
2- Community systems w/ ground water sources.
3- Non-community
4- All Federal Non-community
5- All DNR owned or operated Non-community
6- Industrial systems Non-community
9- Proposed system

OWNC = Owner Characteristic Codes

C = City
I = Investor
N = County
D = Private Subdivision
F = Federal
S = State
A = Authority
O = Other
W = Association

C = COMMUNITY/NON-COMMUNITY
N

C- Community
P- Non-Transient Non-Community
N- Transient Non-community
I- Inactive

R = REGION
G

1 = North
2 = Middle
3 = Southwest
4 = Southeast

TR = SERVICE AREA TYPE
NT

Major category	Subcategory	
R- Residential	1- Residential	4- Schools
	2- Mobile Home Park	5- Instutions (prisons)
	3- Subdivision	6- Wholesaler
		9- Other Residential
T- Transient	1- Recreation (parks,beaches,marinas,campgrounds)	
	2- Service stations	5- Highway Rest Area
	3- Summer Camps	6- Motel/Hotels
	4- Restaurant	7- Wholesalers
		9- Other Transient (visitor center,church)
S- Semi-Residential	1- School	
	2- Institutions (prisons, children homes)	
	3- Medical (hospital, nursing homes)	
	4- Industrial/Agricultural (factory, labor camps)	
	5- Day Care Centers	
	6- Wholesaler	
	9- Other	

SOURCE TYPE

S- Surface
P- Purchased Surface
T -Spring source
G- Ground
W- Purchased Ground

The following codes are old and may be seen on old printouts from Prime. Do not use these old codes on any new reports.

Old Deletion Codes

c- computer/data entry error
e- collection error
m- mail problems
n- new owner/operator
p- proof of sampling
s- late sample
u- unusual circumstance
w- on county water
z- class zero

Old Violation Codes

1- FTM
3- insuf. samples
4- MCL (MF)
6- MCL (MT)
9- resample viol.

Old Follow-Up Action Codes

E- PN Ltr.
J- NOV Ltr.
L- Adm. Order
*- Boiled water notice
F- Cert. of PN
K- Consent Order
M- Monetory Penalty

Some Cross References for PCOD's

PCOD	FRDS	
31501	3000	Total Coliform (MF)
31505	3000	Total Coliform (MPN)
39180	2984	Trichloroethylene
01007	1010	Barium

REFERENCE 19

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Crawford COUNTY

0790000 Roberta CLASS: 2 TOTAL SOURCES: 19

001 DRILLED WELL #1 NW END OF FIELD	TYPE: G	STATUS: P	LAT: 324253	LON: 0840116	POP: 1102		
002 DRILLED WELL #2 MIDDLE	TYPE: G	STATUS: P	LAT: 324228	LON: 0840103	POP: 1102		
003 DRILLED WELL #3 SE END OF FIELD	TYPE: G	STATUS: P	LAT: 324229	LON: 0840103	POP: 1102		

0790001 GSA-Camp Martha Johnston CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 324622	LON: 0835252	POP: 150		

0790007 Camp Echeeconnee CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 323952	LON: 0834035	POP: 100		
002 DRILLED WELL #2	TYPE: G	STATUS: P	LAT: 324250	LON: 0834926	POP: 100		

0790008 Stackler's Mobile Home Park CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 324519	LON: 0835058	POP: 100		

0790009 Benevolence Baptist Church CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 323631	LON: 0835904	POP: 70		

0790010 Big Six Farms-Homer CLASS: 6 TOTAL SOURCES: 1

001 DEEP WELLS	TYPE: G	STATUS: P	LAT: 000000	LON: 0000000	POP: 30		

0790011 Land of Promise CLASS: 3 TOTAL SOURCES: 1

001 DEEP WELLS	TYPE: G	STATUS: P	LAT: 000000	LON: 0000000	POP: 900		

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Peach COUNTY

2250000 Byron CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323923 LON: 0834528 POP: 1960
NEXT TO UTILITIES BLDG

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324041 LON: 0834627 POP: 1960
WILLIAMS ST.

2250001 Ft. Valley CLASS: 2 TOTAL SOURCES: 5

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323343 LON: 0835326 POP: 10505
MCLEAN PLANT

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323343 LON: 0835326 POP: 10505
MCLEAN PLANT

003 DRILLED WELL #3 TYPE: G STATUS: P LAT: 323245 LON: 0835314 POP: 10505
MCLEAN HWY 49S

004 DRILLED WELL #4 TYPE: G STATUS: P LAT: 323159 LON: 0835343 POP: 10505
JONES ST

005 DRILLED WELL #5 TYPE: G STATUS: P LAT: 323159 LON: 0835343 POP: 10505
JONES ST

2250002 USDA-Research Service CLASS: 4 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323915 LON: 0834418 POP: 55
NEXT TO OFFICES

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323929 LON: 0834940 POP: 55
FIELD

2250003 Pecan Haven Mobile Home Park CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323937 LON: 0834238 POP: 150
HWY 41

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323937 LON: 0834238 POP: 150
HWY 41

#1

2250005 Rolling Hills Mobile Home Park CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323253 LON: 0835604 POP: 70
CR 167

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323253 LON: 0835604 POP: 70
CR 167

2250006 Waffle House, Inc.No. 419 CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323642 LON: 0834428 POP: 41
247C

2250008 Mobile Manor Estates CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323159 LON: 0834259 POP: 75
HWY 41S

2250009 Southern Kitchen CLASS: 3 TOTAL SOURCES: 1

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Peach COUNTY

001 DRILLED WELL #1 247C — TYPE: G STATUS: P LAT: 323621 LON: 0834433 POP: 50

2250011 BSA-Camp Benjamin Hawkins — CLASS: 3 TOTAL SOURCES: 1

001 DOGWOOD WELL — TYPE: G STATUS: P LAT: 324037 LON: 0834604 POP: 500

002 LODGE HILL WELL — TYPE: G STATUS: P LAT: 324052 LON: 0834621 POP: 500

003 LAKESIDE WELL — TYPE: G STATUS: P LAT: 324120 LON: 0834619 POP: 500

004 MAIN WELL — TYPE: G STATUS: P LAT: 324311 LON: 0834649 POP: 500

2250012 Butchs Trailer Park — CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 HWY 49N — TYPE: G STATUS: P LAT: 325513 LON: 0834837 POP: 40

002 DRILLED WELL #2 HWY 49N — TYPE: G STATUS: P LAT: 325513 LON: 0834837 POP: 40

2250017 Days Inn of America — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 247C — TYPE: G STATUS: P LAT: 323642 LON: 0834428 POP: 500

2250019 Ponderosa Parks — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 HWY 96 — TYPE: G STATUS: P LAT: 323236 LON: 0834411 POP: 30

2250021 Pyrotecnic Specialties — CLASS: 6 TOTAL SOURCES: 2

001 DRILLED WELL #1 CR 179 — TYPE: G STATUS: P LAT: 324007 LON: 0834708 POP: 50

002 DRILLED WELL #2 CR 179 — TYPE: G STATUS: P LAT: 324022 LON: 0834722 POP: 50

2250024 Red Carpet Inn — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 247C — TYPE: G STATUS: P LAT: 323617 LON: 0834433 POP: 125

2250029 BSA-Camp Benjamin Hawkins #1 — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 DOGWOOD — TYPE: G STATUS: P LAT: 324037 LON: 0834604 POP: 50

2250030 BSA-Camp Benjamin Hawkins #2 — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 LODGE HILL — TYPE: G STATUS: P LAT: 324052 LON: 0834621 POP: 50

2250031 Camp Benjamin Hawkins #3 — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 LAKESIDE — TYPE: G STATUS: P LAT: 324120 LON: 0834619 POP: 50

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Peach COUNTY

2250032 Big Six Farm--Zenith CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323640 LON: 0835835 POP: 50

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Houston COUNTY

1530000 Centerville CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 COLLINS AVE.	TYPE: G	STATUS: P	LAT: 323828	LON: 0834118	POP: 6129	—	#2
002 DRILLED WELL #2 LOCAL - NEW WATER PLANT	TYPE: G	STATUS: P	LAT: 322811	LON: 0834503	POP: 6129		
003 DRILLED WELL #3 ARCHDALE RD	TYPE: G	STATUS: P	LAT: 323735	LON: 0833939	POP: 6129	not in use	
004 DRILLED WELL #4 OLD WATER PLANT	TYPE: G	STATUS: P	LAT: 322654	LON: 0834408	POP: 6129		
005 DRILLED WELL #5 REMOTE-NEW WATER PLANT	TYPE: G	STATUS: P	LAT: 322751	LON: 0834447	POP: 6129		
006 DRILLED WELL #6 OLD WATER PLANT	TYPE: G	STATUS: P	LAT: 322705	LON: 0834407	POP: 6129		

1530002 Houston County-Elberta CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 DUNBAR	TYPE: G	STATUS: P	LAT: 323856	LON: 0833919	POP: 2657	—	#3
002 DRILLED WELL #2 ELBERTA	TYPE: G	STATUS: P	LAT: 323616	LON: 0833719	POP: 2657		

1530003 Houston County-Elko CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 ELKO W RAILROAD ST	TYPE: G	STATUS: P	LAT: 321929	LON: 0834217	POP: 138

1530004 Houston County-Hayneville CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 HAYNEVILLE HWY 341	TYPE: G	STATUS: P	LAT: 322250	LON: 0833707	POP: 385

1530005 Houston County-Henderson CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 HENDERSON HWY 26E	TYPE: G	STATUS: P	LAT: 322015	LON: 0834714	POP: 360

1530006 Perry CLASS: 2 TOTAL SOURCES: 4

001 NEW WELL #1	TYPE: G	STATUS: P	LAT: 322811	LON: 0834503	POP: 8500
002 NEW WELL #2	TYPE: G	STATUS: P	LAT: 322751	LON: 0834447	POP: 8500
003 OLD WELL #1	TYPE: G	STATUS: P	LAT: 322654	LON: 0834408	POP: 8500
004 OLD WELL #2	TYPE: G	STATUS: P	LAT: 322705	LON: 0834407	POP: 8500

1530007 Warner Robins CLASS: 2 TOTAL SOURCES: 13

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 323612	LON: 0833649	POP: 42900

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Houston COUNTY

	WARNER ST									
002	DRILLED WELL #2 BAY ST	TYPE: G	STATUS: P	LAT:	323602	LON:	0833712	POP:	42900	
003	DRILLED WELL #3 CRESTWOOD ST	TYPE: G	STATUS: P	LAT:	323601	LON:	0833651	POP:	42900	
004	DRILLED WELL #4 S DAVIS ST	TYPE: G	STATUS: P	LAT:	323629	LON:	0833639	POP:	42900	
005	DRILLED WELL #5 TYREE	TYPE: G	STATUS: P	LAT:	323531	LON:	0833835	POP:	42900	
006	DRILLED WELL #6 WISCONSIN	TYPE: G	STATUS: P	LAT:	323744	LON:	0833733	POP:	42900	Not located within radius
007	DRILLED WELL #7 HAWAII ST	TYPE: G	STATUS: P	LAT:	323805	LON:	0833737	POP:	42900	NLWR
008	DRILLED WELL #8 BELMONT	TYPE: G	STATUS: P	LAT:	323530	LON:	0833852	POP:	42900	
009	DRILLED WELL #9 DONNA ST	TYPE: G	STATUS: P	LAT:	323536	LON:	0833826	POP:	42900	
010	DRILLED WELL 10 TABOR DR	TYPE: G	STATUS: P	LAT:	323800	LON:	0833641	POP:	42900	NLWR
011	DRILLED WELL 11 TABOR	TYPE: G	STATUS: P	LAT:	323541	LON:	0833444	POP:	42900	
012	DRILLED WELL 12 NOT ON LINE	TYPE: G	STATUS: P	LAT:	323818	LON:	0833924	POP:	42900	#4
013	DRILLED WELL 13 NOT ON LINE	TYPE: G	STATUS: P	LAT:	323758	LON:	0833924	POP:	42900	NLWR
014	DRILLED WELL 14 CARL VINSON PKWY	TYPE: G	STATUS: P	LAT:	323634	LON:	0834001	POP:	42900	
015	DRILLED WELL 15 CARTER WOODS DR	TYPE: G	STATUS: P	LAT:	323619	LON:	0834013	POP:	42900	

1530011 Gleaton Mobile Home Park CLASS: 2 TOTAL SOURCES: 2

001	DRILLED WELL #1 HWY 41	TYPE: G	STATUS: P	LAT:	323608	LON:	0834239	POP:	115	
002	DRILLED WELL #2 HWY 41	TYPE: G	STATUS: P	LAT:	323608	LON:	0834239	POP:	115	

1530017 Medusa Cement Corp. CLASS: 6 TOTAL SOURCES: 1

001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	322429	LON:	0833801	POP:	152	

1530018 G Heileman Brewing Company CLASS: 6 TOTAL SOURCES: 4

001	DRILLED WELL #1 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625
002	DRILLED WELL #2 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625
003	DRILLED WELL #3 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625
004	DRILLED WELL #4 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625

1530021 Houston County-Feagin Mill CLASS: 2 TOTAL SOURCES: 5

001	DRILLED WELL #1 FEAGIN MILL	TYPE: G	STATUS: P	LAT:	323421	LON:	0833932	POP:	12880
002	DRILLED WELL #2 SANDERFUR	TYPE: G	STATUS: P	LAT:	323152	LON:	0834100	POP:	12880
003	DRILLED WELL #3 QUAIL RUN	TYPE: G	STATUS: P	LAT:	323547	LON:	0834227	POP:	12880

1530037 Christ Church Home For Aged CLASS: 2 TOTAL SOURCES: 3

001	DRILLED WELL #1 HWY 41	TYPE: G	STATUS: P	LAT:	323125	LON:	0834304	POP:	31
002	DRILLED WELL #2 HWY 41	TYPE: G	STATUS: P	LAT:	323125	LON:	0834304	POP:	31

1530042 USAF-Robins AB Main CLASS: 2 TOTAL SOURCES: 11

001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	323717	LON:	0833530	POP:	5690
002	DRILLED WELL #2	TYPE: G	STATUS: P	LAT:	323721	LON:	0833522	POP:	5690
004	DRILLED WELL #4	TYPE: G	STATUS: P	LAT:	323552	LON:	0833522	POP:	5690
005	DRILLED WELL #5	TYPE: G	STATUS: P	LAT:	323644	LON:	0833518	POP:	5690
007	DRILLED WELL #7	TYPE: G	STATUS: P	LAT:	323602	LON:	0833446	POP:	5690
008	DRILLED WELL #8	TYPE: G	STATUS: P	LAT:	323854	LON:	0833529	POP:	5690 NLWR

1530045 USAF-Robins AB Rapcon CLASS: 4 TOTAL SOURCES: 1

001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	323851	LON:	0833631	POP:	35

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Houston COUNTY

1530046 Valley View Trailer Court CLASS: 9 TOTAL SOURCES: 0

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 000000 LON: 0000000 POP: 0

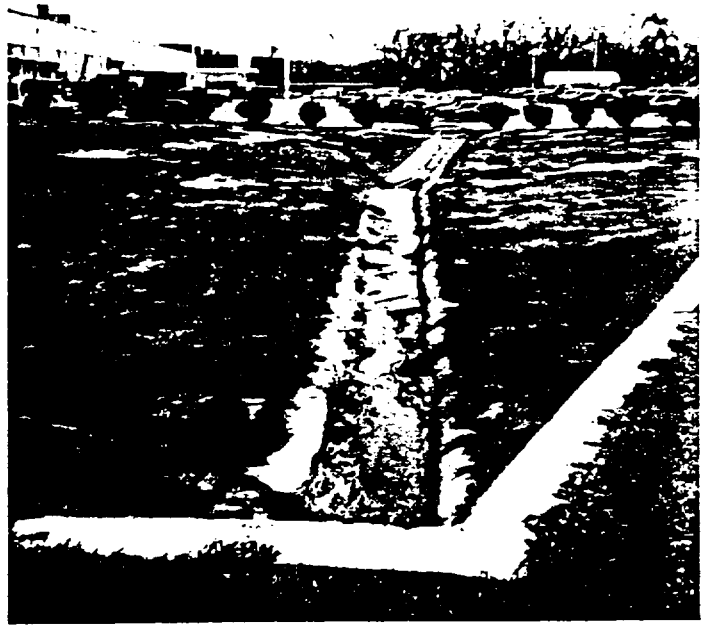
PHOTOGRAPHS

ITT SUSPENSION SYSTEMS

MACON

BIBB COUNTY

NOVEMBER 16, 1984



Suspension Systems Division
P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4

REFERENCE 12

MIDDLE GEORGIA REGION
JAN 7 1985
ENVIRONMENTAL PROTECTION DIVISION

January 3, 1985

Ms. Karen S. Gottwald
Environmental Specialist
Middle Georgia Region

Re: Waste material in storm drainage ditch from ITT Suspension Systems - Bibb County, Georgia

Dear Ms. Gottwald:

In response to your letter of December 17, 1984 the following actions have been taken to eliminate the problem.

1. All grinding fluid wastes are now stored in leak proof containers and disposed in the Macon Bibb County disposal site.

2. The aqua blue discharge from the cooling tower has been piped closed. The connection of this to the sanitary drain will be completed by January 7, 1985.

3. The drainage ditch was removed of all wastes and disposed of in the Macon Bibb County disposal site per Mr. Gillespie's direction (letter attached).

Sincerely,

D.A. Mynatt
General Manager

Enc.

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

December 20, 1984

Mr. Bobby Copeland
ITT Suspension Systems
P. O. Box 61566
Macon, Georgia 31208

Re: Waste Material in Storm Drainage Ditch from
ITT Suspension Systems - Bibb County, Georgia

Dear Mr. Copeland:

The purpose of this letter is to confirm our telephone conversation on December 19,1984 whereby this office approved the disposal of this waste material in the Macon-Bibb County disposal site. This approval is based upon the lab analysis of the material previously submitted to this office which indicated the presence of no hazardous materials.

If you have questions regarding this matter, please feel free to contact this office.

Sincerely,

Harold C. Gillespie

Harold C. Gillespie, P. E.
Regional Manager
Middle Georgia Region

JAN 7 1985

HCG:pj

cc: Tim Cash
Sid Gibbs

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

TRIP REPORT
February 7, 1984

REFERENCE 13

SITE NAME & LOCATION: ITT Suspension Systems Division, Macon, Georgia

TRIP BY: Alan R. Laros ARL

ACCOMPANIED BY: None

DATE OF TRIP: January 31, 1984, 9:[illegible]

OFFICIALS CONTACTED: Joe Hyder, Plant Chemist, P.O.Box 10278, Macon, GA 31208 Phone: 912/781-0170
Eugene Parrish, Quality Control Analyst, P.O.Box 10278, Macon, GA 31208 Phone: 912/781-0170

REFERENCE: Trip Report, letter and ISS Inspection report dated 12/21/82

COMMENTS:

This facility manufactures shock absorbers and McPherson struts for the Ford Motor Company. A chroming process is used for plating the steel support rods used in both applications and as a result (F006) chromic acid sludge is generated (see enclosed diagram of plating operation). Liquid waste, including drag-out and wash and rinse water, is run through a wastewater treatment system. Wastewater is converted from hex to tri-valent chrome using sodium bisulfite.

The liquid is then run through a filter press, is pH adjusted, and finally is disposed via a POTW. The dewatered (F006) sludge is deposited in a 20 cubic yard roll-off container for temporary storage. ITT, Macon, is now using Chem Waste Management of Alabama both as transporter and as disposer of this sludge.

As per Georgia's Rules for Hazardous Waste Management §§264.1g(6) and 265.1(c)(10), the wastewater treatment system, including the filter press does not need a hazardous waste facility permit (See Georgia RIM #1 dated 11/22/83). The wastewater treatment system is, however, regulated by and was inspected for the requirements under Subpart B §266.10.

The process chromic acid tanks are drained yearly during Christmas week. The chromic acid is put into temporary holding tanks while the sludge is removed from the primary tanks. This sludge is then run through the waste treatment process and the chromic acid is put back into the process tanks for re-use. The entire chrome plating operation, consisting of a series of steel tanks, rests on a reinforced concrete floor with a 10 inch concrete berm surrounding it. All floor

drains, both inside and outside the bermed area, lead into the wastewater treatment system.

In addition to the above, this facility generates (F002) wastes in the form of spent Methylene Chloride and 1,1,1, Trichloroethane solvents. These solvents are generated in small amounts (only 12 drums have accumulated in the drum storage area since February 11, 1982). On that date Ramsey Chemical Company removed a load of spent solvents from the facility "as documented by manifest". Minor corrections in drum storage practices were recommended during my inspection.

An additional filter press system is used to separate metal grinding sludge from waste cutting oil. The oil is removed from the facility by Carl Durden Waste Oil Company of Warner Robins, Georgia. The metal grindings are disposed along with all non-hazardous solid wastes by Browning Ferris.

Shock absorbers are painted via a dip tank. The only waste which is generated by this process is a sludge from periodic clean-out of the dip tank. I have requested EP and flash point tests on both the paint sludge and the cutting oil.

All paperwork violations noted by Margaret Markey on her 11/22/83 inspection have been corrected.

CONCLUSIONS:

This facility qualifies as a generator of hazardous waste and has the option of withdrawing their Part A application for treatment and storage of hazardous waste.

RECOMMENDATIONS & FOLLOW-UP REQUIRED:

This company does not plan to continue trying to delist its (F006) sludge. Following receipt of my inspection report and compliance status letter they plan to request withdrawal of their Part A application.

PHOTOGRAPHS: None

REVIEWED BY: KLO 2/8/84

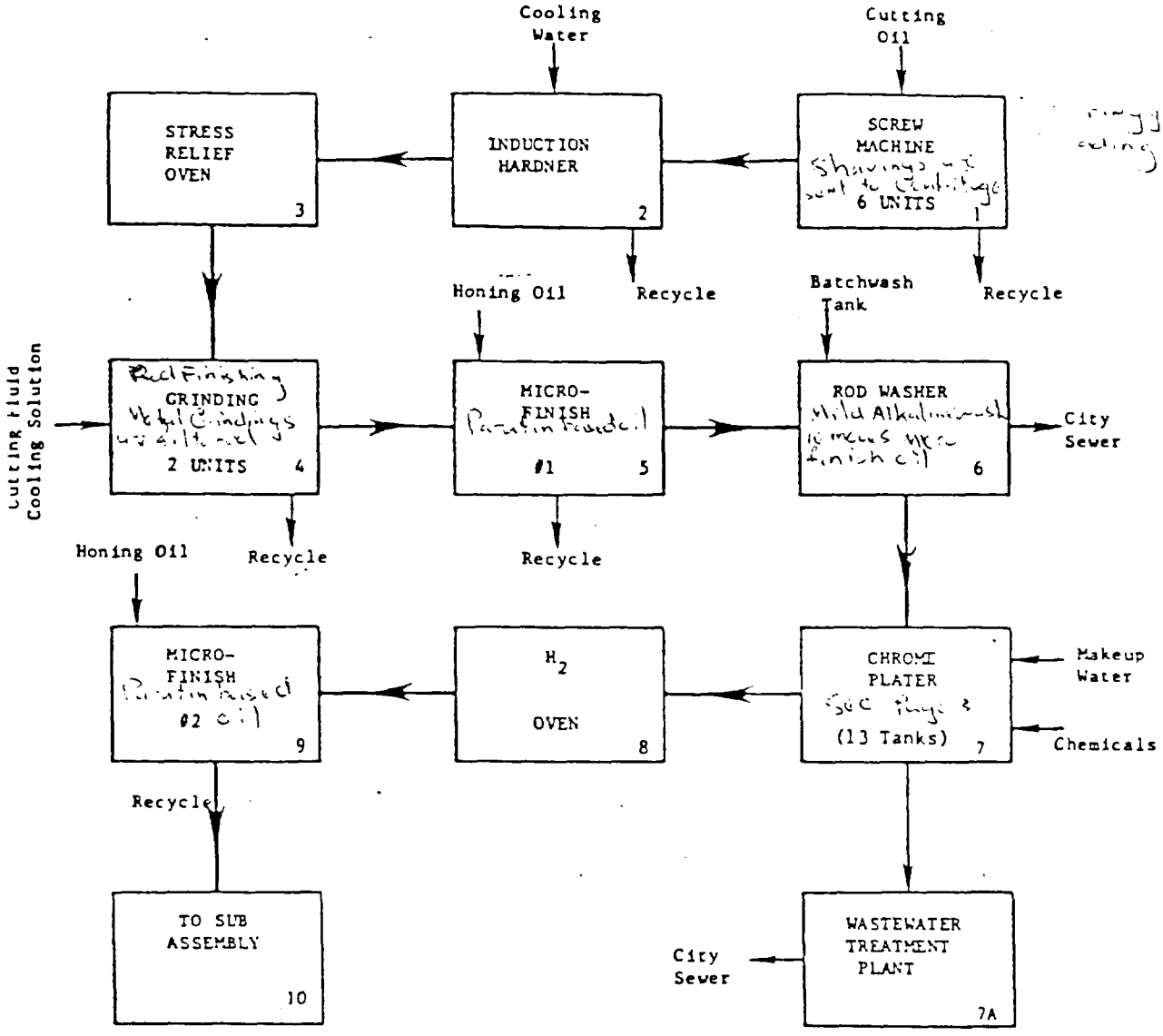
ATTACHMENTS: Copies of drawings for (1) process flow; (2) chrome plater flow; (3) schematic of wastewater treatment plant; and (4) Material Safety Data Sheet for shock absorber paint.

FILE: ITT Suspension Systems Division, Macon (R)

AL:mg:3122B

FIGURE 1

PROCESS DIAGRAM



Notes:

(1) Honing & Cutting Oils are centrifuged to remove metal shavings and recycled.
(2) Cooling water is recycled by use of cooling tower.
(3) Rod washer is batch process discharged directly to city sewer.

PT-61 (Rev. 8/89) REAL ESTATE TRANSFER TAX DECLARATION (Please Type or Print)

SECTION A-SELLER NAME
ITT CORPORATION

MAILING ADDRESS (Street and number)
320 Park Avenue

CITY, STATE and ZIP CODE
New York, New York 10022

SECTION B-BUYER NAME
BOEING GEORGIA, INC.

MAILING ADDRESS (Street and number)
P.O. Box 7730, MSKII-60

CITY, STATE AND ZIP CODE
Wichita, Kansas 67277-7730

SECTION C-PROPERTY IDENTIFICATION

1. LOCATION (Street, Route, Hwy. etc.) 7900 Industrial Highway
2. COUNTY Bibb
3. IF WITHIN CITY LIMITS GIVE CITY NAME
4. ACRES
5. DISTRICT 4th
6. LAND LOT 172
7. SUB LOT AND BLOCK
8. LAST LISTED ON AD VALOREM TAX DIGEST UNDER THE NAME OF
9. YEAR 90 BILL NUMBER
10. MAP AND PARCEL NUMBER 015-200-B-0035

SECTION D-SALE INFORMATION

1. DATE 1/23/90
2. SALE CONDITIONS
3. CHECK INTENDED USE [ ] R [ ] A [ ] C [X] I

SECTION E-RECORDING INFORMATION

1. DATE
2. DEED BOOK 1828 PAGE 240
3. PLAT BOOK PAGE

SECTION F-TAX COMPUTATION

1. Actual value of consideration received by seller (Fill out 1a below only when value is not known)	2,875,000	00
REFERENCE 14		
4. Net Taxable Value (1 minus 2 minus 3)	2,875,000	00
5. TAX DUE at 10¢ per $100 or fraction thereof. (Minimum $1.00)	2,875	00

SECTION G-SELLER CERTIFICATION

I hereby certify that all the items of information entered on this transfer form PT-61 are true and correct to the best of my knowledge and belief.

Signature JAMES N. GEIGER (Seller or Authorized Agent) 1/23/90 (Date)

SECTION H-CLERK OF COURT CERTIFICATION

I hereby certify that the recording information in Section E is correct and that the tax due in Section F5 is computed correctly based upon the information supplied in Section F by the seller or his authorized agent.

Signature Aline T. Byrd (Clerk of Superior Court) 1-25-90 (Date)

TAX ASSESSOR'S COPY

137,280 = 151,980 ⊔ 18.92 ⊔
14,700

NOTE: THE CONTENTS OF THIS DISCLOSURE (FORM PT-61) SHALL BE CONFIDENTIAL AND SHALL NOT BE SUBJECT TO INSPECTION BY ANY PERSON OTHER THEN AUTHORIZED PERSONNEL OF APPROPRIATE TAX OFFICIALS.

TO BE COMPLETED BY THE TAX ASSESSOR'S OFFICE

SECTION I - ASSESSMENT INFORMATION

Map and Parcel # Assigned 00150-0035

Sales Conditions FMV

Intended Use ( ) R ( ) A ( ) C (X) I

ASSESSMENTS

Code	Assessed Value
I-1, I-4	$ 153395
	$
	$ Whse / Mfg
	$
	$
	$
	$
	$
	$
	$

COMMENTS

SECTION J-OPTIONAL INFORMATION

Adjusted Sales Price $ 2875000

Reason for Adjustment

Vacant/Improved I

Sq. Ft. Primary Improvement (Heated) (Unheated)

Economic Age Primary Improvement

Value of Primary Improvement $

Sq. Ft. Assessory Improvements $

Economic Age Assessory Improvements

Value of Assessory Improvements $

Financing Interest Rate

Down Payment $

New Money Borrowed $

Construction Quality

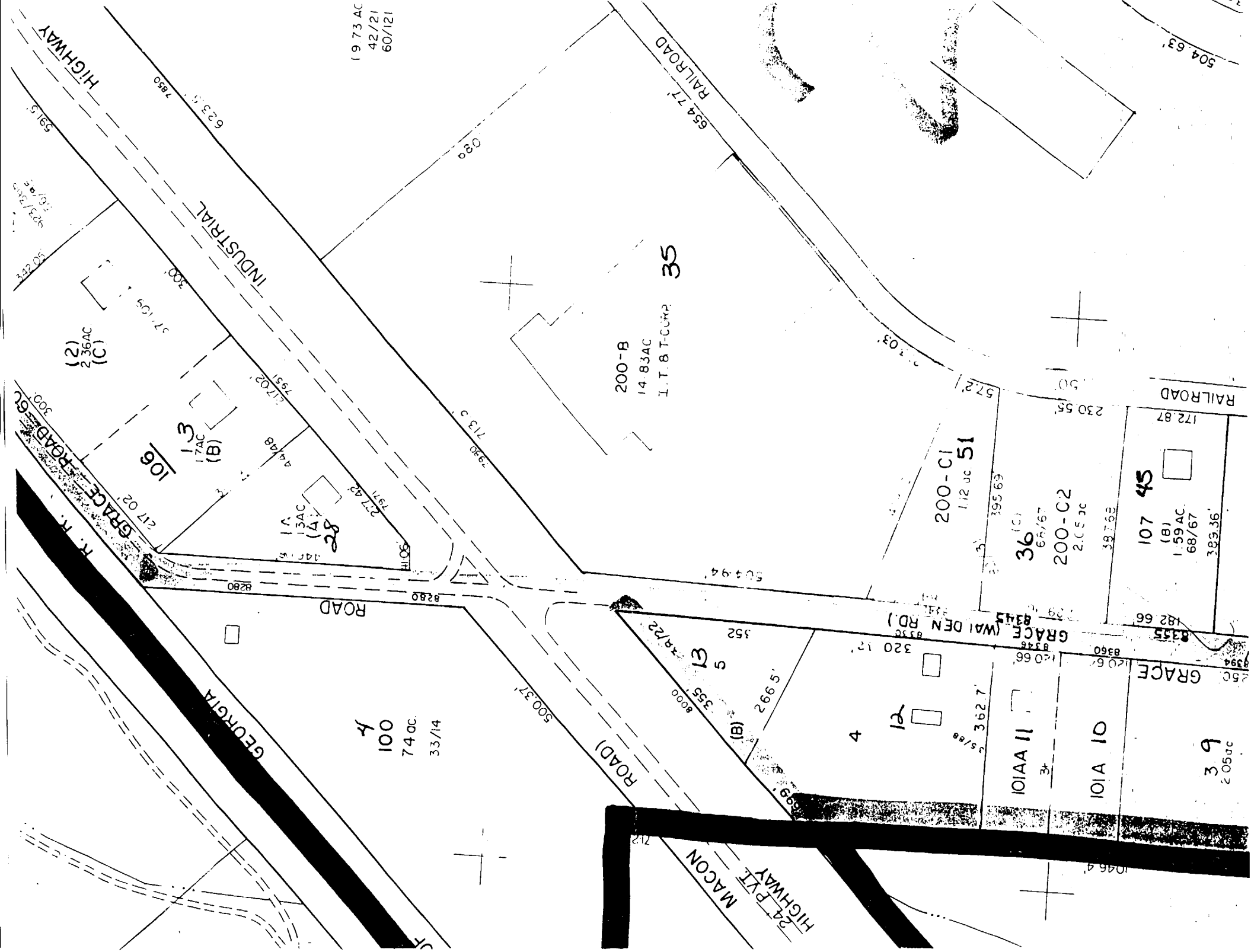
Excellent ( ) Good ( ) AVG ( ) Fair ( ) Poor ( )

Neighborhood Code

SECTION K - ASSESSOR'S CERTIFICATION

I hereby certify that the assessment information in Section I is true and correct to the best of my knowledge and belief.

Signature (Assessor or Appraiser) 2-21-90 (Date)



HIGHWAY
INDUSTRIAL
RAILROAD
GRACE ROAD
GEORGIA
ROAD
GRACE (WALDEN RD.)
GRACE
MACON
HIGHWAY
24' PVT.
35
200-B
14.83AC
I.T.&T-CORP
51
200-C1
1.12 ac
36
200-C2
45
107
(B)
1.59AC
68/67
106
13
1.7AC
(B)
(2)
2.36AC
(C)
28
4
100
74 ac
33/14
13
5
4
12
101AA 11
101A 10
3 9
2.05ac

**** RCRA Notifiers List ****

Run 15.23.54 , 11/13/91 by Joyce Brittian

Data from the Region IV Merge Database.

This run used the following selection criteria (blank means all values accepted, except for facility types):

States:	(Select 1 - 3 or all)
Counties:	(Select 1 - 4 or all)
ZIP Codes:	(Select 1 - 5 or all)
Facility:	(Select one or all)
Leg. district:	(Select one or all)

Facility types: LQG: X SQG: X CEG: X
(X - selected) TSD: X Trans.: X BBL: X REC: X

* NOTE: '-N-' in the report indicates the facility notified for that activity but is not now engaged in that activity. *

Sort:	State, Name, ID	(See below for sort choices)
TC Rule facilities:		(Waste codes D018 - D043)
Waste codes:		(Select 1 - 6 or all)
SIC Codes		(Select 1 - 5 or all)
Owner type:		(Select one or all)
Facilities which accept wastes from offsite:		
Notification date range: from 010180 to 111391		

Individual ID's selected: (1 - 15)

LQG - Large quantity generator (more than 1000 kg per month)
SQG - Small quantity generator (100 - 1000 kg permonth).
CEG - Limited quantity generator (less than 100 kg per month)
TSD - Treat, store, or disposal facility
Trans.- Transporter
BBL - Burner/blender
REC - Recycler

Sort choices:
1 - State, Name, ID
2 - State, County, Name, ID
3 - State, ZIP, Name, ID
4 - State, Legislative District, ID
5 - Name, ID
6 - ID Number

Owner type choices:
P - Private
F - Federal
S - State
C - County
M - Municipal

Total number of handlers is 40268

REFERENCE 15

RCRA Notifiers List State: TN Region IV Merge Database Run 18.13.09 11/13/91

Facility/ID Leg. Dist		Contact - Name		- Phone	Notif.Date	Facil. Type TSD	GEN	TRNS	BBL	REC
BLUE BIRD BODY COMPANY		DOUGLAS MILLER		(912)825-2021	08/26/83	TSD	LQG	-	-	-
GAD980729974	Facil.: NORTH CAMELLIA BLVD		FORT VALLEY	GA	31030 PEACH CO.					
VB	Mail: P O BOX 937		FORT VALLEY	GA	31030					
BLUE BIRD NORTH GEORGIA		ROBERT JOYNER		(404)638-8383	09/02/83	-	LQG	-	-	-
GAD042710590	Facil.: SHATTUCK IND BLVD		LAFAYETTE	GA	30728 WALKER CO.					
JO	Mail: PO BOX 807		LAFAYETTE	GA	30728					
BLUE BIRD WANDERLODGE		GARY REVIS		(912)825-2021	08/19/88	-	LQG	-	-	-
GAD981247984	Facil.: #1 WANDERLODGE WAY		FORT VALLEY	GA	31030 PEACH CO.					
	Mail: P O BOX 937		FORT VALLEY	GA	31030					
BLUE RIBBON CLEANERS		JERRY GREEN		(912)234-8155	07/13/89	-	SQG	-	-	-
GAD981267560	Facil.: 2021 MONTGOMERY RD		SAVANNAH	GA	31405 CHATHAM CO.					
	Mail: 2021 MONTGOMERY RD		SAVANNAH	GA	31405					
BLUE RIDGE MTN CONTRACT CARRIERS		NORRIS KILGORE		(404)226-2525	08/07/87	-	-N-	-	-	-
GAD981236615	Facil.: 835 SHUGART RD		DALTON	GA	30720 WHITFIELD CO.					
	Mail: P O BOX 1947		DALTON	GA	30722					
BMW OF NORTH AMERICA INC		KARL KRUEGER		(912)267-4000	12/21/89	-	SQG	-	-	-
GAD981272370	Facil.: 106 JOE FRANK HARRIS BLVD		BRUNSWICK	GA	31520 GLYNN CO.					
	Mail: 106 JOE FRANK HARRIS BLVD		BRUNSWICK	GA	31520					
BOB & BOBS PAINT & BODY SHOP		BOB HOLLINS		(404)736-3323	10/14/86	-	SQG	-	-	-
GAD981222441	Facil.: 2031 GORDON HWY		AUGUSTA	GA	30909 RICHMOND CO.					
JO	Mail: 2031 GORDON HWY		AUGUSTA	GA	30909					
BOB CAT EQUIPMENT CO		BRAD REDDING		(404)373-2179	01/29/91	-	SQG	-	-	-
GAD981282783	Facil.: 295 PATTERSON AVE		SCOTTSDALE	GA	30079 DE KALB CO.					
	Mail: 295 PATTERSON AVE		SCOTTSDALE	GA	30079					
BOB MADDOX CHRY-PLY		PERRY LANIER		(404)361-6550	10/21/86	-	SQG	-	-	-
GAD981223639	Facil.: 330 FOREST PKWY		FOREST PARK	GA	30050 CLAYTON CO.					
JO	Mail: 330 FOREST PKWY		FOREST PARK	GA	30050					
BOB'S CANDIES INC		GENE SHARP		(912)430-8300	10/15/90	-	SQG	-	BBL	-
GAD981281884	Facil.: 1315 OAKRIDGE DRIVE		ALBANY	GA	31707 DOUGHERTY CO.					
	Mail: P.O. BOX 3170		ALBANY	GA	31708					
BOEING MACHINE PRODUCTS		ROBERT BARRETT		(912)781-3000	08/18/80	TSD	-N-	-	-	-
GAD000615914	Facil.: 7898 41ST HWY S		MACON	GA	31201 BIBB CO.					
JO	Mail: PO BOX 10248 WILSON AIRPORT		MACON	GA	31201					
BOLD CORP		JACK HARTLEY		(912)386-1495	06/26/80	-	-N-	-	-	-
GAD010122364	Facil.: VERNON DR		TIFTON	GA	31794 TIFT CO.					
TR	Mail: PO BOX 1463		TIFTON	GA	31793					

RCRA Notifiers List State: TN Region IV Merge Database Run 18.13.09 11/13/91

Facility/ID Leg. Dist		Contact - Name		- Phone	Notif.Date	Facil. Type TSD	GEN	TRNS	BBL	REC
ISOLYSER CO INC		TRAVIS.W HONEYCUTT		(404)381-7566	06/19/89	-	-	TRNS	-	-
GAD981267180	Facil.: 4350 INTERNATIONAL BLVD NW		NORCROSS	GA	30093 GWINNETT CO.					
	Mail: 4350 INTERNATIONAL BLVD NW		NORCROSS	GA	30093					
ITAPCO COLUMBUS TERMINAL COMPANY		MIKE BLEVINS		(713)580-6101	11/19/80	-	SQG	-	-	-
GAD042816256	Facil.: 5225 MILLER ROAD		COLUMBUS	GA	31909 MUSCOGEE CO.					
	Mail: 616 FM 1960 WEST SUITE 604		HOUSTON	TX	77090					
ITE ELECTRICAL PROD DIV OS SEIMENS-ALLIS		RYAN.H. GARNER		(404)493-1231	07/15/85	-	SQG	-	-	-
GAD981028988	Facil.: 2140 FLINTSTONE DR		TUCKER	GA	30085 DE KALB CO.					
BB	Mail: 2140 FLINTSTONE DR		TUCKER	GA	30085					
ITT - AUTO ELECTRICAL DIV		DAVID BRINSON		(912)377-5570	01/24/85	-	CEG	-	-	-
GAD061427639	Facil.: 20TH & 2ND ST NE		CAIRO	GA	31728 GRADY CO.					
BB	Mail: RTE 2 BOX 477		CAIRO	GA	31728					
ITT GRINNELL CORP		DAVID WILLIAMS		(912)587-2212	11/01/83	-	SQG	-	-	-
GAD065330151	Facil.: US HWY 301 N		STATESBORO	GA	30458 BULLOCH CO.					
BS	Mail: PO BOX 427		STATESBORO	GA	30458					
ITT RAYONIER INC		ROBERT MCCRARY		(912)427-5280	08/18/80	-	LQG	-	BBL	-
GAD075854349	Facil.: US HWY 301 N		JESUP	GA	31545 WAYNE CO.					
WS	Mail: PO BOX 207		JESUP	GA	31545					
ITT SUSPENSION SYSTEMS DIV		DAVID VINSON		(912)781-0170	10/27/80	-	-N-	-	-	-
GAD098584063	Facil.: 7980 INDUSTRIAL HWY		MACON	GA	31208 BIBB CO.					
JO	Mail: PO BOX 6156		MACON	GA	31208					
ITT THOMPSON IND METALS DIVISION		CASH REGISTER		(912)242-4360	08/12/80	-	-N-	-	-	-
GAD000465138	Facil.: 1101 WEST SAVANNAH AVE		VALDOSTA	GA	31601 LOWNDES CO.					
BS	Mail: PO BOX 928		VALDOSTA	GA	31601					
ITT THOMPSON INDUSTRIES DIV		TERRY REESE		(912)242-5228	11/13/80	-	-N-	-	-	-
GAD003301983	Facil.: CLAY RD		VALDOSTA	GA	31601 LOWNDES CO.					
JO	Mail: P O BOX 5307		VALDOSTA	GA	31601					
ITT THOMPSON INDUSTRIES DIV		CASH REGISTER		(912)242-4360	11/19/80	-	-N-	-	-	-
GAD991276189	Facil.: 501 HIGHLAND DR		VALDOSTA	GA	31601 LOWNDES CO.					
	Mail: P O BOX 928		VALDOSTA	GA	31601					
ITW MIMA		JIMMY RUTLEDGE		(404)489-7510	09/20/91	-	SQG	-	-	-
GAD984300103	Facil.: 1320 LESLIE DR		DOUGLASVILLE	GA	30134 DOUGLAS CO.					
	Mail: 1320 LESLIE DR		DOUGLASVILLE	GA	30134					
IVY-COILE MOTORS		DAN.M. BARRETT		(404)549-7555	03/18/86	-	SQG	-	-	-
GAD033498536	Facil.: 3640 ATLANTA HWY		ATHENS	GA	30606 CLARKE CO.					
JO	Mail: P O BOX 5338		ATHENS	GA	30604					

B&V WASTE SCIENCE AND TECHNOLOGY CORP.

REFERENCE 16

TELEPHONE MEMORANDUM

USEPA
ARCS IV Site Assessment
RCRA Status of ITT Suspension Sys.

BVWST Project 52011.045
BVWST File E.1
June 10, 1992
1:05 PM

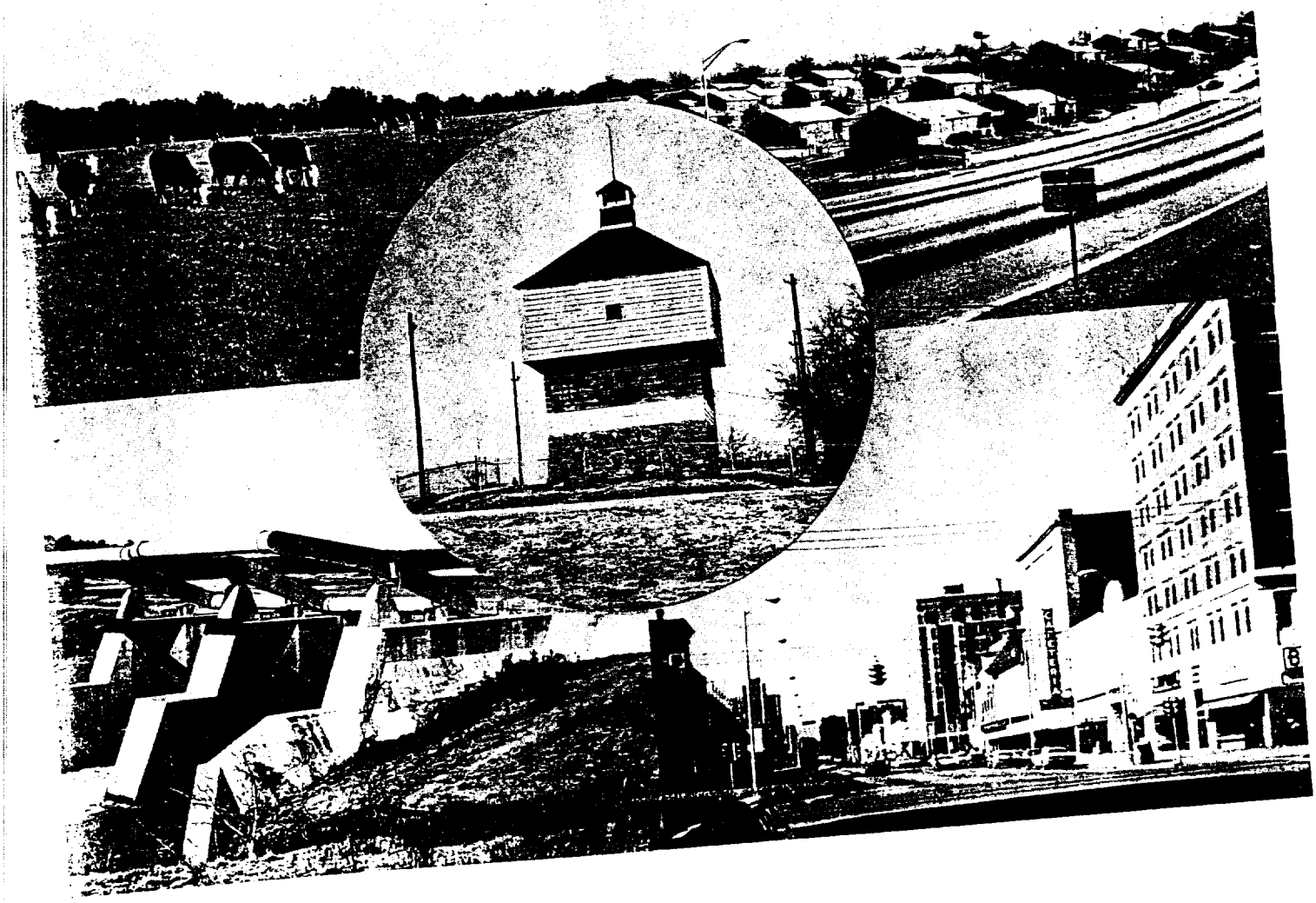
To: Harry Desai
Company: USEPA, RCRA Division
Phone No.: (404)347-3433

Recorded by: Bryan Williams

I spoke with Harry Desai, the Georgia contact with RCRA downtown concerning the status of the ITT Suspension Systems facility. He stated that Boeing Machine is indeed a TSD facility and separate from the ITT site they purchased in 1990. He also said that if the facilities have two distinct EPA ID №s then they cannot be the same facility or site.

REFERENCE 17

SOIL SURVEY OF
Bibb County, Georgia



United States Department of Agriculture
Soil Conservation Service

In cooperation with
University of Georgia, College of Agriculture
Agricultural Experiment Stations

cover crops, and grasses and legumes in the cropping system help to reduce runoff and control erosion.

This Faceville soil has high potential for loblolly pine and slash pine. Limitations for woodland use and management are not significant.

This soil has high potential for most urban uses. The clayey subsoil is a limitation for some uses. In most places, this limitation can be overcome by good design and construction. Capability subclass IIIe; woodland group 3o.

FsB—Fuquay loamy sand, 1 to 5 percent slopes. This well drained, nearly level or very gently sloping soil is on ridgetops and hillsides on Sand Hills uplands. Slopes are mostly smooth and convex. Areas are 5 to 60 acres in size.

Typically, the surface layer is dark grayish brown loamy sand and about 7 inches thick. The subsurface layer is loamy sand and extends to a depth of 24 inches; it is brown in the upper part and yellowish brown in the lower part. The subsoil extends to a depth of more than 65 inches. The upper part of the subsoil is yellowish brown sandy loam, the middle part is yellowish brown sandy clay loam and has red and light yellowish brown mottles, and the lower part is sandy clay loam and is mottled strong brown, light yellowish brown, and red. Plinthite is in the subsoil beginning at a depth of about 40 inches. It makes up 5 to 15 percent of the lower part of the subsoil. Nodules of ironstone are in the soil to a depth of about 40 inches.

Included with this soil in mapping are a few areas of Cowarts, Lakeland, and Norfolk soils and some areas of soils that have 5 to 15 percent nodules of ironstone in the upper part.

This soil is low in natural fertility and in content of organic matter. It is strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops, small grain, hay, and pasture. Low available water capacity and low fertility are limitations. Returning crop residue to the soil helps to overcome these limitations.

This Fuquay soil has medium potential for loblolly pine and slash pine. Equipment limitations and seedling mortality are management concerns on this soil.

This soil has high potential for most urban uses. The lower part of the subsoil percs slowly, and this is a limitation for septic tank absorption fields. In most places, this limitation can be overcome by increasing the size of the absorption areas or modifying the filter field. Capability subclass IIs; woodland group 3s.

FsC—Fuquay loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on hillsides on Sand Hills uplands. Slopes are mostly smooth and convex. Areas are 5 to 30 acres in size.

Typically, the surface layer is grayish brown loamy sand about 6 inches thick. The subsurface layer is light yellowish brown loamy sand and extends to a depth of 26 inches. The subsoil extends to a depth of more than 65 inches. The upper part of the subsoil is brownish yellow sandy loam, the middle part is yellowish brown sandy clay loam and has red, strong brown, and light yellowish brown mottles, and the lower part is sandy clay loam and is mottled strong brown, yellowish brown, red, and light gray. Plinthite is in the subsoil beginning at a depth of about 45 inches, and makes up 5 to 15 percent of the lower part. Nodules of ironstone extend to a depth of about 45 inches.

Included with this soil in mapping are a few areas of Cowarts and Lakeland soils. Also included are small areas of soils that have 5 to 15 percent nodules of ironstone in the upper part of the soil.

This soil is low in natural fertility and in content of organic matter. It is strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops, small grain, hay, and pasture. Slope, low available water capacity, and low fertility are limitations. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, cover crops, grasses and legumes in the cropping system, and returning crop residue to the soil help to overcome these limitations.

This Fuquay soil has medium potential for loblolly pine and slash pine. Equipment limitations and seedling mortality are management concerns on this soil.

This soil has high potential for most urban uses. The lower part of the subsoil percs slowly, and this is a limitation for septic tank absorption fields. In most places, this limitation can be overcome by good design and construction. Capability subclass IIIe; woodland group 3s.

Gr—Grady sandy loam. This poorly drained, nearly level soil is in saucer-shaped depressions and sinks in the Coastal Plain. Areas are 2 to 30 acres in size.

Typically, the surface layer is very dark grayish brown sandy loam about 6 inches thick. The subsoil extends to a depth of 60 inches or more. The upper few inches of the subsoil is gray sandy clay loam and has strong brown mottles, the middle part is gray sandy clay and clay and has yellowish brown mottles, and the lower part is gray sandy clay and has yellowish brown and red mottles.

Included with this soil in mapping are small areas of Grady clay loam and a few areas of Osier soils.

This soil is low in natural fertility and medium in content of organic matter. It is very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is slow, and available water capacity is medium. Tilth is good. This soil is commonly saturated or flooded during winter and spring, limiting the growth of plants.

This soil has low potential for cultivated crops. Wetness and flooding are limitations. Potential for pasture is medium.

This Grady soil has high potential for loblolly pine, slash pine, sweetgum, and water tupelo. Wetness is the main limitation to equipment use in managing and harvesting trees. Logging during the drier seasons helps to overcome this limitation. Drainage measures are needed to help overcome high seedling mortality.

This soil has very low potential for most urban uses. Wetness and flooding are limitations and are difficult to overcome. Capability subclass Vw; woodland group 2w.

HyB—Helena sandy loam, 2 to 6 percent slopes. This moderately well drained, very gently sloping soil is mainly on ridgetops on Piedmont uplands. Slopes are smooth and convex. Areas are 10 to 60 acres in size.

Typically, the surface layer is dark grayish brown sandy loam about 7 inches thick. The subsurface layer is light yellowish brown sandy loam and extends to a depth of 11 inches. The subsoil extends to a depth of 40 inches. The upper few inches of the subsoil is strong brown sandy clay and has light brownish gray mottles, the middle part is strong brown clay and has light brownish gray and grayish green mottles, and the lower part is yellowish brown sandy clay loam and has strong brown and light brownish gray mottles. The underlying material, to a depth of 60 inches or more, is strong brown sandy loam and has brownish yellow mottles. The middle part of the subsoil is very firm, sticky, and very plastic.

Included with this soil in mapping are areas of soils in which bedrock is at a depth of less than 40 inches. These areas make up about 15 percent of the map unit. Also included are soils that have less clay in the subsoil and are less sticky and plastic than this Helena soil. These areas make up about 10 percent of the mapping unit. Also included are a few areas of Helena sandy clay loam that is eroded and a few areas of Vance and Wilkes soils.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is slow, and available water capacity is medium. This soil has good tilth. Root penetration is somewhat limited because of the firm, sticky, and plastic subsoil. The water table commonly is high in winter.

Most areas of this soil are wooded; a few areas are in pasture. This soil has medium potential for farming. It has medium potential for loblolly pine and yellow-poplar. Wetness is the main limitation to use of equipment in managing and harvesting trees. This limitation can be overcome by logging during the drier seasons.

This soil has low potential for most urban uses. The clayey, sticky, and plastic subsoil percs slowly. In addition, seasonal wetness and shrink-swell potential are limitations and are difficult to overcome. The hazard of erosion is moderate prior to establishing vegetative cover. Capability subclass IIe; woodland group 3w.

HyC—Helena sandy loam, 6 to 10 percent slopes. This moderately well drained, gently sloping soil is on ridgetops and hillsides on Piedmont uplands. Slopes are smooth and convex. Areas are 10 to 40 acres in size.

Typically, the surface layer is light brownish gray sandy loam about 6 inches thick. The subsoil extends to a depth of 40 inches. The upper part of the subsoil is brownish yellow sandy clay loam, and the lower part is yellowish brown clay and clay loam and has gray and red mottles. The underlying material, to a depth of 60 inches or more, is strong brown sandy loam and has brownish yellow and light gray mottles. The lower part of the subsoil is firm, sticky, and plastic.

Included with this soil in mapping are small areas of Vance and Wilkes soils and areas of soils in which bedrock is at a depth of 20 to 40 inches. These areas make up about 15 percent of the map unit. Also included are a few eroded areas of Helena sandy clay loam.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is slow, and available water capacity is medium. Tilth is good. Root penetration is somewhat limited because of the firm, sticky, and plastic subsoil. The water table is commonly high in winter.

Most areas of this soil are wooded, but a few areas are in pasture. This soil has medium potential for loblolly pine and yellow-poplar. Wetness is the main limitation for use of equipment in managing and harvesting trees, but this limitation can be overcome by logging during the drier seasons.

This soil has low potential for farming and most urban uses. The clayey, sticky, and plastic subsoil percs slowly. Seasonal wetness and shrink-swell potential are limitations and are difficult to overcome. The hazard of erosion is severe on slopes prior to establishing vegetative cover. Tillage operations across the slope and winter cover crops help to control erosion in vegetable gardens. Capability subclass IIIe; woodland group 3w.

HZ—Hydraquents. These very poorly drained, nearly level soils are in low areas at the base of foothills and in depressions on flood plains of the Ocmulgee River and some of its tributaries. Areas are irregular in shape and range from about 40 acres to 500 acres in size. Hydraquents are frequently flooded for very long periods throughout the year. Floodwater is ponded to a depth of 1 foot to 6 feet in most areas (fig. 7).

Commonly, Hydraquents are gray silty clay loam to a depth of 36 to 48 inches. This material is sticky and contains a large amount of matted roots. In most places, it is underlain with brown organic material.

Hydraquents are mainly wooded with water tupelo, sweetbay, and a few swamp maple and green ash. Also many water-tolerant shrubs and aquatic plants are present.

These soils have very low potential for common uses in which flooding, wetness, and low strength are limitations. These limitations can be overcome only by major flood control and drainage measures.

These soils have very high potential for wetland plants and for developing shallow water areas for wetland wildlife. Ducks, alligators, and crayfish are common wildlife in areas of these soils. Capability subclass VIIIw; woodland group 3w.

LaC—Lakeland sand, 2 to 8 percent slopes. This excessively drained, very gently sloping or gently sloping soil is on ridgetops and hillsides on Sand Hills uplands. Areas are 40 to 300 acres in size.

Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying material to a depth of 80 inches is sand; the upper and middle parts are yellowish brown, and the lower part is very pale brown (fig. 8).

Included with this soil in mapping are small areas of Ailey, Cowarts, Fuquay, and Vaucluse soils. Also included are small areas of soils that have a higher clay content between the depths of 60 to 80 inches than is common to Lakeland soils. Included soils make up less than 15 percent of this map unit.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is very rapid, and available water capacity is low. Tilth is good. The root zone is very deep and easily penetrated by plant roots.

This soil has low potential for row crops, small grain, hay, and pasture. Low fertility and low available water capacity are limitations. Returning crop residue to the soil helps to overcome these limitations.

This Lakeland soil has low potential for loblolly pine, slash pine, and longleaf pine. Equipment limitation and seedling mortality are management concerns on this soil.

This soil has medium potential for most urban uses. It is too sandy for most recreational uses, and seepage is a limitation for most sanitary facilities. Capability subclass IVs; woodland group 4s.

LaD—Lakeland sand, 8 to 17 percent slopes. This excessively drained, sloping or strongly sloping soil is on narrow ridgetops and hillsides on Sand Hills uplands. Areas are 20 to 60 acres in size.

Typically, the surface layer is dark grayish brown sand about 4 inches thick. The underlying material to a depth of 80 inches is sand; the upper part is yellowish brown, the middle part is light yellowish brown, and the lower part is very pale brown.

Included with this soil in mapping are areas of soils that have a higher clay content between the depths of 70 to 80 inches than is common to Lakeland soils. Also included are a few areas of Ailey, Cowarts, and Vaucluse soils. The included soils make up about 10 to 15 percent of this map unit, and generally are less than 1 acre.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is very rapid, and available water capacity is low. Tilth is good. The root zone is very deep and easily penetrated by plant roots.

This soil has low potential for loblolly pine, longleaf pine, and slash pine. Equipment limitations and seedling mortality are management concerns on this soil.

This soil has low potential for farming and most urban uses. It is too sandy for many recreational uses, and seepage is a limitation for most sanitary facilities. In addition, slope is a limitation for septic tank absorption fields and sewage lagoons and for dwellings, small commercial buildings, and playgrounds. Capability subclass VIIs; woodland group 4s.

NhA—Norfolk sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on Coastal Plain uplands. Areas are 10 to 80 acres in size.

Typically, the surface layer is grayish brown sandy loam about 8 inches thick. The subsurface layer is yellowish brown sandy loam and extends to a depth of 12 inches. The subsoil is sandy clay loam and extends to a depth of 60 inches or more. The upper part of the subsoil is yellowish brown, the middle part is brownish yellow and yellowish brown, and the lower part is yellowish brown and has light yellowish brown and red mottles.

Included with this soil in mapping are a few areas of Cowarts, Faceville, and Orangeburg soils. Also included are soils in slight depressions that have a darker surface layer and are wetter than this Norfolk soil. The included soils make up about 10 to 15 percent of this map unit, and areas are generally less than 1 acre.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for row crops, small grain, hay, and pasture, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Grasses and legumes in the cropping system help to conserve moisture and maintain the content of organic matter.

This Norfolk soil has high potential for loblolly pine and slash pine. Limitations for woodland uses and management are not significant. This soil has high potential for most urban uses. Capability class I; woodland group 2o.

NhB—Norfolk sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on Coastal Plain uplands. Slopes are smooth and convex. Areas are 10 to 100 acres in size.

Typically, the surface layer is grayish brown sandy loam about 8 inches thick. The subsurface layer is pale brown sandy loam and extends to a depth of about 12 inches. The subsoil is sandy clay loam and extends to a depth of about 70 inches. The upper part of the subsoil is yellowish brown, the middle part is yellowish brown and has strong brown and pale brown mottles, and the lower part is mottled yellowish brown, strong brown, pale brown, yellowish red, and light brownish gray.

Included with this soil in mapping are a few areas of Cowarts, Faceville, Fuquay, and Orangeburg soils. Also included are soils in slight depressions that have a darker surface layer and are wetter than this Norfolk soil. The included soils make up less than 15 percent of this map unit.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in the surface layer in areas that have been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This Norfolk soil has high potential for row crops, small grain, hay, and pasture, and good crop growth can be obtained. Good tilth is easily maintained by returning crop residue to the soil. The hazard of erosion is moderate if cultivated crops are grown. Conservation tillage, cover crops, and grasses and legumes in the cropping system help to reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. Limitations for woodland uses and management are not significant. This soil has high potential for most urban uses. Capability subclass IIe; woodland group 2o.

OcA—Orangeburg sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on Coastal Plain uplands. Areas are 15 to 60 acres in size.

Typically, the surface layer is dark grayish brown sandy loam about 8 inches thick. The subsoil is sandy clay loam and extends to a depth of 60 inches or more. The upper few inches is yellowish red, and below this the subsoil is red. Included with this soil in mapping are a few areas of Faceville and Norfolk soils.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This Orangeburg soil has high potential for row crops, small grain, hay, and pasture, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Conservation tillage, cover crops, and grasses and legumes in the cropping system help to conserve moisture and maintain organic matter content.

This soil has high potential for loblolly pine and slash pine. Limitations for woodland uses and management are not significant. This soil has high potential for most urban uses. Capability class I; woodland group 2o.

OcB—Orangeburg sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on Coastal Plain uplands. Slopes are smooth and convex. Areas are 10 to 100 acres in size.

Typically, the surface layer is yellowish brown sandy loam about 7 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more. The upper few inches of the subsoil is strong brown, and below this the subsoil is red.

Included with this soil in mapping are a few areas of Faceville and Norfolk soils. Also included are a few areas of soils that have a sandy clay loam surface layer and are eroded.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This Orangeburg soil has high potential for row crops, small grain, hay, and pasture, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. The hazard of erosion is moderate if cultivated crops are grown. Conservation tillage, cover crops, and grasses and legumes in the cropping system help to reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. No significant limitations are present for woodland uses and management. This soil has high potential for most urban uses. Capability subclass IIe; woodland group 2o.

OcC—Orangeburg sandy loam, 5 to 8 percent slopes. This well drained, gently sloping soil is on ridgetops and hillsides on Coastal Plain uplands. Slopes are commonly smooth and convex. Areas are 5 to 40 acres in size.

Typically, the surface layer is sandy loam about 11 inches thick. In the upper part it is brown, and in the lower part it is pale brown. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more. In the upper part it is yellowish red, and in the lower part it is red.

Included with this soil in mapping are a few areas of Faceville and Norfolk soils. Also included are a few small areas of soils that have a sandy clay loam surface layer and are eroded.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. The root zone is deep and easily penetrated by plant roots.

This Orangeburg soil has medium potential for row crops and small grain. Slopes and the small size of some areas are limitations. Potential for hay and pasture is high. Good tilth is easily maintained by returning crop residue to the soil. If cultivated crops are grown, the hazard of erosion is severe. Terracing, conservation tillage, cover crops, and including grasses and legumes in the cropping system help to reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. No significant limitations are present for woodland uses and management.

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

Month	Temperature*						Precipitation*				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days**	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	58.2	36.1	47.2	78	13	104	4.07	1.98	5.77	7	0.2
February---	61.1	37.8	49.5	80	16	120	4.77	2.75	6.41	8	.9
March------	68.4	44.1	56.3	86	25	239	4.85	2.62	6.67	8	0
April------	78.2	52.4	65.4	92	34	462	3.48	1.76	4.87	5	0
May--------	85.3	60.1	72.8	98	42	707	3.69	1.76	5.26	5	0
June-------	90.3	67.3	78.8	101	52	864	4.09	2.48	5.53	7	0
July-------	92.1	70.5	81.3	101	62	970	4.54	2.56	6.14	9	0
August-----	91.9	69.9	80.9	100	59	958	3.77	2.36	5.04	7	0
September--	86.9	64.7	75.8	98	48	774	2.98	1.24	4.38	5	0
October----	78.3	52.6	65.5	93	32	481	2.02	0.39	3.30	4	0
November---	67.9	42.0	55.0	85	23	171	2.23	1.07	3.18	4	0
December---	60.3	37.4	48.8	79	17	107	4.36	2.31	6.04	7	0
Year-----	76.6	52.9	64.8	103	11	5,957	44.85	38.05	51.39	76	1.1

* Recorded in the period 1951-74 at Macon, Georgia.
** A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

SOIL LEGEND

The first letter, always a capital, is the initial letter of the soil name. The second letter is a capital if the mapping unit is broadly 1/ defined; otherwise, it is a small letter. Capitlaized third or fourth letter connotes slope class. Symbols without a slope letter are for level soils. A final number, 2, in the symbol shows the soil is eroded.

SYMBOL	NAME
AgB	Ailey loamy sand, 2 to 6 percent slopes
CeB	Cecil sandy loam, 2 to 6 percent slopes
CeC	Cecil sandy loam, 6 to 10 percent slopes
CeD	Cecil sandy loam, 10 to 17 percent slopes
CeuC	Cecil-Urban land complex, 2 to 10 percent slopes
CK	Chewacla association
Co	Congaree silt loam
CwB	Cowarts sandy loam, 2 to 5 percent slopes
CwC	Cowarts sandy loam, 5 to 8 percent slopes
DgB	Davidson loam, 2 to 6 percent slopes
DhC2	Davidson clay loam, 6 to 10 percent slopes, eroded
DhD2	Davidson clay loam, 10 to 17 percent slopes, eroded
FdA	Faceville sandy loam, 0 to 2 percent slopes
FdB	Faceville sandy loam, 2 to 5 percent slopes
FdC	Faceville sandy loam, 5 to 8 percent slopes
FsB	Fuquay loamy sand, 1 to 5 percent slopes
FsC	Fuquay loamy sand, 5 to 8 percent slopes
Gr	Grady sandy loam
HyB	Helena sandy loam, 2 to 6 percent slopes
HyC	Helena sandy loam, 6 to 10 percent slopes
HZ	Hydraquents
LaC	Lakeland sand, 2 to 8 percent slopes
LaD	Lakeland sand, 8 to 17 percent slopes
NhA	Norfolk sandy loam, 0 to 2 percent slopes
NhB	Norfolk sandy loam, 2 to 5 percent slopes
OcA	Orangeburg sandy loam, 0 to 2 percent slopes
OcB	Orangeburg sandy loam, 2 to 5 percent slopes
OcC	Orangeburg sandy loam, 5 to 8 percent slopes
OcD	Orangeburg sandy loam, 8 to 12 percent slopes
OcuC	Orangeburg-Urban land complex, 0 to 8 percent slopes
Os	Osier loamy sand
Pt	Pits
UD	Urban land
VaB	Vance sandy loam, 2 to 6 percent slopes
VaC	Vance sandy loam, 6 to 10 percent slopes
VbD2	Vance sandy clay loam, 10 to 17 percent slopes, eroded
VeC	Vaucluse loamy sand, 4 to 8 percent slopes
VeD	Vaucluse loamy sand, 8 to 17 percent slopes
VuC	Vaucluse-Urban land complex, 2 to 8 percent slopes
VuD	Vaucluse-Urban land complex, 8 to 15 percent slopes
WvC	Wilkes gravelly sandy loam, 5 to 10 percent slopes
WvD	Wilkes gravelly sandy loam, 10 to 17 percent slopes

Mines and Quarries that are not delineated (less than about 3 acres) will exhibit proper miscellaneous cultural features.

1/ The composition of broadly defined units is more variable than that of the others in the survey area, but the survey has been controlled well enough to be interpreted for the expected use of soils.

CULTURAL

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national fore state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & ne

AD HOC BOUNDARY (label)

- Small airport, airfield, park cemetery, or flood pool

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEMS & DESIGNA

- Interstate
- Federal
- State
- County, farm or ranch

RAILROAD

POWER TRANSMISSION LINI (normally not shown)

PIPE LINE (normally not shown)

Underground Cable

LEVEES

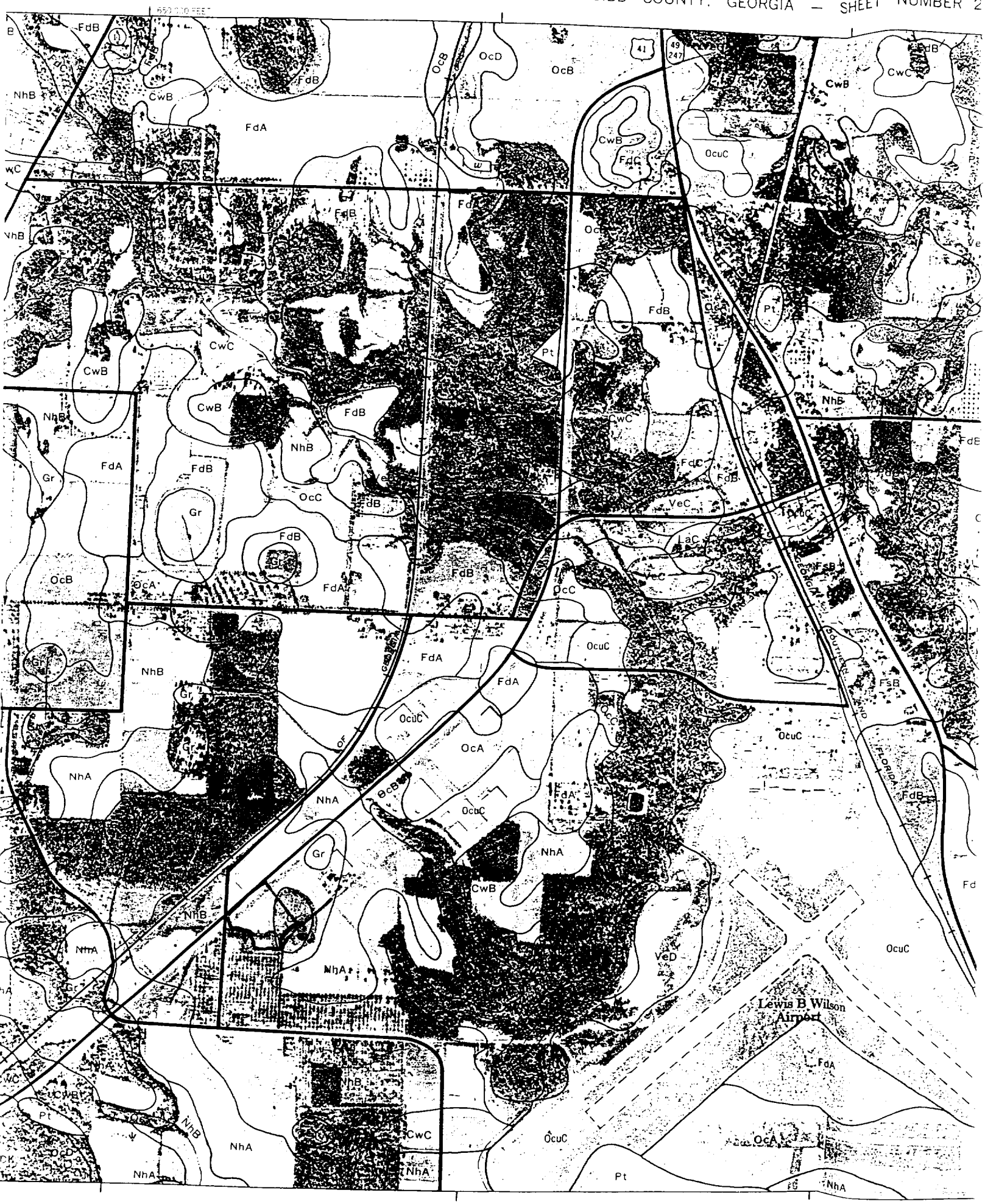
- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small

PITS

- Gravel pit
- Mine or quarry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NhB
CwB
FdA
OcB
OcD
OcB
41
49
247
CwB
CwC
FdC
OcuC
FdB
Pt
CwC
CwB
NhB
FdB
NhB
FdA
FdB
Gr
OcC
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OcB
OcA
FdA
FdB
OcC
VeC
LaC
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OcB
OcuC
FdA
NhA
Gr
CwB
NhB
NhA
NhA
VeD
OcuC
Lewis B Wilson
Airport
FdA
NhB
CwC
OcuC
OcA
Pt
NhA
NhA
NhA
Pt
NhA

REFERENCE 18

GROUNDWATER

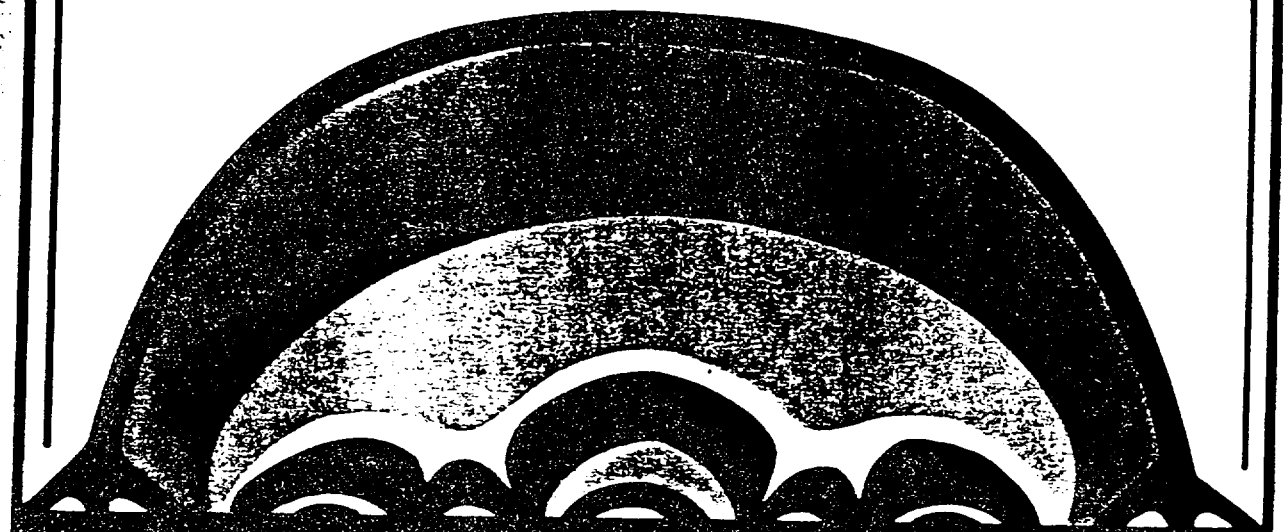

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Table 2.2 Range of Values of Hydraulic Conductivity and Permeability

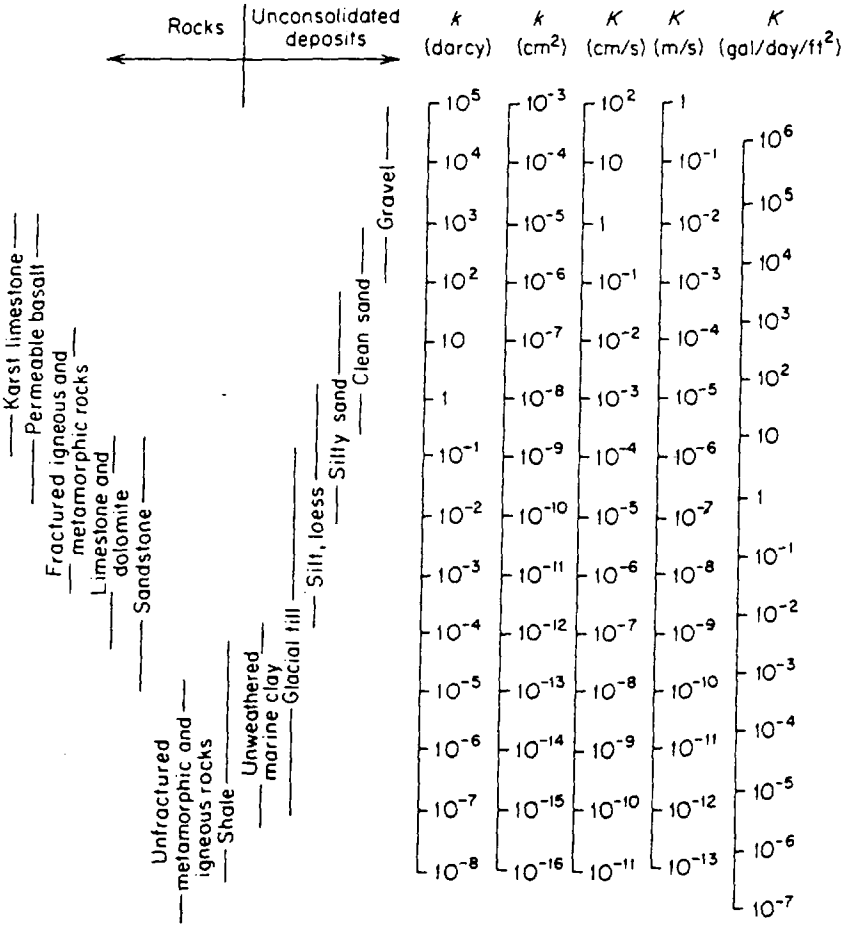


Table 2.3 Conversion Factors for Permeability and Hydraulic Conductivity Units

	Permeability, k*			Hydraulic conductivity, K		
	cm^2	ft^2	darcy	m/s	ft/s	gal/day/ft^2
cm^2	1	1.08×10^{-3}	1.01×10^{8}	9.80×10^{2}	3.22×10^{3}	1.85×10^{9}
ft^2	9.29×10^{2}	1	9.42×10^{10}	9.11×10^{5}	2.99×10^{6}	1.71×10^{12}
darcy	9.87×10^{-9}	1.06×10^{-11}	1	9.66×10^{-6}	3.17×10^{-5}	1.82×10^{1}
m/s	1.02×10^{-3}	1.10×10^{-6}	1.04×10^{5}	1	3.28	2.12×10^{6}
ft/s	3.11×10^{-4}	3.35×10^{-7}	3.15×10^{4}	3.05×10^{-1}	1	5.74×10^{5}
gal/day/ft^2	5.42×10^{-10}	5.83×10^{-13}	5.49×10^{-2}	4.72×10^{-7}	1.74×10^{-6}	1

*To obtain k in ft^2, multiply k in cm^2 by 1.08×10^{-3}.

C = CLASS
L

0- Inactive
1- All systems with surface water sources.
2- Community systems w/ ground water sources.
3- Non-community
4- All Federal Non-community
5- All DNR owned or operated Non-community
6- Industrial systems Non-community
9- Proposed system

OWNC = Owner Characteristic Codes

C = City
I = Investor
N = County
D = Private Subdivision
F = Federal
S = State
A = Authority
O = Other
W = Association

C = COMMUNITY/NON-COMMUNITY
N

C- Community
P- Non-Transient Non-Community
N- Transient Non-community
I- Inactive

R = REGION
G

1 = North
2 = Middle
3 = Southwest
4 = Southeast

TR = SERVICE AREA TYPE
NT

Major category	Subcategory	
R- Residential	1- Residential	4- Schools
	2- Mobile Home Park	5- Instutions (prisons)
	3- Subdivision	6- Wholesaler
		9- Other Residential
T- Transient	1- Recreation (parks,beaches,marinas,campgrounds)	
	2- Service stations	5- Highway Rest Area
	3- Summer Camps	6- Motel/Hotels
	4- Restaurant	7- Wholesalers
		9- Other Transient (visitor center,church)
S- Semi-Residential	1- School	
	2- Institutions (prisons, children homes)	
	3- Medical (hospital, nursing homes)	
	4- Industrial/Agricultural (factory, labor camps)	
	5- Day Care Centers	
	6- Wholesaler	
	9- Other	

SOURCE TYPE

S- Surface
P- Purchased Surface
T -Spring source
G- Ground
W- Purchased Ground

The following codes are old and may be seen on old printouts from Prime. Do not use these old codes on any new reports.

Old Deletion Codes

c- computer/data entry error
e- collection error
m- mail problems
n- new owner/operator
p- proof of sampling
s- late sample
u- unusual circumstance
w- on county water
z- class zero

Old Violation Codes

1- FTM
3- insuf. samples
4- MCL (MF)
6- MCL (MT)
9- resample viol.

Old Follow-Up Action Codes

E- PN Ltr.
J- NOV Ltr.
L- Adm. Order
*- Boiled water notice
F- Cert. of PN
K- Consent Order
M- Monetory Penalty

Some Cross References for PCOD's

PCOD	FRDS	
31501	3000	Total Coliform (MF)
31505	3000	Total Coliform (MPN)
39180	2984	Trichloroethylene
01007	1010	Barium

REFERENCE 19

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Crawford COUNTY

0790000 Roberta CLASS: 2 TOTAL SOURCES: 19

001 DRILLED WELL #1 NW END OF FIELD	TYPE: G	STATUS: P	LAT: 324253	LON: 0840116	POP: 1102		
002 DRILLED WELL #2 MIDDLE	TYPE: G	STATUS: P	LAT: 324228	LON: 0840103	POP: 1102		
003 DRILLED WELL #3 SE END OF FIELD	TYPE: G	STATUS: P	LAT: 324229	LON: 0840103	POP: 1102		

0790001 GSA-Camp Martha Johnston CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 324622	LON: 0835252	POP: 150		

0790007 Camp Echeeconnee CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 323952	LON: 0834035	POP: 100		
002 DRILLED WELL #2	TYPE: G	STATUS: P	LAT: 324250	LON: 0834926	POP: 100		

0790008 Stackler's Mobile Home Park CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 324519	LON: 0835058	POP: 100		

0790009 Benevolence Baptist Church CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 323631	LON: 0835904	POP: 70		

0790010 Big Six Farms-Homer CLASS: 6 TOTAL SOURCES: 1

001 DEEP WELLS	TYPE: G	STATUS: P	LAT: 000000	LON: 0000000	POP: 30		

0790011 Land of Promise CLASS: 3 TOTAL SOURCES: 1

001 DEEP WELLS	TYPE: G	STATUS: P	LAT: 000000	LON: 0000000	POP: 900		

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Peach COUNTY

2250000 Byron CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323923 LON: 0834528 POP: 1960
NEXT TO UTILITIES BLDG

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324041 LON: 0834627 POP: 1960
WILLIAMS ST.

2250001 Ft. Valley CLASS: 2 TOTAL SOURCES: 5

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323343 LON: 0835326 POP: 10505
MCLEAN PLANT

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323343 LON: 0835326 POP: 10505
MCLEAN PLANT

003 DRILLED WELL #3 TYPE: G STATUS: P LAT: 323245 LON: 0835314 POP: 10505
MCLEAN HWY 49S

004 DRILLED WELL #4 TYPE: G STATUS: P LAT: 323159 LON: 0835343 POP: 10505
JONES ST

005 DRILLED WELL #5 TYPE: G STATUS: P LAT: 323159 LON: 0835343 POP: 10505
JONES ST

2250002 USDA-Research Service CLASS: 4 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323915 LON: 0834418 POP: 55
NEXT TO OFFICES

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323929 LON: 0834940 POP: 55
FIELD

2250003 Pecan Haven Mobile Home Park CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323937 LON: 0834238 POP: 150
HWY 41

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323937 LON: 0834238 POP: 150
HWY 41

#1

2250005 Rolling Hills Mobile Home Park CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323253 LON: 0835604 POP: 70
CR 167

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323253 LON: 0835604 POP: 70
CR 167

2250006 Waffle House, Inc.No. 419 CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323642 LON: 0834428 POP: 41
247C

2250008 Mobile Manor Estates CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323159 LON: 0834259 POP: 75
HWY 41S

2250009 Southern Kitchen CLASS: 3 TOTAL SOURCES: 1

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Peach COUNTY

001 DRILLED WELL #1 247C — TYPE: G STATUS: P LAT: 323621 LON: 0834433 POP: 50

2250011 BSA-Camp Benjamin Hawkins — CLASS: 3 TOTAL SOURCES: 1

001 DOGWOOD WELL — TYPE: G STATUS: P LAT: 324037 LON: 0834604 POP: 500

002 LODGE HILL WELL — TYPE: G STATUS: P LAT: 324052 LON: 0834621 POP: 500

003 LAKESIDE WELL — TYPE: G STATUS: P LAT: 324120 LON: 0834619 POP: 500

004 MAIN WELL — TYPE: G STATUS: P LAT: 324311 LON: 0834649 POP: 500

2250012 Butchs Trailer Park — CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 HWY 49N — TYPE: G STATUS: P LAT: 325513 LON: 0834837 POP: 40

002 DRILLED WELL #2 HWY 49N — TYPE: G STATUS: P LAT: 325513 LON: 0834837 POP: 40

2250017 Days Inn of America — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 247C — TYPE: G STATUS: P LAT: 323642 LON: 0834428 POP: 500

2250019 Ponderosa Parks — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 HWY 96 — TYPE: G STATUS: P LAT: 323236 LON: 0834411 POP: 30

2250021 Pyrotecnic Specialties — CLASS: 6 TOTAL SOURCES: 2

001 DRILLED WELL #1 CR 179 — TYPE: G STATUS: P LAT: 324007 LON: 0834708 POP: 50

002 DRILLED WELL #2 CR 179 — TYPE: G STATUS: P LAT: 324022 LON: 0834722 POP: 50

2250024 Red Carpet Inn — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 247C — TYPE: G STATUS: P LAT: 323617 LON: 0834433 POP: 125

2250029 BSA-Camp Benjamin Hawkins #1 — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 DOGWOOD — TYPE: G STATUS: P LAT: 324037 LON: 0834604 POP: 50

2250030 BSA-Camp Benjamin Hawkins #2 — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 LODGE HILL — TYPE: G STATUS: P LAT: 324052 LON: 0834621 POP: 50

2250031 Camp Benjamin Hawkins #3 — CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 LAKESIDE — TYPE: G STATUS: P LAT: 324120 LON: 0834619 POP: 50

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Peach COUNTY

2250032 Big Six Farm--Zenith CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323640 LON: 0835835 POP: 50

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Houston COUNTY

1530000 Centerville CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 COLLINS AVE.	TYPE: G	STATUS: P	LAT: 323828	LON: 0834118	POP: 6129	—	#2
002 DRILLED WELL #2 LOCAL - NEW WATER PLANT	TYPE: G	STATUS: P	LAT: 322811	LON: 0834503	POP: 6129		
003 DRILLED WELL #3 ARCHDALE RD	TYPE: G	STATUS: P	LAT: 323735	LON: 0833939	POP: 6129	not in use	
004 DRILLED WELL #4 OLD WATER PLANT	TYPE: G	STATUS: P	LAT: 322654	LON: 0834408	POP: 6129		
005 DRILLED WELL #5 REMOTE-NEW WATER PLANT	TYPE: G	STATUS: P	LAT: 322751	LON: 0834447	POP: 6129		
006 DRILLED WELL #6 OLD WATER PLANT	TYPE: G	STATUS: P	LAT: 322705	LON: 0834407	POP: 6129		

1530002 Houston County-Elberta CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 DUNBAR	TYPE: G	STATUS: P	LAT: 323856	LON: 0833919	POP: 2657	—	#3
002 DRILLED WELL #2 ELBERTA	TYPE: G	STATUS: P	LAT: 323616	LON: 0833719	POP: 2657		

1530003 Houston County-Elko CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 ELKO W RAILROAD ST	TYPE: G	STATUS: P	LAT: 321929	LON: 0834217	POP: 138

1530004 Houston County-Hayneville CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 HAYNEVILLE HWY 341	TYPE: G	STATUS: P	LAT: 322250	LON: 0833707	POP: 385

1530005 Houston County-Henderson CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 HENDERSON HWY 26E	TYPE: G	STATUS: P	LAT: 322015	LON: 0834714	POP: 360

1530006 Perry CLASS: 2 TOTAL SOURCES: 4

001 NEW WELL #1	TYPE: G	STATUS: P	LAT: 322811	LON: 0834503	POP: 8500
002 NEW WELL #2	TYPE: G	STATUS: P	LAT: 322751	LON: 0834447	POP: 8500
003 OLD WELL #1	TYPE: G	STATUS: P	LAT: 322654	LON: 0834408	POP: 8500
004 OLD WELL #2	TYPE: G	STATUS: P	LAT: 322705	LON: 0834407	POP: 8500

1530007 Warner Robins CLASS: 2 TOTAL SOURCES: 13

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 323612	LON: 0833649	POP: 42900

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Houston COUNTY

	WARNER ST									
002	DRILLED WELL #2 BAY ST	TYPE: G	STATUS: P	LAT:	323602	LON:	0833712	POP:	42900	
003	DRILLED WELL #3 CRESTWOOD ST	TYPE: G	STATUS: P	LAT:	323601	LON:	0833651	POP:	42900	
004	DRILLED WELL #4 S DAVIS ST	TYPE: G	STATUS: P	LAT:	323629	LON:	0833639	POP:	42900	
005	DRILLED WELL #5 TYREE	TYPE: G	STATUS: P	LAT:	323531	LON:	0833835	POP:	42900	
006	DRILLED WELL #6 WISCONSIN	TYPE: G	STATUS: P	LAT:	323744	LON:	0833733	POP:	42900	Not located within radius
007	DRILLED WELL #7 HAWAII ST	TYPE: G	STATUS: P	LAT:	323805	LON:	0833737	POP:	42900	NLWR
008	DRILLED WELL #8 BELMONT	TYPE: G	STATUS: P	LAT:	323530	LON:	0833852	POP:	42900	
009	DRILLED WELL #9 DONNA ST	TYPE: G	STATUS: P	LAT:	323536	LON:	0833826	POP:	42900	
010	DRILLED WELL 10 TABOR DR	TYPE: G	STATUS: P	LAT:	323800	LON:	0833641	POP:	42900	NLWR
011	DRILLED WELL 11 TABOR	TYPE: G	STATUS: P	LAT:	323541	LON:	0833444	POP:	42900	
012	DRILLED WELL 12 NOT ON LINE	TYPE: G	STATUS: P	LAT:	323818	LON:	0833924	POP:	42900	#4
013	DRILLED WELL 13 NOT ON LINE	TYPE: G	STATUS: P	LAT:	323758	LON:	0833924	POP:	42900	NLWR
014	DRILLED WELL 14 CARL VINSON PKWY	TYPE: G	STATUS: P	LAT:	323634	LON:	0834001	POP:	42900	
015	DRILLED WELL 15 CARTER WOODS DR	TYPE: G	STATUS: P	LAT:	323619	LON:	0834013	POP:	42900	

1530011 Gleaton Mobile Home Park CLASS: 2 TOTAL SOURCES: 2

001	DRILLED WELL #1 HWY 41	TYPE: G	STATUS: P	LAT:	323608	LON:	0834239	POP:	115	
002	DRILLED WELL #2 HWY 41	TYPE: G	STATUS: P	LAT:	323608	LON:	0834239	POP:	115	

1530017 Medusa Cement Corp. CLASS: 6 TOTAL SOURCES: 1

001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	322429	LON:	0833801	POP:	152	

1530018 G Heileman Brewing Company CLASS: 6 TOTAL SOURCES: 4

001	DRILLED WELL #1 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625
002	DRILLED WELL #2 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625
003	DRILLED WELL #3 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625
004	DRILLED WELL #4 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625

1530021 Houston County-Feagin Mill CLASS: 2 TOTAL SOURCES: 5

001	DRILLED WELL #1 FEAGIN MILL	TYPE: G	STATUS: P	LAT:	323421	LON:	0833932	POP:	12880
002	DRILLED WELL #2 SANDERFUR	TYPE: G	STATUS: P	LAT:	323152	LON:	0834100	POP:	12880
003	DRILLED WELL #3 QUAIL RUN	TYPE: G	STATUS: P	LAT:	323547	LON:	0834227	POP:	12880

1530037 Christ Church Home For Aged CLASS: 2 TOTAL SOURCES: 3

001	DRILLED WELL #1 HWY 41	TYPE: G	STATUS: P	LAT:	323125	LON:	0834304	POP:	31
002	DRILLED WELL #2 HWY 41	TYPE: G	STATUS: P	LAT:	323125	LON:	0834304	POP:	31

1530042 USAF-Robins AB Main CLASS: 2 TOTAL SOURCES: 11

001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	323717	LON:	0833530	POP:	5690
002	DRILLED WELL #2	TYPE: G	STATUS: P	LAT:	323721	LON:	0833522	POP:	5690
004	DRILLED WELL #4	TYPE: G	STATUS: P	LAT:	323552	LON:	0833522	POP:	5690
005	DRILLED WELL #5	TYPE: G	STATUS: P	LAT:	323644	LON:	0833518	POP:	5690
007	DRILLED WELL #7	TYPE: G	STATUS: P	LAT:	323602	LON:	0833446	POP:	5690
008	DRILLED WELL #8	TYPE: G	STATUS: P	LAT:	323854	LON:	0833529	POP:	5690 NLWR

1530045 USAF-Robins AB Rapcon CLASS: 4 TOTAL SOURCES: 1

001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	323851	LON:	0833631	POP:	35

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Houston COUNTY

1530046 Valley View Trailer Court CLASS: 9 TOTAL SOURCES: 0

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 000000 LON: 0000000 POP: 0

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Bibb COUNTY

	0210010 Fulton Hills Subdivision					CLASS: 2	TOTAL SOURCES:	2	
001	DRILLED WELL #1 FULTON DR	TYPE: G	STATUS: P	LAT: 324500	LON: 0834613	POP:	300		
002	DRILLED WELL #2 WAYNE DR	TYPE: G	STATUS: P	LAT: 324443	LON: 0834606	POP:	300		
	0210012 Pine Acres Mobile Home Court					CLASS: 2	TOTAL SOURCES:	2	
001	DRILLED WELL #1 CENTER OF PARK HWY 247	TYPE: G	STATUS: P	LAT: 324424	LON: 0833920	POP:	153	#5	
	0210013 Sheltering Pines Mobile Home					CLASS: 2	TOTAL SOURCES:	3	
001	DRILLED WELL #1 NEW WELL MAINT. BARN	TYPE: G	STATUS: P	LAT: 324509	LON: 0833956	POP:	600	#6	
002	DRILLED WELL #2 OLD WELL	TYPE: G	STATUS: P	LAT: 324502	LON: 0833954	POP:	600	#7	
	0210014 Bonnie Brae Mobile Home Park					CLASS: 2	TOTAL SOURCES:	2	
001	DRILLED WELL #1 5424 HOUSTON RD.	TYPE: G	STATUS: P	LAT: 324439	LON: 0834002	POP:	240	#8	
	0210016 Macon Kraft Inc.					CLASS: 6	TOTAL SOURCES:	3	
001	DEEP WELL # 1 CENTER OF PLANT	TYPE: G	STATUS: P	LAT: 324543	LON: 0833749	POP:	600		
002	DEEP WELL # 2 REAR OF PLANT	TYPE: G	STATUS: P	LAT: 324604	LON: 0833733	POP:	600		
003	DRILLED WELL # 3 NEW WELL NEAR GUARD GATE	TYPE: G	STATUS: P	LAT: 324558	LON: 0833747	POP:	600		
	0210021 B & G-Von Reg Subdivision					CLASS: 2	TOTAL SOURCES:	3	
001	DRILLED WELL #1 VON REG DR	TYPE: G	STATUS: P	LAT: 324327	LON: 0834217	POP:	171		
002	DRILLED WELL #2 VON REG DR	TYPE: G	STATUS: P	LAT: 324327	LON: 0834217	POP:	171	#9	
003	DRILLED WELL #3 VON REG DR	TYPE: G	STATUS: P	LAT: 324327	LON: 0834217	POP:	171		
	0210022 B & G-Thorn Hill Subdivision					CLASS: 2	TOTAL SOURCES:	2	
001	DRILLED WELL #1 NOB HILL DR.	TYPE: G	STATUS: P	LAT: 324144	LON: 0834154	POP:	60		
002	DRILLED WELL #2 NOB HILL DR.	TYPE: G	STATUS: P	LAT: 324144	LON: 0834154	POP:	60	#10	
	0210023 Easy Living Mobile Home Park					CLASS: 9	TOTAL SOURCES:	1	
001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 000000	LON: 0000000	POP:	21		

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Bibb COUNTY

	0210010 Fulton Hills Subdivision					CLASS: 2	TOTAL SOURCES:	2	
001	DRILLED WELL #1 FULTON DR	TYPE: G	STATUS: P	LAT: 324500	LON: 0834613	POP:	300		
002	DRILLED WELL #2 WAYNE DR	TYPE: G	STATUS: P	LAT: 324443	LON: 0834606	POP:	300		
	0210012 Pine Acres Mobile Home Court					CLASS: 2	TOTAL SOURCES:	2	
001	DRILLED WELL #1 CENTER OF PARK HWY 247	TYPE: G	STATUS: P	LAT: 324424	LON: 0833920	POP:	153	#5	
	0210013 Sheltering Pines Mobile Home					CLASS: 2	TOTAL SOURCES:	3	
001	DRILLED WELL #1 NEW WELL MAINT. BARN	TYPE: G	STATUS: P	LAT: 324509	LON: 0833956	POP:	600	#6	
002	DRILLED WELL #2 OLD WELL	TYPE: G	STATUS: P	LAT: 324502	LON: 0833954	POP:	600	#7	
	0210014 Bonnie Brae Mobile Home Park					CLASS: 2	TOTAL SOURCES:	2	
001	DRILLED WELL #1 5424 HOUSTON RD.	TYPE: G	STATUS: P	LAT: 324439	LON: 0834002	POP:	240	#8	
	0210016 Macon Kraft Inc.					CLASS: 6	TOTAL SOURCES:	3	
001	DEEP WELL # 1 CENTER OF PLANT	TYPE: G	STATUS: P	LAT: 324543	LON: 0833749	POP:	600		
002	DEEP WELL # 2 REAR OF PLANT	TYPE: G	STATUS: P	LAT: 324604	LON: 0833733	POP:	600		
003	DRILLED WELL # 3 NEW WELL NEAR GUARD GATE	TYPE: G	STATUS: P	LAT: 324558	LON: 0833747	POP:	600		
	0210021 B & G-Von Reg Subdivision					CLASS: 2	TOTAL SOURCES:	3	
001	DRILLED WELL #1 VON REG DR	TYPE: G	STATUS: P	LAT: 324327	LON: 0834217	POP:	171		
002	DRILLED WELL #2 VON REG DR	TYPE: G	STATUS: P	LAT: 324327	LON: 0834217	POP:	171	#9	
003	DRILLED WELL #3 VON REG DR	TYPE: G	STATUS: P	LAT: 324327	LON: 0834217	POP:	171		
	0210022 B & G-Thorn Hill Subdivision					CLASS: 2	TOTAL SOURCES:	2	
001	DRILLED WELL #1 NOB HILL DR.	TYPE: G	STATUS: P	LAT: 324144	LON: 0834154	POP:	60		
002	DRILLED WELL #2 NOB HILL DR.	TYPE: G	STATUS: P	LAT: 324144	LON: 0834154	POP:	60	#10	
	0210023 Easy Living Mobile Home Park					CLASS: 9	TOTAL SOURCES:	1	
001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT: 000000	LON: 0000000	POP:	21		

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Bibb COUNTY

0210024 B & G-Goodall Mill Estates CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324208 LON: 0834228 POP: 102
GROVER DR.

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324208 LON: 0834228 POP: 102
GROVER DR.

#11

0210025 Hawaiian Village MHP CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324730 LON: 0834330 POP: 180 — NLWR
ACESS RD.

0210033 Calle Vinas Subdivision CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324251 LON: 0834155 POP: 102 — #12
6980 ANDALVSIA DR.

0210034 Mobile World-Forest Place CLASS: 2 TOTAL SOURCES: 4

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324727 LON: 0834339 POP: 522
TOP OF HILL STORAGE TANKS

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324727 LON: 0834339 POP: 522
TOP OF HILL STORAGE TANKS

NLWR

003 DRILLED WELL #3 TYPE: G STATUS: P LAT: 324726 LON: 0834331 POP: 522 — NLWR
MIDDLE OF PARK NEW WELL

0210035 Avondale Mobile Home Park CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324104 LON: 0833742 POP: 250 — # 13
BEHIND LOT 58

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324106 LON: 0833752 POP: 250 # 14
CENTER OF PARK

0210036 Tom's Foods, Ltd. CLASS: 6 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324949 LON: 0833406 POP: 175
RIGGENS MILL RD.

0210051 Kuntry Kiddie Day Care Center CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 325102 LON: 0834716 POP: 31
6981 THOMASTON RD.

0210057 Oak Haven Golf Club CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 325126 LON: 0834802 POP: 375
ON THOMASTON RD.

0210065 Crown Candy Company CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324709 LON: 0833824 POP: 60
OFF BROADWAY

0210074 Lake Wildwood Subdivision CLASS: 1 TOTAL SOURCES: 1

001 MACON BIBB COUNTY WATER SYSTEM TYPE: P STATUS: P LAT: 000000 LON: 0000000 POP: 3900

0210075 [illegible] CLASS: 2 TOTAL SOURCES: 1

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Bibb COUNTY

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324133 LON: 0834142 POP: 120

0210076 B & G-Mori-Hill Subdivision CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 000000 LON: 0000000 POP: 72

0210078 Rutland S[illegible] CLASS: 2 TOTAL SOURCES: 1

001 DEEP WELL # 1 TYPE: G STATUS: P LAT: 000000 LON: 0000000 POP: 25

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Twiggs COUNTY

2890000 Danville CLASS: 2 TOTAL SOURCES: 2
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323606 LON: 0831443 POP: 550
OFF US 80 EAST

2890001 Jeffersonville CLASS: 2 TOTAL SOURCES: 3
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 325142 LON: 0833024 POP: 1474
OFF US 80 EAST

2890002 Dry Branch Elem. School CLASS: 3 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324348 LON: 0832539 POP: 591
OF US 80 EAST

2890005 Twiggs County Bd. Of Education CLASS: 3 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323412 LON: 0832039 POP: 140
OFF I-16 EAST

2890006 Georgia Kaolin Company CLASS: 6 TOTAL SOURCES: 5
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324736 LON: 0832816 POP: 36
OFF US 80 EAST

2890007 J. M. Huber Corp. Plant CLASS: 6 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323851 LON: 0832351 POP: 50
OFF OCMULGEE EAST BLVD.

2890008 East Ocmulgee Acres CLASS: 2 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324000 LON: 0832802 POP: 66
OFF MARION RD

2890009 Twiggs County CLASS: 2 TOTAL SOURCES: 2
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324742 LON: 0832708 POP: 168
OF US 80 EAST

2890011 Engelhard Corp.-Griffin CLASS: 6 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323148 LON: 0831827 POP: 50
OF GA SR 57

2890012 Kalonia Heights Subdivision CLASS: 2 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324442 LON: 0832147 POP: 64
OF US 80 EAST

2890015 Nord Kaolin Corp. CLASS: 6 TOTAL SOURCES: 3
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324225 LON: 0832319 POP: 114
OFF US 80 EAST

2890020 Twiggs Academy CLASS: 3 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323136 LON: 0831741 POP: 245
OFF I-16 EAST

2890021 Georgia Kaolin Co.-Mine #11 CLASS: 6 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324425 LON: 0832618 POP: 100
OFF US 80 EAST

2890022 J. M. Huber Corp. Mine Shop CLASS: 6 TOTAL SOURCES: 1

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Twiggs COUNTY

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323930 LON: 0832212 POP: 26
OFF OCMULGEE EAST BLVD.

REFERENCE 20

Table 6. Household, Family, and Group Quarters Characteristics: 1990

[For definitions of terms and meanings of symbols, see text]

State / County / Place and [In Selected States] County Subdivision	Persons in households	All households	Family households: Total	Family households: Married-couple family	Family households: Female householder, no husband present	Nonfamily households: Total	Householder living alone: Total	65 years and over: Total	65 years and over: Female	Persons per— Household	Persons per— Family	Persons in group quarters: Total	Institutionalized persons	Other persons in group quarters
The State	6 304 [illegible]	2 366 615	1 713 072	1 308 758	329 641	653 543	537 702	186 827	140 417	2.66	3.16	173 [illegible]	87 284	86 357
COUNTY														
Appling County	15 580	5 634	4 275	3 423	687	1 359	1 433	888	535	2.67	3.21	164	164	-
Atkinson County	6 220	2 210	1 647	1 290	284	563	517	282	229	2.81	3.33	4	4	-
Bacon County	9 436	3 442	2 645	2 030	530	797	742	376	301	2.74	3.17	130	121	9
Baker County	3 610	1 320	940	686	220	381	326	174	148	2.76	3.33	5	5	-
Baldwin County	32 270	12 166	8 736	6 095	2 142	3 430	2 770	1 077	815	2.65	3.14	7 280	6 515	765
Banks County	10 292	3 775	2 973	2 563	283	802	724	363	281	2.73	3.13	16	14	-
Barrow County	29 480	10 676	8 361	6 628	1 148	2 315	2 016	941	765	2.76	3.15	232	209	23
Bartow County	55 465	20 081	15 665	12 626	2 148	4 426	3 861	1 606	1 326	2.76	3.17	426	336	90
Ben Hill County	15 823	5 872	4 343	3 153	1 007	1 429	1 305	766	620	2.67	3.22	322	252	70
Berrien County	13 856	5 148	3 960	3 208	590	1 188	1 106	530	427	2.69	3.13	294	108	186
Bibb County	145 108	56 307	38 301	26 742	10 753	17 626	14 692	5 914	4 612	2.58	3.14	4 899	2 904	1 995
Bleckley County	10 006	3 816	2 864	2 220	534	952	884	462	399	2.62	3.09	425	121	304
Brantley County	11 080	3 811	3 109	2 588	364	702	620	276	217	2.90	3.25	4	4	-
Brooks County	15 026	5 392	4 040	2 981	874	1 352	1 223	628	496	2.79	3.30	372	279	93
Bryan County	15 301	5 070	4 226	3 514	554	844	736	306	216	3.02	3.34	137	-	137
Bulloch County	38 458	14 064	9 066	7 440	1 702	5 280	3 488	1 280	1 042	2.63	3.16	3 687	607	3 080
Burke County	20 363	7 087	5 288	3 482	1 543	1 749	1 573	736	594	2.85	3.41	216	216	-
Butts County	13 587	4 686	3 687	2 822	686	999	872	408	306	2.88	3.31	1 799	1 683	116
Calhoun County	4 916	1 794	1 280	837	394	505	481	282	234	2.74	3.36	97	97	-
Camden County	27 328	9 480	7 472	6 182	1 009	1 987	1 608	415	311	2.89	3.28	2 839	130	2 709
Candler County	7 449	2 828	2 042	1 536	415	786	717	381	296	2.63	3.17	296	296	-
Carroll County	68 725	25 370	18 969	15 272	2 868	6 401	5 381	2 106	1 744	2.71	3.16	2 887	759	1 928
Catoosa County	42 180	15 746	12 386	10 301	1 621	3 370	3 003	1 308	1 066	2.67	3.06	364	306	58
Charlton County	8 384	2 911	2 257	1 748	407	654	573	349	190	2.86	3.32	112	112	-
Chatham County	209 677	81 111	56 560	40 129	12 997	24 551	21 636	8 128	6 444	2.58	3.14	7 258	3 936	3 322
Chattahoochee County	10 516	2 864	2 637	2 370	214	247	214	62	47	3.68	3.89	6 318	70	6 248
Chattooga County	22 008	8 487	6 393	5 041	1 070	2 074	1 815	1 000	843	2.61	3.06	183	183	-
Cherokee County	89 441	31 330	25 790	22 479	2 326	5 540	4 415	1 430	1 132	2.86	3.19	763	436	327
Clarke County	79 604	33 170	18 182	12 864	4 401	14 988	9 547	2 327	1 868	2.40	3.02	7 980	934	7 046
Clay County	3 287	1 210	874	596	250	336	318	182	134	2.72	3.30	77	74	3
Clayton County	180 480	65 523	48 734	37 030	9 216	16 789	13 636	2 382	1 836	2.75	3.19	1 563	1 246	317
Clinch County	6 004	2 173	1 665	1 257	313	518	476	206	176	2.71	3.25	126	96	30
Cobb County	444 691	171 288	120 113	96 980	15 516	51 175	38 537	6 026	5 034	2.60	3.10	3 054	1 378	1 676
Coffee County	29 015	10 541	7 981	6 025	1 614	2 563	2 310	1 006	841	2.75	3.22	577	237	340
Colquitt County	34 837	12 880	9 736	7 342	2 083	3 144	2 864	1 382	1 200	2.69	3.16	1 708	543	1 165
Columbia County	64 069	21 841	18 315	15 640	2 064	3 526	2 930	832	681	2.97	3.28	1 102	948	154
Cook County	13 172	4 825	3 607	2 700	640	1 218	1 116	590	480	2.73	3.22	284	128	156
Coweta County	53 381	18 930	15 020	11 997	2 402	3 910	3 394	1 440	1 166	2.82	3.20	472	456	16
Crawford County	8 628	3 080	2 412	1 886	386	667	577	236	178	2.87	3.25	162	128	34
Crisp County	19 598	7 287	5 300	3 596	1 401	1 987	1 808	878	717	2.69	3.23	412	408	4
Dade County	12 563	4 651	3 736	3 170	408	886	864	390	300	2.70	3.05	384	329	375
Dawson County	9 377	3 380	2 734	2 367	280	646	536	166	151	2.77	3.12	52	29	23
Decatur County	24 748	8 882	6 675	4 743	1 624	2 207	2 002	1 000	816	2.76	3.27	763	446	317
DeKalb County	536 464	208 880	137 033	96 541	34 277	71 847	58 645	11 728	9 780	2.57	3.12	10 383	6 283	4 100
Dodge County	16 627	6 307	4 607	3 590	883	1 700	1 620	844	694	2.60	3.12	880	880	-
Dooly County	9 720	3 567	2 598	1 770	683	979	913	508	413	2.74	3.31	171	143	28
Dougherty County	93 917	34 183	25 181	16 535	7 590	9 002	7 866	2 707	2 286	2.72	3.24	3 294	1 156	2 138
Douglas County	70 334	25 277	19 730	16 547	2 415	4 836	3 643	1 187	887	2.80	3.22	786	664	122
Early County	11 640	4 293	3 113	2 297	740	1 180	1 084	604	475	2.73	3.28	335	335	-
Echols County	2 318	816	664	540	76	152	163	80	48	2.84	3.25	16	-	16
Effingham County	25 636	8 730	7 140	5 921	990	1 610	1 402	590	430	2.93	3.28	51	51	-
Elbert County	18 634	7 116	5 314	4 070	1 030	1 801	1 680	803	710	2.62	3.16	315	303	12
Emanuel County	20 210	7 420	5 504	4 080	1 206	1 916	1 790	887	740	2.72	3.25	334	325	9
Evans County	8 334	3 144	2 264	1 671	544	880	781	381	300	2.65	3.19	390	316	74
Fannin County	15 683	6 384	4 844	4 180	580	1 480	1 401	733	580	2.50	2.92	329	329	-
Fayette County	62 216	21 664	18 046	16 110	1 420	3 606	2 940	1 001	860	2.86	3.25	187	187	-
Floyd County	77 930	30 146	22 110	17 744	3 862	8 030	7 239	3 196	2 601	2.56	3.07	3 212	1 667	1 605
Forsyth County	43 762	15 900	12 787	11 164	1 113	3 151	2 590	864	775	2.75	3.07	281	275	[illegible]
Franklin County	16 386	6 366	4 787	3 880	686	1 579	1 480	770	604	2.58	3.02	264	166	98
Fulton County	626 974	257 140	155 607	99 226	47 510	101 233	78 745	21 475	17 304	2.44	3.11	21 677	8 405	13 272
Gilmer County	13 179	5 072	3 940	3 282	464	1 132	1 005	543	437	2.60	2.99	188	188	-
Glascock County	2 263	857	640	541	84	216	199	118	78	2.64	3.04	114	114	-
Glynn County	61 427	23 947	17 308	13 714	3 345	6 639	5 647	2 310	1 849	2.57	3.04	1 059	645	414
Gordon County	34 740	12 776	9 938	8 230	1 300	2 838	2 539	1 116	917	2.72	3.13	323	322	1
Grady County	19 891	7 264	5 571	4 216	1 116	1 703	1 638	884	706	2.72	3.19	278	242	36
Greene County	11 663	4 083	3 012	2 088	791	1 071	974	583	396	2.85	3.42	130	107	23
Gwinnett County	351 347	126 971	96 396	82 388	10 401	30 575	22 591	3 427	3 086	2.77	3.16	1 063	1 308	154
Habersham County	25 617	9 988	7 672	6 525	846	2 284	2 108	973	787	2.59	3.00	1 804	1 463	341
Hall County	93 679	34 721	26 682	21 402	3 882	8 039	6 980	2 623	2 102	2.70	3.10	1 540	1 036	544
Hancock County	8 747	2 988	2 284	1 270	780	764	725	364	296	2.86	3.55	161	149	12
Haralson County	21 086	8 348	6 332	5 146	980	1 995	1 834	886	730	2.63	3.08	271	271	-
Harris County	17 084	6 454	5 098	4 180	714	1 362	1 234	590	421	2.73	3.12	164	164	-
Hart County	19 280	7 400	5 670	4 534	880	1 780	1 644	847	692	2.60	3.04	322	318	4
Heard County	8 400	3 066	2 388	1 912	384	686	613	280	226	2.75	3.17	128	123	5
Henry County	58 140	20 962	16 704	14 280	1 786	3 258	2 851	1 035	817	2.81	3.19	383	351	32
Houston County	87 924	32 430	24 695	19 712	3 987	7 735	6 677	1 765	1 420	2.71	3.15	1 284	686	598
Irwin County	8 520	3 142	2 380	1 763	480	762	732	402	316	2.71	3.20	128	128	-
Jackson County	29 296	10 721	8 353	6 866	1 093	2 368	2 066	988	781	2.73	3.13	710	548	162
Jasper County	8 389	3 088	2 307	1 705	480	780	644	380	282	2.76	3.21	64	64	-
Jeff Davis County	11 941	4 387	3 370	2 687	592	1 017	879	382	335	2.74	3.16	91	91	-
Jefferson County	16 980	6 080	4 480	2 985	1 354	1 604	1 487	779	689	2.79	3.36	482	482	-
Jenkins County	8 127	2 951	2 186	1 545	585	765	692	349	272	2.75	3.24	120	99	21
Johnson County	8 165	3 010	2 321	1 620	540	700	745	415	326	2.71	3.26	161	161	-
Jones County	20 510	7 308	5 891	4 805	926	1 408	1 245	479	383	2.81	3.21	200	168	32
Lamar County	12 790	4 688	3 580	2 764	703	1 191	1 081	497	396	2.73	3.18	379	189	190
Lanier County	5 459	1 985	1 586	1 144	287	400	418	165	144	2.79	3.22	71	63	8
Laurens County	38 420	13 944	10 662	8 082	2 284	3 682	3 374	1 580	1 271	2.66	3.16	1 130	1 102	28
Lee County	15 982	5 188	4 288	3 480	687	896	782	330	326	3.80	3.34	668	668	-
Liberty County	45 285	15 125	12 404	10 180	1 833	2 721	2 225	627	412	3.00	3.30	7 430	168	7 252
Lincoln County	7 371	2 702	2 059	1 587	388	643	593	355	281	2.74	3.21	46	29	17

NOTE: The population counts set forth herein are subject to possible correction for undercount or overcount. The United States Department of Commerce is considering whether to correct these counts and will publish corrected counts, if any, not later than July 15, 1991.

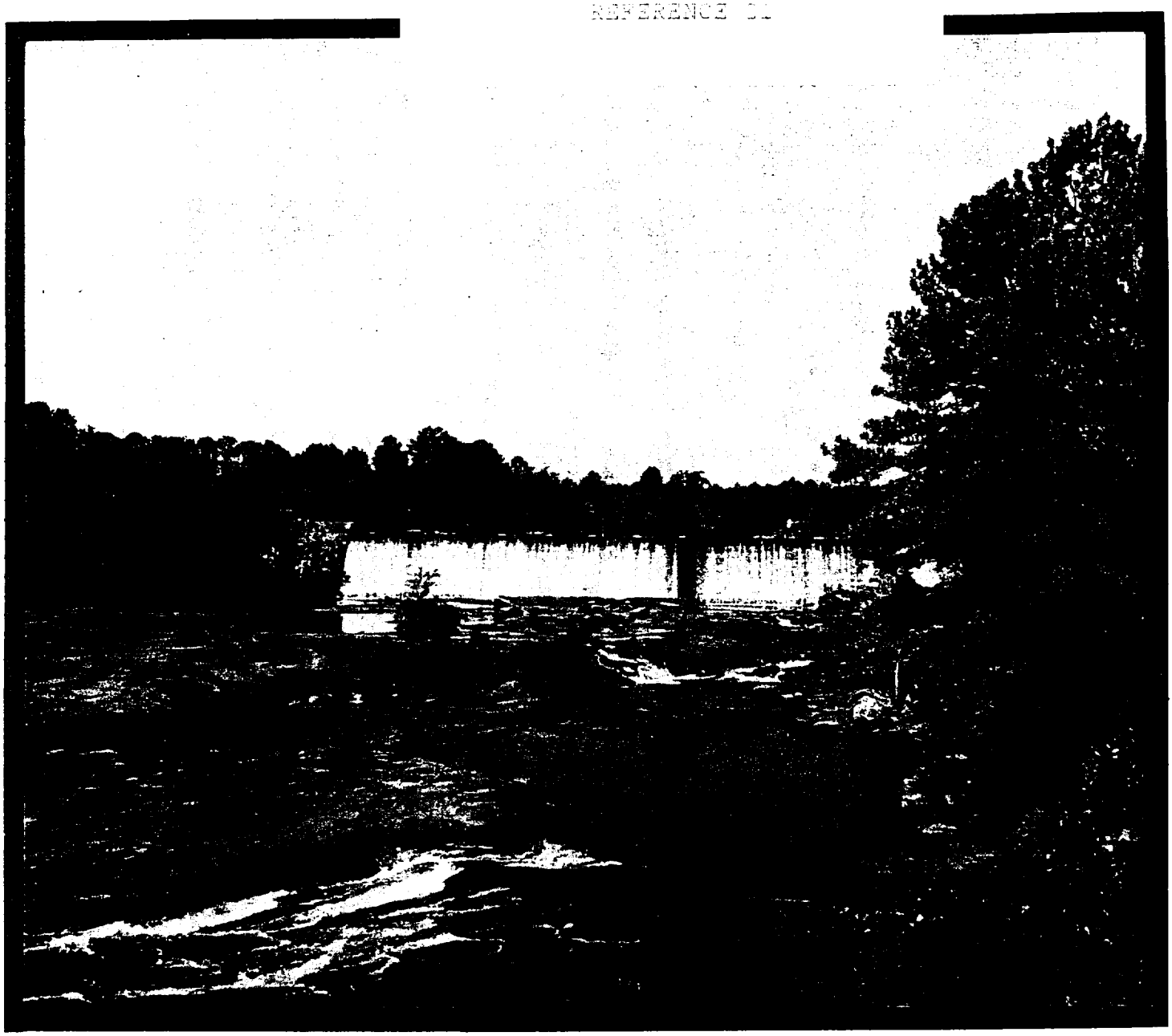
Table 6. Household, Family, and Group Quarters Characteristics: 1990 —Con.

[For definitions of terms and meanings of symbols, see text]

State / County / Place and [In Selected States] County Subdivision	Persons in households	All households	Family households: Total	Family households: Married-couple family	Family households: Female householder, no husband present	Nonfamily households: Total	Householder living alone: Total	65 years and over: Total	65 years and over: Female	Persons per—: Household	Persons per—: Family	Persons in group quarters: Total	Institutionalized persons	Other persons in group quarters
COUNTY—Con.														
Long County	6 110	2 196	1 683	1 383	218	513	447	186	138	2.79	3.22	63	4	79
Lowndes County	71 652	26 311	18 123	14 300	4 012	7 188	5 744	2 086	1 681	2.72	3.22	4 329	1 814	2 515
Lumpkin County	13 316	4 576	3 672	3 282	436	1 904	982	370	283	2.68	3.07	1 255	156	1 099
McDuffie County	19 862	7 270	5 508	3 985	1 386	1 762	1 558	676	538	2.73	3.18	257	232	25
McIntosh County	8 822	3 186	2 371	1 800	540	815	730	349	246	2.71	3.18	12	12	-
Macon County	12 826	4 388	3 322	2 088	1 046	1 066	981	513	412	2.92	3.46	284	286	-
Madison County	20 902	7 740	6 061	5 075	749	1 679	1 489	677	558	2.70	3.09	144	108	36
Marion County	5 512	1 962	1 524	1 132	317	438	392	203	164	2.81	3.22	78	78	-
Meriwether County	21 883	7 637	5 800	4 122	1 383	1 837	1 666	836	676	2.87	3.36	518	341	177
Miller County	6 184	2 336	1 741	1 334	379	595	554	316	250	2.65	3.14	96	96	-
Mitchell County	18 986	6 786	5 254	3 533	1 467	1 544	1 414	759	632	2.84	3.42	289	212	77
Monroe County	16 509	5 838	4 547	3 548	800	1 291	1 130	477	374	2.83	3.25	404	399	5
Montgomery County	6 714	2 483	1 842	1 432	383	641	598	313	236	2.49	3.20	449	213	236
Morgan County	12 705	4 388	3 443	2 588	661	957	864	417	339	2.89	3.32	176	156	20
Murray County	25 980	9 303	7 488	6 239	881	1 864	1 628	606	488	2.77	3.14	167	161	6
Muscogee County	171 700	65 858	47 235	33 380	11 808	18 623	16 128	5 847	4 716	2.61	3.12	7 578	2 963	4 615
Newton County	41 040	14 401	11 337	8 908	1 915	3 064	2 639	1 210	987	2.85	3.25	760	310	450
Oconee County	17 474	6 138	4 980	4 253	555	1 188	987	384	329	2.84	3.18	144	140	4
Oglethorpe County	9 481	3 381	2 748	2 188	448	633	737	317	248	2.70	3.14	82	82	-
Paulding County	41 289	14 336	11 990	10 298	1 218	2 327	1 984	772	584	2.88	3.17	322	309	13
Peach County	18 954	7 142	5 485	3 844	1 385	1 677	1 480	603	481	2.79	3.23	1 235	82	1 153
Pickens County	14 252	5 386	4 239	3 487	464	1 147	1 051	516	390	2.65	3.08	180	180	-
Pierce County	13 282	4 807	3 759	3 104	507	1 048	982	486	380	2.76	3.18	66	66	-
Pike County	10 100	3 528	2 881	2 385	317	702	647	321	256	2.86	3.26	124	124	-
Polk County	33 416	12 518	9 482	7 404	1 628	3 084	2 638	1 518	1 217	2.67	3.13	406	370	36
Pulaski County	7 986	3 088	2 185	1 584	504	913	842	432	344	2.58	3.15	122	122	-
Putnam County	13 854	5 229	3 938	3 043	702	1 291	1 118	429	330	2.65	3.07	281	277	4
Quitman County	2 205	857	626	408	167	231	214	112	72	2.57	3.08	4	-	4
Rabun County	11 480	4 630	3 477	2 940	412	1 153	1 036	584	404	2.48	2.88	188	166	22
Randolph County	7 604	2 815	2 003	1 301	596	812	773	463	366	2.71	3.26	329	104	225
Richmond County	179 514	66 675	47 085	32 988	12 384	20 590	17 887	5 732	4 578	2.61	3.16	10 205	3 423	4 782
Rockdale County	53 546	19 337	15 121	12 771	1 817	3 216	2 638	832	760	2.88	3.23	545	498	48
Schley County	3 581	1 315	964	730	178	351	304	171	153	2.72	3.25	7	7	-
Screven County	13 613	5 045	3 886	2 685	986	1 389	1 230	618	520	2.70	3.23	229	204	25
Seminole County	9 420	3 137	2 336	1 720	516	801	707	410	325	2.88	3.18	500	88	412
Spalding County	53 813	19 435	14 891	11 044	3 222	4 525	3 874	1 771	1 457	2.76	3.18	844	836	8
Stephens County	22 888	8 948	6 633	5 453	964	2 316	2 131	1 086	887	2.54	3.08	509	10	479
Stewart County	5 543	1 982	1 439	981	425	543	398	280	213	2.80	3.40	111	111	-
Sumter County	28 611	10 484	7 610	5 604	2 275	2 874	2 544	1 087	865	2.73	3.20	1 417	771	646
Talbot County	6 517	2 345	1 786	1 188	473	559	543	283	188	2.78	3.28	7	7	-
Taliaferro County	1 915	727	492	344	116	235	220	142	114	2.63	3.32	-	-	-
Tattnall County	15 251	5 645	4 272	3 270	835	1 373	1 236	735	580	2.61	3.11	2 471	2 189	282
Taylor County	7 632	2 834	2 159	1 496	530	724	675	367	322	2.72	3.24	10	10	-
Telfair County	10 641	4 017	2 901	2 083	689	1 116	1 044	589	478	2.65	3.20	359	344	15
Terrell County	10 506	3 728	2 772	1 883	804	956	887	486	383	2.81	3.34	146	145	-
Thomas County	38 325	14 303	10 644	7 804	2 564	3 679	3 342	1 604	1 335	2.68	3.16	651	580	61
Tift County	33 450	12 184	9 191	6 891	1 911	3 003	2 734	1 187	975	2.75	3.23	1 548	385	1 163
Toombs County	23 682	8 804	6 386	4 754	1 303	2 418	2 176	973	770	2.69	3.20	420	388	32
Towns County	6 382	2 812	2 096	1 816	183	796	712	387	285	2.26	2.69	392	78	314
Treutlen County	5 917	2 188	1 687	1 178	384	551	503	288	243	2.74	3.27	77	65	12
Troup County	54 508	20 371	14 988	11 063	3 302	5 391	4 771	2 231	1 807	2.68	3.18	1 036	711	325
Turner County	8 586	3 043	2 391	1 605	676	712	673	379	312	2.82	3.32	117	117	-
Twiggs County	9 660	3 386	2 630	1 866	653	758	685	391	282	2.85	3.30	156	151	5
Union County	11 768	4 709	3 603	3 182	365	1 006	888	536	408	2.50	2.85	284	281	3
Upson County	25 840	9 911	7 385	5 467	1 541	2 526	2 297	1 280	1 046	2.61	3.09	460	448	12
Walker County	57 594	21 687	16 687	13 880	2 235	4 810	4 385	2 111	1 730	2.66	3.06	916	826	90
Walton County	38 229	13 438	10 748	8 634	1 613	2 694	2 382	1 104	883	2.85	3.22	357	357	-
Ware County	33 786	12 845	9 438	7 080	1 945	3 630	3 341	1 604	1 317	2.59	3.12	1 083	1 023	60
Warren County	5 974	2 130	1 688	1 086	487	527	487	294	241	2.80	3.28	104	104	-
Washington County	18 789	6 739	4 985	3 365	1 330	1 754	1 605	776	604	2.79	3.32	323	311	12
Wayne County	21 761	7 982	6 113	4 609	1 083	1 839	1 679	783	606	2.73	3.18	395	382	13
Webster County	2 303	785	610	445	121	185	172	96	61	2.64	3.32	-	-	-
Wheeler County	4 817	1 786	1 320	1 080	226	466	451	273	225	2.70	3.21	86	65	21
White County	12 983	4 687	3 760	3 286	380	1 109	1 003	476	374	2.66	3.00	483	161	322
Whitfield County	71 830	26 586	20 586	16 971	2 940	6 303	5 485	1 866	1 533	2.67	3.08	654	571	83
Wilcox County	6 837	2 541	1 968	1 388	366	578	540	370	283	2.71	3.17	201	201	-
Wilkes County	10 511	4 082	2 882	2 132	646	1 088	1 030	566	416	2.61	3.12	65	65	-
Wilkinson County	10 183	3 618	2 765	2 082	616	864	798	382	274	2.81	3.31	45	45	-
Worth County	19 614	6 885	5 480	4 187	1 087	1 407	1 305	675	541	2.85	3.27	127	53	74
PLACE AND COUNTY SUBDIVISION														
Abbeville city	809	300	221	153	54	80	76	40	40	2.67	3.18	98	98	-
Dodge County	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wilcox County	809	305	225	155	54	80	76	40	40	2.67	3.18	98	98	-
Acworth city, Cobb County	4 517	1 758	1 288	1 067	186	480	402	163	137	2.57	3.04	2	2	-
Adairsville city, Bartow County	2 131	772	597	391	166	185	160	85	70	2.76	3.19	-	-	-
Adel city, Cook County	4 987	1 786	1 280	880	380	504	460	246	207	2.71	3.33	166	128	38
Adrian city	615	238	176	118	45	62	62	35	30	2.58	3.05	-	-	-
Emanuel County	300	113	88	64	18	27	26	15	14	2.59	2.88	-	-	-
Johnson County	322	125	94	62	27	41	36	18	16	2.58	3.18	-	-	-
Ailey city, Montgomery County	484	185	125	100	24	60	45	36	32	2.61	3.16	95	-	95
Alamo city, Wheeler County	840	310	222	182	35	87	85	50	40	2.65	3.24	6	6	-
Alapaha town, Berrien County	780	287	208	146	54	65	60	27	23	2.75	3.20	23	-	23
Albany city, Dougherty County	76 223	27 986	19 977	12 351	6 724	7 940	6 880	2 485	1 982	2.68	3.25	2 880	1 120	1 760
Aldora town, Lamar County	127	46	35	30	4	11	11	6	5	2.76	3.20	-	-	-
Allenhurst town, Liberty County	564	210	160	120	35	47	38	11	10	2.63	3.20	-	-	-
Allentown town	273	105	80	48	34	25	20	13	11	2.60	3.08	-	-	-
Bleckley County	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laurens County	2	1	1	1	-	-	-	-	-	2.00	2.00	-	-	-
Twiggs County	40	16	15	9	2	3	3	1	1	2.66	3.38	-	-	-
Wilkinson County	231	88	60	38	18	22	20	12	10	2.57	3.01	-	-	-
Alma city, Bacon County	3 320	1 287	880	571	285	430	417	234	191	2.53	3.11	130	121	9
Alpharetta city, Fulton County	12 484	5 085	3 485	1 013	471	1 602	1 285	280	248	2.45	2.96	116	116	-
Alston town, Montgomery County	188	59	42	35	4	14	13	11	8	2.80	3.45	-	-	-

NOTE: The population counts set forth herein are subject to possible correction for undercount or overcount. The United States Department of Commerce is considering whether to correct these counts and will publish corrected counts, if any, not later than July 15, 1991.

REFERENCE 11



Water Availability & Use
Ocmulgee River Basin

Georgia Department of Natural Resources
Environmental Protection Division

FACILITY I.D. NUMBER	FACILITY NAME	COUNTY	CITY	STREAM	RIVER MILE	PLANT DISCHARGE (mgd)	PERMITTED WITHDRAWAL (mgd)	DRAINAGE AREA (sq. mi.)	7Q10 (cfs)	LEVEL OF SERVICE (%)
2-250-(ISD)	GA Kraft	Bibb	Macon	Ocmulgee R.	188.4	4.0	--	--	--	--
2-260-(ISD)	William Carter Co.	Lamar	Barnesville	Tobesofkee Trib.	1.5	1.6	--	--	--	--
2-270-(MGW)	City of Hampton	Henry	Hampton	--	--	--	0.24	--	--	--
2-280-(IGW)	Armstrong World Ind.	Bibb	Macon	--	--	--	2.00	--	--	--
2-290-(ISD)	Armstrong World Ind.	Bibb	Macon	Rocky Creek	1.9	1.09	--	--	--	--
2-300-(MSD)	Macon-Bibb-Rocky Creek	Bibb	Macon	Rocky Creek	1.0	14.0	--	--	--	--
2-310-(IGW)	GA Kraft Co.-Mead Div.	Bibb	Macon	--	--	--	1.00	--	--	--
2-315-(IGW)	Dyka USA Inc.	Bibb	Macon	--	--	--	0.45	--	--	--
2-320-(MGW)	City of Byron	Peach	Byron	--	--	--	0.35	--	--	--
2-330-(IGW)	JM Huber Corp.-Mine Shop	Twiggs	Huber	--	--	--	5.86	--	--	--
2-340-(IGW)	Packaging Corp. Amer.	Bibb	Macon	--	--	--	0.40	--	--	--
2-350-(MGW)	Macon-Bibb Co. Water & Sewer	Bibb	Macon	--	--	--	0.36	--	--	--
2-360-(MGW)	Houston Co. Board of Comm.	Houston	Elberta	--	--	--	0.40	--	--	--
2-370-(MSD)	Warner Robins-Horse Creek	Houston	Warner Robins	Horse Creek	1.2	3.3	--	--	--	--
2-380-(IGW)	Georgia Kaolin Co.-Mine	Twiggs	Dry Branch	--	--	--	0.38	--	--	--
2-390-(IGW)	Georgia Kaolin Company	Twiggs	Dry Branch	--	--	--	4.70	--	--	--
2-400-(ISD)	Georgia Kaolin Company	Twiggs	Dry Branch	Stone Creek	9.0	2.2	--	--	--	--
2-410-(ISD)	JM Huber	Twiggs		Dry Branch	5.9	2.2	--	--	--	--
2-420-(IGW)	Robins AFB/Dept Air Force	Houston	Warner Robins	--	--	--	7.0	--	--	--
2-430-(ISD)	Robins AFB/Dept Air Force	Houston	Warner Robins	Horse Creek	3.6	2.1	--	--	--	--
2-440-(MGW)	City of Centerville	Houston	Centerville	--	--	--	0.70	--	--	--
2-450-(MGW)	City of Warner Robins	Houston	Warner Robins	--	--	--	13.0	--	--	--
2-460-(MGW)	Houston Co. Board of Comm.	Houston	Feagin Mill	--	--	--	2.0	--	--	--
2-470-(MSD)	Warner Robins-Sandy Run	Houston	Warner Robins	Sandy Run Cr.	3.6	3.0	--	--	--	--
2-480-(IGW)	Nord Kaolin Co.	Twiggs	Jeffersonville	--	--	--	2.4	--	--	--

OCMULGEE RIVER WATER AVAILABILITY AND USE REPORT

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

MAJOR FACILITIES IN HYDROLOGIC UNIT 2
FIGURE 6

FACILITY I.D. NUMBER	FACILITY NAME	COUNTY	CITY	STREAM	RIVER MILE	PLANT DISCHARGE (mgd)	PERMITTED WITHDRAWAL (mgd)	DRAINAGE AREA (sq. mi.)	7Q10 (cfs)	LEVEL OF SERVICE (%)
2-490-(IGW)	JM Huber Corp-Plant	Twiggs	Huber	--	--	--	28.4	--	--	--
2-500-(MGW)	City of Jeffersonville	Twiggs	Jeffersonville	--	--	--	0.55	--	--	--
2-510-(MSD)	City of Fort Valley	Peach	Fort Valley	Bay Creek	11.9	2.2	--	--	--	--
2-520-(MGW)	City of Fort Valley	Peach	Fort Valley	--	--	--	2.4	--	--	--
2-530-(MSD)	City of Perry	Houston	Perry	Big Indian Creek	0.6	3.0	--	--	--	--
2-540-(MGW)	City of Perry	Houston	Perry	--	--	--	1.60	--	--	--
2-550-(ISD)	Heileman Brewery	Houston	Perry	Tributary	--	1.5	--	--	--	--
2-560-(IGW)	Heileman Brewing Co.	Houston	Pabst	--	--	--	6.50	--	--	--
2-570-(MGW)	Houston Co. Board of Comm.	Houston	Henderson	--	--	--	0.10	--	--	--
2-580-(MGW)	Houston Co. Board of Comm.	Houston	Elko	--	--	--	0.10	--	--	--
2-590-(MGW)	Houston Co. Board of Comm.	Houston	Haynesville	--	--	--	0.10	--	--	--
2-600-(MGW)	City of Unadilla	Dooly	Unadilla	--	--	--	0.50	--	--	--
2-610-(MGW)	City of Cochran	Bleckley	Cochran	--	--	--	0.99	--	--	--
2-620-(IGW)	Middle Georgia College	Bleckley	Cochran	--	--	--	0.21	--	--	--
2-630-(IGW)	Portals Limited	Pulaski	Hawkinsville	--	--	--	1.00	--	--	--
2-640-(MSD)	Hawkinsville	Pulaski	Hawkinsville	Ocmulgee River	125.5	1.3	--	--	--	--
2-650-(MGW)	City of Hawkinsville	Pulaski	Hawkinsville	--	--	--	1.35	--	--	--

OCMULGEE RIVER WATER AVAILABILITY AND USE REPORT

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

MAJOR FACILITIES IN HYDROLOGIC UNIT 2
FIGURE 6

FACILITY I.D. NUMBER	FACILITY NAME	COUNTY	CITY	STREAM	RIVER MILE	PLANT DISCHARGE (mgd)	PERMITTED WITHDRAWAL (mgd)	DRAINAGE AREA (sq. mi.)	7Q10 (cfs)	LEVEL OF SERVICE (%)
2-010-(MSW)	Henry County	Henry		Towaliga R.	35.5	--	2.8	56.8	5.1	≥99
2-020-(MSW)	Henry County	Henry		Indian Creek	--	--	2.0	--	1.8	97
2-030-(MSW)	City of Jackson	Butts	Jackson	Towaliga R.	25.4	--	1.0	--	0.8	≥99*
2-050-(MSD)	Griffin-Cabin Creek	Spalding	Griffin	Cabin Creek	16.9	1.5	--	--	--	--
2-060-(MSW)	City of Jackson	Lamar	Jackson	Buck Creek	1.0	--	1.0	--	3.4	--
2-070-(MSW)	City of Barnesville	Lamar	Barnesville	Big Towaliga Cr.	15.0	--	0.5	4.3	0.5	≥99*
2-090-(MSW)	City of Barnesville	Lamar	Barnesville	Edie Creek	0.9	--	2.5	18.0	0.8	98*
2-100-(MSW)	City of Forsyth	Monroe	Forsyth	Rocky Creek	2.6	--	1.2	24.1	3.0	≥99*
2-105-(MSW)	City of Forsyth	Monroe	Forsyth	Tobesofkee Creek	27.0	--	0.2	45	4.9	96
2-110-(IGW)	GA Power-Plant Scherer	Monroe	Juliette	--	--	--	0.15	--	--	--
2-120-(ISW)	Bibb Company	Monroe	Juliette	Ocmulgee R.	221.9	--	3.66	1960	340	≥99*
2-130-(ISD)	GA Power Plant-Scherer	Monroe	Juliette	Ocmulgee R.	221.3	46.1	--	--	--	--
2-140-(ISD)	GA Power Plant-Scherer	Monroe	Juliette	Ocmulgee R.	221.3	15.5	--	--	--	--
2-150-(ISD)	Bibb Company	Monroe	Juliette	Berry Creek	0.1	2.0	--	--	--	--
2-160-(ISW)	Georgia Power-Plant Scherer	Monroe	Juliette	Ocmulgee R.	217.3	--	89	1980	410	94-96
2-170-(ISD)	GA Power Plant-Arkwright	Bibb	Macon	Ocmulgee R.	206.8	6.8	--	--	--	--
2-180-(ISD)	GA Power Plant-Arkwright	Bibb	Macon	Ocmulgee R.	206.8	246.1	--	--	--	--
2-190-(ISW)	GA Power Plant-Arkwright	Bibb	Macon	Ocmulgee R.	206.8	--	238	2200	410	≥99*
2-200-(MSW)	Macon-Bibb Water	Bibb	Macon	Ocmulgee R.	201.1	--	35	2230	410	≥99*
2-210-(MGW)	Jones County Water System	Jones	Macon	--	--	--	1.05	--	--	--
2-220-(IGW)	Toms Food Inc.	Bibb	Macon	--	--	--	0.87	--	--	--
2-230-(MSD)	Macon-Bibb-Poplar Street	Bibb	Macon	Ocmulgee R.	192.7	12.0	--	--	--	--
2-240-(ISW)	Georgia Kraft	Bibb	Macon	Ocmulgee R.	188.5	--	13.61	2380	378	≥99*

*Calculated without minimum streamflow requirement

OCMULGEE RIVER WATER AVAILABILITY AND USE REPORT

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

MAJOR FACILITIES IN HYDROLOGIC UNIT 2
FIGURE 6

B&V WASTE SCIENCE AND TECHNOLOGY CORP.

REFERENCE 22

TELEPHONE MEMORANDUM

Site Assessment
ITT Suspension System

BVWST Project 52011.045
BVWST File E.1
June 30, 1992
1:25 p.m.

Fishing Status on Ocmulgee River and Echeconnee Creek

To: Tim Kendrick
Company: Georgia Department of Natural Resources Game Division
Phone No.: (912) 751-6415

Recorded by: Dan Keck

Mr. Kendrick said that to his knowledge, no commercial fishing occurred on these rivers. Only recreational and sport fishing occurred on these rivers. He also said that there were no fishing bans imposed on these rivers.

ENDANGERED AND THREATENED SPECIES

U.S. FISH AND WILDLIFE SERVICE

REGION 4 - ATLANTA

Federally Listed Species by State

GEORGIA

(E=Endangered; T=Threatened; CH=Critical Habitat determined)

Mammals	General Distribution
Bat, gray (Myotis grisescens) - E	Northwest, West
Bat, Indiana (Myotis sodalis) - E	Extreme Northwest
Manatee, West Indian (Trichechus manatus) - E	Coastal waters
Panther, Florida (Felis concolor coryi) - E	Entire state
Whale, finback (Balaenoptera physalus) - E	Coastal waters
Whale, humpback (Megaptera novaeangliae) - E	Coastal waters
Whale, right (Eubalaena glacialis) - E	Coastal waters
Whale, sei (Balaenoptera borealis) - E	Coastal waters
Whale, sperm (Physeter catodon) - E	Coastal waters

Birds	
Eagle, bald (Haliaeetus leucocephalus) - E	Entire state
Falcon, American peregrine (Falco peregrinus anatum) - E	North
Falcon, Arctic peregrine (Falco peregrinus tundrius) - T	Coast, Northwest
Plover, piping (Charadrius melodus) - T	Coast
Stork, wood (Mycteria americana) - E	Southeastern swamps
Warbler, Bachman's (Vermivora bachmanii) - E	Entire state
Warbler, Kirtland's (Dendroica kirtlandii) - E	Coast
Woodpecker, ivory-billed (Campephilus principalis) - E	South, Southwest
Woodpecker, red-cockaded (Picoides (=Dendrocopos) borealis) - E	Entire state

Reptiles	
Alligator, American (Alligator mississippiensis) - T(S/A)*	Coastal plain
Snake, eastern indigo (Drymarchon corais couperi) - T	Southeast

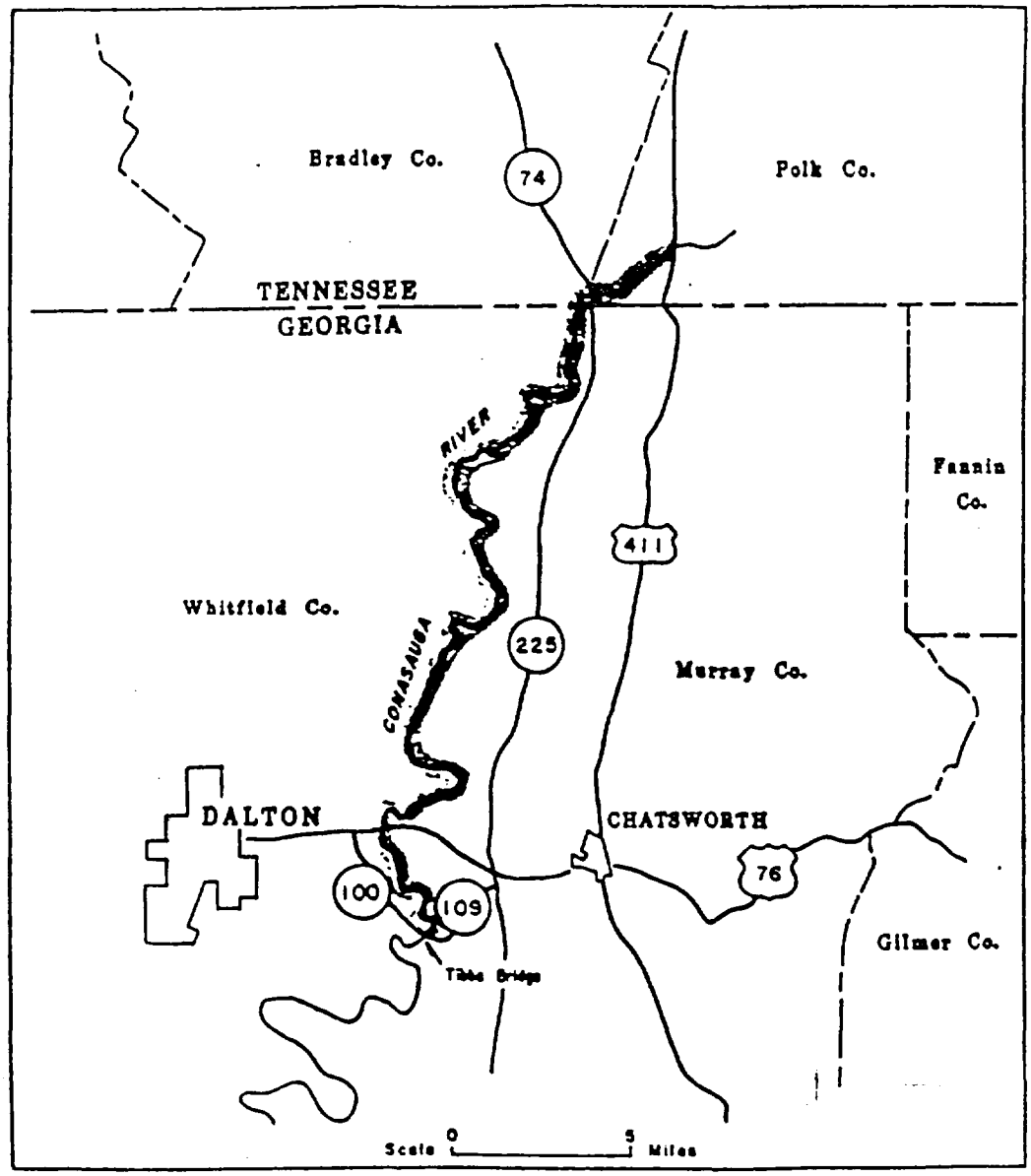
*Alligators are biologically neither endangered nor threatened. For law enforcement purposes they are classified as "Threatened due to Similarity of Appearance." Alligator hunting is regulated in accordance with State law.

GEORGIA - Critical Habitat

Percina antesella, "amber darter"

Conasauga River from the U.S. Route 411 bridge in Polk County, Tennessee, downstream approximately 33.5 miles through Bradley County, Tennessee and Murray and Whitfield Counties, Georgia, to the Tibbs Bridge Road bridge (Murray County Road 109 and Whitfield County Road 100).

Constituent elements include high quality water, riffle areas (free of silt) composed of sand, gravel, and cobble which becomes vegetated primarily with Podostemum during the summer.

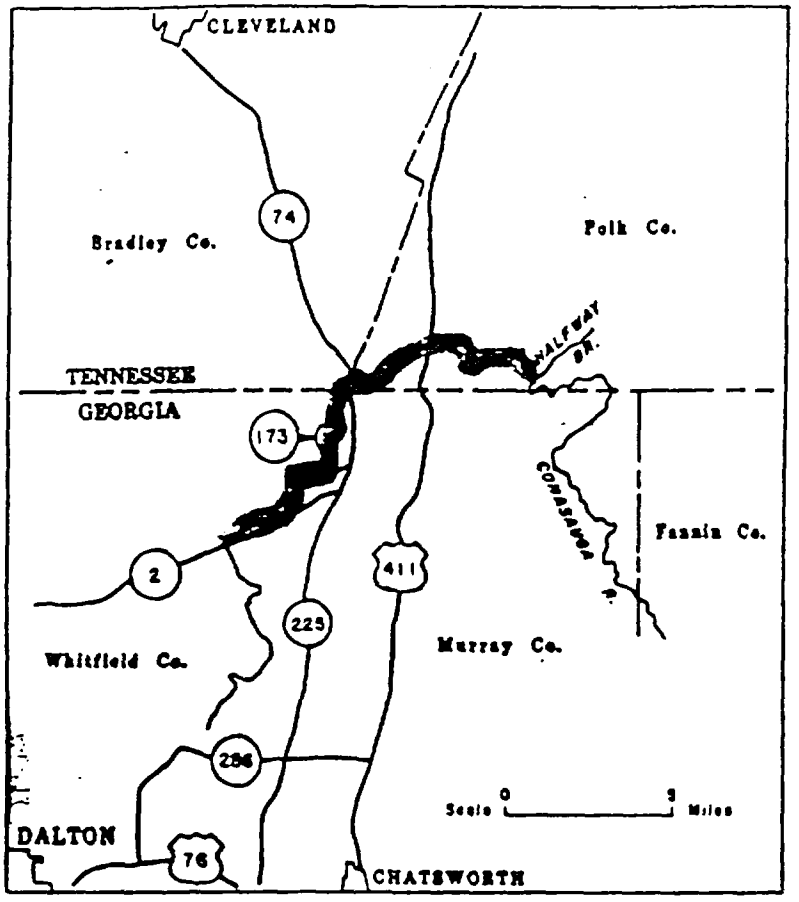


GEORGIA - Critical Habitat

Percina jenkinsi, "Conasauga logperch"

Conasauga River from the confluence of Halfway Branch with the Conasauga River in Polk County, Tennessee, downstream approximately 11 miles to the Georgia State Highway 2 bridge, Murray County, Georgia.

Constituent elements include high quality water, pool areas with flowing water and silt free riffles with gravel and rubble substrate, and fast riffle areas and deeper chutes with gravel and small rubble.



ITT SUSPENSION SYSTEMS
LATITUDE 32:41:45 LONGITUDE 83:40:23 1983 POPULATION

KM	0.00-.400	.400-.810	.810-1.60	1.60-3.20	3.20-4.80	4.80-6.40	SECTOR TOTALS
S 1	0	0	0	0	0	4131	4131
S 2	0	0	0	0	0	917	917
S 3	0	0	0	1582	0	0	1582
S 4	0	0	0	0	0	606	606
S 5	0	0	0	0	938	5053	5991
S 6	0	0	0	0	120	0	120
S 7	0	0	0	0	0	0	0
S 8	0	0	0	2048	0	0	2048
RING TOTALS	0	0	0	3630	1058	10707	15395

press RETURN to continue
MENU: Geodata Handling Data List procedures
[illegible]name (in parentheses) ([illegible])
or a command: HELP, HELP option, BACK, CLEAR, EXIT, TUTOR
GEMS> next

[ERR-039]

Type YES to confirm the EXIT command; type NO to restart GEMS
GEMS> yes
$ logout
HTW logged out at 18-MAY-1992 13:55:48.48
Itemized resource charges, for this session, follow:

NODE: VAXTM1
ACCT: 9040
PROJ: GEMS0001
USER: HTW
UIC: [000710,000012]
BAUD:

START TIME: 18-MAY-1992 13:48:21.51
FINISH TIME: 18-MAY-1992 13:55:48.48
BILLING PERIOD: 920501
WEEKDAY: MONDAY
TERMINAL PORT: VTA226

DESCRIPTION OF CHARGE		QUANTITY	EXPENDITURE
ALL CHARGE LEVELS			
300 baud	(Seconds)	447	0.0000
CPU TIME	(Seconds)	9	0.5000
TOTAL FOR THIS SESSION			$ 0.5000

** Note: This total reflects the charges for this process only, subprocesses created during this session are accounted for separately
Enter selection:

al

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 23 1992

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

IMPORTANT--ALL READ

MEMORANDUM

SUBJECT: Transmittal of Superfund Accelerated Cleanup Model (SACM) Legal Directive

FROM: Henry L. Longest, II
Director, Office of Emergency and Remedial Response

TO: All Regional Superfund Staff and Managers

Attached is a copy of the Guidance on Implementation of the Superfund Accelerated Cleanup Model (SACM) under CERCLA and the NCP. This important memorandum is an excellent point-by-point analysis of SACM vis a vis current legal requirements, and it does maximize the flexibility in the NCP.

This will serve as a great reference tool as we move forward to implement SACM. A National SACM Meeting is planned for late August including staff and management from Headquarters and all ten Regions. I will continue to forward you information on SACM as it develops.

Attachment

URGENT!

Division Directors

Please Copy and Distribute to All Staff

Printed on Recycled Paper

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 7 1992

OSWER Directive No. 9203.1-03

SUBJECT: Guidance on Implementation of the Superfund Accelerated Cleanup Model (SACM) under CERCLA and the NCP

FROM: Don R. Clay
Assistant Administrator for Solid Waste and Emergency Response

Lisa K. Friedman
Associate General Counsel
Solid Waste and Emergency Response Division

TO: Waste Management Division Directors
Regions I, IV, V, VI, VII, VIII
Emergency and Remedial Response Division Director
Region II
Hazardous Waste Management Division Directors
Regions III, IX
Hazardous Waste Division Director
Region X
Superfund Branch Chiefs
Regions I-X

Superfund Branch Chiefs,
Office of Regional Counsel
Regions I-X

PURPOSE

To provide a more precise description of the Superfund Accelerated Cleanup Model (SACM), in order to ensure its consistent application in compliance with CERCLA and the National Contingency Plan (NCP).[1]

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[1] This Directive does not address the unique issues associated with the implementation of the SACM model at federal facility sites. Supplemental guidance on those issues is under development.

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Attachment 1

BACKGROUND

In broad terms, the SACM model seeks to accomplish four objectives: establish a continuous process for the assessment of site-specific conditions and the need for action; create cross-program Regional Decision/Management Teams responsible for initiating appropriate actions as information is developed about a site; achieve prompt risk reduction through early actions (removal or remedial); and ensure the appropriate cleanup of long-term environmental problems. **The overall goal of SACM is to accelerate cleanups and increase efficiency in the Superfund process within the framework of CERCLA and the NCP, while ensuring that cleanups continue to be protective and to allow for appropriate public involvement.**

Since the announcement of SACM, there has been considerable interest and enthusiasm about the model. Active discussions continue among Headquarters offices and the Regions, and views have been solicited from the Corps of Engineers, the Department of Justice, and States in an effort to further develop the guiding principles of SACM. Now that the model has been outlined conceptually, it is important to discuss the details of the approach in order to ensure that all participants are working from a consistent starting point, and that the model is carried out in compliance with CERCLA and consistent with the NCP.

DISCUSSION

Relationship to CERCLA and the NCP. SACM is intended to help the Agency accomplish the goals of expedited cleanup and increased efficiency in the Superfund process within the framework of the current statute and NCP. The Agency believes that there is adequate flexibility under the current law and regulations to accomplish these goals; however, SACM does not provide independent authority to carry out actions that are not authorized by the CERCLA and the NCP regulations.

For instance, the use of the terms "early actions" and "long-term actions" in SACM should not be read to mean that actions may be implemented under the SACM model that are other than removal or remedial actions. **Any action taken under CERCLA must fall into the category of a removal action or a remedial action, and then must conform to applicable NCP requirements.** The categorization in SACM of early removal actions and early remedial actions as "early actions" is meant to better communicate the timing and nature of actions designed to achieve rapid reduction of risk, although not necessarily cleanup of all contamination. (Given the large number of sites with contaminant problems that may require long-term solutions, e.g., sites requiring groundwater restoration, it is anticipated that many sites will have both early and long-term action components.)

At the same time, however, the NCP affords the Agency considerable discretion in many instances. For example, the numerous data collection efforts contemplated by the NCP could be performed as part of one large site assessment (as discussed later in this Directive). CERCLA and the NCP also provide the Agency with the flexibility to proceed with many types of cleanup actions using either removal or remedial action authorities. See CERCLA sections 101(23) and 101(24); and 40 CFR 300.415(d) (a partial list of actions that may be carried out using removal action authority).

In addition, some SACM pilots may involve specific deviations from current Agency policies in order to test a new approach to site evaluation or response (where this is the case, such deviations should be properly justified and documented). Experience from the SACM pilot projects may also prompt changes in national policies. (Further, SACM pilot projects may identify regulatory or statutory requirements that would prevent the Agency from pursuing a given approach; such information may be referred to Headquarters for consideration as part of regulatory reform, or for study by CERCLA reauthorization workgroups.)

Site Assessment. One of the major initiatives of SACM is to break down institutional barriers within the Agency, and to establish an operational scheme under which data are collected and used to serve multiple purposes. For instance, samples taken as part of an evaluation for possible removal action may often be used to support, or begin, an evaluation of the need for remedial action, site scoring using the Hazard Ranking System (HRS), or in some cases, the remedial investigation (RI). Although the NCP regulations contemplate that the Agency will perform (as warranted) a removal preliminary assessment (PA), a removal site inspection (SI), a remedial PA and SI, and ultimately an RI, some or all of these various studies can be consolidated in appropriate cases under the SACM model, such that one site assessment can be performed and one site assessment report written. However, the report should include any findings required by the NCP for moving from one phase of site assessment to another (e.g., from a remedial PA to a remedial SI; see 40 CFR 300.420(b)(4)(iii)).[2]

By using data for multiple purposes, economies can be achieved in terms of the amount of sampling needed, expertise and learning can be shared among agency officials responsible for the various tasks undertaken at a site, and the time between data collection and action (if deemed necessary) can be shortened.

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[2] Note that during the initial phases of the site assessment process, it may be appropriate to issue a finding of "Site Evaluation Accomplished" (SEA), indicating that no further action is planned for the site.

Specifically, if and when sufficient supporting information is gathered during the combined site assessment, work could begin on an early action, an HRS scoring package, or ultimately a long-term action. This consolidation could save years in the site evaluation phase of the Superfund process.

Effect on the NPL. The attempt to evaluate sites more quickly, and to initiate response action earlier, may have some impact on a site's scoring and possible listing on the National Priorities List (NPL).[3] However, as discussed below, that impact is subject to several significant limitations.

Under the current HRS, the physical removal of hazardous substances from a site may reduce the site's HRS score, but only if the action occurs prior to the remedial SI phase of the site assessment.[4] Where early response actions occur after initiation of the remedial SI portion of the site assessment, the risk reduction achieved by the early action would not be considered in the HRS scoring process. (However, the site might be a candidate for a "no further action" decision and then deletion, shortly after being listed on the NPL.)

Moreover, because a range of waste quantity values generally qualifies for the same waste quantity sub-score under the HRS, a physical removal must be significant enough to lower the waste quantity below that range of quantities in order to affect the final waste quantity and HRS scores. (The timely removal of all hazardous substances would always result in an HRS score of zero.)[5]

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[3] Only sites listed on the NPL are eligible for Fund-financed remedial actions. 40 CFR 300.425(b)(1). However, removal actions, and response actions carried out by private parties pursuant to EPA enforcement authorities, may be conducted at NPL or non-NPL sites. 40 CFR 300.425(b)(1) and (b)(4).

[4] See 55 Fed.Reg. at 51568. The remedial SI point was chosen as the dividing line because it is the point at which most of the scoring data is available, and because of the need to provide finality in the listing process (a contrary policy would create a burdensome need to continually recalculate HRS scores).

[5] Note that actions that do not affect the quantity of waste at a site, such as providing alternative drinking water supplies or enhancing containment of a waste pile, would not affect the HRS score. See preamble to final HRS, 55 Fed.Reg. 51532, 51567-69 (Dec. 14, 1990), and HRS Section 2.4.2.2 (40 CFR Part 300, App. A, sec. 2.4.2.2), for a more detailed discussion of the effect removal actions may have on the HRS score.

It should also be noted that most sites requiring action under CERCLA have been found to present long-term problems (such as the need for groundwater restoration) in addition to more acute, short-term problems. Thus, at many sites, risk reduction activities may address only a portion of the contamination problem, and thus the HRS scoring process would often continue even after the early actions.

As part of the SACM initiative, the Agency intends to compile a list of long-term actions. However, that list is not meant to replace the NPL; rather, it will simply be an informational list of sites at which long-term actions are being carried out using the concepts reflected in SACM, and will likely represent a sub-set of all NPL sites.

Effect on Current Response Action Procedures. It is also important to recognize how the SACM model fits within the existing site response process. Although SACM encourages the taking of early action where risk reduction may be accomplished promptly, it is not expected that procedures would change for all categories of CERCLA response actions (although implementation of the Model may result in expedited administrative practices at all sites).

For example, EPA will continue to use removal action authorities to respond to emergency and time-critical situations, and SACM does not intend to change the manner in which these time-sensitive actions are carried out. However, the determination as to whether a situation is "time-critical" (where action must be initiated in less than six months) as compared to "non-time-critical" (where more than six months planning time is available) will have an important impact on the level of analysis, timing of administrative record development, and extent of public participation that is required under the NCP regulations.[6] Thus, especially in close cases, the finding that action is "time-critical" should be discussed with the Office of Regional Counsel representative to the Decision Team, and should be explained in the Action Memorandum.

At the other end of the spectrum, the Agency will continue to use remedial action authorities to respond to most contamination problems that are expected to require more than five years to complete ("long-term actions"), such as groundwater restoration projects, large wetland/estuary sites, and extensive

---

[6] See 40 CFR 300.415(b)(4) and (m)(4), 300.820(a); 55 Fed.Reg. at 8695-98 and 8805-06 (March 8, 1990).

mining sites.[7] It is also expected that remedial action authorities would generally be necessary to carry out the permanent relocation of individuals, and actions requiring significant, long-term operation and maintenance activities.

The area where the greatest flexibility is available -- and where the SACM model is expected to have the greatest impact -- is for actions that fall between the clear cases of removal and remedial actions: sites for which a planning period of at least six months exists (non-time-critical situations), and at which rapid risk reduction is possible.

In non-time-critical situations, both non-time-critical removal authority, and early action remedial authority, could potentially be used to reduce risk. In making a decision as to which type of authority to use, the Regional Decision Team, including a representative from the Office of Regional Counsel, should consider a number of issues regarding each type of authority.

Non-time-critical Removal Actions. Under the SACM model, it is expected that the Agency would make greater use of its authority to conduct non-time-critical removal actions. The use of such actions promises to accelerate the cleanup process. For example, for Fund-financed actions, non-time-critical removal actions can proceed prior to listing on the NPL; and in the enforcement context, they may be accomplished through administrative orders on consent (AOC's) rather than more time-consuming judicial consent decrees used for remedial actions; see CERCLA section 122(d)(1)(A).

In deciding on the appropriateness of using non-time-critical removal action authority at a site, the cost and duration of the action should be evaluated. If a Fund-financed removal action is expected to exceed statutory limits of $2 million or one year, then an exemption must be justified based either on the emergency nature of the situation, or a finding that continued removal action is "consistent with the remedial action to be taken" (CERCLA section 104(c)(1)). In non-time-critical situations where a removal action is expected to exceed the time or dollar limitation, we generally expect to rely on the consistency exemption. Sites at which remedial action is likely to be taken (e.g., proposed or final NPL sites) will generally be strong candidates for the consistency exemption; it may also be appropriate to use this exemption at some non-NPL sites, but it must be justified on a site-by-site basis. See 55 Fed.Reg. 8666, 8694 (March 8, 1990).

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[7] Again, to the extent that the Agency plans to take a remedial action using Fund monies, the site must first qualify for listing on the NPL.

Consideration of whether to take a non-time-critical removal action at a site should also include an evaluation of State cost share issues. Although a State cost share is not required under CERCLA section 104(c)(3) for a removal action,[8] the absence of a State's financial participation may limit the capacity of EPA to fully fund certain large dollar value non-time-critical removal actions. The advisability of seeking voluntary participation from the States in the funding of a non-time-critical removal action in order to expedite the cleanup of a site (rather than waiting to perform a remedial action), must be reserved for site-by-site discussions.

Similarly, where a proposed **Fund-financed** removal action would require the performance of post-removal action measures to maintain the effectiveness of the action, a State's willingness to perform post-removal site control should be evaluated.[9] A decision by a State not to provide for such post-removal controls may limit EPA's capacity to proceed with Fund-financed removal actions that require measures to maintain the completed action's effectiveness. (At enforcement sites, the potentially responsible parties (PRPs) may be required to perform necessary post-removal site control activities.)

The decision to use a non-time-critical removal authority should also follow a review of the applicable requirements. A non-time-critical removal action must include an analysis of alternatives in an engineering evaluation/cost analysis [EE/CA], and the public must be afforded not less than 30 calendar days to comment on the proposed removal alternative <u>before</u> it is selected, as required in the NCP (40 CFR 300.415(b)(4) and (m)(4)).[10]

It is also expected that for non-time-critical removal actions, it will generally be practicable to attain ARARs. The NCP requires removal actions to attain ARARs "to the extent

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[8] Note that before a Fund-financed remedial action can be taken at a facility that was operated by the State, a cost share of at least 50 percent is required for all "response costs," including removal action costs. <u>See</u> CERCLA section 104(c)(3)(C)(ii).

[9] "Post-removal site control" is discussed in the NCP at 40 CFR 300.415(k).

[10] Note that this public comment period will be extended by a minimum of 15 additional days upon timely request. 40 CFR 300.415(m)(4)(iii).

practicable," considering the scope and urgency of the situation.[11] Given the extended planning time available for non-time-critical removal actions, we believe that it will generally be "practicable," in terms of the urgency factor, for non-time-critical removal actions to comply with ARARs. Whether or not the attainment of an ARAR is beyond the scope of a non-time-critical removal action, is a site-specific determination that will depend, in part, on the nature of the removal action, and on the nature of other actions to be taken at the site.[12] For example, a removal action is more likely to be limited in scope where it is to be followed by additional site response actions designed to further address the same problem. (The impracticability of attaining an ARAR based on the scope of a non-time-critical removal action should be discussed with the Office of Regional Counsel's representative to the Decision Team.)

Finally, in order to assure the public that the non-time-critical removal actions taken pursuant to the SACM initiative will be of high quality, **Agency policy will be to implement a preference for treatment in those actions, and to conduct a baseline risk assessment, where appropriate, before selecting a non-time-critical removal response.**

Early Remedial Actions. SACM also encourages the increased use of remedial action authorities to achieve early risk reductions at sites. An early remedial action may be either a final or interim remedial action. An early "final" remedial action involves the final cleanup of an operable unit or portion of a site early in the remediation process for the entire site. For instance, at a large site with several contaminant sources, an early final remedial action might be taken to eliminate or control one of those sources, thereby achieving significant risk reductions.

An "interim" remedial action is generally intended to address a threat in the short term, while a permanent remedial solution is being developed. An example would be the installation of a groundwater pumping system to contain a contaminant plume while the feasibility of aquifer treatment is being studied, or construction of a temporary landfill cap to prevent direct contact with wastes during the remedial

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[11] 40 CFR 300.415(i). The waivers described in 40 CFR 300.430(f)(1)(ii)(C) may also be considered during removal actions.

[12] See NCP preamble discussion, at 55 Fed.Reg. 8695-96 (March 8, 1990).

investigation/feasibility study (RI/FS) process.[13] An early interim remedial action can be taken during scoping or at other points during the RI/FS process (however, remedial construction activities cannot be provided using the Fund until the site has been finally included on the NPL[14]). Less documentation is required for the Record of Decision (ROD) for an interim remedial action than for a ROD covering a final remedial action; however, adequate documentation must be provided to justify the action. (See "Guide to Developing Superfund No Action, Interim Action, and Contingency Remedy RODs," OSWER Public. No. 9355.3-02FS-3 (April 1991), at p. 4.)

Even if early risk reduction could be accomplished through a non-time-critical removal action, it may nonetheless be preferable to pursue an early remedial action in a number of situations. For instance, EPA may decide to use its remedial action authorities -- and therefore to follow the more extensive State and public participation procedures required for such actions -- at certain sites where there is high public or State interest, even if there is some associated delay. It may also be appropriate to use remedial action authorities to accomplish early actions where a site is already listed on the NPL and the remedial process is well underway.

Enforcement First and PRP Searches. The SACM goal of accelerating cleanups is not intended to displace other important goals, such as the Agency's general policy of pursuing enforcement efforts first. However, in order to effectuate both goals, it will be necessary to carry out certain enforcement actions in an expedited manner.

For instance, PRP searches must be conducted during the initial phases of the site assessment process in order to allow the Agency to pursue an effective enforcement strategy for early actions. The early identification of and notice to PRPs will also serve to strengthen EPA's cost recovery cases in situations where the action is financed by the Fund in the first instance. (Of course, a full PRP search may be impracticable in emergency and certain time-critical situations where, for instance, the PRPs are numerous or difficult to determine.)

In addition, the decision to proceed with an early action using removal action authorities may trigger shorter statutory deadlines for the filing of judicial cost recovery actions in

---

[13] Of course, such actions could also be accomplished, in appropriate cases, under removal action authorities.

[14] Note that Fund monies may be used to pay for the RI/FS and remedial design activities even prior to listing on the NPL. 40 CFR 300.425(b)(1).

some cases.[15] Thus, if the use of removal authorities is increased under the SACM model, it may be necessary to prepare cost recovery cases earlier in the process.

CONCLUSION

It is important to ensure that response actions conducted as part of the SACM model are consistent with CERCLA and the NCP. This will strengthen the Agency's ability to recover its costs, to defend the selected response actions on a site-specific basis, and to retain full support for the SACM initiative from Congress and the public.

Questions concerning the issues discussed in this Directive should be addressed to Sherry Hawkins of the Office of Emergency and Remedial Response (OERR) (202-260-2180), Sally Mansbach of the CERCLA Enforcement Division (OWPE/CED) (703-308-8404), or Larry Starfield of the Office of General Counsel (OGC) (202-260-1598).

cc: Richard Guimond
Henry Longest, OERR
Bruce Diamond, OWPE
Tim Fields, SRO
OERR Division Directors
Bill White, OE
Sylvia Lowrance, OSW
Walter Kovalick, TIO
James Makris, CEPPO
Sally Mansbach, CED
Sherry Hawkins, OERR
Larry Starfield, OGC

---

[15] See CERCLA section 113(g)(2)(A) and (B).

B&V WASTE SCIENCE AND TECHNOLOGY CORP. TEL. (404) 392-9227

1117 PERIMETER CENTER WEST
SUITE W-212
ATLANTA, GEORGIA 30338
FAX: (404) 392-9289

U.S. Environmental Protection Agency
ITT Suspension System Division
Macon, Bib County, Georgia
Work Assignment № 12

BVWST Project 52012.045
BVWST File E.1
July 24, 1992

JUL 24 1992

Mr. A. R. Hanke
Chief, Site Assessment Section
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365

Subject: Draft Phase I Site Investigation
EPA ID № GAD09584063

Dear Mr. Hanke:

Enclosed please find one copy of the Draft Phase I Site Investigation for the ITT Suspension Systems Division.

Please feel free to contact me if you have any questions or comments.

Very truly yours,

B&V WASTE SCIENCE AND TECHNOLOGY CORP.

Dan Keck

Dan Keck
Project Engineer

pem
Enclosures

cc: Doug Thompson, Project Officer, w/o enclosures
Keith Mills, Contracting Officer, w/enclosures
Hubert Wieland, BVWST, w/o enclosures

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4WD-WPB

MAY 20 1992

Mr. Hubert Wieland
B & V Waste Science & Technology Corp.
1117 Perimeter Center West
Suite W-212
Atlanta, Georgia 30338

WPB/SAS
RECEIVED
MAY 11 1993
EPA - REGION IV
ATLANTA, GA

Dear Mr. Weiland:

After consulting with Dan Keck of your staff, the U.S. EPA has decided to reduce the level of effort expended on the ITT Suspension Systems Division site (GAD098584063) in Macon, Bibb County, Georgia. The site, originally assigned to B & V as a Site Inspection Phase II, will now require no more than a Site Inspection Phase I.

My apologies if this has inconvenienced you in any way. If you have any questions concerning this matter, please contact me at 347-5065.

Sincerely Yours

John A. McKeown
Georgia Project Officer

NFROP
5/23/93

cc: Earl Bozeman, EPA
Charles Swan, EPA
Keith Mills, EPA
Dan Keck, B & V

B&V WASTE SCIENCE AND TECHNOLOGY CORP. TEL. (404) 392-9227

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U.S. Environmental Protection Agency
ITT Suspension System Division
Macon, Bib County, Georgia
Work Assignment № 12

BVWST Project 52012.045
BVWST File E.1
July 24, 1992

W P B / S A S
RECEIVED
MAY 11 1993
EPA - REGION IV
ATLANTA

Mr. A. R. Hanke
Chief, Site Assessment Section
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365

Subject: [redacted] Phase I Site Investigation
EPA ID № GAD09584063

Dear Mr. Hanke:

Enclosed please find one copy of the [redacted] Phase I Site Investigation for the ITT Suspension Systems Division.

Please feel free to contact me if you have any questions or comments.

Very truly yours,

B&V WASTE SCIENCE AND TECHNOLOGY CORP.

Dan Keck

Dan Keck
Project Engineer

pem
Enclosures

cc: Doug Thompson, Project Officer, w/o enclosures
Keith Mills, Contracting Officer, w/enclosures
Hubert Wieland, BVWST, w/o enclosures

[redacted]

Phase I
SITE INSPECTION

ITT Suspension Systems Division
Macon, Bibb County, Georgia
EPA ID № GAD098584063
WasteLAN Reference № 01632

EPA Work Assignment Contract № 11
EPA Contract № 68-W9-0055

Prepared for
U.S. Environmental Protection Agency
Region IV

Prepared by
B&V Waste Science and Technology Corp
BVWST Project № 52011.045

July 24, 1992

Prepared by:	Reviewed by:	Approved by:
Dan Keck	Scotti Holcombe	Hubert Wieland
Site Manager	Technical Reviewer	Project Manager

[redacted]

PHASE I
SITE INSPECTION
ITT Suspension Systems Division
Macon, Bibb County, Georgia

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FIGURES

Following Page:

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[redacted]

PHASE I SITE INSPECTION
ITT Suspension Systems Division
Macon, Bibb County, Georgia
EPA ID Nº GAD09584063
WasteLAN Nº 01632

1.0 Introduction

B&V Waste Science and Technology was tasked by the U.S. Environmental Protection Agency (EPA), Waste Management Division to conduct a Phase I Site Inspection for the ITT Suspension Systems Division in Macon, Bibb County, Georgia. The inspection was performed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Sources of information for this report were the U. S. Environmental Protection Agency, the Georgia Department of Natural Resources Environmental Protection Division, B&V Waste Science and Technology Site reconnaissance on May 27, 1992, and local City and County offices which provided property, water supply, historical, and other pertinent information.

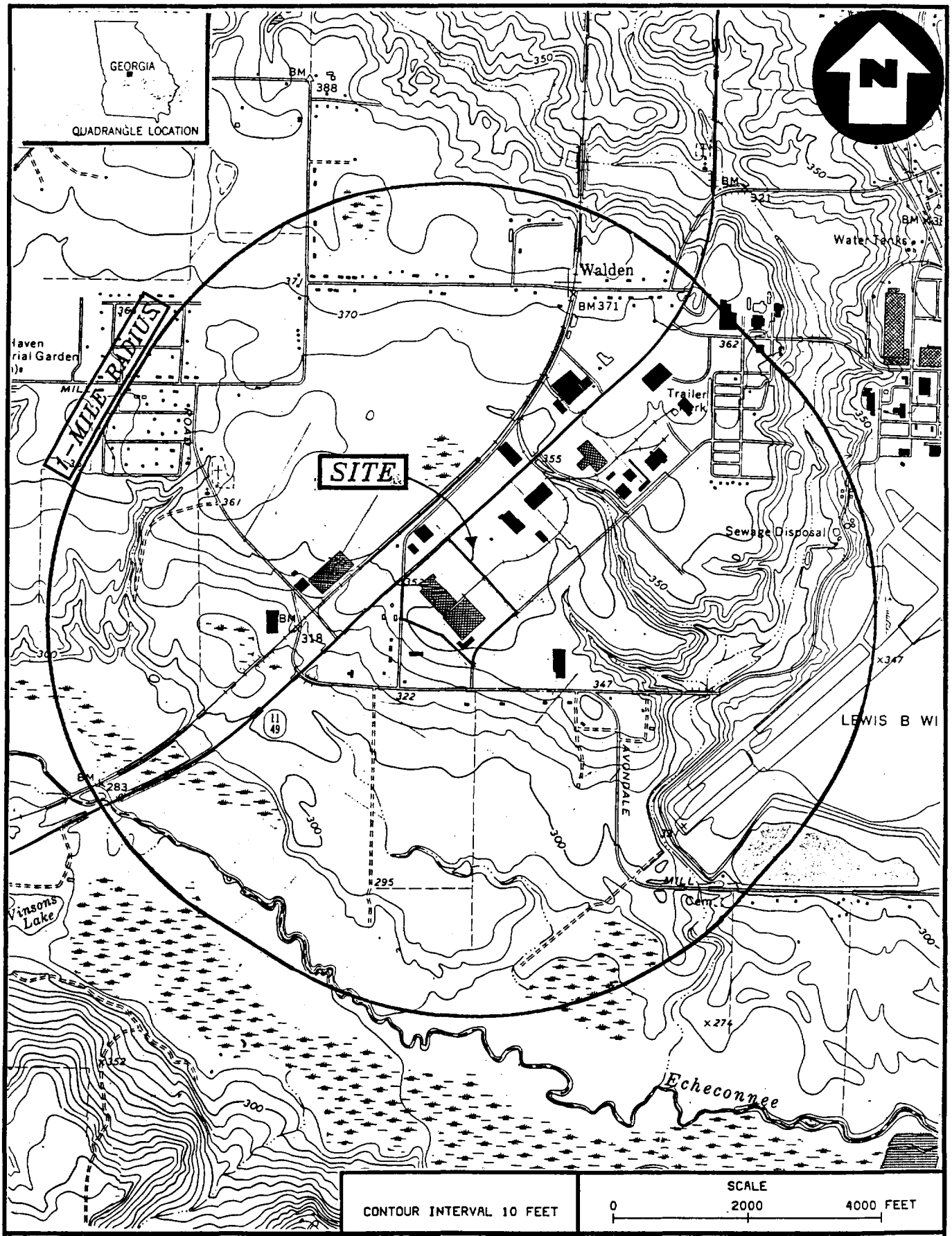
1.1 Objectives

The objectives of this study were to determine the nature of contaminants possibly located on the site and to determine if a release of these contaminants to the environment may occur. If a release to the environment was found likely to occur, the possible pathways for contaminant migration were to be evaluated with the affected populations and their environments. From the realization of these objectives, a recommendation for future activities at the site will be presented.

2.0 Site Description, History, and Waste Characteristics

2.1 Location

The ITT Suspension Systems site is located in the southern portion of Bibb County, approximately one mile north of the Bibb-Houston county line. The eastern corners



CONTOUR INTERVAL 10 FEET

SCALE
0 2000 4000 FEET

BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE QUADRANGLES DURHAM, GA. 1983 AND KENSINGTON, GA. 1983.

SITE LOCATION MAP
ITT SUSPENSIONS
SOUTHERN BIBB COUNTY, GEORGIA

FIGURE 1

of Crawford, and Peach counties, as well as the western edge of Twiggs County, all lie within the four-mile radius of the site (see Figure 1). The geographic coordinates of the site are 32° 41' 45.0" north latitude and 83° 40' 23.0" west longitude (Ref. 1). The facility address is 7980 Industrial Highway, Macon, Georgia 31206.

The site is relatively flat with little or no slope, but drainage does flow in a generally southern direction. The site is situated at approximately 350 feet above mean sea level (amsl)(Ref. 1).

The climate of the study area is characteristically humid and temperate. The mean annual precipitation, which is almost all rainfall, is approximately 45 inches (Refs. 2, 3). Precipitation is fairly well distributed throughout the entire year with the lowest rainfall occurring in late fall and early winter. Even during these months, rainfall seldom is less than two inches (Ref. 2). The 2-year, 24-hour rainfall for the area is approximately four inches (Ref. 4). Due to the temperate climate of the region, the mean annual lake pan evaporation averages about 43 inches. This produces a net annual rainfall of two inches for the area (Ref. 3).

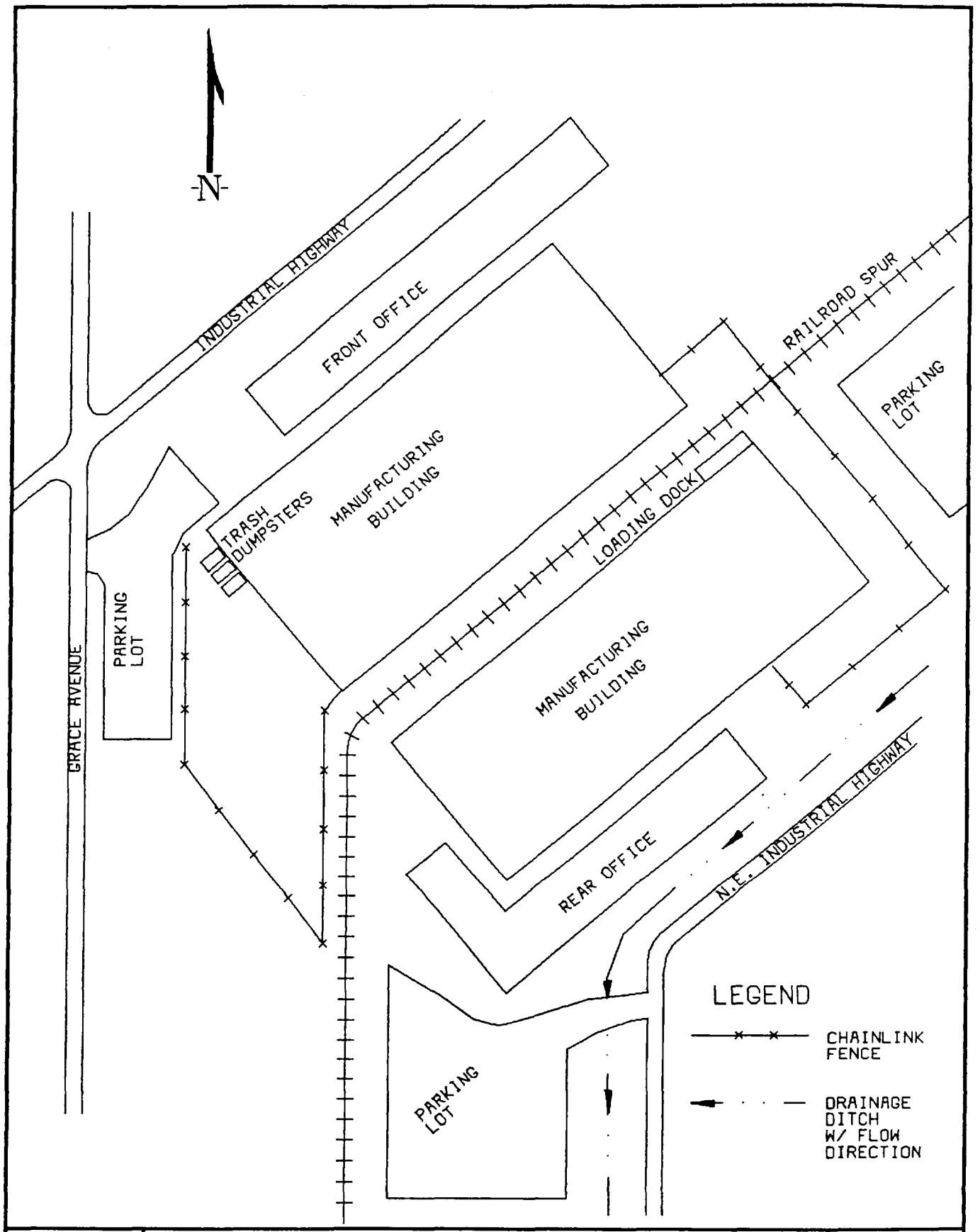
2.2 Site Description

The ITT Suspension Systems facility is situated on approximately 32 acres of land, 1 mile north of the nearest river, Echeconnee Creek (Ref. 1). There are four buildings on the active site, all are interconnected. Two of the buildings are very large and contain the manufacturing processes while the remaining two are smaller and contain offices (see Figure 2).

The entire site is well maintained with no signs whatsoever of stressed vegetation. Access to areas where outside activities occur (loading and unloading) is restricted by a 10-foot chain-link fence with access controlled by a manned guard post (Ref. 5). Access to either of the manufacturing buildings must be through the chain-link fence or through one of the office buildings. No manufacturing processes occur outside nor are there any outside chemical storage areas (Ref. 5).

2.3 Operational History and Waste Characteristics

The ITT Suspension Systems Division facility began operation shortly after its construction in 1980. The facility manufactured and assembled automobile



SITE LAYOUT MAP
ITT SUSPENSION SYSTEM DIVISION
BIBB COUNTY, GEORGIA

FIGURE 2

suspension struts and shock absorbers. The manufacturing of these parts required metal working processes which included threading, machine finishing, solvent washing, metal plating (chrome), and painting. As a result of these processes, several waste products were generated. These included: (1) chromic acid sludge which was transported and disposed of by Chem-Waste Management of Alabama; (2) spent methylene chloride and 1,1,1-trichloroethane solvents which were disposed of by Ramsey Chemical Company of Valdosta, Georgia; (3) metal grinding sludge and waste cutting oil, which were disposed of by Browning Ferris and Carl Durden Waste Oil Company of Warner Robins, Georgia (Ref. 6).

A RCRA Part A application was filed in October of 1980 (Ref. 7). The Part A application was subsequently withdrawn in April of 1984 when the facility was classified as a RCRA hazardous waste generator (Ref. 8). During ITT Suspension Systems Division's operation of the facility, a complaint from a former employee concerning improper disposal of waste oil was investigated during an inspection. The inspection showed no violations or deficiencies in the facilities manifests, however several violations were found in their contingency plan. These were later corrected (Ref. 9). The improper disposal of waste oil by Carl Durden Waste Oil Company was also discontinued and all relations with the contractor ceased (Ref. 10).

During the same inspection, "a thick black substance" was observed coating the drainage ditch along side of the property. There was also a small discharge of "relatively clear liquid" flowing from the plants cooling tower. The black substance was explained to be a metal grinding dust and cutting oil sludge produced in the grinding operation. This sludge was routinely placed in dumpsters and hauled to a municipal landfill. Leakage from these dumpsters was producing the residue in the drainage ditch (Ref. 11). As a result of these findings, the following actions were taken to correct the problem: (1) All grinding sludge was stored in leak proof containers before disposal to the county landfill. (2) Discharge from the cooling tower was piped closed and connected to the sanitary sewer. (3) All wastes in the drainage ditch were determined to be non-hazardous and were excavated and disposed of in the county landfill (Ref. 12).

All process wastewaters within the plant were sent through a wastewater treatment system in the building. Wastewater from the chrome plating operation was converted from hexavalent to trivalent chromium using sodium bisulfite (Ref. 13).

The entire chrome plating operation rested on the reinforced concrete floor of the building with a 10-inch concrete berm surrounding it. All floor drains inside and outside the bermed area lead into the wastewater treatment system (Ref. 13).

In August of 1984, a spill of chromic acid allegedly occurred inside the manufacturing building. The acid was pumped from the floor back into a storage tank (Ref. 6). It is unknown if any spilled material left the building, but the possibility is remote due to the bermed area around the chrome plating operation and the fact that all drains within the facility lead to the wastewater treatment system. Two vats, one 3,000-gallons, the other 3,500 gallons, contain the chromic acid sludge. It is unknown what volume of chromic acid was spilled. The total volume of annually generated wastes from all processes was 80-cubic yards (Ref. 6).

In January of 1990, Boeing Corporation purchased the property from ITT Suspension Systems Division (Ref. 14). Boeing is currently manufacturing and machining aircraft parts at the site (Ref.). It is unknown whether the previously existing waste streams still exist, but the facility as listed in the RCRA notifiers list no longer engages in the activity of generating hazardous waste. Boeing also does not engage in any other RCRA regulated activity at this site (Refs. 15, 16).

The only possible waste source areas remaining on the site, are localized cases of soil contamination occurring from de-minimus losses during loading/unloading and 90-day storage of waste material. The possibility of soil contamination from the 1984 chromic acid spill does exist but appears very unlikely due to internal containment structures.

3.0 Groundwater Pathway

3.1 Hydrogeologic Setting

The ITT Suspension Systems Division is situated within the Coastal Plain physiographic province approximately ten miles below the arbitrary line generally known

as the Fall Line, which separates the Coastal Plain from the Piedmont Province. This region of the Coastal Plain is underlain by formations from the Cretaceous period which overly crystalline bedrock of chiefly granitic, dioritic, and gneissic constituency. In the southern portion of Bibb County, as well as the northern portion of Houston County, a distinctive type of topography, referred to as the Sand Hills, is the most prominent geological feature. The Sand Hills represent the outcrop areas of the Tuscaloosa Formation and are characterized by a topography which is very hilly and mantled with loose, incoherent, and lightly colored sand. The area comprises a series of rolling divides between the large creeks which flow in east to west courses toward the Ocmulgee River (Ref. 2). Alluvial deposits bordering the Ocmulgee River and some parts of the larger creeks are the youngest sediments in Bibb County. They are of Pleistocene and Recent age. These deposits are composed of unsorted clay, sand, and gravel, which in most places are less than 40 feet thick and extend 1 or 2 miles on each side of the river (Ref. 2).

The specific soil type beneath the facility is Norfolk sandy loam and is well drained occurring on nearly level to gently sloping broad ridge tops found in coastal Plain uplands. A portion of the property resides on Grady sandy loam which is poorly drained and nearly level (Ref. 17). It is probable that the soil types have been altered during grading, paving, and construction of the facility, and they may now be a non-descript soil type. Below the site lies 5 feet of soil which is immediately underlain by 495 feet of Tuscaloosa Formation (Ref. 2).

The Tuscaloosa Formation is composed of fine to coarse sand, in places mingled with white kaolin and in others separated by lenticular and generally pure kaolin masses. The base of the Tuscaloosa dips southeast at a rate of approximately 30 feet per mile. It contacts the underlying crystalline bedrock at 500 feet below land surface (bls) at Cochran Field, just one mile east of the site (Ref. 2).

Groundwater wells tapped into the Tuscaloosa Formation aquifer supply virtually all domestic water sources south of the Fall Line. In some places, the Tuscaloosa becomes confined by overlying clay layers for brief periods of time producing a slight to moderate artesian head.

Where the Tuscaloosa Formation extends south of U.S. Highway 80 and west of the Ocmulgee River, water supplies from drilled wells can be readily obtained. The number of sand beds increases southward, resulting in an increase in the availability of water to wells southward. Some domestic drilled wells are only two inches in diameter and less than 70 feet deep, these wells satisfying local requirements of only a few gallons of water per minute. Other wells in the area have yields as high as 60 gpm (Ref. 2). Depth to groundwater beneath the site is estimated from topographic analysis and from water levels in area wells to be approximately 70 feet bls (Refs 1, 2). The hydraulic conductivity of the Tuscaloosa Formation is estimated to be 1×10^{-3} cm/sec (Ref. 18).

3.2 Groundwater Targets

There are four municipal water systems which distribute water within the four-mile radius of the site. The Macon-Bibb County Water Authority withdraws water from the Ocmulgee River above Macon. Of the three remaining systems (Houston County Water Department, Warner Robins Water Authority, and Centerville Water Company) all withdraw water exclusively from groundwater sources. All three have multiple wells utilized as part of a blended system (with generally equal apportionment), with Centerville and Warner Robins each having one well in the four-mile radius, and Houston county having two-wells within the study area (Ref. 1, 5, 19).

All residences that are not within one of the four municipal systems' service area are assumed to be utilizing groundwater for their potable water supplies. It is estimated that there are approximately 10,141 persons receiving drinking water from groundwater sources within the four-mile radius of the site. This estimate includes the 15 permitted community wells that are located within the 4-mile radius as well as the assumed private wells that exist within the study area (Ref. 1, 5, 19, 20).

The nearest private well is located at the B&G Thornhill subdivision on Nob Hill Drive. This community well serves approximately 60 persons and is located 1.4 miles west of the site (Ref. 1). It should be noted that the direction of groundwater flow, as indicated from topographic analysis, is generally to the southeast (Ref. 1).

4.0 Surface Water Pathway

4.1 Hydrologic Setting

Surface water runoff from the site flows in a south-southeast direction approximately 0.75 miles to an intermittent unnamed stream. This stream flows into a wetland area which feeds Echeconnee Creek. The 15-mile surface water pathway begins approximately 0.9 miles from the site in the wetland fringe areas of Echeconnee Creek. This area extends 0.2 miles to Echeconee Creek which flows 5.4 miles to the confluence with the Ocmulgee River (Ref. 1). The estimated flow rate for Echeconnee Creek is 20 cubic feet per second (cfs), and that of the Ocmulgee River is estimated to be 500 cfs (Ref. 21). The site has a mean elevation approximately 80 feet above Echeconnee Creek which precludes it from the Echeconnee or Ocmulgee flood plains (Ref. 1).

4.2 Surface Water Targets

There are no surface water intakes located on Echeconnee Creek or the Ocmulgee River that lie within the 15-mile surface water pathway of ITT Suspensions (Refs. 1, 21). However, the entire 15-mile pathway contains adjacent wetlands (Ref. 1). It is estimated that there are approximately four square miles of wetlands providing an estimated 30 river miles of wetland frontage. The Ocmulgee River is utilized as a recreational fishery, as is Echeconnee Creek to a lesser extent (Ref. 22). There are no known habitats of federally endangered or threatened species located within four miles of the site, although the wood stork may possibly inhabit the surrounding wetlands.

5.0 Soil Exposure and Air Pathways

5.1 Physical Conditions

The immediate area surrounding the site contains several light-industry manufacturing and shipping companies. There are several residences within 1,000 feet south of the property, but those are the only non-commercial buildings within a half-mile of the site (Refs. 1, 5). As stated previously, the entire site is well maintained with no signs of stressed vegetation. Access to areas where activity occurs is restricted by the presence of a 10-foot chainlink fence. Movement through the fence is controlled by a manned guard post (Ref. 5).

5.2 Soil and Air Targets

It is estimated that at least 200 workers are onsite during process operations. These employees work almost exclusively within the manufacturing and office buildings (Refs. 5). The nearest residence is located approximately 500 feet south of the site (Refs. 1, 5). The nearest school is the Heard School located 1.9 miles to the northwest (Ref. 1). There are several endangered and threatened terrestrial species listed for the State of Georgia. They are the Florida panther, bald eagle, Bachman's warbler, red-cockaded woodpecker and the Eastern indigo snake. It is uncertain whether these species inhabit areas within the four-mile radius of the site (Ref. 23). The total area of wetlands within the four mile radius of the site is estimated to be approximately six square miles (3,480 acres) (Ref. 1).

The total population within four-miles of the site is estimated to be 15,676 persons. This includes 21 persons living within ¼ mile of the site, five persons living between ¼ mile and ½ mile, 255 persons between ½ mile and 1 mile, 3,630 persons between 1 and 2 miles, 1,058 persons between 2 and 3 miles, and 10,707 persons between 3 and 4 miles of the site (Refs. 1, 20, 24).

6.0 Summary and Conclusions

The ITT Suspension Systems Division site was evaluated to assess the threat posed to human health and the environment and to determine the need for further investigation. From the information gathered in the study, it is recommended that no further action be planned for the site at this time. The recommendation is based on the probability that only minor contamination of soils actually exists, and that the chromic acid spill that occurred in 1984 most likely never left the containment area where the spill occurred. The enclosed structures onsite provides substantial containment for any process activities which occur. The ITT Suspensions Systems Division does not appear to pose a substantial threat to the surrounding population or environment.

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9. Trip Report for ITT Suspension Systems Division inspection on October 30, 1984, Prepared by Tim Cash, Georgia Department of Natural Resources, Environmental Protection Division, November 28, 1984.

10. David Vinson, Chemist ITT Suspension Systems letter to Tim Cash, Georgia Department of Natural Resources, Environmental Protection Division, February 25, 1985.

11. Trip Report and Following Correspondence for ITT Suspension Systems Division on November 8, 1984 filed by Karen Gottwald, Georgia Department of Natural Resources, Environmental Protection Division, Land Protection Branch, November 26 -- December 19, 1984, Subject: Unpermitted Discharges From Site.

12. D.A. Mynatt, ITT Suspension Systems letter to Karen Gottwald, Georgia Department of Natural Resources, Environmental Protection Division, January 7, 1985. Subject: Waste Material in Drainage Ditch.

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17. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Bibb County, Georgia, March 1979.

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20. U.S. Department of Commerce, Proof copy of table generated for 1990, CPH-1: Summary Population and Housing Characteristics, issued by Bureau of Census (April 1991).

21. Georgia Department of Natural Resources, Environmental Protection Division, Water Availability and Use, Ocmulgee River Basin, 1985.

22. Tim Kendrick, Georgia Department of Natural Resources, Fish and Game Division, telephone conversation with Dan Keck, B&V Waste Science and Technology Corp, June 30, 1992. Subject: Fishing Status on Ocmulgee and Echeconnee.

23. U.S. Fish and Wildlife Service, Endangered and Threatened Species of the Southeastern United States, Atlanta, Georgia, 1988.

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CONFIDENTIAL
Hazard Ranking System Preliminary Score
ITT SUSPENSION SYSTEMS DIVISION
Macon, Bibb County, Georgia

This preliminary score was calculated using the November 6, 1991 Draft SI Worksheets. Scoring involved the evaluation of groundwater, surface water, soil, and air migration pathways. Since no sampling data was available, as per the Phase I Site Inspection Scope of Work, contaminant concentrations were assumed. These contaminants included compounds known to be utilized during process operations as well as compounds that are common to other metal working processes. The assumed contaminants were:

(1) Arsenic
(2) Barium
(3) Cadmium
(4) Chromium III & VI
(5) Lead
(6) Mercury
(7) Methylene Chloride
(8) Phenol
(9) Selenium
(10) Silver
(11) 1,1,2-Trichloroethane

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A hazardous waste quantity of 10 was assigned based on the assumption that the source area is the entire site (approximately 32 acres). This source was assumed to be contaminated soils. This assumption is based on a chromic acid spill which occurred in August of 1984, and also on assumed de-minimus losses that occurred during loading and 90-day storage of hazardous waste. It is probable that the chromic acid spill never left the building where it occurred, however this assumption is the primary basis for the HRS score.

The groundwater pathway has the greatest impact on the preliminary score. This is due in part to the moderate number of groundwater users within the study area, and also to the high toxicity and mobility of the assumed contaminants. An observed release was assumed to have been determined onsite, but population targets were assumed to be potential. This is due to the distance to the nearest private well (1.4 miles). It would be difficult to attribute contamination found at this distance to ITT since the site resides within an industrial park. It should be noted however that a level I contamination at the nearest well (1.4 miles away) will produce a score sufficiently high to propose the site for inclusion on the National Priorities List. It

should also be noted that this well is upgradient of groundwater flow direction and any contamination would be highly unlikely. Again, Attribution of contamination to the ITT site would be difficult.

The surface water pathway was also evaluated on potential contamination targets since the distance to the nearest flowing water body is 0.9 miles and attribution of contamination to ITT would be very difficult. It is also unlikely that contamination could travel such a distance overland and still maintain any significant portion of it's original concentration. There are no drinking water intakes downstream of the site, but wetlands are present on the entire length of the 15-mile pathway. It should be noted that an observed release to the surface water pathway will produce a score sufficiently high to propose the site for inclusion on the National Priorities List.

The soil exposure pathway is only a minor contributor to the overall score since there are few residences near the site. Only the estimated 200 workers present onsite would bear the risk of exposure. For the purpose of producing a more conservative score it was assumed that one of the listed endangered species in the State of Georgia inhabits areas in and surrounding the site. Likewise, the air exposure pathway contributes little to the overall score.

The scenarios explored for this HRS score all assumed that groundwater, surface water, and air were utilized as resources in the area. It is believed that the score as presented is the most realistic scenario, given the unlikely situation that contamination does exist in the quantity and concentrations assumed in the scoring. The individual pathway scores and the overall score were as follows:

S_{gw}	=	9.84
S_{sw}	=	1.85
S_{se}	=	11.20
S_a	=	3.42
Overall Score	**=**	**7.70**

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From the basis of this score, and the likelihood that contamination at the site is much less than that assumed in the scoring model, no further action is recommended for this site.

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

GROUND WATER MIGRATION PATHWAY SCORESHEET

FACTOR CATEGORIES AND FACTORS

Likelihood of Release to an Aquifer	Maximum Value	Value Assigned	
1. Observed Release	550	550	
2. Potential to Release			
2a. Containment	10	--	
2b. Net Precipitation	10	--	
2c. Depth to Aquifer	5	--	
2d. Travel Time	35	--	
2e. Potential to Release [lines 2a x (2b + 2c + 2d)]	500	--	
Likelihood of Release (higher of lines 1 and 2e)	550		550
Waste Characteristics			
4. Toxicity/Mobility	a	10,000	
5. Hazardous Waste Quantity	a	10	
6. Waste Characteristics	100		18
Targets			
7. Nearest Well	50	5	
8. Population			
8a. Level I Concentrations	b	0	
8b. Level II Concentrations	b	0	
8c. Potential Contamination	b	72	
8d. Population (lines 8a + 8b + 8c)	b	72	
9. Resources	5	5	
10. Wellhead Protection Area	20	0	
11. Targets (lines 7 + 8d + 9 + 10)	b		82
Ground Water Migration Score for an Aquifer			
12. Aquifer Score [(lines 3 x 6 x 11)/82,500][c]	100		9.84
Ground Water Migration Pathway Score			
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)[c]	100		9.84

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[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor Categories and Factors	Maximum Value	Value Assigned	
DRINKING WATER THREAT			
Likelihood of Release			
1. Observed Release	550	--	
2. Potential Release by Overland Flow			
2a. Containment	10	--	
2b. Runoff	25	--	
2c. Distance to Surface Water	25	--	
2d. Potential to Release by Overland Flow [lines 2a x (2b + 2c)]	500	--	
3. Potential to Release by Flood			
3a. Containment (Flood)	10	--	
3b. Flood Frequency	50	--	
3c. Potential to Release by Flood (lines 3a x 3b)	500	--	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	--	
5. Likelihood of Release (higher of lines 1 and 4)	550		100
Waste Characteristics			
6. Toxicity/Presistence	a	10,000	
7. Hazardous Waste Quantity	a	10	
8. Waste Characteristics	100		18
Targets			
9. Nearest Intake	50	0	
10. Population			
10a. Level I Concentrations	b	0	
10b. Level II Concentrations	b	0	
10c. Potential Contamination	b	0	
10d. Population (lines 10a + 10b + 10c)	b	0	
11. Resources	5	5	
12. Targets (lines 9 + 10d + 11)	b		5
Drinking Water Threat Score			
13. Drinking Water Threat Score [(lines 5 x 8 x 12)/82,500, subject to a maximum of 100)	100		0.11

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 7 1992

OSWER Directive No. 9203.1-03

SUBJECT: Guidance on Implementation of the Superfund Accelerated Cleanup Model (SACM) under CERCLA and the NCP

FROM: Don R. Clay
Assistant Administrator for Solid Waste and Emergency Response

Lisa K. Friedman
Associate General Counsel
Solid Waste and Emergency Response Division

TO: Waste Management Division Directors
Regions I, IV, V, VI, VII, VIII
Emergency and Remedial Response Division Director
Region II
Hazardous Waste Management Division Directors
Regions III, IX
Hazardous Waste Division Director
Region X
Superfund Branch Chiefs
Regions I-X

Superfund Branch Chiefs,
Office of Regional Counsel
Regions I-X

PURPOSE

To provide a more precise description of the Superfund Accelerated Cleanup Model (SACM), in order to ensure its consistent application in compliance with CERCLA and the National Contingency Plan (NCP).[1]

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[1] This Directive does not address the unique issues associated with the implementation of the SACM model at federal facility sites. Supplemental guidance on those issues is under development.

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Attachment 1

BACKGROUND

In broad terms, the SACM model seeks to accomplish four objectives: establish a continuous process for the assessment of site-specific conditions and the need for action; create cross-program Regional Decision/Management Teams responsible for initiating appropriate actions as information is developed about a site; achieve prompt risk reduction through early actions (removal or remedial); and ensure the appropriate cleanup of long-term environmental problems. **The overall goal of SACM is to accelerate cleanups and increase efficiency in the Superfund process within the framework of CERCLA and the NCP, while ensuring that cleanups continue to be protective and to allow for appropriate public involvement.**

Since the announcement of SACM, there has been considerable interest and enthusiasm about the model. Active discussions continue among Headquarters offices and the Regions, and views have been solicited from the Corps of Engineers, the Department of Justice, and States in an effort to further develop the guiding principles of SACM. Now that the model has been outlined conceptually, it is important to discuss the details of the approach in order to ensure that all participants are working from a consistent starting point, and that the model is carried out in compliance with CERCLA and consistent with the NCP.

DISCUSSION

Relationship to CERCLA and the NCP. SACM is intended to help the Agency accomplish the goals of expedited cleanup and increased efficiency in the Superfund process within the framework of the current statute and NCP. The Agency believes that there is adequate flexibility under the current law and regulations to accomplish these goals; however, SACM does not provide independent authority to carry out actions that are not authorized by the CERCLA and the NCP regulations.

For instance, the use of the terms "early actions" and "long-term actions" in SACM should not be read to mean that actions may be implemented under the SACM model that are other than removal or remedial actions. **Any action taken under CERCLA must fall into the category of a removal action or a remedial action, and then must conform to applicable NCP requirements.** The categorization in SACM of early removal actions and early remedial actions as "early actions" is meant to better communicate the timing and nature of actions designed to achieve rapid reduction of risk, although not necessarily cleanup of all contamination. (Given the large number of sites with contaminant problems that may require long-term solutions, e.g., sites requiring groundwater restoration, it is anticipated that many sites will have both early and long-term action components.)

At the same time, however, the NCP affords the Agency considerable discretion in many instances. For example, the numerous data collection efforts contemplated by the NCP could be performed as part of one large site assessment (as discussed later in this Directive). CERCLA and the NCP also provide the Agency with the flexibility to proceed with many types of cleanup actions using either removal or remedial action authorities. See CERCLA sections 101(23) and 101(24); and 40 CFR 300.415(d) (a partial list of actions that may be carried out using removal action authority).

In addition, some SACM pilots may involve specific deviations from current Agency policies in order to test a new approach to site evaluation or response (where this is the case, such deviations should be properly justified and documented). Experience from the SACM pilot projects may also prompt changes in national policies. (Further, SACM pilot projects may identify regulatory or statutory requirements that would prevent the Agency from pursuing a given approach; such information may be referred to Headquarters for consideration as part of regulatory reform, or for study by CERCLA reauthorization workgroups.)

Site Assessment. One of the major initiatives of SACM is to break down institutional barriers within the Agency, and to establish an operational scheme under which data are collected and used to serve multiple purposes. For instance, samples taken as part of an evaluation for possible removal action may often be used to support, or begin, an evaluation of the need for remedial action, site scoring using the Hazard Ranking System (HRS), or in some cases, the remedial investigation (RI). Although the NCP regulations contemplate that the Agency will perform (as warranted) a removal preliminary assessment (PA), a removal site inspection (SI), a remedial PA and SI, and ultimately an RI, some or all of these various studies can be consolidated in appropriate cases under the SACM model, such that one site assessment can be performed and one site assessment report written. However, the report should include any findings required by the NCP for moving from one phase of site assessment to another (e.g., from a remedial PA to a remedial SI; see 40 CFR 300.420(b)(4)(iii)).[2]

By using data for multiple purposes, economies can be achieved in terms of the amount of sampling needed, expertise and learning can be shared among agency officials responsible for the various tasks undertaken at a site, and the time between data collection and action (if deemed necessary) can be shortened.

---

[2] Note that during the initial phases of the site assessment process, it may be appropriate to issue a finding of "Site Evaluation Accomplished" (SEA), indicating that no further action is planned for the site.

Specifically, if and when sufficient supporting information is gathered during the combined site assessment, work could begin on an early action, an HRS scoring package, or ultimately a long-term action. This consolidation could save years in the site evaluation phase of the Superfund process.

Effect on the NPL. The attempt to evaluate sites more quickly, and to initiate response action earlier, may have some impact on a site's scoring and possible listing on the National Priorities List (NPL).[3] However, as discussed below, that impact is subject to several significant limitations.

Under the current HRS, the physical removal of hazardous substances from a site may reduce the site's HRS score, but only if the action occurs prior to the remedial SI phase of the site assessment.[4] Where early response actions occur after initiation of the remedial SI portion of the site assessment, the risk reduction achieved by the early action would not be considered in the HRS scoring process. (However, the site might be a candidate for a "no further action" decision and then deletion, shortly after being listed on the NPL.)

Moreover, because a range of waste quantity values generally qualifies for the same waste quantity sub-score under the HRS, a physical removal must be significant enough to lower the waste quantity below that range of quantities in order to affect the final waste quantity and HRS scores. (The timely removal of all hazardous substances would always result in an HRS score of zero.)[5]

---

[3] Only sites listed on the NPL are eligible for Fund-financed remedial actions. 40 CFR 300.425(b)(1). However, removal actions, and response actions carried out by private parties pursuant to EPA enforcement authorities, may be conducted at NPL or non-NPL sites. 40 CFR 300.425(b)(1) and (b)(4).

[4] See 55 Fed.Reg. at 51568. The remedial SI point was chosen as the dividing line because it is the point at which most of the scoring data is available, and because of the need to provide finality in the listing process (a contrary policy would create a burdensome need to continually recalculate HRS scores).

[5] Note that actions that do not affect the quantity of waste at a site, such as providing alternative drinking water supplies or enhancing containment of a waste pile, would not affect the HRS score. See preamble to final HRS, 55 Fed.Reg. 51532, 51567-69 (Dec. 14, 1990), and HRS Section 2.4.2.2 (40 CFR Part 300, App. A, sec. 2.4.2.2), for a more detailed discussion of the effect removal actions may have on the HRS score.

It should also be noted that most sites requiring action under CERCLA have been found to present long-term problems (such as the need for groundwater restoration) in addition to more acute, short-term problems. Thus, at many sites, risk reduction activities may address only a portion of the contamination problem, and thus the HRS scoring process would often continue even after the early actions.

As part of the SACM initiative, the Agency intends to compile a list of long-term actions. However, that list is not meant to replace the NPL; rather, it will simply be an informational list of sites at which long-term actions are being carried out using the concepts reflected in SACM, and will likely represent a sub-set of all NPL sites.

Effect on Current Response Action Procedures. It is also important to recognize how the SACM model fits within the existing site response process. Although SACM encourages the taking of early action where risk reduction may be accomplished promptly, it is not expected that procedures would change for all categories of CERCLA response actions (although implementation of the Model may result in expedited administrative practices at all sites).

For example, EPA will continue to use removal action authorities to respond to emergency and time-critical situations, and SACM does not intend to change the manner in which these time-sensitive actions are carried out. However, the determination as to whether a situation is "time-critical" (where action must be initiated in less than six months) as compared to "non-time-critical" (where more than six months planning time is available) will have an important impact on the level of analysis, timing of administrative record development, and extent of public participation that is required under the NCP regulations.[6] Thus, especially in close cases, the finding that action is "time-critical" should be discussed with the Office of Regional Counsel representative to the Decision Team, and should be explained in the Action Memorandum.

At the other end of the spectrum, the Agency will continue to use remedial action authorities to respond to most contamination problems that are expected to require more than five years to complete ("long-term actions"), such as groundwater restoration projects, large wetland/estuary sites, and extensive

---

[6] See 40 CFR 300.415(b)(4) and (m)(4), 300.820(a); 55 Fed.Reg. at 8695-98 and 8805-06 (March 8, 1990).

mining sites.[7] It is also expected that remedial action authorities would generally be necessary to carry out the permanent relocation of individuals, and actions requiring significant, long-term operation and maintenance activities.

The area where the greatest flexibility is available -- and where the SACM model is expected to have the greatest impact -- is for actions that fall between the clear cases of removal and remedial actions: sites for which a planning period of at least six months exists (non-time-critical situations), and at which rapid risk reduction is possible.

In non-time-critical situations, both non-time-critical removal authority, and early action remedial authority, could potentially be used to reduce risk. In making a decision as to which type of authority to use, the Regional Decision Team, including a representative from the Office of Regional Counsel, should consider a number of issues regarding each type of authority.

Non-time-critical Removal Actions. Under the SACM model, it is expected that the Agency would make greater use of its authority to conduct non-time-critical removal actions. The use of such actions promises to accelerate the cleanup process. For example, for Fund-financed actions, non-time-critical removal actions can proceed prior to listing on the NPL; and in the enforcement context, they may be accomplished through administrative orders on consent (AOC's) rather than more time-consuming judicial consent decrees used for remedial actions; see CERCLA section 122(d)(1)(A).

In deciding on the appropriateness of using non-time-critical removal action authority at a site, the cost and duration of the action should be evaluated. If a Fund-financed removal action is expected to exceed statutory limits of $2 million or one year, then an exemption must be justified based either on the emergency nature of the situation, or a finding that continued removal action is "consistent with the remedial action to be taken" (CERCLA section 104(c)(1)). In non-time-critical situations where a removal action is expected to exceed the time or dollar limitation, we generally expect to rely on the consistency exemption. Sites at which remedial action is likely to be taken (e.g., proposed or final NPL sites) will generally be strong candidates for the consistency exemption; it may also be appropriate to use this exemption at some non-NPL sites, but it must be justified on a site-by-site basis. See 55 Fed.Reg. 8666, 8694 (March 8, 1990).

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[7] Again, to the extent that the Agency plans to take a remedial action using Fund monies, the site must first qualify for listing on the NPL.

Consideration of whether to take a non-time-critical removal action at a site should also include an evaluation of State cost share issues. Although a State cost share is not required under CERCLA section 104(c)(3) for a removal action,[8] the absence of a State's financial participation may limit the capacity of EPA to fully fund certain large dollar value non-time-critical removal actions. The advisability of seeking voluntary participation from the States in the funding of a non-time-critical removal action in order to expedite the cleanup of a site (rather than waiting to perform a remedial action), must be reserved for site-by-site discussions.

Similarly, where a proposed **Fund-financed** removal action would require the performance of post-removal action measures to maintain the effectiveness of the action, a State's willingness to perform post-removal site control should be evaluated.[9] A decision by a State not to provide for such post-removal controls may limit EPA's capacity to proceed with Fund-financed removal actions that require measures to maintain the completed action's effectiveness. (At enforcement sites, the potentially responsible parties (PRPs) may be required to perform necessary post-removal site control activities.)

The decision to use a non-time-critical removal authority should also follow a review of the applicable requirements. A non-time-critical removal action must include an analysis of alternatives in an engineering evaluation/cost analysis [EE/CA], and the public must be afforded not less than 30 calendar days to comment on the proposed removal alternative <u>before</u> it is selected, as required in the NCP (40 CFR 300.415(b)(4) and (m)(4)).[10]

It is also expected that for non-time-critical removal actions, it will generally be practicable to attain ARARs. The NCP requires removal actions to attain ARARs "to the extent

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[8] Note that before a Fund-financed remedial action can be taken at a facility that was operated by the State, a cost share of at least 50 percent is required for all "response costs," including removal action costs. <u>See</u> CERCLA section 104(c)(3)(C)(ii).

[9] "Post-removal site control" is discussed in the NCP at 40 CFR 300.415(k).

[10] Note that this public comment period will be extended by a minimum of 15 additional days upon timely request. 40 CFR 300.415(m)(4)(iii).

practicable," considering the scope and urgency of the situation.[11] Given the extended planning time available for non-time-critical removal actions, we believe that it will generally be "practicable," in terms of the urgency factor, for non-time-critical removal actions to comply with ARARs. Whether or not the attainment of an ARAR is beyond the scope of a non-time-critical removal action, is a site-specific determination that will depend, in part, on the nature of the removal action, and on the nature of other actions to be taken at the site.[12] For example, a removal action is more likely to be limited in scope where it is to be followed by additional site response actions designed to further address the same problem. (The impracticability of attaining an ARAR based on the scope of a non-time-critical removal action should be discussed with the Office of Regional Counsel's representative to the Decision Team.)

Finally, in order to assure the public that the non-time-critical removal actions taken pursuant to the SACM initiative will be of high quality, **Agency policy will be to implement a preference for treatment in those actions, and to conduct a baseline risk assessment, where appropriate, before selecting a non-time-critical removal response.**

Early Remedial Actions. SACM also encourages the increased use of remedial action authorities to achieve early risk reductions at sites. An early remedial action may be either a final or interim remedial action. An early "final" remedial action involves the final cleanup of an operable unit or portion of a site early in the remediation process for the entire site. For instance, at a large site with several contaminant sources, an early final remedial action might be taken to eliminate or control one of those sources, thereby achieving significant risk reductions.

An "interim" remedial action is generally intended to address a threat in the short term, while a permanent remedial solution is being developed. An example would be the installation of a groundwater pumping system to contain a contaminant plume while the feasibility of aquifer treatment is being studied, or construction of a temporary landfill cap to prevent direct contact with wastes during the remedial

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[11] 40 CFR 300.415(i). The waivers described in 40 CFR 300.430(f)(1)(ii)(C) may also be considered during removal actions.

[12] See NCP preamble discussion, at 55 Fed.Reg. 8695-96 (March 8, 1990).

investigation/feasibility study (RI/FS) process.[13] An early interim remedial action can be taken during scoping or at other points during the RI/FS process (however, remedial construction activities cannot be provided using the Fund until the site has been finally included on the NPL[14]). Less documentation is required for the Record of Decision (ROD) for an interim remedial action than for a ROD covering a final remedial action; however, adequate documentation must be provided to justify the action. (See "Guide to Developing Superfund No Action, Interim Action, and Contingency Remedy RODs," OSWER Public. No. 9355.3-02FS-3 (April 1991), at p. 4.)

Even if early risk reduction could be accomplished through a non-time-critical removal action, it may nonetheless be preferable to pursue an early remedial action in a number of situations. For instance, EPA may decide to use its remedial action authorities -- and therefore to follow the more extensive State and public participation procedures required for such actions -- at certain sites where there is high public or State interest, even if there is some associated delay. It may also be appropriate to use remedial action authorities to accomplish early actions where a site is already listed on the NPL and the remedial process is well underway.

Enforcement First and PRP Searches. The SACM goal of accelerating cleanups is not intended to displace other important goals, such as the Agency's general policy of pursuing enforcement efforts first. However, in order to effectuate both goals, it will be necessary to carry out certain enforcement actions in an expedited manner.

For instance, PRP searches must be conducted during the initial phases of the site assessment process in order to allow the Agency to pursue an effective enforcement strategy for early actions. The early identification of and notice to PRPs will also serve to strengthen EPA's cost recovery cases in situations where the action is financed by the Fund in the first instance. (Of course, a full PRP search may be impracticable in emergency and certain time-critical situations where, for instance, the PRPs are numerous or difficult to determine.)

In addition, the decision to proceed with an early action using removal action authorities may trigger shorter statutory deadlines for the filing of judicial cost recovery actions in

---

[13] Of course, such actions could also be accomplished, in appropriate cases, under removal action authorities.

[14] Note that Fund monies may be used to pay for the RI/FS and remedial design activities even prior to listing on the NPL. 40 CFR 300.425(b)(1).

some cases.[15] Thus, if the use of removal authorities is increased under the SACM model, it may be necessary to prepare cost recovery cases earlier in the process.

CONCLUSION

It is important to ensure that response actions conducted as part of the SACM model are consistent with CERCLA and the NCP. This will strengthen the Agency's ability to recover its costs, to defend the selected response actions on a site-specific basis, and to retain full support for the SACM initiative from Congress and the public.

Questions concerning the issues discussed in this Directive should be addressed to Sherry Hawkins of the Office of Emergency and Remedial Response (OERR) (202-260-2180), Sally Mansbach of the CERCLA Enforcement Division (OWPE/CED) (703-308-8404), or Larry Starfield of the Office of General Counsel (OGC) (202-260-1598).

cc: Richard Guimond
Henry Longest, OERR
Bruce Diamond, OWPE
Tim Fields, SRO
OERR Division Directors
Bill White, OE
Sylvia Lowrance, OSW
Walter Kovalick, TIO
James Makris, CEPPO
Sally Mansbach, CED
Sherry Hawkins, OERR
Larry Starfield, OGC

---

[15] See CERCLA section 113(g)(2)(A) and (B).

B&V WASTE SCIENCE AND TECHNOLOGY CORP. TEL. (404) 392-9227

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FAX: (404) 392-9289

U.S. Environmental Protection Agency
ITT Suspension System Division
Macon, Bib County, Georgia
Work Assignment № 12

BVWST Project 52012.045
BVWST File E.1
July 24, 1992

JUL 24 1992

Mr. A. R. Hanke
Chief, Site Assessment Section
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365

Subject: Draft Phase I Site Investigation
EPA ID № GAD09584063

Dear Mr. Hanke:

Enclosed please find one copy of the Draft Phase I Site Investigation for the ITT Suspension Systems Division.

Please feel free to contact me if you have any questions or comments.

Very truly yours,

B&V WASTE SCIENCE AND TECHNOLOGY CORP.

Dan Keck

Dan Keck
Project Engineer

pem
Enclosures

cc: Doug Thompson, Project Officer, w/o enclosures
Keith Mills, Contracting Officer, w/enclosures
Hubert Wieland, BVWST, w/o enclosures

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4WD-WPB

MAY 20 1992

Mr. Hubert Wieland
B & V Waste Science & Technology Corp.
1117 Perimeter Center West
Suite W-212
Atlanta, Georgia 30338

WPB/SAS
RECEIVED
MAY 11 1993
EPA - REGION IV
ATLANTA, GA

Dear Mr. Weiland:

After consulting with Dan Keck of your staff, the U.S. EPA has decided to reduce the level of effort expended on the ITT Suspension Systems Division site (GAD098584063) in Macon, Bibb County, Georgia. The site, originally assigned to B & V as a Site Inspection Phase II, will now require no more than a Site Inspection Phase I.

My apologies if this has inconvenienced you in any way. If you have any questions concerning this matter, please contact me at 347-5065.

Sincerely Yours

John A. McKeown
Georgia Project Officer

NFROP
5/28/93

cc: Earl Bozeman, EPA
Charles Swan, EPA
Keith Mills, EPA
Dan Keck, B & V

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U.S. Environmental Protection Agency
ITT Suspension System Division
Macon, Bib County, Georgia
Work Assignment № 12

BVWST Project 52012.045
BVWST File E.1
July 24, 1992

W P B / S A S
RECEIVED
MAY 11 1993
EPA - REGION IV
ATLANTA

Mr. A. R. Hanke
Chief, Site Assessment Section
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365

Subject: [redacted] Phase I Site Investigation
EPA ID № GAD09584063

Dear Mr. Hanke:

Enclosed please find one copy of the [redacted] Phase I Site Investigation for the ITT Suspension Systems Division.

Please feel free to contact me if you have any questions or comments.

Very truly yours,

B&V WASTE SCIENCE AND TECHNOLOGY CORP.

Dan Keck

Dan Keck
Project Engineer

pem
Enclosures

cc: Doug Thompson, Project Officer, w/o enclosures
Keith Mills, Contracting Officer, w/enclosures
Hubert Wieland, BVWST, w/o enclosures

[redacted]

Phase I
SITE INSPECTION

ITT Suspension Systems Division
Macon, Bibb County, Georgia
EPA ID № GAD098584063
WasteLAN Reference № 01632

EPA Work Assignment Contract № 11
EPA Contract № 68-W9-0055

Prepared for
U.S. Environmental Protection Agency
Region IV

Prepared by
B&V Waste Science and Technology Corp
BVWST Project № 52011.045

July 24, 1992

Prepared by:	Reviewed by:	Approved by:
Dan Keck	Scotti Holcombe	Hubert Wieland
Site Manager	Technical Reviewer	Project Manager

[redacted]

PHASE I
SITE INSPECTION
ITT Suspension Systems Division
Macon, Bibb County, Georgia

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FIGURES

Following Page:

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[redacted]

PHASE I SITE INSPECTION
ITT Suspension Systems Division
Macon, Bibb County, Georgia
EPA ID Nº GAD09584063
WasteLAN Nº 01632

1.0 Introduction

B&V Waste Science and Technology was tasked by the U.S. Environmental Protection Agency (EPA), Waste Management Division to conduct a Phase I Site Inspection for the ITT Suspension Systems Division in Macon, Bibb County, Georgia. The inspection was performed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Sources of information for this report were the U. S. Environmental Protection Agency, the Georgia Department of Natural Resources Environmental Protection Division, B&V Waste Science and Technology Site reconnaissance on May 27, 1992, and local City and County offices which provided property, water supply, historical, and other pertinent information.

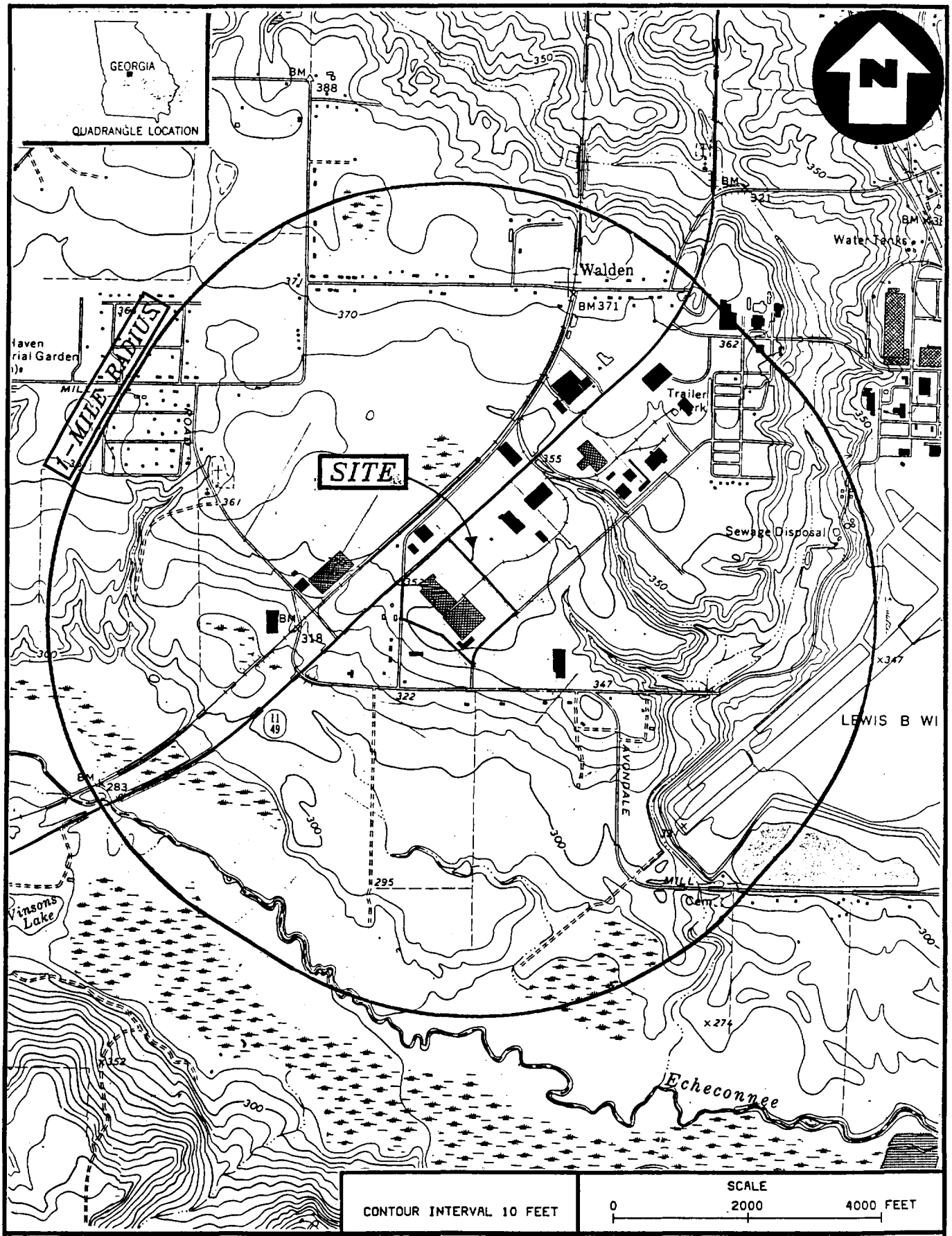
1.1 Objectives

The objectives of this study were to determine the nature of contaminants possibly located on the site and to determine if a release of these contaminants to the environment may occur. If a release to the environment was found likely to occur, the possible pathways for contaminant migration were to be evaluated with the affected populations and their environments. From the realization of these objectives, a recommendation for future activities at the site will be presented.

2.0 Site Description, History, and Waste Characteristics

2.1 Location

The ITT Suspension Systems site is located in the southern portion of Bibb County, approximately one mile north of the Bibb-Houston county line. The eastern corners



CONTOUR INTERVAL 10 FEET

SCALE
0 2000 4000 FEET

BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE QUADRANGLES DURHAM, GA. 1983 AND KENSINGTON, GA. 1983.

SITE LOCATION MAP
ITT SUSPENSIONS
SOUTHERN BIBB COUNTY, GEORGIA

FIGURE 1

of Crawford, and Peach counties, as well as the western edge of Twiggs County, all lie within the four-mile radius of the site (see Figure 1). The geographic coordinates of the site are 32° 41' 45.0" north latitude and 83° 40' 23.0" west longitude (Ref. 1). The facility address is 7980 Industrial Highway, Macon, Georgia 31206.

The site is relatively flat with little or no slope, but drainage does flow in a generally southern direction. The site is situated at approximately 350 feet above mean sea level (amsl)(Ref. 1).

The climate of the study area is characteristically humid and temperate. The mean annual precipitation, which is almost all rainfall, is approximately 45 inches (Refs. 2, 3). Precipitation is fairly well distributed throughout the entire year with the lowest rainfall occurring in late fall and early winter. Even during these months, rainfall seldom is less than two inches (Ref. 2). The 2-year, 24-hour rainfall for the area is approximately four inches (Ref. 4). Due to the temperate climate of the region, the mean annual lake pan evaporation averages about 43 inches. This produces a net annual rainfall of two inches for the area (Ref. 3).

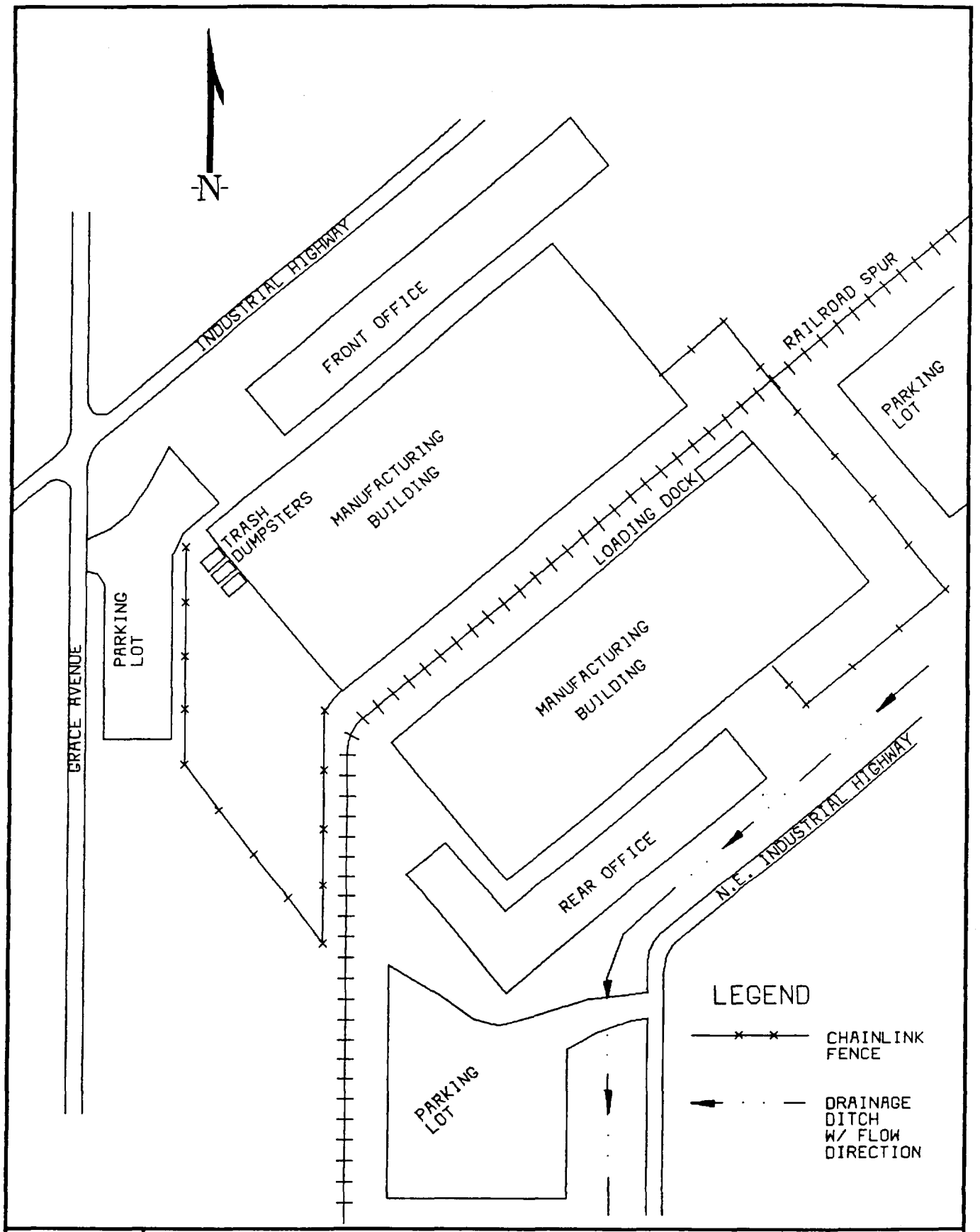
2.2 Site Description

The ITT Suspension Systems facility is situated on approximately 32 acres of land, 1 mile north of the nearest river, Echeconnee Creek (Ref. 1). There are four buildings on the active site, all are interconnected. Two of the buildings are very large and contain the manufacturing processes while the remaining two are smaller and contain offices (see Figure 2).

The entire site is well maintained with no signs whatsoever of stressed vegetation. Access to areas where outside activities occur (loading and unloading) is restricted by a 10-foot chain-link fence with access controlled by a manned guard post (Ref. 5). Access to either of the manufacturing buildings must be through the chain-link fence or through one of the office buildings. No manufacturing processes occur outside nor are there any outside chemical storage areas (Ref. 5).

2.3 Operational History and Waste Characteristics

The ITT Suspension Systems Division facility began operation shortly after its construction in 1980. The facility manufactured and assembled automobile



SITE LAYOUT MAP
ITT SUSPENSION SYSTEM DIVISION
BIBB COUNTY, GEORGIA

FIGURE 2

suspension struts and shock absorbers. The manufacturing of these parts required metal working processes which included threading, machine finishing, solvent washing, metal plating (chrome), and painting. As a result of these processes, several waste products were generated. These included: (1) chromic acid sludge which was transported and disposed of by Chem-Waste Management of Alabama; (2) spent methylene chloride and 1,1,1-trichloroethane solvents which were disposed of by Ramsey Chemical Company of Valdosta, Georgia; (3) metal grinding sludge and waste cutting oil, which were disposed of by Browning Ferris and Carl Durden Waste Oil Company of Warner Robins, Georgia (Ref. 6).

A RCRA Part A application was filed in October of 1980 (Ref. 7). The Part A application was subsequently withdrawn in April of 1984 when the facility was classified as a RCRA hazardous waste generator (Ref. 8). During ITT Suspension Systems Division's operation of the facility, a complaint from a former employee concerning improper disposal of waste oil was investigated during an inspection. The inspection showed no violations or deficiencies in the facilities manifests, however several violations were found in their contingency plan. These were later corrected (Ref. 9). The improper disposal of waste oil by Carl Durden Waste Oil Company was also discontinued and all relations with the contractor ceased (Ref. 10).

During the same inspection, "a thick black substance" was observed coating the drainage ditch along side of the property. There was also a small discharge of "relatively clear liquid" flowing from the plants cooling tower. The black substance was explained to be a metal grinding dust and cutting oil sludge produced in the grinding operation. This sludge was routinely placed in dumpsters and hauled to a municipal landfill. Leakage from these dumpsters was producing the residue in the drainage ditch (Ref. 11). As a result of these findings, the following actions were taken to correct the problem: (1) All grinding sludge was stored in leak proof containers before disposal to the county landfill. (2) Discharge from the cooling tower was piped closed and connected to the sanitary sewer. (3) All wastes in the drainage ditch were determined to be non-hazardous and were excavated and disposed of in the county landfill (Ref. 12).

All process wastewaters within the plant were sent through a wastewater treatment system in the building. Wastewater from the chrome plating operation was converted from hexavalent to trivalent chromium using sodium bisulfite (Ref. 13).

The entire chrome plating operation rested on the reinforced concrete floor of the building with a 10-inch concrete berm surrounding it. All floor drains inside and outside the bermed area lead into the wastewater treatment system (Ref. 13).

In August of 1984, a spill of chromic acid allegedly occurred inside the manufacturing building. The acid was pumped from the floor back into a storage tank (Ref. 6). It is unknown if any spilled material left the building, but the possibility is remote due to the bermed area around the chrome plating operation and the fact that all drains within the facility lead to the wastewater treatment system. Two vats, one 3,000-gallons, the other 3,500 gallons, contain the chromic acid sludge. It is unknown what volume of chromic acid was spilled. The total volume of annually generated wastes from all processes was 80-cubic yards (Ref. 6).

In January of 1990, Boeing Corporation purchased the property from ITT Suspension Systems Division (Ref. 14). Boeing is currently manufacturing and machining aircraft parts at the site (Ref.). It is unknown whether the previously existing waste streams still exist, but the facility as listed in the RCRA notifiers list no longer engages in the activity of generating hazardous waste. Boeing also does not engage in any other RCRA regulated activity at this site (Refs. 15, 16).

The only possible waste source areas remaining on the site, are localized cases of soil contamination occurring from de-minimus losses during loading/unloading and 90-day storage of waste material. The possibility of soil contamination from the 1984 chromic acid spill does exist but appears very unlikely due to internal containment structures.

3.0 Groundwater Pathway

3.1 Hydrogeologic Setting

The ITT Suspension Systems Division is situated within the Coastal Plain physiographic province approximately ten miles below the arbitrary line generally known

as the Fall Line, which separates the Coastal Plain from the Piedmont Province. This region of the Coastal Plain is underlain by formations from the Cretaceous period which overly crystalline bedrock of chiefly granitic, dioritic, and gneissic constituency. In the southern portion of Bibb County, as well as the northern portion of Houston County, a distinctive type of topography, referred to as the Sand Hills, is the most prominent geological feature. The Sand Hills represent the outcrop areas of the Tuscaloosa Formation and are characterized by a topography which is very hilly and mantled with loose, incoherent, and lightly colored sand. The area comprises a series of rolling divides between the large creeks which flow in east to west courses toward the Ocmulgee River (Ref. 2). Alluvial deposits bordering the Ocmulgee River and some parts of the larger creeks are the youngest sediments in Bibb County. They are of Pleistocene and Recent age. These deposits are composed of unsorted clay, sand, and gravel, which in most places are less than 40 feet thick and extend 1 or 2 miles on each side of the river (Ref. 2).

The specific soil type beneath the facility is Norfolk sandy loam and is well drained occurring on nearly level to gently sloping broad ridge tops found in coastal Plain uplands. A portion of the property resides on Grady sandy loam which is poorly drained and nearly level (Ref. 17). It is probable that the soil types have been altered during grading, paving, and construction of the facility, and they may now be a non-descript soil type. Below the site lies 5 feet of soil which is immediately underlain by 495 feet of Tuscaloosa Formation (Ref. 2).

The Tuscaloosa Formation is composed of fine to coarse sand, in places mingled with white kaolin and in others separated by lenticular and generally pure kaolin masses. The base of the Tuscaloosa dips southeast at a rate of approximately 30 feet per mile. It contacts the underlying crystalline bedrock at 500 feet below land surface (bls) at Cochran Field, just one mile east of the site (Ref. 2).

Groundwater wells tapped into the Tuscaloosa Formation aquifer supply virtually all domestic water sources south of the Fall Line. In some places, the Tuscaloosa becomes confined by overlying clay layers for brief periods of time producing a slight to moderate artesian head.

Where the Tuscaloosa Formation extends south of U.S. Highway 80 and west of the Ocmulgee River, water supplies from drilled wells can be readily obtained. The number of sand beds increases southward, resulting in an increase in the availability of water to wells southward. Some domestic drilled wells are only two inches in diameter and less than 70 feet deep, these wells satisfying local requirements of only a few gallons of water per minute. Other wells in the area have yields as high as 60 gpm (Ref. 2). Depth to groundwater beneath the site is estimated from topographic analysis and from water levels in area wells to be approximately 70 feet bls (Refs 1, 2). The hydraulic conductivity of the Tuscaloosa Formation is estimated to be 1×10^{-3} cm/sec (Ref. 18).

3.2 Groundwater Targets

There are four municipal water systems which distribute water within the four-mile radius of the site. The Macon-Bibb County Water Authority withdraws water from the Ocmulgee River above Macon. Of the three remaining systems (Houston County Water Department, Warner Robins Water Authority, and Centerville Water Company) all withdraw water exclusively from groundwater sources. All three have multiple wells utilized as part of a blended system (with generally equal apportionment), with Centerville and Warner Robins each having one well in the four-mile radius, and Houston county having two-wells within the study area (Ref. 1, 5, 19).

All residences that are not within one of the four municipal systems' service area are assumed to be utilizing groundwater for their potable water supplies. It is estimated that there are approximately 10,141 persons receiving drinking water from groundwater sources within the four-mile radius of the site. This estimate includes the 15 permitted community wells that are located within the 4-mile radius as well as the assumed private wells that exist within the study area (Ref. 1, 5, 19, 20).

The nearest private well is located at the B&G Thornhill subdivision on Nob Hill Drive. This community well serves approximately 60 persons and is located 1.4 miles west of the site (Ref. 1). It should be noted that the direction of groundwater flow, as indicated from topographic analysis, is generally to the southeast (Ref. 1).

4.0 Surface Water Pathway

4.1 Hydrologic Setting

Surface water runoff from the site flows in a south-southeast direction approximately 0.75 miles to an intermittent unnamed stream. This stream flows into a wetland area which feeds Echeconnee Creek. The 15-mile surface water pathway begins approximately 0.9 miles from the site in the wetland fringe areas of Echeconnee Creek. This area extends 0.2 miles to Echeconee Creek which flows 5.4 miles to the confluence with the Ocmulgee River (Ref. 1). The estimated flow rate for Echeconnee Creek is 20 cubic feet per second (cfs), and that of the Ocmulgee River is estimated to be 500 cfs (Ref. 21). The site has a mean elevation approximately 80 feet above Echeconnee Creek which precludes it from the Echeconnee or Ocmulgee flood plains (Ref. 1).

4.2 Surface Water Targets

There are no surface water intakes located on Echeconnee Creek or the Ocmulgee River that lie within the 15-mile surface water pathway of ITT Suspensions (Refs. 1, 21). However, the entire 15-mile pathway contains adjacent wetlands (Ref. 1). It is estimated that there are approximately four square miles of wetlands providing an estimated 30 river miles of wetland frontage. The Ocmulgee River is utilized as a recreational fishery, as is Echeconnee Creek to a lesser extent (Ref. 22). There are no known habitats of federally endangered or threatened species located within four miles of the site, although the wood stork may possibly inhabit the surrounding wetlands.

5.0 Soil Exposure and Air Pathways

5.1 Physical Conditions

The immediate area surrounding the site contains several light-industry manufacturing and shipping companies. There are several residences within 1,000 feet south of the property, but those are the only non-commercial buildings within a half-mile of the site (Refs. 1, 5). As stated previously, the entire site is well maintained with no signs of stressed vegetation. Access to areas where activity occurs is restricted by the presence of a 10-foot chainlink fence. Movement through the fence is controlled by a manned guard post (Ref. 5).

5.2 Soil and Air Targets

It is estimated that at least 200 workers are onsite during process operations. These employees work almost exclusively within the manufacturing and office buildings (Refs. 5). The nearest residence is located approximately 500 feet south of the site (Refs. 1, 5). The nearest school is the Heard School located 1.9 miles to the northwest (Ref. 1). There are several endangered and threatened terrestrial species listed for the State of Georgia. They are the Florida panther, bald eagle, Bachman's warbler, red-cockaded woodpecker and the Eastern indigo snake. It is uncertain whether these species inhabit areas within the four-mile radius of the site (Ref. 23). The total area of wetlands within the four mile radius of the site is estimated to be approximately six square miles (3,480 acres) (Ref. 1).

The total population within four-miles of the site is estimated to be 15,676 persons. This includes 21 persons living within ¼ mile of the site, five persons living between ¼ mile and ½ mile, 255 persons between ½ mile and 1 mile, 3,630 persons between 1 and 2 miles, 1,058 persons between 2 and 3 miles, and 10,707 persons between 3 and 4 miles of the site (Refs. 1, 20, 24).

6.0 Summary and Conclusions

The ITT Suspension Systems Division site was evaluated to assess the threat posed to human health and the environment and to determine the need for further investigation. From the information gathered in the study, it is recommended that no further action be planned for the site at this time. The recommendation is based on the probability that only minor contamination of soils actually exists, and that the chromic acid spill that occurred in 1984 most likely never left the containment area where the spill occurred. The enclosed structures onsite provides substantial containment for any process activities which occur. The ITT Suspensions Systems Division does not appear to pose a substantial threat to the surrounding population or environment.

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CONFIDENTIAL
Hazard Ranking System Preliminary Score
ITT SUSPENSION SYSTEMS DIVISION
Macon, Bibb County, Georgia

This preliminary score was calculated using the November 6, 1991 Draft SI Worksheets. Scoring involved the evaluation of groundwater, surface water, soil, and air migration pathways. Since no sampling data was available, as per the Phase I Site Inspection Scope of Work, contaminant concentrations were assumed. These contaminants included compounds known to be utilized during process operations as well as compounds that are common to other metal working processes. The assumed contaminants were:

(1) Arsenic
(2) Barium
(3) Cadmium
(4) Chromium III & VI
(5) Lead
(6) Mercury
(7) Methylene Chloride
(8) Phenol
(9) Selenium
(10) Silver
(11) 1,1,2-Trichloroethane

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A hazardous waste quantity of 10 was assigned based on the assumption that the source area is the entire site (approximately 32 acres). This source was assumed to be contaminated soils. This assumption is based on a chromic acid spill which occurred in August of 1984, and also on assumed de-minimus losses that occurred during loading and 90-day storage of hazardous waste. It is probable that the chromic acid spill never left the building where it occurred, however this assumption is the primary basis for the HRS score.

The groundwater pathway has the greatest impact on the preliminary score. This is due in part to the moderate number of groundwater users within the study area, and also to the high toxicity and mobility of the assumed contaminants. An observed release was assumed to have been determined onsite, but population targets were assumed to be potential. This is due to the distance to the nearest private well (1.4 miles). It would be difficult to attribute contamination found at this distance to ITT since the site resides within an industrial park. It should be noted however that a level I contamination at the nearest well (1.4 miles away) will produce a score sufficiently high to propose the site for inclusion on the National Priorities List. It

should also be noted that this well is upgradient of groundwater flow direction and any contamination would be highly unlikely. Again, Attribution of contamination to the ITT site would be difficult.

The surface water pathway was also evaluated on potential contamination targets since the distance to the nearest flowing water body is 0.9 miles and attribution of contamination to ITT would be very difficult. It is also unlikely that contamination could travel such a distance overland and still maintain any significant portion of it's original concentration. There are no drinking water intakes downstream of the site, but wetlands are present on the entire length of the 15-mile pathway. It should be noted that an observed release to the surface water pathway will produce a score sufficiently high to propose the site for inclusion on the National Priorities List.

The soil exposure pathway is only a minor contributor to the overall score since there are few residences near the site. Only the estimated 200 workers present onsite would bear the risk of exposure. For the purpose of producing a more conservative score it was assumed that one of the listed endangered species in the State of Georgia inhabits areas in and surrounding the site. Likewise, the air exposure pathway contributes little to the overall score.

The scenarios explored for this HRS score all assumed that groundwater, surface water, and air were utilized as resources in the area. It is believed that the score as presented is the most realistic scenario, given the unlikely situation that contamination does exist in the quantity and concentrations assumed in the scoring. The individual pathway scores and the overall score were as follows:

S_{gw}	=	9.84
S_{sw}	=	1.85
S_{se}	=	11.20
S_a	=	3.42
Overall Score	**=**	**7.70**

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From the basis of this score, and the likelihood that contamination at the site is much less than that assumed in the scoring model, no further action is recommended for this site.

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

GROUND WATER MIGRATION PATHWAY SCORESHEET

FACTOR CATEGORIES AND FACTORS

Likelihood of Release to an Aquifer	Maximum Value	Value Assigned	
1. Observed Release	550	550	
2. Potential to Release			
2a. Containment	10	--	
2b. Net Precipitation	10	--	
2c. Depth to Aquifer	5	--	
2d. Travel Time	35	--	
2e. Potential to Release [lines 2a x (2b + 2c + 2d)]	500	--	
Likelihood of Release (higher of lines 1 and 2e)	550		550
Waste Characteristics			
4. Toxicity/Mobility	a	10,000	
5. Hazardous Waste Quantity	a	10	
6. Waste Characteristics	100		18
Targets			
7. Nearest Well	50	5	
8. Population			
8a. Level I Concentrations	b	0	
8b. Level II Concentrations	b	0	
8c. Potential Contamination	b	72	
8d. Population (lines 8a + 8b + 8c)	b	72	
9. Resources	5	5	
10. Wellhead Protection Area	20	0	
11. Targets (lines 7 + 8d + 9 + 10)	b		82
Ground Water Migration Score for an Aquifer			
12. Aquifer Score [(lines 3 x 6 x 11)/82,500][c]	100		9.84
Ground Water Migration Pathway Score			
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)[c]	100		9.84

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[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor Categories and Factors	Maximum Value	Value Assigned	
DRINKING WATER THREAT			
Likelihood of Release			
1. Observed Release	550	--	
2. Potential Release by Overland Flow			
2a. Containment	10	--	
2b. Runoff	25	--	
2c. Distance to Surface Water	25	--	
2d. Potential to Release by Overland Flow [lines 2a x (2b + 2c)]	500	--	
3. Potential to Release by Flood			
3a. Containment (Flood)	10	--	
3b. Flood Frequency	50	--	
3c. Potential to Release by Flood (lines 3a x 3b)	500	--	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	--	
5. Likelihood of Release (higher of lines 1 and 4)	550		100
Waste Characteristics			
6. Toxicity/Presistence	a	10,000	
7. Hazardous Waste Quantity	a	10	
8. Waste Characteristics	100		18
Targets			
9. Nearest Intake	50	0	
10. Population			
10a. Level I Concentrations	b	0	
10b. Level II Concentrations	b	0	
10c. Potential Contamination	b	0	
10d. Population (lines 10a + 10b + 10c)	b	0	
11. Resources	5	5	
12. Targets (lines 9 + 10d + 11)	b		5
Drinking Water Threat Score			
13. Drinking Water Threat Score [(lines 5 x 8 x 12)/82,500, subject to a maximum of 100)	100		0.11

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Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
(continued)

Factor Categories and Factors	Maximum Value	Value Assigned	
HUMAN FOOD CHAIN THREAT			
Likelihood of Release			
14. Likelihood of Release (same value as line 5)	550		100
Waste Characteristics			
15. Toxicity/Persistence/Bioaccumulation	a	500,000,000	
16. Hazardous Waste Quantity	a	10	
17. Waste Characteristics	1,000		180
Targets			
18. Food Chain Individual	50	0	
19. Population			
19a. Level I Concentrations	b	0	
19b. Level II Concentrations	b	0	
19c. Potential Human Food Chain Contamination	b	3	
19d. Population (lines 19a + 19b + 19c)	b	3	
20. Targets (lines 18 + 19d)			3
Human Food Chain Threat Score			
21. Human Food Chain Threat Score [(lines 14 x 17 x 20)/82,5000, subject to a maximum of 100)	100		0.65
ENVIRONMENTAL THREAT			
Likelihood of Release			
22. Likelihood of Release (same value as line 5)	550		100

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Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
(continued)

Factor Categories and Factors	Maximum Value	Value Assigned	
ENVIRONMENTAL THREAT, (concluded)			
Waste Characteristics			
23. Ecosystem Toxicity/Persistence/Bioaccumulation	a	500,000,000	
24. Hazardous Waste Quantity	a	10	
25. Waste Characteristics	1,000		180
26. Sensitive Environments			
26a. Level I Concentrations	b	0	
26b. Level II Concentrations	b	0	
26c. Potential Contamination	b	5	
26d. Sensitive Environments (lines 26a + 26b + 26c)	b	5	
Targets			
27. Targets (value from line 26d)			5
Environmental Threat Score			
28. Environmental Threat Score [(lines 22 x 25 x 27)/82,500, subject to a maximum of 60]	60		1.09
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE FOR A WATERSHED			
29. Watershed Score[c] (lines 13 + 21 + 28, subject to a miximum of 100)	100		1.85
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE			
30. Component Score (S_{oF})[c] (highest score from line 29 for all watersheds evaluated, subject to a maximum of 100)	100		1.85

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[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

SOIL EXPOSURE PATHWAY SCORESHEET

	Factor Categories and Factors	Maximum Value	Value Assigned	
RESIDENT POPULATION THREAT				
	Likelihood of Exposure			
1.	Likelihood of Exposure	550		550
	Waste Characteristics			
2.	Toxicity	a	10,000	
3.	Hazardous Waste Quantity	a	10	
4.	Waste Characteristics	100		18
	Targets			
5.	Resident Individual	50	0	
6.	Resident Population			
	6a. Level I Concentrations	b	0	
	6b. Level II Concentrations	b	0	
	6c. Resident Population (lines 6a + 6b)	b	0	
7.	Workers	15	10	
8.	Resources	5	0	
9.	Terrestrial Sensitive Environments	c	75	
10.	Targets (lines 5 + 6c + 7 + 8 + 9)	b		85
	Resident Population Threat Score			
11.	Resident Population Threat (lines 1 x 4 x 10)/82,500			10.2
NEARBY POPULATION THREAT				
	Likelihood of Exposure			
12.	Attractiveness/Accessibility	100	--	
13.	Area of Contamination	100	--	
14.	Likelihood of Exposure	500		--
	Waste Characteristics			
15.	Toxicity	a	10,000	
16.	Hazardous Waste Quantity	a	10	
17.	Waste Characteristics	100		18

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Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

SOIL EXPOSURE PATHWAY SCORESHEET
(contiued)

Factor Categories and Factors	Maximum Value	Value Assigned	
NEARBY POPULATION THREAT, (continued)			
Targets			
18. Nearby Individual	1	--	
19. Population Within 1 Mile	b	--	
20. Targets (lines 18 + 19)	b		--
Nearby Population Threat Score			
21. Nearby Population Threat (lines 14 x 17 x 20)/82500 SI Method-Default Value of 1, 2, or 4	b		1
SOIL EXPOSURE PATHWAY SCORE			
22. Soil Exposure Pathway Score[d] (S_s), (lines [11 + 21] subject to a maximum of 100)	100		11.2

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[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] No specific maximum value applies to factor. However pathway score based solely on sensitive environments is limited to maximum of 60.
[d] Do not round to nearest integer.

Site Name: ITT Suspension Systems Division

Location: Macon, Bibb County, Georgia

AIR MIGRATION PATHWAY SCORESHEET

FACTOR CATEGORIES AND FACTORS

	Likelihood of Release	Maximum Value	Value Assigned	
1.	Observed Release	550	--	
2.	Potential to Release			
	2a. Gas Potential to Release	500	--	
	2b. Particulate Potential to Release	500	--	
	2c. Potential to Release (higher of lines 2a and 2b)	500	--	
3.	Likelihood of Release (higher of lines 1 and 2c)	a		500
	Waste Characteristics			
4.	Toxicity/Mobility	a	2,000	
5.	Hazardous Waste Quantity	a	10	
6.	Waste Characteristics	100		10
	Targets			
7.	Nearest Individual	50	20	
8.	Population			
	8a. Level I Concentrations	b	0	
	8b. Level II Concentrations	b	0	
	8c. Potential Contamination	b	24	
	8d. Population (lines 8a + 8b + 8c)	b	24	
9.	Resources	5	5	
10.	Sensitive Environments			
	10a. Actual Contamination	c	0	
	10b. Potential Contamination	c	7.5	
	10c. Sensitive Environments (lines 10a + 10b)	c	0	
11.	Targets (lines 7 + 8d + 9 + 10c)	b		56.5
	Air Migration Pathway Score			
12.	Pathway Score (S_a) [(lines 3 x 6 x 11)/82,500][d]	100		3.42

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[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] No specific maximum value applies to factor. However pathway score based solely on sensitive environments is limited to maximum of 60.
[d] Do not round to nearest integer.

OVERSIZED

DOCUMENT

REFERENCE 2

GEORGIA
STATE DIVISION OF CONSERVATION

DEPARTMENT OF MINES, MINING AND GEOLOGY
GARLAND PEYTON, Director
19 Hunter Street, Atlanta, Georgia

THE GEOLOGICAL SURVEY
Bulletin No. 72

GEOLOGY AND GROUND-WATER RESOURCES OF THE MACON AREA, GEORGIA

by

H. E. LeGrand

Prepared by the
United States Geological Survey
in cooperation with
Georgia Department of Mines, Mining, and Geology
ATLANTA
1962

GEOGRAPHY

The area described in this report lies along the inner margin of the Coastal Plain. The northern part of Bibb, Crawford, and Taylor Counties is in the Piedmont province. Separating the Piedmont from the Coastal Plain is an arbitrary line generally known as the Fall Line, along which, in some States, streams descend in a zone of falls from rather resistant crystalline rocks of the Piedmont to less resistant rocks of the Coastal Plain. In the area studied, no falls occur along the streams in this zone, but the term Fall Line may be retained to delimit the two provinces generally.

The Piedmont province is an upland area of moderate relief, the highest parts of which rise to about 800 feet above sea level in the area studied. The land slopes gently to the south, and the major drainage is southward. Locally the tributary streams are closely spaced and fan out in random style. In the interstream area, the gently rolling terrane is mantled by thick soils of moderate fertility.

South of the Piedmont province, deposits of Cretaceous age crop out in an east-west belt (fig. 2), producing a distinctive type of topography and referred to as the Sand Hills. The area is mantled by loose, incoherent sand and is very hilly; the light-colored sandy hills rise to nearly 800 feet in western Taylor County. Streams are more widely spaced in the Piedmont and have cut valleys as deep as 300 feet below the upland. Deep, precipitous gullies are actively encroaching upon the upland areas, where sand is removed at the gully heads by rainwash and deposited in the gully bottoms as subaerial deltas (Veatch and Stephenson, 1911, p. 30) or "sand streams." The sand of the undisturbed Cretaceous deposits and the "sand streams" are so permeable that runoff from precipitation is slight. Rain may move the sandy material downslope a short way, but the downward percolation of water limits its erosive power. Parts of the interstream areas have not yet been attacked by advancing gullies and stand fully as high as the hills of the Piedmont farther north. Moisture is not readily retained in the infertile sandy soils, resulting in a sparser cover of vegetation than is generally found in the southeastern States.

The Fort Valley Plateau represents the outcrop area of Eocene deposits. The plateau forms a belt south of the Sand Hills and is characterized by deep-red clayey soil and flat topography which is only slightly dissected. It is typically displayed in Peach County near Fort Valley. The plateau appears to be a

plain of solution, beneath the surface of which ground water has dissolved a layer of preexisting limestone. A few shallow depressions on the plateau are evidence of the solution action. The flatness of the area has helped to retard leaching of the soil, and crops tend to grow better than on the leached soils of the Sand Hills area farther north. The Fort Valley Plateau is the peach-growing center of the State, the northern limit of peach orchards representing the northern limit of the plateau.

An upland area in the southern part of Houston County is separated from the lower lying Fort Valley Plateau by a north-facing escarpment. This upland is similar to the Tifton Upland, which covers much of the Coastal Plain southward. The upland has not been subjected to solution subsidence as has been the Fort Valley Plateau, and the difference in altitude of these two subprovinces of the Coastal Plain approximates the thickness of limestone removed by solution near the base of the scarp.

Drainage

The Macon area lies within the drainage basins of the Ocmulgee and Flint Rivers, which flow in more or less parallel courses southward in consequence of the regional slope. Both rivers rise in the Piedmont Plateau near Atlanta.

The Ocmulgee River flows southward through eastern Bibb County and forms the eastern boundary of Houston County. The streams flowing into the Ocmulgee have prevailing southeast courses and include Tobesofkee, Echeconnee, and Big Indian Creeks. These creeks rise very close to the Flint River and appear to have pushed the divide between the Flint and Ocmulgee westward. Almost all small tributaries flow southward to join the larger creeks at an acute angle. The flood plain of the Ocmulgee is generally about 2 miles wide.

Flint River separates Crawford from Taylor County and flows southward through Macon County. Like the Ocmulgee, Flint River has no large tributaries from the east. The larger tributaries, all flowing southeastward to join the Flint, are Patsiliga, Whitewater, and Buck Creeks. The water of these tributaries is clear because of the purity of sands over which it flows. The scarcity of streams from the east has minimized erosion to the extent that a pronounced west-facing escarpment is close to the river; on the east side of the river north of Montezuma the flood plain is either narrow or nonexisting.

Precipitation

The climate of the Macon area is characteristically humid and temperate. The annual precipitation, which at Macon averages 44.60 inches, is adequate for the growth of many varieties of crops. The precipitation is almost all rainfall and is fairly well distributed throughout the year. The lowest rainfall is generally during September, October, and November, but rarely does any month receive less than 2 inches.

GEOLOGY

Development of the Coastal Plain Province

The Coastal Plain of the area studied is a part of a large coastal province extending from Long Island, N. Y., to the Mexican border and southward to Guatemala. Its development has resulted from the interdependence of three great natural processes — differential earth movement, erosion, and sedimentation. At the beginning of Cretaceous time, and for a long time previously, southern and eastern Georgia was a land area of igneous and metamorphic rocks, like those of the Piedmont providence, and of consolidated sedimentary rocks of Paleozoic age, like those of northwestern Georgia. Soon the margin of the continent was depressed, allowing the sea to encroach on the land. Since this advance in Cretaceous time, the sea has retreated and advanced to varying positions many times. As it came close to the present Piedmont province, the sea became a resting place for material eroded from the land area. Rocks of the Piedmont disintegrated and decayed into soil and rock fragments, which were washed by rain into streams and carried to the sea. Much of the Cretaceous sediments were deposited on lowland margins of the plain before reaching the sea. Some of these nonmarine deposits were eroded and redeposited in the sea, but some were buried and preserved by the deposits of an advancing sea. In addition to clay and sand that was eroded from the land area and deposited, some marl and limestone were formed as the result of the precipitation of chemical matter from the sea water and the settling of dead marine organisms. Whether deposited in the sea or along marginal land areas, the sediments tend to be preserved in nearly flat, but gently coastward-dipping layers (fig. 3).

General Stratigraphy

The stratigraphy was studied in order to understand the occurrence and movement of ground water. The rock materials are conventionally grouped into formations according to their lithology. A formation is named after a place where it is typically exposed. For example, the Providence sand was named for Providence Canyons in Stewart County. A formation may be only a few feet thick or many hundreds of feet thick, and it may be composed almost entirely of clay, sand, or limestone. Most formations contain a variety of beds, but some feature is commonly present to distinguish it from the overlying and un-

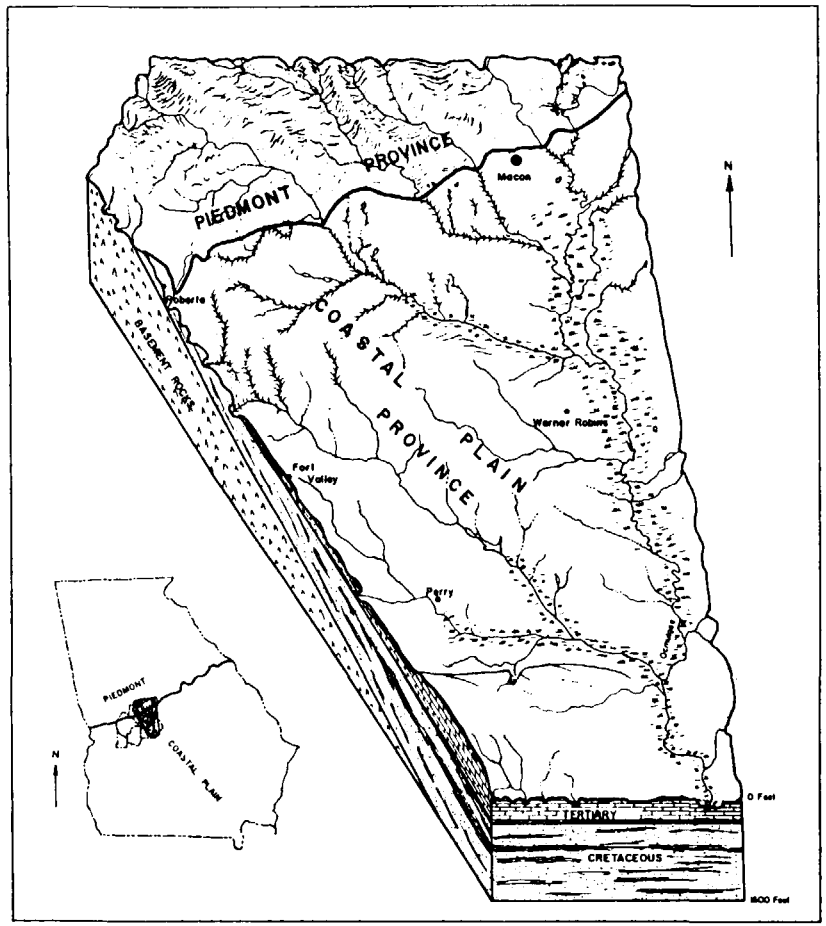


Figure 3.—Diagram showing generalized surface and subsurface features in the eastern half of the Macon area. (Tertiary materials are chiefly limestone, with lesser amounts of sand and clay; Cretaceous materials are sand and clay).

derlying formations. As a result of changes in conditions of deposition, all formations change in character along the beds. A common change is a gradual transition from a bed composed chiefly of sand to one composed chiefly of clay.

At varying distances from a place where a formation is typically exposed, the character of its material changes to such an extent that its name and its description are no longer appropriate. Thus, different names may be applied to rock materials that were deposited at the same time at different places. For example, several distinctive Cretaceous formations occur in the Chattahoochee Valley of western Georgia where they were de-

posited under marine conditions. Eastward, some of these formations contain nonmarine beds, and in the area studied, difficulty was experienced in tracing them (Eargle, 1955, p. 1).

Development of Soils

Different kinds of soil occur in the Coastal Plain province, and their development has been controlled by geologic conditions. Insofar as such development is concerned, the deposits may be classified by four categories. These include (1) slopes and hills on outcropping Cretaceous formations, (2) broad flat uplands on outcropping Tertiary formations, (3) slopes extending from the flat uplands to valleys, and (4) flat alluvial soils of lowland areas.

In the Sand Hills area, characterizing the Cretaceous outcrop belt, loose surface sand is widespread. This is underlain at many places by a zone of sand with interstitial clay, which in turn is underlain by its parent Cretaceous clay or clayey sand. The writer considers these three zones as representing the A, B, and C horizons of the normal soil profile. The zones are so distinctive in character and color that some geologists tend to regard them as separate geologic formations. It appears to the writer that clay originally present in the surface zone has been carried down by per percolation water into the B horizon, where a pink or red hardpan has developed. Some of the surface sand has been transported by wind, an action that may have been prominent during some dry climatic period of the Pleistocene epoch. These soils are so well drained and coarse textured that they have low fertility.

The soils of the broad, relatively flat areas of Tertiary formations vary in color from light gray to deep red. The surface soils are predominantly sand, but they are not leached as much as the surface soils of the Sand Hills area. Either clayey subsoil or parent material lies within a few feet of the surface in most places, resulting in moderately well drained soils suitable for growing crops.

The slopes extending from the relatively flat uplands to the streams cut across beds of clay and sand. As erosion is fairly active on these slopes, the soil profile rarely gets a chance to develop to maturity. In some places the parent materials are exposed, and in many places surface material from upland areas has migrated toward the valleys and now mantles the parent

material. Soils on these slopes vary greatly in character and are not easily classified.

The major streams are bordered by flat areas, or flood plains, which are underlain by clay, sand, and gravel. As the flood plains lie only a few feet above normal stream level, their soils are subject to overflow and to the deposition of "new" soil material. The soils vary from moderately well drained to poorly drained, but they contain more organic matter than other soils of the area. Natural vegetation is abundant on these lowland soils.

GROUND-WATER HYDROLOGY

Summary of Hydrologic Cycle

The precipitation that reaches the ground in the Macon area takes diverse courses. Much of it infiltrates the sandy surface, but some flows overland immediately after each rain into rivers and creeks. Some precipitation immediately evaporates, whereas some seeps into the soil only to be evaporated later or transpired by vegetation. If the rain is prolonged, some water passes downward below the root zone, but some of this water is thwarted in its vertical movement by clay beds and is shunted laterally above the water table to a surface slope where it is evaporated; the remaining water continues downward to the water table, which is the top of the zone of saturation, in which all the open spaces in the sand, clay, and limestone beds are filled with water. Upon reaching the water table, its progress is retarded, but it still moves by gravity to some low place where it discharges from the ground. Ground water discharges in low areas as seeps and springs and as evapotranspiration (direct evaporation and transpiration by vegetation).

Occurrence and Movement of Ground Water

Almost all the materials of the Coastal Plain in the area studied are loose and unconsolidated. Thus, the quantity of water that can be stored underground between the mineral grains is great. The sand and clay, which represent the bulk of the materials, differ in their ability to store and transmit water. Clay has a high percentage of pore space, but the openings are so small that water tends to be retained against the pull of gravity. In contrast, sand may have less pore space than an equivalent volume of clay, but the openings are larger and allow a quicker movement of water.

All the southward-thickening wedge of sediments is saturated with water except for a layer of air-filled materials a few feet or a few tens of feet thick lying between the ground surface and the water table. The change in storage of ground water is reflected in the change in position of the water table. The depth to the water table depends on the frequency, duration, and intensity of the precipitation. The position of the water table depends also on the topography and on the ability of the sediments to transmit water. The water table beneath the upland areas is higher than the stream valleys. This results in a hydraulic gradient toward the valleys, where ground water dis-

charges into streams and swampy areas. In areas of relatively flat topography underlain by poorly permeable materials such as clay, sandy clay, or fine sand, the water table is within a few feet of the land surface. The continuous movement of ground water into stream valleys results in a tendency toward a continually declining water table. However, periods of precipitation are rather numerous and fairly evenly distributed throughout the year; during and immediately after the periods of precipitation, the amount of water entering the ground-water reservoir exceeds the amount moving out into the valleys, and the water table rises.

Artesian System

The Coastal Plain formations are ideally disposed for the occurrence of artesian water. Contrary to popular belief artesian water does not, at every place, come from great depths; some artesian water in the counties studied occurs at depths of less than 50 feet below the land surface.

To understand artesian conditions in the area, it is necessary to understand the relation between the profiles of the water table, the land surface, and the geologic formations. The water table is present throughout the Coastal Plain, lying in sand in some places and in clay or limestone in others. Both the beds and the land surface are inclined toward the southeast, but the inclination of the beds is steeper. As the water table is roughly parallel to the regional land surface, the number of clay and sand beds beneath the water table increases toward the southeast. The clay beds are relatively impermeable and tend to confine water under pressure that lies beneath them. The water enters the ground, reaches the water table, and flows " * * * down with the slope of the water table to a point where the zone of saturation is interrupted by an impermeable bed. Part of the water may pass above the bed and continue to flow under water-table conditions, and part of it flows beneath the bed. Now it is confined, pressing upward against the impermeable bed with a head equivalent to the difference in elevation between that point and the elevation of the water table in the area of recharge, less the loss of head resulting from friction in movement. This is confined or artesian water; it will rise in a tightly cased well to a height above the bottom of the confining bed equivalent to the pressure head at that point. If the head happens to be above the land surface, as it commonly

is in the valleys or along the coast * * *, the well will flow" (McGuinness, 1951, p. 12-13).

Beds composed of coarse to medium sand are the most permeable in the area; these beds, which allow water to pass through them readily, are referred to as aquifers. The least permeable beds are composed of clay. Limestone, which occurs in the southeast corner of the area, contains some permeable beds, and southward beyond the area studied it is an aquifer of great importance. The interlayering of sand and clay results in a composite artesian system consisting of several artesian sand aquifers and intervening clay confining beds. Some geologic formations tend to be composed chiefly of sand, others of clay, and others of limestone. Yet, graduations of materials are common, and some formations contain several aquifers and confining beds. The coastward homoclinal slope of the beds results in a specific artesian aquifer becoming more deeply buried toward the coast; the number of artesian aquifers below a specific place also is greater coastward. To some extent each artesian aquifer acts as a pipe or conduit to transmit water from a place of recharge at a high elevation to a place of discharge at a low elevation. The analogy may be useful in the area studied, but it tends to break down if the entire coastward part of the artesian system is considered, because water at great depth can discharge only by slow upward movement through relatively impermeable beds.

Relation of Geology and Ground Water to Streamflow

In referring to the earth materials as an underground reservoir, it must be borne in mind that the water underground is in temporary or transient storage because it is moving slowly toward an outlet. It tends to move through permeable sand and around the relatively impermeable clay, following courses of least resistance from points of high elevation to points of low elevation. However, some water moves through seemingly impermeable clay, and there is some interchange of water between aquifers throughout the Coastal Plain system. Where the water table is higher than the pressure surface of the uppermost artesian aquifer, as in much of the interstream area, water tends to move downward from the water-table aquifer to the artesian aquifer even through beds of clay. In most of the stream valleys the relations are reversed, and water from the

uppermost artesian aquifer tends to leak upward into the water-table aquifer or into the stream.

The erosive power of streams has resulted in their channels being lowered as much as 50 to 150 feet below the upland interstream areas. Thus, the water-table aquifer and the uppermost artesian aquifer are incised, and much water "bleeds," or discharges from them. Ground water discharges as evapotranspiration, springs, and seepage into the stream channels (fig. 4). Both the water-table aquifer and the uppermost artesian aquifer lose water to the stream.

All the rivers and larger creeks in the Macon area cut into both the water-table aquifer and the uppermost artesian aquifer, which are thus a good source of water for the streams in dry weather. It seems likely that the uppermost ground water — that within about 100 feet of the land surface — moves relatively rapidly; ground water near some streams may move as much as several tens of feet per day. However, beneath the broad interstream areas the movement is slower. The deep-lying artesian water in the southern part of the area may move no faster than a few feet or a few tens of feet a year.

Whitewater Creek, in the Sand Hills of Taylor County, has a remarkably high and stable flow (Carter and Lendo, in LeGrand and Furcron, 1956, p. 129). This creek drains an area of loose Cretaceous sand where infiltration of precipitation is great and evapotranspiration and surface runoff after storms are slight. It has an average flow of 950,000 gpd (gallons per day) per square mile, and a minimum flow of 770,000 gpd per square mile that is expected only 1 day in every 20 years (Thomson and others, 1956, p. 154).

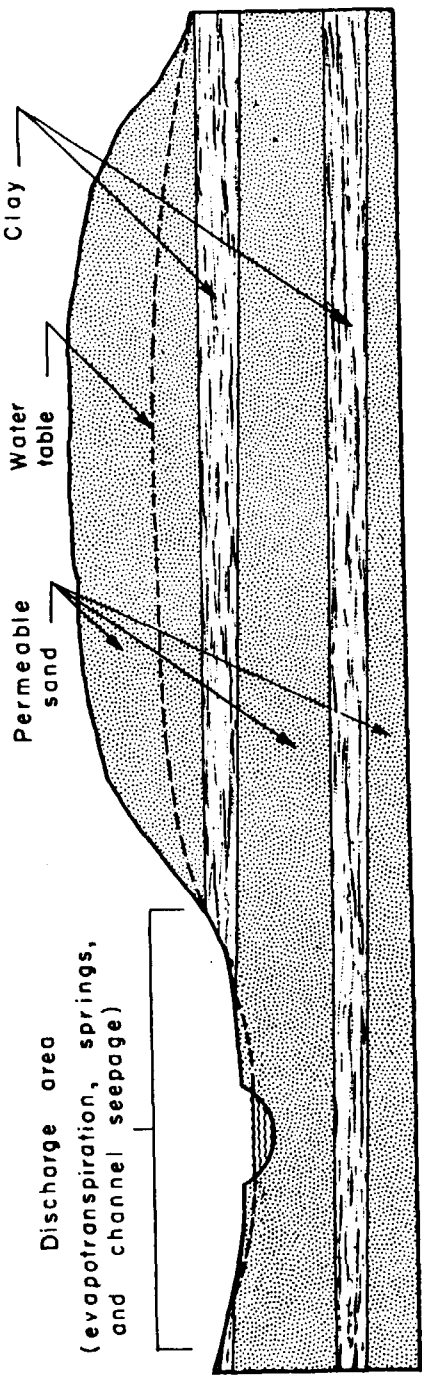


Figure 4.—Diagram showing the common occurrence of a stream cutting through a water-table aquifer and into the uppermost artesian aquifer. The stream and valley vegetation gain water from both aquifers.

METHODS OF WITHDRAWING GROUND WATER

In the days of the early settlers, springs were a major source of water. Springs are still common in low ground near streams, and they furnish water extremely low in dissolved mineral matter. The excellent character of almost all water from springs in the area is due to the rather rapid circulation at shallow depths through sandy deposits. Nearly all of the springs yield less than 10 gpm (gallons per minute), and in fact, most yield 1 or 2 gpm. Since springs emerge from coves or reentrant, near the bottom of a hill, they are not readily accessible to most water users, who tend to live on upland areas.

Dug wells 20 to 70 feet deep were common sources of water during past generations, but these wells have decreased in number within recent years.

Drilled wells are increasing in number and are used throughout the area. Wells penetrating igneous and metamorphic rocks in the northern part of the area are cased to the top of hard rock to depths ranging from a few feet to 100 feet; the hole is open in the rock, and water enters the well from fracture-type openings in the rock.

Almost all the drilled wells of the Coastal Plain draw water from beds of sand. Many wells no larger than 3 inches in diameter have an open end which allows sand to flow into the well. Excessive pumping causes these wells to fill with sand and thus to decline in yield. Other wells have a screen or strainer at the bottom, the screen holding back the sand that otherwise would come into the well. Almost all municipal and many industrial wells are of the multiple-screen type. These wells are furnished with several screens that are placed opposite the beds of sand. Many of the multiple-screen wells have gravel inserted as an envelope around them so that the pore space around the wells will be large enough to allow water to move into the wells readily; these are referred to as gravel-walled or gravel-packed wells. Multiple-screen wells for which the sizes of the screens are properly selected, and in which the screens are carefully set opposite the beds of sand, yield the maximum amount of water.

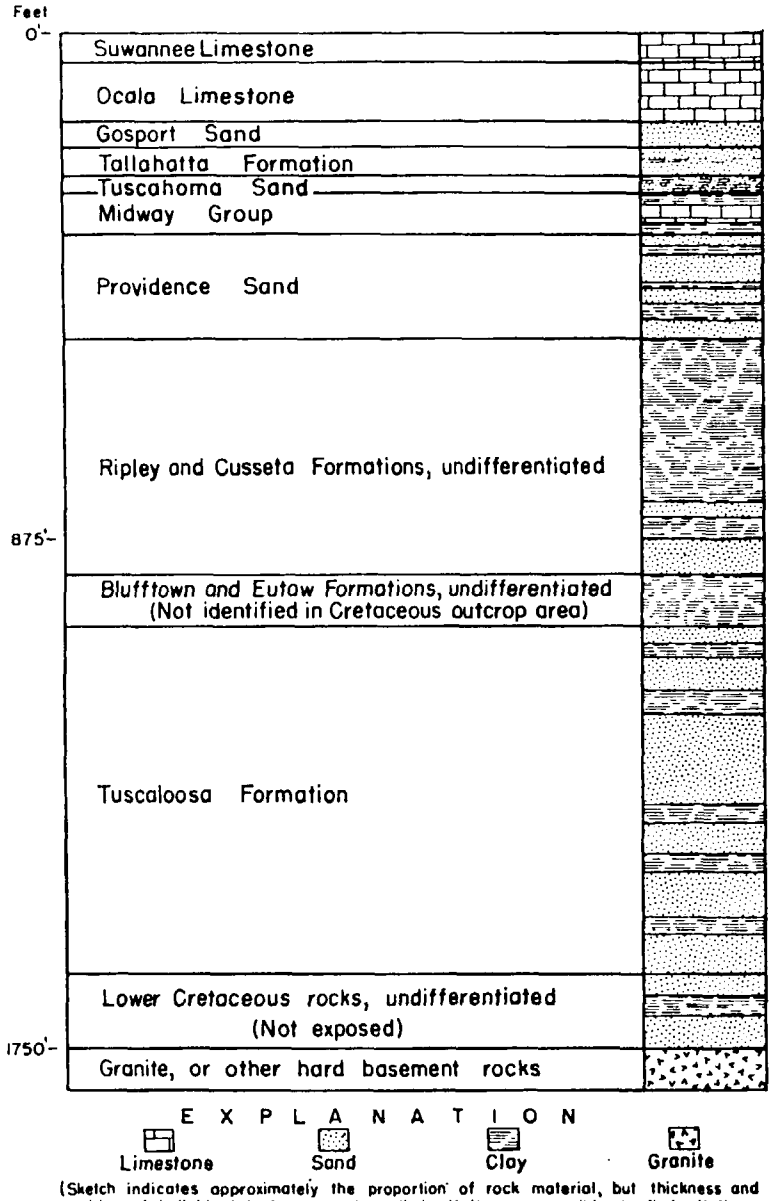
GEOLOGIC FORMATIONS AND THEIR WATER-BEARING PROPERTIES

The areal distribution of the formations underlying the Coastal Plain of the Macon area is shown on the geologic map (fig. 2) and their stratigraphic sequence is illustrated in figure 5. A description of the geologic features and water-bearing properties of these formations follows.

Pre-Cretaceous Rocks

Igneous and metamorphic rocks of Paleozoic and older age lie beneath the sedimentary materials of the Coastal Plain and are exposed in the extreme northern part of the area studied. These so-called crystalline rocks were not separately mapped and were not studied in detail. Many of them are granitic, being (1) true granite, (2) biotite-granite gneiss, or (3) a granite component in a diorite injection complex. Slate and altered volcanic rocks occur in at least one northeast-trending belt. All these rocks are highly weathered and where exposed are generally soft and friable.

As only a few drilled wells in the Macon area derive water from the igneous and metamorphic rocks, few data are available from which to determine the water-bearing properties of these rocks. However, although some wells yield as much as 100 gpm and others as little as 1 gpm, information derived from a study of similar rocks in other parts of Georgia indicates that they yield only small supplies of water. The average expected yield does not greatly exceed 20 gpm.



(Sketch indicates approximately the proportion of rock material, but thickness and position of individual beds are not realistic. If it were possible to find all the sedimentary formations stacked one upon the other in a single cliff, the array would approximate that shown above. In the northern part of the area, only the lower, and older, formations occur. The column of formations is more nearly represented beneath the southern boundary of the area.)

Figure 5.- Columnar sketch of formations in the Macon area.

CRETACEOUS DEPOSITS

Tuscaloosa Formation

The Tuscaloosa formation is the oldest outcropping formation of the Coastal Plain of Georgia. It extends into Georgia from the vicinity of Tuscaloosa, Ala., where it is typically exposed (Cooke, 1943, p. 8). It crops out as an irregular band, generally less than 15 miles wide, bordering the Piedmont province.

The south boundary of the Tuscaloosa, where it is in contact with a younger overlying formation, is not precisely distinguishable in the area studied. This is due to the lithologic similarity of Cretaceous formations in their updip areas. Considerable difficulty was experienced in mapping the Cretaceous deposits in Taylor County, where only the area north of the Central of Georgia Railroad is known with certainty to be underlain by the Tuscaloosa formation. Of the area mapped as undifferentiated Cretaceous, the stratigraphically lowest part is of Tuscaloosa age. Study of stratigraphic relations in the area indicates that the Tuscaloosa is not overlapped by younger deposits but crops out continuously across the area.

The Tuscaloosa formation consists of light-colored sand, sandy clay, and lenticular masses of clay. It is not well bedded and no individual beds have been traced far. The beds do not indicate regular or cyclic deposition, and hence the basal part of the formation may be lithologically similar to the top. The Tuscaloosa thickens southward, and where it is covered by younger material it may be as much as 600 feet thick.

The Tuscaloosa formation in its outcrop area lies on crystalline rocks of Paleozoic and older age. It is possible that deposits of early Cretaceous age underlie the Tuscaloosa in Southern Houston County. The Cusseta sand of late Cretaceous age overlies the Tuscaloosa in southern Taylor County. Southward, beds of the Blufftown and Eutaw formations tend to be wedged between the Cusseta and Tuscaloosa. Eargle (1955, p. 23-31) mapped the Eutaw and Blufftown formations in Taylor County, but the writer does not believe that they can be distinguished from the overlying and underlying formations. It is possible that younger Cretaceous deposits, either the Ripley or the Providence formation, overlie the Tuscaloosa in Peach County and on the uplands in central Taylor County. As far as could be determined, the Tuscaloosa is overlain by the Providence sand in Houston County.

Cusseta Sand

The Cusetta sand was named by Veatch (1909, p. 82-90) from the town of Cusseta in Chattahoochee County. It is not distinguishable from the Tuscaloosa, which underlies it, or from the updip part of the Ripley, which overlies it in the outcrop area. Therefore, it has not been mapped separately but is included in the undifferentiated deposits of Cretaceous age. The Cusseta is composed chiefly of loose yellow sand, although clay beds are common in the upper part. In fact, the deposits of Cusseta grade upward into interlaminated yellow clay and fine sand of the Ripley formation with which it is apparently conformable. Although the Cusseta is about 110 feet thick at Perry, Houston County, it is probably not represented in the Cretaceous outcrop areas of Houston and Bibb Counties.

Ripley Formation

The Ripley formation is exposed in the deeper stream valleys of Schley County and in a few places in Taylor and Macon Counties. It is not definitely known east of the divide between the Flint and Ocmulgee Rivers, although beds in stratigraphic position corresponding to the Ripley crop out in northern Peach County. Although distinctive in Schley County, it cannot be separated from other Cretaceous formations in parts of Taylor, Crawford, and Peach Counties, and consequently may occur in the stratigraphically high parts of the area mapped as undifferentiated Cretaceous.

In its outcrop area, the Ripley probably does not exceed 80 feet in thickness, and downdip under cover it does not thicken as much as other Cretaceous formations. Where erosion has exposed the Ripley in valleys in Schley and Macon Counties, it is composed of dark-gray clay interlaminated with lesser amounts of fine sand. After long exposure, the color becomes lighter, and outcrops in Taylor County are light yellow or white In outcrops in Taylor County, the Ripley is sandy. Massive white kaolin in Taylor County may be a part of the Ripley formation.

Providence Sand

The Providence sand was named by Veatch (1909, p. 86) from the settlement of Providence in Stewart County. It is the youngest and uppermost Cretaceous formation in Georgia and consequently forms the southernmost part of the Cretaceous belt in the area studied. It is well exposed west of the Flint River in northern Schley and Macon Counties, and it also caps some of the hills in Taylor County. It has been mapped eastward through Peach and Houston Counties to the Ocmulgee River. The Providence lies on the Ripley formation except in southern Bibb and northern Houston Counties, where it overlaps the Ripley to rest on the Tuscaloosa formation.

The dip at the top of the Providence formation, as estimated from outcrops and a study of wells in Schley County, is slightly less than 15 feet per mile. If this dip is projected northward, it is apparent that the ridge at Mauk, in Taylor County, is underlain by the Providence.

The Providence is less than 120 feet thick in its outcrop area, although it thickens under cover of other sediments southward. It consists of light-colored sand and masses of white clay. In lithology it is similar to the Tuscaloosa, with which it is in contact in northern Houston County. Except in Taylor County its deposits are strikingly different from the dark-colored bedded clay and sand of the underlying Ripley formation.

Ground Water in the Cretaceous Formations

In the Macon area the deposits of Cretaceous age furnish adequate water supplies to present users and are capable of yielding enormous supplies to future developers. Water is derived from beds of sands which characterize all the Cretaceous formations except the Ripley. The water contains little mineral matter because of the comparative insolubility of the minerals through which it passes.

The surface of the Cretaceous deposits in their outcrop areas is generally mantled by loose sandy soil containing very little interstitial clay. This sandy surface, despite its irregularities, permits rain water to percolate downward into the ground rather than to run off. Thus, of about 45 inches of precipitation on the area yearly, practically all goes directly into the ground. The Cretaceous deposits are capable of temporarily retaining much of this water before it drains laterally into the stream valleys. If the pumping of ground water increases, the amount of drainage into the valleys will decrease. Therefore, in the outcrop area most of the precipitation is available for development, in addition to water already in storage in the ground.

South of and downdip from the outcrop area, the water-bearing beds of sand are covered by impermeable clay, and the water is under artesian pressure. The beds of sand are lenticular and consequently cannot be traced easily. However, as several beds of sand may be penetrated in a well at least 300 feet deep, the discontinuity of beds at a particular horizon does not impair the development of ground water.

The beds near the base of the Cretaceous deposits dip more than 35 feet per mile toward the south and southeast, and those at the top dip a little more than 15 feet per mile in the same direction. Inasmuch as the overall slope of the land surface is slightly less than 15 feet per mile to the southeast, the Cretaceous deposits become buried at a progressively greater depth in that direction. They lie within 150 feet of the surface except beneath the upland in Houston County, where as much as 250 feet of Tertiary sediments overlie them.

The Cretaceous deposits have yielded as much as 1,000 gpm to several individual wells without drawing the water level down more than 40 feet. Where large amounts of water are required, it may be advantageous to place screens at the level of two or more sand beds. The practice of placing two or more screens in a well, especially for municipal or industrial use, results in a composite water level of all aquifers used and does not represent that of an individual aquifer.

TERTIARY DEPOSITS

Midway Group

Deposits of the Midway Group of Paleocene age overlie the Providence formation. The area of outcrop narrows eastward and is completely overlapped near Perry, in Houston County. The Midway does not have a broad continuous outcrop but instead occupies long narrow bands in the valleys of the southern parts of Schley, Macon, and Peach Counties and small outliers north of Buck Creek in Macon County.

The Midway Group, as mapped, consists of one or more thin beds of white sandy fossiliferous limestone of the Clayton formation and bedded dark-brown clay. The beds are less than 75 feet thick in the outcrop area. Stephenson and Veatch (1915, p. 69) estimate its thickness along the Flint River to be 300 to 400 feet, but this thickness doubtless includes deposits of Eocene age. Owen (1959, p. 48) refers to bauxite in kaolinitic clay of the Midway Group in Sumter County, which lies south of Schley County. Bauxite appears to have developed on the uppermost weathered parts of the dark-colored clay of the Midway Group in both Sumter and Schley Counties.

The limestone beds in the Midway Group are too thin to be aquifers in the Macon area. The beds of clay in the subsurface are everywhere in the area south of their outcrop area, and their relatively low permeability almost prevents any transfer of water between the underlying Cretaceous aquifers and the overlying Tertiary aquifers. So far as is known, no drilled well in the Macon area derives water entirely from the Midway Group.

Tuscahoma Sand

Beds equivalent in age to the Tuscahoma sand of Alabama (Toulmin and others, 1951, p. 62-65) occur in southern Schley County, according to Herrick (personal communication). The formation, of early Eocene age, consists of dark-colored glauconitic silt and silty glauconitic sand. It probably does not exceed 25 feet in thickness and is exposed only in stream valleys near the Sumter County line. Owing to its low permeability, its local occurrence, and its thinness, the Tuscahoma sand is not considered important hydrologically.

Tallahatta Formation

In the early part of the field work, the writer did not recognize the Tallahatta formation. The work by Owen (1959, p. 48)

COUNTY DESCRIPTIONS

In the following pages, the geography, geology, and ground-water conditions in each county are described briefly. Tables of representative wells and chemical analysis of water samples are given. Some wells listed furnish domestic supplies, but information about the yield of each well is not available because the amount of water actually needed for home use is small and may be only a fraction of the potential yield of the well.

The wells for which data were collected are numbered consecutively by counties; the numbers in the well tables and the chemical-analyses table correspond to the well numbers in figure 6, and in the text of the report.

BIBB COUNTY

Area: 251 square miles. Population: 139,999[a]

Geography

Bibb County forms the northeast corner of the area of this report. Macon, the county seat and only municipality, as well as the largest city of the area studied, has a population of 68,860. It is an important manufacturing, railroad, and agricultural exchange point for the central part of Georgia. The county is well served by rail, and the highway and community roads are good. The kaolin deposits of Georgia extend into the county, and considerable kaolin is mined from the Cretaceous deposits east of Ocmulgee River along the Twiggs County line. Some sand is recovered from the Tuscaloosa formation south of Macon. Excellent road material for secondary roads is taken from disintegrated granite about 10 miles west of Macon.

The Piedmont Plateau occupies the northern half of the county. The topography is rolling to hilly; the main streams, having adjusted their courses to the structure of the underlying crystalline rocks, flow eastward to join the through-flowing Ocmulgee River, which receives the entire drainage of the county. Owing to the variety of rocks underlying the Piedmont, the soils differ from place to place, but in general they are deep red and reasonably fertile.

The Sand Hills represent the outcrop area of the Tuscaloosa formation and occupy the Coastal Plain part of the county. This part of the county comprises a series of rolling divides between the large creeks, the creeks flowing in east-west courses to the Ocmulgee River. The rather flat upland between Tobesofkee and Echeconnee Creeks may be due to less erratic but more thorough stripping of overlying deposits elsewhere. The upland east of the Ocmulgee River is higher than that west of the river. The Ocmulgee River in deepening its channel has left patches and wide expanses of alluvium as river-cut terraces on both sides. The business section of Macon is built on a terrace about 75 feet above the river.

[a]Population figures cited for all counties and the city of Macon are preliminary figures for 1960 from the U. S. Bureau of the Census. Figures for the cities of Fort Valley, Montezuma, and Perry are from the 1959 population estimates of the Georgia Department of Public Health. All other population figures are from the 1950 Census Bureau records.

Geology

The Tuscaloosa formation occupies the southern two-thirds of the county, forming a southward-thickening wedge of sediments. The Tuscaloosa is composed of fine to coarse sand, in places mingled with white kaolin and in others separated by lenticular and rather pure kaloin masses. The base of the Tuscaloosa dips slightly east of the south at approximately 30 feet per mile, its contact with the underlying crystalline rocks being 141 feet below sea level, or 500 feet below the land surface, at Cochran field in the southern part of the county.

East of Ocmulgee River, outlying bodies of late Eocene age occur along the interstream area. These deposits consist of (1) the Barnwell formation which is composed of massive deep-red, clayey sand, (2) one or more beds of green or gray fullers-earth-type clay, and (3) beds of limestone having only spotty outcrops. The limestone beds are limited to the area adjacent to Twiggs County on the southeast. The red sands of the Barnwell formation on the interstream areas have slumped and crept downslope so as to drape over the Tuscaloosa formation in many places. This draping has been so prevalent that it is not unusual to see a contact between the Barnwell and the underlying Tuscaloosa at one point on a slope and to see what appears to be the same contact at a considerably higher point on the same slope, the higher point being the true contact and the lower one being a false or "drape" contact. Beds of sand capping the low-lying upland south of Tobesofkee Creek near U. S. Highway 41 may be a part of the Barnwell formation, although they have not been so mapped. They appear too low stratigraphically to be Barnwell. Inasmuch as these beds are less than 25 feet thick in most places and are present only locally, they have been placed in the Tuscaloosa.

Alluvial deposits bordering the Ocmulgee River and some parts of the larger creeks are the youngest sediments in the county. They are of Pleistocene and Recent age. These deposits are composed of unsorted clay, sand, and gravel, which in most places are less than 40 feet thick and extend 1 or 2 miles on each side of the river.

Ground Water

Dug wells furnish practically all water used in the northern part of Bibb County underlain by crystalline rocks. Generally

they are about 30 inches in diameter, 20 to 60 feet deep, and yield approximately 1 to 15 gpm from the weathered material above bedrock.

Where the Tuscaloosa formation extends south of U. S. Highway 80 and west of Ocmulgee River, water supplies from drilled wells can be obtained readily. The number of sand beds increases southward, resulting in an increase in the availability of water to wells southward. The Tuscaloosa furnishes water to all drilled wells on the Coastal Plain of Bibb County except in the immediate area around Macon where sands of the Tuscaloosa may be too thin. Some domestic drilled wells are only 2 inches in diameter and less than 70 feet deep, these wells satisfying local requirements of only a few gallons of water per minute.

Development of ground water during World War II at Cochran Flying Field in the southern part of the county has produced considerable information concerning the depth of the Tuscaloosa and its water-bearing sands and the yield of water from them. In well 39 the sands above the 220-foot level were screened at the following intervals: 106-121, 126-146, 174-179, and 210-220. When the static water level in the well was 64 feet in 1942, about 550 gpm was pumped and the water level was drawn down about 35 feet.

During World War II, efforts to develop a ground-water supply at Camp Wheeler, about 6 miles east of Macon, were apparently successful, although this potential supply was not fully utilized. Here, well 12 was drilled through 333 feet of sediments of the Tuscaloosa before ending on bedrock. Several screens were set opposite the better sands, which resulted in a yield of 535 gpm and a drawdown of 45 feet.

The water in the two wells just cited was under only slight artesian head, owing to the small difference between the elevation of the aquifers at the well and that at the intake area a few miles farther north. Flowing wells with slight artesian head may be realized from the Tuscaloosa in the lowland areas south of Macon.

The deposits of Eocene age are too thin to furnish water to drilled wells, and they have no water-bearing significance in Bibb County. Alluvial deposits along the Ocmulgee River should furnish water to industrial wells where these deposits are of sufficient thickness. The alluvium probably is similar in water-

yielding properties to the Tuscaloosa formation, which underlies it south of Macon.

A record of wells inventoried in Bibb County during the investigation is shown in table 3.

CRAWFORD COUNTY

Area: 313 square miles. Population: 5,796

Geography

Crawford County is almost entirely rural. Roberta, with a population of 673, is the only town, although Knoxville, an adjacent settlement, is the county seat. Agriculture is the chief occupation and peaches and cotton are important crops. Much uncultivated land is suitable for the growth of timber. Kaolin is abundant in the Tuscaloosa formation, the major prospects having been described by Smith (1929, p. 74-91). Limestone of the Ocala formation has been quarried at Rich Hill, 5 miles east-southeast of Roberta.

The northern half of Crawford County lies in the Piedmont province, the southern half in the Coastal Plain. The Piedmont, for the most part, is very hilly, owing to the headward growth of many small streams on the upland. Some land lies at an altitude of about 600 feet, especially along the divide which Georgia Highway 7 follows. This divide separates the drainage basin of the Flint River on the west from that of the Ocmulgee River on the east.

The Coastal Plain extends northward to the vicinity of Roberta, at which place its feather edge has been made irregular by erosion by south-flowing streams; thus, peninsulas of the Tuscaloosa formation lie on the crystalline rocks of the Piedmont, producing a different outcrop pattern from that of other counties along the Fall Line in which outliers are common. The Sand Hills, representing the outcrop area of Cretaceous deposits, form most of the southern half of the county. The topography is hilly, owing to the fact that both the Flint River on the west border and Echeconnee Creek on the east border have channels considerably lower than the general upland. The erosion by tributaries of these two streams has left a divide trending southeastward from Roberta; the divide rises to more than 700 feet above sea level at Rich Hill. The surface soil zone in the

TABLE 3.—RECORDS OF WELLS IN BIBB COUNTY

Well No.	Location	Owner	Type of well	Depth (ft.)	Diameter (in.)	Depth of casing (ft.)	Water-bearing unit (sand unless specified otherwise)	Water level (ft.)	Topography	Remarks
1	8 miles NW. of Macon	Southern Natural Gas Co.	Open end	600	8	25	Granite (rock)	...	Slope	Yield, 100 gpm.
2	do	do	do	593	8	24	do	...	do	Yield, 78 gpm. Yield affected by pumping of well 1.
3	do	do	do	600	8	67	do	41	do	Yield, 46 gpm; drawdown 100 ft.
4	7 miles NW. of Macon	Stewart-McElreath Lumber Co.	do	61	6	...	do	36	Valley	Well furnishes 10,000 gpd.
5	8 miles W. of Macon	Curtis Watson	do	52	3	...	Granite and diorite (rock)	38	Slope	Screens set at 100-110, 178-188, 200-220, 232-242 ft. Yields, 1,140 gpm.
6	5 miles E. of Macon	McAfee Candy Co.	Screened	245	10	...	Cretaceous (undifferentiated)	30	Flat plain	
7	Macon	Dempsey Hotel	Open end	235	10	50	Granite (rock)	35	Terrace	Yield, 150 gpm. Well not used.
8	do	Proctor & Gamble	Screened	60	7 ft.	60	Cretaceous (undifferentiated)	21	do	Water used for cooling. T. 70°F.
9	3 miles S. of Macon	McAfee Candy Co.	do	114	6	...	do	35	do	Yield, 25 gpm.
10	do	do	Open end	560	6	...	Granite (rock)	45	Flat plain	Yield, 5 gpm. Well abandoned.
11	do	Atlantic Ice Co.	Screened	60	6	...	Cretaceous (undifferentiated)	...	do	Yield, 325 gpm.
12	4 miles E. of Macon	U.S. Army (Camp Wheeler)	do	239	10	...	do	28	do	Yield, 535 gpm; drawdown 45 ft.
13	5 miles SE. of Macon	B. E. Willingham	do	200	4	...	do	...	Flood plain	Flows 30 gpm. T. 66°F.
14	do	do	do	185	6	...	do	...	do	Flows 60 gpm. T. 66°F.
15	do	do	do	200	8	...	do	...	do	Flows 8 ft. above ground into swimming pool. Flows 300 gpm.
16	4 miles S. of Macon	Stritmann Biscuit Co.	Gravel-packed	303	8	200	do	...	Slope	Yield, 448 gpm; drawdown 94 ft.
17	do	U.S. Navy Ordnance Plant	Screened	287	8	287	do	53	do	Yield, 400 gpm.
18	do	Macon Kraft Co.	Gravel-packed	282	8	282	do	48	do	Screens set at 123-128, 147-152, 163-168, & 182-187 ft. Yield, 340 gpm.
19	10 miles SW. of Macon	Bethel Church	Open end	38	2½	38	do	25	do	...
20	do	J. Singleton	do	88	2	...	do	73	Upland	...
21	4 miles S. of Macon	Armstrong Cork Co.	Gravel-packed	280	8	243	do	...	Slope	Screens at 117-125, 145-155, 195-200, & 255-260 ft. Yield, 430 gpm.
22	do	do	do	243	8	243	do	...	do	Yield, 200 gpm. See analysis.
23	do	do	do	265	8	265	do	42	do	Yield, 635 gpm; drawdown 80 ft.
24	5 miles S. of Macon	Peach State Lodge	Screened	103	2	...	do	50	Upland	...
25	10 miles SW. of Macon	Lee Honeycutt	do	44	2	...	do	22	Slope	...
26	do	J. Sowells	do	144	2½	...	do	...	do	...
27	do	Clint Jones	do	66	2½	...	do	55	do	...
28	10 miles SW. of Macon	Henry Gentry	do	127	2½	...	do	107	Upland	...
29	do	Zeke Stokes	do	40	2½	...	do	18	Upland plain	...
30	do	E. L. Tanner	do	179	2½	...	do	125	do	...
31	8 miles S. of Macon	W. J. Bryant	do	90	2½	...	do	55	do	...
32	do	L. O. Stokes	do	63	2½	...	do	56	do	...

TABLE 3.—RECORDS OF WELLS IN BIBB COUNTY—CONTINUED

Well No.	Location	Owner	Type of well	Depth (ft.)	Diameter (in.)	Depth of casing (ft.)	Water-bearing unit (sand unless specified otherwise)	Water level (ft.)	Topography	Remarks
33	do	Standard Oil Co.	do	191	6	142	do	70	Slope	Screens at 142-147 & 157-162 ft.
34	9 miles S. of Macon	W. W. Herndon	do	95	2	.....	do	38	do	.....
35	do	Grady Wilcoxon	Screened	75	2½	.....	do	66	Upland plain	.....
36	10 miles S. of Macon	George Avant	do	75	2	.....	do	50	do	.....
37	do	Dewey Skippers	do	75	2½	.....	do	60	do	.....
38	do	Cochran Flying School	Gravel-packed	373	10	373	do	95	do	Yield 620 gpm; drawdown 60 ft. Screens at 105-110, 132-147, 224-234, 314-319, & 353-368 ft. See analysis.
39	do	do	do	225	10	225	do	64	do	Yield 550 gpm; drawdown 35 ft. See analysis.
40	13 miles S. of Macon	H. G. Hamlin	do	86	2	.....	do	45	do	.....
41	do	J. D. Bradley	do	105	2	.....	do	51	do	.....

Sand Hills is generally so sandy that crops do not thrive in it.

The Fort Valley Plateau, underlain by Eocene deposits, forms the upland area in the extreme southeastern part of the county. In comparison with the hilly terrain of the adjacent Sand Hills, this area is very flat and locally is poorly drained. The soil is relatively rich.

Geology

Of the Cretaceous deposits in Crawford County, the Tusaloosa formation is by far the most extensive, its outcrop covering most of the area south of the Fall Line. It consists chiefly of white coarse sand, sand mingled with kaolin, and lenses of kaolin. It thickens from less than 50 feet at Roberta to perhaps more than 300 feet in the southern part of the county. No record is available of any well having been drilled through the Tuscaloosa to the crystalline rocks south of the Roberta area. The Ripley formation barely extends into the southern part of the county. It consists of yellow laminated sand and clay beds, white sand, and some kaolin. Owing to the lithologic similarity between it and other Cretaceous formations in updip areas, its contact is not definite. The Providence sand overlies the Ripley formation, but as its updip beds barely enter the southeastern part of the county, it is probably less than 70 feet thick. Outcrops are limited to a few valley slopes.

Of the Eocene deposits, the Gosport sand lies under the residuum in the southern part of the county, but its extreme thinness and the draping effect of the overlying residuum generally prevents its exposure. The residuum also is relatively thin. It is a veneer of red sandy clay, in few places more than 50 feet thick, which forms the Fort Valley Plateau. The Ocala limestone farther north at Rich Hill, equivalent in age to the residuum, is a small outlier more than 660 feet above sea level. Rich Hill is a noted geologic locality consisting of soft white fossiliferous limestone more than 20 miles updip from the main body of Ocala. Some dense gray clay, similar to the Twiggs Clay member of the Barnwell formation in Twiggs County, occurs above the Ocala here. The presence of limestone here gives evidence that the red sandy clay in stratigraphic alinement farther south represents the residuum of dissolved Ocala limestone.

Alluvial deposits occur along the east side of the Flint River and are especially prominent at the village of Nakomis.

HOUSTON COUNTY

Area: 379 square miles. Population: 38,953

Geography

Houston County forms the southeast corner of the project area. As in most counties on the Coastal Plain, the economy centers around agriculture, major products being peaches and cotton. The Ocala limestone has been quarried at Clinchfield, the lime being used chiefly in the production of cement. Deposits of kaolin, fuller's earth, and sand also occur in the county. Perry (population 6,000), the county seat, is an important tourist center. Warner Robins, the only other town in Houston County, increased in population considerably during World War II, owing to the rapid development of Warner Robins Air Base on the terrace bordering the Ocmulgee River.

All of Houston County lies in the Coastal Plain province, the upland area north of Perry belonging to the Fort Valley Plateau. This plateau has a gentle southeastern slope and is rather smooth except where stream erosion has incised the surficial deposits of red clayey sand. The larger creeks flow eastward to the Ocmulgee, thereby forming long and narrow, but not necessarily deep, eastward-trending valleys. A north-facing escarpment occurs south of Limestone Creek, this escarpment expressing the difference in degree of solution of limestone which this area has undergone. The lowland on the north side of the escarpment lies as much as 150 feet below the upland. That solution of the limestone is less active than formerly is indicated by the fact that no large springs or surface streams emerge from the limestone now. This solution escarpment is a part of the great solution escarpment extending southwestward through Georgia. The upland area south of the escarpment is the northern extension of the Tifton Upland.

The Ocmulgee River forms the east boundary of Houston County. The streams within the county flow through rather straight courses to the Ocmulgee, the entire county lying within its drainage area.

Geology

In the outcrop belt the deposits of Cretaceous age in Houston County are not readily distinguishable. The Tuscaloosa formation probably occupies the valley of Echeconnee Creek; it underlies the entire county and increases in depth and thickness toward the southeast. The remaining outcropping strata of the Cretaceous, in the lowlands of the northern part of the county, are tentatively assigned to the Providence sand, which overlaps intervening formations to rest unconformably on the Tuscaloosa in the area of outcrop. These two formations are lithologically similar, both being composed of massive kaolinitic sand and lenticular deposits of almost pure sand and rather pure kaolin.

The log of well 23, listed below, reveals the presence of the Ripley and Cusseta formations, although they are overlapped by the Providence sand in the northern part of the county.

The Midway Group overlies the Providence sand except in the extreme northern part of the county, where the Gosport sand overlaps the Midway and lies on the Providence sand. The Midway is exposed in several places in creek valleys near Perry, but southward it is concealed below younger beds. According to a driller's log, 72 feet of chocolate-colored clay (presumably of the Midway) was penetrated below the 60-foot level in well 28 at Clinchfield.

Log of well 23 drilled in 1952 at town of Perry, two blocks west of New Perry Hotel. Elevation of ground 318 feet. Description by S. M. Herrick.

	Thickness (feet)	Depth (feet)
Middle and Lower Eocene (Undifferentiated):		
Sand, fine- to coarse-grained, limonitic, interbedded with thin stringers of clay; gray, lignitic, micaceous	90	90
Paleocene:		
Midway Group:		
Clayton Formation:		
Clay, dark-gray, hackly, lignitic	6	96
Upper Cretaceous:		
Providence Sand:		
Clay (or kaolin), white to pink (mottled), micaceous, somewhat sandy, interbedded with thin tongues of sand. Sand is fine- to coarse-grained, arkosic, pyritiferous, sideritic	47	143

Sand, fine- to coarse-grained, arkosic, pyritiferous, sideritic, interbedded with thin stringers of gray to red (mottled) sandy, micaceous clay (or kaolin)	73	216
Ripley and Cusseta Formations (Undifferentiated):		
Marl, bluish-gray, lignitic, micaceous, sandy, sideritic, pyritiferous	29	245
Sand, fine- to coarse-grained, rather massive, angular grains, arkosic, interbedded with occasional stringers of gray micaceous, somewhat sandy clay (or kaolin)	245	490
Blufftown Formation:		
Clay, dark-brown, fissile, lignitic, micaceous sandy	14	504
Sand, fine- to coarse-grained, massive, angular, arkosic, micaceous, pyritiferous, interbedded with thin stringers of dark-brown fissile, lignitic, micaceous, sandy clay	120	624

The Gosport sand underlies the uplands north of Indian Creek, but it lies above the larger creeks. On the uplands it is mantled by residuum or other deposits. It consists chiefly of clean sand, but some calcareous materials are present in the southern part of the county. Its thickness does not exceed 100 feet, except possibly in the southernmost part of the county.

Deposits of late Eocene age, present throughout the county, but somewhat eroded, are more varied lithologically in Houston County than in any other part of the Macon area. Along U. S. Highway 41 about 3 miles south of Echeconnee Creek, red sand of the Barnwell formation is exposed. It is not separately mapped, owing to its similarity to the residual deposits of Ocala limestone, which is its downdip equivalent. The Ocala is exposed at Clinchfield and at isolated localities, especially near Limestone Creek. Beds of limestone are interlayered with green and gray clay of the Twiggs clay member of the Barnwell formation. In the extreme southern part of the county, the Twiggs clay is thin or absent, so that southward the upper Eocene units are all Ocala limestone.

Overlying the Ocala in the southern part of the county is the Suwannee limestone of Oligocene age. It is generally mantled by residual soil weathered from it. Outcrops of the Suwannee are not abundant.

Alluvial deposits are mostly confined to the area bordering the Ocmulgee River. These deposits, on which Warner Robins Air Base is located, form a low terrace about 3 miles wide extending westward from the river to Warner Robins.

Ground Water

In the northern two-thirds of the county nearly all drilled wells derive water from one or more sand beds in the Providence Sand. Sand of the Providence underlies the entire county except the valley of Echeconnee Creek; it is exposed in valleys in the northern part of the county and is buried beneath younger formations, at a progressively greater depth, toward the south. Wells 150 feet deep, or less, penetrate the Providence sand north of Limestone Creek. Water from the Providence is under artesian conditions in the area around Mossy Creek and southward. Flowing wells from this formation can be obtained in the lowland areas bordering Big Indian Creek and Mossy Creek. Water from the several flowing wells along Mossy Creek at Lake Houston is derived from sand of the Providence.

Underlying the Providence, and almost indistinguishable from it so far as ground-water properties are concerned, are other Cretaceous formations containing water-bearing sand and clay. Owing to the lenticularity of the sand and clay and to the sparsity of wells penetrating the Cretaceous deposits, correlation of specific sand beds between two wells is not possible, except locally. This is of no consequence, because several sand beds are present everywhere, all of which, if properly developed, will yield large quantities of water. Both the city of Perry and the Air Base at Warner Robins utilize various sand beds of the Cretaceous deposits, and, with the exception of these two centers, the amount of water that can be withdrawn from these deposits has not been tested.

Overlying the sand beds of the Providence in the southern two-thirds of the county and acting as a confining layer for the water in the sand, is bedded chocolate-colored clay of the Midway Group. The clay yields very little water and is relatively impermeable. The Midway Group is less than 75 feet thick in the vicinity of Perry.

The Gosport sand and the overlying residuum, taken as a unit, constitute most of the upland surficial deposits north of Limestone Creek. These deposits yield water to dug wells and to some drilled wells south of Big Indian Creek. The sand of the Gosport is loose and porous, but little water is derived from either the Gosport or the residuum north of Big Indian Creek, owing to the drainage of water from the sand into the valleys of Mossy and Big Indian Creeks. Several flowing wells of small yield obtain water from the Gosport sand along Limestone Creek near Clinchfield. The shallowest of these is 35 feet deep.

South of Flat Creek the Ocala limestone occurs in sufficient thickness to be important as a reservoir for ground water. Despite its gentle southern dip, the Ocala is buried beneath younger deposits under the limestone cuesta in the southern part of the county and is not within easy reach of shallow drilled wells. Green relatively impermeable clay of the Twiggs clay member of the Barnwell formation separates the Ocala from the overlying Suwannee limestone; (therefore, each limestone unit has a separate water table). The water level in the Suwannee limestone lies approximately 45 feet below the surface; that in the Ocala lies much deeper. Very few wells penetrate the Ocala limestone because adequate domestic supplies can be obtained from the Suwannee. South of Houston County, in Dooly and Pulaski Counties, the Twiggs clay member is absent, allowing the Ocala and Suwannee limestone to act as a hydrologic unit.

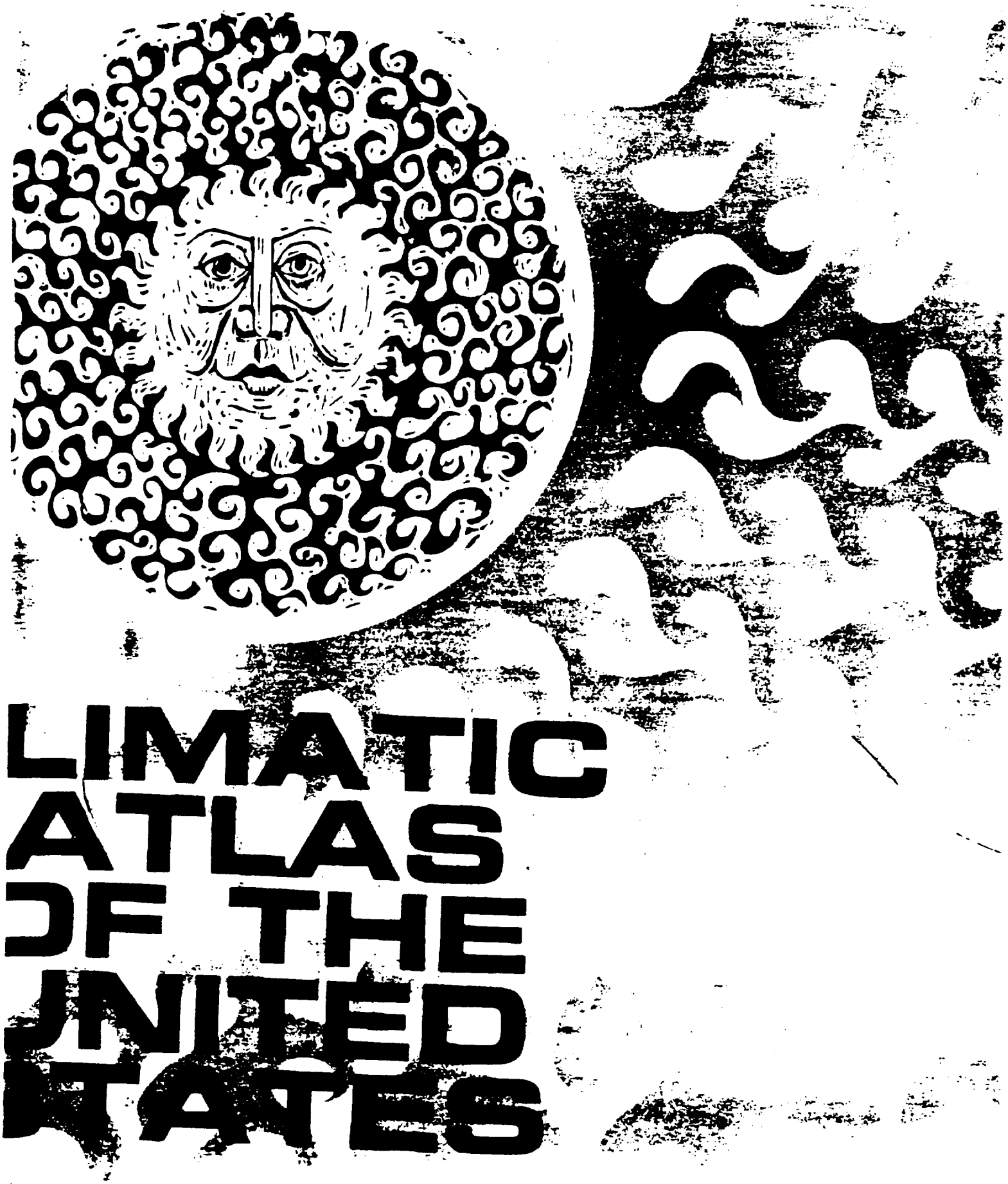
Water from the Providence and other Cretaceous deposits of Houston County is similar in quality to that from Cretaceous sand in adjacent counties. Well 24 yields water representative of the Providence, having 25 ppm dissolved solids. The corrosiveness and high-iron content of some water from the Cretaceous deposits are generally the only objectionable aspects. The Gosport sand fields soft water of good quality. Water from the Ocala and Suwannee limestones is moderately hard.

A record of wells in Houston County is shown in table 5.

TABLE 5.—RECORDS OF WELLS IN HOUSTON COUNTY

Well No.	Location	Owner	Type of well	Depth (ft.)	Diameter (in.)	Depth of casing (ft.)	Water-bearing unit (sand unless specified otherwise)	Water level (ft.)	Topography	Remarks
1	Warner Robins	U. S. Government	Gravel-packed	311	8	.....	Cretaceous (undifferentiated)	45	Low terrace	Yield, 800 gpm; drawdown, 19 ft.
2	do	do	do	290	12	250	do	32	do	Yield, 885 gpm; drawdown, 23 ft.
3	do	do	do	375	12	375	do	24	do	Yield, 1,000 gpm; drawdown, 36 ft. See analysis.
4	do	do	do	370	12	.....	do	32	do	Yield, 800 gpm; drawdown, 41 ft.
5	do	do	do	239	12	233	do	34	do	Yield, 1,010 gpm.
6	do	Town of Warner Robins	do	390	12	.....	do	.....	do	Yield, 790 gpm.
7	do	do	do	375	12	375	do	.....	do	Yield, 800 gpm.
8	do	do	do	418	12	.....	do	.....	do	Screens set at 226-256 and 380-400 ft.
9	do	do	do	390	12	390	do	115	Slope	Yield, 1,500 gpm. Screens set at 240-250, 320-330, and 360-380 ft.
10	6 miles NW. of Warner Robins	Georgia Forestry Commission	Screened	285	4	285	do	150	Upland plain	Yield, 75 gpm.
11	do	do	Gravel-packed	470	12	475	do	154	do	Yield, 1,850 gpm.
12	7 miles SW of Warner Robins	Jack Thorpe	Screened	150	3	.....	do	80	do	T. 67°F.
13	do	Floyd Tabor	Open-end	124	3	124	do	.....	do	.....
14	5 miles SW. of Warner Robins	Kersey Brothers	Screened	140	4	.....	do	30	Slope	.....
15	do	Mrs. C. L. Kersey	do	50	3	.....	Providence	40	do	.....
16	5 miles S. of Warner Robins	G. E. Perdue	do	65	2	.....	do	45	Upland plain	.....
17	5 miles NE. of Perry	Ethel Davis	Open-end	116	2	116	do	.....	Valley	Well flows 40 gpm, 8 ft. above ground.
18	do	H. A. Merker	do	150	3	150	do	.....	do	Well flows 65 gpm, 8 ft. above ground.
19	do	J. H. Davis	do	200	3	200	do	.....	do	Well flows 45 gpm, 7 ft. above ground.
20	do	do	do	250	3	250	do	.....	do	Well flows 50 gpm.
21	6 miles NE. of Perry	J. D. Graham	Screened	70	3	.....	do	25	Upland plain	.....
22	Perry	Town of Perry	Gravel-packed	450	8	450	Cretaceous (undifferentiated)	.....	Valley	Flows 470 gpm.
23	do	do	do	470	8	470	do	.....	do	Screens set at 195-200, 310-320, 375-385, 425-435, 445-455, and 460-465 ft.
24	do	do	do	488	8	488	do	18	Slope	Yield, 1,200 gpm.
25	do	do	Screened	360	6	.....	do	.....	Valley	Well flows 20 ft. above ground. T. 66°F.
26	3 miles S. of Perry	Blue Diamond Cafe	do	95	3	.....	Providence	65	Upland plain	.....

REFERENCE 3



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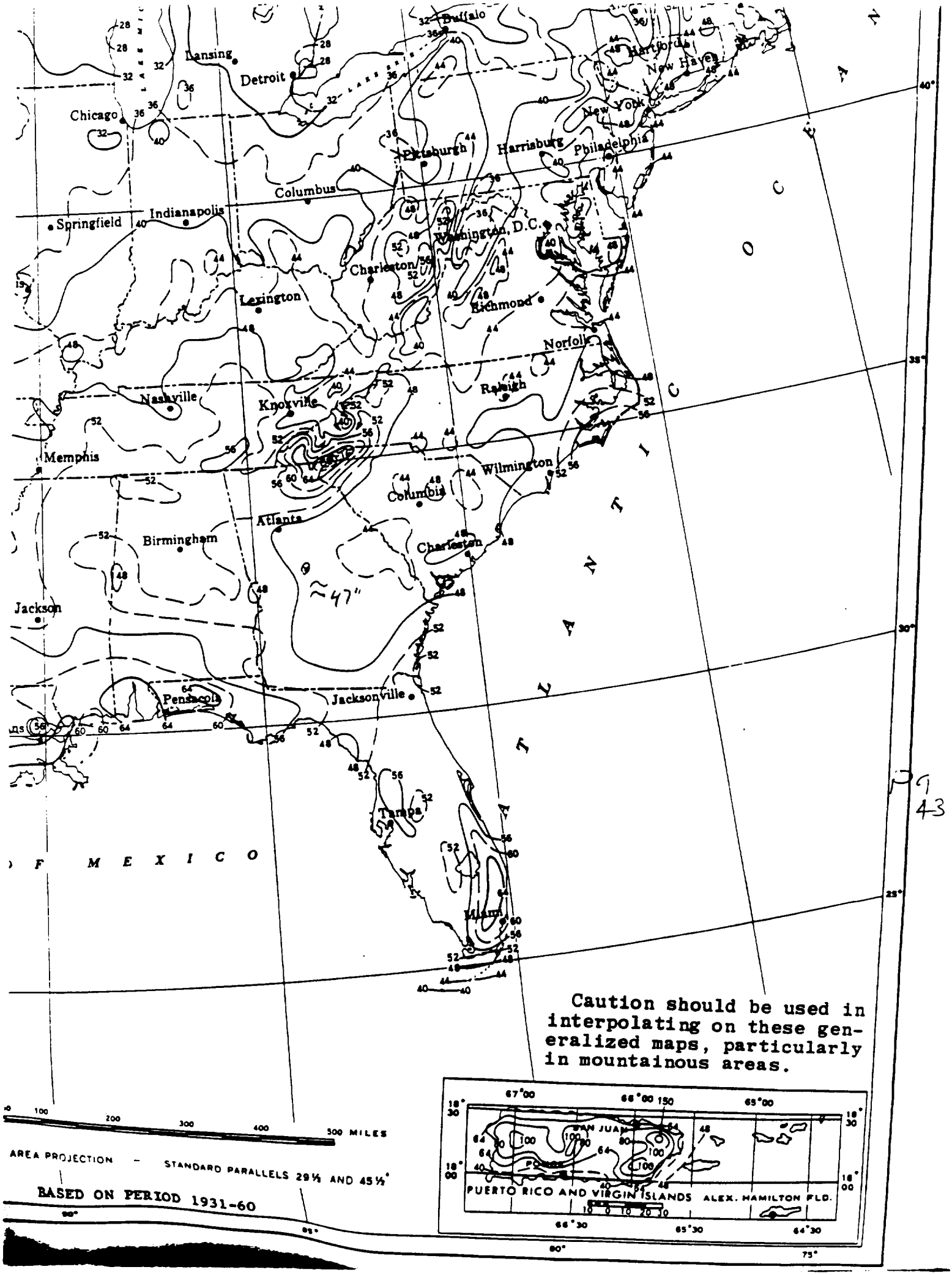
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ATLANTIC OCEAN
GULF OF MEXICO
Caution should be used in interpolating on these generalized maps, particularly in mountainous areas.
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AREA PROJECTION – STANDARD PARALLELS 29½ AND 45½°
BASED ON PERIOD 1931-60
SAN JUAN
PUERTO RICO AND VIRGIN ISLANDS
ALEX. HAMILTON FLD.

P 43

LAKE EVAPORATION

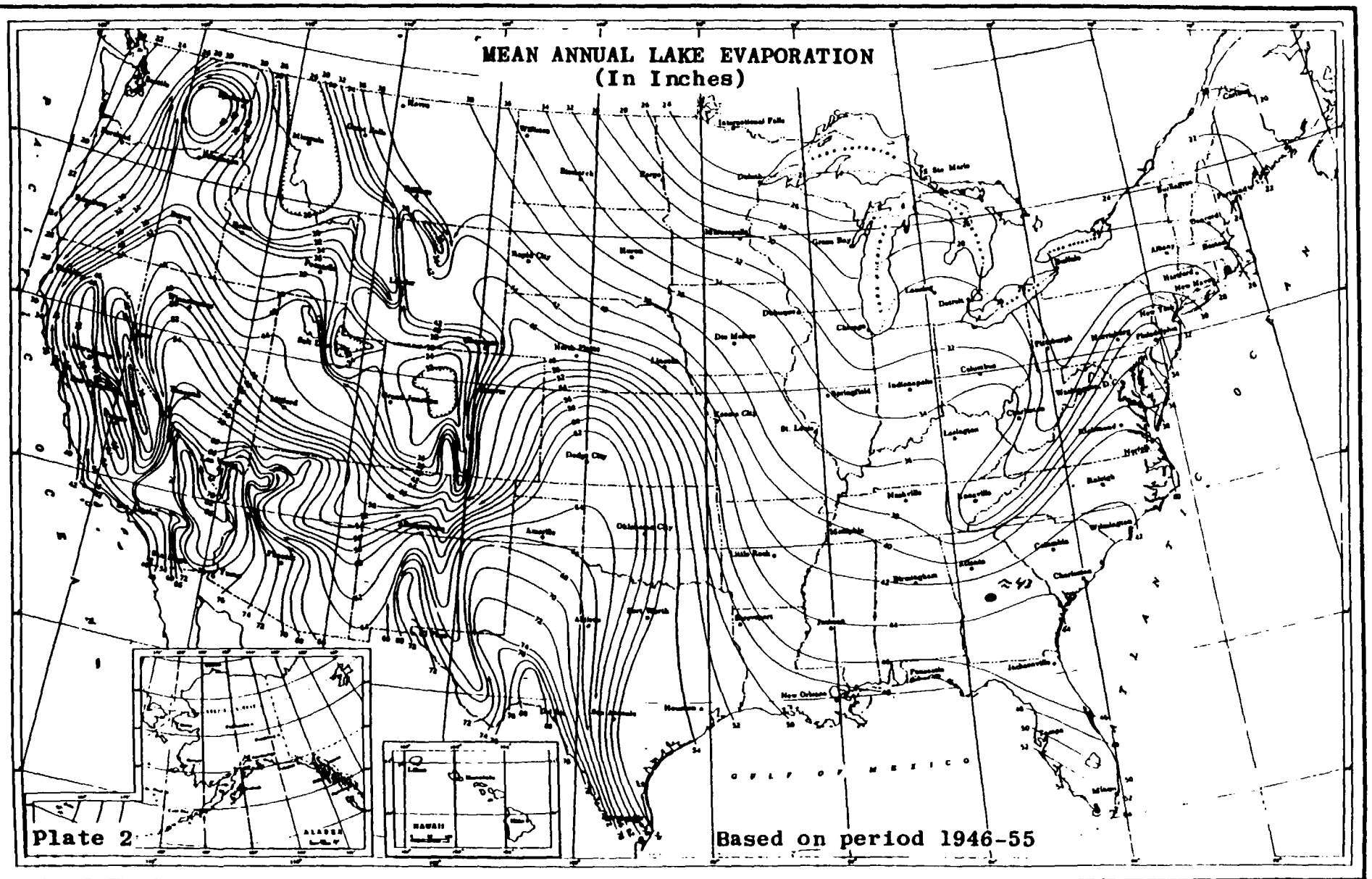
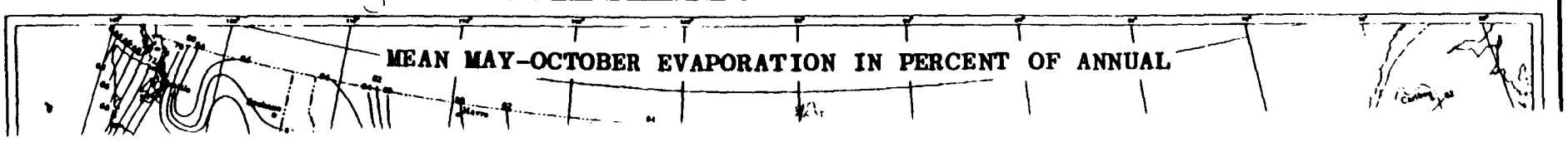
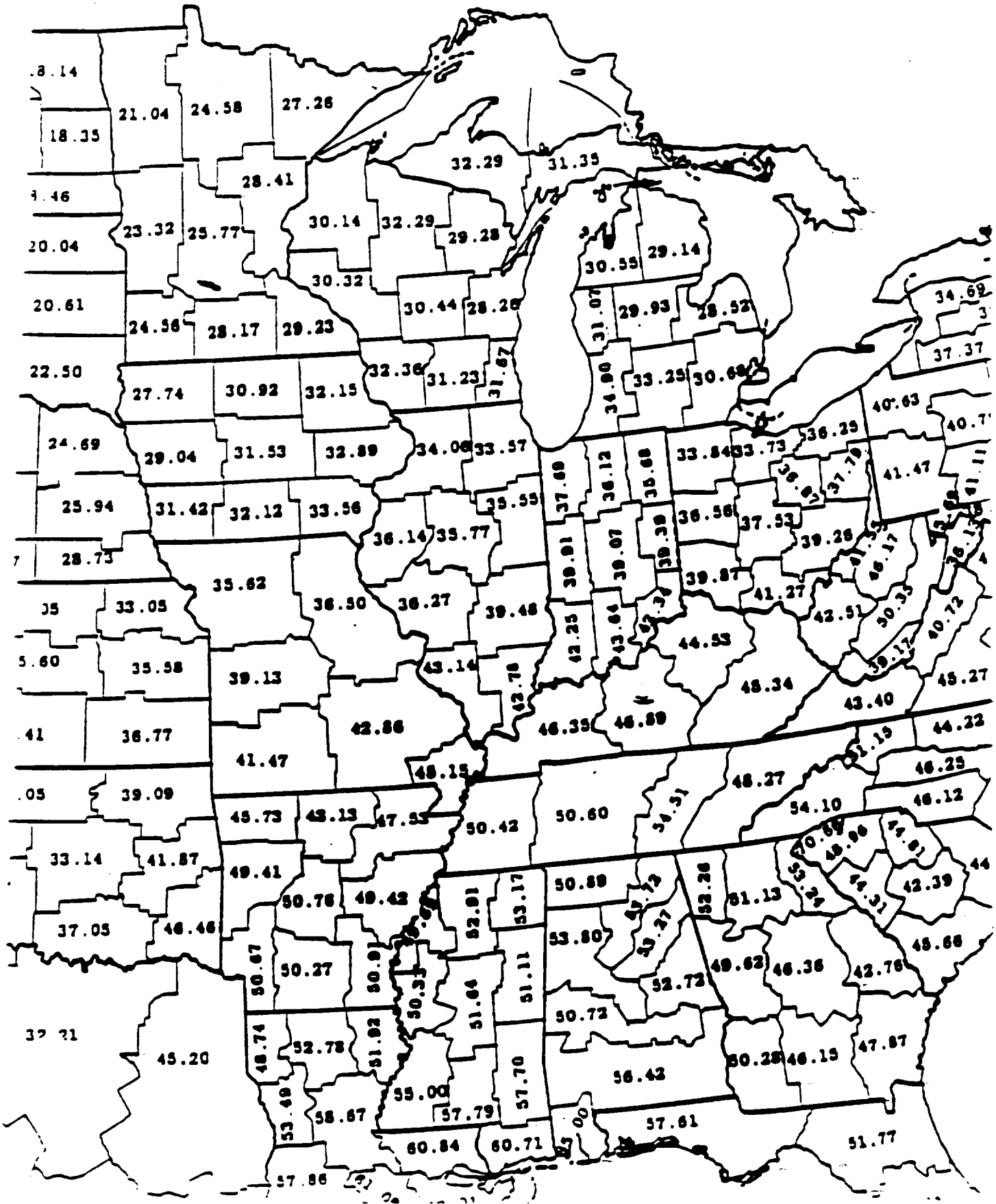


Plate 2



ON (inches) BY STATE CLIMATIC DIVISIONS



DEPARTMENT OF COMMERCE
[illegible] H. Hodges, Secretary

WEATHER BUREAU
F. W. Reichelderfer, Chief

REFERENCE 4

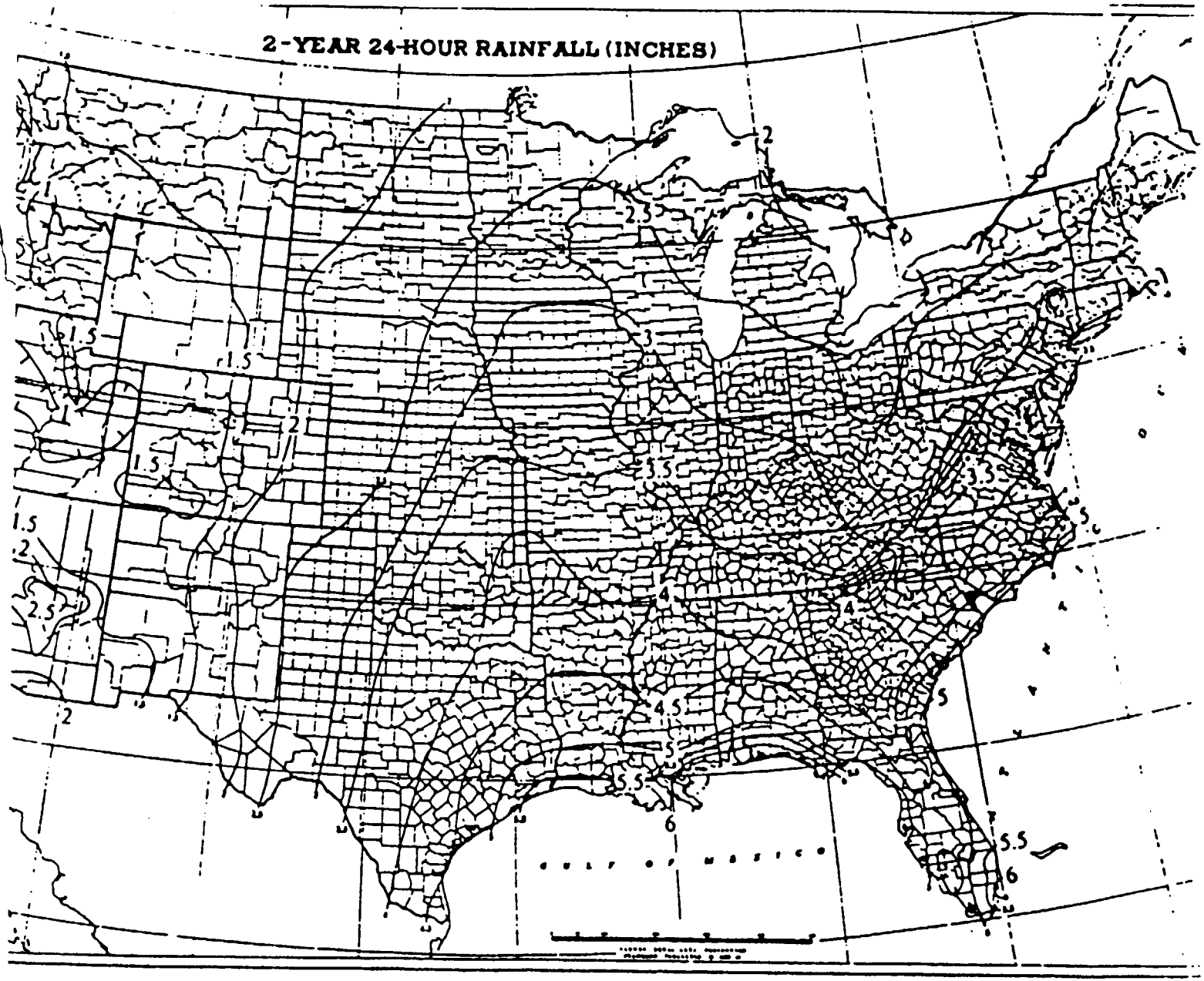
TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

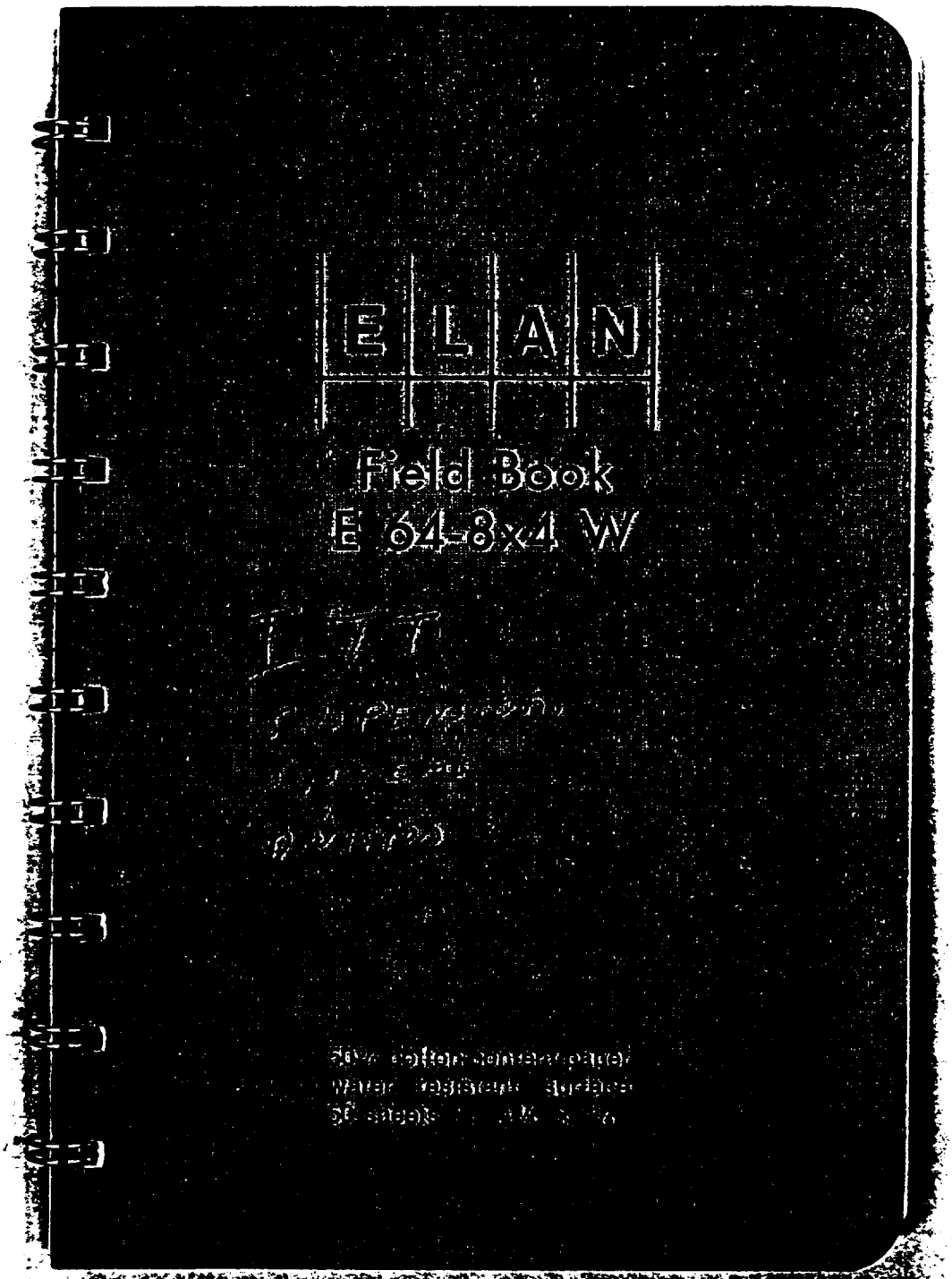
for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Comparative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

PROPERTY OF EPA
FIT IV


2-YEAR 24-HOUR RAINFALL (INCHES)
2
2.5
3
1.5
1.5
2
1.5
3.5
3.5
1.5
2
2.5
4
4
2
4.5
5
5
5.5
6
5.5
6

REFERENCE 5



WED 5/27

10:15 Arrive at Macon COC.

10:50 Arrive @ TAX Assessor
ITT Suspension System Div
Sold property to Boeing
Aircraft Manufacturing division
obtained copy of ownership
document and photocopy of
plot layout

Boeing Georgia, Inc. Bought
the property on 1/23/90
See attached tax record.

11:15 Arrive Post Office bld.
obtained copy of Bibb Co
Soil Survey.

12:25 arrive MBCWSA
Met with John Rector
who helped me identify distribution
lines in affected area
Also said that intake is on

D.R.

② 5/27

Cont the ocmulgee in Macon at the OK end of Pierce Street

Don Thompson Dir of operation services or Don Arnold, plant Manager could help with other info! ph # 741-2625.

Mr Rector gave me directions to Houston Co. Water Authority

Houston Co. Water
922-4471 ext. 315
Mr Tom Pounds HCWA
542-2120

leave @ 1:25 to go to site.

5/27 ③

13:55 Located Boeing @ 7979 NE industrial Hwy

Site is very large, has access from Both industrial Hwy and NE industrial Hwy

Pictures

① Facing east picture of trash bins on west side of bld

② Front office on Industrial Hwy facing east

③ more dumsters on west side of bld. Facing east

④ continuation of bld back from street toward NE I. Hwy.

⑤ Abandoned RR track leading up to bld (Facing N)

⑥ Walnut Grove immediately south of site (Facing N)

DK

(4) 5/27

(7) (Facing west) north edge of bld
Loading Docks

Drainage ditches flow south along
NE I. Hwy.

entire site is clean & well kept,
no outside tank farms, storage (drum)
areas, or waste ponds were
evident. All processes appear to
occur within manufacturing bld.

(8) (Facing west) east side of
bld Loading docks & outside
storage of crates/Pallates

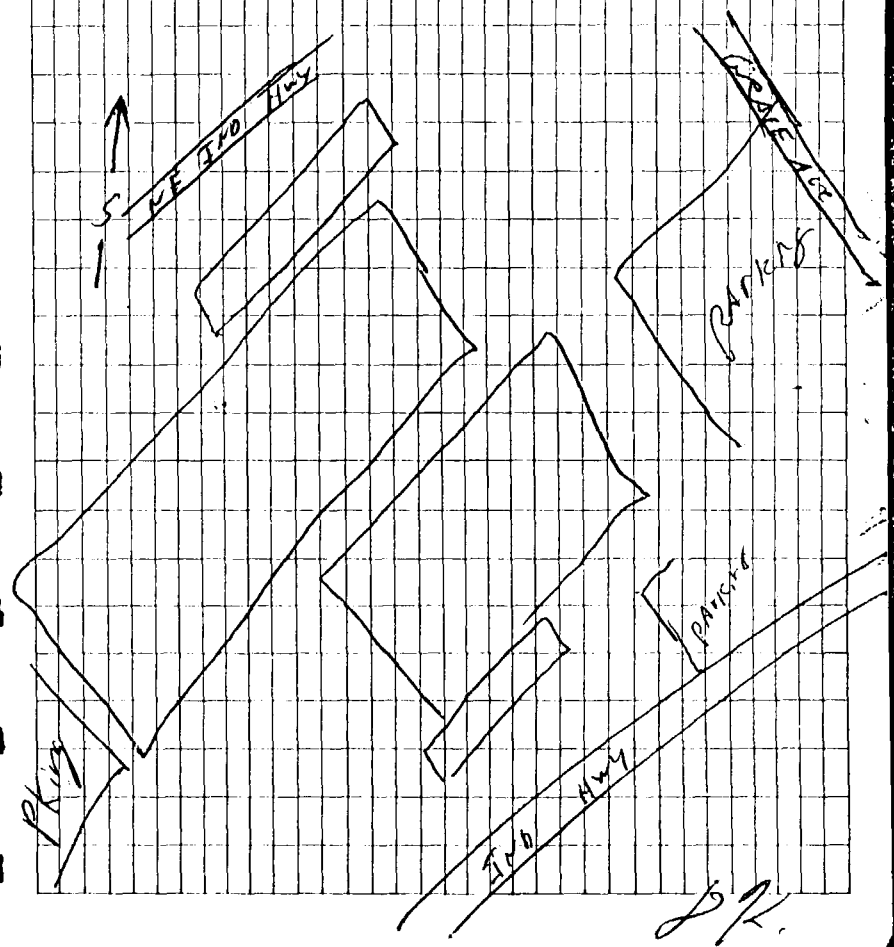
entire area surrounding site
is highly industrialized
some industries are Georgia Pacific,
metal finishers, and more

DK

5/27 (5)

(9) (Facing South) covered outside
Trash Dumpsters

Address on NW Face of bld
say 7980 Industrial Hwy.



DK

(6) 5/27

other industries are Diamond Plastic Company.

There could be a waste pond area north of bldings; area is outlined and obscured by trees vegitation. Cant be sure.

leave site. 14:40

On way out, nearest residences are ~ ½ mi south of plant on Avondale Mill Rd.
Locations are confirmed on topo map
cant determine if wells are utilized.

DK.

5/27 (7)

15:01 arrive Houston County Annex (water dept)

met w/ Ronnie Roberts
Director Houston Co Water Dept

Total of 9 wells.

nothernmost well on elberta st
≈ 300 gpm, system is kept isolated, 1224 connections
≈ 1000 gpm on Dunbar a
no regulation for mandatory hookup.

Henry Chiles Centerville water
Clint Waals Warner Robbins
929 - 1904
Air Force base is different water system.

Houston County distribution extends to Perry Ga.

DK.

(8) 5/27

OMI company
Controls water plant &
distribution of system
186 Woodard road
Cathleen GA 31047
987-0462

leave Houston County water
Dept. @ 15:46

Leave For Atlanta.

18:02
arrive Vehicle Lockup.

D.K.

6/1/92

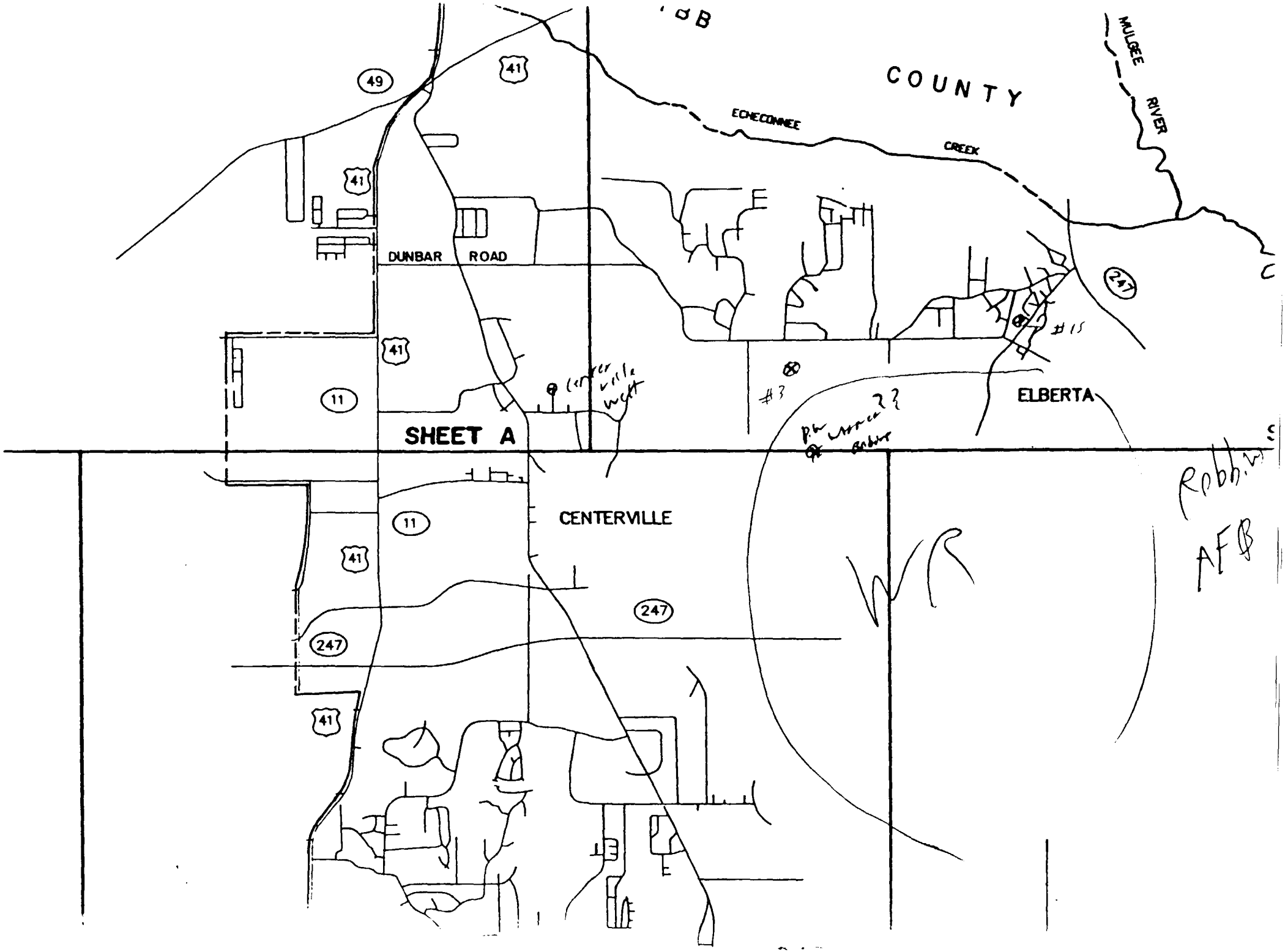
After reading through log,
some additions need to be made.

durring the reconaissance, I
inspected the drainage ditches
around the building. They appeared
free of contamination with no
visible sign of stressed vegitation.

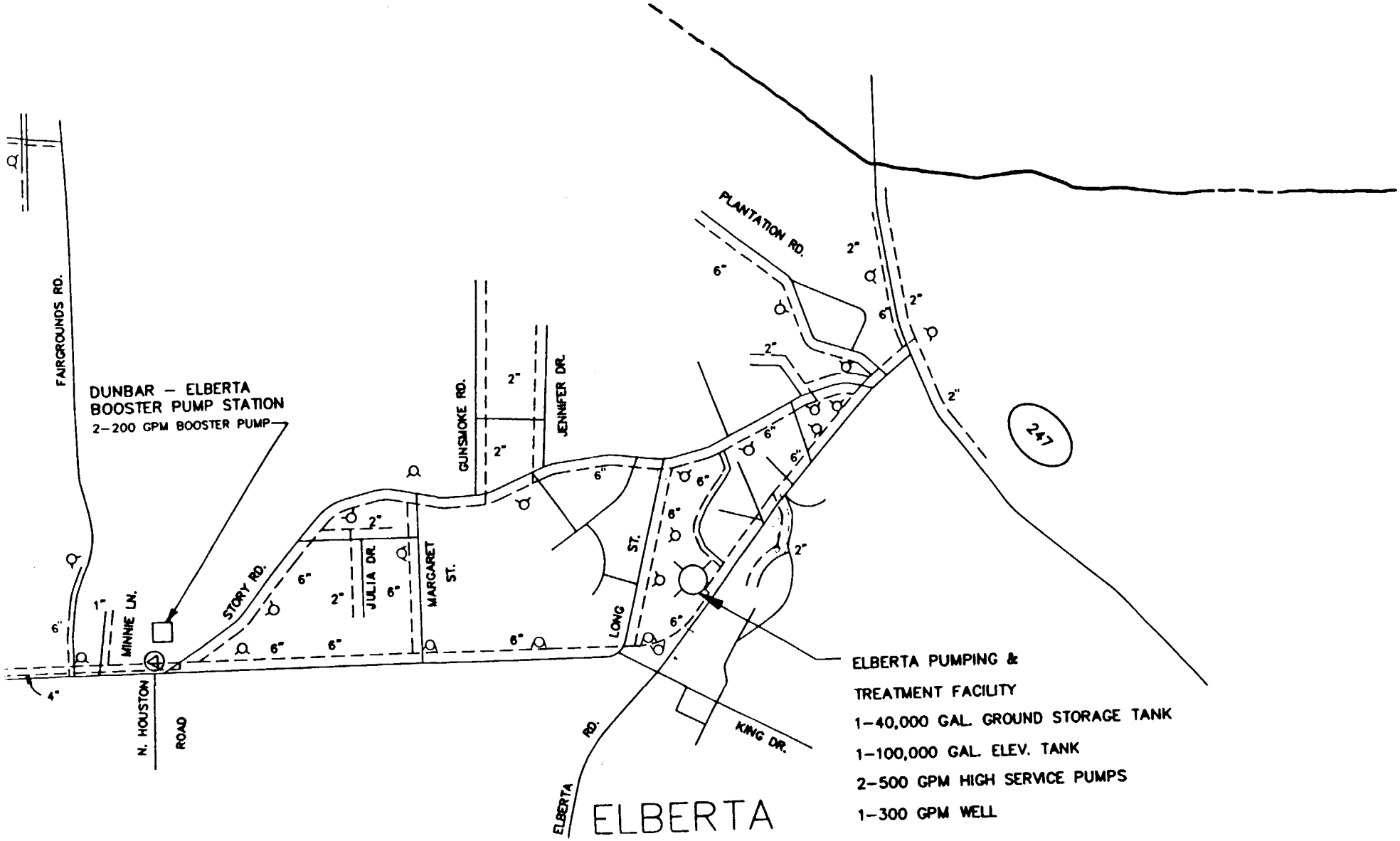
An estimation of the # of
employees working onsite is
about 200, based on large
# of cars in parking lots.

The site was access restricted by
a fence surrounding most of
buildings. A guard post controled
access through the fence.

D.K.



COUNTY
ECHECONNEE
CREEK
MULGEE
RIVER
49
41
41
DUNBAR ROAD
41
11
SHEET A
11
41
247
247
41
CENTERVILLE
ELBERTA
247
#3
#15
WR
Robbins
AFB


FAIRGROUNDS RD.
DUNBAR – ELBERTA
BOOSTER PUMP STATION
2–200 GPM BOOSTER PUMP
MINNIE LN.
STORY RD.
JULIA DR.
MARGARET ST.
GUNSMOKE RD.
JENNIFER DR.
LONG ST.
PLANTATION RD.
KING DR.
ELBERTA RD.
N. HOUSTON ROAD
247
ELBERTA PUMPING &
TREATMENT FACILITY
1–40,000 GAL. GROUND STORAGE TANK
1–100,000 GAL. ELEV. TANK
2–500 GPM HIGH SERVICE PUMPS
1–300 GPM WELL
ELBERTA

REFERENCE 6

PHOTOLOG
ITT Suspension System Division

RECONNAISSANCE ON
May 27, 1992

BVWST Project № 52011.045

Photo № 1: Picture facing east: shown is west side of building with covered trash dumpsters.

Photo № 2: Facing east: front/main office on Industrial Highway

Photo № 3: Facing east: More covered dumpsters on west side of building

Photo № 4: Continuation of building back from street toward NE Industrial Highway.

Photo № 5: and № 6 — Facing North: abandoned railroad track leading up to building and Walnut Grove to the right of tracks.

Note: Photo 6 was exposed and could not be developed. Its main content (the Walnut Grove) is shown on Photo № 5

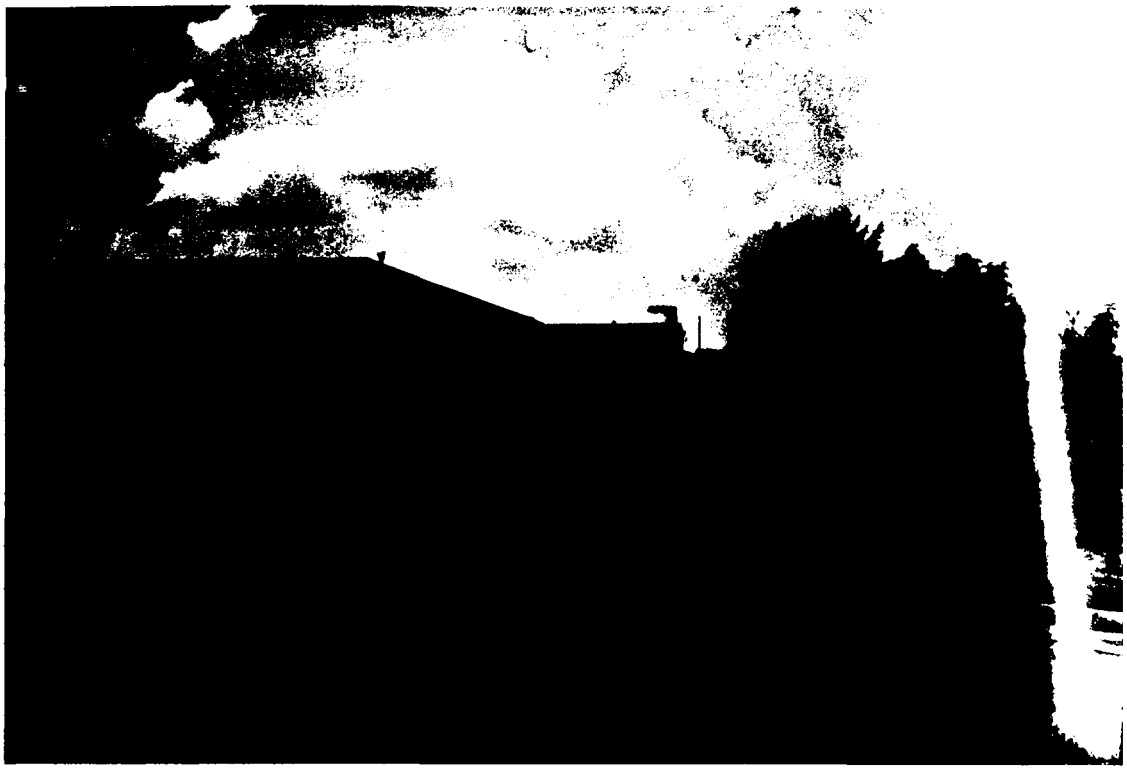


Photo № 7: Facing west: Loading docks on north edge of building

Photo № 8: Facing west: Loading docks on northeast corner of building with outside storage of crates and palets

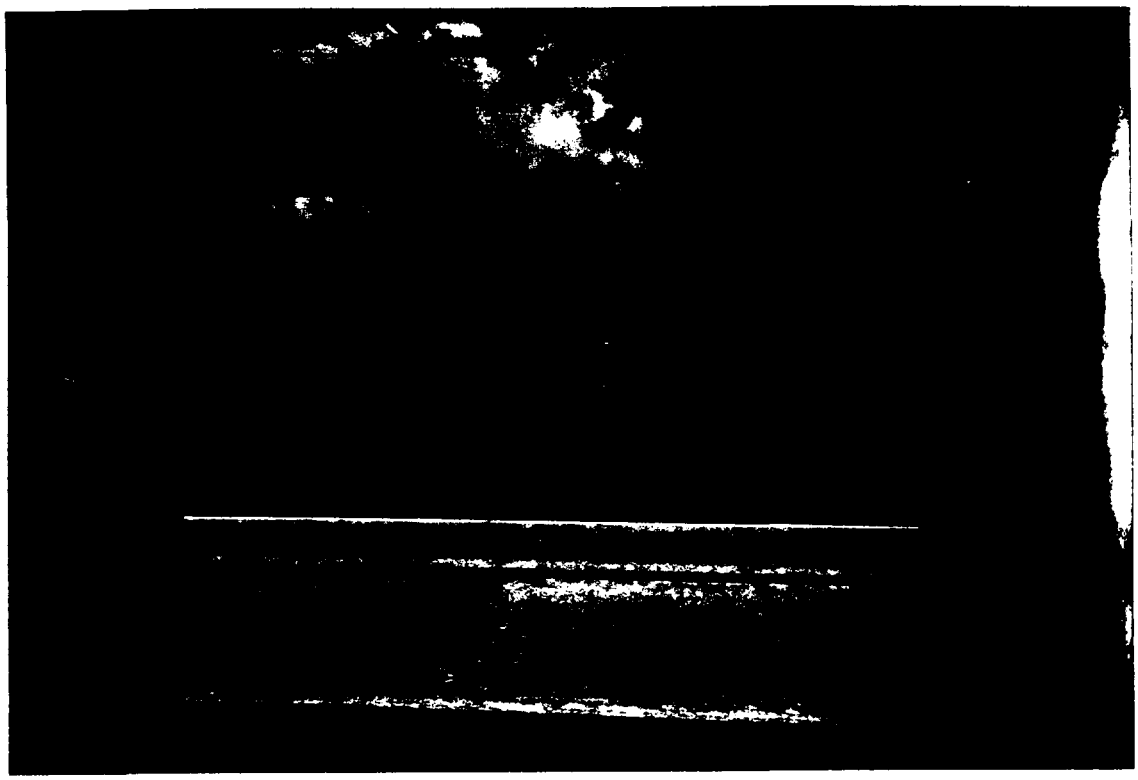


Photo № 9: Facing south: covered outside trash dumpsters

PRELIMINARY ASSESSMENT COVER SHEET
ITT SUSPENSION SYSTEMS DIVISION
GAD098584063

I. HISTORY OF SITE

The ITT Suspension Systems Division is located at 7980 Industrial Highway in Macon, Georgia 31206. It has been owned and operated by ITT Suspension Systems Division since it was constructed in 1980. This facility manufactures and assembles automobile suspension struts and shock absorbers. The basic manufacturing process involves threading, machine finishing, washing and plating steel rods to which other components are attached to form the core of the shock or strut. The core of the strut is enclosed in a painted steel casing. Waste streams generated are: 1) chromic acid sludge, which is transported and disposed of by Chem Waste Management of Alabama; 2) spent methylene chloride and 1,1,1 trichlorethane solvents which are disposed of by Ramsey Chemical Company of Valdosta, GA; and 3) metal grinding sludge and waste cutting oil, which are disposed of by Browning Ferris and Carl Durden Waste Oil Co. of Warner Robins, GA respectively. The Part A Application for this facility has been withdrawn and it is currently classified as a generator of hazardous waste.

II. NATURE OF HAZARDOUS MATERIALS

Hazardous materials generated are chromic acid sludge, spent solvents (methylene chloride, 1,1,1 trichloroethane), metal grinding sludge and waste cutting oil (non-hazardous). Materials are stored in drums until disposal. Total volume of wastes generated annually is 80 cubic yards. Individual quantities of wastes are unknown.

III. DESCRIPTION OF HAZARDOUS CONDITIONS, INCIDENTS, PERMIT VIOLATIONS

There was a complaint filed by a former ITT employee concerning improper disposal of waste oils. The complaint was investigated by GA EPD in October of 1984. Soil samples from the disposal areas were taken and analyzed and it was determined that there was no significant contamination. According to Mr. Carl Durden, of Carl Durden Waste Oil Co., there was a spill at ITT Suspension System Division of chromic acid, in August of 1984, after which he pumped the acid from the floor of the plant back into a storage tank. It is not known if any of this spilled material left the building. According to Mr. David Benson, Chemist, ITT Suspension Systems Division, no spills occurred on site prior to November 19, 1980.

IV. ROUTES OF CONTAMINATION

It is not known if the chromic acid spill in 1984 left the building and entered the environment. Soil contamination may have occurred if de minimus losses have occurred.

V. POSSIBLE AFFECTED POPULATION AND RESOURCES

Unknown - there has been no evidence that past waste handling practices at the facility have affected residents in the area.

VI. RECOMMENDATIONS AND JUSTIFICATIONS

This site is assessed a "Low" priority for a Site Inspection because of limited information concerning the 1984 chromic acid spill and waste handling practices prior to November 19, 1980.

VII. REFERENCE TO SUPPORTING DATA SOURCES

1. EPA Form 3510-1, 3510-3 (6/80), 11/13/80.
2. Letter, 10/20/81, RE: Groundwater Monitoring - from GA EPD.
3. Action Report, 3/16/82.
4. GA EPD Trip Reports: 11/22/82, 1/31/84, 10/30/84, 1/24/85, 5/7/85.
5. Waste Management Data Sheet, 1/23/84.
6. Georgia Annual Hazardous Waste Report for 1983.
7. Letter, 4/3/84, RE: Withdrawal of Part A Application for ITT Suspension Systems Division.
8. Letter, 4/11/84, RE: Acknowledgement of Withdrawal and Warranted Status Change to Generator from GA EPD.
9. Complaint Record, 9/4/84.
10. Generator Standards Inspection Checklist, 10/30/84.
11. Letter, 1/31/85, RE: Chromic Acid Operation - ITT Suspension Systems Division.
12. Memorandum, 4/18/85, RE: Telephone Conversation - ITT SSD.
13. Sample Sketch Sheet, 5/7/85.
14. Hazardous Waste Analysis Request Form, 5/7/85.
15. GA EPD Laboratory Report, 5/7/85.
16. GA EPD Chain of Custody Form, 5/16/85.
17. Letter, 6/12/85, RE: Sampling Inspection - from GA EPD.
18. Lab Report, 6/5/85, from Industrial & Environmental Analysts, Inc.
19. Letter, 6/27/85, RE: Sampling Inspection - from GA EPD.
20. Telephone Conversation Record, 10/22/85.

GAK/mcw033
File - ITT Suspension Systems Division (B)

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D098584063

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
ITT Suspension Systems Division	7980 Industrial Hwy., P. O. Box 10278

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Macon	GA	31206	Bibb	021	08

09 COORDINATES LATITUDE 32° 41' 45.0" LONGITUDE 083° 40' 23.0"

10 DIRECTIONS TO SITE (Starting from nearest public road)

From the intersection of US Route 41 and Liberty Church Road, proceed 3.0 miles south on Route 41; turn left (east) onto Industrial Hwy. and continue for 500 feet. Facility is on your right (west).

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
ITT Suspension Systems Division	P. O. BOx 6156

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Macon	GA	31208	(912) 781-0170

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)
Same as above	

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☒ A. RCRA 3001 DATE RECEIVED: 11/13/80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 11 22 82 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)

☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1980 (BEGINNING YEAR) | present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Chromic acid sludge, spent solvents (methylene chloride, 1,1,1 trichloroethane), metal grinding sludge and waste cutting oil.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Details of 1984 spill of chromic acid are incomplete. Facility has been operated in compliance with Generator Standards of the Georgia Hazardous Waste Management Act.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
David Benson	ITT Suspension Systems Division	(912) 781-0170

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Gilda A. Knowles G.A.K.	DNR-EPD	RAU	(404) 656-7404	10 22 85 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

J. Turowski

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D098584063

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A SOLID
- ☐ B POWDER FINES
- ☒ C SLUDGE
- ☐ D OTHER _____ (Specify)
- ☐ E SLURRY
- ☒ F LIQUID
- ☐ G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____
CUBIC YARDS _____
NO OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☒ A TOXIC
- ☐ B CORROSIVE
- ☐ C RADIOACTIVE
- ☒ D PERSISTENT
- ☒ E SOLUBLE
- ☐ F INFECTIOUS
- ☐ G FLAMMABLE
- ☐ H IGNITABLE
- ☐ I HIGHLY VOLATILE
- ☐ J EXPLOSIVE
- ☐ K REACTIVE
- ☐ L INCOMPATIBLE
- ☐ M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	unknown		approximate annual volume of all
OLW	OILY WASTE	unknown		substances 80 cubic yards.
SOL	SOLVENTS	unknown		
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SLU	chromic acid	7738-94-5	Chem. Waste Management	-----	-----
SOL	methylene chloride	-----	Ramsey Chem. Co.	-----	-----
SOL	1,1,1 trichloroethane	15323-89-1	Ramsey Chem. Co.	-----	-----

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	arsenic	7440-38-2	FDS	mercury	7439-97-6
FDS	barium	-----	FDS	silver	-----
FDS	cadmium	7440-43-9	FDS	selenium	-----
FDS	lead	-----	FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

GA EPD State Files.
ITT Suspension System Division, Macon, GA.
Telephone Conversation Record, 10/22/85.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D098584063

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Possible spills from storage chromic acid and spent solvents.

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Possible spills from storage chromic acid and spent solvents.

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [X] F. CONTAMINATION OF SOIL — 02 [X] OBSERVED (DATE: 9/4/84) — [ ] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) — 04 NARRATIVE DESCRIPTION

Possible from chromic acid spill.

01 [ ] G. DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D098584063

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills, runoff, standing liquids, leaking drums) — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None

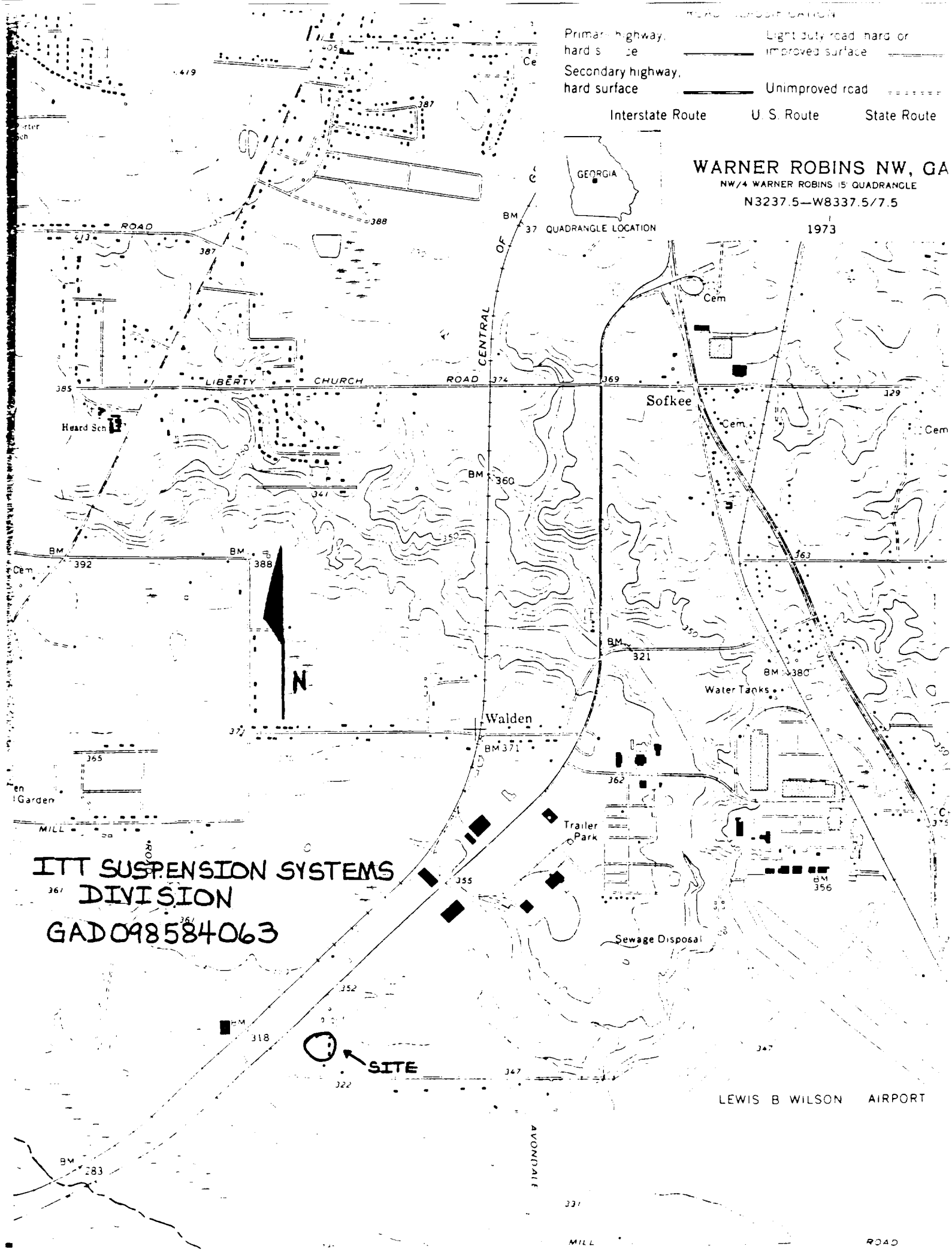
III. TOTAL POPULATION POTENTIALLY AFFECTED: unknown

IV. COMMENTS

None

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

GA EPD State Files.
ITT Suspension Systems Division, Macon, GA.
Telephone Conversation Record, 10/22/85.


Primary highway, hard surface
Light duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route
GEORGIA
QUADRANGLE LOCATION
WARNER ROBINS NW, GA
NW/4 WARNER ROBINS 15' QUADRANGLE
N3237.5—W8337.5/7.5
1973
ROAD
LIBERTY CHURCH ROAD
CENTRAL OF
Heard Sch
Sofkee
Cem
Walden
Water Tanks
Trailer Park
Sewage Disposal
SITE
LEWIS B WILSON AIRPORT
AVONDALE
MILL ROAD
N
ITT SUSPENSION SYSTEMS
DIVISION
GAD098584063

PRELIMINARY ASSESSMENT
TELEPHONE CONVERSATION RECORD

Site Name: ITT Suspension Division I.D.# GAD 082584063

Location Address: 7980 Industrial Highway; Macon, Ga. 31297

Phone: (912) 781 - 0170.

Contact: ~~Mr. Joe Hyder~~ NO LONGER WITH CO. / David Benson (current) Title: Chemist/EQC

Address: 7980 Industrial Hwy. P.O. Box 10278; Macon, Ga 31297

Phone: (912) 781 - 0170.

Authority: Section 3012 of CERCLA, Comprehensive Environmental Response, Compensation and Liability Act.

Facility has notified EPA via - RCRA 3001 site is in HWDMS
CERCLA 103c site is in NOTIS

Need Information concerning waste generation and disposal prior to Nov. 19, 1980.

How long has facility been in operation? January of 1980

What kind of wastes were generated and how much?

May 22, 1980 Chromic Acid solution 3,000 gals
May 29, 1980 Chromic Acid solution 3500 gals

Was it disposed on site and where?

No, waste never disposed of on site.

Was it transported offsite and where?

5-22-80 3,000 gal 5-29-80 3500 gal Chem Waste Management Emelle, Alabam

Was it treated and how?

Yes, chemical settlement operation Chromic Acid converted to Chromium Hydroxide then precipitation proces

Have there been any past spills? Describe.

No spills, prior to Nov. 19, 1980

Date of call: 10-22-85 Time: 11:05 AM.

H. A. Knowles

Spoke with current Chemist/EQC, Mr. David Benson, posed questions to him. He will be calling me back with information.

10-22-85 1:25 PM - Mr. Benson returned call and answered questions.

Fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F GAD098584063

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

REFERENCE 7

GENERAL INSTRUCTIONS

If a preprinted label has been provided, aff it in the designated space. Review the infor ation carefully; If any of it is incorrect, cr through it and enter the correct data in t appropriate fill-in area below. Also, if any the preprinted data is absent *(the area to t left of the label space lists the informati that should appear)*, please provide it in t proper fill-in area(s) below. If the label complete and correct, you need not comple Items I, III, V, and VI *(except VI-B whi must be completed regardless)*. Complete items if no label has been provided. Refer the instructions for detailed item descr tions and for the legal authorizations unc which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)		X		D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X		X	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP I T T/ SUSPENSION SYSTEMS DIVISION

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*		
2 PARRISH, EUGENE ENVIRONMENTAL QUALITY COORDINATOR	912	781	0170

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 P.O. BOX 6156

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 MACON	GA	31208

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 7980 INDUSTRIAL HIGHWAY

B. COUNTY NAME

BIBB

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 MACON	GA	31206	

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
7 3714 (specify) Shock Absorbers, Motor Vehicles	7 (specify)
C. THIRD	**D. FOURTH**
7 (specify)	7 (specify)

VIII. OPERATOR INFORMATION

A. NAME: 8 ITT/SUSPENSION SYSTEMS DIVISION

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ] NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box; if "Other", specify.)*
F = FEDERAL, S = STATE, P = PRIVATE, M = PUBLIC *(other than federal or state)*, O = OTHER *(specify)*: P (specify) N/A

D. PHONE *(area code & no.)*: A 912 781 0170

E. STREET OR P.O. BOX: 7980 INDUSTRIAL HIGHWAY

F. CITY OR TOWN: B MACON | G. STATE: GA | H. ZIP CODE: 31206

IX. INDIAN LAND
Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*: 9 N NA	D. PSD *(Air Emissions from Proposed Sources)*: 9 P NA
B. UIC *(Underground Injection of Fluids)*: 9 U NA	E. OTHER *(specify)*: 9 NA (specify) NA
C. RCRA *(Hazardous Wastes)*: 9 R	E. OTHER *(specify)*: 9 NA (specify) NA

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

Automotive suspension systems part manufacturing

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
D.A. Mynatt, Director of Operations	D A Mynatt	9/22/82

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e. characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

F G A D 0 9 8 5 8 4 0 6 3 2

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

C	YR.	MO.	DAY
8	8 0	0 1	0 1

[ ] 2. NEW FACILITY *(Complete item below.)*

FOR NEW FACILITIES PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

YR.	MO.	DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[ ] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP T/A C 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S 0 4	2 0 5 5	G		7				
2	T 0 1	7 2 0 0	U		8				
3	S 0 1	5 5 0 0	G		9				
4					10				

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. EPA HAZARDOUS WASTE NUMBER – Enter the four–digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four–digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY – For each **listed waste** entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each **characteristic** or **toxic contaminant** entered in column A estimate the total annual quantity of all the non–listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE – For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: For each **listed** hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non–listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate **all** the processes that will be used to store, treat, and/or dispose of all the non–listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non–listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*	D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				*included with above*

 CONTINUE ON PAGE

Continued from page 2.

NOTE: Photocopy this page before complet... if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
W G A D 0 9 8 5 8 4 0 6 3 T/A 3 C 1	W DUP T/A C 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)				2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	F001	1.2	T	S01				
2	F006	70	T	T01	S01			S02 NOT SHOWN ?
3	F007	30	T	S04	T01			
4	F008	100	P	S01				
5	F009	42	T	S04	T01			
6	D007	2304	T	S04	T01			
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

Continued from page 2.

NOTE. Photocopy this page before completi[illegible] f you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)		FOR OFFICIAL [illegible] ONLY		
W GAD098584063	T/A C 1	W DUP	T/A C 2	DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	F 00 1	2	T	S01	[illegible]
2	F 00 6	103	T	T01 S02	[illegible]
3	F 00 7	30	T	T01 S02	[illegible]
4	F 00 8	100	P	S02	Platinum bath [illegible]
5	F 00 9	15	T	T01 S02	[illegible]
6	D 00 7	2700	T	T01 S02	[illegible]
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

EPA Form 3510-3 (6-80)

CONTINUE ON REVERS

(enter "A", "B", "C", etc. behind the "3" to identify photocopied pages)

Continued from the front

IV. DESCRIPTION OF HAZARDOUS W TES (continued)

E. USE THIS SPACE TO LIST ADDITI AL PROCESS CODES FROM ITEM D(1) ON .GE 3.

EPA I.D. NO. (enter from page 1)

F GAD098584063 T/A C 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)	LO TUDE (degrees, minutes, & seconds)
32 41 45 N	083 40 23 W

VIII. FACILITY OWNER

X A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General In ation", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the ollowing items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. (area code & no.)
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the inf tion submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for ining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant alties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
D.A. Mynatt	D A Mynatt	9/22/92

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the inf ation submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for aining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant alties for submitting false information, including the possibility of fine and imprisonment.

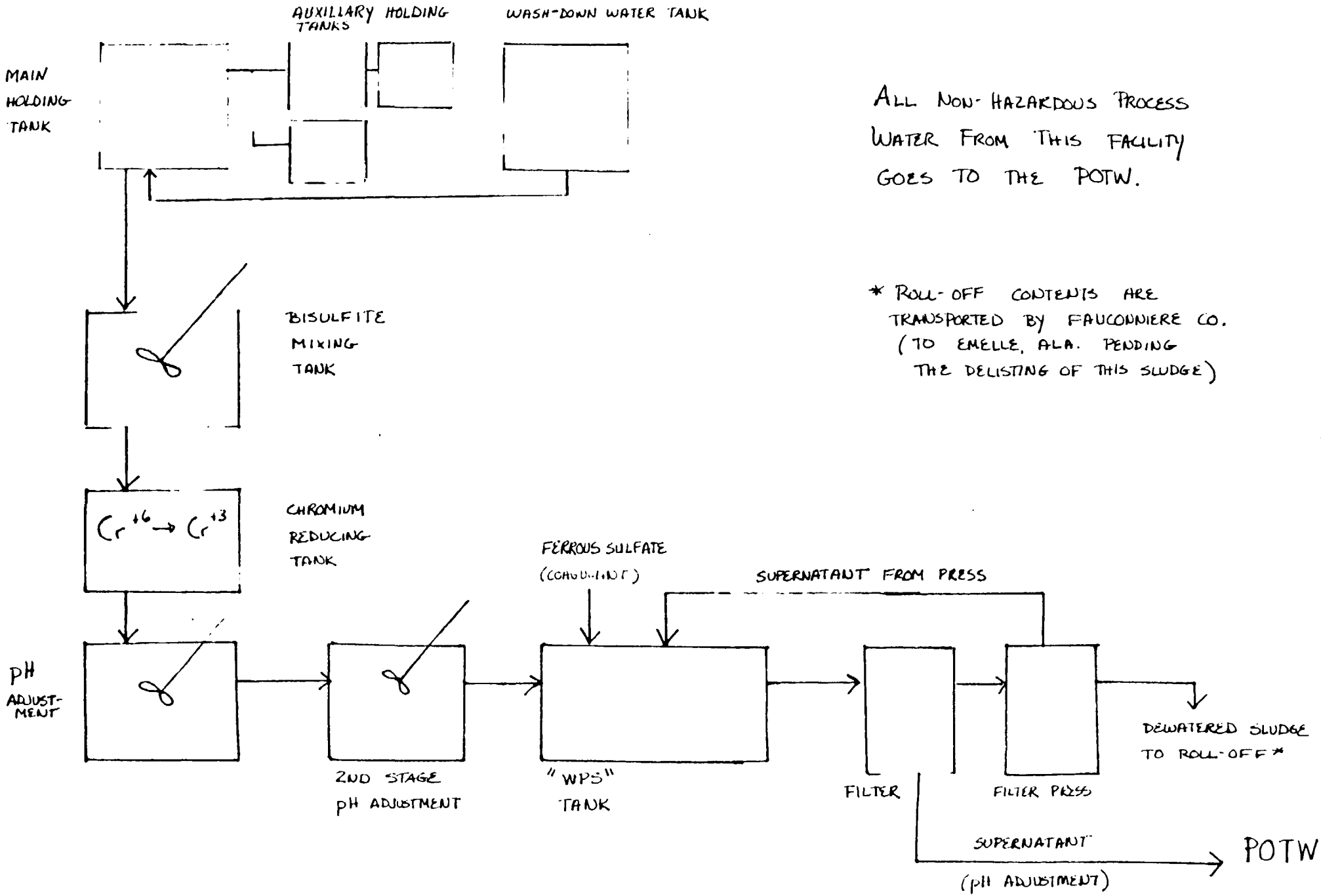
A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED

V. FACILITY DRAWING (see page 4)

For facility drawing please refer to plot plan and plan of waste treatment building.

ITT SUSPENSION SYSTEMS DIVISION
HAZARDOUS WASTE TANK TREATMENT SYSTEM
(NOT DRAWN TO SCALE)

M. Mackey 11/29/02



ALL NON-HAZARDOUS PROCESS WATER FROM THIS FACILITY GOES TO THE POTW.

* ROLL-OFF CONTENTS ARE TRANSPORTED BY FAUCONNIERE CO. (TO EMELLE, ALA. PENDING THE DELISTING OF THIS SLUDGE)

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*

F G A D 0 9 8 5 8 4 0 6 3 3 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
3 2 4 1 4 5 N	0 8 3 4 0 2 3 W

VIII. FACILITY OWNER

[X] A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
DAVID K. SIMPSON	David K. Simpson	11/13/80

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

CONTINUE ON PAGE

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA GEORGIA 30334

April 11, 1984

Mr. William M. Churchill
ITT Suspensions Company
P. O. Box 10278
7980 Industrial Hwy.
Macon, Georgia 31297

REFERENCE 8

Re: Request for Facility Status Change for the ITT Suspensions Company Plant, 1980 Industrial Hwy., Macon, Georgia EPA ID# GAD098584063

Dear Mr. Churchill:

This will acknowledge receipt of your request for withdrawal of your application for a Hazardous Waste Facility permit.

Based on the information provided, withdrawal of your application is warranted and your permit application has been placed in our inactive files.

As requested, your status has been changed to a hazardous waste generator and your EPA Identification Number has been retained. (Note: As a generator of hazardous waste you will be required to comply with Part 262 of Georgia's Rules for Hazardous Waste Management.)

Please be advised that withdrawal of your permit application invalidates any variance that you received to continue existing hazardous waste treatment, storage or disposal during the permit review process and that based on our concurrence with your withdrawal request, the Federal Environmental Protection Agency will terminate your facility's interim status.

Should you wish to treat, store or dispose of hazardous waste in the future it will be necessary that a hazardous waste handling permit be issued, prior to the construction of such facilities, under authority of Section 8 of the Georgia Hazardous Waste Management Act and Section 391-3-11-.10 of Georgia's Rules for Hazardous Waste Management.

If further clarification is needed on this matter, please feel free to contact Alan Laros at 404/656-7802.

Sincerely,

John D. Taylor, Jr.
Program Manager
Industrial & Hazardous Waste
Management Program

JDT:alg:3303B
cc: James H. Scarbrough
Alan Laros

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

REFERENCE 9

nurces

N

270 WASHINGTON STREET S W
ATLANTA GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

TRIP REPORT
November 28, 1984

SITE NAME AND LOCATION:.....ITT Suspension Systems Divison
P. O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170

TRIP BY:.....Tim Cash

Accompanied by:.....None

DATE OF TRIP:.....October 30, 1984

OFFICIAL CONTACTED:.....Mr. Joe Hyder
Plant Chemist
ITT-SSD Macon

REFERENCE:.....Complaint Log Number 5-60 dated 9/4/84
Trip Report dated 2/7/84

COMMENTS:

I. FACILITY MANUFACTURING PROCESSES

This facility manufactures and assembles McPherson struts and shock absorbers. The basic manufacturing process involves threading, machine finishing, washing, and plating steel rods to which other components are attached to form the core of the shock or strut. The core of the strut is enclosed in a steel casing and painted for the finished product.(Refer to "Figure 1/Process Diagram.")

II. WASTES GENERATED

1. The following wastes streams were identified:

a. Wastewater treatment plant filter press sludge.(F006) The waste is generated from the treatment of wastewater resulting from the chrome plating operation. (Refer to "Figure 3/Schematic Diagram of Wastewater Treatment Plant.")

b. Grindings and shavings. These wastes are generated in the screw machine and grinding units (units 1 and 4, Figure 1) In the screw machine unit, the shavings are separated from waste cutting oils by centrifuge and are sold to Macon Iron and Paper Stock for recycling. Grindings from the grinding

unit are filtered from the waste cutting oil onto a paper filter. The paper filter is collected in a bin, allowed to drain and is then dumped into a large BFI metal roll off bin where it is disposed of by sanitary landfilling.

c. Waste oils. Waste oils are generated at numerous locations throughout the plant as indicated on Figure 1. The waste oils are consolidated in a storage tank inside the plant. An analysis of the waste oils indicates them to be non-hazardous.

d. Spent solvents. Small amounts of spent solvents (methylene chloride and 1,1,1 trichloroethane) are generated from hand wiping and cleaning of parts.

e. Dip tank sludge. Products are painted with a black enamel by dipping in a tank. Periodically the tank is cleaned out which results in the generation of a sludge. No generation volumes were available but Mr. Hyder stated that the tank is rarely cleaned and only small amounts of waste are generated. An analysis of the sludge requested by Alan Laros during his January 31, 1984 visit indicated a chromium content of 36 ppm.

III. PLANT INSPECTION

a. The primary purpose for this inspection was as a response to a complaint received on September 4, 1984. (Refer to Complaint Log Number 5-60.) The complainant was (b)(6)(b)(6)(b)(6)(b)(6)(b)(6) (b)(6)(b)(6), who alleged that an unknown hauler picked up and disposed acids on a local farm. On September 20, 1984 (b)(6) (b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6). (b)(6) stated that a tanker would periodically come into the plant and pump a water soluble oil or acid from a floor tank in the plant and dispose of the waste by spreading it on the ground at a local farm around Byron. (b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6) and that (b)(6) had last witnessed this act in April, 1984. (b)(6) stated that (b)(6) had spoken to (b)(6) supervisors at ITT about this practice and that (b)(6) had been threatened with dismissal. (b)(6) stated that the following ITT individuals were aware of this practice:

Eugene Parrish - Quality Control Analyst
Tom Pidgeon - Engineering
Bobby Copeland - Purchasing
Joe Hyder - Plant Chemist

b. During the inspection I questioned Mr. Hyder regarding the handling of all waste oil at the facility. Mr. Hyder stated that Carl Durden, (b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6)(b)(6) pumped out the waste oil tank about once per month. He was not aware of the final disposition of the waste oil other than it was disposed of by dumping on land in the Byron area.

c. Upon entering the plant property I observed a milky liquid in a drainage ditch along Industrial Highway. The liquid appeared to be a mixture of cooling water and leachate from the plant's solid waste roll off bin. During the inspection, it was learned that this leachate results from the waste oil exuding from the filter paper used to filter grindings and shavings. After the filter paper is placed in the bin, waste oil continues to drip off the filter and leak through the bottom of the bin. Mr. Hyder was informed that provisions would have to be made to eliminate this problem. While on a visit to the Middle Georgia Region EPD office on November 13, 1984, I spoke with Karen Gottwald, Environmental Specialist, who stated that she had responded to a complaint regarding this problem and had sent ITT a letter requesting corrective action. I have requested that a copy of this correspondence be sent to this office in order to coordinate compliance activities.

d. No violations were observed with regard to any hazardous waste handling.

IV. RECORDS EXAMINATION

a. A review of the facility's manifests indicated no violations or deficiencies.

b. A review of the facility's contingency plan indicated the following violations:

1. For failure to describe facility personnel actions.

2. For failure to describe local authorities agreements.

3. For failure to include a list of home addresses for emergency coordinators.

4. For failure to include an evacuation plan.

5. For failure to provide a list of all emergency equipment including the location and a physical description of each.

CONCLUSIONS:

1. Facility may be improperly disposing of waste oils.

2. Facility in violation of Part 265 generator requirements as outlined in Notice of Violation.

RECOMMENDATIONS AND FOLLOWUP REQUIRED:

1. Conduct investigation to determine disposition of waste oil by Carl Durden.

2. Send Notice of Violation regarding Part 265 generator requirements.

3. Coordinate with Region to ensure that waste oil runoff is corrected.

REVIEWED BY: [illegible]

ATTACHMENTS: 4

FILE: ITT Suspension Systems (R)

TC/mcw014

Suspension Systems Division
P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4508

January 31, 1985

Mr. Tim Cash
Hazardous Waste Management Program
Environmental Protection Division
270 Washington Street, S. W.
Atlanta, Georgia 30334

Dear Tim:

The chromic acid which we use in our chrome-plating operation at ITT Suspension Systems Division is received from the manufacturer in 100 pound containers. Some of these containers are heavy-duty cardboard drums and others are metal, 5 gallon size drums. Both kinds of these containers contain polyethylene bag liners which we are shipping to Emille, Alabama via Chemical Waste Management. The empty drums with liners removed are not considered hazardous waste and are being disposed of locally.

This method of handling is according to our understanding of 40 CFR 261.7 (a) (1) and 40 CFR 261.7 (b) (3) (iii).

Please advise us of Georgia E.P.D.'s approval or disapproval of this practice.

Sincerely,

David Vinson

David Vinson
Chemist

DV:djp

ITT

Suspension Systems Division

P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4508

REFERENCE 10

February 21, 1985

Mr. Tim Cash
Hazardous Waste Program
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334

Dear Tim:

This letter is in response to your letter of 11 February 85 concerning the handling of wastes from our holding tank.

In the past, we have used this tank to hold used cutting fluids, contaminated oil, and floor cleaning compounds. Whenever a significant quantity accumulated, a waste handler was paid to pump, haul and dispose of these wastes.

Prior to your notification, ITT has no reason to consider any of these products as fitting the definition of "hazardous wastes"; nor did we have any knowledge that our waste handler was "improperly disposing" of our wastes, as you state in your letter.

Since your inspection on 24 January 85 and subsequent instructions, ITT has ceased to do business with the waste handler in question. None of the wastes from this tank have been taken from our facility since December 84.

We have initiated several operational changes which will: Change the status of the contents of this tank to non-hazardous; reduce the volume of fluids placed in the tank; and hopefully to completely eliminate our use of the tank for this purpose.

We have repaired our high water level alarm on the cutting fluid tank. This will help reduce the volume in the holding tank by preventing run-over of the fluid tank onto the floor.

Contaminated shock absorber oil will no longer be put into this tank as we have begun a program of reducing the volume of this oil and we are segregating the remaining quantity to market as a waste oil.

A portable air pump was being used as a substitute for a broken recirculation pump in our chrome plating tank. We have found that some of our personnel had been using this portable pump to transfer contaminated oil to the holding tank. This procedure has been stopped. We feel that this must be the source of the chrome and lead which was revealed by the test made on the contents of the tank.

We are changing our cutting fluid to one which does not contain any phenolic compounds and will no longer use this product at our facility.

Since the test results indicated possible unacceptable levels of some components, we will send this waste to a permitted hazardous waste landfill for disposal.

A copy of the test results from this tank is attached. If we can provide any additional information, please call.

Sincerely,

David A. Vinson

David A. Vinson
Chemist

DAV:djp

Enclosure

HARMON ENGINEERING & TESTING

AUBURN INDUSTRIAL PARK, AUBURN, AL 36830-4399 (205) 821-9250

LABORATORY RESULTS

ITT
Suspension Systems Division
Post Office Box 10278
7980 Industrial Hwy.
Macon, GA 31297

Attention: David Vinson

HE&T PROJECT 623-05

DATE SAMPLE RECEIVED 1-29-85

DATE DATA TRANSMITTED 2-12-85

CLIENT JOB REFERENCE Purchase Order #3732

HE&T Sample Number	Client Sample Identification	Ag mg/L	As mg/L	Ba mg/L	Cd mg/L	Cr mg/L	Hg mg/L	Pb mg/L	Se mg/L
1024	Holding Tank Sludge	0.1	<0.005	15.6	0.6	20.6	<0.002	19.7	<0.005

		Corrosivity pH S.U.	Reactivity	Phenol mg/L
1024	Holding Tank Sludge	9	Neg.	77

Approved for Transmittal

Terrence A Whitt

Laboratory Manager

Request for: [ ] Technical Assistance [X] Resolution of Complaint

Program: [X] WQ [ ] WS [ ] SW [ ] AQ

Tim
Please handle
HS

Location of problem: Address ITT Suspension Systems - Highway 41

City Macon County Bibb

Owner David Mynatt, Manager Tel. No. 912/781-0170

Request by: Name Anonymous Tel. No.

Address City

Other persons involved: Tim Cash, Hazardous Waste Section

Received by: Karen Gottwald Date 11-8-84

Dispatched to: Karen Gottwald Date 11-8-84

Conditions reported:

Black thick substance in drainage ditch along Highway 41 just inside the Bibb Co. line.

REFERENCE 11

Action Taken:

On November 9, 1984 I visited the ITT Suspension Systems plant on Highway 49. I met with Jim Shelton, the Quality Control Manager, Joe Hyder, Plant Chemist, and Dave A.Mynatt, General Manager. Jim Shelton and other unnamed plant personnel were extremely uncooperative. A thick black substance clogged the drainage ditch across the plant property and the drainage ditch downstream along Highway 41. Fine particles of the black substance floated on water standing in the ditches. Plant personnel observing the ditch with me denied seeing anything in the ditch and denied that any problem existed until I insisted on speaking with the Plant Manager. Photographs were taken for documentation. There was a steady discharge of relatively clear water from the plant's cooling tower to the same drainage ditch. I notified the managers that this cooling wate discharge must be eliminated. I suggested that they tie the discharge line into their sanitary sewer. The company adds a cooling water treatment compound called "Aqua Blue" made by Oxford Chemicals, Inc., Atlanta, Ga. to their cooling tower water.

RECEIVED

Follow-up:

Complainant advised of action taken [ ]

Action Completed by: Karen Gottwald Date Nov. 26, 1984

2/78

ITT Suspension Systems
Bibb County - Water Quality

Action Taken:

Approximately 25 drums (55 gal.) of used oil were stored in the company parking lot above the drainage area. The asphalt parking lot was covered with oil in the area around the drums. A hazardous chemical storage area is located next to the used oil drums. There did not appear to be any leakage or spillage from the bermed area for hazardous materials.

Joe Hyder, the plant chemist, was very helpful and cooperative.He explained that the black substance was a mixture of black grinding dust and cutting oil from their hydromation process. A sludge-like substance is created during the grinding operation. This "sludge" is routinely disposed of in the BFI dumpsters next to the used oil storage area. The dumpsters leak and the greenish oil runs across the parking lot to the drainage ditch. Joe Hyder stated that the dumpsters were also the source of the grinding dust-sludge. There is no containment wall around the dumpsters or the used oil storage area. Joe Hyder provided me with the attached copies of the toxicity analyses for the new and used cutting oil (fluid). The used cutting oil contains 2.4 mg/l chromium.

I met with the Plant Manager, David A. Mynatt, and explained to him that ITT was in violation of the Water Quality Control Act. I advised him to remove all of the waste from the storm drainage ditches. He said that he would do so .

Containers of the grinding oil were marked with the following information:

Cimperial green 1011
Metal working fluid concentrate for grinding
Made by Cincinnati Milacron, Cincinnati, Ohio
Emergency #513/841-8181

ITT address:

David Mynatt
ITT Suspension Systems Division
7980 Industrial Highway
P. O. Box 6156
Macon, Georgia 31208
912/781-0170

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

December 17, 1984

Mr. David A. Mynatt
ITT Suspension Systems
P. O. Box 6156
Macon, Georgia 31208

Re: Waste material in storm drainage ditch from
ITT Suspension Systems - Bibb County, Georgia

Dear Mr. Mynatt:

As we discussed during our meeting on November 9, 1984 waste material from your company's hydromation process was discharged to the storm drainage ditch in front of your plant and along Highway 41. This discharge was found to be in violation of the Georgia Water Quality Control Act and the Rules and Regulations for Water Quality Control, Chapter 391-3-5-.06.

It appears that your disposal practices for your grinding fluid waste are inadequate. Joe Hyder, your plant chemist, explained that this waste is placed in the BFI dumpsters and then leaks out onto the parking lot and eventually to the drainage ditch.

In addition, I noticed that your cooling tower water containing "Aqua Blue" discharges to this same drainage ditch. This also constitutes a violation of Chapter 391-3-5-.06 of the Rules and Regulations for Water Quality Control. This discharge could be tied into the sanitary sewer for proper disposal.

You are hereby requested to remove all of the waste from the storm drainage ditches and to dispose of it properly. You should notify this office in writing within thirty (30) days of the date of this letter of your plans for the proper disposal of these wastes. Failure to do so will be interpreted as an unwillingness on your part to comply with the Act and Rules.

If you have any questions regarding this matter, contact me at 912/744-3206.

Sincerely,

Karen S. Gottwald

Karen S. Gottwald
Environmental Specialist
Middle Georgia Region

KSG:pj

HARMON ENGINEERING & TESTING

AUBURN INDUSTRIAL PARK, AUBURN, AL. 36830 (205) 821-9250

SOLID WASTE ANALYSIS

ITT Suspension Systems
P. O. Box 6165
Macon, GA 31208

Project No.: 623-04

Date: 3/19/84

HE&T Sample Number: 9968 Client Identification: Cutting Fluid

Date Received: 2/6/84 Sample Condition on Arrival: OK

Extraction Procedures

Initial Sample Wt (g)	*
Filtrate Volume (mL)	*
Sample Wt Extracted (g)	*
Water Added (mL)	*
Initial pH (S.U.)	*
Solids Content of Extracted Sample @ 105°C	
pH After 24 Hrs Extraction	*
Filtrate Recombined (mL)	*
Filtrate pH	8.3
Final Volume (mL)	*
pH After Acidification	

EP pH Adjustments

Time	Acid (mL)	pH_I	pH_F
*	*	*	*

Total Acid Added (mL)

Additional Water Added (mL)

*Solids content <0.5%. Sample filtered and analysis on filtrate.

Analytical Results

Parameter	Conc (mg/L)	Allowable Conc (mg/L)
Toxicity		
Arsenic	<1	5.0
Barium	<20	100
Cadmium	<0.2	1.0
Chromium	<1	5.0
Lead	<1	5.0
Mercury	<0.05	0.2
Selenium	<0.2	1.0
Silver	<1	5.0
Lindane	NR	0.4
Endrin	NR	0.02
Toxaphene	NR	0.5
Methoxychlor	NR	10
2,4-D	NR	10
2,4,5-TP (Silvex)	NR	1.0
Corrosivity	NR	
Ignitability	NR	
Reactivity		
Chemical	NR	
Physical	NR	
Thermal	NR	

Approved for Transmittal

Laboratory Manager

S-006 4/83

HARMON ENGINEERING & TESTING

AUBURN INDUSTRIAL PARK, AUBURN, AL. 36830 (205) 821-9250

SOLID WASTE ANALYSIS

ITT Suspension Systems
P.O. Box 6165
Macon, GA 31208

Project No.: 623-04

Date: 3/19/84

HE&T Sample Number: 9970 Client Identification: Cutting Oil

Date Received: 2/6/84 Sample Condition on Arrival: _____

Extraction Procedures

Initial Sample Wt (g)	435.8
Filtrate Volume (mL)	435
Sample Wt Extracted (g)	7.6
Water Added (mL)	122
Initial pH (S.U.)	8.5
Solids Content of Extracted Sample @ 105°C	-
pH After 24 Hrs Extraction	5.1
Filtrate Recombined (mL)	587
Filtrate pH	8.4
Final Volume (mL)	152
pH After Acidification	-

EP pH Adjustments

	Time	Acid (mL)	pH_I	pH_F
2/14/84	1130	5	8.5	4.9
	1145	1	5.3	4.9
	1215	0	5.0	-
	1315	1	5.1	4.9
	1415	0	4.9	4.9
	1515	0	5.0	5.0
	1615	0	5.0	5.0
	1715	0	5.0	5.0
2/15/84	0800	0	5.0	5.0
	1130	0	5.1	5.1

Total Acid Added (mL) 7 (30)

Additional Water Added (mL) 23

Analytical Results

Parameter	Conc (mg/L)	Allowable Conc (mg/L)
Toxicity		
Arsenic	<1	5.0
Barium	<20	100
Cadmium	<0.2	1.0
Chromium	2.4	5.0
Lead	<1	5.0
Mercury	<0.05	0.2
Selenium	<0.2	1.0
Silver	<1	5.0
Lindane	NR	0.4
Endrin	NR	0.02
Toxaphene	NR	0.5
Methoxychlor	NR	10
2,4-D	NR	10
2,4,5-TP (Silvex)	NR	1.0
Corrosivity	NR	
Ignitability	NR	
Reactivity		
Chemical	NR	
Physical	NR	
Thermal	NR	

Approved for Transmittal

Laboratory Manager

S-006 4/83

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S W
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

December 17, 1984

MEMORANDUM

TO: Harold C. Gillespie, Regional Manager
Middle Georgia Region

FROM: Karen S. Gottwald, Environmental Specialist KSG
Middle Georgia Region

SUBJECT: ITT Suspension Systems - Wastewater Discharge
Bibb County, Georgia

On November 16, 1984 a return visit was made to the ITT Suspension Systems Plant on Highway 49 in Macon to determine if the hydromation process waste had been cleaned up. No work had been done to clean out the storm drainage ditches. The black waste still lined the ditches. Green grinding fluid was ponded in the parking lot near the BFI dumpsters. The cooling tower was not discharging at that time; however, there was a greater volume of water in the drainage ditch than there was during my first visit. I did not meet with company officials as it was late in the day.The attached letter was sent to the plant manager.

KSG:pj

PRINTED ON RECYCLED PAPER

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

December 19, 1984

MEMORANDUM

TO: Harold C. Gillespie, Region Manager
Middle Georgia Region

FROM: Karen S. Gottwald, Environmental Specialist KSG
Middle Georgia Region

SUBJECT: ITT Suspension Systems, Macon
Bibb County, Georgia

On December 18, 1984, a follow-up visit was made to the ITT Suspension Systems plant in Macon to determine if the ditch had been cleaned and the discharge problem resolved. No attempt had been made to clean the black hydromation sludge out of the storm drainage ditch. The dumpsters continued to leak green grinding fluid. Follow-up enforcement action should be initiated once the plant manager, David Mynatt, has a chance to respond to our written request for compliance.

HCG:pj

RECYCLED PAPER

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

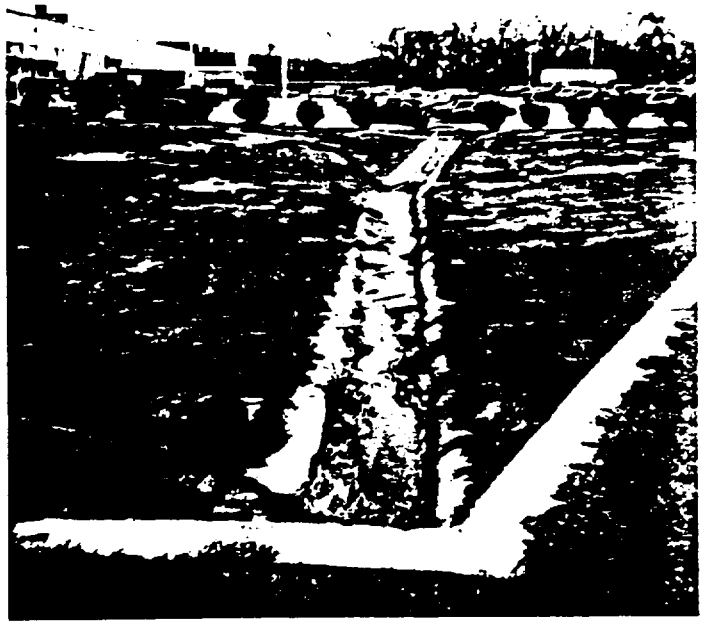
PHOTOGRAPHS

ITT SUSPENSION SYSTEMS

MACON

BIBB COUNTY

NOVEMBER 16, 1984



ITT

Suspension Systems Division

P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4

REFERENCE 12

January 3, 1985

MIDDLE GEORGIA REGION
JAN 7 1985
ENVIRONMENTAL PROTECTION DIVISION

Ms. Karen S. Gottwald
Environmental Specialist
Middle Georgia Region

Re: Waste material in storm drainage ditch
from ITT Suspension Systems -
Bibb County, Georgia

Dear Ms. Gottwald:

In response to your letter of December 17, 1984 the following actions have been taken to eliminate the problem.

1. All grinding fluid wastes are now stored in leak proof containers and disposed in the Macon Bibb County disposal site.

2. The aqua blue discharge from the cooling tower has been piped closed. The connection of this to the sanitary drain will be completed by January 7, 1985.

3. The drainage ditch was removed of all wastes and disposed of in the Macon Bibb County disposal site per Mr. Gillespie's direction (letter attached).

Sincerely,

D.A. Mynatt
General Manager

Enc.

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

December 20, 1984

Mr. Bobby Copeland
ITT Suspension Systems
P. O. Box 61566
Macon, Georgia 31208

Re: Waste Material in Storm Drainage Ditch from
ITT Suspension Systems - Bibb County, Georgia

Dear Mr. Copeland:

The purpose of this letter is to confirm our telephone conversation on December 19,1984 whereby this office approved the disposal of this waste material in the Macon-Bibb County disposal site. This approval is based upon the lab analysis of the material previously submitted to this office which indicated the presence of no hazardous materials.

If you have questions regarding this matter, please feel free to contact this office.

Sincerely,

Harold C. Gillespie

Harold C. Gillespie, P. E.
Regional Manager
Middle Georgia Region

HCG:pj

cc: Tim Cash
Sid Gibbs

JAN 7 1985

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

TRIP REPORT
February 7, 1984

REFERENCE 13

SITE NAME & LOCATION: ITT Suspension Systems Division, Macon, Georgia

TRIP BY: Alan R. Laros ARL

ACCOMPANIED BY: None

DATE OF TRIP: January 31, 1984, 9:[illegible]

OFFICIALS CONTACTED: Joe Hyder, Plant Chemist, P.O.Box 10278, Macon, GA 31208 Phone: 912/781-0170
Eugene Parrish, Quality Control Analyst, P.O.Box 10278, Macon, GA 31208 Phone: 912/781-0170

REFERENCE: Trip Report, letter and ISS Inspection report dated 12/21/82

COMMENTS:

This facility manufactures shock absorbers and McPherson struts for the Ford Motor Company. A chroming process is used for plating the steel support rods used in both applications and as a result (F006) chromic acid sludge is generated (see enclosed diagram of plating operation). Liquid waste, including drag-out and wash and rinse water, is run through a wastewater treatment system. Wastewater is converted from hex to tri-valent chrome using sodium bisulfite.

The liquid is then run through a filter press, is pH adjusted, and finally is disposed via a POTW. The dewatered (F006) sludge is deposited in a 20 cubic yard roll-off container for temporary storage. ITT, Macon, is now using Chem Waste Management of Alabama both as transporter and as disposer of this sludge.

As per Georgia's Rules for Hazardous Waste Management §§264.1g(6) and 265.1(c)(10), the wastewater treatment system, including the filter press does not need a hazardous waste facility permit (See Georgia RIM #1 dated 11/22/83). The wastewater treatment system is, however, regulated by and was inspected for the requirements under Subpart B §266.10.

The process chromic acid tanks are drained yearly during Christmas week. The chromic acid is put into temporary holding tanks while the sludge is removed from the primary tanks. This sludge is then run through the waste treatment process and the chromic acid is put back into the process tanks for re-use. The entire chrome plating operation, consisting of a series of steel tanks, rests on a reinforced concrete floor with a 10 inch concrete berm surrounding it. All floor

drains, both inside and outside the bermed area, lead into the wastewater treatment system.

In addition to the above, this facility generates (F002) wastes in the form of spent Methylene Chloride and 1,1,1, Trichloroethane solvents. These solvents are generated in small amounts (only 12 drums have accumulated in the drum storage area since February 11, 1982). On that date Ramsey Chemical Company removed a load of spent solvents from the facility "as documented by manifest". Minor corrections in drum storage practices were recommended during my inspection.

An additional filter press system is used to separate metal grinding sludge from waste cutting oil. The oil is removed from the facility by Carl Durden Waste Oil Company of Warner Robins, Georgia. The metal grindings are disposed along with all non-hazardous solid wastes by Browning Ferris.

Shock absorbers are painted via a dip tank. The only waste which is generated by this process is a sludge from periodic clean-out of the dip tank. I have requested EP and flash point tests on both the paint sludge and the cutting oil.

All paperwork violations noted by Margaret Markey on her 11/22/83 inspection have been corrected.

CONCLUSIONS:

This facility qualifies as a generator of hazardous waste and has the option of withdrawing their Part A application for treatment and storage of hazardous waste.

RECOMMENDATIONS & FOLLOW-UP REQUIRED:

This company does not plan to continue trying to delist its (F006) sludge. Following receipt of my inspection report and compliance status letter they plan to request withdrawal of their Part A application.

PHOTOGRAPHS: None

REVIEWED BY: JEO 2/8/84

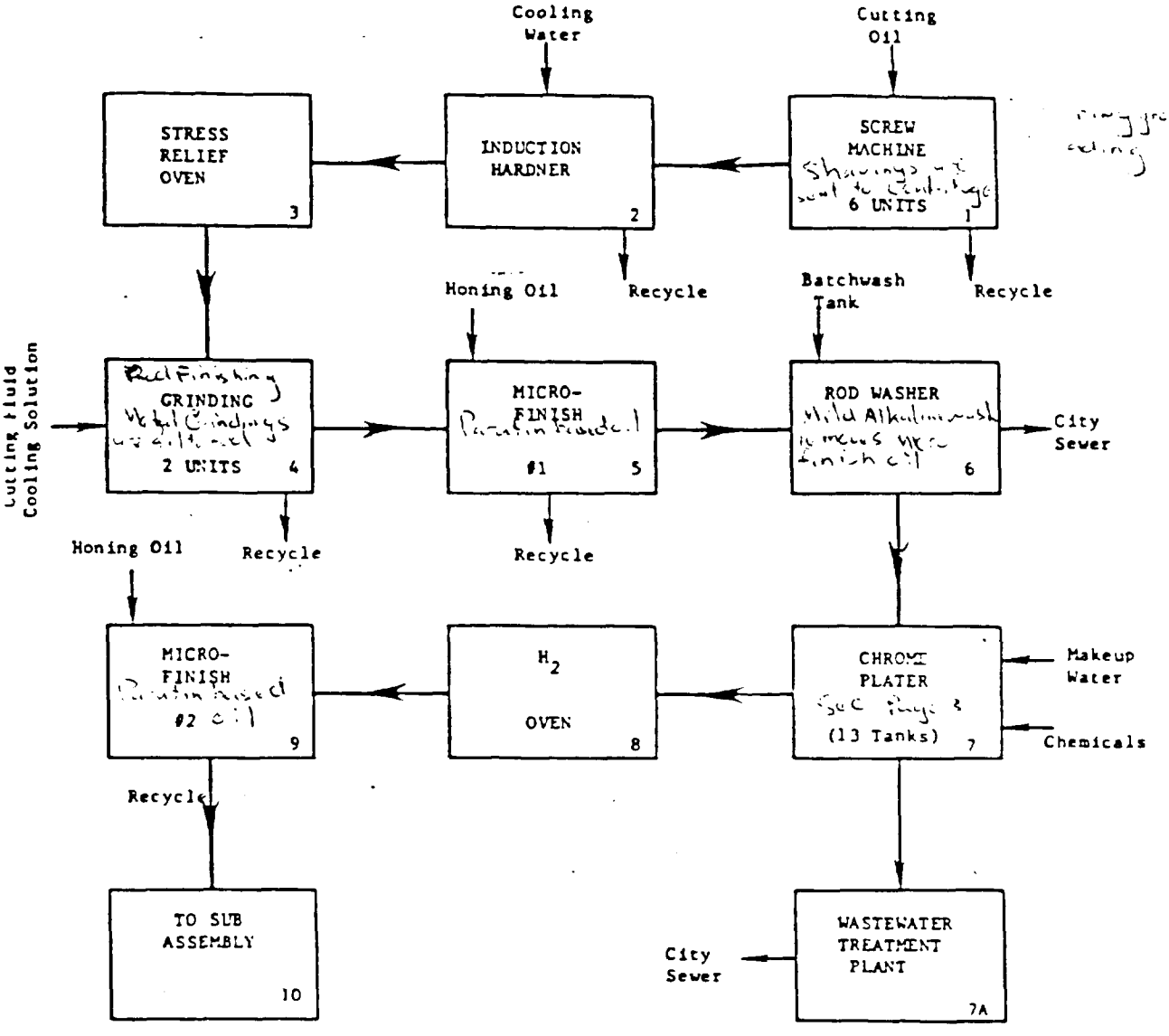
ATTACHMENTS: Copies of drawings for (1) process flow; (2) chrome plater flow; (3) schematic of wastewater treatment plant; and (4) Material Safety Data Sheet for shock absorber paint.

FILE: ITT Suspension Systems Division, Macon (R)

AL:mg:3122B

FIGURE 1

PROCESS DIAGRAM



Notes:

(1) Honing & Cutting Oils are centrifuged to remove metal shavings and recycled.
(2) Cooling water is recycled by use of cooling tower.
(3) Rod washer is batch process discharged directly to city sewer.

PT-61 (Rev. 8/89) REAL ESTATE TRANSFER TAX DECLARATION (Please Type or Print)

SECTION A-SELLER NAME
ITT CORPORATION

MAILING ADDRESS (Street and number)
320 Park Avenue

CITY, STATE and ZIP CODE
New York, New York 10022

SECTION B-BUYER NAME
BOEING GEORGIA, INC.

MAILING ADDRESS (Street and number)
P.O. Box 7730, MSKII-60

CITY, STATE AND ZIP CODE
Wichita, Kansas 67277-7730

SECTION C-PROPERTY IDENTIFICATION

1. LOCATION (Street, Route, Hwy. etc.) 7900 Industrial Highway
2. COUNTY Bibb
3. IF WITHIN CITY LIMITS GIVE CITY NAME
4. ACRES
5. DISTRICT 4th
6. LAND LOT 172
7. SUB LOT AND BLOCK
8. LAST LISTED ON AD VALOREM TAX DIGEST UNDER THE NAME OF
9. YEAR 90
BILL NUMBER
10. MAP AND PARCEL NUMBER 015-200-B-0035

SECTION D-SALE INFORMATION

1. DATE 1/23/90
2. SALE CONDITIONS
3. CHECK INTENDED USE [ ] R [ ] A [ ] C [X] I

SECTION E-RECORDING INFORMATION

1. DATE
2. DEED BOOK 1828 PAGE 245
3. PLAT BOOK PAGE

SECTION F-TAX COMPUTATION

1. Actual value of consideration received by seller (Fill out 1a below only when value is not known)	2,875,000	00
REFERENCE 14		
4. Net Taxable Value (1 minus 2 minus 3)	2,875,000	00
5. TAX DUE at 10¢ per $100 or fraction thereof. (Minimum $1.00)	2,875	00

SECTION G-SELLER CERTIFICATION

I hereby certify that all the items of information entered on this transfer form PT-61 are true and correct to the best of my knowledge and belief.

Signature JAMES N. GEIGER (Seller or Authorized Agent) 1/23/90 (Date)

SECTION H-CLERK OF COURT CERTIFICATION

I hereby certify that the recording information in Section E is correct and that the tax due in Section F5 is computed correctly based upon the information supplied in Section F by the seller or his authorized agent.

Signature Aline T. Byrd (Clerk of Superior Court) 1-25-90 (Date)

TAX ASSESSOR'S COPY

137,280 = 151,980 ⊔ 18.92 ⊔
14,700

NOTE: THE CONTENTS OF THIS DISCLOSURE (FORM PT-61) SHALL BE CONFIDENTIAL AND SHALL NOT BE SUBJECT TO INSPECTION BY ANY PERSO[illegible]HER THEN AUTHORIZED PERSONNEL OF APPROPRIATE TAX OFFICIALS.

TO BE COMPLETED BY THE TAX ASSESSOR'S OFFICE

SECTION I - ASSESSMENT INFORMATION

Map and Parcel # Assigned 00150-0035

Sales Conditions FMV

Intended Use ( ) R ( ) A ( ) C (X) I

ASSESSMENTS

Code	Assessed Value
I-1, I-14	$ 153395
	$
	$ Whse / Mfg
	$
	$
	$
	$
	$
	$
	$

COMMENTS

SECTION J-OPTIONAL INFORMATION

Adjusted Sales Price $ 2875000

Reason for Adjustment

Vacant/Improved I

Sq. Ft. Primary Improvement (Heated) (Unheated)

Economic Age Primary Improvement

Value of Primary Improvement $

Sq. Ft. Assessory Improvements $

Economic Age Assessory Improvements

Value of Assessory Improvements $

Financing Interest Rate

Down Payment $

New Money Borrowed $

Construction Quality

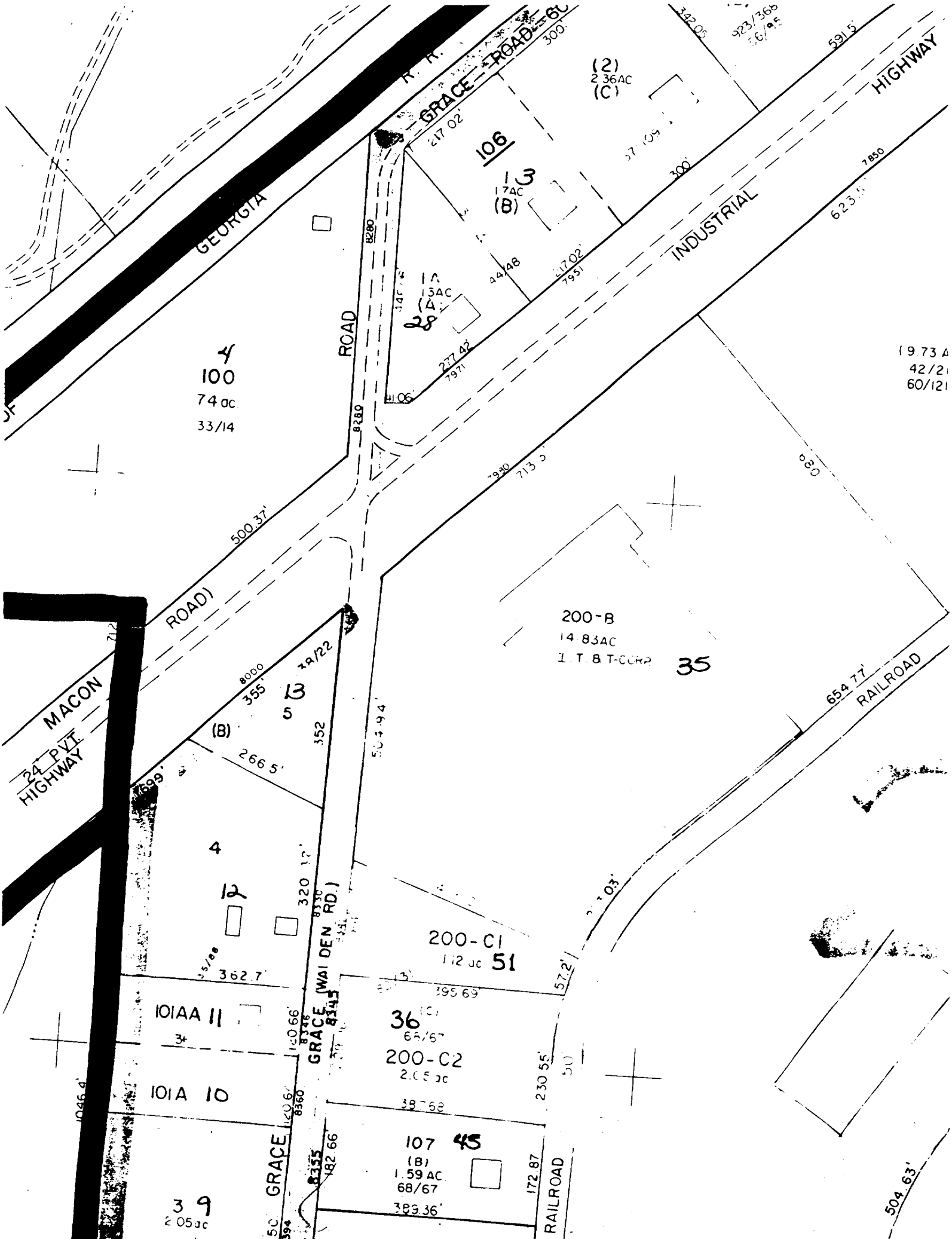
Excellent ( ) Good ( ) AVG ( ) Fair ( ) Poor ( )

Neighborhood Code

SECTION K - ASSESSOR'S CERTIFICATION

I hereby certify that the assessment information in Section I is true and correct to the best of my knowledge and belief.

Signature (Assessor or Appraiser) 2-21-90 (Date)



GEORGIA
R. R.
GRACE ROAD
INDUSTRIAL
HIGHWAY
ROAD
MACON
24' PVT.
HIGHWAY
ROAD)
RAILROAD
GRACE (WALDEN RD.)
GRACE
RAILROAD
(2)
2.36AC
(C)
106
13
1.7AC
(B)
1A
1.3AC
(A)
28
4
100
74 ac
33/14
200-B
14.83AC
I.T.&T-CORP
35
13
5
(B)
4
12
200-C1
1.12 ac
51
101AA 11
36
200-C2
101A 10
107
45
(B)
1.59 AC
68/67
3 9
2.05ac

**** RCRA Notifiers List ****

Run 15.23.54 , 11/13/91 by Joyce Brittian

Data from the Region IV Merge Database.

This run used the following selection criteria (blank means all values accepted, except for facility types):

States:	(Select 1 - 3 or all)
Counties:	(Select 1 - 4 or all)
ZIP Codes:	(Select 1 - 5 or all)
Facility:	(Select one or all)
Leg. district:	(Select one or all)

Facility types: LQG: X SQG: X CEG: X
(X - selected) TSD: X Trans.: X BBL: X REC: X

NOTE: '-N-' in the report indicates the facility notified for that activity but is not now engaged in that activity.

Sort: State, Name, ID	(See below for sort choices)
TC Rule facilities:	(Waste codes D018 - D043)
Waste codes:	(Select 1 - 6 or all)
SIC Codes	(Select 1 - 5 or all)
Owner type:	(Select one or all)
Facilities which accept wastes from offsite:	
Notification date range: from 010180 to 111391	

Individual ID's selected: (1 - 15)

LQG - Large quantity generator (more than 1000 kg per month)
SQG - Small quantity generator (100 - 1000 kg permonth).
CEG - Limited quantity generator (less than 100 kg per month)
TSD - Treat, store, or disposal facility
Trans.- Transporter
BBL - Burner/blender
REC - Recycler

Sort choices:
1 - State, Name, ID
2 - State, County, Name, ID
3 - State, ZIP, Name, ID
4 - State, Legislative District, ID
5 - Name, ID
6 - ID Number

Owner type choices:
P - Private
F - Federal
S - State
C - County
M - Municipal

Total number of handlers is 40268

REFERENCE 15

RCRA Notifiers List State: TN Region IV Merge Database Run 18.13.09 11/13/91

Facility/ID Leg. Dist		Contact - Name		- Phone	Notif.Date	Facil. Type TSD	GEN	TRNS	BBL	REC
BLUE BIRD BODY COMPANY		DOUGLAS MILLER		(912)825-2021	08/26/83	TSD	LQG	-	-	-
GAD980729974	Facil.: NORTH CAMELLIA BLVD		FORT VALLEY	GA	31030 PEACH CO.					
VB	Mail: P O BOX 937		FORT VALLEY	GA	31030					
BLUE BIRD NORTH GEORGIA		ROBERT JOYNER		(404)638-8383	09/02/83	-	LQG	-	-	-
GAD042710590	Facil.: SHATTUCK IND BLVD		LAFAYETTE	GA	30728 WALKER CO.					
JO	Mail: PO BOX 807		LAFAYETTE	GA	30728					
BLUE BIRD WANDERLODGE		GARY REVIS		(912)825-2021	08/19/88	-	LQG	-	-	-
GAD981247984	Facil.: #1 WANDERLODGE WAY		FORT VALLEY	GA	31030 PEACH CO.					
	Mail: P O BOX 937		FORT VALLEY	GA	31030					
BLUE RIBBON CLEANERS		JERRY GREEN		(912)234-8155	07/13/89	-	SQG	-	-	-
GAD981267560	Facil.: 2021 MONTGOMERY RD		SAVANNAH	GA	31405 CHATHAM CO.					
	Mail: 2021 MONTGOMERY RD		SAVANNAH	GA	31405					
BLUE RIDGE MTN CONTRACT CARRIERS		NORRIS KILGORE		(404)226-2525	08/07/87	-	-N-	-	-	-
GAD981236615	Facil.: 835 SHUGART RD		DALTON	GA	30720 WHITFIELD CO.					
	Mail: P O BOX 1947		DALTON	GA	30722					
BMW OF NORTH AMERICA INC		KARL KRUEGER		(912)267-4000	12/21/89	-	SQG	-	-	-
GAD981272370	Facil.: 106 JOE FRANK HARRIS BLVD		BRUNSWICK	GA	31520 GLYNN CO.					
	Mail: 106 JOE FRANK HARRIS BLVD		BRUNSWICK	GA	31520					
BOB & BOBS PAINT & BODY SHOP		BOB HOLLINS		(404)736-3323	10/14/86	-	SQG	-	-	-
GAD981222441	Facil.: 2031 GORDON HWY		AUGUSTA	GA	30909 RICHMOND CO.					
JO	Mail: 2031 GORDON HWY		AUGUSTA	GA	30909					
BOB CAT EQUIPMENT CO		BRAD REDDING		(404)373-2179	01/29/91	-	SQG	-	-	-
GAD981282783	Facil.: 295 PATTERSON AVE		SCOTTSDALE	GA	30079 DE KALB CO.					
	Mail: 295 PATTERSON AVE		SCOTTSDALE	GA	30079					
BOB MADDOX CHRY-PLY		PERRY LANIER		(404)361-6550	10/21/86	-	SQG	-	-	-
GAD981223639	Facil.: 330 FOREST PKWY		FOREST PARK	GA	30050 CLAYTON CO.					
JO	Mail: 330 FOREST PKWY		FOREST PARK	GA	30050					
BOB'S CANDIES INC		GENE SHARP		(912)430-8300	10/15/90	-	SQG	-	BBL	-
GAD981281884	Facil.: 1315 OAKRIDGE DRIVE		ALBANY	GA	31707 DOUGHERTY CO.					
	Mail: P.O. BOX 3170		ALBANY	GA	31708					
BOEING MACHINE PRODUCTS		ROBERT BARRETT		(912)781-3000	08/18/80	TSD	-N-	-	-	-
GAD000615914	Facil.: 7898 41ST HWY S		MACON	GA	31201 BIBB CO.					
JO	Mail: PO BOX 10248 WILSON AIRPORT		MACON	GA	31201					
BOLD CORP		JACK HARTLEY		(912)386-1495	06/26/80	-	-N-	-	-	-
GAD010122364	Facil.: VERNON DR		TIFTON	GA	31794 TIFT CO.					
TR	Mail: PO BOX 1463		TIFTON	GA	31793					

RCRA Notifiers List State: TN Region IV Merge Database Run 18.13.09 11/13/91

Facility/ID Leg. Dist		Contact - Name		- Phone	Notif.Date	Facil. Type ITSD	GEN	TRNS	BBL	REC
ISOLYSER CO INC		TRAVIS.W HONEYCUTT		(404)381-7566	06/19/89	-	-	TRNS	-	-
GAD981267180	Facil.: 4350 INTERNATIONAL BLVD NW		NORCROSS	GA	30093 GWINNETT CO.					
	Mail: 4350 INTERNATIONAL BLVD NW		NORCROSS	GA	30093					
ITAPCO COLUMBUS TERMINAL COMPANY		MIKE BLEVINS		(713)580-6101	11/19/80	-	SQG	-	-	-
GAD042816256	Facil.: 5225 MILLER ROAD		COLUMBUS	GA	31909 MUSCOGEE CO.					
	Mail: 616 FM 1960 WEST SUITE 604		HOUSTON	TX	77090					
ITE ELECTRICAL PROD DIV OS SEIMENS-ALLIS		RYAN.H. GARNER		(404)493-1231	07/15/85	-	SQG	-	-	-
GAD981028988	Facil.: 2140 FLINTSTONE DR		TUCKER	GA	30085 DE KALB CO.					
BB	Mail: 2140 FLINTSTONE DR		TUCKER	GA	30085					
ITT - AUTO ELECTRICAL DIV		DAVID BRINSON		(912)377-5570	01/24/85	-	CEG	-	-	-
GAD061427639	Facil.: 20TH & 2ND ST NE		CAIRO	GA	31728 GRADY CO.					
BB	Mail: RTE 2 BOX 477		CAIRO	GA	31728					
ITT GRINNELL CORP		DAVID WILLIAMS		(912)587-2212	11/01/83	-	SQG	-	-	-
GAD065330151	Facil.: US HWY 301 N		STATESBORO	GA	30458 BULLOCH CO.					
BS	Mail: PO BOX 427		STATESBORO	GA	30458					
ITT RAYONIER INC		ROBERT MCCRARY		(912)427-5280	08/18/80	-	LQG	-	BBL	-
GAD075854349	Facil.: US HWY 301 N		JESUP	GA	31545 WAYNE CO.					
WS	Mail: PO BOX 207		JESUP	GA	31545					
ITT SUSPENSION SYSTEMS DIV		DAVID VINSON		(912)781-0170	10/27/80	-	-N-	-	-	-
GAD098584063	Facil.: 7980 INDUSTRIAL HWY		MACON	GA	31208 BIBB CO.					
JO	Mail: PO BOX 6156		MACON	GA	31208					
ITT THOMPSON IND METALS DIVISION		CASH REGISTER		(912)242-4360	08/12/80	-	-N-	-	-	-
GAD000465138	Facil.: 1101 WEST SAVANNAH AVE		VALDOSTA	GA	31601 LOWNDES CO.					
BS	Mail: PO BOX 928		VALDOSTA	GA	31601					
ITT THOMPSON INDUSTRIES DIV		TERRY REESE		(912)242-5228	11/13/80	-	-N-	-	-	-
GAD003301983	Facil.: CLAY RD		VALDOSTA	GA	31601 LOWNDES CO.					
JO	Mail: P O BOX 5307		VALDOSTA	GA	31601					
ITT THOMPSON INDUSTRIES DIV		CASH REGISTER		(912)242-4360	11/19/80	-	-N-	-	-	-
GAD991276189	Facil.: 501 HIGHLAND DR		VALDOSTA	GA	31601 LOWNDES CO.					
	Mail: P O BOX 928		VALDOSTA	GA	31601					
ITW MIMA		JIMMY RUTLEDGE		(404)489-7510	09/20/91	-	SQG	-	-	-
GAD984300103	Facil.: 1320 LESLIE DR		DOUGLASVILLE	GA	30134 DOUGLAS CO.					
	Mail: 1320 LESLIE DR		DOUGLASVILLE	GA	30134					
IVY-COILE MOTORS		DAN.M. BARRETT		(404)549-7555	03/18/86	-	SQG	-	-	-
GAD033498536	Facil.: 3640 ATLANTA HWY		ATHENS	GA	30606 CLARKE CO.					
JO	Mail: P O BOX 5338		ATHENS	GA	30604					

B&V WASTE SCIENCE AND TECHNOLOGY CORP.

REFERENCE 16

TELEPHONE MEMORANDUM

USEPA
ARCS IV Site Assessment
RCRA Status of ITT Suspension Sys.

BVWST Project 52011.045
BVWST File E.1
June 10, 1992
1:05 PM

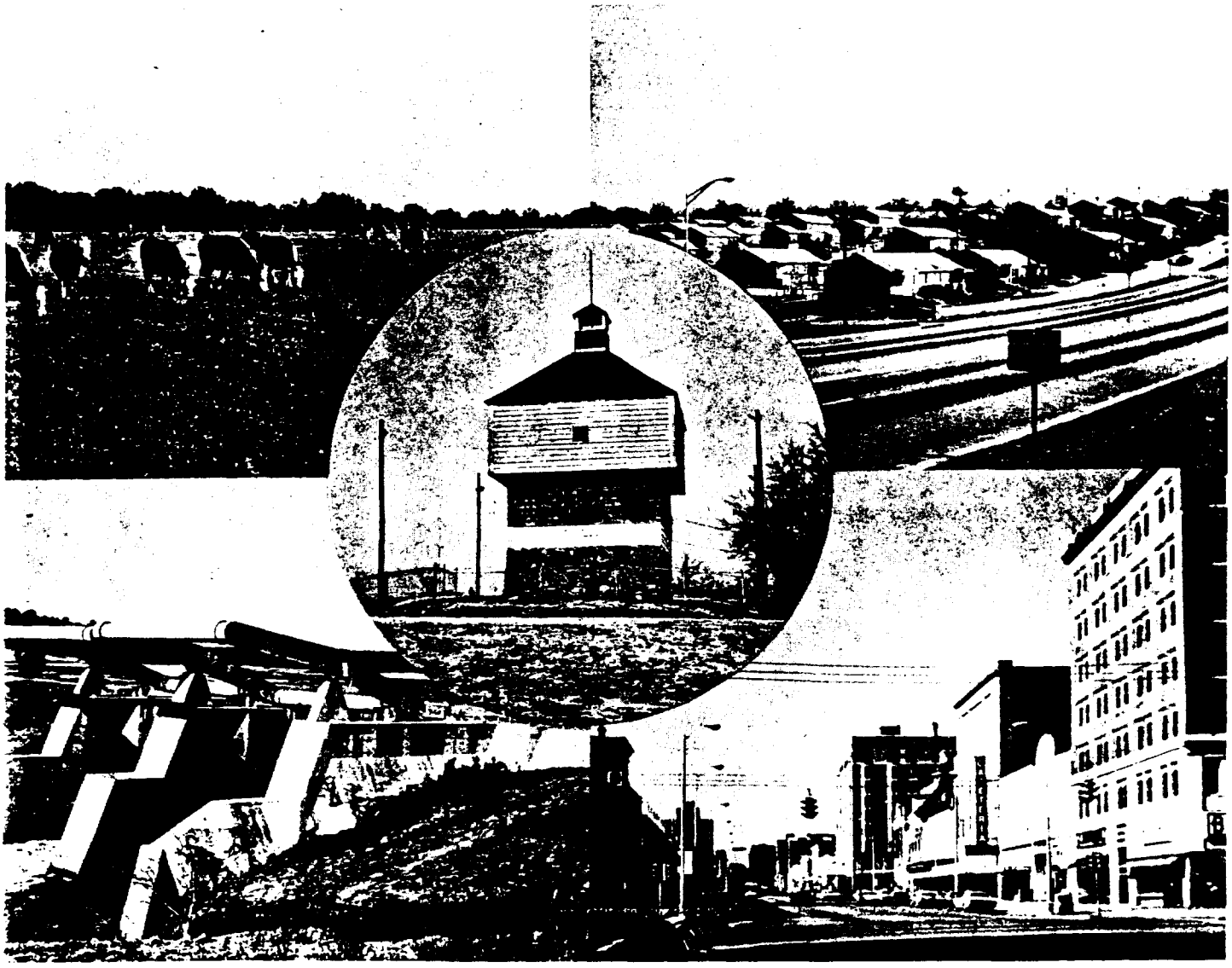
To: Harry Desai
Company: USEPA, RCRA Division
Phone No.: (404)347-3433

Recorded by: Bryan Williams

I spoke with Harry Desai, the Georgia contact with RCRA downtown concerning the status of the ITT Suspension Systems facility. He stated that Boeing Machine is indeed a TSD facility and separate from the ITT site they purchased in 1990. He also said that if the facilities have two distinct EPA ID №s then they cannot be the same facility or site.

REFERENCE 17

SOIL SURVEY OF
Bibb County, Georgia



United States Department of Agriculture
Soil Conservation Service

In cooperation with

University of Georgia, College of Agriculture
Agricultural Experiment Stations

cover crops, and grasses and legumes in the cropping system help to reduce runoff and control erosion.

This Faceville soil has high potential for loblolly pine and slash pine. Limitations for woodland use and management are not significant.

This soil has high potential for most urban uses. The clayey subsoil is a limitation for some uses. In most places, this limitation can be overcome by good design and construction. Capability subclass IIIe; woodland group 3o.

FsB—Fuquay loamy sand, 1 to 5 percent slopes. This well drained, nearly level or very gently sloping soil is on ridgetops and hillsides on Sand Hills uplands. Slopes are mostly smooth and convex. Areas are 5 to 60 acres in size.

Typically, the surface layer is dark grayish brown loamy sand and about 7 inches thick. The subsurface layer is loamy sand and extends to a depth of 24 inches; it is brown in the upper part and yellowish brown in the lower part. The subsoil extends to a depth of more than 65 inches. The upper part of the subsoil is yellowish brown sandy loam, the middle part is yellowish brown sandy clay loam and has red and light yellowish brown mottles, and the lower part is sandy clay loam and is mottled strong brown, light yellowish brown, and red. Plinthite is in the subsoil beginning at a depth of about 40 inches. It makes up 5 to 15 percent of the lower part of the subsoil. Nodules of ironstone are in the soil to a depth of about 40 inches.

Included with this soil in mapping are a few areas of Cowarts, Lakeland, and Norfolk soils and some areas of soils that have 5 to 15 percent nodules of ironstone in the upper part.

This soil is low in natural fertility and in content of organic matter. It is strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops, small grain, hay, and pasture. Low available water capacity and low fertility are limitations. Returning crop residue to the soil helps to overcome these limitations.

This Fuquay soil has medium potential for loblolly pine and slash pine. Equipment limitations and seedling mortality are management concerns on this soil.

This soil has high potential for most urban uses. The lower part of the subsoil percs slowly, and this is a limitation for septic tank absorption fields. In most places, this limitation can be overcome by increasing the size of the absorption areas or modifying the filter field. Capability subclass IIs; woodland group 3s.

FsC—Fuquay loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on hillsides on Sand Hills uplands. Slopes are mostly smooth and convex. Areas are 5 to 30 acres in size.

Typically, the surface layer is grayish brown loamy sand about 6 inches thick. The subsurface layer is light yellowish brown loamy sand and extends to a depth of 26 inches. The subsoil extends to a depth of more than 65 inches. The upper part of the subsoil is brownish yellow sandy loam, the middle part is yellowish brown sandy clay loam and has red, strong brown, and light yellowish brown mottles, and the lower part is sandy clay loam and is mottled strong brown, yellowish brown, red, and light gray. Plinthite is in the subsoil beginning at a depth of about 45 inches, and makes up 5 to 15 percent of the lower part. Nodules of ironstone extend to a depth of about 45 inches.

Included with this soil in mapping are a few areas of Cowarts and Lakeland soils. Also included are small areas of soils that have 5 to 15 percent nodules of ironstone in the upper part of the soil.

This soil is low in natural fertility and in content of organic matter. It is strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops, small grain, hay, and pasture. Slope, low available water capacity, and low fertility are limitations. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, cover crops, grasses and legumes in the cropping system, and returning crop residue to the soil help to overcome these limitations.

This Fuquay soil has medium potential for loblolly pine and slash pine. Equipment limitations and seedling mortality are management concerns on this soil.

This soil has high potential for most urban uses. The lower part of the subsoil percs slowly, and this is a limitation for septic tank absorption fields. In most places, this limitation can be overcome by good design and construction. Capability subclass IIIe; woodland group 3s.

Gr—Grady sandy loam. This poorly drained, nearly level soil is in saucer-shaped depressions and sinks in the Coastal Plain. Areas are 2 to 30 acres in size.

Typically, the surface layer is very dark grayish brown sandy loam about 6 inches thick. The subsoil extends to a depth of 60 inches or more. The upper few inches of the subsoil is gray sandy clay loam and has strong brown mottles, the middle part is gray sandy clay and clay and has yellowish brown mottles, and the lower part is gray sandy clay and has yellowish brown and red mottles.

Included with this soil in mapping are small areas of Grady clay loam and a few areas of Osier soils.

This soil is low in natural fertility and medium in content of organic matter. It is very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is slow, and available water capacity is medium. Tilth is good. This soil is commonly saturated or flooded during winter and spring, limiting the growth of plants.

This soil has low potential for cultivated crops. Wetness and flooding are limitations. Potential for pasture is medium.

This Grady soil has high potential for loblolly pine, slash pine, sweetgum, and water tupelo. Wetness is the main limitation to equipment use in managing and harvesting trees. Logging during the drier seasons helps to overcome this limitation. Drainage measures are needed to help overcome high seedling mortality.

This soil has very low potential for most urban uses. Wetness and flooding are limitations and are difficult to overcome. Capability subclass Vw; woodland group 2w.

HyB—Helena sandy loam, 2 to 6 percent slopes. This moderately well drained, very gently sloping soil is mainly on ridgetops on Piedmont uplands. Slopes are smooth and convex. Areas are 10 to 60 acres in size.

Typically, the surface layer is dark grayish brown sandy loam about 7 inches thick. The subsurface layer is light yellowish brown sandy loam and extends to a depth of 11 inches. The subsoil extends to a depth of 40 inches. The upper few inches of the subsoil is strong brown sandy clay and has light brownish gray mottles, the middle part is strong brown clay and has light brownish gray and grayish green mottles, and the lower part is yellowish brown sandy clay loam and has strong brown and light brownish gray mottles. The underlying material, to a depth of 60 inches or more, is strong brown sandy loam and has brownish yellow mottles. The middle part of the subsoil is very firm, sticky, and very plastic.

Included with this soil in mapping are areas of soils in which bedrock is at a depth of less than 40 inches. These areas make up about 15 percent of the map unit. Also included are soils that have less clay in the subsoil and are less sticky and plastic than this Helena soil. These areas make up about 10 percent of the mapping unit. Also included are a few areas of Helena sandy clay loam that is eroded and a few areas of Vance and Wilkes soils.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is slow, and available water capacity is medium. This soil has good tilth. Root penetration is somewhat limited because of the firm, sticky, and plastic subsoil. The water table commonly is high in winter.

Most areas of this soil are wooded; a few areas are in pasture. This soil has medium potential for farming. It has medium potential for loblolly pine and yellow-poplar. Wetness is the main limitation to use of equipment in managing and harvesting trees. This limitation can be overcome by logging during the drier seasons.

This soil has low potential for most urban uses. The clayey, sticky, and plastic subsoil percs slowly. In addition, seasonal wetness and shrink-swell potential are limitations and are difficult to overcome. The hazard of erosion is moderate prior to establishing vegetative cover. Capability subclass IIe; woodland group 3w.

HyC—Helena sandy loam, 6 to 10 percent slopes. This moderately well drained, gently sloping soil is on ridgetops and hillsides on Piedmont uplands. Slopes are smooth and convex. Areas are 10 to 40 acres in size.

Typically, the surface layer is light brownish gray sandy loam about 6 inches thick. The subsoil extends to a depth of 40 inches. The upper part of the subsoil is brownish yellow sandy clay loam, and the lower part is yellowish brown clay and clay loam and has gray and red mottles. The underlying material, to a depth of 60 inches or more, is strong brown sandy loam and has brownish yellow and light gray mottles. The lower part of the subsoil is firm, sticky, and plastic.

Included with this soil in mapping are small areas of Vance and Wilkes soils and areas of soils in which bedrock is at a depth of 20 to 40 inches. These areas make up about 15 percent of the map unit. Also included are a few eroded areas of Helena sandy clay loam.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is slow, and available water capacity is medium. Tilth is good. Root penetration is somewhat limited because of the firm, sticky, and plastic subsoil. The water table is commonly high in winter.

Most areas of this soil are wooded, but a few areas are in pasture. This soil has medium potential for loblolly pine and yellow-poplar. Wetness is the main limitation for use of equipment in managing and harvesting trees, but this limitation can be overcome by logging during the drier seasons.

This soil has low potential for farming and most urban uses. The clayey, sticky, and plastic subsoil percs slowly. Seasonal wetness and shrink-swell potential are limitations and are difficult to overcome. The hazard of erosion is severe on slopes prior to establishing vegetative cover. Tillage operations across the slope and winter cover crops help to control erosion in vegetable gardens. Capability subclass IIIe; woodland group 3w.

HZ—Hydraquents. These very poorly drained, nearly level soils are in low areas at the base of foothills and in depressions on flood plains of the Ocmulgee River and some of its tributaries. Areas are irregular in shape and range from about 40 acres to 500 acres in size. Hydraquents are frequently flooded for very long periods throughout the year. Floodwater is ponded to a depth of 1 foot to 6 feet in most areas (fig. 7).

Commonly, Hydraquents are gray silty clay loam to a depth of 36 to 48 inches. This material is sticky and contains a large amount of matted roots. In most places, it is underlain with brown organic material.

Hydraquents are mainly wooded with water tupelo sweetbay, and a few swamp maple and green ash. Also many water-tolerant shrubs and aquatic plants are present.

These soils have very low potential for common uses in which flooding, wetness, and low strength are limitations These limitations can be overcome only by major flood control and drainage measures.

These soils have very high potential for wetland plants and for developing shallow water areas for wetland wildlife. Ducks, alligators, and crayfish are common wildlife in areas of these soils. Capability subclass VIIIw; woodland group 3w.

LaC—Lakeland sand, 2 to 8 percent slopes. This excessively drained, very gently sloping or gently sloping soil is on ridgetops and hillsides on Sand Hills uplands. Areas are 40 to 300 acres in size.

Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying material to a depth of 80 inches is sand; the upper and middle parts are yellowish brown, and the lower part is very pale brown (fig. 8).

Included with this soil in mapping are small areas of Ailey, Cowarts, Fuquay, and Vaucluse soils. Also included are small areas of soils that have a higher clay content between the depths of 60 to 80 inches than is common to Lakeland soils. Included soils make up less than 15 percent of this map unit.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is very rapid, and available water capacity is low. Tilth is good. The root zone is very deep and easily penetrated by plant roots.

This soil has low potential for row crops, small grain, hay, and pasture. Low fertility and low available water capacity are limitations. Returning crop residue to the soil helps to overcome these limitations.

This Lakeland soil has low potential for loblolly pine, slash pine, and longleaf pine. Equipment limitation and seedling mortality are management concerns on this soil.

This soil has medium potential for most urban uses. It is too sandy for most recreational uses, and seepage is a limitation for most sanitary facilities. Capability subclass IVs; woodland group 4s.

LaD—Lakeland sand, 8 to 17 percent slopes. This excessively drained, sloping or strongly sloping soil is on narrow ridgetops and hillsides on Sand Hills uplands. Areas are 20 to 60 acres in size.

Typically, the surface layer is dark grayish brown sand about 4 inches thick. The underlying material to a depth of 80 inches is sand; the upper part is yellowish brown, the middle part is light yellowish brown, and the lower part is very pale brown.

Included with this soil in mapping are areas of soils that have a higher clay content between the depths of 70 to 80 inches than is common to Lakeland soils. Also included are a few areas of Ailey, Cowarts, and Vaucluse soils. The included soils make up about 10 to 15 percent of this map unit, and generally are less than 1 acre.

This soil is low in natural fertility and in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is very rapid, and available water capacity is low. Tilth is good. The root zone is very deep and easily penetrated by plant roots.

This soil has low potential for loblolly pine, longleaf pine, and slash pine. Equipment limitations and seedling mortality are management concerns on this soil.

This soil has low potential for farming and most urban uses. It is too sandy for many recreational uses, and seepage is a limitation for most sanitary facilities. In addition, slope is a limitation for septic tank absorption fields and sewage lagoons and for dwellings, small commercial buildings, and playgrounds. Capability subclass VIIs; woodland group 4s.

NhA—Norfolk sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on Coastal Plain uplands. Areas are 10 to 80 acres in size.

Typically, the surface layer is grayish brown sandy loam about 8 inches thick. The subsurface layer is yellowish brown sandy loam and extends to a depth of 12 inches. The subsoil is sandy clay loam and extends to a depth of 60 inches or more. The upper part of the subsoil is yellowish brown, the middle part is brownish yellow and yellowish brown, and the lower part is yellowish brown and has light yellowish brown and red mottles.

Included with this soil in mapping are a few areas of Cowarts, Faceville, and Orangeburg soils. Also included are soils in slight depressions that have a darker surface layer and are wetter than this Norfolk soil. The included soils make up about 10 to 15 percent of this map unit, and areas are generally less than 1 acre.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for row crops, small grain, hay, and pasture, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Grasses and legumes in the cropping system help to conserve moisture and maintain the content of organic matter.

This Norfolk soil has high potential for loblolly pine and slash pine. Limitations for woodland uses and management are not significant. This soil has high potential for most urban uses. Capability class I; woodland group 2o.

NhB—Norfolk sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on Coastal Plain uplands. Slopes are smooth and convex. Areas are 10 to 100 acres in size.

Typically, the surface layer is grayish brown sandy loam about 8 inches thick. The subsurface layer is pale brown sandy loam and extends to a depth of about 12 inches. The subsoil is sandy clay loam and extends to a depth of about 70 inches. The upper part of the subsoil is yellowish brown, the middle part is yellowish brown and has strong brown and pale brown mottles, and the lower part is mottled yellowish brown, strong brown, pale brown, yellowish red, and light brownish gray.

Included with this soil in mapping are a few areas of Cowarts, Faceville, Fuquay, and Orangeburg soils. Also included are soils in slight depressions that have a darker surface layer and are wetter than this Norfolk soil. The included soils make up less than 15 percent of this map unit.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in the surface layer in areas that have been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This Norfolk soil has high potential for row crops, small grain, hay, and pasture, and good crop growth can be obtained. Good tilth is easily maintained by returning crop residue to the soil. The hazard of erosion is moderate if cultivated crops are grown. Conservation tillage, cover crops, and grasses and legumes in the cropping system help to reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. Limitations for woodland uses and management are not significant. This soil has high potential for most urban uses. Capability subclass IIe; woodland group 2o.

OcA—Orangeburg sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on Coastal Plain uplands. Areas are 15 to 60 acres in size.

Typically, the surface layer is dark grayish brown sandy loam about 8 inches thick. The subsoil is sandy clay loam and extends to a depth of 60 inches or more. The upper few inches is yellowish red, and below this the subsoil is red. Included with this soil in mapping are a few areas of Faceville and Norfolk soils.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This Orangeburg soil has high potential for row crops, small grain, hay, and pasture, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Conservation tillage, cover crops, and grasses and legumes in the cropping system help to conserve moisture and maintain organic matter content.

This soil has high potential for loblolly pine and slash pine. Limitations for woodland uses and management are not significant. This soil has high potential for most urban uses. Capability class I; woodland group 2o.

OcB—Orangeburg sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on Coastal Plain uplands. Slopes are smooth and convex. Areas are 10 to 100 acres in size.

Typically, the surface layer is yellowish brown sandy loam about 7 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more. The upper few inches of the subsoil is strong brown, and below this the subsoil is red.

Included with this soil in mapping are a few areas of Faceville and Norfolk soils. Also included are a few areas of soils that have a sandy clay loam surface layer and are eroded.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This Orangeburg soil has high potential for row crops, small grain, hay, and pasture, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. The hazard of erosion is moderate if cultivated crops are grown. Conservation tillage, cover crops, and grasses and legumes in the cropping system help to reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. No significant limitations are present for woodland uses and management. This soil has high potential for most urban uses. Capability subclass IIe; woodland group 2o.

OcC—Orangeburg sandy loam, 5 to 8 percent slopes. This well drained, gently sloping soil is on ridgetops and hillsides on Coastal Plain uplands. Slopes are commonly smooth and convex. Areas are 5 to 40 acres in size.

Typically, the surface layer is sandy loam about 11 inches thick. In the upper part it is brown, and in the lower part it is pale brown. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more. In the upper part it is yellowish red, and in the lower part it is red.

Included with this soil in mapping are a few areas of Faceville and Norfolk soils. Also included are a few small areas of soils that have a sandy clay loam surface layer and are eroded.

This soil is medium in natural fertility and low in content of organic matter. It is strongly acid or very strongly acid throughout, except in areas where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. The root zone is deep and easily penetrated by plant roots.

This Orangeburg soil has medium potential for row crops and small grain. Slopes and the small size of some areas are limitations. Potential for hay and pasture is high. Good tilth is easily maintained by returning crop residue to the soil. If cultivated crops are grown, the hazard of erosion is severe. Terracing, conservation tillage, cover crops, and including grasses and legumes in the cropping system help to reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. No significant limitations are present for woodland uses and management.

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

Month	Temperature*						Precipitation*				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days**	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	58.2	36.1	47.2	78	13	104	4.07	1.98	5.77	7	0.2
February---	61.1	37.8	49.5	80	16	120	4.77	2.75	6.41	8	.9
March------	68.4	44.1	56.3	86	25	239	4.85	2.62	6.67	8	0
April------	78.2	52.4	65.4	92	34	462	3.48	1.76	4.87	5	0
May--------	85.3	60.1	72.8	98	42	707	3.69	1.76	5.26	5	0
June-------	90.3	67.3	78.8	101	52	864	4.09	2.48	5.53	7	0
July-------	92.1	70.5	81.3	101	62	970	4.54	2.56	6.14	9	0
August-----	91.9	69.9	80.9	100	59	958	3.77	2.36	5.04	7	0
September--	86.9	64.7	75.8	98	48	774	2.98	1.24	4.38	5	0
October----	78.3	52.6	65.5	93	32	481	2.02	0.39	3.30	4	0
November---	67.9	42.0	55.0	85	23	171	2.23	1.07	3.18	4	0
December---	60.3	37.4	48.8	79	17	107	4.36	2.31	6.04	7	0
Year-----	76.6	52.9	64.8	103	11	5,957	44.85	38.05	51.39	76	1.1

* Recorded in the period 1951-74 at Macon, Georgia.
** A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

SOIL LEGEND

The first letter, always a capital, is the initial letter of the soil name. The second letter is a capital if the mapping unit is broadly 1/ defined; otherwise, it is a small letter. Capitlaized third or fourth letter connotes slope class. Symbols without a slope letter are for level soils. A final number, 2, in the symbol shows the soil is eroded.

SYMBOL	NAME
AgB	Ailey loamy sand, 2 to 6 percent slopes
CeB	Cecil sandy loam, 2 to 6 percent slopes
CeC	Cecil sandy loam, 6 to 10 percent slopes
CeD	Cecil sandy loam, 10 to 17 percent slopes
CeuC	Cecil-Urban land complex, 2 to 10 percent slopes
CK	Chewacla association
Co	Congaree silt loam
CwB	Cowarts sandy loam, 2 to 5 percent slopes
CwC	Cowarts sandy loam, 5 to 8 percent slopes
DgB	Davidson loam, 2 to 6 percent slopes
DhC2	Davidson clay loam, 6 to 10 percent slopes, eroded
DhD2	Davidson clay loam, 10 to 17 percent slopes, eroded
FdA	Faceville sandy loam, 0 to 2 percent slopes
FdB	Faceville sandy loam, 2 to 5 percent slopes
FdC	Faceville sandy loam, 5 to 8 percent slopes
FsB	Fuquay loamy sand, 1 to 5 percent slopes
FsC	Fuquay loamy sand, 5 to 8 percent slopes
Gr	Grady sandy loam
HyB	Helena sandy loam, 2 to 6 percent slopes
HyC	Helena sandy loam, 6 to 10 percent slopes
HZ	Hydraquents
LaC	Lakeland sand, 2 to 8 percent slopes
LaD	Lakeland sand, 8 to 17 percent slopes
NhA	Norfolk sandy loam, 0 to 2 percent slopes
NhB	Norfolk sandy loam, 2 to 5 percent slopes
OcA	Orangeburg sandy loam, 0 to 2 percent slopes
OcB	Orangeburg sandy loam, 2 to 5 percent slopes
OcC	Orangeburg sandy loam, 5 to 8 percent slopes
OcD	Orangeburg sandy loam, 8 to 12 percent slopes
OcuC	Orangeburg-Urban land complex, 0 to 8 percent slopes
Os	Osier loamy sand
Pt	Pits
UD	Urban land
VaB	Vance sandy loam, 2 to 6 percent slopes
VaC	Vance sandy loam, 6 to 10 percent slopes
VbD2	Vance sandy clay loam, 10 to 17 percent slopes, eroded
VeC	Vaucluse loamy sand, 4 to 8 percent slopes
VeD	Vaucluse loamy sand, 8 to 17 percent slopes
VuC	Vaucluse-Urban land complex, 2 to 8 percent slopes
VuD	Vaucluse-Urban land complex, 8 to 15 percent slopes
WvC	Wilkes gravelly sandy loam, 5 to 10 percent slopes
WvD	Wilkes gravelly sandy loam, 10 to 17 percent slopes

Mines and Quarries that are not delineated (less than about 3 acres) will exhibit proper miscellaneous cultural features.

1/ The composition of broadly defined units is more variable than that of the others in the survey area, but the survey has been controlled well enough to be interpreted for the expected use of soils.

CULTURAL

BOUNDARIES

National, state or provinc

County or parish

Minor civil division

Reservation (national for state forest or park, and large airport)

Land grant

Limit of soil survey (labe

Field sheet matchline & n

AD HOC BOUNDARY (label

Small airport, airfield, par cemetery, or flood poo

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

Divided (median shown if scale permits)

Other roads

Trail

ROAD EMBLEMS & DESIGN

Interstate

Federal

State

County, farm or ranch

RAILROAD

POWER TRANSMISSION LIN (normally not shown)

PIPE LINE (normally not shown)

Underground Cable

LEVEES

Without road

With road

With railroad

DAMS

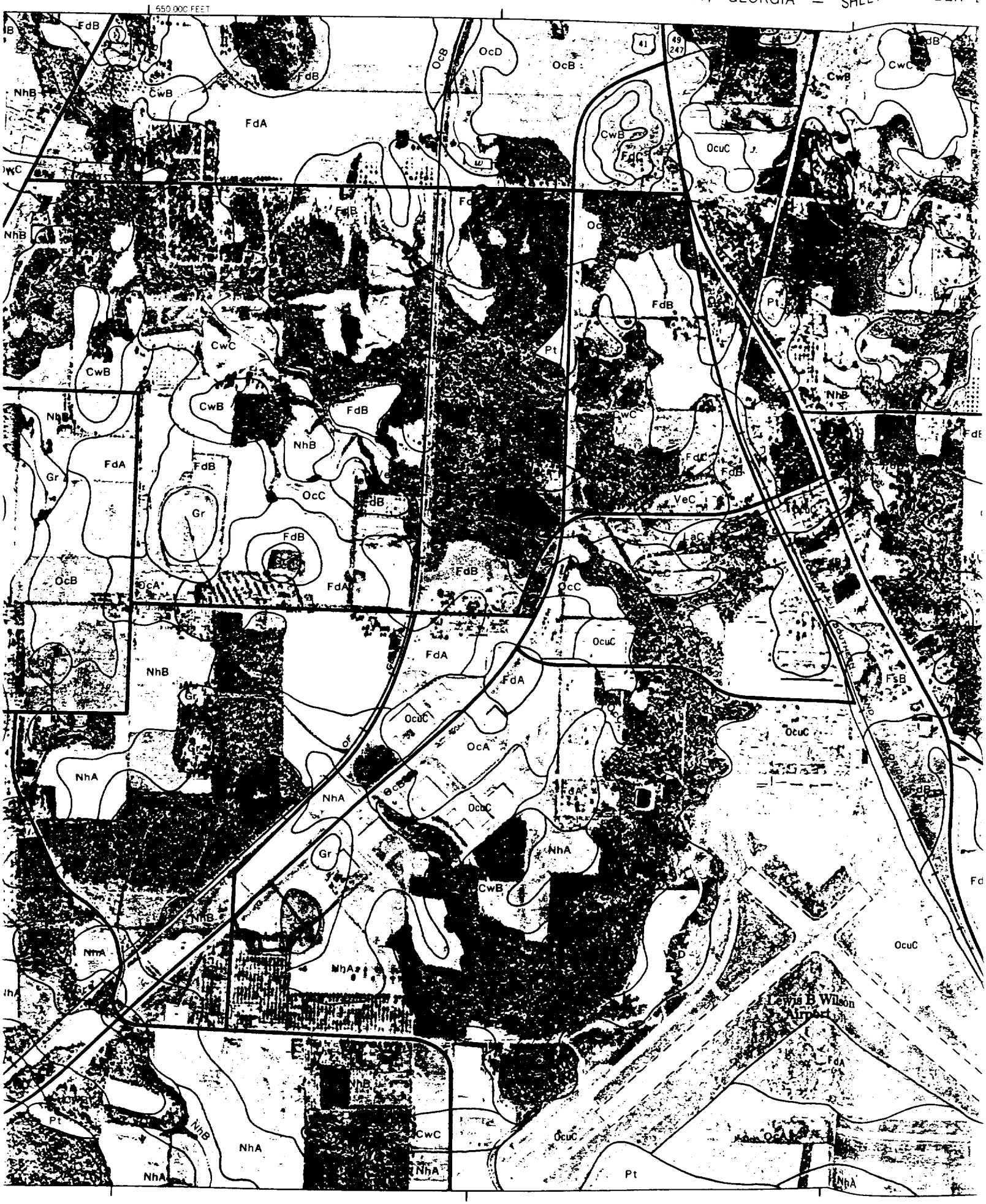
Large (to scale)

Medium or small

PITS

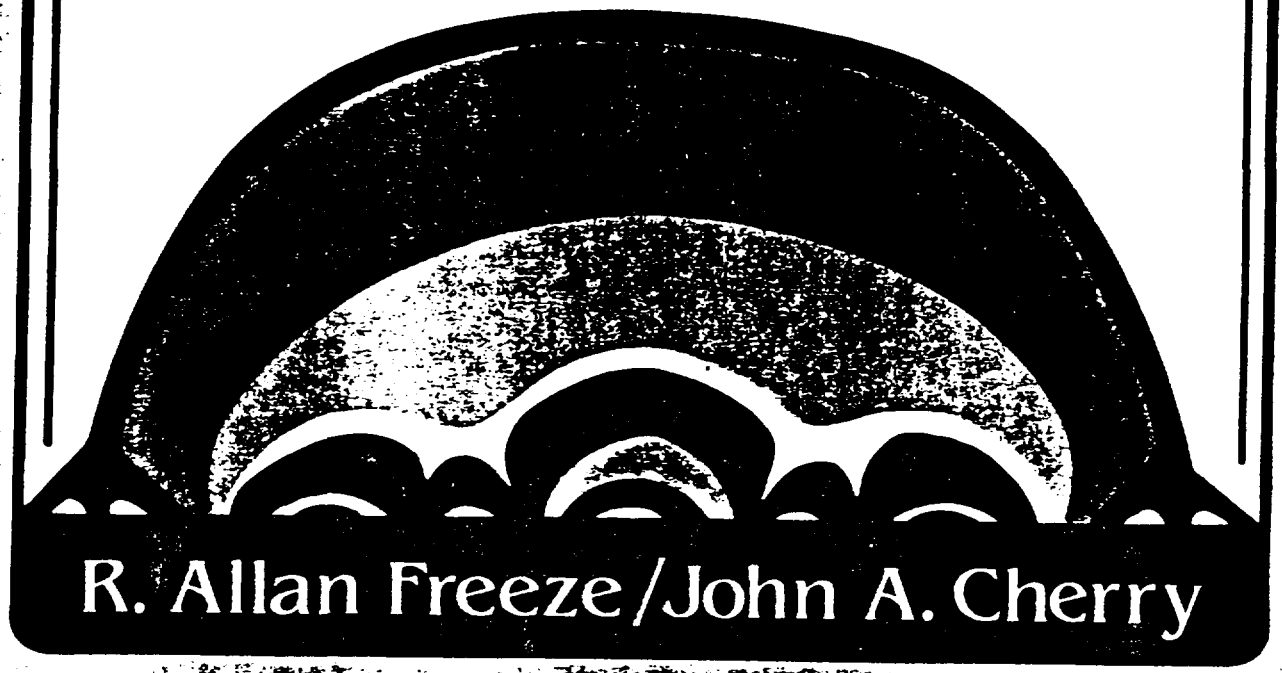
Gravel pit

Mine or quarry


650 000 FEET
FdB
NhB
CwB
FdA
OcB
OcD
41
49
247
CwC
OcuC
FdC
Pt
Gr
OcC
VeC
LaC
OcA
NhA
FsB
Lewis B Wilson Airport

REFERENCE 18

GROUNDWATER



R. Allan Freeze/John A. Cherry

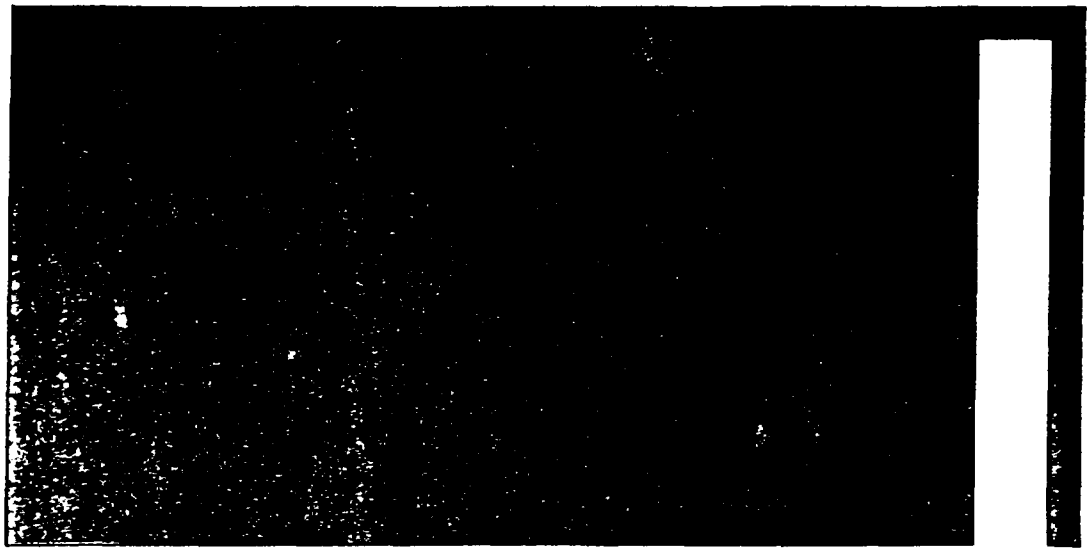


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Table 2.2 Range of Values of Hydraulic Conductivity and Permeability

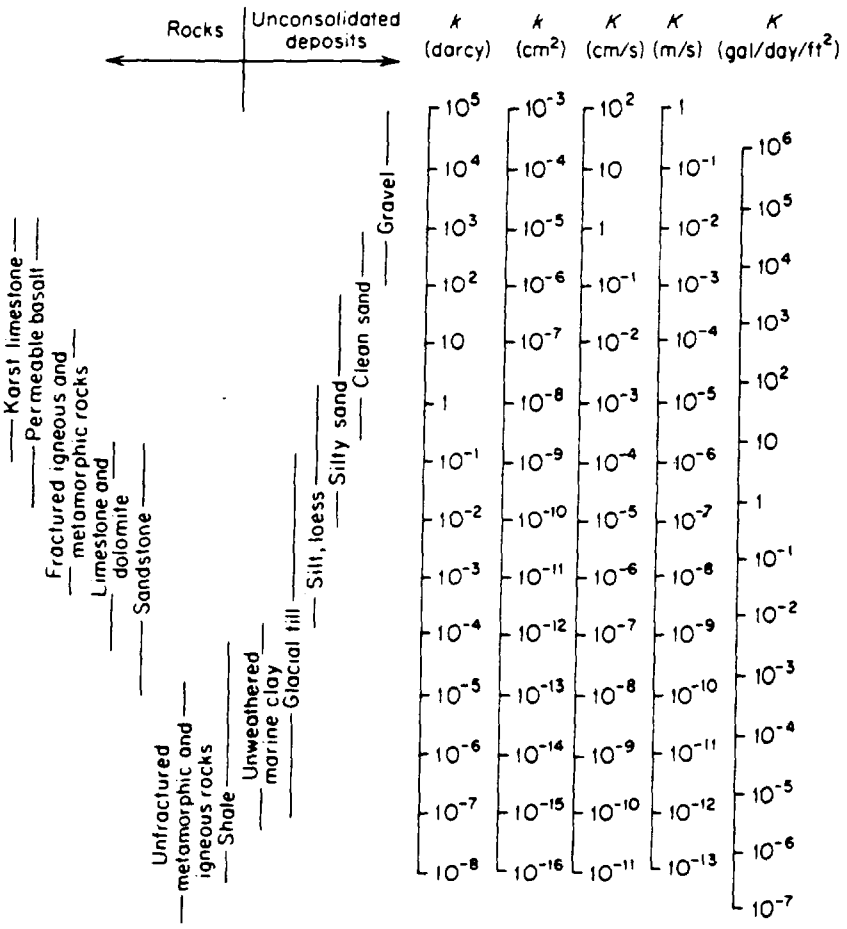


Table 2.3 Conversion Factors for Permeability and Hydraulic Conductivity Units

	Permeability, k*			Hydraulic conductivity, K		
	cm^2	ft^2	darcy	m/s	ft/s	gal/day/ft^2
cm^2	1	1.08×10^{-3}	1.01×10^{8}	9.80×10^{2}	3.22×10^{3}	1.85×10^{9}
ft^2	9.29×10^{2}	1	9.42×10^{10}	9.11×10^{5}	2.99×10^{6}	1.71×10^{12}
darcy	9.87×10^{-9}	1.06×10^{-11}	1	9.66×10^{-6}	3.17×10^{-5}	1.82×10^{1}
m/s	1.02×10^{-3}	1.10×10^{-6}	1.04×10^{5}	1	3.28	2.12×10^{6}
ft/s	3.11×10^{-4}	3.35×10^{-7}	3.15×10^{4}	3.05×10^{-1}	1	5.74×10^{5}
gal/day/ft^2	5.42×10^{-10}	5.83×10^{-13}	5.49×10^{-2}	4.72×10^{-7}	1.74×10^{-6}	1

*To obtain k in ft^2, multiply k in cm^2 by 1.08×10^{-3}.

C = CLASS
L

0- Inactive
1- All systems with surface water sources.
2- Community systems w/ ground water sources.
3- Non-community
4- All Federal Non-community
5- All DNR owned or operated Non-community
6- Industrial systems Non-community
9- Proposed system

OWNC = Owner Characteristic Codes

C = City
I = Investor
N = County
D = Private Subdivision
F = Federal
S = State
A = Authority
O = Other
W = Association

C = COMMUNITY/NON-COMMUNITY
N

C- Community
P- Non-Transient Non-Community
N- Transient Non-community
I- Inactive

R = REGION
G

1 = North
2 = Middle
3 = Southwest
4 = Southeast

TR = SERVICE AREA TYPE
NT

Major category	Subcategory	
R- Residential	1- Residential	4- Schools
	2- Mobile Home Park	5- Instutions (prisons)
	3- Subdivision	6- Wholesaler
		9- Other Residential
T- Transient	1- Recreation (parks,beaches,marinas,campgrounds)	
	2- Service stations	5- Highway Rest Area
	3- Summer Camps	6- Motel/Hotels
	4- Restaurant	7- Wholesalers
		9- Other Transient (visitor center,church)
S- Semi-Residential	1- School	
	2- Institutions (prisons, children homes)	
	3- Medical (hospital, nursing homes)	
	4- Industrial/Agricultural (factory, labor camps)	
	5- Day Care Centers	
	6- Wholesaler	
	9- Other	

SOURCE TYPE

S- Surface G- Ground
P- Purchased Surface W- Purchased Ground
T -Spring source

The following codes are old and may be seen on old printouts from Prime. Do not use these old codes on any new reports.

Old Deletion Codes

c- computer/data entry error
e- collection error
m- mail problems
n- new owner/operator
p- proof of sampling
s- late sample
u- unusual circumstance
w- on county water
z- class zero

Old Violation Codes

1- FTM
3- insuf. samples
4- MCL (MF)
6- MCL (MT)
9- resample viol.

Old Follow-Up Action Codes

E- PN Ltr.
J- NOV Ltr.
L- Adm. Order
*- Boiled water notice
F- Cert. of PN
K- Consent Order
M- Monetory Penalty

Some Cross References for PCOD's

PCOD	FRDS	
31501	3000	Total Coliform (MF)
31505	3000	Total Coliform (MPN)
39180	2984	Trichloroethylene
01007	1010	Barium

REFERENCE 19

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Crawford COUNTY

0790000 Roberta CLASS: 2 TOTAL SOURCES: 19

001 DRILLED WELL #1 NW END OF FIELD	TYPE: G	STATUS: P	LAT:	324253	LON:	0840116	POP:	1102
002 DRILLED WELL #2 MIDDLE	TYPE: G	STATUS: P	LAT:	324228	LON:	0840103	POP:	1102
003 DRILLED WELL #3 SE END OF FIELD	TYPE: G	STATUS: P	LAT:	324229	LON:	0840103	POP:	1102

0790001 GSA-Camp Martha Johnston CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	324622	LON:	0835252	POP:	150

0790007 Camp Echeeconnee CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	323952	LON:	0834035	POP:	100
002 DRILLED WELL #2	TYPE: G	STATUS: P	LAT:	324250	LON:	0834926	POP:	100

0790008 Stackler's Mobile Home Park CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	324519	LON:	0835058	POP:	100

0790009 Benevolence Baptist Church CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	323631	LON:	0835904	POP:	70

0790010 Big Six Farms-Homer CLASS: 6 TOTAL SOURCES: 1

001 DEEP WELLS	TYPE: G	STATUS: P	LAT:	000000	LON:	0000000	POP:	30

0790011 Land of Promise CLASS: 3 TOTAL SOURCES: 1

001 DEEP WELLS	TYPE: G	STATUS: P	LAT:	000000	LON:	0000000	POP:	900

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Peach COUNTY

2250000 Byron CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323923 LON: 0834528 POP: 1960
NEXT TO UTILITIES BLDG

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324041 LON: 0834627 POP: 1960
WILLIAMS ST.

2250001 Ft. Valley CLASS: 2 TOTAL SOURCES: 5

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323343 LON: 0835326 POP: 10505
MCLEAN PLANT

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323343 LON: 0835326 POP: 10505
MCLEAN PLANT

003 DRILLED WELL #3 TYPE: G STATUS: P LAT: 323245 LON: 0835314 POP: 10505
MCLEAN HWY 49S

004 DRILLED WELL #4 TYPE: G STATUS: P LAT: 323159 LON: 0835343 POP: 10505
JONES ST

005 DRILLED WELL #5 TYPE: G STATUS: P LAT: 323159 LON: 0835343 POP: 10505
JONES ST

2250002 USDA-Research Service CLASS: 4 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323915 LON: 0834418 POP: 55
NEXT TO OFFICES

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323929 LON: 0834940 POP: 55
FIELD

2250003 Pecan Haven Mobile Home Park CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323937 LON: 0834238 POP: 150
HWY 41

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323937 LON: 0834238 POP: 150
HWY 41

#1

2250005 Rolling Hills Mobile Home Park CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323253 LON: 0835604 POP: 70
CR 167

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323253 LON: 0835604 POP: 70
CR 167

2250006 Waffle House, Inc.No.419 CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323642 LON: 0834428 POP: 41
247C

2250008 Mobile Manor Estates CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323159 LON: 0834259 POP: 75
HWY 41S

2250009 Southern Kitchen CLASS: 3 TOTAL SOURCES: 1

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Peach COUNTY

001 DRILLED WELL #1 247C — TYPE: G STATUS: P LAT: 323621 LON: 0834433 POP: 50

2250011 BSA-Camp Benjamin Hawkins CLASS: 3 TOTAL SOURCES: 1

001 DOGWOOD WELL — TYPE: G STATUS: P LAT: 324037 LON: 0834604 POP: 500

002 LODGE HILL WELL — TYPE: G STATUS: P LAT: 324052 LON: 0834621 POP: 500

003 LAKESIDE WELL — TYPE: G STATUS: P LAT: 324120 LON: 0834619 POP: 500

004 MAIN WELL — TYPE: G STATUS: P LAT: 324311 LON: 0834649 POP: 500

2250012 Butchs Trailer Park CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 HWY 49N — TYPE: G STATUS: P LAT: 325513 LON: 0834837 POP: 40

002 DRILLED WELL #2 HWY 49N — TYPE: G STATUS: P LAT: 325513 LON: 0834837 POP: 40

2250017 Days Inn of America CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 247C — TYPE: G STATUS: P LAT: 323642 LON: 0834428 POP: 500

2250019 Ponderosa Parks CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 HWY 96 — TYPE: G STATUS: P LAT: 323236 LON: 0834411 POP: 30

2250021 Pyrotecnic Specialties CLASS: 6 TOTAL SOURCES: 2

001 DRILLED WELL #1 CR 179 — TYPE: G STATUS: P LAT: 324007 LON: 0834708 POP: 50

002 DRILLED WELL #2 CR 179 — TYPE: G STATUS: P LAT: 324022 LON: 0834722 POP: 50

2250024 Red Carpet Inn CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 247C — TYPE: G STATUS: P LAT: 323617 LON: 0834433 POP: 125

2250029 BSA-Camp Benjamin Hawkins #1 CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 DOGWOOD — TYPE: G STATUS: P LAT: 324037 LON: 0834604 POP: 50

2250030 BSA-Camp Benjamin Hawkins #2 CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 LODGE HILL — TYPE: G STATUS: P LAT: 324052 LON: 0834621 POP: 50

2250031 Camp Benjamin Hawkins #3 CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 LAKESIDE — TYPE: G STATUS: P LAT: 324120 LON: 0834619 POP: 50

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Peach COUNTY

2250032 Big Six Farm-Zenith CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323640 LON: 0835835 POP: 50

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Houston COUNTY

1530000 Centerville — CLASS: 2 TOTAL SOURCES: 3

001	DRILLED WELL #1 COLLINS AVE.	TYPE: G	STATUS: P	LAT:	323828	LON:	0834118	POP:	6129	— #2
002	DRILLED WELL #2 LOCAL - NEW WATER PLANT	TYPE: G	STATUS: P	LAT:	322811	LON:	0834503	POP:	6129	
003	DRILLED WELL #3 ARCHDALE RD	TYPE: G	STATUS: P	LAT:	323735	LON:	0833939	POP:	6129	No — [illegible]
004	DRILLED WELL #4 OLD WATER PLANT	TYPE: G	STATUS: P	LAT:	322654	LON:	0834408	POP:	6129	
005	DRILLED WELL #5 REMOTE-NEW WATER PLANT	TYPE: G	STATUS: P	LAT:	322751	LON:	0834447	POP:	6129	
006	DRILLED WELL #6 OLD WATER PLANT	TYPE: G	STATUS: P	LAT:	322705	LON:	0834407	POP:	6129	

1530002 Houston County-Elberta — CLASS: 2 TOTAL SOURCES: 3

001	DRILLED WELL #1 DUNBAR	TYPE: G	STATUS: P	LAT:	323856	LON:	0833919	POP:	2657	— #3
002	DRILLED WELL #2 ELBERTA	TYPE: G	STATUS: P	LAT:	323616	LON:	0833719	POP:	2657	

1530003 Houston County-Elko — CLASS: 2 TOTAL SOURCES: 1

001	DRILLED WELL #1 ELKO W RAILROAD ST	TYPE: G	STATUS: P	LAT:	321929	LON:	0834217	POP:	138	

1530004 Houston County-Hayneville — CLASS: 2 TOTAL SOURCES: 1

001	DRILLED WELL #1 HAYNEVILLE HWY 341	TYPE: G	STATUS: P	LAT:	322250	LON:	0833707	POP:	385	

1530005 Houston County-Henderson — CLASS: 2 TOTAL SOURCES: 1

001	DRILLED WELL #1 HENDERSON HWY 26E	TYPE: G	STATUS: P	LAT:	322015	LON:	0834714	POP:	360	

1530006 Perry — CLASS: 2 TOTAL SOURCES: 4

001	NEW WELL #1	TYPE: G	STATUS: P	LAT:	322811	LON:	0834503	POP:	8500	
002	NEW WELL #2	TYPE: G	STATUS: P	LAT:	322751	LON:	0834447	POP:	8500	
003	OLD WELL #1	TYPE: G	STATUS: P	LAT:	322654	LON:	0834408	POP:	8500	
004	OLD WELL #2	TYPE: G	STATUS: P	LAT:	322705	LON:	0834407	POP:	8500	

1530007 Warner Robins — CLASS: 2 TOTAL SOURCES: 13

001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	323612	LON:	0833649	POP:	42900	

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Houston COUNTY

WARNER ST

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323602 LON: 0833712 POP: 42900
BAY ST

003 DRILLED WELL #3 TYPE: G STATUS: P LAT: 323601 LON: 0833651 POP: 42900
CRESTWOOD ST

004 DRILLED WELL #4 TYPE: G STATUS: P LAT: 323629 LON: 0833639 POP: 42900
S DAVIS ST

005 DRILLED WELL #5 TYPE: G STATUS: P LAT: 323531 LON: 0833835 POP: 42900
TYREE

006 DRILLED WELL #6 TYPE: G STATUS: P LAT: 323744 LON: 0833733 POP: 42900 AO - Lost - within radius
WISCONSIN

007 DRILLED WELL #7 TYPE: G STATUS: P LAT: 323805 LON: 0833737 POP: 42900 NLWR
HAWAII ST

008 DRILLED WELL #8 TYPE: G STATUS: P LAT: 323530 LON: 0833852 POP: 42900
BELMONT

009 DRILLED WELL #9 TYPE: G STATUS: P LAT: 323536 LON: 0833826 POP: 42900
DONNA ST

010 DRILLED WELL 10 TYPE: G STATUS: P LAT: 323800 LON: 0833641 POP: 42900 NLWR
TABOR DR

011 DRILLED WELL 11 TYPE: G STATUS: P LAT: 323541 LON: 0833444 POP: 42900
TABOR

012 DRILLED WELL 12 TYPE: G STATUS: P LAT: 323818 LON: 0833924 POP: 42900 #4
NOT ON LINE

013 DRILLED WELL 13 TYPE: G STATUS: P LAT: 323758 LON: 0833924 POP: 42900 NLWR
NOT ON LINE

014 DRILLED WELL 14 TYPE: G STATUS: P LAT: 323634 LON: 0834001 POP: 42900
CARL VINSON PKWY

015 DRILLED WELL 15 TYPE: G STATUS: P LAT: 323619 LON: 0834013 POP: 42900
CARTER WOODS DR

1530011 Gleaton Mobile Home Park CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323608 LON: 0834239 POP: 115
HWY 41

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 323608 LON: 0834239 POP: 115
HWY 41

1530017 Medusa Cement Corp. CLASS: 6 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 322429 LON: 0833801 POP: 152

1530010 G Heileman Brewing Company CLASS: 6 TOTAL SOURCES: 4

001	DRILLED WELL #1 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625
002	DRILLED WELL #2 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625
003	DRILLED WELL #3 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625
004	DRILLED WELL #4 247 SAUR	TYPE: G	STATUS: P	LAT:	322611	LON:	0833740	POP:	625

1530021 Houston County-Feagin Mill CLASS: 2 TOTAL SOURCES: 5

001	DRILLED WELL #1 FEAGIN MILL	TYPE: G	STATUS: P	LAT:	323421	LON:	0833932	POP:	12880
002	DRILLED WELL #2 SANDERFUR	TYPE: G	STATUS: P	LAT:	323152	LON:	0834100	POP:	12880
003	DRILLED WELL #3 QUAIL RUN	TYPE: G	STATUS: P	LAT:	323547	LON:	0834227	POP:	12880

1530037 Christ Church Home For Aged CLASS: 2 TOTAL SOURCES: 3

001	DRILLED WELL #1 HWY 41	TYPE: G	STATUS: P	LAT:	323125	LON:	0834304	POP:	31
002	DRILLED WELL #2 HWY 41	TYPE: G	STATUS: P	LAT:	323125	LON:	0834304	POP:	31

1530042 USAF-Robins AB Main CLASS: 2 TOTAL SOURCES: 11

001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	323717	LON:	0833530	POP:	5690
002	DRILLED WELL #2	TYPE: G	STATUS: P	LAT:	323721	LON:	0833522	POP:	5690
004	DRILLED WELL #4	TYPE: G	STATUS: P	LAT:	323552	LON:	0833522	POP:	5690
005	DRILLED WELL #5	TYPE: G	STATUS: P	LAT:	323644	LON:	0833518	POP:	5690
007	DRILLED WELL #7	TYPE: G	STATUS: P	LAT:	323602	LON:	0833446	POP:	5690
008	DRILLED WELL #8	TYPE: G	STATUS: P	LAT:	323854	LON:	0833529	POP:	5690 NLWR

1530045 USAF-Robins AB Rapcon CLASS: 4 TOTAL SOURCES: 1

001	DRILLED WELL #1	TYPE: G	STATUS: P	LAT:	323851	LON:	0833631	POP:	35

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Houston COUNTY

1530046 Valley View Trailer Court CLASS: 9 TOTAL SOURCES: 0

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 000000 LON: 0000000 POP: 0

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Bibb COUNTY

0210010 Fulton Hills Subdivision CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324500 LON: 0834613 POP: 300
FULTON DR

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324443 LON: 0834606 POP: 300
WAYNE DR

0210012 Pine Acre [illegible] Home Court CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324424 LON: 0833920 POP: 153 #5
CENTER OF PARK HWY 247

0210013 Sheltering Pines Mobile Home CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324509 LON: 0833956 POP: 600 #6
NEW WELL MAINT. BARN

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324502 LON: 0833954 POP: 600 #7
OLD WELL

0210014 Bonnie Brae Mobile Home Park CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324439 LON: 0834002 POP: 240 #8
5424 HOUSTON RD.

0210016 Macon Kraft Inc. CLASS: 6 TOTAL SOURCES: 3

001 DEEP WELL # 1 TYPE: G STATUS: P LAT: 324543 LON: 0833749 POP: 600
CENTER OF PLANT

002 DEEP WELL # 2 TYPE: G STATUS: P LAT: 324604 LON: 0833733 POP: 600
REAR OF PLANT

003 DRILLED WELL # 3 TYPE: G STATUS: P LAT: 324558 LON: 0833747 POP: 600
NEW WELL NEAR GUARD GATE

0210021 B & G-Von Reg Subdivision CLASS: 2 TOTAL SOURCES: 3

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324327 LON: 0834217 POP: 171
VON REG DR

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324327 LON: 0834217 POP: 171 #9
VON REG DR

003 DRILLED WELL #3 TYPE: G STATUS: P LAT: 324327 LON: 0834217 POP: 171
VON REG DR

0210022 B & G-Thorn Hill Subdivision CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324144 LON: 0834154 POP: 60
NOB HILL DR.

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324144 LON: 0834154 POP: 60 #10
NOB HILL DR.

0210023 Easy Living Mobile Home Park CLASS: 9 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 000000 LON: 0000000 POP: 21

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Bibb COUNTY

0210024 B & G-Goodall Mill Estates CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324208 LON: 0834228 POP: 102
GROVER DR.

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324208 LON: 0834228 POP: 102
GROVER DR.

#11

0210025 Hawaiian Village MHP CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324730 LON: 0834330 POP: 180 — NLWR
ACESS RD.

0210033 Calle Vinas Subdivision CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324251 LON: 0834155 POP: 102 — #12
6980 ANDALVSIA DR.

0210034 Mobile World Forest Place CLASS: 2 TOTAL SOURCES: 4

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324727 LON: 0834339 POP: 522
TOP OF HILL STORAGE TANKS

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324727 LON: 0834339 POP: 522
TOP OF HILL STORAGE TANKS

NLWR

003 DRILLED WELL #3 TYPE: G STATUS: P LAT: 324726 LON: 0834331 POP: 522 — NLWR
MIDDLE OF PARK NEW WELL

0210035 Avondale Mobile Home Park CLASS: 2 TOTAL SOURCES: 2

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324104 LON: 0833742 POP: 250 — # 13
BEHIND LOT 58

002 DRILLED WELL #2 TYPE: G STATUS: P LAT: 324106 LON: 0833752 POP: 250 # 14
CENTER OF PARK

0210036 Tom's Foods, Ltd. CLASS: 6 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324949 LON: 0833406 POP: 175
RIGGENS MILL RD.

0210051 Kuntry Kiddie Day Care Center CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 325102 LON: 0834716 POP: 31
6981 THOMASTON RD.

0210057 Oak Haven Golf Club CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 325126 LON: 0834802 POP: 375
ON THOMASTON RD.

0210065 Crown Candy Company CLASS: 3 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324709 LON: 0833824 POP: 60
OFF BROADWAY

0210074 Lake Wildwood Subdivision CLASS: 1 TOTAL SOURCES: 1

001 MACON BIBB COUNTY WATER SYSTEM TYPE: P STATUS: P LAT: 000000 LON: 0000000 POP: 3900

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Bibb COUNTY

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324133 LON: 0834142 POP: 120

0210076 B & G-Mc[illegible]-Hill Subdivision CLASS: 2 TOTAL SOURCES: 1

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 000000 LON: 0000000 POP: 72

0210078 Rutland S[illegible] CLASS: 2 TOTAL SOURCES: 1

001 DEEP WELL # 1 TYPE: G STATUS: P LAT: 000000 LON: 0000000 POP: 25

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Twiggs COUNTY

2890000 Danville CLASS: 2 TOTAL SOURCES: 2
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323606 LON: 0831443 POP: 550
OFF US 80 EAST

2890001 Jeffersonville CLASS: 2 TOTAL SOURCES: 3
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 325142 LON: 0833024 POP: 1474
OFF US 80 EAST

2890002 Dry Branch Elem. School CLASS: 3 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324348 LON: 0832539 POP: 591
OF US 80 EAST

2890005 Twiggs County Bd. Of Education CLASS: 3 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323412 LON: 0832039 POP: 140
OFF I-16 EAST

2890006 Georgia Kaolin Company CLASS: 6 TOTAL SOURCES: 5
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324736 LON: 0832816 POP: 36
OFF US 80 EAST

2890007 J. M. Huber Corp. Plant CLASS: 6 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323851 LON: 0832351 POP: 50
OFF OCMULGEE EAST BLVD.

2890008 East Ocmulgee Acres CLASS: 2 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324000 LON: 0832802 POP: 66
OFF MARION RD

2890009 Twiggs County CLASS: 2 TOTAL SOURCES: 2
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324742 LON: 0832708 POP: 168
OF US 80 EAST

2890011 Engelhard Corp.-Griffin CLASS: 6 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323148 LON: 0831827 POP: 50
OF GA SR 57

2890012 Kalonia Heights Subdivision CLASS: 2 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324442 LON: 0832147 POP: 64
OF US 80 EAST

2890015 Nord Kaolin Corp. CLASS: 6 TOTAL SOURCES: 3
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324225 LON: 0832319 POP: 114
OFF US 80 EAST

2890020 Twiggs Academy CLASS: 3 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323136 LON: 0831741 POP: 245
OFF I-16 EAST

2890021 Georgia Kaolin Co.-Mine #11 CLASS: 6 TOTAL SOURCES: 1
001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 324425 LON: 0832618 POP: 100
OFF US 80 EAST

2890022 J. M. Huber Corp. Mine Shop CLASS: 6 TOTAL SOURCES: 1

REGION 2 PUBLIC WATER SYSTEM SOURCES IN Twiggs COUNTY

001 DRILLED WELL #1 TYPE: G STATUS: P LAT: 323930 LON: 0832212 POP: 26
OFF OCMULGEE EAST BLVD.

REFERENCE 20

Table 6. Household, Family, and Group Quarters Characteristics: 1990

[For definitions of terms and meanings of symbols, see text]

State / County / Place and (In Selected States) County Subdivision	Persons in households	All households	Family households: Total	Family households: Married-couple family	Family households: Female householder, no husband present	Nonfamily households: Total	Nonfamily households: Householder living alone: Total	Nonfamily households: Householder living alone: 65 years and over: Total	Nonfamily households: Householder living alone: 65 years and over: Female	Persons per— Household	Persons per— Family	Persons in group quarters: Total	Persons in group quarters: Institutionalized persons	Persons in group quarters: Other persons in group quarters
The State	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
COUNTY														
Appling County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Atkinson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bacon County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Baker County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Baldwin County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Banks County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Barrow County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bartow County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ben Hill County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Berrien County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bibb County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bleckley County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Brantley County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Brooks County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bryan County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bulloch County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Burke County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Butts County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Calhoun County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Camden County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Candler County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Carroll County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Catoosa County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Charlton County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Chatham County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Chattahoochee County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Chattooga County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cherokee County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Clarke County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Clay County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Clayton County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Clinch County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cobb County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Coffee County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Colquitt County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Columbia County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cook County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Coweta County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Crawford County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Crisp County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dade County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dawson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Decatur County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DeKalb County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dodge County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dooly County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dougherty County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Douglas County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Early County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Echols County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Effingham County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Elbert County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Emanuel County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Evans County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fannin County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fayette County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Floyd County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Forsyth County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Franklin County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fulton County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Gilmer County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Glascock County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Glynn County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Gordon County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grady County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Greene County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Gwinnett County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Habersham County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hall County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hancock County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Haralson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Harris County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hart County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Heard County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Henry County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Houston County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Irwin County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jackson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jasper County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jeff Davis County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jefferson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jenkins County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Johnson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jones County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lamar County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lanier County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Laurens County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lee County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Liberty County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lincoln County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: The population counts set forth herein are subject to possible correction for undercount or overcount. The United States Department of Commerce is considering whether to correct these counts and will publish corrected counts, if any, not later than July 15, 1991.

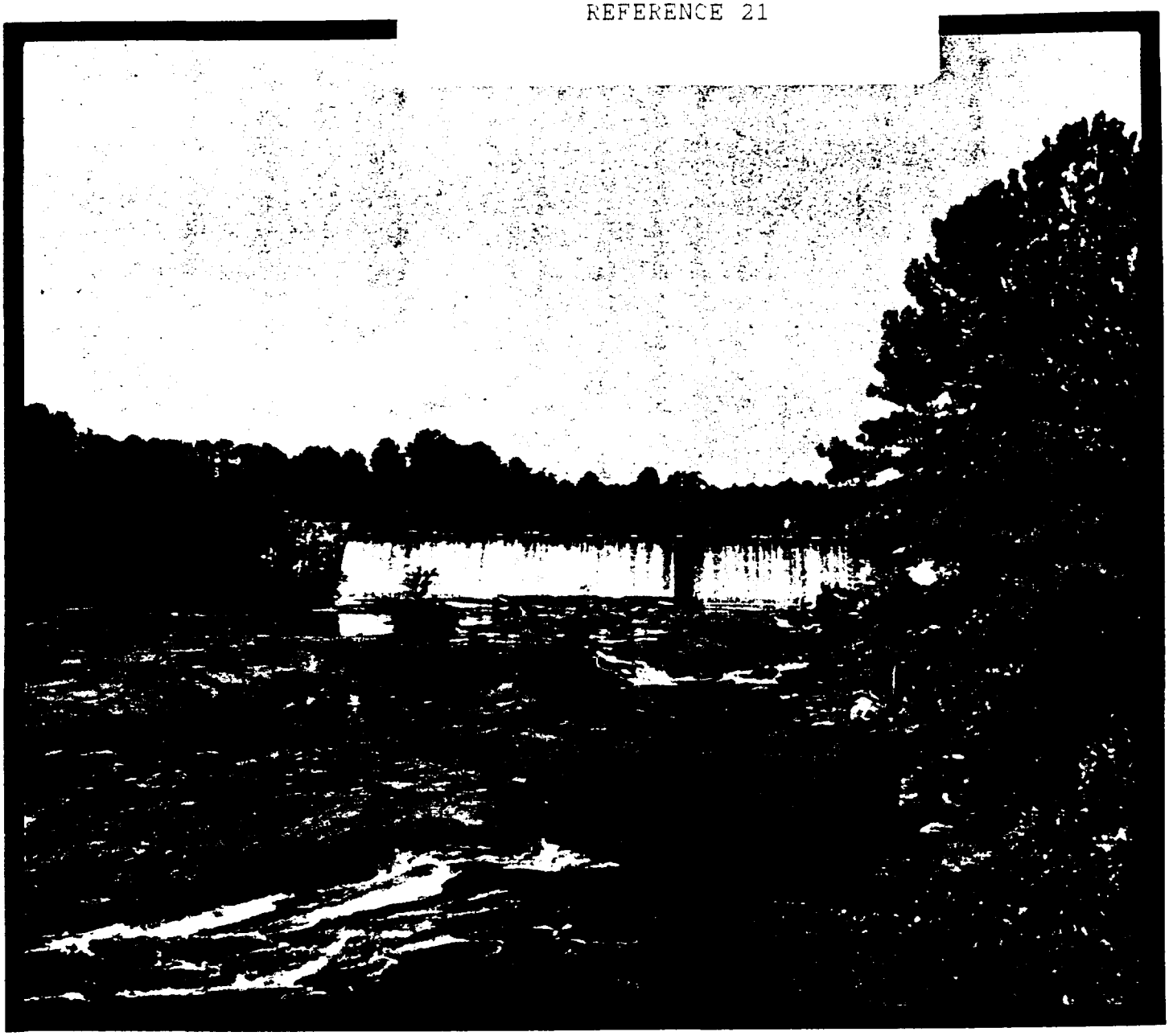
Table 6. Household, Family, and Group Quarters Characteristics: 1990 —Con.

[For definitions of terms and meanings of symbols, see text]

State County Place and [In Selected States] County Subdivision	Persons in households	All households	Family households: Total	Family households: Married-couple family	Family households: Female householder, no husband present	Nonfamily households: Total	Nonfamily households: Householder living alone: Total	Nonfamily households: Householder living alone: 65 years and over: Total	Nonfamily households: Householder living alone: 65 years and over: Female	Persons per— Household	Persons per— Family	Persons in group quarters: Total	Persons in group quarters: Institutional persons	Persons in group quarters: Other persons in group quarters
COUNTY—Con.														
Long County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lowndes County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lumpkin County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
McDuffie County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
McIntosh County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Macon County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Madison County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Marion County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Meriwether County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Miller County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mitchell County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Monroe County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Montgomery County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Morgan County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Murray County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Muscogee County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Newton County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Oconee County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Oglethorpe County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Paulding County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Peach County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pickens County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pierce County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pike County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Polk County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pulaski County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Putnam County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Quitman County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Rabun County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Randolph County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Richmond County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Rockdale County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Schley County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Screven County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Seminole County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Spalding County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stephens County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stewart County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sumter County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Talbot County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Taliaferro County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tattnall County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Taylor County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Telfair County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Terrell County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Thomas County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tift County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Toombs County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Treutlen County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Troup County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Turner County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Twiggs County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Union County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Upson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Walker County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Walton County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ware County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Warren County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Washington County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wayne County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Webster County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wheeler County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
White County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Whitfield County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wilcox County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wilkes County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wilkinson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Worth County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PLACE AND COUNTY SUBDIVISION														
Albany city	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dougherty County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lee County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Alpharetta city, Cobb County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Adairsville city, Bartow County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Acworth city, Cobb County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Adrian city	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Emanuel County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Johnson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Alma city, Montgomery County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Alston city, Wheeler County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Alpharetta town, Bartow County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Albany city, Dougherty County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Adrian town, Laurens County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Allenhurst town, Liberty County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Allenhurst town	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bleckley County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Laurens County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Telfair County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wilkinson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Alma city, Bacon County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Alpharetta city, Fulton County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Alston town, Montgomery County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: The population counts set forth herein are subject to possible correction for undercount or overcount. The United States Department of Commerce is considering whether to correct these counts and will publish corrected counts, if any, not later than July 15, 1991.

REFERENCE 21



Water Availability & Use

Ocmulgee River Basin

Georgia Department of Natural Resources
Environmental Protection Division

FACILITY I.D. NUMBER	FACILITY NAME	COUNTY	CITY	STREAM	RIVER MILE	PLANT DISCHARGE (mgd)	PERMITTED WITHDRAWAL (mgd)	DRAINAGE AREA (sq. mi.)	7Q10 (cfs)	LEVEL OF SERVICE (%)
2-250-(ISD)	GA Kraft	Bibb	Macon	Ocmulgee R.	188.4	4.0	--	--	--	--
2-260-(ISD)	William Carter Co.	Lamar	Barnesville	Tobesofkee Trib.	1.5	1.6	--	--	--	--
2-270-(MGW)	City of Hampton	Henry	Hampton	--	--	--	0.24	--	--	--
2-280-(IGW)	Armstrong World Ind.	Bibb	Macon	--	--	--	2.00	--	--	--
2-290-(ISD)	Armstrong World Ind.	Bibb	Macon	Rocky Creek	1.9	1.09	--	--	--	--
2-300-(MSD)	Macon-Bibb-Rocky Creek	Bibb	Macon	Rocky Creek	1.0	14.0	--	--	--	--
2-310-(IGW)	GA Kraft Co.-Mead Div.	Bibb	Macon	--	--	--	1.00	--	--	--
2-315-(IGW)	Dyka USA Inc.	Bibb	Macon	--	--	--	0.45	--	--	--
2-320-(MGW)	City of Byron	Peach	Byron	--	--	--	0.35	--	--	--
2-330-(IGW)	JM Huber Corp.-Mine Shop	Twiggs	Huber	--	--	--	5.86	--	--	--
2-340-(IGW)	Packaging Corp. Amer.	Bibb	Macon	--	--	--	0.40	--	--	--
2-350-(MGW)	Macon-Bibb Co. Water & Sewer	Bibb	Macon	--	--	--	0.36	--	--	--
2-360-(MGW)	Houston Co. Board of Comm.	Houston	Elberta	--	--	--	0.40	--	--	--
2-370-(MSD)	Warner Robins-Horse Creek	Houston	Warner Robins	Horse Creek	1.2	3.3	--	--	--	--
2-380-(IGW)	Georgia Kaolin Co.-Mine	Twiggs	Dry Branch	--	--	--	0.38	--	--	--
2-390-(IGW)	Georgia Kaolin Company	Twiggs	Dry Branch	--	--	--	4.70	--	--	--
2-400-(ISD)	Georgia Kaolin Company	Twiggs	Dry Branch	Stone Creek	9.0	2.2	--	--	--	--
2-410-(ISD)	JM Huber	Twiggs		Dry Branch	5.9	2.2	--	--	--	--
2-420-(IGW)	Robins AFB/Dept Air Force	Houston	Warner Robins	--	--	--	7.0	--	--	--
2-430-(ISD)	Robins AFB/Dept Air Force	Houston	Warner Robins	Horse Creek	3.6	2.1	--	--	--	--
2-440-(MGW)	City of Centerville	Houston	Centerville	--	--	--	0.70	--	--	--
2-450-(MGW)	City of Warner Robins	Houston	Warner Robins	--	--	--	13.0	--	--	--
2-460-(MGW)	Houston Co. Board of Comm.	Houston	Feagin Mill	--	--	--	2.0	--	--	--
2-470-(MSD)	Warner Robins-Sandy Run	Houston	Warner Robins	Sandy Run Cr.	3.6	3.0	--	--	--	--
2-480-(IGW)	Nord Kaolin Co.	Twiggs	Jeffersonville	--	--	--	2.4	--	--	--

OCMULGEE RIVER WATER AVAILABILITY AND USE REPORT

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

MAJOR FACILITIES IN HYDROLOGIC UNIT 2
FIGURE 6

FACILITY I.D. NUMBER	FACILITY NAME	COUNTY	CITY	STREAM	RIVER MILE	PLANT DISCHARGE (mgd)	PERMITTED WITHDRAWAL (mgd)	DRAINAGE AREA (sq. mi.)	7Q10 (cfs)	LEVEL OF SERVICE (%)
2-490-(IGW)	JM Huber Corp-Plant	Twiggs	Huber	--	--	--	28.4	--	--	--
2-500-(MGW)	City of Jeffersonville	Twiggs	Jeffersonville	--	--	--	0.55	--	--	--
2-510-(MSD)	City of Fort Valley	Peach	Fort Valley	Bay Creek	11.9	2.2	--	--	--	--
2-520-(MGW)	City of Fort Valley	Peach	Fort Valley	--	--	--	2.4	--	--	--
2-530-(MSD)	City of Perry	Houston	Perry	Big Indian Creek	0.6	3.0	--	--	--	--
2-540-(MGW)	City of Perry	Houston	Perry	--	--	--	1.60	--	--	--
2-550-(ISD)	Heileman Brewery	Houston	Perry	Tributary	--	1.5	--	--	--	--
2-560-(IGW)	Heileman Brewing Co.	Houston	Pabst	--	--	--	6.50	--	--	--
2-570-(MGW)	Houston Co. Board of Comm.	Houston	Henderson	--	--	--	0.10	--	--	--
2-580-(MGW)	Houston Co. Board of Comm.	Houston	Elko	--	--	--	0.10	--	--	--
2-590-(MGW)	Houston Co. Board of Comm.	Houston	Haynesville	--	--	--	0.10	--	--	--
2-600-(MGW)	City of Unadilla	Dooly	Unadilla	--	--	--	0.50	--	--	--
2-610-(MGW)	City of Cochran	Bleckley	Cochran	--	--	--	0.99	--	--	--
2-620-(IGW)	Middle Georgia College	Bleckley	Cochran	--	--	--	0.21	--	--	--
2-630-(IGW)	Portals Limited	Pulaski	Hawkinsville	--	--	--	1.00	--	--	--
2-640-(MSD)	Hawkinsville	Pulaski	Hawkinsville	Ocmulgee River	125.5	1.3	--	--	--	--
2-650-(MGW)	City of Hawkinsville	Pulaski	Hawkinsville	--	--	--	1.35	--	--	--

OCMULGEE RIVER WATER AVAILABILITY AND USE REPORT

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

MAJOR FACILITIES IN HYDROLOGIC UNIT 2
FIGURE 6

FACILITY I.D. NUMBER	FACILITY NAME	COUNTY	CITY	STREAM	RIVER MILE	PLANT DISCHARGE (mgd)	PERMITTED WITHDRAWAL (mgd)	DRAINAGE AREA (sq. mi.)	7Q10 (cfs)	LEVEL OF SERVICE (%)
2-010-(MSW)	Henry County	Henry		Towaliga R.	35.5	--	2.8	56.8	5.1	≥99
2-020-(MSW)	Henry County	Henry		Indian Creek	--	--	2.0	--	1.8	97
2-030-(MSW)	City of Jackson	Butts	Jackson	Towaliga R.	25.4	--	1.0	--	0.8	≥99*
2-050-(MSD)	Griffin-Cabin Creek	Spalding	Griffin	Cabin Creek	16.9	1.5	--	--	--	--
2-060-(MSW)	City of Jackson	Lamar	Jackson	Buck Creek	1.0	--	1.0	--	3.4	--
2-070-(MSW)	City of Barnesville	Lamar	Barnesville	Big Towaliga Cr.	15.0	--	0.5	4.3	0.5	≥99*
2-090-(MSW)	City of Barnesville	Lamar	Barnesville	Edie Creek	0.9	--	2.5	18.0	0.8	98*
2-100-(MSW)	City of Forsyth	Monroe	Forsyth	Rocky Creek	2.6	--	1.2	24.1	3.0	≥99*
2-105-(MSW)	City of Forsyth	Monroe	Forsyth	Tobesofkee Creek	27.0	--	0.2	45	4.9	96
2-110-(IGW)	GA Power-Plant Scherer	Monroe	Juliette	--	--	--	0.15	--	--	--
2-120-(ISW)	Bibb Company	Monroe	Juliette	Ocmulgee R.	221.9	--	3.66	1960	340	≥99*
2-130-(ISD)	GA Power Plant-Scherer	Monroe	Juliette	Ocmulgee R.	221.3	46.1	--	--	--	--
2-140-(ISD)	GA Power Plant-Scherer	Monroe	Juliette	Ocmulgee R.	221.3	15.5	--	--	--	--
2-150-(ISD)	Bibb Company	Monroe	Juliette	Berry Creek	0.1	2.0	--	--	--	--
2-160-(ISW)	Georgia Power-Plant Scherer	Monroe	Juliette	Ocmulgee R.	217.3	--	89	1980	410	94-96
2-170-(ISD)	GA Power Plant-Arkwright	Bibb	Macon	Ocmulgee R.	206.8	6.8	--	--	--	--
2-180-(ISD)	GA Power Plant-Arkwright	Bibb	Macon	Ocmulgee R.	206.8	246.1	--	--	--	--
2-190-(ISW)	GA Power Plant-Arkwright	Bibb	Macon	Ocmulgee R.	206.8	--	238	2200	410	≥99*
2-200-(MSW)	Macon-Bibb Water	Bibb	Macon	Ocmulgee R.	201.1	--	35	2230	410	≥99*
2-210-(MGW)	Jones County Water System	Jones	Macon	--	--	--	1.05	--	--	--
2-220-(IGW)	Toms Food Inc.	Bibb	Macon	--	--	--	0.87	--	--	--
2-230-(MSD)	Macon-Bibb-Poplar Street	Bibb	Macon	Ocmulgee R.	192.7	12.0	--	--	--	--
2-240-(ISW)	Georgia Kraft	Bibb	Macon	Ocmulgee R.	188.5	--	13.61	2380	378	≥99*

*Calculated without minimum streamflow requirement

OCMULGEE RIVER WATER AVAILABILITY AND USE REPORT

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

MAJOR FACILITIES IN HYDROLOGIC UNIT 2
FIGURE 6

B&V WASTE SCIENCE AND TECHNOLOGY CORP.

REFERENCE 22

TELEPHONE MEMORANDUM

Site Assessment
ITT Suspension System

Fishing Status on Ocmulgee River and Echeconnee Creek

BVWST Project 52011.045
BVWST File E.1
June 30, 1992
1:25 p.m.

To: Tim Kendrick
Company: Georgia Department of Natural Resources Game Division
Phone No.: (912) 751-6415

Recorded by: Dan Keck

Mr. Kendrick said that to his knowledge, no commercial fishing occurred on these rivers. Only recreational and sport fishing occurred on these rivers. He also said that there were no fishing bans imposed on these rivers.

ENDANGERED AND THREATENED SPECIES

U.S. FISH AND WILDLIFE SERVICE

REGION 4 - ATLANTA

Federally Listed Species by State

GEORGIA

(E=Endangered; T=Threatened; CH=Critical Habitat determined)

Mammals	General Distribution
Bat, gray (*Myotis grisescens*) - E	Northwest, West
Bat, Indiana (*Myotis sodalis*) - E	Extreme Northwest
Manatee, West Indian (*Trichechus manatus*) - E	Coastal waters
Panther, Florida (*Felis concolor coryi*) - E	Entire state
Whale, finback (*Balaenoptera physalus*) - E	Coastal waters
Whale, humpback (*Megaptera novaeangliae*) - E	Coastal waters
Whale, right (*Eubalaena glacialis*) - E	Coastal waters
Whale, sei (*Balaenoptera borealis*) - E	Coastal waters
Whale, sperm (*Physeter catodon*) - E	Coastal waters

Birds	
Eagle, bald (*Haliaeetus leucocephalus*) - E	Entire state
Falcon, American peregrine (*Falco peregrinus anatum*) - E	North
Falcon, Arctic peregrine (*Falco peregrinus tundrius*) - T	Coast, Northwest
Plover, piping (*Charadrius melodus*) - T	Coast
Stork, wood (*Mycteria americana*) - E	Southeastern swamps
Warbler, Bachman's (*Vermivora bachmanii*) - E	Entire state
Warbler, Kirtland's (*Dendroica kirtlandii*) - E	Coast
Woodpecker, ivory-billed (*Campephilus principalis*) - E	South, Southwest
Woodpecker, red-cockaded (*Picoides* (=*Dendrocopos*) *borealis*) - E	Entire state

Reptiles	
Alligator, American (*Alligator mississippiensis*) - T(S/A)*	Coastal plain
Snake, eastern indigo (*Drymarchon corais couperi*) - T	Southeast

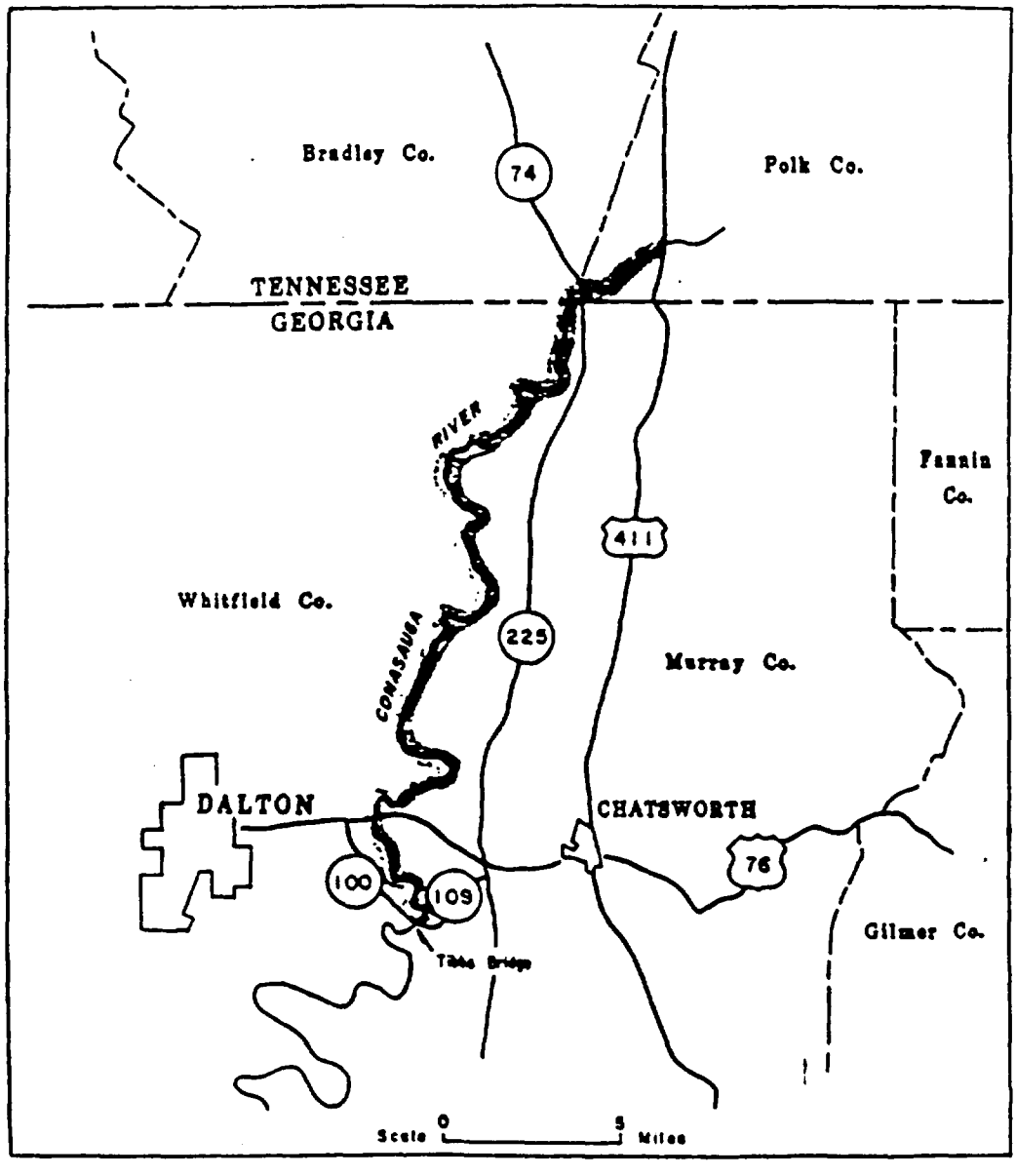
*Alligators are biologically neither endangered nor threatened. For law enforcement purposes they are classified as "Threatened due to Similarity of Appearance." Alligator hunting is regulated in accordance with State law.

GEORGIA - Critical Habitat

Percina antesella, "amber darter"

Conasauga River from the U.S. Route 411 bridge in Polk County, Tennessee, downstream approximately 33.5 miles through Bradley County, Tennessee and Murray and Whitfield Counties, Georgia, to the Tibbs Bridge Road bridge (Murray County Road 109 and Whitfield County Road 100).

Constituent elements include high quality water, riffle areas (free of silt) composed of sand, gravel, and cobble which becomes vegetated primarily with Podostemum during the summer.

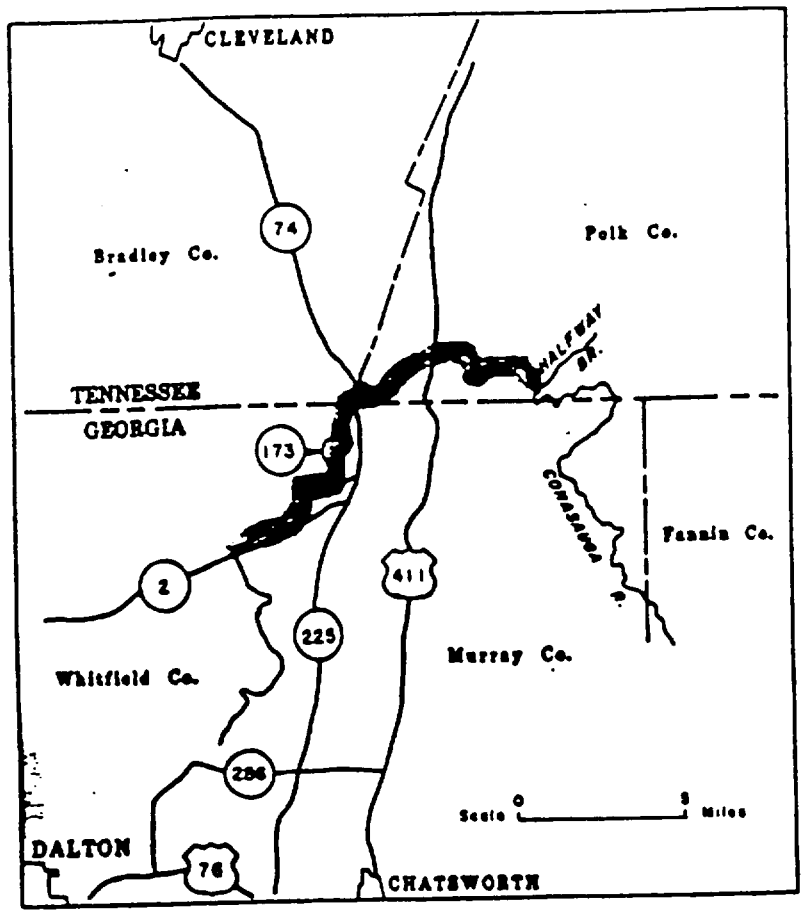


GEORGIA - Critical Habitat

Percina jenkinsi, "Conasauga logperch"

Conasauga River from the confluence of Halfway Branch with the Conasauga River in Polk County, Tennessee, downstream approximately 11 miles to the Georgia State Highway 2 bridge, Murray County, Georgia.

Constituent elements include high quality water, pool areas with flowing water and silt free riffles with gravel and rubble substrate, and fast riffle areas and deeper chutes with gravel and small rubble.



ITT SUSPENSION SYSTEMS
LATITUDE 32:41:45 LONGITUDE 83:40:23 1983 POPULATION

KM	0.00-.400	.400-.810	.810-1.60	1.60-3.20	3.20-4.80	4.80-6.40	SECTOR TOTALS
S 1	0	0	0	0	0	4131	4131
S 2	0	0	0	0	0	917	917
S 3	0	0	0	1582	0	0	1582
S 4	0	0	0	0	0	606	606
S 5	0	0	0	0	938	5053	5991
S 6	0	0	0	0	120	0	120
S 7	0	0	0	0	0	0	0
S 8	0	0	0	2048	0	0	2048
RING TOTALS	0	0	0	3630	1058	10707	15395

press RETURN to continue
MENU: Geodata Handling Data List procedures
Inte[illegible]ame (in parentheses) ([illegible])
or a command: HELP, HELP option, BACK, CLEAR, EXIT, TUTOR
GEMS> next

[ERR-039]

Type YES to confirm the EXIT command; type NO to restart GEMS
GEMS> yes
$ logout
HTW logged out at 18-MAY-1992 13:55:48.48
Itemized resource charges, for this session, follow:

NODE: VAXTM1
ACCT: 9040
PROJ: GEMS0001
USER: HTW
UIC: [000710,000012]
BAUD:

START TIME: 18-MAY-1992 13:48:21.51
FINISH TIME: 18-MAY-1992 13:55:48.48
BILLING PERIOD: 920501
WEEKDAY: MONDAY
TERMINAL PORT: VTA226

DESCRIPTION OF CHARGE		QUANTITY	EXPENDITURE
ALL CHARGE LEVELS			
300 baud	(Seconds)	447	0.0000
CPU TIME	(Seconds)	9	0.5000
TOTAL FOR THIS SESSION			$ 0.5000

** Note: This total reflects the charges for this process only, subprocesses created during this session are accounted for separately
Enter selection:

M.2 - SITE MAINTENANCE FORM

EPA ID : GAD098584063

SITE NAME: ITT SUSPENSION SYSTEMS DIVISION SOURCE: H

STREET : 7980 INDUSTRIAL HWY CONG DIST: 08

CITY : MACON ZIP: 31208

CNTY NAME: BIBB CNTY CODE : 021

LATITUDE : 32/41/45.0 LONGITUDE : 083/40/23.0

LL-SOURCE: G LL-ACCURACY:

SMSA : 4680 HYDRO UNIT: 03070103

INVENTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND: N

NPL IND: N NPL LISTING DATE: NPL DELISTING DATE:

SITE/SPILL IDS:

RPM NAME: RAY WILKERSON RPM 404-347-2234

SITE CLASSIFICATION: SITE APPROACH:

DIOXIN TIER: REG FLD1: REG FLD2: 6

RESP TERM: PENDING ( ) NO FURTHER ACTION ( )

ENF DISP: NO VIABLE RESP PARTY ( ) VOLUNTARY RESPONSE ( )
ENFORCED RESPONSE ( ) COST RECOVERY ( )

SITE DESCRIPTION:

ACTION:

PENDING (_) NO FURTHER ACTION (_)

M.2 - PROGRAM MAINTENANCE FORM

ACTION: _

SITE: ITT SUSPENSION SYSTEMS DIVISION

EPA ID: GAD098584063 PROGRAM CODE: H01 PROGRAM TYPE:

PROGRAM QUALIFIER: ALIAS LINK :

PROGRAM NAME: SITE EVALUATION

DESCRIPTION:

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: ITT SUSPENSION SYSTEMS DIVISION
PROGRAM: SITE EVALUATION

EPA ID: GAD098584063 PROGRAM CODE: H01 EVENT TYPE: DS1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: E * _ ___ _ *

EVENT NAME: DISCOVERY STATUS: * _____ _ *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START:	__/__/__	__/__/__	__/__/__
COMP :	COMP :	COMP : 10/01/80	__/__/__	__/__/__	__/__/__

HQ COMMENT:

* _____ *

RG COMMENT:

* _____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %			
			0	_____	_____	__	___

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: ITT SUSPENSION SYSTEMS DIVISION
PROGRAM: SITE EVALUATION

EPA ID: GAD098584063 PROGRAM CODE: H01 EVENT TYPE: PA1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: S * _ ___ _ *

EVENT NAME: PRELIMINARY ASSESSMENT STATUS: * _____ _ *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START: 12/27/85	__/__/__	__/__/__	__/__/__
COMP :	COMP :	COMP : 12/30/85	__/__/__	__/__/__	__/__/__

HQ COMMENT:

* _____ *

RG COMMENT:

* _____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %				
			0	_____	_____	__	___

M.2 - COMMENT MAINTENANCE FORM

SITE: ITT SUSPENSION SYSTEMS DIVISION

EPA ID: GAD098584063

COM NO	COMMENT	ACTION
001	PART A- ON FILE	* _ _____ *
		* _____ *

PRELIMINARY ASSESSMENT COVER SHEET
ITT SUSPENSION SYSTEMS DIVISION
GAD098584063

I. HISTORY OF SITE

The ITT Suspension Systems Division is located at 7980 Industrial Highway in Macon, Georgia 31206. It has been owned and operated by ITT Suspension Systems Division since it was constructed in 1980. This facility manufactures and assembles automobile suspension struts and shock absorbers. The basic manufacturing process involves threading, machine finishing, washing and plating steel rods to which other components are attached to form the core of the shock or strut. The core of the strut is enclosed in a painted steel casing. Waste streams generated are: 1) chromic acid sludge, which is transported and disposed of by Chem Waste Management of Alabama; 2) spent methylene chloride and 1,1,1 trichlorethane solvents which are disposed of by Ramsey Chemical Company of Valdosta, GA; and 3) metal grinding sludge and waste cutting oil, which are disposed of by Browning Ferris and Carl Durden Waste Oil Co. of Warner Robins, GA respectively. The Part A Application for this facility has been withdrawn and it is currently classified as a generator of hazardous waste.

II. NATURE OF HAZARDOUS MATERIALS

Hazardous materials generated are chromic acid sludge, spent solvents (methylene chloride, 1,1,1 trichloroethane), metal grinding sludge and waste cutting oil (non-hazardous). Materials are stored in drums until disposal. Total volume of wastes generated annually is 80 cubic yards. Individual quantities of wastes are unknown.

III. DESCRIPTION OF HAZARDOUS CONDITIONS, INCIDENTS, PERMIT VIOLATIONS

There was a complaint filed by a former ITT employee concerning improper disposal of waste oils. The complaint was investigated by GA EPD in October of 1984. Soil samples from the disposal areas were taken and analyzed and it was determined that there was no significant contamination. According to Mr. Carl Durden, of Carl Durden Waste Oil Co., there was a spill at ITT Suspension System Division of chromic acid, in August of 1984, after which he pumped the acid from the floor of the plant back into a storage tank. It is not known if any of this spilled material left the building. According to Mr. David Benson, Chemist, ITT Suspension Systems Division, no spills occurred on site prior to November 19, 1980.

IV. ROUTES OF CONTAMINATION

It is not known if the chromic acid spill in 1984 left the building and entered the environment. Soil contamination may have occurred if de minimus losses have occurred.

V. POSSIBLE AFFECTED POPULATION AND RESOURCES

Unknown - there has been no evidence that past waste handling practices at the facility have affected residents in the area.

VI. RECOMMENDATIONS AND JUSTIFICATIONS

This site is assessed a "Low" priority for a Site Inspection because of limited information concerning the 1984 chromic acid spill and waste handling practices prior to November 19, 1980.

VII. REFERENCE TO SUPPORTING DATA SOURCES

1. EPA Form 3510-1, 3510-3 (6/80), 11/13/80.
2. Letter, 10/20/81, RE: Groundwater Monitoring - from GA EPD.
3. Action Report, 3/16/82.
4. GA EPD Trip Reports: 11/22/82, 1/31/84, 10/30/84, 1/24/85, 5/7/85.
5. Waste Management Data Sheet, 1/23/84.
6. Georgia Annual Hazardous Waste Report for 1983.
7. Letter, 4/3/84, RE: Withdrawal of Part A Application for ITT Suspension Systems Division.
8. Letter, 4/11/84, RE: Acknowledgement of Withdrawal and Warranted Status Change to Generator from GA EPD.
9. Complaint Record, 9/4/84.
10. Generator Standards Inspection Checklist, 10/30/84.
11. Letter, 1/31/85, RE: Chromic Acid Operation - ITT Suspension Systems Division.
12. Memorandum, 4/18/85, RE: Telephone Conversation - ITT SSD.
13. Sample Sketch Sheet, 5/7/85.
14. Hazardous Waste Analysis Request Form, 5/7/85.
15. GA EPD Laboratory Report, 5/7/85.
16. GA EPD Chain of Custody Form, 5/16/85.
17. Letter, 6/12/85, RE: Sampling Inspection - from GA EPD.
18. Lab Report, 6/5/85, from Industrial & Environmental Analysts, Inc.
19. Letter, 6/27/85, RE: Sampling Inspection - from GA EPD.
20. Telephone Conversation Record, 10/22/85.

GAK/mcw033
File - ITT Suspension Systems Division (B)

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D098584063

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
ITT Suspension Systems Division	7980 Industrial Hwy., P. O. Box 10278

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Macon	GA	31206	Bibb	021	08

09 COORDINATES LATITUDE	LONGITUDE
32° 41' 45.0"	083° 40' 23.0"

10 DIRECTIONS TO SITE (Starting from nearest public road)

From the intersection of US Route 41 and Liberty Church Road, proceed 3.0 miles south on Route 41; turn left (east) onto Industrial Hwy. and continue for 500 feet. Facility is on your right (west).

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
ITT Suspension Systems Division	P. O. BOx 6156

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Macon	GA	31208	(912) 781-0170

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)
Same as above	

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☒ A. RCRA 3001 DATE RECEIVED: 11/13/80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 11 22 82 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)

☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1980 (BEGINNING YEAR) | present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Chromic acid sludge, spent solvents (methylene chloride, 1,1,1 trichloroethane), metal grinding sludge and waste cutting oil.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Details of 1984 spill of chromic acid are incomplete. Facility has been operated in compliance with Generator Standards of the Georgia Hazardous Waste Management Act.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
David Benson	ITT Suspension Systems Division	(912) 781-0170

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Gilda A. Knowles G.A.K.	DNR-EPD	RAU	(404) 656-7404	10 22 85 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

J. Surovec

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D098584063

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☒ C. SLUDGE
- ☐ D. OTHER _____ (Specify)
- ☐ E. SLURRY
- ☒ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____

CUBIC YARDS _____

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☒ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☒ D. PERSISTENT
- ☒ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	unknown		approximate annual volume of all
OLW	OILY WASTE	unknown		substances 80 cubic yards.
SOL	SOLVENTS	unknown		
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SLU	chromic acid	7738-94-5	Chem. Waste Management	-----	-----
SOL	methylene chloride	-----	Ramsey Chem. Co.	-----	-----
SOL	1,1,1 trichloroethane	15323-89-1	Ramsey Chem. Co.	-----	-----

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	arsenic	7440-38-2	FDS	mercury	7439-97-6
FDS	barium	-----	FDS	silver	-----
FDS	cadmium	7440-43-9	FDS	selenium	-----
FDS	lead	-----	FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

GA EPD State Files.
ITT Suspension System Division, Macon, GA.
Telephone Conversation Record, 10/22/85.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D098584063

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Possible spills from storage chromic acid and spent solvents.

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Possible spills from storage chromic acid and spent solvents.

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [X] F. CONTAMINATION OF SOIL — 02 [X] OBSERVED (DATE: 9/4/84) — [ ] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) — 04 NARRATIVE DESCRIPTION

Possible from chromic acid spill.

01 [ ] G. DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D098584063

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills, runoff, standing liquids, leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None

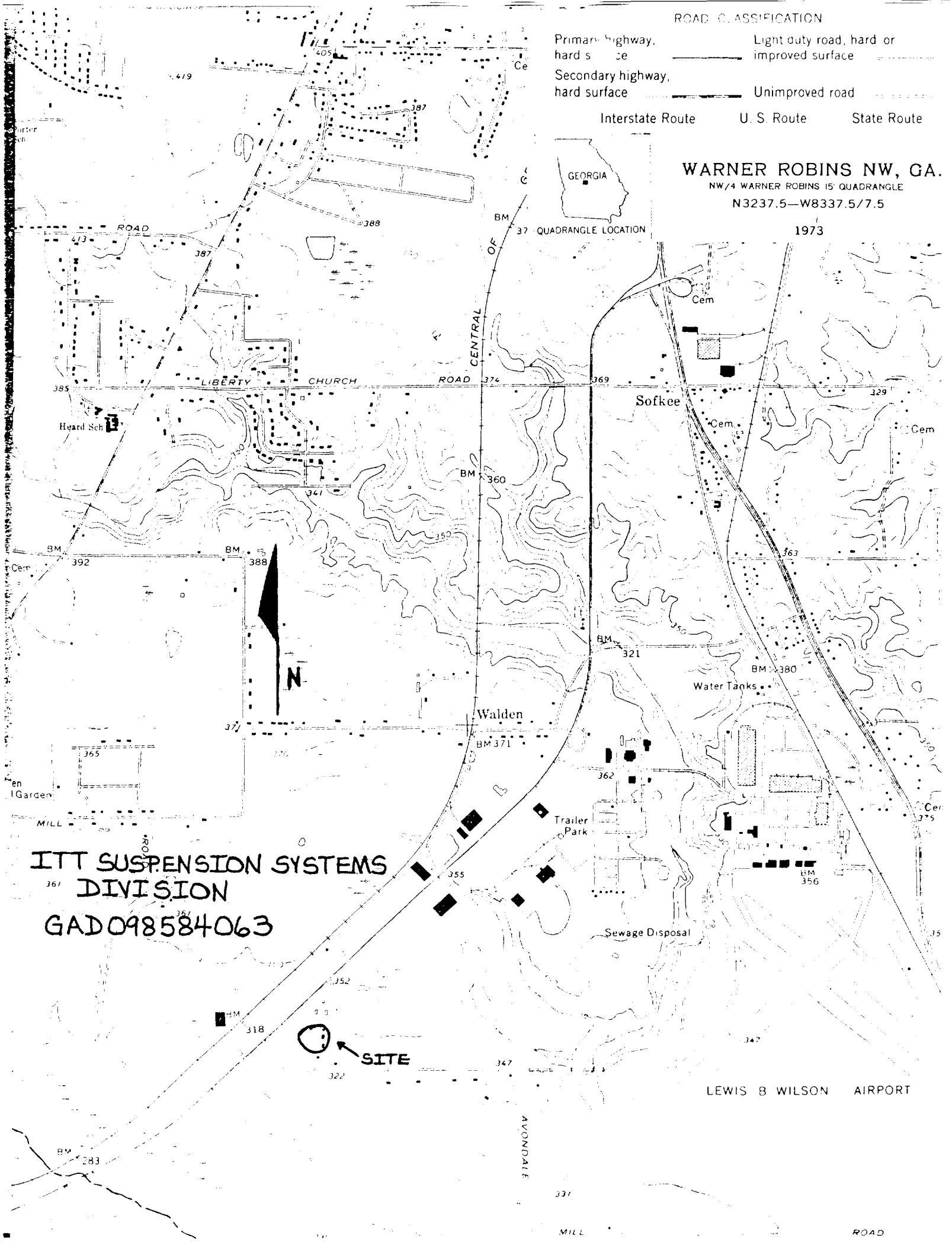
III. TOTAL POPULATION POTENTIALLY AFFECTED: unknown

IV. COMMENTS

None

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

GA EPD State Files.
ITT Suspension Systems Division, Macon, GA.
Telephone Conversation Record, 10/22/85.


ROAD CLASSIFICATION
Primary highway, hard surface
Light duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route
GEORGIA
QUADRANGLE LOCATION
WARNER ROBINS NW, GA.
NW/4 WARNER ROBINS 15' QUADRANGLE
N3237.5—W8337.5/7.5
1973
ROAD
LIBERTY CHURCH ROAD
CENTRAL OF
Sofkee
Cem
Heard Sch
Walden
Water Tanks
Trailer Park
Sewage Disposal
LEWIS B WILSON AIRPORT
AVONDALE
MILL ROAD
SITE
N
ITT SUSPENSION SYSTEMS DIVISION
GAD098584063

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F GAD098584063

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affi it in the designated space. Review the inform ation carefully; if any of it is incorrect, cros through it and enter the correct data in th appropriate fill-in area below. Also, if any c the preprinted data is absent *(the area to th left of the label space lists the informatio that should appear)*, please provide it in th proper fill-in area*(s)* below. If the label i complete and correct, you need not complet Items I, III, V, and VI *(except VI-B whic must be completed regardless)*. Complete a items if no label has been provided. Refer t the instructions for detailed item descrip tions and for the legal authorizations unde which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACH
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)		X		D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X		X	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP I T T/ SUSPENSION SYSTEMS DIVISION

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*		
2 PARRISH, EUGENE ENVIRONMENTAL QUALITY COORDINATOR	912	781	0170

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 P.O. BOX 6156

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 MACON	GA	31208

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 7980 INDUSTRIAL HIGHWAY

B. COUNTY NAME

BIBB

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 MACON	GA	31206	

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
7 3714 (specify) Shock Absorbers, Motor Vehicles	7 (specify)
C. THIRD	**D. FOURTH**
7 (specify)	7 (specify)

VIII. OPERATOR INFORMATION

A. NAME: 8 ITT/SUSPENSION SYSTEMS DIVISION

B. Is the name listed in Item VII-A also the owner? [X] YES [ ] NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box; if "Other", specify.)*
F = FEDERAL, S = STATE, P = PRIVATE, M = PUBLIC *(other than federal or state)*, O = OTHER *(specify)*: P (specify) N/A

D. PHONE *(area code & no.)*: A 912 781 0170

E. STREET OR P.O. BOX: 7980 INDUSTRIAL HIGHWAY

F. CITY OR TOWN: B MACON

G. STATE: GA

H. ZIP CODE: 31206

IX. INDIAN LAND
Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*: 9 N NA	D. PSD *(Air Emissions from Proposed Sources)*: 9 P NA
B. UIC *(Underground Injection of Fluids)*: 9 U NA	E. OTHER *(specify)*: 9 NA (specify) NA
C. RCRA *(Hazardous Wastes)*: 9 R	E. OTHER *(specify)*: 9 NA (specify) NA

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

Automotive suspension systems part manufacturing

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
D.A. Mynatt, Director of Operations	D.A. Mynatt	9/22/82

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e. characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

F G A D 0 9 8 5 8 4 0 6 3 3

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

C	YR.	MO.	DAY
8	8 0	0 1	0 1

[ ] 2. NEW FACILITY *(Complete item below.)*

FOR NEW FACILITIES PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR IS EXPECTED TO BEGIN

YR.	MO.	DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[ ] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.
1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S 0 4	2 0 5 5	G		7				
2	T 0 1	7 2 0 0	U		8				
3	S 0 1	5 5 0 0	G		9				
4					10				

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. **EPA HAZARDOUS WASTE NUMBER** — Enter the four—digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four—digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. **ESTIMATED ANNUAL QUANTITY** — For each **listed waste** entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each **characteristic** or **toxic contaminant** entered in column A estimate the total annual quantity of all the non—listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. **UNIT OF MEASURE** — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. PROCESS CODES:
   For listed hazardous waste: For each **listed** hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non—listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate **all** the processes that will be used to store, treat, and/or dispose of all the non—listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER — Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non—listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				included with above

CONTINUE ON PAGE 3

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
W G A D 0 9 8 5 8 4 0 6 3 3 1	W DUP 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)				2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	F001	1.2	T	S01				
2	F006	70	T	T01	S01			S02 NOT SHOWN ?
3	F007	30	T	S04	T01			
4	F008	100	P	S01				
5	F009	42	T	S04	T01			
6	D007	2304	T	S04	T01			
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

Continued from page 2.
NOTE: Photocopy this page before completi[illegible] if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL U[illegible] ONLY
W GAD 098584063 T/A C 1	W DUP T/A C 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)				2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	F 001	2	T	S01				[illegible]
2	F 006	103	T	T01	S02			[illegible]
3	F 007	30	T	T01	S02			[illegible]
4	F 008	100	P	S02				[illegible]
5	F 009	15	T	T01	S02			[illegible]
6	D 007	2700	T	T01	S02			[illegible]
7								
8								
9								
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26								

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS W TES *(continued)*

E. USE THIS SPACE TO LIST ADDITI AL PROCESS CODES FROM ITEM D(1) ON GE 3.

EPA I.D. NO. *(enter from page 1)*

F GAD098584063 T/A C 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LO TUDE *(degrees, minutes, & seconds)*
32 41 45 N	083 40 23 W

VIII. FACILITY OWNER

X A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General In ation", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the ollowing items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the inf tion submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for ining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant alties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
D.A. Mynatt	D A Mynatt	9/22/82

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for taining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant nalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

 CONTINUE ON PAGE 5

V. FACILITY DRAWING (see page 4)

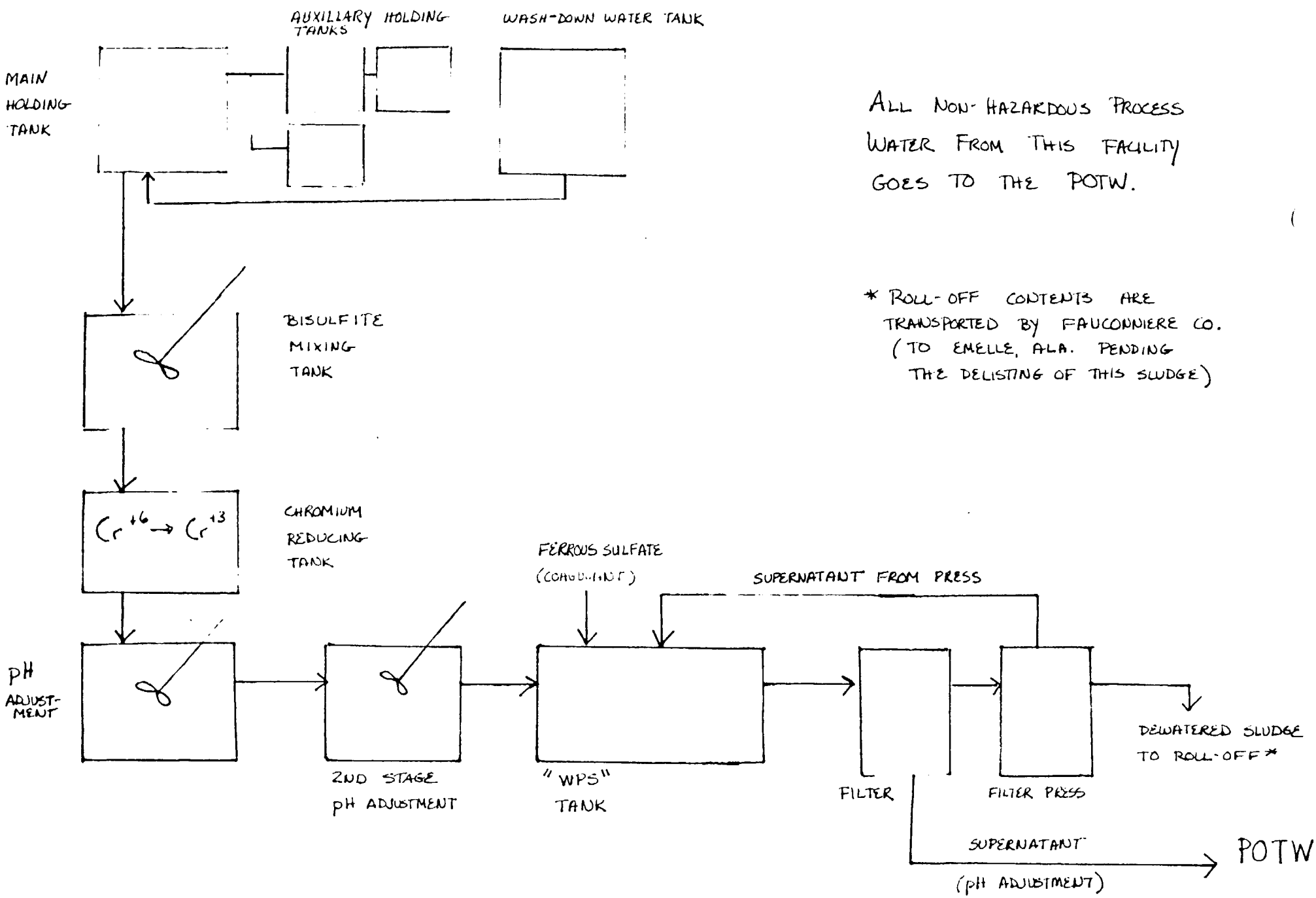
For facility drawing please refer to plot plan and plan of waste treatment building.

ITT SUSPENSION SYSTEMS DIVISION

HAZARDOUS WASTE TANK TREATMENT SYSTEM

(NOT DRAWN TO SCALE)

M. Mackey 11/29/02



ALL NON-HAZARDOUS PROCESS WATER FROM THIS FACILITY GOES TO THE POTW.

* ROLL-OFF CONTENTS ARE TRANSPORTED BY FAUCONNIERE CO. (TO EMELLE, ALA. PENDING THE DELISTING OF THIS SLUDGE)

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*

F G A D 0 9 8 5 8 4 0 6 3 3 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
3 2 4 1 4 5 N	0 8 3 4 0 2 3 W

VIII. FACILITY OWNER

[X] A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
DAVID K. SIMPSON	David K. Simpson	11/13/80

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

CONTINUE ON PAGE 5

Red

ITT 3.bb Co.

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S W
ATLANTA, GEORGIA 30334

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

October 20, 1981

Mr. Dave Simpson
ITT Suspension Systems, Inc.
P. O. Box 6156
Macon, Georgia 31208

Re: Groundwater Monitoring

Dear Mr. Simpson:

According to Part A of your company's hazardous waste facility (RCRA) permit application and other information available to the Environmental Protection Division, your facility operates a surface impoundment, landfill, or land treatment facility for which groundwater monitoring will be required. The purpose of this letter is to remind you that these groundwater monitoring requirements as outlined in the Hazardous Waste Management Rules, Chapter 391-3-11, promulgated under Georgia's Hazardous Waste Management Act (Act 613) of 1979, become effective on November 19, 1981, for existing facilities. All wells must be in place by this date and you must begin sampling to determine the background water quality at your facility. For detailed information regarding these requirements, please refer to Section .10 (40 CFR, Part 265, Subpart F) of the aforementioned rules (copy enclosed).

As a matter of assistance to you we have enclosed a diagram of an acceptable groundwater monitoring well. This diagram represents considerations in construction and protective arrangements to assure accurate uncontaminated samples for a simple monitoring situation. The type of casing used will be largely dependent on the suspected potential waste constituents in the groundwater. We would like to suggest that your wells not be installed so hastily that their location and construction would be improper. Should that occur, your facility may later be required to install additional wells to meet the requirements, thereby incurring additional costs.

If we can be of further assistance or if you have any questions concerning groundwater monitoring requirements for existing hazardous waste management facilities, please contact this office at 404/656-2833 or 656-7802.

Sincerely,

John D. Taylor, Jr.

John D. Taylor, Jr.
Program Manager
Industrial & Hazardous Waste
Management Program

JDT:hbg
Enclosures

RECYCLED PAPER

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

ENVIRONMENTAL PROTECTION DIVISION
INDUSTRIAL AND HAZARDOUS WASTE MANAGEMENT PROGRAM

ACTION REPORT

Yellow
(Red)
Green

REVIEWED BY:	HB	SEQUENCE NUMBER IS:	00718
LP FILE ENTRY:	Yes	RECORDED BY:	BPK 3-16-82

FACILITY NAME	ITT SUSPENSION SYSTEMS DIV			SIC CODE:	3714
LOCATION STREET:	PO Box 6156, 7980 Ind Hwy			PHONE NUMBER:	912/781-0170
CITY:	MACON	ZIP:	31208	COUNTY:	BIBB
FACILITY ID NO:	GAD098584063	PERMIT NUMBER OR STATUS:			
ACTIVITY CODE:	A02	MAJOR (M) OR N-MAJOR(N):	N	COMPLIANCE OFFICER:	STEVENS

ACTION BY:	Betty Burns BB	ACCOMPANIED BY:	
PERSON(S) CONTACTED:	Bob Szokolay	TITLE(S):	Quality Assurance Engineer
	D. K. Simpson		Pres./Gen. Manager

DATE OF ACTION:	811118	FOLLOW UP DATE:	820200		
PROGRAM ACTIVITY:	02 Inspection & Enforcement	FIELD HOURS:	08	TOTAL HOURS:	10
ACTION TAKEN:	13 Conduct Routine Inspection				
FINDING/ DECISION:	93 Technical Assistance Needed				
NEXT ACTION:	70 Render Technical Assistance				

COMMENTS, CONCLUSIONS, AND RECOMMENDATIONS

COMMENTS:

1. Per ITT's letter of October 28, 1981, the company requested our assistance in determining whether their wastewater treatment system, originally designated as a surface impoundment unit in item III of their Part A hazardous waste permit application, can now be considered as "tanks". Further, the aforementioned letter responds to our letter of October 20, 1981 which stipulated groundwater monitoring requirements for hazardous waste TSD facilities.
2. On November 18, I inspected the ITT facility. As observed the company's wastewater treatment unit consist of inside cemented sludge transfer pits (temporary holding enroute to treatment), metal and concrete treatment bins or tanks, cemented rinse water tank and filter

cc: Cheryl Stevens

press. The total treatment system is housed inside plant building on concrete floor.

CONCLUSIONS:

1. Since there are no earthen ponds, lagoons or pits involved in treatment or storage of ITT's waste inside or outside plant, the facility's TSD unit constitutes tank treatment of wastewater, and final sludge treatment by use of filter press unit. Accordingly, the facility will not be subject to the groundwater monitoring requirements under 40 CFR, Section 265.90, Subpart F. However, as determined, the company remains to be a hazardous waste TSD facility and is subject to general facility standards and applicable standards, under section 265 for container storage section and filter press unit.

2. Since collection pits have been determined to be tanks this portion of their hazardous waste activity is subject to 40 CFR Subpart B, section 226.11-.17 requirements. This calls for updating or submitting a new hazardous waste permit form.

RECOMMENDATIONS:

1. Provide ITT with a letter indicating our concurrence on wastewater treatment tank status and supply hazardous waste management reporting packet. Also request revised Part A.

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

December 20, 1982

TRIP REPORT

Site Name & Location: ITT Suspension Systems Division, Macon, Georgia

Trip By: Margaret Markey MEM

Accompanied By: Jennifer Kaduck JK

Date of Trip: November 22, 1982, 9:30 AM

Officials Contacted: Eugene Parrish, Quality Control Analyst
P.O. Box 6156, Macon, GA, 31208, 912/781-0170

T.P. Pidgeon, Jr., Quality Control Manager
P.O. Box 6156, Macon, GA, 31208, 912/781-0170

David Mynatt, Plant Manager
P.O. Box 6156, Macon, GA, 31208, 912/781-0170

Reference: Letter to Eugene Parrish from J. Leonard Ledbetter, November 2, 1982

Comments:

This facility is a manufacturing plant for automotive shock absorbers. Waste streams that are considered hazardous include: (a) 1,1,1 trichloroethane spent solvents; (b) chromic acid sludge; (c) effluent from chromium treatment to the plating bath; (d) sludge bottoms from the plating bath; and (e) stripping bath solutions. A delisting petition has been filed for the chromic acid sludge (F006).

The Part A application currently on file for this facility is incorrect because out of date EPA hazardous waste numbers were used. It was determined that this facility produces wastes in the categories F001, F006, and D007. A revised Part A will be filed pending the results of the delisting petition for F006 wastes.

A treatment system for all hazardous waste streams except the F001 consists of a series of tanks. The attached sketch outlines this system. Mr. Parrish is sending a detailed blueprint of the system.

Violations noted at this facility include the following: no waste analysis plan, personnel training records or plan, closure plan, or contingency plan existed. In addition, minor corrections in drum storage practices were suggested.

Conclusions:

ITT Suspension Systems Division is not in compliance with the Georgia Rules for Hazardous Waste Management.

Recommendations and Follow-Up Required:

Upon resolving the delisting petition, a revised Part A application will be requested. In addition, copies of the waste analysis plan, training plan, training records, closure plan and contingency plan will be requested for review after the facility has had an appropriate amount of time to prepare these.

Photographs: None taken.

Reviewed By:

Attachments: Drawing of Waste Treatment System

File: ITT Suspension Systems Division, Macon (R)

MM:bpk:1977C

DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

WASTE MANAGEMENT DATA SHEET

RECEIVED
JAN 23 1984
ITT-SSD
WILLIAM M. CHURCHILL

NAME AND LOCATION OF FACILITY

ITT/SSD
7980 Industrial Highway
P.O. Box 10278
Macon, GA 31297

PERSON TO CONTACT
(ENTER THE NAME, ADDRESS, TITLE AND BUSINESS TELEPHONE NUMBER OF THE PERSON TO CONTACT REGARDING INFORMATION SUBMITTED ON THIS FORM).

Joe Hyder, Chemist/EQC
P.O. Box 10278
Macon, GA 31297 (912) 781-0170

DATES OF WASTE HANDLING
(ENTER THE YEARS THAT YOU ESTIMATE WASTE TREATMENT, STORAGE OR DISPOSAL BEGAN AND ENDED AT THE SITE. IF YOU SELECTED A FACILITY OFF-SITE PLEASE NOTE AND EXPLAIN IN "COMMENTS" SECTION.

Waste treatment storage began in 1981 (See comments)

RECEIVED
FEB 27 1984
MUNICIPAL SOLID WASTE

GENERAL TYPE OF WASTE

1- ( ) ORGANICS
2- (X) INORGANICS
3- ( ) SOLVENTS
4- ( ) PESTICIDES
5- ( ) HEAVY METALS
6- ( ) ACIDS
7- ( ) BASES
8- ( ) PCB's
9- ( ) MIXED MUNICIPAL WASTE
10- ( ) UNKNOWN
11- ( ) OTHER (SPECIFY)

WASTE QUANTITY (ESTIMATED)

(Approx.) 80 cubic yards per year

HAS THERE EVER BEEN A SPILL OR DISCHARGE OF A HAZARDOUS SUBSTANCE FROM YOUR FACILITY? (BRIEFLY EXPLAIN THE NATURE OF THE RELEASE).

No

COMMENTS

(IF THERE IS ANY COMMENTS THAT YOU BELIEVE WOULD CLARIFY THE PAST WASTE HANDLING PRACTICES OF YOUR FACILITY OR OF FACILITIES YOU SELECTED TO HANDLE YOUR WASTE, PLEASE ELABORATE IN THE SPACE PROVIDED).

Waste treatment began in 1980 at which time the slude was not dewatered on-site but was sent to an off-site treatment facility. In 1981, we began utilizing a filter press system which allowed us to solidify and store solid waste in our own facility. After the solid waste accumulates, it is manifested and disposed of by Chemical Waste Management in Emelle, Alabama.

SIGNATURE AND TITLE

W. Joseph Hyder, Chemist/EQC	(912) 781-01
NAME	TELEPHONE
P.O. Box 10278	
STREET	
Macon, GA 31297	
CITY STATE	ZIP CODE
W. Joseph Hyder	2-13-84
SIGNATURE	DATE

ION: 04
TE : GA

M.2 - SITE MAINTENANCE FORM

ID: GAD098584063

E NAME: ITT SUSPENSION SYSTEMS DIVISION SOURCE: H

EET: 7980 INDUSTRIAL HWY CONG DIST: 08

/: MACON ZIP: 31208

' NAME: BIBB CNTY CODE: 021

TUDE: 32/41/45.0 LONGITUDE: 083/40/23.0

.: 4680 HYDRO UNIT: 03070103

NTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND: N

IND: N NPL LISTING DATE: NPL DELISTING DATE:

OACH: SITE CLASS:

/SPILL IDS:

NAME: RPM PHONE: - -

IN TIER: REG FLD1: REG FLD2: 8

TERM: PENDING (X) NO FURTHER ACTION ( )

DISP: NO VIABLE RESP PARTY ( ) VOLUNTARY RESPONSE ( )

ENFORCED RESPONSE ( ) COST RECOVERY ( )

DESCRIPTION:

* ACTION: _

ITT

Suspension Systems Division

P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4508

JAN 30 1984

January 26, 1984

Industrial & Hazardous Waste Management Program
Environmental Protection Division
Room 724, 270 Washington St., S.W.
Atlanta, GA 30334

Attn: Annual Reports

Dear Sir:

Enclosed is our Georgia Annual Hazardous Waste Report for 1983, forms A and B. Forms C and D are not applicable to us.

If any additional information is required, please contact us.

Sincerely,

W. Joseph Hyder

W. Joseph Hyder
Chemist/Environmental Quality

WJH/csk

Enclosure

Georgia Environmental Protection Division
GEORGIA ANNUAL HAZARDOUS WASTE REPORT
Reporting Period January 1 thru December 31, 1983
FORM A
IDENTIFICATION

Please print/type with Elite type (12 characters per inch)

I. EPA I.D. NUMBER GAD098584063

II. NAME OF INSTALLATION
ITT/SUSPENSION SYSTEMS DIVISION

III. INSTALLATION MAILING ADDRESS

PO BOX 10278
Street or P.O.Box
MACON GEORGIA 31297
City or Town State Zip Code

IV. LOCATION OF INSTALLATION (if different than Section III. above)

7980 INDUSTRIAL HIGHWAY
Street or Route Number
MACON GEORGIA 31208
City or Town State Zip Code
BIBB
County

V. INSTALLATION CONTACT

HYDER W JOSEPH
Name (last and first)
912-781-0170
Phone No. (Area code & number)

VI. PROCESS IN USE (Check as appropriate)

SQG	GEN	TRN	T01	T02	T03	T04	S01	S02	S03	S04	D80	D81	D83
	X						X						

X PRIVATE (Handle only self generated waste) ___ COMMERCIAL (Handle waste generated from other sources)

VII. CERTIFICATION - I certify under penalty of Law that I have personally examined an am familiar with the information submitted in this and all attached documents, and tha based on my inquiry of those individuals immediately responsible for obtaining th information. I believe that the submitted information is true, accurate, and complete I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

D.A. Mynatt, General Manager — 1-27-84
Print/Type Name & Title — Signature of Authorized Representative — Date Signed

Name of Installation: ITT/SUSPENSION SYSTEMS DIVISION

EPA I.D. Number: GAD098584063

Form B

SELF-GENERATED HAZARDOUS WASTE AND ITS DISPOSITION

	F006	F001				
1. EPA HAZARDOUS WASTE NUMBER						TOTAL
2. On Hand, On-site on January 1, 1983	.075	.250				.325
3. Generated during 1983	20.655	.500				21.155
4. TOTAL AMOUNT FOR WHICH TO ACCOUNT	20.730	.750				21.480
5. Shipped to State of Alabama	20.680					20.680
6. Shipped to State of						
7. Shipped to State of						
8. Shipped to State of						
9. Shipped to Georgia Facility for Use, Reuse, Recycle or Reclaim						
10. Shipped to Georgia Facility for Treatment, Storage, or Disposal						
11. Treated On-site						
12. Treatment Code						
13. Disposed of On-site						
14. Disposal Code						
15. On Hand, On-site on December 31, 1983	.050	.75				.800
16. Storage Code	501	501				
17. Other (Explain)						
18. TOTAL AMOUNT OF DISPOSITION	20.730	.75				21.480

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

TRIP REPORT
February 7, 1984

SITE NAME & LOCATION: ITT Suspension Systems Division, Macon, Georgia

TRIP BY: Alan R. Laros ARL

ACCOMPANIED BY: None

FILE COPY

DATE OF TRIP: January 31, 1984, 9:30 a.m.

OFFICIALS CONTACTED: Joe Hyder, Plant Chemist, P.O.Box 10278, Macon, GA 31208 Phone: 912/781-0170
Eugene Parrish, Quality Control Analyst, P.O.Box 10278, Macon, GA 31208 Phone: 912/781-0170

REFERENCE: Trip Report, letter and ISS Inspection report dated 12/21/82

COMMENTS:

This facility manufactures shock absorbers and McPherson struts for the Ford Motor Company. A chroming process is used for plating the steel support rods used in both applications and as a result (F006) chromic acid sludge is generated (see enclosed diagram of plating operation). Liquid waste, including drag-out and wash and rinse water, is run through a wastewater treatment system. Wastewater is converted from hex to tri-valent chrome using sodium bisulfite.

The liquid is then run through a filter press, is pH adjusted, and finally is disposed via a POTW. The dewatered (F006) sludge is deposited in a 20 cubic yard roll-off container for temporary storage. ITT, Macon, is now using Chem Waste Management of Alabama both as transporter and as disposer of this sludge.

As per Georgia's Rules for Hazardous Waste Management §§264.1g(6) and 265.1(c)(10), the wastewater treatment system, including the filter press does not need a hazardous waste facility permit (See Georgia RIM #1 dated 11/22/83). The wastewater treatment system is, however, regulated by and was inspected for the requirements under Subpart B §266.10.

The process chromic acid tanks are drained yearly during Christmas week. The chromic acid is put into temporary holding tanks while the sludge is removed from the primary tanks. This sludge is then run through the waste treatment process and the chromic acid is put back into the process tanks for re-use. The entire chrome plating operation, consisting of a series of steel tanks, rests on a reinforced concrete floor with a 10 inch concrete berm surrounding it. All floor

drains, both inside and outside the bermed area, lead into the wastewater treatment system.

In addition to the above, this facility generates (F002) wastes in the form of spent Methylene Chloride and 1,1,1, Trichloroethane solvents. These solvents are generated in small amounts (only 12 drums have accumulated in the drum storage area since February 11, 1982). On that date Ramsey Chemical Company removed a load of spent solvents from the facility "as documented by manifest". Minor corrections in drum storage practices were recommended during my inspection.

An additional filter press system is used to separate metal grinding sludge from waste cutting oil. The oil is removed from the facility by Carl Durden Waste Oil Company of Warner Robins, Georgia. The metal grindings are disposed along with all non-hazardous solid wastes by Browning Ferris.

Shock absorbers are painted via a dip tank. The only waste which is generated by this process is a sludge from periodic clean-out of the dip tank. I have requested EP and flash point tests on both the paint sludge and the cutting oil.

All paperwork violations noted by Margaret Markey on her 11/22/83 inspection have been corrected.

CONCLUSIONS:

This facility qualifies as a generator of hazardous waste and has the option of withdrawing their Part A application for treatment and storage of hazardous waste.

RECOMMENDATIONS & FOLLOW-UP REQUIRED:

This company does not plan to continue trying to delist its (F006) sludge. Following receipt of my inspection report and compliance status letter they plan to request withdrawal of their Part A application.

PHOTOGRAPHS: None

REVIEWED BY: JKD 2/8/84

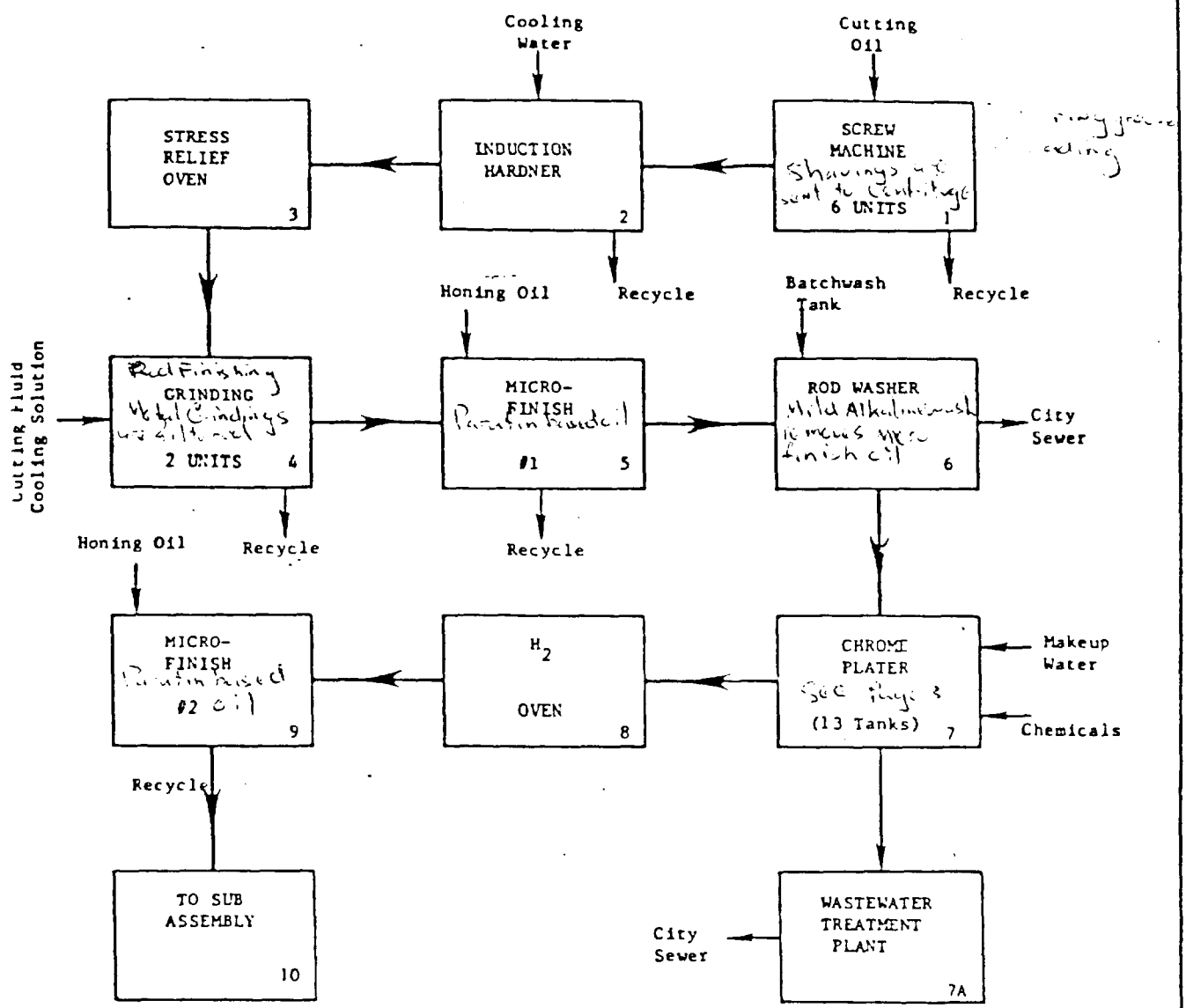
ATTACHMENTS: Copies of drawings for (1) process flow; (2) chrome plater flow; (3) schematic of wastewater treatment plant; and (4) Material Safety Data Sheet for shock absorber paint.

FILE: ITT Suspension Systems Division, Macon (R)

AL:mg:3122B

FIGURE 1

PROCESS DIAGRAM



Notes:

(1) Honing & Cutting Oils are centrifuged to remove metal shavings and recycled.
(2) Cooling water is recycled by use of cooling tower.
(3) Rod washer is batch process discharged directly to city sewer.

ITT

Suspension Systems Division

P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4508

April 3, 1984

APR 04 1984
ENVIRONMENTAL PROTECTION DIVISION
LAND PROTECTION BRANCH

Jennifer R. Kaduck
Environmental Protection Division
270 Washington St. S.W.
Atlanta, GA 30334

Dear Ms. Kaduck:

We would like to issue a formal request for withdrawal of our Part A application as to avoid pursuit of a hazardous waste handling permit. We are prepared to maintain proper records to insure that our storage of hazardous waste does not exceed ninety (90) days. Also, we are in the process of implementing a more formal personnel training plan for hazardous waste handling.

We invite and encourage any advice and information that you may have to offer us. Please feel free to call us if you have any suggestions.

Sincerely,

W. Joseph Hyder

W. Joseph Hyder
Chemist/EQC

William M. Churchill

William M. Churchill
Director Product Engineering

WJH/csk

cc: Alan Laros

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

April 11, 1984

FILE COPY

Mr. William M. Churchill
ITT Suspensions Company
P. O. Box 10278
7980 Industrial Hwy.
Macon, Georgia 31297

Re: Request for Facility Status Change for the ITT Suspensions Company Plant, 1980 Industrial Hwy., Macon, Georgia EPA ID# GAD098584063

Dear Mr. Churchill:

This will acknowledge receipt of your request for withdrawal of your application for a Hazardous Waste Facility permit.

Based on the information provided, withdrawal of your application is warranted and your permit application has been placed in our inactive files.

As requested, your status has been changed to a hazardous waste generator and your EPA Identification Number has been retained. (Note: As a generator of hazardous waste you will be required to comply with Part 262 of Georgia's Rules for Hazardous Waste Management.)

Please be advised that withdrawal of your permit application invalidates any variance that you received to continue existing hazardous waste treatment, storage or disposal during the permit review process and that based on our concurrence with your withdrawal request, the Federal Environmental Protection Agency will terminate your facility's interim status.

Should you wish to treat, store or dispose of hazardous waste in the future it will be necessary that a hazardous waste handling permit be issued, prior to the construction of such facilities, under authority of Section 8 of the Georgia Hazardous Waste Management Act and Section 391-3-11-.10 of Georgia's Rules for Hazardous Waste Management.

If further clarification is needed on this matter, please feel free to contact Alan Laros at 404/656-7802.

Sincerely,

John D. Taylor, Jr.
Program Manager
Industrial & Hazardous Waste
Management Program

JDT:alg:3303B
cc: James H. Scarbrough
Alan Laros

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

ENVIRONMENTAL PROTECTION DIVISION

INDUSTRIAL & HAZARDOUS WASTE MANAGEMENT PROGRAM

Complaint Record

Received By EPA/Joe Surowiec

Log Number 5-60

Date Received 9/4/84

Duty Officer Pierce

Date Referred 9/4/84

Complainant: Name Ray Wilkerson

Address EPA, Atlanta

Phone No. 881-2234

Alleged Source: Name ITT SSD (Suspension Systems Div

Address Macon, Ga.

County Bibb

If Available: EPA I.D. No. GAD098584063 Seq. No. 00600

Location Directions

Call Dave Bates, former employee of ITT SSD, who now works for city of Elkhardt, Ind. at 219/294-5471, ext. 228

Details of Complaint

ITT SSD Machine Shop has hauler (name unknown) out of Byron, Ga. pick up & dispose of acids on local farm. Call Dave Bates for details.

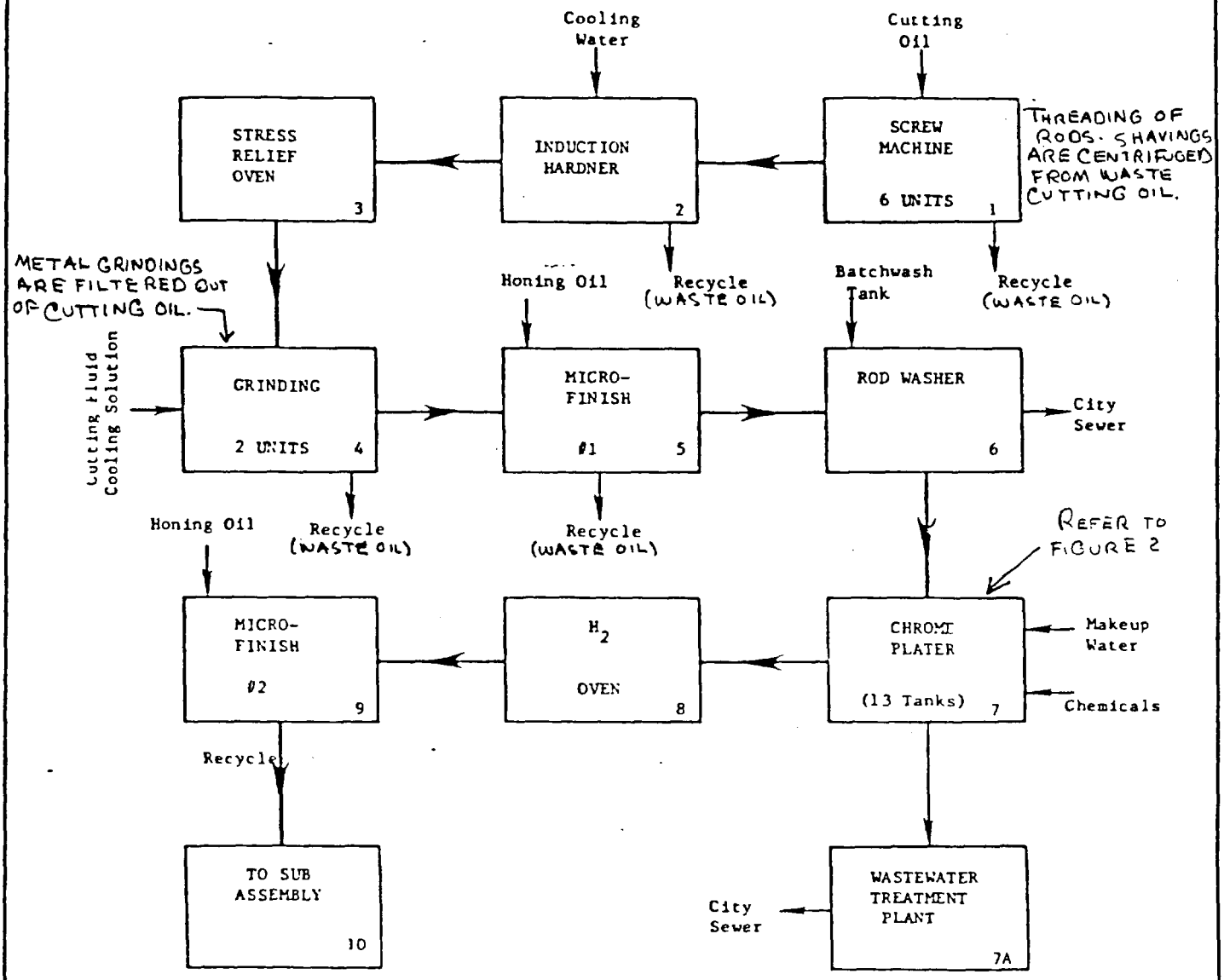
Details Of Investigation Should Be Sent To:

Complainant /_/ Other

File: Original & 1st copy to Investigating Unit
2nd copy - Complaint Log

FIGURE 1

PROCESS DIAGRAM



Notes:

(1) Honing & Cutting Oils are centrifuged to remove metal shavings and recycled.
(2) Cooling water is recycled by use of cooling tower.
(3) Rod washer is batch process discharged directly to city sewer.

FIGURE 2

CHROME PLATER FLOW DIAGRAM

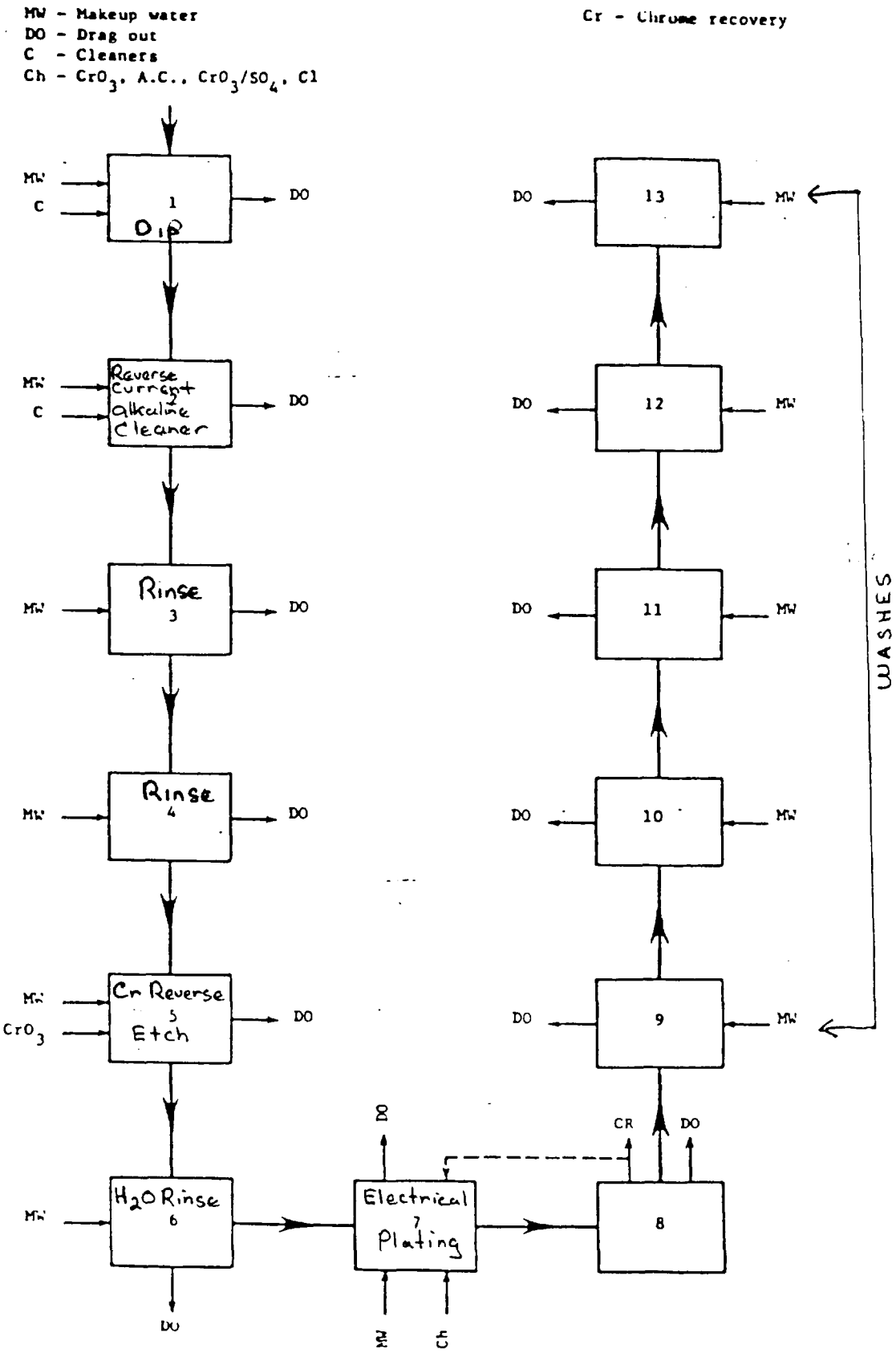
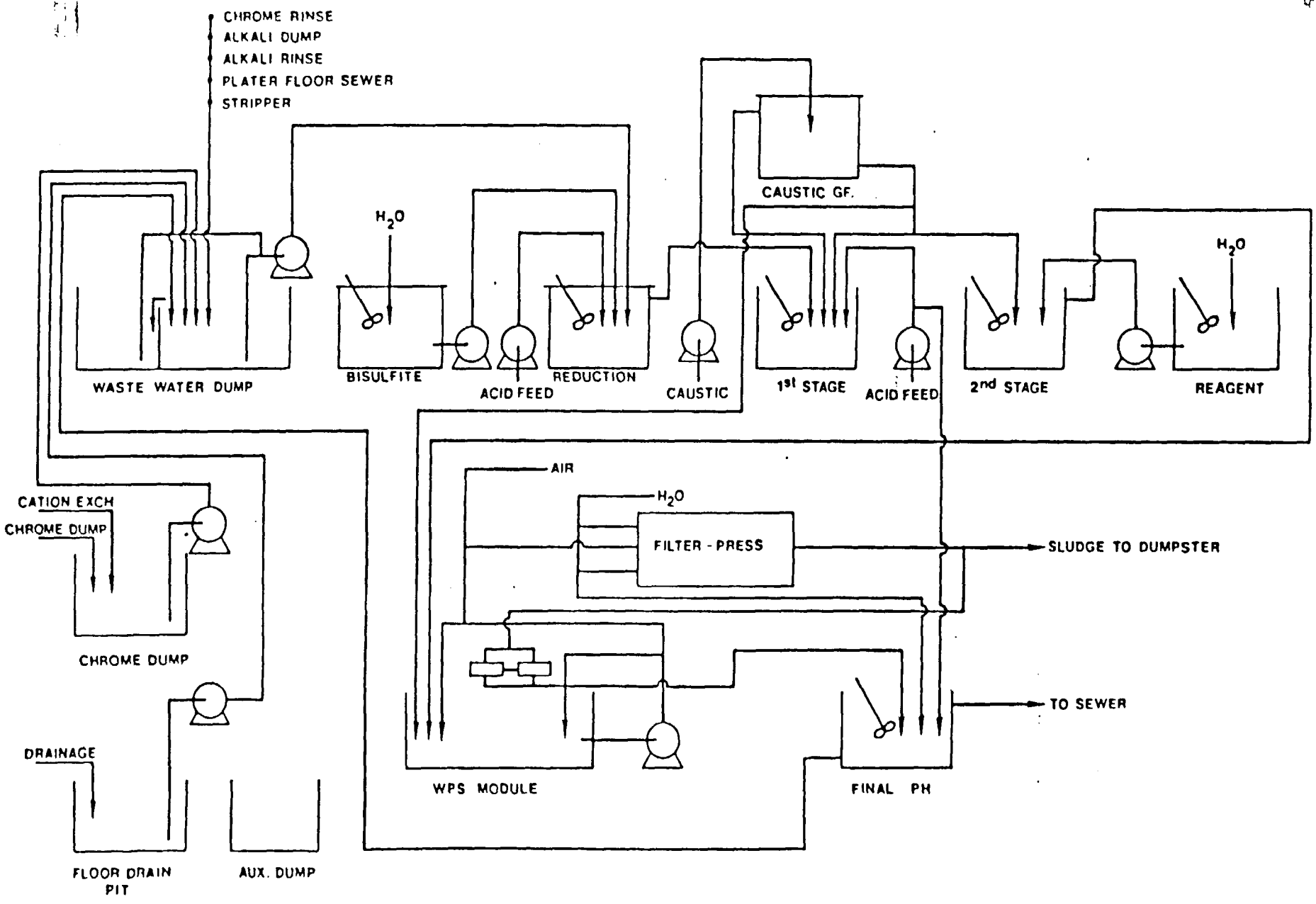


FIGURE 3 SCHEMATIC DIAGRAM OF WASTEWATER TREATMENT PLANT



AN ENGINEERING-SCIENCE COMPANY

HARMON ENGINEERING & TESTING

GEORGIA DEPARTMENT OF NATURAL RESOURCES
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334

LAND PROTECTION BRANCH
Industrial & Hazardous Waste
Management Program
(404) 656-7802

GENERATOR STANDARDS INSPECTION CHECKLIST

SECTION I. FACILITY INFORMATION

SIC 3714 TSDF? Yes ___ No X Transporter? Yes ___ No X INSPECTION DATE: October 30, 1984

ITT Suspension Systems Div. GAD 098584063 Bibb
Facility Name I.D. No. County

P.O. Box 10278 Macon 31297 912-781-0170
Mailing Address City Zip Telephone Number

Same as above
Name of Owner/Operator Inspector's Signature

SECTION II. INSPECTION SUMMARY & REVIEW

Reason for Inspection: ___ Routine ✓ Other Complaint

Discussed with:

Name: Joe Hyder Title: Plant Chemist

Address: Same as above Telephone: Same

Name: Title:

Address: Telephone:

Copy of this report submitted to:

Name: Same as above Title:

Address: Telephone:

Name: Title:

Address: Telephone:

Photographs: ___ yes X no: No. ___

Samples collected: ___ yes X no: No. ___ Split ___ yes ___ no

Summary of Findings: See NOV

Reviewed by: [illegible] Review date: [illegible] 84

Attachments: None

Form: HW 0038F/1983

SECTION III. GENERATOR CHECKLIST

	MEETS REQUIREMENTS		
	Yes	No	N/A
1. Facility notified as a generator and has obtained an EPA ID #? (262.12)	X		
2. Facility has identified all wastes as hazardous or non-hazardous? (262.11)	X		
3. Facility stores waste in containers for less than 90 days (262.34)(265 Subpart I)	X		
(a) drums in good condition, no leaks,	X		
(b) compatible with waste?	X		
(c) drums kept closed during storage	X		
(d) drums inspected weekly	X		
(e) ignitable or reactive waste stored ≥ 50 ft. from property line?	X		
(f) incompatible wastes separated by dike or berm?			X
(g) date of accumulation period clearly marked on each container.	X		
4. Facility stores wastes in tanks for less than 90 days (262.34) (265.17 and 265, Subpart J)			X
(a) are ignitable or reactive wastes separated from sources of ignition?			
(b) are wastes handled so as to prevent rupture, leaks, etc.			
(c) if tank is uncovered, is there ≥ 2 feet freeboard or a containment structure?			
(d) if continuous feed, is there a means to stop inflow?			
(e) is discharge control equipment, monitoring equipment, tank level inspected daily?			
(f) is tank construction and any discharge confinement structure inspected weekly?			
(g) ignitable or reactive wastes treated, rendered, or mixed to be non-ignitable or non-reactive <u>or</u> protected from ignition or reaction <u>or</u> tank used only for emergencies?			
(h) covered tanks storing ignitable or reactive wastes comply with buffer zone requirements			
(i) facility does not store incompatible wastes in same tank?			

	Yes	No	N/A
5. Wastes are manifested properly? (262.20)	X		
6. Each container/tank is marked "Hazardous Waste" during accumulation. (262.34)	X		
7. Wastes are labelled, marked "Hazardous Waste" (49 CFR 172.304) and placards offered to transporter prior to transport? (262.30)	X		
8. Facility is operated and maintained to minimize possibility of fire, explosion, or release of hazardous waste to the environment. (262.31)	X		
9. Facility has the following equipment to deal with hazards posed by waste handled: (265.32)	X		
(a) alarm system	X		
(b) telephone or 2-way radio	X		
(c) fire extinguishers	X		
(d) water	X		
10. Facility tests and maintains above equipment as necessary. (265.33)	X		
11. Personnel have immediate access to communications or alarm systems (265.34)	X		
12. Adequate aisle space maintained. (265.35)	X		
13. Arrangements with local authorities have been made to familiarize them with facility, designated response authority, etc. (265.37)		X	
14. Contingency plan written (265.51). If yes: contingency plan includes (265.51)	X		
(a) facility personnel action responses		X	
(b) describes local authorities agreements		X	
(c) lists names, addresses, phone #'s of emergency coordinators, designates primary emergency coordinator, and lists others in order of assumption of responsibility		X	
(d) lists all emergency equipment at the facility, location, physical description and capabilities		X	
(e) includes an evacuation plan for facility personnel		X	
(f) copies of contingency plan submitted to police, fire department, hospital, local emergency response teams		X	
(g) contingency plan amended when necessary		X	
(h) at least one emergency coordinator is on facility premises or on call	X		
(i) Emergency coordinator responds immediately to emergencies. (265.56)	X		

	Yes	No	N/A
15. Facility has a personnel training program of classroom instruction or OJT? (265.16) If so:	X		
(a) training is directed by person trained in hazardous waste management procedures	X		
(b) personnel complete training within 6 months of employment or assignment	X		
(c) personnel take part in annual review of training	X		
(d) the following documents are maintained:	X		
1. job title and name of employee	X		
2. job description	X		
3. amount and type of initial and continuing training to be given each person filling a position	X		
4. documentation of training as job experience given to and completed by personnel	X		
5. records kept until closure or 3 years past employment of individual personnel	X		
16. Manifest records, exception reports, annual reports, test results, and waste analyses are kept for 3 years (262.40)	X		
17. Annual reports submitted (262.41)	X		
18. Exceptions reports submitted (262.42)			X
19. Are wastes exported or imported? (262.50) If yes, refer to 262.50 for a list of requirements			X

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

TRIP REPORT
November 28, 1984

SITE NAME AND LOCATION:.....ITT Suspension Systems Divison
P. O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170

TRIP BY:.....Tim Cash

Accompanied by:.....None

DATE OF TRIP:.....October 30, 1984

OFFICIAL CONTACTED:.....Mr. Joe Hyder
Plant Chemist
ITT-SSD Macon

REFERENCE:.....Complaint Log Number 5-60 dated 9/4/84
Trip Report dated 2/7/84

COMMENTS:

I. FACILITY MANUFACTURING PROCESSES

This facility manufactures and assembles McPherson struts and shock absorbers. The basic manufacturing process involves threading, machine finishing, washing, and plating steel rods to which other components are attached to form the core of the shock or strut. The core of the strut is enclosed in a steel casing and painted for the finished product.(Refer to "Figure 1/Process Diagram.")

II. WASTES GENERATED

1. The following wastes streams were identified:

a. Wastewater treatment plant filter press sludge.(F006) The waste is generated from the treatment of wastewater resulting from the chrome plating operation. (Refer to "Figure 3/Schematic Diagram of Wastewater Treatment Plant.")

b. Grindings and shavings. These wastes are generated in the screw machine and grinding units (units 1 and 4, Figure 1) In the screw machine unit, the shavings are separated from waste cutting oils by centrifuge and are sold to Macon Iron and Paper Stock for recycling. Grindings from the grinding

unit are filtered from the waste cutting oil onto a paper filter. The paper filter is collected in a bin, allowed to drain and is then dumped into a large BFI metal roll off bin where it is disposed of by sanitary landfilling.

c. Waste oils. Waste oils are generated at numerous locations throughout the plant as indicated on Figure 1. The waste oils are consolidated in a storage tank inside the plant. An analysis of the waste oils indicates them to be non-hazardous.

d. Spent solvents. Small amounts of spent solvents (methylene chloride and 1,1,1 trichloroethane) are generated from hand wiping and cleaning of parts.

e. Dip tank sludge. Products are painted with a black enamel by dipping in a tank. Periodically the tank is cleaned out which results in the generation of a sludge. No generation volumes were available but Mr. Hyder stated that the tank is rarely cleaned and only small amounts of waste are generated. An analysis of the sludge requested by Alan Laros during his January 31, 1984 visit indicated a chromium content of 36 ppm.

III. PLANT INSPECTION

a. The primary purpose for this inspection was as a response to a complaint received on September 4, 1984. (Refer to Complaint Log Number 5-60.) The complainant was Mr. Dave Bates, a former ITT employee, who alleged that an unknown hauler picked up and disposed acids on a local farm. On September 20, 1984 I called Mr. Bates at 219-294-2617 in Elkhart, Indiana. Mr. Bates stated that a tanker would periodically come into the plant and pump a water soluble oil or acid from a floor tank in the plant and dispose of the waste by spreading it on the ground at a local farm around Byron. Mr. Bates stated that he left ITT in May, 1984 and that he had last witnessed this act in April, 1984. Mr. Bates stated that he had spoken to his supervisors at ITT about this practice and that he had been threatened with dismissal. Mr. Bates stated that the following ITT individuals were aware of this practice:

Eugene Parrish - Quality Control Analyst
Tom Pidgeon - Engineering
Bobby Copeland - Purchasing
Joe Hyder - Plant Chemist

b. During the inspection I questioned Mr. Hyder regarding the handling of all waste oil at the facility. Mr. Hyder stated that Carl Durden, 101 Brantley Road, Warner Robins, (912) 953-3476 pumped out the waste oil tank about once per month. He was not aware of the final disposition of the waste oil other than it was disposed of by dumping on land in the Byron area.

c. Upon entering the plant property I observed a milky liquid in a drainage ditch along Industrial Highway. The liquid appeared to be a mixture of cooling water and leachate from the plant's solid waste roll off bin. During the inspection, it was learned that this leachate results from the waste oil exuding from the filter paper used to filter grindings and shavings. After the filter paper is placed in the bin, waste oil continues to drip off the filter and leak through the bottom of the bin. Mr. Hyder was informed that provisions would have to be made to eliminate this problem. While on a visit to the Middle Georgia Region EPD office on November 13, 1984, I spoke with Karen Gottwald, Environmental Specialist, who stated that she had responded to a complaint regarding this problem and had sent ITT a letter requesting corrective action. I have requested that a copy of this correspondence be sent to this office in order to coordinate compliance activities.

d. No violations were observed with regard to any hazardous waste handling.

IV. RECORDS EXAMINATION

a. A review of the facility's manifests indicated no violations or deficiencies.

b. A review of the facility's contingency plan indicated the following violations:

1. For failure to describe facility personnel actions.

2. For failure to describe local authorities agreements.

3. For failure to include a list of home addresses for emergency coordinators.

4. For failure to include an evacuation plan.

5. For failure to provide a list of all emergency equipment including the location and a physical description of each.

CONCLUSIONS:

1. Facility may be improperly disposing of waste oils.

2. Facility in violation of Part 265 generator requirements as outlined in Notice of Violation.

RECOMMENDATIONS AND FOLLOWUP REQUIRED:

1. Conduct investigation to determine disposition of waste oil by Carl Durden.

2. Send Notice of Violation regarding Part 265 generator requirements.

3. Coordinate with Region to ensure that waste oil runoff is corrected.

REVIEWED BY: [illegible] 11/[illegible]/84

ATTACHMENTS: 4

FILE: ITT Suspension Systems (R)

TC/mcw014

Suspension Systems Division

P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4508

January 31, 1985

Mr. Tim Cash
Hazardous Waste Management Program
Environmental Protection Division
270 Washington Street, S. W.
Atlanta, Georgia 30334

Dear Tim:

The chromic acid which we use in our chrome-plating operation at ITT Suspension Systems Division is received from the manufacturer in 100 pound containers. Some of these containers are heavy-duty cardboard drums and others are metal, 5 gallon size drums. Both kinds of these containers contain polyethylene bag liners which we are shipping to Emille, Alabama via Chemical Waste Management. The empty drums with liners removed are not considered hazardous waste and are being disposed of locally.

This method of handling is according to our understanding of 40 CFR 261.7 (a) (1) and 40 CFR 261.7 (b) (3) (iii).

Please advise us of Georgia E.P.D.'s approval or disapproval of this practice.

Sincerely,

David Vinson

David Vinson
Chemist

DV:djp

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

J. LEONARD LEDBETTER
Commissioner

Received 2/5/85

TRIP REPORT
February 1, 1985

Site Name and Location: ITT Suspension Systems Division, 7980 Industrial Highway, Macon, Georgia 31297

Trip By: Tim Cash TJC

Accompanied By: None

Date of Trip: January 24, 1985

Officials Contacted: Mr. David Vinson, Plant Chemist, ITT-SSD
Mr. Carl Durden, Carl Durden Waste Oil, 101 Brantley Road, Warner Robins, Georgia (912) 953-3476

Reference: Trip Report dated November 28, 1984 confirming October 30, 1984 inspection

Comments:

1. This inspection was conducted for the purpose of inspecting the location where wastes generated by ITT-SSD had allegedly been disposed of by Carl Durden. The purpose of this inspection was also to collect a sample of the waste from the floor tank at ITT-SSD. At the time of the last inspection, it was agreed that Joe Hyder, Plant Chemist, would inform me by telephone of the next planned disposal of the floor tank wastes by Mr. Durden. However, Mr. Hyder left employment at ITT-SSD, and it was suspected that disposal of the waste by Mr. Durden would continue.

2. I met with Mr. Durden at his residence who stated that he has removed waste oils from ITT-SSD. He stated that the liquid waste oil from the floor tank was pumped by him and transported to Southern Chemical Products in Macon where it was used to manufacture floor sweeping compounds. Mr. Durden stated that the sludge in the bottom of the tank has no recoverable value and was disposed of by applying to a dirt road and also a dirt parking lot in Peach County. Mr. Durden stated that he did not know exactly when this practice was begun but that he first started getting waste oil from ITT-SSD when John Shockley was the Plant Chemist. Mr. Durden stated that he also had helped ITT-SSD in August, 1984 when a spill of chromic acid occurred at the plant. Mr. Durden stated that he pumped spilled chromic acid from the floor of the plant back into a storage tank. Mr. Durden stated that he had obtained an EPA identification number in 1982 or 1983 and that he had talked with Bill Gallagher at EPA. Mr. Durden stated that his number was GAD980709968.

3. I requested that Mr. Durden accompany me to the two locations where waste oil from ITT-SSD had been disposed of. Mr. Durden's son accompanied me to the farm of Mr. Ed Vinson located off of White Road in Peach County (see attached map). Mr. Durden's son stated that the last time waste oil from ITT-SSD had been disposed of at this location was in December, 1984. The road upon which the waste oil had been disposed of was a hard packed dirt road. Obvious contamination was observed evidenced by a dark discoloration and greasy appearance of the road. We also visited the property of Mr. Bill Green located off of Linda Drive in Byron. The waste oil at this location was disposed of on a dirt parking lot at a feed, seed and fertilizer dealer. The appearance of soil at this location was similar to that of the Ed Vinson property.

4. We then returned to Mr. Durden's residence. Mr. Durden had left to go to ITT-SSD to discuss the matter with them. Mr. Durden's son assisted me in collecting a sample of oil from his tanker truck. Mr. Durden's son stated that the day before that waste oil had been picked up from a John Deere service center in Macon and from YKK also in Macon. Results of the analyses are attached. It was also observed that waste oil is being stored in several large storage tanks at his residence, each with a capacity of approximately 3,000 gallons.

5. I then visited ITT-SSD and met with Mr. David Vinson at which time I hand delivered the comments letter dated January 24, 1985. I questioned Mr. Vinson regarding the floor tank and the method of handling the waste oil. Mr. Vinson stated that he had only been employed by ITT-SSD very recently and that he had no knowledge of the tank other than it was used for the disposal of floor sweepings collected by the floor sweeper. Mr. Vinson also stated that it was likely that spills of waste cutting oil from the hydromation machine were also disposed of in the floor tanks. We then inspected the floor tank area at which time it was observed that a floor sweeping machine was emptying collected floor sweepings into the tank. We then asked Mr. Eugene Parrish for assistance in determining the volume, size and access points to the tank. Mr. Parrish stated that he did not know anything about the tank. Mr. Vinson and I then collected a sample of the liquid from the tank using a Black and Decker hand pump and placing the sample in a polyethylene bottle. Mr. Vinson stated that he would collect a sample later. After discussing the sources of wastes which enter this tank it was learned that one cutting fluid which could be entering the tank is Cimperial 1011 and contains a high phenol content according to the product's Material Safety Data Sheet. Results of the analyses conducted upon the sample collected from the tank are attached.

6. An inspection was also conducted of the solid waste container storage area, and it was observed that leak proof containers had been installed, that a curb had been built to control run-off, and that a sump had been built to store contained run-off. Materials were on-site and being prepared for the construction of a roof over the container storage area. Contaminated soil had also been removed from the drainage ditch leaving the facility. The discharge of non-contact coolant water contaminated with algacide had also been connected to the Macon-Bibb County sanitary sewerage system.

Conclusions:

1. Receipt of analyses needed prior to determination as to facility's violation status.

2. Other violations regarding run-off from solid waste container storage area eliminated by corrective action.

3. Additional information required regarding contingency plan.

Recommendations and Follow-Up Required:

1. Receive results of analyses.

2. Send letter to ITT-SSD to confirm visit, request disposal of waste to cease immediately and that a sample be collected from floor tanks and the results submitted by March 8, 1985. Also request written proposal for handling of waste.

3. If results of samples indicate presence of hazardous constituents, then we should consider sampling of Peach County disposal sites.

Photographs: None
Reviewed By: L. Lewis Hudson 4-11-85
Attachments: 3

TC:rw:033
File - ITT Suspension Systems Division - Macon - (R)

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

April 18, 1985

MEMORANDUM

TO: Howard Barefoot

THRU: Renee Hudson

FROM: Tim Cash

RE: Telephone Conversation With David Vinson
ITT Suspension Systems Div., Macon, Ga.

This is to confirm the above referenced conversation on April 10, 1985 at which time Mr. Vinson called to confirm receipt of our letter dated April 2, 1985. He said that the letter had been postmarked April 5, 1985 and that it was received on April 9, 1985. Mr. Vinson also informed me that the results of the analyses we conducted on a sample from the floor tank were not enclosed as stated in the letter. The results were mailed separately on April 10, 1985.

I informed Mr. Vinson that our lab had detected trichlorofluoroethane. and he stated that the only similar halogenated solvent used at the facility is 1,1,2 trichloro 1,2,2 trifluoroethane. Mr. Vinson was not aware that 1,1,2 trichloro 1,2,2 trifluoroethane was a listed waste.

I also asked Mr. Vinson if the results of their analyses showed total or extractable lead and chromium. He stated that he had requested extraction procedure toxicity chromium. He also stated our correspondence stated that he had collected a sludge sample from the tank while he claimed that his sample was a free liquid. I told Mr. Vinson that the term "sludge" had been used to describe the sample they had analyzed.

With regard to the proposed joint sampling, Mr. Vinson stated that ITT did not wish to have any further contact with Carl Durden as we had requested. He stated that Mr. Durden had been "run off" by ITT. He stated that ITT wanted to cooperate in every way possible, but that the plant management wanted to consult with upper level management. Mr. Vinson stated that ITT was concerned that their cooperation with us could result in their being held liable for clean up and/or civil penalties. I told Mr. Vinson that no enforcement action was proposed at this time. Mr. Vinson stated that he would consult with upper level management and call me back. Mr. Vinson called back later that day and stated that he had talked with Barry Beck, who is apparently associated with corporate environmental programs, and that a sampling inspection might be scheduled tentatively for the first week of May, 1985.

TC:jc

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

J. LEONARD LEDBETTER
Commissioner

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

June 12, 1985

TRIP REPORT

SITE NAME AND LOCATIONS:..... ITT Suspension Systems
Ed Vinson Property/W.E. Green
Parking Lot
Peach County

TRIP BY:..... Tim Cash TLC

Accompanied by:..... None

DATED OF TRIP:..... May 7, 1985

OFFICIALS CONTACTED:..... David Vinson, Plant Chemist
ITT Suspension Systems
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170

Mr. Carl Durden
101 Brantley Road
Warner Robins, GA. 31093
(912) 953-3476

W. E. "Bill" Green, III
President, W. E. Green & Son, Inc.
P.O. Box 47
Bryon, Georgia 31008
(912) 956-4900

Barry F. Beck, PH.D.
Director, Florida Sinkhole
Research Institute
College of Engineering
University of Central Florida
P.O. Box 25,000
Orlando, Florida 32816
(305) 275-2043

REFERENCE: Trip Report dated February 1, 1985 confirming January 24, 1985 inspection, Correspondence dated April 2, 1985 from Howard Barefoot to David Vinson, Memo dated April 18, 1985 from Tim Cash to Howard Barefoot, Correspondence dated April 30, 1985 from Tim Cash to David Vinson

COMMENTS:

1. The purpose of this inspection was to conduct the sampling inspection as outlined in the above referenced file documents. I met with Mr. David Vinson and Mr. Beck, who was providing technical assistance to ITT, at the plant. I contacted Mr. Carl Durden by phone and requested that he meet us at the Ed Vinson Property. We then left the plant and met with Mr. Durden at the site. I asked Mr. Durden who's wastes were disposed of at this site and he stated that ITT's wastes alone were disposed of at this site and at that of Green and Son, Inc. Mr. Danny Durden, Carl Durden's son, was also present. Danny Durden informed us that he disposed of the wastes by opening a valve on his waste oil tanker truck and drove slowly down the road allowing the oil to flow out of a boom from behind the truck.

He stated that the oil was applied only to the improved or graded portion of the road as indicated on the attached sketch. This distance was travelled by Danny Durden and Mr. Vinson in Mr Vinson's truck and it was determined that the oil had been applied along a length of approximately 1200 feet. Mr. Durden and his son then left the site and the sampling began.

2. The road was divided into four segments of approximately 300 feet each. It was determined that three subsamples would be collected from each sample segment. (see attached sketch) The first segment was begun by going in from White Road approximately 40 feet and collecting a soil sample,(subsample 1a), from the eastern edge of the road. It was decided to collect the samples from the edge of the road because the road was graded to drain to each side, i.e., hump-back road. Grading and smoothing of the road, plus run off would have caused pollutants to accumulate along the edge of the road. Subsample 1b was collected approximately 100 feet north of subsample 1a on the western edge of the road, and subsample 1c was collected approximately 100 feet north of subsample 1b on the eastern edge of the road. The subsamples were each collected using a small plastic spade to collect soil down to a depth of approximately 3 to 4 inches, placing the soil in a plastic pan, mixing all three subsamples thoroughly, and splitting the composited sample into one quart glass containers. ITT provided their own glass containers which were identical to the Division's. This procedure was continued until 4 composite samples had been collected along the 1200 foot length of road. Obvious contamination was observed at each sampling location as evidenced by a darkened soil appearance and oil-like odor. Each sample was labeled, bagged, placed in a cooler and delivered to the Division's laboratory as indicated on the attached chain of custody form. Mr. Vinson also collected samples in teflon capped organics vials from the composited soil for volatile organics analysis as recommended by his contract laboratory.

3. We then left the site and went to Green and Son, Inc. located at New Dunbar Road, Bryon, Georgia. We met first with Mr. W. E. Green, III who stated that Mr. Durden had dumped waste oil on his parking lot, that the waste oil had come only from ITT, and that no waste oil had been disposed of at this location since December, 1984. The site was surveyed and it was determined that samples would be collected as indicated on the attached sketch. Almost the entire area, approximately 4 acres, is unpaved and is subject to large tractor-trailer traffic. The facility is involved in the bulk handling of grains, feed and fertilizer. As shown on the attached sketch, large trucks are also serviced, repaired and refueled. The entire parking area appears to have had waste oil applied to it as evidenced by a heavy oil-like odor and darkened soil appearance. The soil that was dug up also showed evidence of a heavy concentration of what appeared to be minute metal fines. Each grab sample was collected by digging soil down to a depth of approximately 3 to 4 inches with a plastic spade and filling each container separately from the same sampling point. The samples were split into separate one quart glass containers, labeled, bagged, placed into a cooler and delivered to the Divison's laboratory as indicated on the attached chain of custody form. Mr. Vinson shipped his samples to a laboratory in Research Triangle, North Carolina.

4. On May 8, 1985, Mr. Vinson telephoned me and left a message that Samples 1, 5 and 6 had been broken during shipment. Upon my return to the office on May 10, 1985 I called Mr. Vinson and he informed me that the one-quart glass containers had broken and that the organics vials were intact. This meant that the metals analyses could not be performed upon these samples. I informed Mr. Vinson that we would run those particular samples. As indicated on the attached lab request, it was originally intended to conduct analyses upon four of the samples primarily as a spot check on the analyses performed by ITT. As indicated on the final custody form, samples 1,3, 5 and 6 were delivered to our laboratory for analyses.

CONCLUSIONS: Results of analyses will determine if hazardous wastes generated by ITT, SSD have been disposed of at the subject location by Carl Durden.

RECOMMENDATIONS AND FOLLOW UP:

1. Await results of analyses.

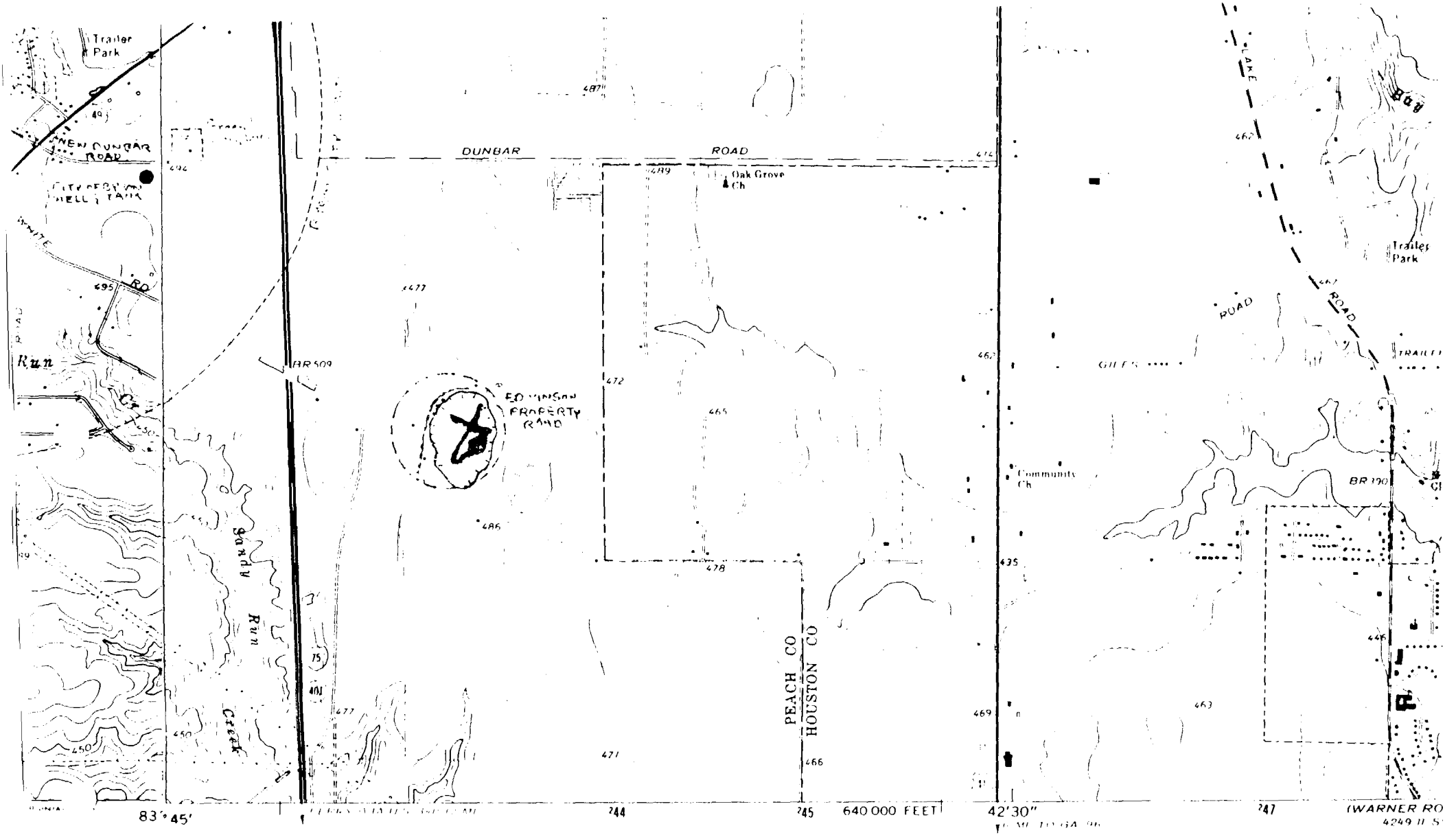
2. Send confirmation letter to ITT, SSD and request results of analyses upon completion.

ATTACHMENTS: 4 (four)

PHOTOGRAPHS: None

REVIEWED BY: L. Renée Hudson 6-14-85

TC:cm:015
File: ITT, Suspension Systems Division, Macon, Bibb Co. (R)



Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1973. Field checked 1973

Projection and 10,000 foot grid ticks: Georgia coordinate system, west zone (transverse Mercator)
1000 meter Universal Transverse Mercator grid ticks, zone 17, shown in blue. 1927 North American datum

Red tint indicates area in which only landmark buildings are shown

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

ad, hard or
face
road
State Route

ON, GA.
EY 15' QUADRANGLE
– W8345/7.5

1974

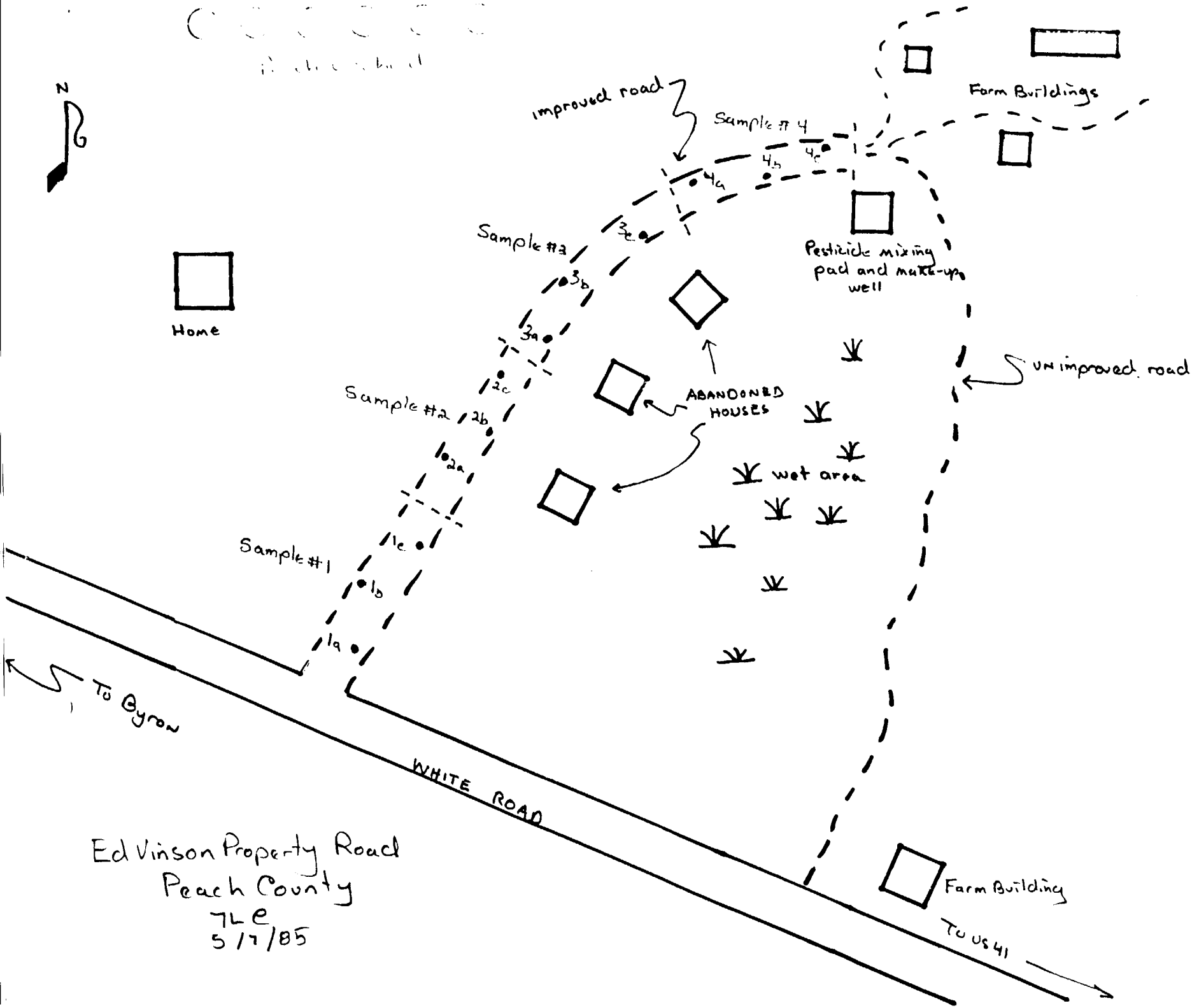
MN
GN
1°27'
26 MILS
1°
18 MILS

UTM GRID AND 1973 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

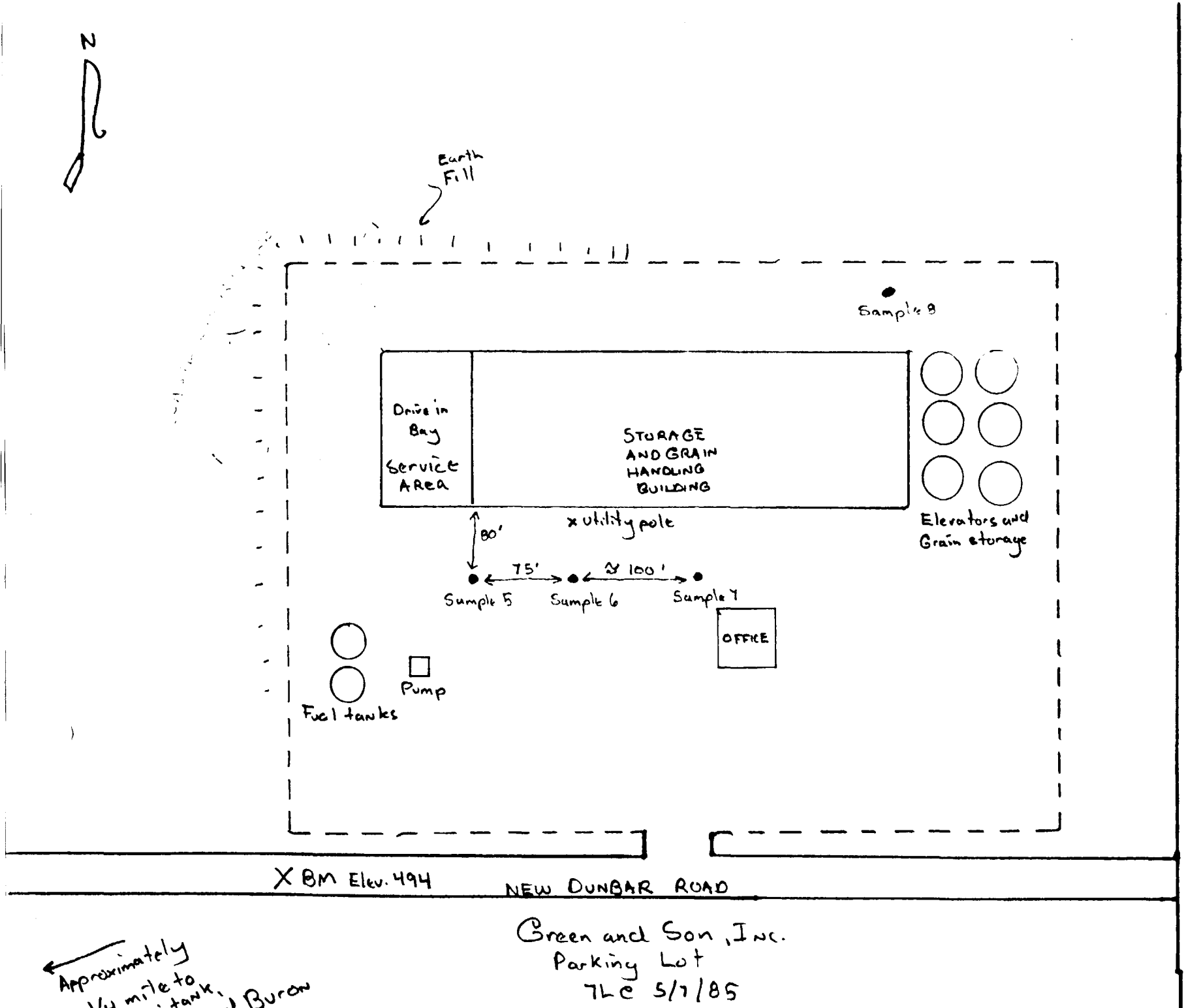
SCALE 1

CONTOUR INTER
NATIONAL GEODETIC VER

THIS MAP COMPLIES WITH NATIO
FOR SALE BY U S GEOLOGICAL S
A FOLDER DESCRIBING TOPOGRAPHIC MAPS



Ed Vinson Property Road
Peach County
7LE
5/7/85



Green and Son, Inc.
Parking Lot
TLC 5/7/85

I-75

LAND PROTECTION BRANCH

HAZARDOUS WASTE ANALYSIS REQUEST

~~Preliminary~~ Final

DATE: 5/7/85 PROJECT: ~~ITT Suppression Systems~~ COLLECTOR: Tim Cush

NO. SAMPLES: 4 LOG NOS. 1338, 1340, 1342, 1343 LIQUID ____ SOLID ✓ SOIL ✓

CAUSTIC ____ ACID ____ SOLVENT ____ UNKNOWN ____ SLUDGE ____

INFORMATION FOUND: Samples are composite samples from dirt road upon which wastes from ITT were disposed. Samples of similar waste from same source by ITT showed 20.6 ppm Cr and 19.7 ppm Pb. Cr sample of same waste showed

HAZARDOUS WASTE NOS. D004-D011, F002 Dichlorofluoromethane Company

HAZARDOUS HANDLING: None uses 1,1,2 trichlor-1,2,2 tri fluoroethane and 1,1,1 Tri

WORK PRIORITY (CRITICAL NEED) Routine

METALS ANALYSES

	TOT	DIS		
METALS (DW NO Hg)	☐	☐	EP METALS (DW NO Hg) ☑	100X ☑ 30X ☐
METALS (DW WITH Hg)	☐	☐	EP METALS (DW WITH Hg)	

	TOT	DIS		TOT	DIS				
NICKEL	☐	☐	CADMIUM	☐	☐	EP NICKEL	☐	EP CADMIUM	☐
ARSENIC	☐	☐	LEAD	☐	☐	EP ARSENIC	☐	EP LEAD	☐
CHROMIUM	☐	☐	MERCURY	☐	☐	EP CHROMIUM	☐	EP MERCURY	☐
CHROM-HEX	☐	☐	SELENIUM	☐	☐	EP CHROM-HEX	☐	EP SELENIUM	☐
____	☐	☐	____	☐	☐	____	☐	____	☐

SPECIFIC ANALYSES

pH	☐	SULFIDE	☐	% SOLIDS	☐	____	☐
FLASH PT	☐	SP.COND.	☐	TOT. PHENOLS	☐	____	☐
CYANIDE TOT.	☐	TOC	☐	CHLORIDE	☐	____	☐
CYANIDE AM.	☐	TOH	☐	FLUORIDE	☐	____	☐

ORGANIC ANALYSES

PESTICIDE SCREEN (EC)	☐	GC-MS ACID EXTRACTABLES	☐
PCB	☐	GC-MS BASE/NEUTRALS	☐
VOLATILE ORGANICS (VOA)	☑		

SPECIFIC ORGANICS: 1,1,1 trichloroethane, 1,1,2 trichloro 1,2,2, tri fluoroethane [illegible]

APPROVED: SFM AUTHORIZED: [illegible]

BW/0089F

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

LABORATORY RE RT

SAMPLE DATE: 5/7/85 PROJECT: ITT Suspension Systems Division COLLECTOR: Tim Cash

HW LOG NO.	HW 1339	HW 1340	HW 1342	HW 1343
LABEL	Sample #1 Soil sample From Road 1340 hr.	Sample #3 1410 hr.	Sample #5 Soil sample from Parking lot 1513 hr.	Sample #6 Soil Sample from Parking lot 1523

DATE REC'D 5-16-85

TIME REC'D 1410

REC'D BY: N Langford

DEL BY: Tim Cash

N Langford
LABORATORY MANAGER

DATE: 6-4-85

PARAMETERS	LAB NO.	HW 1339	HW 1340	HW 1342	HW 1343
EP Ag	mg/l	<10	<10	<10	<10
" As	"	<25	<25	<25	<25
" Ba	"	935	325	985	875
" Cd	"	<10	<10	<10	<10
" Cr	"	<10	<10	<10	<10
" Pb	"	<20	<20	<20	<20
" Se	"	<50	<50	<50	<50
1,1,1 Trichloroethane	mg/Kg	<1	<1	<1	<1
1,1,2 Trichloro-1,2,2 Trifluoroethane	"	<1	<1	<1	<1
Dichlorodifluoromethane	"	<1	<1	<1	<1
Dichlorofluoromethane	"	<1	<1	<1	<1
other volatile organic compounds	mg/Kg	<1	<1	<1	<1

REMARKS:

GEORGIA ENVIRONMENTAL PROTECTION DIVISION
LAND PROTECTION BRANCH

CHAIN OF CUSTODY

FACILITY: Ed Vinson Property Road / Bill Green ~~Prop~~ Parking Lot LOCATION: Peach County

SAMPLE #	LOG #	LAB I.D.	DESCRIPTION	COLLECTED BY (Name)	DATE	TIME
1	1338		Soil Sample from road / Ed Vinson Property	Tim Cash	5/7/85	1340
3	1340		Soil Sample from road / Ed Vinson Property	Tim Cash	5/7/85	1511
5	1342		Soil Sample from parking lot / Bill Green	Tim Cash	5/7/85	1513
6	1343		Soil Sample from parking lot / Bill Green	Tim Cash	5/7/85	1533

TRANSFER RECORD

TRANSFERRED BY (Name)	TO (Name) (IF FINAL: Lab Name)	DATE	TIME	METHOD OF TRANSFER	RECEIVED BY (Name)	DATE
Cash	Instrumentation	5-16-85	1410	Hand	Harold Langford	5-16-85

ANALYSES REQUESTED: EP metals (No Hg) 1,1,1, Trichloroethane, 1,1,2 trichloro-1,2,2 trifluoroethane

GEORGIA ENVIRONMENTAL PROTECTION DIVISION
LAND PROTECTION BRANCH

CHAIN OF CUSTODY

FACILITY: ~~Co~~ Ed Vinson Property Road LOCATION: Peach County

SAMPLE #	LOG #	LAB I.D.	DESCRIPTION	COLLECTED BY (Name)	DATE	TIME
1	1338		Soil sample from Road	Cash	5/7/85	1340
2	1339		Soil Sample from Road	Cash	5/7/85	1355
3	1340		Soil sample from Road	Cash	5/7/85	1410
4	1341		Soil Sample from Road	Cash	5/7/85	1430

TRANSFER RECORD

TRANSFERRED BY (Name)	TO (Name) (IF FINAL: Lab Name)	DATE	TIME	METHOD OF TRANSFER	RECEIVED BY (Name)	DATE
Cash						

ANALYSES REQUESTED: EP Metals, No mercury, 1,1,1 trichloroethane 1,1,2 trichloro-1,2,2 tri-fluoroethane

GEORGIA ENVIRONMENTAL PROTECTION DIVISION
LAND PROTECTION BRANCH

CHAIN OF CUSTODY

FACILITY: W.E. Green Parking Lot LOCATION: Peach County

SAMPLE #	LOG #	LAB I.D.	DESCRIPTION	COLLECTED BY (Name)	DATE	TIME
5	1342		Soil sample from parking lot	Cash	5/7/85	1513
6	1343		Soil sample from parking lot	Cash	5/7/85	1523
7	1344		soil sample from parking lot	Cash	5/7/85	1528
8	1345		soil sample from parking lot	Cash	5/7/85	1533

TRANSFER RECORD

TRANSFERRED BY (Name)	TO (Name) (IF FINAL: Lab Name)	DATE	TIME	METHOD OF TRANSFER	RECEIVED BY (Name)	DATE
Cash						

ANALYSES REQUESTED: EP metals, (No Hg), 1,1,1 Trichloroethane, 1,1,2 trichloro-1,2,2 ~~tri~~ trifluoroethane

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

J. LEONARD LEDBETTER
Commissioner

June 12, 1985

FILE COPY

Mr. David Vinson
Plant Chemist
ITT Suspension Systems Division
7980 Industrial Highway
Macon, Georgia 31297

RE: Sampling Inspection
Ed Vinson Property Road
W.E. Green & Son, Inc.,
Peach County, Georgia

Dear Mr. Vinson:

This is to confirm the above referenced inspection conducted on May 7, 1985 at which time we were accompanied by Mr. Barry Beck and at which time we met with Mssrs. Carl and Danny Durden and W. E. Green, III.

The purpose of this inspection was to collect soil samples from each of the above referenced locations where it is suspected that wastes generated by your facility were disposed of by Carl Durden Waste Oil. The results of these analyses will determine if any hazardous wastes are present at either of the locations.

At the time of the inspection, samples were split with you and you were instructed to deliver your portion of the splits to an independent laboratory for analyses as specified in my correspondence dated April 30, 1985. You are requested to submit the results of analyses conducted upon your portion of the samples to this office by June 14, 1985. Upon receipt of the results of analyses conducted upon the Division's portion of the samples, a copy will be forwarded to you.

By phone conversation with you on May 10, 1985, it was learned that several of your samples were damaged in shipment. It is requested that upon submittal of your results to this office that you also provide a written account regarding the loss of these samples.

If you have any questions or need any assistance please contact me at (404) 656-7802.

Sincerely,

Tim Cash
Environmental Specialist
Industrial & Hazardous Waste
Management Program

TC:cm:014
cc: Tim Cash
File - ITT, Suspension Systems Divisions, Macon, Bibb Co. (R)

Suspension Systems Division

P.O. Box 10278
7980 Industrial Highway
Macon, Georgia 31297
(912) 781-0170
Telex 80-4508

June 12, 1985

Mr. Tim Cash
Hazardous Waste Program
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334

Dear Tim:

The results of analysis of our recent soil samples have been received. A copy is attached for your records.

As you recall, the samples for toxic metals for samples EV-4, BG-5, and BG-6 were broken in shipment to the laboratory.

We would appreciate a copy of your lab results on these samples for comparision.

If you need any additional information, please call.

Sincerely,

David A. Vinson

David A. Vinson
Chemist

DAV:djp

cc: D. Mynatt
B. Churchill
J. Gamble

Industrial & Environmental Analysts, Inc.
P.O. Box 12542 • Research Triangle Park, NC 27709 • 919-467-9919

June 5, 1985

ITT Suspension Systems
7980 Industrial Highway
Macon, GA 31206

Attention: David Vinson

Reference: IEA Report No. 174-14

Dear Mr. Vinson:

Transmitted herewith are the results of analyses on five samples submitted to our laboratory on May 8, 1985. The volatile analyses were performed using EPA SW846 Method 5020/8010. The metals were also performed using EPA SW846 section 2.1.4.

Very truly yours,

INDUSTRIAL & ENVIRONMENTAL ANALYSTS, INC.

Joseph B. Adamovic

Joseph B. Adamovic
Senior Chemist

JBA/kbd

Enclosure

ITT Suspension Systems
June 5, 1985
Reference: IEA Report No. 174-14

		EV-1	EV-2	EV-3	EV-4	BG-5	BG-6	BG-7	BG-8
Freon TF	µg/kg	< 40	43	55	< 40	170	330	320	150
1,1,1-Trichloroethane	µg/kg	< 40	< 40	< 40	< 40	77	140	130	96
Arsenic	mg/l	< 0.005	< 0.005	< 0.005				< 0.005	< 0.005
Barium	mg/l	0.16	0.15	0.13				0.058	< 0.058
Cadmium	mg/l	< 0.01	< 0.01	< 0.01				< 0.01	< 0.01
Chromium	mg/l	< 0.03	< 0.03	< 0.03				< 0.03	< 0.03
Lead	mg/l	< 0.1	< 0.1	< 0.1				< 0.1	< 0.1
Mercury	mg/l	< 2.0	< 2.0	< 2.0				< 2.0	< 2.0
Silver	mg/l	< 0.05	< 0.05	< 0.05				< 0.05	< 0.05
Selenium	mg/l	0.013	< 0.005	< 0.005				< 0.005	< 0.005

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

J. LEONARD LEDBETTER
Commissioner

June 27, 1985

Mr. David A. Vinson, Chemist
ITT Suspension Systems Division
Post Office Box 10278
7980 Industrial Highway
Macon, Georgia 31297

RE: Sampling Inspection
Ed Vinson Property Road,
W. E. Green and Son Parking
Lot, Peach County

Dear Mr. Vinson:

This is to confirm the receipt of your correspondence of June 12, 1985 at which time you submitted the results of analyses conducted upon samples obtained during the above referenced inspection. Enclosed you will find the results of analyses conducted by the Division's laboratory upon selected samples obtained during the inspection.

Based upon the results of the parameters analyzed, it has been determined that no significant contamination of surface soil at either of the two locations exists. This matter, with regard to ITT Suspension Systems Division, is hereby resolved and warrants no further action by the Division. However, be advised that used or waste oil, if it does not exhibit a characteristic of a hazardous waste, is currently a solid waste, the handling and ultimate disposal of which is regulated under Georgia's Rules for Solid Waste Management. You should also be advised that a notice of proposed rule-making scheduled to be issued by the U. S. Environmental Protection Agency in August, 1985 will propose to list used oil as a hazardous waste.

Thank you for your cooperation in this matter. If you have any questions or need any assistance, please contact me at (404) 656-7802.

Sincerely,

Tim Cash
Environmental Specialist
Industrial & Hazardous Waste
Management Program

Enclosure
TLC:vlp:032
cc: Tim Cash
File: ITT Suspension Systems Division (R)

PRELIMINARY ASSESSMENT
TELEPHONE CONVERSATION RECORD

Site Name: ITT Suspension Division I.D.# GAD 098584063

Location Address: 7980 Industrial Highway; Macon, Ga. 31297

Phone: (912) 781 - 0170.

Contact: ~~Mr. Joe Hyder~~ NO LONGER WITH CO. / David Benson (current) Title: Chemist/EQC

Address: 7980 Industrial Hwy. P.O. Box 10278; Macon, Ga 31297

Phone: (912) 781 - 0170.

Authority: Section 3012 of CERCLA, Comprehensive Environmental Response, Compensation and Liability Act.

Facility has notified EPA via - RCRA 3001 site is in HWDMS
CERCLA 103c site is in NOTIS

Need Information concerning waste generation and disposal prior to Nov. 19, 1980.

How long has facility been in operation? January of 1980

What kind of wastes were generated and how much?

May 28, 1980 Chromic Acid solution 3,000 gals
May 29, 1980 Chromic Acid solution 3500 gals

Was it disposed on site and where?

No, waste never disposed of on site.

Was it transported offsite and where?

5-28-80 3,000 gal 5-29-80 3500 gal Chem Waste Management Emelle, Alabama

Was it treated and how?

Yes, chemical settlement operation Chromic Acid converted to Chromium Hydroide then precipatation process

Have there been any past spills? Describe.

No spills, prior to Nov. 19, 1980

Date of call: 10-22-85 Time: 11:05 AM.

G. A. Knowles

Spoke with current Chemist/EQC, Mr. David Benson, posed questions to him. He will be calling me back with information.

10-22-85 1:25 PM - Mr. Benson returned call and answered questions.