Appendix A

August 14, 2012 WRIA Kick-off Meeting Agenda, Summary and Participant List

MEETING SUMMARY

Water Resources Inventory and Assessment (WRIA) for Cahaba National Wildlife Refuge

Meeting Date: Tuesday, August 14, 2012 (9:30 AM – 4:00 PM) CENTRAL TIME
Meeting Location: Jefferson County Shades Valley Training Center, Birmingham, AL

Meeting Purpose:

1. Provide an overview of the WRIA process including outcomes, and timelines for completion
2. Identify expertise, data, information, contacts, etc. for various sections within the WRIA process
3. Begin the WRIA process at Cahaba NWR
4. Collaborate and share information/data about the river, refuge, management issues and other related work happening in the watershed including public education/outreach.

Goals and Objectives:

WRIA - The goal of the National Wildlife Refuge System (NWRS) Water Resources Inventory and Assessment (WRIA) effort is to provide up-to-date, accurate data on Refuge System water quantity and quality in order to acquire, manage, and protect adequate supplies of clean and fresh water.

a. Achieve a greater understanding of existing refuge water resources
b. Identify potential concerns or threats to those resources
c. Provide a basis for wildlife habitat management and operational recommendations

Meeting Agenda:

TUESDAY – August 14, 2012

9:30 AM – 11:00 AM – Welcome, Meeting Logistics, and Introductions

- Welcome
- Introductions (all) – (everyone give quick overview/status update of Cahaba River effort(s))
- Overview of Water Resource Assessment work in FWS, status (Susan Cielinski, FWS)
- Brief introduction to the refuge and its management history (Sarah Clardy, FWS)
- Overview of Cahaba River including biological resources, past disturbance, future threats, personal experience, long-term view of Cahaba River (Paul Freeman, TNC; Theresa Thom, FWS; all participants)

11:00 AM – 11:15 AM (BREAK)

11:15 AM – 12:15 PM – Water Resources Inventory and Assessment (WRIA) Process

- Introduction, goals, timeline and data needs for WRIA process (John Faustini, FWS)
- Presentations on data already collected for Cahaba River (Rebecca Burns & Kirsten Hunt, Atkins)
- Discussion about data, data gaps, potential sources, contacts, management issues, timeline, etc.

12:15 PM – 1:15 PM – (LUNCH)

1:15 PM – 4:00 PM – Water Resource Inventory and Assessment (WRIA) Process (continued)

- Discussion of the WRIA spreadsheet data items (group contributions)
- Assignments for data needs, milestones, etc.
- Dates for future meetings/follow-up for WRIA
- Other action items

NEXT MEETING:
(conference call scheduled for Wed., Oct. 3, 2012 (11:00 Eastern/10:00 AM Central)

Attendees:

Last Name	First Name	Affiliation	E-mail
Allen	Brad	Atkins Global	thomas.allen@atkinsglobal.com
Barnhill	Laurel	USFWS - Inventory & Monitoring	laurel_barnhill@fws.gov
Black	Gordon	Cahaba River Society	clean@cahabariversociety.org
Burns	Rebecca	Atkins Global	rebecca.burns@atkinsglobal.com
Cielinski	Sue	USFWS - Regional Office	susan_cielinski@fws.gov
Clardy	Sarah	USFWS - Refuge Manager	sarah_clardy@fws.gov
Duncan	Will	USFWS - GA ES Office	will_duncan@fws.gov
Faustini	John	USFWS - Regional Hydrologist	john_faustini@fws.gov
Freeman	Paul	The Nature Conservancy	pfreeman@tnc.org
Gray	Dana	Jefferson County	grayd@jccal.org
Griswell	Taylor	Alabama Dept of Environmental Mgmt- ADEM	tcgriswell@adem.state.al.us
Haddock	Randy	Cahaba River Society	RandyH@cahabariversociety.org
Huff	Lisa	Alabama Dept of Environmental Mgmt - ADEM	esh@adem.state.al.us
Hunt	Kirsten	Atkins Global	kirsten.hunt@atkinsglobal.com
Johnson	Paul	Alabama Aquatic Biodiversity Center - ADCNR	Paul.Johnson@dcnr.alabama.gov
Marlowe	Karen	USFWS - Daphne ES/Birmingham sub-office	karen_marlowe@fws.gov
McGregor	Stuart	Geological Survey of Alabama	smcgregor@gsa.state.al.us
Powell	Jeff	USFWS - Daphne ES Office	jeff_powell@fws.gov
Spadgenske	Eric	USFWS - Partners Program	eric_spadgenske@fws.gov
Thom	Theresa	USFWS - Inventory & Monitoring	theresa_thom@fws.gov

Meeting Summary:

Sue Cielinski (FWS – Regional Office)

WRIA Background in the Southeast Region:

Historically the USFWS has had a limited focus on refuge hydrology in the Southeast Region because of its plentiful water supply and a lack of perceived stress on resources; however, recent droughts, floods and climate change have begun to change the picture. In 2007 the USFWS began identifying water resource concerns on refuges (e.g., baseline information, minimum flows, need for hydrologists, water control issues, levees, etc.). This prompted a water study started in 2008 on several refuges with USGS (Gary Buell) that is still ongoing. The study is meant to assess water issues related to the quantity and timing of flow on some southeastern refuges originally identified as having critical water resource needs: Cahaba River NWR (Alabama), Cache River NWR (Arkansas), White River NWR (Arkansas), Lower Suwanee NWR (FL), Caloosahatchee NWR (FL) and Ding Darling NWR (FL). Information from this study is being compiled (including information on Cahaba NWR) and it is being applied to the WRIAs. Also in 2008, the USFWS created a national water team to address water issues nationwide. They began putting together a water resources assessment (precursor to WRIA) and the template was used as the basis for the WRIAs. In 2009 Eastern and Western climate change water teams were assembled and charged to assess Service needs related to water and climate change, as well as to identify refuges where water quantity and quality issues are important concerns. There are several initiatives going on right now,

related to water. The USFWS Inventory and Monitoring (I&M) group is now helping to integrate these previous efforts in a more organized way. Specifically for Cahaba NWR, the WRIA process was actually started in 2009 with the Refuge Manager at the time (Steve Miller) which included a site visit. The process is now being rejuvenated and moving forward.

Sarah Clardy (FWS – Cahaba River NWR Manager)

Introduction to Cahaba River NWR:

- The refuge was established on September 25, 2002 (celebrating 10 years this fall); Sarah has been refuge manager since Oct 2011. Cahaba River NWR is administered together with Watercress Darter NWR and Mountain Longleaf NWR, all in Alabama. There are 11 refuges in AL.
- Cahaba NWR was established to conserve and protect water quality for aquatic species, and to manage and restore longleaf pine. Improving recreational access is also a management goal. Recreation includes water recreation, hunting, fishing, nature observation & photography.
- Cahaba NWR is very biologically rich, so managing biodiversity is very important.
- 3600 acres currently, within a 7600-acre acquisition boundary.
- The history of the land now protected as Cahaba NWR includes coal mining. It was last mined in the 1950s (maybe into the 1970s). Mining included underground and surface mining. There are remnant rock walls from strip mining and spoils and the refuge is in the midst of putting together a reclamation project (100 acres) to push the spoils "hill" toward the "high wall" to restore the area's hydrology and to fill a mine shaft which is leaching arsenic and strontium. At times the mine shaft is completely flooded and at other times it is without water.
    - QUESTION: How much water is entering the mine shaft, and leaching out?
        - DATA / SUPPORT NEED: sampling methodology to evaluate impact and effectiveness of restoration actions. Follow-up w/FWS Contaminants Program.
        - The area's coal is notorious for arsenic, nickel and high strontium levels. One-time soil samples were collected at 3 locations and other samples are planned to be collected as reclamation proceeds. Guidance is needed for sampling protocol(s) to evaluate restoration activity effectiveness.
        - Discussion: Jeff Powell suggested using ground penetrating radar or other techniques now available to evaluate extensiveness of underground mine shaft(s) within refuge boundaries. Need contact(s)
    - FOR FOLLOW UP: Other sampling done by ADEM and GSA that might be useful. The reclamation project should begin in winter 2012-13. Sarah has GIS layers of the mine location & reclamation project limits.
- Timber production is also part of the refuge's history with abundant loblolly pine plantations remaining. These are being managed to slowly restore to longleaf pine. Some clear-cutting and longleaf planting has been done and now controlled burning is needed.

Paul Freeman (TNC)

Overview of Cahaba River:

- The Cahaba River drains 1800 sq miles and flows 191 miles, with the upper half above the fall line and the lower half within the coastal plain. Elevations range from 100-900 feet within the

watershed. The headwaters are located north of Birmingham. The upstream area is a wide, shallow stream through bedrock shoals, then bluffs. In the downstream area (coastal plain) the river includes oxbow lakes, blackbelt chalk and prairie cliffs.

- The Cahaba is one of the longest freeflowing rivers in Alabama with only one reservoir (Lake Purdy in Birmingham on the L. Cahaba). Historically there were mill dams and small dams on the mainstem but most have been removed or breached. There is still a dam at Highway 280 in Birmingham that was built 100 years ago to stabilize the pool for drinking water withdrawals and is still being maintained to manage water levels in the river. It is 15 feet high, backs up water for 3.5 miles upstream and has a non-functioning fish ladder. It is the only significant remaining structure on the main branch of the Cahaba River.
- There are 135 species of fish in the Cahaba. Migratory and diadromous fish are declining in the river. There are several listed fish species, and some species may be extirpated.
- The Cahaba River is in the top 5-10 rivers in the US for total freshwater mussel species abundance, with 38 of 48 spp. previously identified in the Cahaba believed to still be present, although reproduction and recruitment is thought to be declining for many mussel species.
- Large diversity of freshwater snails; Cahaba is among the most species-rich rivers in N. America. 32 0f 39 spp. prev. identified are believed to still be present.
- 14+ species of turtles
- There are more species of freshwater crayfish in Alabama than any other state (12+; only 2 are non-native).
- There are 156 species of caddisflies in the river, as well as many birds, mammals, etc.
- There are several endemic plant species including the Rocky Shoals Spider Lily/Cahaba Lily and those in the Ketona Glades (primarily Bibb County).
- **Past, present and future threats** to the river include deforestation, agriculture, resource extraction (natural gas may be an issue in future; rock quarries are still an issue), urban growth, habitat fragmentation, industrial, discharge including wastewater (i.e., pharmaceutical/other chemicals from industrial, municipal, residential sources that are not fully removed from water treatment plants), invasive species (i.e., Asian clam, northern crayfish, common carp, grass carp), water withdrawals (the state is in the process of determining its water policy; the upper 1/3 of the watershed is affected by water withdrawals from the Birmingham area), climate change and overharvesting of turtles, mussels and crayfish.

Discussion

- There is a draft TMDL currently out for public comment for siltation (habitat alteration) on the upper portion of the Cahaba River: http://www.adem.state.al.us/newsEvents/notices/aug12/8tmdls.htm. The comment period was extended for another 45 days starting August 14, 2012. It was noted that the NPDES permit writers should be encouraged to be involved in development of the implementation discussion in the TMDL document.
- ADEM (with EPA) conducted a survey of diatoms on the Cahaba River and Padgett Creek (reference creek). Georgia State College is conducting a diatom study on the river this summer. ADEM has diatom samples but lacks the funding for species level identification.

- Downstream Dams: Two dams were built on the Alabama River in 1970s (Clayburn and Millers Ferry). Since then there has been a decline in migratory and diadromous fish on the Cahaba River. These dams may impact upstream mussel populations due to loss of host fish migration(s).
- Atmospheric Deposition: There is atmospheric deposition of pollutants in the Cahaba River basin. Metals and toxins present in the river could be airborne. Birmingham has air quality issues (e.g., ozone, smog) and surface runoff. In addition to airborne pollutants, historic impacts like coal fines are still moving down the system decades after extraction.
- Hydraulic fracking is occurring adjacent to the refuge. The GSA Oil and Gas Board keeps track of wells (GIS shapefiles at http://www.ogb.state.al.us/ogb/gis_data.aspx). Brine disposal goes into the Black Warrior Basin, not the Cahaba River Basin.
- Nutrient Loading: There are a significant number of septic tanks within the system. Upwards of $1 billion has been spent to upgrade the sewage system to fix leaks within the past 12 years so there should be observations of improved water quality in the Cahaba. Paul Freeman noted he has seen fewer algal blooms in the past 10 years. Chicken processing plants have gone out of business which has lessened nutrient impacts. Monitoring has shown an expansion of threatened and endangered in both range and number in the same time period. Only in recent years has ADEM begun to incorporate Phosphorus limits (total phosphorus) in its TMDL permits.
- Sedimentation: There are high sediment loads throughout the system, but it's better than it used to be. There was an improvement when the Stormwater Management Authority existed, but developers have limited its influence. The economy has limited new growth/development in watershed. Due to safety reasons, ADEM has not conducted sediment monitoring of the Cahaba during high flows, when sediment is being transported at a high rate.
    - QUESTION/DATA NEED: Can automated sediment sampling equipment be added at the USGS stations? ADEM uses biotic indexes as a proxy for siltation because it sediment transport and siltation is hard to quantify, and is currently in the process of reassessing and revising its macroinvertebrate scores for Alabama (with EPA input).
    - QUESTION: Are there any past or ongoing investigations on the effect of urbanization on streamflows in the Cahaba and related to siltation?
        - ANSWER: Look at USGS land use studies on impervious surfaces (8-10 years old). There is discussion of discontinuing the USGS NAWQA (Valley Creek, Pelham, AL) site, which has 15 years of data on water quality, invertebrates, periphyton and a long-term continuous WQ monitoring station. http://water.usgs.gov/nawqa/urban/html/birmingham.html
        - FOR FOLLOW UP: Talk to USGS (Rick Treece) about funding and cooperating.

John Faustini (USFWS – Region 4 Hydrologist)

WRIA Process:

- The primary focus of the WRIA is on surface water, but groundwater information is also included. The national WRIA database is under development and should be available by the end of the year to house all of the WRIA information.
- There used to be a USGS gage north of the refuge (USGS), but it is not currently active.

  - FOR FOLLOW UP: Look into the possibility of reactivating this gage. Examine where other gages are located in the watershed to prioritize data need(s)/gage locations.

- A SharePoint site will be used to house all files related to the WRIA. Files will be organized categorically and can be sent to Theresa Thom/John Faustini for upload.
  - https://connect.doi.gov/fws/Portal/sewr/HGM-WRIA/Cahaba/

Rebecca Burns (Atkins)

Cahaba WRIA Data Collected To Date:

- Atkins has collected facility information, as well as hydroclimatic (temperature, precipitation, streamflow), NHD, NWI and EPA water quality data and information on USGS NWIS monitoring sites. In addition, Atkins has collected geological, soil, groundwater, water quality monitoring and aquatic monitoring information and data. With this information Atkins has begun to draft some figures and tables.
- One issue Atkins encountered relates to the refuge boundaries. The most recent USFWS cadastral data include a different approved/acquired boundary for the refuge. It was determined that the WRIA should use the same boundaries as are being used for the refuge's CCP.

Discussion

- The Strategic Habitat Unit (SHU) project is developing an online mapping server to upload data and baseline information. As the first step, habitat information (stream impacts, etc.) is being uploaded. A map of the SHUs was distributed.
  - Strategic Habitat Units (SHU) Map for Alabama – upload map to Sharepoint. Watershed prioritization for conservation efforts in Alabama. http://www.gsa.state.al.us/gsa/eco/pdf/SM_248.pdf
- The Heritage database is the most comprehensive database of water studies on the Cahaba River, the most studied river in Alabama.
- The Cahaba River Blueway is an initiative of TNC and the Alabama Innovation Engine to put up signage and develop a cohesive put-in/takeout system. An information sheet was distributed (thank you Matt Leavell).

Theresa Thom (USFWS – I&M)

WRIA Spreadsheet:

Fill out spreadsheet – data/information needs for WRIA process. Goal is to have information listed on spreadsheet uploaded to sharepoint by end of September 2012. Spreadsheet will be uploaded to Cahaba Sharepoint site and updated with data acquisition progress.

- John Faustini would like for the WRIA to include SSURGO info for the entire Cahaba River watershed. Analysis should focus on hydric/non-hydric soils.
- Springs/seeps – Little Ugly at headwaters? Look at aerial imagery. GSA publications – search as keyword. GSA has publication of springs of AL (1987)
- Appropriate scale of information is on a case by case basis.

- GSA website – search for publications by county (geologic/topographic maps) www.gsa.state.al.us, some reports have information on water availability by county.
- USGS bridge scour study in 1980s, 90s (bridge scour program) – GA, AL, TN, NC- fluvial dynamics. Unconsolidated areas are where biological resources are found. Lower end of the system (below the fall line) more active. Very little stable stream bottom in coastal plain.
- Flooding/models – ADEM has tied to nutrient and siltation TMDLs (models). Atkins (USGS) report in 2007 on magnitude and frequency of floods in AL (Hedgcock and Fester 2007). 2007-5204 (Sci Investigations Report). Active River Area (TNC process that predicts floodplain inundation/flows) – Paul to send link to paper - DONE.
- Only built structure on refuge will be the overlooks (trail). There are trails, roads, boat ramps (handicapped fishing access but used as boat ramp), parking, access points, kiosks
- Proposed reclamation will affect elevation
- www.ogb.state.al.us – map of oil and gas wells
- Dams and structures – dams inventory, AL office of water resources
- Upstream climatological data from Birmingham (USHCN?)
- AL is riparian rights state. Refuge owns small tributary streams (if you own both sides). State owns riverbed of mainstem. Copy of water rights info by state on sharepoint site.
- Mercury deposition from coal-fired power plants washing down river.
- Interbasin water transfers within Cahaba River Watershed = net loss for Cahaba
- EPA Healthy Watershed Survey – Mobile Bay (contact is Roberta Swan) = land use in Cahaba included.

Dates for Future Meetings and Other Action Items:

- John Faustini (FWS) will coordinate getting everyone access to the SharePoint site: https://connect.doi.gov/fws/Portal/sewr/HGM-WRIA/Cahaba/
- The notes from this meeting will be uploaded to the SharePoint site and sent to the group.
- All information outlined and requested on the Cahaba spreadsheet will be compiled and sent to Theresa Thom to upload to the SharePoint site by the end of September 2012.
- **A teleconference will be held on October 3, 2012 10am CT/11am ET to report progress. Please join us. The call information will be sent out prior to the call.**
- USFWS and Atkins hold monthly calls to report out on progress. Notes from these calls will be added to the SharePoint site.
- Outreach about process could be provided at Cahaba Lilly Festival, Cahaba Clean Water Partnership, etc. There are opportunities for outreach about the WRIA process/progress.

Appendix B

Listed and Petitioned Species within the Cahaba Basin (8-Digit HUC – 03150202)

Appendix B.1. Federally Listed Species Found in the Cahaba River Basin and Status

Appendix B.2. Native Freshwater Mussels Found in the Cahaba River (found live during surveys)

Appendix B.3. Native Mussel Species Historically Occurring in the Cahaba River

Appendix B.4. Gastropod Species Documented Alive in the Cahaba River during surveys (2011)

Appendix B.5. Gastropod Species Historically Documented from the Cahaba River

Appendix B.6. Fish Species Found in the Cahaba River Basin (03150202) from recent survey data

Appendix B.7. List of Actual and Potential Reptile and Amphibian Species for Cahaba River NWR

Appendix B.8. Potential and Documented Mammals for Cahaba River NWR

Appendix B.9. Petitioned Species Occurring Within the Cahaba River Basin (03150202)

Appendix B.1. Federally Listed Species Found in the Cahaba River Basin (03150202) and Status Within Cahaba River NWR, AL as of July 2013.

Species				USFWS (Federal Status)	Alabama (State Status)	Cahaba River (03150202)	In Cahaba River NWR
Authority	**ITIS.gov TSN**	**Scientific name**	**Common name**				
Mussels							
Conrad, 1838	80321	*Epioblasma metastriata*	Upland Combshell	E	Ex	**H**	
I. Lea, 1857	80328	*Epioblasma othcaloogensis*	Southern Acornshell	E	Ex	**H**	
Conrad, 1834	80329	*Epioblasma penita*	Southern Combshell	E	P1	**X/I**	
Conrad, 1834	906924	*Hamiota altilis*	Finelined Pocketbook	T	P2	**X**	**X**
Conrad, 1834	906926	*Hamiota perovalis*	Orangenacre Mucket	T	P2	**X**	**X**
I. Lea, 1831	80262	*Medionidus acutissimus*	Alabama Moccasinshell	T	P2	**H**	
I. Lea, 1860	80265	*Medionidus parvulus*	Coosa Moccasinshell	E		**H/I**	
I. Lea, 1831	80097	*Pleurobema decisum*	Southern Clubshell	E	P2	**X**	
Conrad, 1834	80099 / 80112	*Pleurobema furvum / Pleurobema rubellum*	Dark Pigtoe / Warrior Pigtoe	E	P1	**H**	
Conrad, 1834	80120	*Pleurobema perovatum*	Ovate Clubshell	E	P1	**X**	
I. Lea, 1834	80129	*Pleurobema taitianum*	Heavy Pigtoe	E	P1	**H**	
I. Lea, 1831	80287	*Potamilus inflatus*	Inflated Heelsplitter	T	P2	**H**	
Conrad, 1834 / I.Lea, 1842	80159 / 906935	*Ptychobranchus greenii / Ptychobranchus foremanianus*	Triangular Kidneyshell / Rayed Kidneyshell	E	P1	**X**	**X**
Snails							
Anthony, 1855	71653	*Leptoxis ampla*	Round Rocksnail	T	P2	**X**	**X**
I. Lea, 1861	70685	*Lepyrium showalteri*	Flat Pebblesnail	E	P1	**X**	**X**
I. Lea, 1841	70334	*Lioplax cyclostomaformis*	Cylindrical Lioplax	E	P1	**X**	**X**

Appendix B.1. Federally Listed Species Found in the Cahaba River Basin (03150202) and Status Within Cahaba River NWR, AL as of July 2013.

Species				USFWS (Federal Status)	Alabama (State Status)	Cahaba River (03150202)	In Cahaba River NWR
Authority	**ITIS.gov TSN**	**Scientific name**	**Common name**				
Fishes							
Vladykov, 1955	624005	*Acipenser oxyrinchus desotoi*	Gulf Sturgeon	T	P2	**H**	
Jordan, 1877	163768	*Cyprinella caerulea*	Blue Shiner	T	P2	**H**	
Mayden & Kuhajda, 1989	163480	*Notropis cahabae*	Cahaba Shiner	E	P1	**X**	**X**
Suttkus & Ramsey, 1967	168478	*Percina aurolineata*	Goldline Darter	T	P1	**X**	**X**
Williams & Clemmer, 1991	201895	*Scaphirhyncus suttkusi*	Alabama Sturgeon	E	P1	**X**	
Reptiles and Amphibians							
		NONE LISTED OR CANDIDATE SPECIES FOUND IN THE CAHABA RIVER					
Birds							
Linnaeus, 1766	175420	*Haliaeetus leucocephalus*	Bald Eagle	R		**X**	**X**
Vieillot, 1809	178257	*Picoides borealis*	Red-cockaded Woodpecker	E	P2	**H**	
Linnaeus, 1758	174897	*Mycteria americana*	Wood Stork	E	P2	**X**	
Plants							
R.M. Harper	22694	*Arabis georgiana*	Georgia Rockcress	C/PT	P1	**X**	**X**
Beadle & F.E. Boynt.	38068	*Marshallia morhii*	Mohr's Barbara's Button	T	P3	**X**	
Chapm. Ex A.DC.	202479	*Spigelia gentianoides*	Gentian Pinkroot	E	P1	**X**	
(Alexander) G.L. Nesom	522211	*Symphyotrichum georgianum*	Georgia Aster	C	P2,P3	**X**	**X**
Kral	196355	*Xyris tennesseensis*	Tennessee Yellow-eyed Grass	E	P1	**X**	
Mammals							
A.H. Howell, 1909	179997	*Myotis grisescens*	Gray Bat	E	P1	**X**	**X**
Miller & Allen, 1928	180001	*Myotis sodalis*	Indiana Bat	E	P2	**X**	

Appendix B.1. Federally Listed Species Found in the Cahaba River Basin (03150202) and Status Within Cahaba River NWR, AL as of July 2013.

Species				USFWS (Federal Status)	Alabama (State Status)	Cahaba River (03150202)	In Cahaba River NWR
Authority	**ITIS.gov TSN**	**Scientific name**	**Common name**				
Insects							
French, 1889	201284	*Neonympha mitchellii*	Mitchell's Satyr Butterfly	E	P1	**X**	

Federal Status: E-Endangered, T-Threatened, C-Candidate, R-in Recovery, PT- Proposed Threatened
State Status: P1-Highest Conservation Concern, P2-High Conservation Concern, Ex-Extirpated
Status in the Cahaba River Watershed (HUC 03150202): X-Present, H-Historic, I-Introduced
Found in Cahaba River NWR: X - Present (documented and confirmed in published report(s))

References (for full citations, see the WRIA Narrative Report for Cahaba River NWR, December 2013):

Drew Rollman - Daphne ES Cartographer - Personal Communication (19 June 2013)
FWS ECOS database for Bibb Co., Alabama (http://ecos.fws.gov/tess_public/countySearch!speciesByCountyReport.action?fips=01007)
Integrated Taxonomic Information System (ITIS) (http://www.itis.gov)
Jeff Powell - personal communication - e-mail (24 April 2013)
Johnson, P.D. et al. 2011. Inventory of Freshwater Mollusks in the Cahaba River Basin, Alabama. Marion, Alabama
Kristofik, E.M. 2012. Occurrence and Habitat Use of Bats in Central Alabama Forests.
U.S. Fish and Wildlife Service. 2007. Cahaba River NWR Habitat Management Plan. Accessed 6 April 2012
U.S. Fish and Wildlife Service. 2009. Cahaba River NWR. Eastern Waters Team, 2009 Climate Change Vulnerability Assessment Report

Appendix B.2. Native Freshwater Mussels Found in the Cahaba River (found live during surveys).

Genus	***species***	Common Name	Federal Status	State Status	Johnson et al. 2011	USFWS 2009
Amblema	*elliottii*	Coosa Fiveridge			x	x
Amblema	*plicata*	Threeridge			x	x
Anodonta	*suborbiculata*	Flat Floater			x	
Ellipsaria	*lineolata*	Butterfly			x	x
Elliptio	*arca*	Alabama Spike			x	
Elliptio	*arctata*	Delicate Spike		P1	x	x
Elliptio	*crassidens*	Elephantear			x	x
Fusconaia	*cerina*	Gulf Pigtoe			x	x
Fusconaia	*ebena*	Ebonyshell			x	x
Hamiota	*altilis**	Fine-lined Pocketbook	**T**	P2	x	x
Hamiota	*perovalis**	Orange-nacre Mucket	**T**	P2	x	x
Lampsilis	*ornata*	Southern Pocketbook			x	x
Lampsilis	*straminea*	Southern Fatmucket			x	x
Lampsilis	*teres*	Yellow Sandshell			x	x
Lasmigona	*alabamaensis*	Alabama Heelsplitter		WATCH	x	x
Lasmigona	*etowaensis*	Etowah Heelsplitter			x	
Leptodea	*fragilis*	Fragile Papershell			x	x
Ligumia	*recta*	Black Sandshell			x	
Megalonaias	*nervosa*	Washboard			x	x
Obliquaria	*reflexa*	Threehorn Wartyback			x	x
Plectomerus	*dombeyanus*	Bankclimber			x	x
Pleurobema	*decisum**	Southern Clubshell	**E**		x	x
Pleurobema	*perovatum**	Ovate Clubshell	**E**		x	x
Potamilus	*purpuratus*	Bleufer			x	x
Ptychobranchus	*foremanianus**	Rayed Kidneyshell	**E**	P1	x	x
Pyganodon	*grandis*	Giant Floater			x	x
Quadrula	*apiculata*	Southern Mapleleaf			x	x
Quadrula	*asperata*	Alabama Orb			x	x
Quadrula	*metanevra*	Monkeyface		WATCH	x	x
Quadrula	*rumphiana*	Ridged Mapleleaf			x	x
Quadrula	*verrucosa*	Pistolgrop			x	x
Strophitus	*connasaugensis*	Alabama Creekmussel		WATCH	x	x
Toxolasma	*corvunculus*	Southern Purple Lilliput		P1	x	x
Truncilla	*donaciformis*	Fawnsfoot		WATCH	x	x
Uniomerus	*tetralasmus*	Pondhorn			x	
Utterbackia	*imbecillus*	Paper Pondshell			x	
Villosa	*lienosa*	Little Spectaclecase			x	x
Villosa	*nebulosa*	Alabama Rainbow		WATCH	x	x
Villosa	*vibex*	Southern Rainbow			x	x
				TOTAL SPECIES	**39**	**33**

Federal Status: E-Endangered, T-Threatened, C-Candidate, R-in Recovery
State Status: P1-Highest Conservation Concern, P2-High Conservation Concern, Ex-Extirpated
Status in the Cahaba River: X-Present, H-Historic, I-Introduced

References (for full citations, see the WRIA Narrative Report for Cahaba River NWR, December 2013)

Johnson, P.D., et al. 2011. Inventory of Freshwater Mollusks in the Cahaba River Basin, Alabama.
USFWS. 2009. Cahaba River NWR. Eastern Waters Team, 2009 Climate Change Vulnerability Report.

Appendix B.3. Native Mussel Species Historically Occurring in the Cahaba River.

Genus	***species***	Common Name	Federal Status	State Status	Johnson et al. 2011	USFWS 2009
Amblema	*elliottii*	Coosa Fiveridge			x	x
Amblema	*plicata*	Threeridge			x	x
Anodonta	*suborbiculata*	Flat Floater			x	
Anodontoides	*radiatus*	Rayed Creekshell			HISTORIC	
Ellipsaria	*lineolata*	Butterfly			x	x
Elliptio	*arca*	Alabama Spike			x	
Elliptio	*arctata*	Delicate Spike		P1	x	x
Elliptio	*crassidens*	Elephantear			x	x
Epioblasma	*metastriata**	Upland Combshell	**E**	Ex	EXTINCT	
Epioblasma	*penita**	Southern Combshell	**E**	P1	HISTORIC	
Fusconaia	*cerina*	Gulf Pigtoe			x	x
Fusconaia	*ebena*	Ebonyshell			x	x
Hamiota	*altilis**	Fine-lined Pocketbook	**T**	P2	x	x
Hamiota	*perovalis**	Orange-nacre Mucket	**T**	P2	x	x
Lampsilis	*ornata*	Southern Pocketbook			x	x
Lampsilis	*straminea*	Southern Fatmucket			x	x
Lampsilis	*teres*	Yellow Sandshell			x	x
Lasmigona	*alabamaensis*	Alabama Heelsplitter		WATCH	x	x
Lasmigona	*etowaensis*	Etowah Heelsplitter			x	
Leptodea	*fragilis*	Fragile Papershell			x	x
Ligumia	*recta*	Black Sandshell			x	
Medionidus	*acutissimus**	Alabama Moccasinshell	**T**	P2	HISTORIC	
Medionidus	*parvulus**	Coosa Moccasinshell	**E**	Ex	HISTORIC	
Megalonaias	*nervosa*	Washboard			x	x
Obliquaria	*reflexa*	Threehorn Wartyback			x	x
Obovaria	*jacksoniana*	Southern Hickorynut		P2	HISTORIC	
Obovaria	*unicolor*	Alabama Hickorynut		P2	HISTORIC	
Plectomerus	*dombeyanus*	Bankclimber			x	x
Pleurobema	*decisum**	Southern Clubshell	**E**	P2	x	x
Pleurobema	*perovatum**	Ovate Clubshell	**E**	P1	x	x
Pleurobema	*taitianum**	Heavy Pigtoe	**E**	P1	HISTORIC	
Pleurobema	*verum*	True Pigtoe	**not listed**	Ex	EXTINCT	
Potamilus	*inflatus**	Alabama Heelsplitter	**T**	P2	HISTORIC	
Potamilus	*purpuratus*	Bleufer			x	x
Ptychobranchus	*foremanianus**	Rayed Kidneyshell	**E**	P1	x	x
Pyganodon	*grandis*	Giant Floater			x	x
Quadrula	*apiculata*	Southern Mapleleaf			x	x
Quadrula	*asperata*	Alabama Orb			x	x
Quadrula	*metanevra*	Monkeyface		WATCH	x	x
Quadrula	*rumphiana*	Ridged Mapleleaf			x	x
Quadrula	*verrucosa*	Pistolgrop			x	x
Strophitus	*connasaugensis*	Alabama Creekmussel		WATCH	x	x
Toxolasma	*corvunculus*	Southern Purple Lilliput		P1	x	x
Truncilla	*donaciformis*	Fawnsfoot		WATCH	x	x
Uniomerus	*tetralasmus*	Pondhorn			x	
Utterbackia	*imbecillus*	Paper Pondshell			x	

Appendix B.3. Native Mussel Species Historically Occurring in the Cahaba River.

Genus	***species***	Common Name	Federal Status	State Status	Johnson et al. 2011	USFWS 2009
Villosa	*lienosa*	Little Spectaclecase			x	x
Villosa	*nebulosa*	Alabama Rainbow		WATCH	x	x
Villosa	*vibex*	Southern Rainbow			x	x
				TOTAL SPECIES	**49**	**33**

Federal Status: E-Endangered, T-Threatened, C-Candidate, R-in Recovery
State Status: P1-Highest Conservation Concern, P2-High Conservation Concern, Ex-Presumed Extirpated
Status in the Cahaba River: X-Present, H-Historic, I-Introduced

References (for full citations, see the WRIA Narrative Report for Cahaba River NWR, December 2013)

Johnson, P.D., et al. 2011. Inventory of Freshwater Mollusks in the Cahaba River Basin, Alabama.

USFWS. 2009. Cahaba River NWR. Eastern Waters Team, 2009 Climate Change Vulnerability Report.

Appendix B.4. Gastropod Species Documented Alive in the Cahaba River during biological surveys conducted in 2011.

Family	Genus	Species	Common Name	Federal Status	State Status	Cahaba River
Viviparidae	*Campeloma*	*regulare*	Cylinder campeloma			present
Viviparidae	*Lioplax*	*cyclostomaformis**	Cylindrical lioplax	**E**	P1	present
Hydrobiidae	*Clappia*	*cahabensis*	Cahaba pebblesnail		P1	present
Hydrobiidae	*Fontigens*	*nicklineana*	Watercress snail			present
Hydrobiidae	*Lepyrium*	*showalteri**	Flat pebblesnail	**E**	P1	present
Hydrobiidae	*Marstonia*	*sp.*				present
Hydrobiidae	*Somatogyrus*	*sp.*				present
Pleuroceridae	*Elimia*	*ampla*	Ample elimia		P1	present
Pleuroceridae	*Elimia*	*annettae*	Lily Shoals elimia		P1	present
Pleuroceridae	*Elimia*	*bellacrenata*	Princess elimia		P1	present
Pleuroceridae	*Elimia*	*cahawbensis*	Cahaba elimia		P3	present
Pleuroceridae	*Elimia*	*carinifera*	Sharp-Crest elimia			present
Pleuroceridae	*Elimia*	*carinocostata*	Fluted elimia			present
Pleuroceridae	*Elimia*	*clara*	Riffle elimia		P3	present
Pleuroceridae	*Elimia*	*cochliaris*	Cockle elimia		P1	present
Pleuroceridae	*Elimia*	*olivula*	Caper elimia		P1	present
Pleuroceridae	*Elimia*	*showalteri*	Compact elimia		P1	present
Pleuroceridae	*Elimia*	*varians*	Puzzle elimia		P1	present
Pleuroceridae	*Elimia*	*variata*	Squat elimia		P1	present
Pleuroceridae	*Leptoxis*	*ampla**	Round rocksnail	**T**	P2	present
Pleuroceridae	*Leptoxis*	*compacta***	Oblong rocksnail	**not listed**	Ex	CURRENT
Pleuroceridae	*Pleurocera*	*clarkii*				present
Lymnaeidae	*Fossaria*	*obrussa*	Golden fossaria			present
Lymnaeidae	*Pseudosuccinea*	*columella*	Mimic lymnaea			present
Physidae	*Physella*	*gyrina*	Tadpole physa			present
Physidae	*Physella*	*heterostropha*	Pewter physa			present
Planorbidae	*Menetus (Micromenetus)*	*dilatatus*	Bugle sprite			present
Planorbidae	*Planorbella*	*trivolvis*	Marsh rams-horn			present
Ancylidae	*Ferrissia*	*fragilis*	Fragile ancylid			present
Ancylidae	*Ferrissia*	*rivularis*	Creeping ancylid			present
Ancylidae	*Laevapex*	*fuscus*	Dusky ancylid			present
Ancylidae	*Rhodacme*	*cahabensis*	Cahaba ancylid			present
					Total Species	32

Federal Status: E-Endangered, T-Threatened, C-Candidate, R-in Recovery

State Status: P1-Highest Conservation Concern, P2-High Conservation Concern, Ex-Presumed Extirpated or SH - Historical (Possibly Extirpated)

Status in the Cahaba River: Present, Historic, Introduced

References (for full citations, see the WRIA Narrative Report for Cahaba River NWR, December 2013)

Johnson, P.D., et al. 2011. Inventory of Freshwater Mollusks in the Cahaba River Basin, Alabama.

Whelan, N.V., et al. 2012. Rediscovery of Leptoxis compacta (Anthony, 1854) (Gastropoda: Cerithioidea: Pleuroceridae).

Appendix B.5. Gastropod Species Historically Documented from the Cahaba River.

Family	Genus	Species	Common Name	Federal Status	State Status	Cahaba Status
Viviparidae	*Campeloma*	*regulare*	Cylinder campeloma			current
Viviparidae	*Lioplax*	*cyclostomaformis**	Cylindrical lioplax	**E**	P1	current
Hydrobiidae	*Birgella*	*subglobosa*	Globe siltsnail			HISTORIC
Hydrobiidae	*Clappia*	*cahabensis*	Cahaba pebblesnail		P1	current
Hydrobiidae	*Fontigens*	*nicklineana*	Watercress snail			current
Hydrobiidae	*Lepyrium*	*showalteri**	Flat pebblesnail	**E**	P1	current
Hydrobiidae	*Marstonia*	*sp.*				current
Hydrobiidae	*Somatogyrus*	*coosaensis*	Coosa pebblesnail		SH	HISTORIC
Hydrobiidae	*Somatogyrus*	*excavatus*	Ovate pebblesnail		SH	HISTORIC
Hydrobiidae	*Somatogyrus*	*hinkleyi*	Granite pebblesnail			HISTORIC
Hydrobiidae	*Somatogyrus*	*nanus*	Dwarf pebblesnail		SH	HISTORIC
Hydrobiidae	*Somatogyrus*	*pumilus*	Compact pebblesnail			HISTORIC
Pleuroceridae	*Elimia*	*ampla*	Ample elimia		P1	current
Pleuroceridae	*Elimia*	*annettae*	Lily Shoals elimia		P1	current
Pleuroceridae	*Elimia*	*bellacrenata*	Princess elimia		P1	current
Pleuroceridae	*Elimia*	*cahawbensis*	Cahaba elimia		P3	current
Pleuroceridae	*Elimia*	*carinifera*	Sharp-Crest elimia			current
Pleuroceridae	*Elimia*	*carinocostata*	Fluted elimia			current
Pleuroceridae	*Elimia*	*clara*	Riffle elimia		P3	current
Pleuroceridae	*Elimia*	*cochliaris*	Cockle elimia		P1	current
Pleuroceridae	*Elimia*	*olivula*	Caper elimia		P1	current
Pleuroceridae	*Elimia*	*pupoidea*	Bot elimia			HISTORIC
Pleuroceridae	*Elimia*	*showalteri*	Compact elimia		P1	current
Pleuroceridae	*Elimia*	*varians*	Puzzle elimia		P1	current
Pleuroceridae	*Elimia*	*variata*	Squat elimia		P1	current
Pleuroceridae	*Leptoxis*	*ampla**	Round rocksnail	**T**	P2	current
Pleuroceridae	*Leptoxis*	*compacta***	Oblong rocksnail	**not listed**	Ex	CURRENT
Pleuroceridae	*Leptoxis*	*picta*	Spotted rocksnail		P1	HISTORIC
Pleuroceridae	*Pleurocera*	*clarkii*				current
Lymnaeidae	*Fossaria*	*obrussa*	Golden fossaria			current
Lymnaeidae	*Pseudosuccinea*	*columella*	Mimic lymnaea			current
Physidae	*Physella*	*gyrina*	Tadpole physa			current
Physidae	*Physella*	*heterostropha*	Pewter physa			current
Planorbidae	*Helisoma*	*anceps*	Two-ridge Rams-horn			HISTORIC
Planorbidae	*Micromenetus*	*dilatatus*	Bugle sprite			current
Planorbidae	*Planorbella*	*trivolvis*	Marsh rams-horn			current
Ancylidae	*Ferrissia*	*fragilis*	Fragile ancylid			current
Ancylidae	*Ferrissia*	*rivularis*	Creeping ancylid			current
Ancylidae	*Laevapex*	*fuscus*	Dusky ancylid			current
Ancylidae	*Rhodacmea*	*cahabensis*	Cahaba ancylid			current
					TOTAL SPECIES	**40**

Federal Status: E-Endangered, T-Threatened, C-Candidate, R-in Recovery

State Status: P1-Highest Conservation Concern, P2-High Conservation Concern, Ex-Presumed Extirpated, SH - Historical

Status in the Cahaba River: Present, Historic, Introduced

References (for full citations, see the WRIA Narrative Report for Cahaba River NWR, December 2013)

Johnson, P.D., et al. 2011. Inventory of Freshwater Mollusks in the Cahaba River Basin, Alabama.

**Whelan, N.V., et al. 2012. Rediscovery of Leptoxis compacta (Anthony, 1854) (Gastropoda: Cerithioidea: Pleuroceridae).

Appendix B.6. Fish Species Found in the Cahaba River Basin (03150202) Based on Recent Survey Data.

			P1- highest concern											
			P2- high concern		I-impoundment			C- common						
			P3- moderate concern		R- river			O- occasional			DAH - detritovore-algivore-herbivore			
			P4- low concern		S- stream			U- uncommon			AHI - algivore-herbivore-invertivore			
			P5- lowest concern		H- headwater	W- widesprea		R- rare			INV - invertivore			
			E- endangered		Sp- spring	R- restricted		1- simple lithoplils			INS - insectivore			
			T- threatened		Ca- cave	D- disjunct		2- manipulative lithophils			PIS - piscivore			
			CS-currently stable		Sw-swamp	Ex- extirpated		3- simple misc.			PAR - parasite			
			V- vulnerable		E - estuarine	I- introduced		4- manipulative misc.			IP - invertivore, piscivore			
Family	Scientific Name	Common Name	Conservation status	Vulner.	Habitat	Dist.	Abund.	Reproductive guild	Feeding guild	Tolerance	Occurrence Status	Pierson 1989	O'Neil 1995	
Petromyzontidae	*Ichthyomyzon castaneus*	Chestnut Lamprey	P5	CS	I, R, S	W	O	2	PAR	--	Current	x	x	
Petromyzontidae	*Ichthyomyzon gagei*	Southern Brook Lamprey	P5	CS	R, S	W	O	2	DAH	--	Current	x	x	
Petromyzontidae	*Lampetra aepyptera*	Least Brook Lamprey	P5	CS	S, H	W	O	2	DAH	--	Current	x	x	
Acipenseridae	*Scaphirhynchus suttkusi*	Alabama Sturgeon	P1, E	E	R	R	R	1	INV	INT	Current	x	x	
Acipenseridae	*Acipenser oxyrhinchus desotoi*	Atlantic Sturgeon	P2, T	T	R	R	U	1	INV	INT	Historical	x	x	
Polyodontidae	*Polyodon spathula*	Paddlefish	P3	V	R, I	W	O	3	AHI	--	Current	x	x	
Lepisosteidae	*Lepisosteus oculatus*	Spotted Gar	P5	CS	R, I, Sw	W	C	3	IP	--	Current	x	x	
Lepisosteidae	*Lepisosteus osseus*	Longnose Gar	P5	CS	R, I	W	C	3	IP	TOL	Current	x	x	
Amiidae	*Amia calva*	Bowfin	P5	CS	R, I, Sw	W	O	4	IP	--	Current	x	x	
Hiodontidae	*Hiodon tergisus*	Mooneye	P3	CS	R, I	W	O	1	IP	--	Current	x	x	
Anguillidae	*Anguilla rostrata*	American Eel	P4	CS	R, I	W	O	3	IP	--	Current	x	x	
Clupeidae	*Alosa alabamae*	Alabama Shad	P1	T	R	W	R	3	INV	INT	Historical	x	x	
Clupeidae	*Alosa chrysochloris*	Skipjack Herring	P3	CS	R	W	C	3	INV	--	Current	x	x	
Clupeidae	*Dorosoma cepedianum*	Gizzard Shad	P5	CS	I, R, S	W	C	3	AHI	TOL	Current	x	x	
Clupeidae	*Dorosoma petenense*	Threadfin Shad	P5	CS	I, R, S	W	C	3	AHI	--	Current	x	x	
Cyprinidae	*Campostoma oligolepis*	Largescale Stoneroller	P5	CS	S, H	W	C	2	DAH	--	Current	x	x	
Cyprinidae	*Carassius auratus*	Goldfish	Exotic	CS	I	I, R	U	3	AHI	TOL	Introduced	x	x	
Cyprinidae	*Ctenopharyngodon idella*	Grass Carp	Exotic	CS	R, I	I, W	U	3	AHI	TOL	Introduced	x	x	
Cyprinidae	*Cyprinella caerulea*	Blue Shiner	P1, T	E	S	R, D	R	3	INS	INT	Historical	x	x	
Cyprinidae	*Cyprinella callistia*	Alabama Shiner	P5	CS	R, S	W	C	3	INV	--	Current	x	x	
Cyprinidae	*Cyprinella trichroistia*	Tricolor Shiner	P5	CS	R, S	R	C	3	INS	--	Current	x	x	
Cyprinidae	*Cyprinella venusta*	Blacktail Shiner	P5	CS	I, R, S	W	C	3	INV	--	Current	x	x	
Cyprinidae	*Cyprinus carpio*	Common Carp	Exotic	CS	I, R	I, W	C	3	INV,DAH	TOL	Introduced	x	x	
Cyprinidae	*Notropis amplamala*	Longjaw Minnow	P5	CS	R, S	W	C	1	INS,AHI	--	Current	x	x	
Cyprinidae	*Hybognathus hayi*	Cypress Minnow	P3	CS	R, I, Sw	W	U	1	DAH	--	Current	x	x	
Cyprinidae	*Hybognathus nuchalis*	Mississippi Silvery Minnow	P4	CS	R, I	W	C	1	DAH	--	Current	x	x	
Cyprinidae	*Hybopsis winchelli*	Clear Chub	P5	CS	R, S, I	W	C	1	INS	--	Current	x	x	
Cyprinidae	*Luxilus chrysocephalus*	Striped Shiner	P5	CS	S, H	W	C	2	INS,DAH	TOL	Current	x	x	
Cyprinidae	*Lythrurus bellus*	Pretty Shiner	P5	CS	S, H	W	C	1	INS	--	Current	x	x	
Cyprinidae	*Lythrurus lirus*	Mountain Shiner	P4	CS	S, H	R	O	1	INS	INT	Current	x	x	
Cyprinidae	*Macrhybopsis aestivalis*	Speckled Chub	P1	CS	R, S	R	R	1	INS	INT	Current	x	x	

Appendix B.6. Fish Species Found in the Cahaba River Basin (03150202) Based on Recent Survey Data.

			P1- highest concern											
			P2- high concern		I-impoundment			C- common						
			P3- moderate concern		R- river			O- occasional			DAH - detritovore-algivore-herbivore			
			P4- low concern		S- stream			U- uncommon			AHI - algivore-herbivore-invertivore			
			P5- lowest concern		H- headwater	W- widesprea		R- rare			INV - invertivore			
			E- endangered		Sp- spring	R- restricted		1- simple lithoplils			INS - insectivore			
			T- threatened		Ca- cave	D- disjunct		2- manipulative lithophils			PIS - piscivore			
			CS-currently stable		Sw-swamp	Ex- extirpated		3- simple misc.			PAR - parasite			
			V- vulnerable		E - estuarine	I- introduced		4- manipulative misc.			IP - invertivore, piscivore			
Family	Scientific Name	Common Name	Conservation status	Vulner.	Habitat	Dist.	Abund.	Reproductive guild	Feeding guild	Tolerance	Occurrence Status	Pierson 1989	O'Neil 1995	
Cyprinidae	*Macrhybopsis storeriana*	Silver Chub	P5	CS	I, R, S	W	O	1	INS,INV	--	Current	x	x	
Cyprinidae	*Nocomis leptocephalus*	Bluehead Chub	P5	CS	S, H	W	C	2	INS,AHI	--	Current	x	x	
Cyprinidae	*Notemigonus crysoleucas*	Golden Shiner	P5	CS	I, R, S	W	O	3	INS,AHI	TOL	Current	x	x	
Cyprinidae	*Notropis ammophilus*	Orangefin Shiner	P5	CS	R, S	W	C	1	INS,DAH	--	Current	x	x	
Cyprinidae	*Notropis asperifrons*	Burrhead Shiner	P5	CS	S	W, D	O	1	INS,DAH	INT	Current	x	x	
Cyprinidae	*Notropis atherinoides*	Emerald Shiner	P5	CS	I, R, S	W	C	1	INS,AHI	--	Current	x	x	
Cyprinidae	*Notropis baileyi*	Rough Shiner	P5	CS	S, H	W	C	2	INS,DAH	--	Current	x	x	
Cyprinidae	*Notropis cahabae*	Cahaba Shiner	P1, E	E	R	R	R	3	INS,DAH	INT	Current	x	x	
Cyprinidae	*Notropis candidus*	Silverside Shiner	P5	CS	I, R	W	C	1	INS,DAH	--	Current	x	x	
Cyprinidae	*Notropis chrosomus*	Rainbow Shiner	P5	CS	H	W, D	O	2	INS,DAH	INT	Current	x	x	
Cyprinidae	*Notropis edwardraneyi*	Fluvial Shiner	P4	CS	I, R	W	C	1	INS,AHI	--	Current	x	x	
Cyprinidae	*Notropis stilbius*	Silverstripe Shiner	P5	CS	S	W	C	1	INS,DAH	--	Current	x	x	
Cyprinidae	*Notropis texanus*	Weed Shiner	P5	CS	I, R, S	W	C	1	INS,DAH	--	Current	x	x	
Cyprinidae	*Notropis uranoscopus*	Skygazer Shiner	P3	CS	R	R	C	1	INS,DAH	INT	Current	x	x	
Cyprinidae	*Notropis volucellus*	Mimic Shiner	P5	CS	R, S	W	C	3	INS,AHI	--	Current	x	x	
Cyprinidae	*Opsopoeodus emiliae*	Pugnose Minnow	P5	CS	I, R, S	W	O	4	AHI	--	Current	x	x	
Cyprinidae	*Phenacobius catostomus*	Riffle Minnow	P5	CS	R, S	W	O	1	INS	--	Current	x	x	
Cyprinidae	*Pimephales notatus*	Bluntnose Minnow	P5	CS	R, S, H	W	C	4	DAH,INV	TOL	Current	x	x	
Cyprinidae	*Pimephales promelas*	Fathead Minnow	P5	CS	I, R, S	I	U	4	DAH,INV	TOL	Introduced	x	x	
Cyprinidae	*Pimephales vigilax*	Bullhead Minnow	P5	CS	I, R, S	W	C	4	DAH,INV	TOL	Current	x	x	
Cyprinidae	*Pteronotropis welaka*	Bluenose Shiner	P2	V	S, Sw	W	U	1	INS,DAH	INT	Current	x	x	
Cyprinidae	*Semotilus atromaculatus*	Creek Chub	P5	CS	S, H, Sp	W	C	2	IP,INS	TOL	Current	x	x	
Cyprinidae	*Semotilus thoreauianus*	Dixie Chub	P5	CS	S, H, Sp	W	O	2	IP,INS	--	Current	x	x	
Catostomidae	*Carpiodes cyprinus*	Quillback	P5	CS	I, R	W	C	3	DAH,INV	--	Current	x	x	
Catostomidae	*Carpiodes velifer*	Highfin Carpsucker	P5	CS	I, R	W	C	3	DAH,INV	--	Current	x	x	
Catostomidae	*Cycleptus meridionalis*	Southeastern Blue Sucker	P4	V	I, R	W	C	1	AHI	--	Current	x	x	
Catostomidae	*Erimyzon oblongus*	Creek Chubsucker	P5	CS	S, H	W	C	2	INV,AH	--	Current	x	x	
Catostomidae	*Erimyzon sucetta*	Lake Chubsucker	P5	CS	S, Sw	W	O	2	AHI	--	Current	x	x	
Catostomidae	*Erimyzon tenuis*	Sharpfin Chubsucker	P5	CS	S, Sw	W	O	2	AHI	--	Current	x	x	
Catostomidae	*Hypentelium etowanum*	Alabama Hog Sucker	P5	CS	R, S	W	C	1	AHI	--	Current	x	x	
Catostomidae	*Ictiobus bubalus*	Smallmouth Buffalo	P5	CS	I, R	W	C	3	INV	--	Current	x	x	

Appendix B.6. Fish Species Found in the Cahaba River Basin (03150202) Based on Recent Survey Data.

			P1- highest concern											
			P2- high concern		I-impoundment			C- common						
			P3- moderate concern		R- river			O- occasional			DAH - detritovore-algivore-herbivore			
			P4- low concern		S- stream			U- uncommon			AHI - algivore-herbivore-invertivore			
			P5- lowest concern		H- headwater	W- widesprea		R- rare			INV - invertivore			
			E- endangered		Sp- spring	R- restricted		1- simple lithoplils			INS - insectivore			
			T- threatened		Ca- cave	D- disjunct		2- manipulative lithophils			PIS - piscivore			
			CS-currently stable		Sw-swamp	Ex- extirpated		3- simple misc.			PAR - parasite			
			V- vulnerable		E - estuarine	I- introduced		4- manipulative misc.			IP - invertivore, piscivore			
Family	Scientific Name	Common Name	Conservation status	Vulner.	Habitat	Dist.	Abund.	Reproductive guild	Feeding guild	Tolerance	Occurrence Status	Pierson 1989	O'Neil 1995	
Catostomidae	*Minytrema melanops*	Spotted Sucker	P5	CS	I, R, S	W	C	1	INV,DAH	TOL	Current	x	x	
Catostomidae	*Moxostoma carinatum*	River Redhorse	P5	CS	I, R	W	O	1	INV	INT	Current	x	x	
Catostomidae	*Moxostoma duquesnei*	Black Redhorse	P5	CS	I, R, S	W	C	1	INV	--	Current	x	x	
Catostomidae	*Moxostoma erythrurum*	Golden Redhorse	P5	CS	I, R, S	W	C	1	INV	--	Current	x	x	
Catostomidae	*Moxostoma poecilurum*	Blacktail Redhorse	P5	CS	I, R, S	W	C	1	INV	--	Current	x	x	
Ictaluridae	*Ameiurus melas*	Black Bullhead	P5	CS	R, S	W	O	4	AHI,PIS	TOL	Current	x	x	
Ictaluridae	*Ameiurus natalis*	Yellow Bullhead	P5	CS	I, R, S	W	C	4	AHI,PIS	TOL	Current	x	x	
Ictaluridae	*Ameiurus nebulosus*	Brown Bullhead	P5	CS	I, R, S, Sw	W	U	4	IP,DAH	TOL	Current	x	x	
Ictaluridae	*Ictalurus furcatus*	Blue Catfish	P5	CS	I, R	W	C	4	INV	--	Current	x	x	
Ictaluridae	*Ictalurus punctatus*	Channel Catfish	P5	CS	I, R, S	W	C	4	INV	--	Current	x	x	
Ictaluridae	*Noturus funebris*	Black Madtom	P5	CS	S, H	W	C	4	INV	--	Current	x	x	
Ictaluridae	*Noturus gyrinus*	Tadpole Madtom	P5	CS	S, H	W	C	4	INS,INV	--	Current	x	x	
Ictaluridae	*Noturus leptacanthus*	Speckled Madtom	P5	CS	S, H	W	C	4	INS	--	Current	x	x	
Ictaluridae	*Noturus munitus*	Frecklebelly Madtom	P1	V, E	R, S	D	R	4	INS,INV	INT	Current	x	x	
Ictaluridae	*Noturus nocturnus*	Freckled Madtom	P5	CS	S	W	U	4	INS,INV	--	Current	x	x	
Ictaluridae	*Pylodictis olivaris*	Flathead Catfish	P5	CS	I, R	W	O	4	IP	--	Current	x	x	
Esocidae	*Esox americanus*	Redfin Pickerel	P5	CS	S, H, Sw	W	O	3	IP	--	Current	x	x	
Esocidae	*Esox niger*	Chain Pickerel	P5	CS	I, R, S, Sw	W	O	3	IP	--	Current	x	x	
Aphredoderidae	*Aphredoderus sayanus*	Pirate Perch	P5	CS	S, H, Sw	W	O	4	INS, PIS	--	Current	x	x	
Atherinopsidae	*Labidesthes sicculus*	Brook Silverside	P5	CS	I, R, S	W	C	3	INV	--	Current	x	x	
Belonidae	*Strongylura marina*	Atlantic Needlefish	P5	CS	I, R	W	O	3	PIS	--	Marine	x	x	
Fundulidae	*Fundulus dispar*	Starhead Topminnow	P3	CS	I, S, Sw	W	O	3	INV	--	Current	x	x	
Fundulidae	*Fundulus olivaceus*	Blackspotted Topminnow	P5	CS	R, S, Sw, H	W	C	3	INV	--	Current	x	x	
Fundulidae	*Fundulus stellifer*	Southern Studfish	P5	CS	R, S	W	O	1	INV	--	Current	x	x	
Poeciliidae	*Gambusia affinis*	Western Mosquitofish	P5	CS	, R, S, Sw, H	W	C	4	INS,AHI	TOL	Current	x	x	
Cottidae	*Cottus carolinae*	Banded Sculpin	P5	CS	S, H, Sp	W	C	2	INS,IP	--	Current	x	x	
Moronidae	*Morone chrysops*	White Bass	P5	CS	I, R	W	O	3	IP	--	Current	x	x	
Moronidae	*Morone mississippiensis*	Yellow Bass	P5	CS	I, R	W	O	3	IP	--	Introduced	x		
Moronidae	*Morone saxatilis*	Striped Bass	P3	CS	I, R	W	O	3	IP	--	Marine	x	x	
Moronidae	*Morone chrysops x saxatilis*	Palmetto Bass	--		I, R	W	O		IP	--	Introduced	x	x	
Centrarchidae	*Ambloplites ariommus*	Shadow Bass	P5	CS	R, S	W	O	2	IP	INT	Current	x	x	

Appendix B.6. Fish Species Found in the Cahaba River Basin (03150202) Based on Recent Survey Data.

			P1- highest concern											
			P2- high concern		I-impoundment			C- common						
			P3- moderate concern		R- river			O- occasional			DAH - detritovore-algivore-herbivore			
			P4- low concern		S- stream			U- uncommon			AHI - algivore-herbivore-invertivore			
			P5- lowest concern		H- headwater	W- widesprea		R- rare			INV - invertivore			
			E- endangered		Sp- spring	R- restricted		1- simple lithoplils			INS - insectivore			
			T- threatened		Ca- cave	D- disjunct		2- manipulative lithophils			PIS - piscivore			
			CS-currently stable		Sw-swamp	Ex- extirpated		3- simple misc.			PAR - parasite			
			V- vulnerable		E - estuarine	I- introduced		4- manipulative misc.			IP - invertivore, piscivore			
Family	Scientific Name	Common Name	Conservation status	Vulner.	Habitat	Dist.	Abund.	Reproductive guild	Feeding guild	Tolerance	Occurrence Status	Pierson 1989	O'Neil 1995	
Centrarchidae	*Centrarchus macropterus*	Flier	P5	CS	R, S, Sw	W	U	4	INV	--	Current	x	x	
Centrarchidae	*Lepomis cyanellus*	Green Sunfish	P5	CS	R, S, H	W	C	2	IP	TOL	Current	x	x	
Centrarchidae	*Lepomis gulosus*	Warmouth	P5	CS	R, S. H	W	O	4	IP	--	Current	x	x	
Centrarchidae	*Lepomis macrochirus*	Bluegill	P5	CS	I, R, S, H	W	C	2	INV	TOL	Current	x	x	
Centrarchidae	*Lepomis marginatus*	Dollar Sunfish	P5	CS	R, S	W	O	2	INV	--	Current	x	x	
Centrarchidae	*Lepomis megalotis*	Longear Sunfish	P5	CS	I, R, S, H	W	C	2	INV	--	Current	x	x	
Centrarchidae	*Lepomis microlophus*	Redear Sunfish	P5	CS	I, R, S	W	C	2	INV	--	Current	x	x	
Centrarchidae	*Lepomis miniatus*	Redspotted Sunfish	P5	CS	R, S, H, Sw	W	C	2	INV	--	Current	x	x	
Centrarchidae	*Micropterus cahabae*	Cahaba Redeye Bass (new sp	P5	CS	R, S	R	C	2	IP	--	Current	x	x	
Centrarchidae	*Micropterus dolomieu*	Smallmouth bass	P3	CS	I, R, S	R	C	2	IP	--	introduced	x	x	
Centrarchidae	*Micropterus punctulatus*	Spotted Bass	P5	CS	I, R, S, H	W	C	4	IP	--	Current	x	x	
Centrarchidae	*Micropterus salmoides*	Largemouth Bass	P5	CS	I, R, S, Sw	W	C	4	IP	--	Current	x	x	
Centrarchidae	*Pomoxis annularis*	White Crappie	P5	CS	I, R, S	W	O	4	IP	--	Current	x	x	
Centrarchidae	*Pomoxis nigromaculatus*	Black Crappie	P5	CS	I, R, S	W	O	4	IP	--	Current	x	x	
Percidae	*Ammocrypta beani*	Naked Sand Darter	P5	CS	R, S	W	O	1	INS	--	Current	x	x	
Percidae	*Ammocrypta meridiana*	Southern Sand Darter	P5	CS	R, S	W	O	1	INS	--	Current	x	x	
Percidae	*Crystallaria asprella*	Crystal Darter	P3	V	R	W	U	1	INS	INT	Current	x	x	
Percidae	*Etheostoma artesiae*	Redspot Darter	P5	CS	S, H	W	C	3	INS	--	Current	x	x	
Percidae	*Etheostoma chlorosoma*	Bluntnose Darter	P5	CS	S, H	W	O	3	INS	--	Current	x	x	
Percidae	*Etheostoma histrio*	Harlequin Darter	P5	CS	R, S	W	U	3	INS	--	Current	x	x	
Percidae	*Etheostoma jordani*	Greenbreast Darter	P5	CS	R, S, H	W	O	1	INS	INT	Current	x	x	
Percidae	*Etheostoma nigrum*	Johnny Darter	P5	CS	S, H	W	C	4	INS	--	Current	x	x	
Percidae	*Etheostoma parvipinne*	Goldstripe Darter	P5	CS	S, H	W	U	3	INS	--	Current	x	x	
Percidae	*Etheostoma ramseyi*	Alabama Darter	P5	CS	S, H	W	C	3	INS	--	Current	x	x	
Percidae	*Etheostoma rupestre*	Rock Darter	P5	CS	R, S	W	O	1	INS	--	Current	x	x	
Percidae	*Etheostoma stigmaeum*	Speckled Darter	P5	CS	S, H	W	C	1	INS	--	Current	x	x	
Percidae	*Etheostoma swaini*	Gulf Darter	P5	CS	S, H	W	O	3	INS	--	Current	x	x	
Percidae	*Etheostoma zonifer*	Backwater Darter	P5	CS	H, Sw	W	U	3	INS	--	Current	x	x	
Percidae	*Percina aurolineata*	Goldline Darter	P2, T	T	R, S	R-D	R	1	INS	INT	Current	x	x	
Percidae	*Percina brevicauda*	Coal Darter	P2	T	R, S	R	U	1	INS	INT	Current	x	x	
Percidae	*Percina kathae*	Mobile Logperch	P5	CS	R, S	W	O	1	INS	--	Current	x	x	

Appendix B.6. Fish Species Found in the Cahaba River Basin (03150202) Based on Recent Survey Data.

			P1- highest concern P2- high concern P3- moderate concern P4- low concern P5- lowest concern E- endangered T- threatened CS-currently stable V- vulnerable		I-impoundment R- river S- stream H- headwater Sp- spring Ca- cave Sw-swamp E - estuarine	W- widespread R- restricted D- disjunct Ex- extirpated I- introduced	C- common O- occasional U- uncommon R- rare 1- simple lithoplils 2- manipulative lithophils 3- simple misc. 4- manipulative misc.		DAH - detritovore-algivore-herbivore AHI - algivore-herbivore-invertivore INV - invertivore INS - insectivore PIS - piscivore PAR - parasite IP - invertivore, piscivore				
Family	Scientific Name	Common Name	Conservation status	Vulner.	Habitat	Dist.	Abund.	Reproductive guild	Feeding guild	Tolerance	Occurrence Status	Pierson 1989	O'Neil 1995
Percidae	*Percina lenticula*	Freckled Darter	P3	T	R, S	W	U	1	INS	--	Current	x	x
Percidae	*Percina maculata*	Blackside Darter	P5	CS	S, H	W	U	1	INS	INT	Current	x	x
Percidae	*Percina nigrofasciata*	Blackbanded Darter	P5	CS	R, S, H	W	C	1	INS	--	Current	x	x
Percidae	*Percina shumardi*	River Darter	P5	CS	R, S	W	O	1	INS	--	Current	x	x
Percidae	*Percina suttkusi*	Gulf Logperch	P5	CS	R, S	W	U	1	INS	--	Current	x	x
Percidae	*Percina vigil*	Saddleback Darter	P5	CS	R, S	W	O	1	INS	INT	Current	x	x
Percidae	*Sander vitreus*	Walleye	P4	CS	I, R	W	U	1	IP	--	Current	x	x
Sciaenidae	*Aplodinotus grunniens*	Freshwater Drum	P5	CS	I, R	W	C	3	INV	--	Current	x	x
Elassomatidae	*Elassoma zonatum*	Banded Pygmy Sunfish	P5	CS	S, H, Sw	W	C	4	INV,INS	--	Current	x	x
Mugilidae	*Mugil cephalus*	Striped Mullet	P5	CS	E, I, R	W	O	3	DAH,INV	--	Marine	x	x
											TOTAL SPECIES	**134**	**133**
											NATIVE SPECIES	**126**	

References (for full citations, see the WRIA Narrative Report for Cahaba River NWR, December 2013)

ADCNR 2012. 2012 Checklist of Fishes Occurring in the Freshwaters of Alabama (excel spreadsheet). Alabama Nongame Wildlife Conference

Baker, W.H., et al. 2013. Diversity within the Redeye Bass, Micropterus coosae. Zootaxa 3635 (4): 379-401.

Jelks, H.L. et al. 2008. Conservation Status of Imperiled North American Freshwater and Diadromous Fishes. Fisheries 33(8):372-407

Mettee, M.F., et al. 1996. Fishes of Alabama and the Mobile Basin. Oxmoor House, Birmingham, Alabama. 820 pp.

NatureServe. 2010. Cahaba River Basin (HUC 3510202). Digital Distribution Maps of the Freshwater Fishes in the Conterminous United States.

http://www.natureserve.org/getData/dataSets/wate Version 3.0. Arlington, VA, U.S.A. Distribution of Native U.S. Fishes by Watershed. Accessed 6-18-2013.

O'Neil, P.E. and T.E. Shepard. 2011a. Calibration of the IBI for the Ridge and Valley/Piedmont Ichthyoregion in AL. Open File Report 1109.

O'Neil, P.E., and T.E. Shepard. 2011c. Calibration of the IBI for the Hills and Coastal Terraces Ichthyoregion in AL. Open-file Report 1116.

Pierson, J.M., et al. 1989. Fishes of the Cahaba River System in Alabama. GSA, Tuscaloosa, Alabama, Bulletin 134. 181 pp.

USFWS 2007. Cahaba River National Wildlife Refuge Habitat Management Plan.

Appendix B.7. List of actual and potential reptile and amphibian species occurring within Cahaba River National Wildlife Refuge (Godwin 2010).

Family	Genus	species	Common Name	ON REFUGE	Status
Frogs and Toads					
Bufonidae	*Bufo*	*fowleri*	Fowler's toad	X	
	Bufo	*quercicus*	Oak Toad		
	Bufo	*terrestris*	Southern Toad		
Hylidae	*Acris*	*crepitans*	Northern Cricket Frog	X	
	Acris	*gryllus*	Southern Cricket Frog	X	
	Hyla	*avivoca*	Bird-voiced Treefrog		
	Hyla	*chrysoscelis*	Cope's Gray Treefrog	X	
	Hyla	*cinerea*	Green Treefrog	X	
	Hyla	*femoralis*	Pine Woods Treefrog		
	Hyla	*gratiosa*	Barking Treefrog		
	Hyla	*squirrela*	Squirrel Treefrog		
	Pseudacris	*brachyphona*	Mountain Chorus Frog	X	
	Pseudacris	*crucifer*	Spring Peeper	X	
	Pseudacris	*feriarum*	Upland Chorus Frog		
	Pseudacris	*ornata*	Ornate Chorus Frog		
Microhylidae	*Gastrophryne*	*carolinensis*	Eastern Narrowmouth Toad	X	
Ranidae	*Rana*	*catesbeiana*	Bullfrog	X	
	Rana	*clamitans*	Green/Bronze Frog	X	
	Rana	*sphenocephala*	Southern Leopard Frog	X	
Scaphiopodidae	*Scaphiopus*	*holbrookii*	Eastern Spadefoot Toad		
Salamanders					
Ambystomatidae	*Ambystoma*	*maculatum*	Spotted Salamander	X	
	Ambystoma	*opacum*	Marbled Salamander		
	Ambystoma	*talpoideum*	Mole Salamander		
	Ambystoma	*tigrinum*	Eastern Tiger Salamander		S3
Plethodontidae	*Desmognathus*	*conanti*	Spotted Dusky Salamander	X	
	Desmognathus	*monticola*	Seal Salamander	X	SP
	Eurycea	*cirrigera*	Two-lined Salamander	X	
	Eurycea	*guttolineata*	Three-lined Salamander	X	
	Gyrinophilus	*porphyriticus*	Spring Salamander		
	Hemidactylum	*scutatum*	Four-toed Salamander		S3
	Plethodon	*glutinosus*	Slimy Salamander (complex)	X	
	Plethodon	*ventralis*	Southern Zigzag Salamander	X	
	Plethodon	*websteri*	Webster's Salamander	X	
	Pseudotriton	*ruber*	Red Salamander	X	
	Necturus	*beyeri*	Beyer's Waterdog		
	Notopthalmus	*viridescens*	Red-spotted Newt	X	
Sirens					
Sirenidae	*Siren*	*intermedia*	Eastern Lesser Siren		
Crocodillians					
Alligatoridae	*Alligator*	*misissippiensis*	American Alligator		
Lizards and Snakes					
Anguidae	*Ophisaurus*	*attenuatus*	Eastern Slender Glass Lizard		
	Ophisaurus	*ventralis*	Eastern Glass Lizard		

Appendix B.7. List of actual and potential reptile and amphibian species occurring within Cahaba River National Wildlife Refuge (Godwin 2010).

Family	Genus	species	Common Name	ON REFUGE	Status
Phrynosomatidae	*Sceloporus*	*undulatus*	Easterb Fence Lizard	X	
Polychrotidae	*Anolis*	*carolinensis*	Green Anole	X	
Scincidae	*Eumeces*	*anthracinus*	Southern Coal Skink		P2, S3
	Eumeces	*egregius*	Mole Skink		
	Eumeces	*fasciatus*	Five-lined Skink	X	
	Eumeces	*inexpectatus*	Southeastern Five-lined Skink		P2, S3
	Eumeces	*laticeps*	Broad-headed Skink	X	
	Scincella	*lateralis*	Ground Skink	X	
Teiidae	*Cnemidophorus*	*sexlineatus*	Eastern Six-lined Racerunner	X	
Colubridae	*Cemophora*	*coccinea*	Scarlet Snake		
	Coluber	*constrictor*	Black Racer	X	
	Elaphe	*guttata*	Corn Snake		
	Elaphe	*obsoleta*	Gray Rat Snake	X	
	Lampropeltis	*calligaster*	Mole Kingsnake		S3
	Lampropeltis	*getula*	Eastern Kingsnake	X	P2, S4
	Lampropeltis	*triangulum*	Scarlet Kingsnake		
	Masticophis	*flagellum*	Eastern Coachwhip		S3
	Opheodrys	*aestivus*	Rough Green Snake	X	
	Pituophis	*melanoleucus*	Northern Pine Snake		P2, S3
	Tantilla	*coronata*	Southeastern Crowned Snake		
Dipsadidae	*Carphophis*	*amoenus*	Eastern Worm Snake	X	
	Diadophis	*punctatus*	Ringneck Snake	X	
Natricidae	*Nerodia*	*erythrogaster*	Yellow-bellied Water Snake		
	Nerodia	*rhombifer*	Diamond-backed Water Snake		
	Nerodia	*sipedon*	Midland Water Snake	X	
	Regina	*rigida*	Glossy Crayfish Snake		
	Regina	*septemvittata*	Queen Snake	X	
	Storeria	*dekayi*	Brown Snake	X	
	Storeria	*occipitomaculata*	Red-bellied Snake	X	
	Thamnophis	*sauritus*	Eastern Ribbon Snake		
	Thamnophis	*sirtalis*	Eastern Garter Snake	X	
	Virginia	*striatula*	Rough Earth Snake		
	Virginia	*valeriae*	Eastern Smooth Earth Snake		
Xenodontidae	*Farancia*	*abacura*	Mud Snake		
	Farancia	*erytrogramma*	Rainbow Snake		P2, S3
	Heterodon	*platyrhinos*	Eastern Hognose Snake	X	
Elapidae	*Micrurus*	*fulvius*	Eastern Coral Snake		P2, S3
Crotalidae	*Agkistrodon*	*contortrix*	Copperhead	X	
	Agkistrodon	*piscivorous*	Eastern Cottonmouth	X	
	Crotalus	*horridus*	Timber Rattlesnake	X	
	Sistrurus	*miliarius*	Pigmy Rattlesnake		
Turtles					
Chelydridae	*Chelydra*	*serpentina*	Common Snapping Turtle		
	Macrochelys	*temminckii*	Alligator Snapping Turtle		SP, P2, S3
Emydidae	*Deirochelys*	*reticularia*	Chicken Turtle		S3

Appendix B.7. List of actual and potential reptile and amphibian species occurring within Cahaba River National Wildlife Refuge (Godwin 2010).

Family	Genus	species	Common Name	ON REFUGE	Status
	Graptemys	*geographica*	Common Map Turtle	X	S3
	Graptemys	*nigrinoda*	Black-knobbed Map Turtle	X	SP, S3
	Graptemys	*pulchra*	Alabama Map Turtle	X	SP, S3
	Pseudemys	*concinna*	River Cooter	X	
	Trachemys	*scripta*	Slider Turtle	X	
	Terrapene	*carolina*	Eastern Box Turtle	X	
Kinosternidae	*Kinosternon*	*subrubrum*	Eastern Mud Turtle		
	Sternotherus	*minor*	Stripe-necked Musk Turtle	X	
	Sternotherus	*odoratus*	Common Musk Turtle		
Trionychidae	*Apalone*	*mutica calvata*	Gulf Coast Smooth Softshell		
	Apalone	*spiniferus*	Spiny Softshell	X	
			TOTAL SPECIES	**50**	**95**

References (for full citations, see the WRIA Narrative Report for Cahaba River NWR, December 2013)
http://amphibiaweb.org/index.html http://srelherp.uga.edu/index.htm
ADCNR. 2005. Conserving Alabama's Wildlife: A Comprehensive Strategy.
Godwin, James C. 2010. Amphibian and Reptile Inventory of the Cahaba River National Wildlife Refuge.

E=Federally Listed Endangered, T=Federally Listed Threatened, C=Candidate for Federal Listing

SP=State Protected (Alabama Nongame Species Regulation, Section 220-2-.92 of the Alabama Regulations)

P1=Species of Highest Conservation Concern, P2=Species of High Conservation Concern

Nature Conservancy Heritage Ranking system: S1=Critically imperiled in AL, S2 = Imperiled in AL,

S3=Rare or uncommon in Alabama, S4=Demonstrably secure in Alabama

Appendix B.8. Potential and Documented Mammals For Cahaba River National Wildlife Refuge, AL

Scientific Name	Common Name	ON REFUGE	Federal Status	State Status
Didelphis virginiana	Virginia Opossum			
Blarina carolinensis	Southern Short-tailed Shrew			
Sorex longirostris	Southeastern Shrew			
Cryptotis parva	Least Shrew			
Sorex longirostris	Southeastern Shrew			
Scalopus aquaticus	Eastern Mole			
Myotis grisecens	Gray Bat	X	E	SP, P1, S2
Myotis lucifugus	Little Brown Myotis			P2, S3
Myotis austroriparius	Southeastern Myotis			P2
Myotis septentrionalis	Northern Long-eared Bat			P2, S2
Myotis sodalis	Indiana Bat		E	SP, P1, S2
Lasiurus borealis	Eastern Red Bat	X		
Lasiurus cinereus	Hoary Bat	X		
Lasiurus seminolus	Seminole Bat	X		
Lasionycteris noctivagans	Silver-haired Bat			
Pipistrellus subflavus	Eastern Pipistrelle	X		
Eptesicus fuscus	Big Brown Bat	X		
Nycticeius humeralis	Evening Bat	X		
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat			SP, P1, S2
Tadarida brasiliensis	Brazilian Free-tailed Bat	X		P2, S3
Dayspus novemcinctus	Nine-banded Armadillo			
Sylvilagus aquaticus	Swamp Rabbit			
Sylvilagus floridanus	Eastern Cottontail			
Tamias striatus	Eastern Chipmunk			
Marmota monax	Woodchuck			
Sciurus carolinensis	Eastern Gray Squirrel			
Sciurus niger	Eastern Fox Squirrel			S3
Glaucomys volans	Southern Flying Squirrel			
Castor canadensis	American Beaver			
Oryzomys palustris	Marsh Rice Rat			
Reithrodontomys humulis	Eastern Harvest Mouse			
Peromyscus gossypinus	Cotton Mouse			
Peromyscus leucopus	White-footed Mouse			
Peromyscus polionotus	Oldfield Mouse			
Ochrotomys nuttalli	Golden Mouse			
Sigmodon hispidus	Hispid Cotton Rat			
Neotoma floridana	Eastern Wood Rat			
Microtus pinetorum	Woodland Vole			
Ondatra zibethicus	Common Muskrat			
Rattus rattus	Black Rat			
Rattus norvegicus	Norway Rat			
Mus musculus	House Mouse			
Canis latrans	Coyote			
Vulpes vulpes	Red Fox			
Urocyon cinereoargenteus	Common Gray Fox			
Procyon lotor	Northern Raccoon			

Appendix B.8. Potential and Documented Mammals For Cahaba River National Wildlife Refuge, AL

Scientific Name	Common Name	ON REFUGE	Federal Status	State Status
Mustela frenata	Long-tailed Weasel			SP, P2, S3
Mustela vison	American Mink			
Lontra canadensis	Northern River Otter			
Spilogale putorius	Eastern Spotted Skunk			P2, S3
Mephitis mephitis	Striped Skunk			
Spilogale putorius	Eastern Spotted Skunk			
Lynx rufus	Bobcat			
Odocoileus virginianus	White-tailed Deer			
Sus scrofa	Feral Swine			

References (for full citations, see the WRIA Narrative Report for Cahaba River NWR, December 2013)
ADCNR. 2005. Conserving Alabama's Wildlife: A Comprehensive Strategy.
Alabama Natural Heritage Program. 2006. AL Rare, Threatened and Endangered Plants & Animals
Kristofik, E.M. 2012. Occurrence and Habitat Use of Bats in Central Alabama Forests. M.S. Thesis.
Mirarchi, R.E. (Ed.). 2004. Alabama Wildlife - Volume 1 - A Checklist of Vertebrates, Univ. AL Press.
USFWS. 2007. Cahaba River NWR Habitat Management Plan. Accessed 6 April 2012.

E=Federally Listed Endangered, T=Federally Listed Threatened, C=Candidate for Federal Listing
SP=State Protected (Alabama Nongame Species Regulation, Section 220-2-.92 of the Alabama Regulations)
P1=Species of Highest Conservation Concern, P2=Species of High Conservation Concern (ADCNR 2005).
Nature Conservancy Heritage Ranking system: S1=Critically imperiled in AL, S2 = Imperiled in AL,
S3=Rare or uncommon in Alabama, S4=Demonstrably secure in Alabama

Appendix B.9. Petitioned Species Occurring in Alabama and within the Cahaba River Basin (HUC 03150202).

ITIS.gov	General Category	Scientific Name	Common Name	Global Rank	Federal Status	Status in Cahaba River (03150202)
97620	Crayfish	*Cambarellus diminutus*	Least Crayfish			
97621	Crayfish	*Cambarellus lesliei*	Angular Dwarf Crayfish			
97356	Crayfish	*Cambarus cracens*	Slendercraw Crayfish			
97379	Crayfish	*Cambarus jonesi*	Alabama Cave Crayfish			
97403	Crayfish	*Cambarus scotti*	Chattooga River Crayfish			
97413	Crayfish	*Cambarus unestami*	Blackbarred Crayfish			
650325	Crayfish	*Fallicambarus burrisi*	Burrowing Bog Crayfish			
97606	Crayfish	*Fallicambarus danielae*	Speckled Burrowing Crayfish			
203637	Crayfish	*Orconectes jonesi*	Sucarnoochee River Crayfish			
650380	Crayfish	*Orconectes sheltae*	Shelta Cave Crayfish			
97530	Crayfish	*Procambarus lagniappe*	Lagniappe Crayfish			
553377	Fish	*Etheostoma bellator*	Warrior Darter			
168444	Fish	*Etheostoma trisella*	Trispot Darter			
168445	Fish	*Etheostoma tuscumbia*	Tuscumbia Darter			
164021	Fish	*Noturus munitus*	Frecklebelly Madtom	G3		Present
553385	Fish	*Percina brevicauda*	Coal Darter	G2		Present
not listed	Fish	*Percina sipsi*	Bankhead Darter			
22694	Flowering Plants	*Arabis georgiana*	Georgia Rockcress	G1	Candidate	Present
501232	Flowering Plants	*Carex impressinervia*	Impressed-nerved Sedge	G2		Present
18366	Flowering Plants	*Hexastylis speciosa*	Harper's Heartleaf	G2		Present
504793	Flowering Plants	*Rhynchospora thornei*	Thorne's Beakrush	G3		Present
36767	Flowering Plants	*Rudbeckia auriculata*	Eared Coneflower	G2		Present
522211	Flowering Plants	*Symphyotrichum georgianum*	Georgia Aster	G3	Candidate	Present
80149	Mussel	*Anodontoides radiatus*	Rayed Creekshell	G3		Present
79974	Mussel	*Elliptio arca*	Alabama Spike	G2G3Q		Present
79954	Mussel	*Elliptio arctata*	Delicate Spike	G2G3Q		Present
80179	Mussel	*Obovaria unicolor*	Alabama Hickorynut	G3		Present
not listed	Mussel	*Pleurobema athearni*	Canoe Creek Pigtoe			
80112	Mussel	*Pleurobema rubellum*	Warrior Pigtoe			
80074	Mussel	*Quadrula asperata archeri*	Tallapoosa Orb			
80209	Mussel	*Villosa nebulosa*	Alabama Rainbow	G3		Present
906931	Mussel	*Villosa umbrans*	Coosa Creekshell			
567236	Snail	*Antrorbis breweri*	Manitou Cavesnail			
71657	Snail	*Elimia alabamensis*	Mud Elimia			
71659	Snail	*Elimia ampla*	Ample Elimia	G1		Present
71661	Snail	*Elimia annettae*	Lilyshoals Elimia	G1		Present
71672	Snail	*Elimia bellacrenata*	Princess Elimia	G1Q		Present
71674	Snail	*Elimia bellula*	Walnut Elimia			
71873	Snail	*Elimia chiltonensis*	Prune Elimia			
71730	Snail	*Elimia cochliaris*	Cockle Elimia	G1		Present
567521	Snail	*Elimia lachryma*	Nodulose Coosa River Snail			
71789	Snail	*Elimia nassula*	Round-Rib Elimia			
71791	Snail	*Elimia olivula*	Caper Elimia	G1Q		Present
71795	Snail	*Elimia perstriata*	Engraved Elimia			
71830	Snail	*Elimia showalteri*	Compact Elimia	G1Q		Present
71843	Snail	*Elimia vanuxemiana*	Cobble Elimia			
71618	Snail	*Leptoxis picta*	Spotted Rocksnail	G1		HISTORIC
76588	Snail	*Rhodacme elatior*	Domed Ancylid	G1		Present
208633	Turtles	*Graptemys nigrinoda nigrinoda*	Black-knobbed Map Turtle	G3T3Q		Present
173801	Turtles	*Graptemys pulchra*	Alabama Map Turtle	G4		Present
697708	Tiger Beetles	*Cicindela marginipennis*	Cobblestone Tiger Beetle	G2		Present
					TOTAL SPECIES (Cahaba)	**24**
					TOTAL SPECIES (Cahaba)	**51**

References (for full citations, see the WRIA Narrative Report for Cahaba River NWR, December 2013)
Center for Biological Diversity. 2010. [Petition to List 404 Aquatic, Riparian and Wetland Species]. April 20, 2010.

Appendix C

Piper II Mine Reclamation Plan

Robert Bentley
Governor

G. Thomas Surtees
Commissioner

STATE OF ALABAMA
DEPARTMENT OF LABOR

February 28, 2013

Mrs. Sarah Clardy
Refuse Manager
Cahaba River National Wildlife Refuge
P.O. Box 5087
Anniston, AL 35205

Dear Sarah,

As you have been previously discussing with Michael Vinson, this letter is being written to advise you that we still plan to send a set of preliminary construction plans and contract specifications in the mail on Friday, March 1, 2013, and e-mail a pdf file of each. When you receive this packet of information, you may begin the process of having the trees removed from the site. We have approximately 33+/- acres of actual disturbed area in the plans but have allowed for 35 acres in the specifications and quantities just in case the timber is cut a little outside of our limits.

It is important that we obtain the signed Consent Form from the USFWS on this project in a timely manner to allow us to proceed with the design and eventually let it for bid so that our AML contractor can perform the construction work. The signature block(s) have been left blank to allow you to fill in the names and titles of the appropriate individuals that will need to sign the form, unless you can tell us in advance who the signee(s) will be. If so, we can include their name(s) and titles(s) on the form.

It is our intention, barring any unforeseen problems or discussions from the USFWS, to let this project for bid by April 15, 2013, and show the project to interested contractors by May 10, 2013. In this case, the bids should be opened around May 24, 2013, and construction could begin approximately July 15, 2013 – August 1, 2013. This allows you the time that you needed (three months) to have the timber removed on this phase of our Piper AML Project.

ABANDONED MINE LAND RECLAMATION OFFICE CHUCK WILLIAMS, FIELD SUPERVISOR
11 WEST OXMOOR ROAD SUITE 100 BIRMINGHAM, ALABAMA 35209
Telephone: (205) 945-8671 Fax: (205) 945-8685

As you and Michael have discussed, it is very important to have the site revegetated and stabilized as soon as possible once the grading operations have been completed. In addition to your suggested grass seed mixture, we have added some native species that we hope you will find acceptable. We are in the process of verifying the availability and cost of the proposed mixture with our usual seed company(ies). If available and reasonably priced, this mixture will be included in our contract specifications. However, if USFWS requires, it could be modified provided we are notified before our expected bid let date (04/5/13).

Our proposed mixture is as follows:

Winter Wheat	40 lbs./acre
Annual Rye	15 lbs./acre
Little Bluestem	4 lbs./acre
Big Bluestem	4 lbs./acre
Switchgrass	5 lbs./acre
Partridge peas	7 lbs./acre
Kenland Red Clover	20 lbs./acre
Durana Clover	15 lbs. acre
Total	110 lbs./acre

We have been involved for over 30 years with stabilizing AML reclamation sites in various Alabama minespoil soil types. Although overall success is very dependent upon unpredictable weather conditions at and following the time of seedbed preparation and planting, through much trial and error our current revegetation prescriptions have been proven mostly successful. Our concern is if the original seed application should be only successful enough to provide 'short term' ground cover stabilization for release of our ADEM permit, but not provide the long term ground cover that we always strive to achieve (or that you may desire for the following spring and summer and onward). We could not replant with a winter mix of wheat, rye, etc. until late Fall 2013, and our site maintenance would then be restricted to repairing any washes on the slopes, replacing silt fences, installing haybales, adding riprap to structures, etc., that may be damaged by

heavy rainfall events. If this should occur, would the USFWS replant as required with a seed mixture of your choosing? In the event of a poor initial ground cover stand, we might be forced to begin planting the Long Leaf Pines in the winter of 2014. This could actually benefit the tree survival, especially when the wheat and rye become dormant in the spring.

We realize that your review could take several weeks or more. However, we did want to give you sufficient notice on the timber cutting process so that your forester can coordinate with the timber cutting contractor to schedule his men and equipment to enable timber removal prior to our construction start up.

Finally, Michael is working with our Planning and Maintenance staff to initiate the NEPA requirements for the next phase of our Piper AML Project which will include the last remaining section(s) of highwall. We should have that information to you by April 1, 2013.

Sincerely,

C. Williams

Chuck Williams
State Mine Land Reclamation Supervisor
State of Alabama Department of Labor
Abandoned Mine Land Reclamation

/dk
Enclosures

PROJECT: Piper II

STATE OF ALABAMA
CONSENT FOR RIGHT-OF-ENTRY (CONSTRUCTION)

I/We, the owner(s) of the following described property:

Access to and construction of approximately 35 acres to eliminate 3,750 linear feet of dangerous highwall and its associated features contained therein for purposes of mitigation of the dangers associated therewith. More specifically a portion of the project site containing 18 acres located in the SW ¼ of Section 2, identified as Tax Map Parcel No. 1001020000001000; a portion of the project site containing 12 acres located in the SE ¼ of the SE ¼ of Section 3, identified as Tax Map parcel No. 1002030000001000; and a portion of the project site containing 5 acres located in the N ½ of the NE ¼ of Section 10, identified as Tax Map Parcel No. 1002100000001000, all in Township 24 North, Range 10 East, Bibb County, alabama. All as per the Project Realty Map incorporated hereby referenced.

do hereby grant the State of Alabama Department of Labor (ADOL), its agents, employees and contractors, the right to enter upon the above-described property to do all things necessary to protect the public health, safety and general welfare by reclaiming lands adversely affected by past mining practices. The right to enter upon land for the purpose of reclamation is granted to the Department by the Code of Alabama, 1975, Section 9-16-126.

In consideration of the benefits which are expected to accrue as a result of the reclamation , I/we give the consent to enter upon the above-described property for the length of time necessary to complete the reclamation work and provide maintenance on the site for a period of two years following the completion of the reclamation work subject to my/our continued ownership and use of the property.

I/We understand and acknowledge that the success of the project cannot be warranted, and that the proposed work may not accomplish the intended result. I/We also understand and acknowledge that the Department bears no responsibility or liability for any mine-related damage to the property (or improvements thereon) which occurred prior to, or which might occur during or after the reclamation. Persons contracted by the Department to perform reclamation work are required to carry comprehensive liability insurance. I/We understand and acknowledge that the Department is not authorized to repair structures which have suffered mine-related damage.

I/We understand and acknowledge that the execution of this Consent for Right of Entry does not obligate the Department to perform any part of the contemplated or proposed reclamation work.

In giving my/our consent to this entry, I/we do not waive any rights conferred upon me/us by virtue of the language contained in the Code of Alabama, 1975, Sections 9-16-120 through 9-16-135

IN WITNESS HEREOF, the Owner(s) or authorized representative has caused this Consent for Right of Entry to be executed this _____ day of _____.

_____ _____
WITNESS

_____ _____
WITNESS

CONTRACT DOCUMENTS

PART II

PIPER II

ABANDONED MINE LAND RECLAMATION PROJECT

BIBB COUNTY, ALABAMA

Prepared By:
Alabama Department of labor
Inspections Division
Abandoned Mine Land Reclamation Program
11 West Oxmoor Road, Suite 100
Birmingham, Alabama 35209

TABLE OF CONTENTS

NOTE: Instructions to Bidders, General Conditions and Additional Requirements for Federally Assisted Construction Contracts are contained in Part I of the Contract Documents and are considered part of the contract.

SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

1. TIME

Unless modified in writing by the STATE MINE LAND RECLAMATION SUPERVISOR, the work in this contract shall be completed within one hundred (100) work days. A work day is herein defined as any day during the contract period, excluding Saturdays (unless approved by the DEPARTMENT), Sundays and holidays are specified in Article 6.3 of the General Conditions, where weather and field conditions are such that work could be performed, as determined by the PROJECT MONITOR. On days where weather and field conditions limit a normal work day, the day will be considered a work day if five (5) or more hours of work have been performed or could have been performed, as determined by the PROJECT MONITOR. In order for any work to be performed on a Saturday, a request by the CONTRACTOR to the PROJECT MONITOR must first be made no later than the end of the day on the preceding Wednesday. Notification for approval or disapproval of requested Saturday work will be given verbally by the PROJECT MONITOR before the end of the day on the preceding Friday. Approval for Saturday work will be given only when arrangements for a qualified PROJECT MONITOR can be scheduled to observe the Saturday work, and weather and construction logistics permit such work. In every case where Saturday work is requested by the CONTRACTOR and approved, it will be considered a work day where it has been determined by the PROJECT MONITOR that five (5) or more hours of work have been or could have been performed.

Any reference to day(s), unless specifically indicated as a work day, refer to continuous time calendar days.

2. FAILURE TO COMPLETE WORK WITHIN THE CONTRACT TIME

Should the CONTRACTOR, or in case of default, the Surety, fail to complete the work within the time stipulated in the contract, a deduction for each work day that any work shall remain incomplete, in the amount indicated by the Liquidated Damages Schedule shown below, shall be deducted from any monies due the CONTRACTOR. Liquidated damages assessed as provided in these specifications is not a penalty, but is intended to compensate the DEPARTMENT for increased time in administering the contract, supervision, inspection and engineering, particularly that engineering and inspection which requires maintaining normal project engineering forces for a longer time than originally contemplated when the contract period was agreed upon in the contract.

SCHEDULE OF LIQUIDATED DAMAGES

ORIGINAL CONTRACT AMOUNT		**CHARGE PER DAY**
More Than	To & Including	
$ 0	$ 25,000	$ 45.00
25,000	50,000	75.00
50,000	100,000	110.00
100,000	500,000	150.00
500,000	1,000,000	225.00
1,000,000	2,000,000	300.00

3. PAYMENT

Payment for the work will be made in accordance with the procedures of Article 12, Paragraph 12.1.3 in the General Conditions and Article 27 of the Special Provisions of Part II of the Contract Documents pertaining to the Piper II project.

SPECIAL PROVISIONS

SPECIAL PROVISIONS INDEX

SPECIAL PROVISIONS

1. LOCATION

The Piper II Abandoned Mine Land Reclamation Project is located in the SW ¼ of Section 2, the SE ¼ of the SE ¼ of Section 3, and the N ½ of the NE ¼ of Section 10, Township 24 North, Range 10 East, Bibb County, Alabama.

1. SCOPE OF WORK

2.1 It is the intent of the Piper II AML Reclamation Project to reclaim a dangerous highwall left from previous mining activities. The acreage to be reclaimed is approximately thirty-five (35) acres. The site will be reclaimed by using onsite spoil material to backfill the dangerous highwall. The dangerous highwall totals three thousand, seven hundred, fifty (3,750) feet in length and averages approximately eighty (80) feet in height. Drainage ditches will be constructed at the locations shown on the plans. Stakes haybales and riprap checkdams will be used to control sediment. Various erosion control devices such as riprap checkdams, silt fence, staked haybales, erosion control blanket, sediment control logs and other devices shown in the plans will be utilized during construction.

2.2 Revegetation operations will be completed on this project once all grading operations have been completed and approved by the PROJECT ENGINEER and PROJECT MONITOR. Revegetation operations applies to all items and phases of site revegetation including final grading/smoothing, application of lime and fertilizer, seedbed preparation, seeding, hydroseeding (if applicable) and mulching. The entire site will be revegetated immediately upon completion of all grading activities. The only delay in the revegetation operations would be from current weather conditions and/ or projected

temperatures and rainfall in the upcoming weeks. The PROJECT ENGINEER and PROJECT MONITOR will determine whether conditions are acceptable for performing the revegetation operations.

2.3 A stormwater discharge permit has been obtained by the DEPARTMENT from ADEM. ADEM issued the DEPARTMENT a General NPDES Permit with an assigned number of ALR107849. Before any grading or construction activities begin on the project, the stormwater discharge permit identification sign and freeze proof rain gauge marked in tenths of an inch shall be installed. All specified erosion control devices such as Types A & B silt fences, staked haybales, sediment control logs, and riprap checkdams shall be installed and maintained according to the Alabama Handbook on Construction BMP's. Before any clearing, grading or construction activities begin, all erosion control devices previously described shall be placed as shown on Sheets 2 & 3 of the plans to prevent sediment from leaving the site. The CONTRACTOR shall maintain the erosion control items at the locations shown on the plans and at other locations specified by the PROJECT MONITOR, if those original locations are rendered ineffective or cannot be maintained properly.

2.4 The CONTRACTOR shall be responsible for safeguarding all utility lines (surface or underground), especially those lines (gas and water lines) as well as any power lines and guy wires located within the construction limits (or access thereof). The CONTRACTOR shall be responsible for coordinating any project activity where such lines and/or structures may be involved. The CONTRACTOR shall exercise care when working in the vicinity of utility poles and guy wires and abide by all safety rules and regulations of the utility companies. In the event of damage to any utility line (surface or underground) by the CONTRACTOR, his agents, employees or subcontractors, the CONTRACTOR shall bear the cost of repair or replacement at the option of the utility company, or the private landowner, as

applicable. The CONTRACTOR must also assume any liability for consequential loss or damage arising from service interruption and/or lack of responsibility for repairing the line(s).

2.5 The CONTRACTOR shall take all responsibility and abide by all applicable laws and regulations, for working under and around the utility lines adjacent to and within the project site. The CONTRACTOR shall provide a spotter on the ground to watch for equipment operators while they work under the lines and around the poles and guy wires. The CONTRACTOR shall affix a warning label (provided by the DEPARTMENT; see Drawing Section) on the dash of each piece of equipment operating on the project.

2.6 On January 24, 2013, The U.S. Department of Interior - Office of Surface Mining determined that the Piper II AML Reclamation Project adequately addresses the environmental issues and impacts associated with this project and based on the analysis of the environmental assessment document they have determined that reclamation would not significantly affect the quality of the human environment. Pursuant to Section 4-160-50D.3 of the Federal Assistance Manual, the DEPARTMENT is authorized to proceed with the project. On June 3, 2008, The U.S. Fish and Wildlife Service issued a Sec. 7 Review on this project and on July 10, 2012, submitted an archeological review of this area to the Alabama Historical Commission for this project. The Alabama Historical Commission reviewed the findings of the archeological study for this project and sent a letter dated August 2, 2012, stating that they were in agreement with the proposed project which would not affect any cultural resources listed on or eligible for the National Register of Historic Places (NRHP). The Alabama Department of Conservation and Natural Resources has included this project in its Categorical Exclusions Determination dated December 28, 1998, provided that the

appropriate erosion control methods are used to eliminate siltation. The Alabama Department of Environmental Management has included this project in its Categorical Exclusions Determination dated July 24, 1998, provided that a stormwater discharge permit is obtained, if needed. The DEPARTMENT obtained a stormwater discharge permit dated August 31, 2011, from ADEM> The U.S. Army Corps of Engineers has reviewed this project and determined that a Nationwide Permit 37 is required; hence, the DEPARMENT applied for and obtained a NWP 37 dated September 17, 2012, from the U.S. Army Corps of Engineers. Consultation letters from the U.S. Department of the Interior – Office of Surface Mining, the U.W. Fish and Wildlife Service, the Alabama Department of Conservation and Natural Resources, the Alabama Historical Commission, the Alabama Department of Environmental Management and the U.S. Army Corps of Engineers are included in the Consultation Letters section of these contract specifications.

2.7 Ground control points, bench marks, property corners and property line markers shall not be disturbed by the CONTRACTOR until those points or markers are relocated and referenced by AML personnel. The CONTRACTOR shall be responsible for employing a licensed land surveyor for the purpose of re-establishing any established points which are not protected in accordance with these provisions.

2.8 All estimated quantities shown in the Principal Items of Work are provided to aid the CONTRACTOR in submitting bid prices and <u>are not guaranteed by the DEPARTMENT.</u>

3. BEGINNING WORK

3.1 The CONTRACTOR shall begin work at the project within ten (10) days after he receives the fully executed contract. The time schedule for completion of the project shall begin ten (10) days from the date of the contract. The completion date will fall on the close of the work day one hundred (100) work days later.

3.2 The CONTRACTOR shall notify the Abandoned Mine Land Field Office in Birmingham of the date on which he wants to schedule a pre-construction conference in order to begin construction. A pre-construction conference mush be held before construction begins. The CONTRACTOR, RESIDENT SUPERINTENDENT, AML CONSTRUCTION SUPERVISOR, PROJECT ENGINEER and PROJECT MONITOR shall review the plans and specifications onsite at this time.

3.3 All specified erosion control devices, the stormwater discharge permit sign, rain gauge and construction signs must be placed and approved by the PROJECT MONITOR before any grading or clearing can begin. During the life of the project, it shall be the CONTRACTOR's responsibility to ensure that all erosion control devices are in place, maintained, and functioning properly as required by the PROJECT MONITOR. This includes regular and periodic excavation of sediment collected in front of riprap checkdam(s) and replacing silt fences and haybales as needed to prevent offsite sedimentation.

3.4 The CONTRACTOR shall keep a competent SUPERINTENDENT on the job site at all times while the work is in progress. The SUPERINTENDENT shall supervise the work in accordance with the plans and specifications and carry

out the instructions of the PROJECT MONITOR. The SUPERINTENDENT shall keep a copy of the plans, Parts I and II of the Contract Documents and the NPDES General Permit for stormwater run-off in his possession at all times while the work is in progress.

4. CLEARING

4.1 Clearing shall consist of removing, burning and disposing of all damaged vegetation and debris from the surface of the reclamation site and along the access road. The CONTRACTOR shall be responsible for collecting and removing any household trash and debris discovered on the project site by hauling that material to an approved landfill facility. A receipt shall be furnished to the PROJECT MONITOR showing that the CONTRACTOR properly disposed of the household trash and/or debris at the landfill facility. "No Burn" orders issued by the Bibb County Office of the Alabama Forestry Commission shall be strictly enforced. The burning of rubber tires is prohibited as per ADEM requirements. The CONTRACTOR will be required to obtain and pay for the cost of a permit from the Bibb County Office of the Alabama Forestry Office to conduct the burning of cleared material.

4.2 The CONTRACTOR will be required to furnish a trench burning machine and provide the equipment and personnel necessary to dig the trench and set up and operate the trench blower equipment. Brush, debris and stumps shall be burned completely, because burying of cleared material will not be allowed on this project site.

4.3 The PROJECT MONITOR may adjust the planned clearing limits as necessary in order to blend the disturbed areas into the natural topography and preserve existing vegetation along the periphery of the project.

4.4 Cut and fill areas shall be cleared of all trees, brush and undergrowth. Tree stumps cut off one (1) foot or less above the ground may be left in fill areas that are located above the water table. Stumps shall be removed from fill areas which have standing water or are located adjacent to water seepage areas. Standing live trees that have been damaged during construction shall be treated with an approved tree wound dressing immediately after clearing operations have been completed.

4.5 All cleared material (i.e. trees, brush and stumps) shall be disposed of by burning onsite in an area segregated from existing coal stockpiles, coal seams, manholes, gas lines, gas wells, gas/water line valve housings, and other flammable materials. The location, time of burning and size of each brush pile shall be approved by the PROJECT MONITOR prior to any brush pile burning activities. The CONTRACTOR shall limit the size and number of brush piles being burned. The CONTRACTOR shall clear out an area of approximately fifty (50) feet in radius or larger around each brush pile as directed by the PROJECT MONITOR. Clearing around each brush pile shall be completed before each pile is ignited. The CONTRACTOR shall push up each pile a minimum of three (3) hours before the end of the work day and allow the piles to burn down before leaving the site. No fires are to be left unattended overnight by the CONTRACTOR. Any stumps remaining after a diligent effort to burn shall be hauled to an approved landfill facility and properly disposed of there.

4.6 Any damage to adjacent property or structures from fires caused by the CONTRACTOR's brush burning operations shall be completely repaired by the CONTRACTOR as directed by the PROJECT MONITOR, and/or fully compensated for at the CONTRACTOR's expense. This includes any clearing required to remove damaged vegetation, repair of fire related damage

or disturbance (i.e. firebreaks, roads, ditches, etc.), and revegetation of all disturbed areas. No additional compensation will be paid to the CONTRACTOR for this work.

4.7 The CONTRACTOR shall be responsible for ensuring that any burn permits required to conduct the work have been obtained prior to beginning any work. The CONTRACTOR shall also be responsible for complying with all local, State and Federal laws, ordinances and regulations applicable to the burning of cleared material. The PROJECT MONITOR must be furnished with evidence of all necessary permits before any burning begins and regularly throughout the burning process.

4.8 If a burn permit cannot be obtained from the Bibb County Office of the Alabama Forestry Commission due to drought or air quality conditions, the CONTRACTOR shall haul all brush, trees, and debris which were to be burned to a local approved landfill or have the cleared material ground and hauled to a facility that uses that type of material.

4.9 During the clearing operation, the CONTRACTOR shall take proper precautions to ensure that bench marks, property corners and property line markers are not disturbed. Bench marks, property corners and property line markers shall be flagged and referenced by AML personnel. The CONTRACTOR shall consult AML personnel before doing excavation and grading work in areas that have property corners and property line markers. The CONTRACTOR shall assist the AML personnel in removing and saving any markers. If any markers are destroyed before being referenced by AML personnel, then the CONTRACTOR shall replace them at his cost. Once the property corners and property line markers have been referenced by the AML personnel, the CONTRACTOR may proceed with excavation work.

4.10 The CONTRACTOR will be required to grade, backfill and improve as needed two access roads to the project site. The southernmost access road will require backfilling and installing a twenty-four (24) inch diameter corrugated plastic (N-12) pipe. Crushed stone will be added to the roadway surface as needed to provide traction for the CONTRACTOR's equipment and vehicles as they enter and leave the project site. A crushed stone entrance will prevent tracking of mud and debris onto the paved surface. Grading of the existing access roads on this project has not been included in the Principal Items of Work. Thus, it shall be the responsibility of the CONTRACTOR to cover the cost of this work in his bid price for mobilization.

4.11 Clearing within the work area on this project has not been listed as a line item in the Principal Items of Work. Thus, it shall be the responsibility of the CONTRACTOR to cover the cost of this item of work in his bid price for unclassified excavation, as described in Article 5 of these Special Provisions.

5. UNCLASSIFIED EXCAVATION

5.1 Unclassified excavation includes the following: the removal of cleared material (Clearing Article 4); the removal of rock and fill material from specified cut areas; and then hauling, backfilling, compacting and grading of those materials to the grades shown on the Site Grading Plan. Unclassified excavation also includes performing finished ground preparation, as well as other items discussed in this article. Before excavation begins, the CONTRACTOR shall be responsible for locating and protecting all utilities that may be buried along and under the access road and within the project limits.

5.2 In the event there is less embankment required than originally planned, or if solid rock outcroppings occur in cut areas, excavation may be adjusted with

field grades approximating design grades. Any deviation between design and field grades shall require approval from the PROJECT ENGINEER. Finished grades along the project limits will be blended with the existing terrain as directed by the PROJECT MONITOR.

5.3 All drainage ditches shall be graded as shown in the plans. The bottom and lower ten (10) feet of the side slopes of each ditch shall be compacted with three complete passes of a D-8 Caterpillar dozer or equivalent-sized, heavy equipment after final grading and shaping have been completed and approved by the PROJECT MONITOR. All drainage ditches that have been damaged by stormwater run-off shall be repaired as stated above for the final inspection.

5.4 All drainage ditches that have riprap checkdams shall have the sediment in front of the checkdams removed before the final inspection. The sediment shall be removed and spread out uniformly on the adjacent slopes during the clean out process as directed by the PROJECT MONITOR. If any drainage ditch has both erosion control blanket and riprap checkdams, then the CONTRACTOR shall use extreme care as not to damage the blanket while removing the sediment from the checkdams. The checkdams shall be repaired if they are breached and the erosion control blanket replaced if it is damaged. All grading or regrading of drainage ditches shall be considered a part of Unclassified Excavation.

5.5 Material used to backfill the highwall shall be placed in three foot thick, horizontal and uniform layers all the way to the face of the highwall. Each three foot layer shall be compacted perpendicularly to the highwall for the entire depth of the backfill except for the upper twenty (20) feet. The upper twenty (20) feet of the highwall shall also be backfilled and compacted in three foot thick, horizontal and uniform layers all the way to the face of

the highwall; however, the compaction here shall be parallel to the highwall for a minimum distance of two dozer widths away from the face of the highwall, all the way to the top. All compaction of backfill material at the highwall shall take place along the entire length of the highwall. All compaction of backfill material, whether performed perpendicular or parallel to the highwall, shall be accomplished with four complete passes of a D-8 Caterpillar dozer or equivalent sized tracked equipment. No highwall backfill material shall be taken from the top of the highwall except as noted on the cross sections. Any highwall backfill material taken from above the highwall shall be compacted in the same manner as described above. In the event of unusual or extraordinary circumstances, these compaction requirements may be modified by the PROJECT ENGINEER.

5.6 Any displacement of graded material (cut or fill) which results in settling, slumping or for any other reasons which occurs within one year after completion of construction shall be repaired by the CONTRACTOR. This repair shall include revegetating all areas disturbed during the repair process (see revegetation specification in Articles 21, 22 and 23) and replacing any slump related damage to erosion control materials, including Type B silt fence, staked haybales, erosion control blanket and limestone riprap, as directed by the PROJECT MONITOR. No additional compensation will be paid to the CONTRACTOR for this work. The one - year period shall commence on the date of the final inspection upon which the DEPARTMENT formally acknowledges acceptance of the project.

5.7 Ditches shall be laid out and excavated in the finished slopes at the locations shown on the plans. The CONTRACTOR shall maintain a consistent, uniform design depth throughout the length of the ditches, and shall ensure that they do not deviate from their design configuration and slope.

5.8 All backfill material shall be obtained from existing spoil piles located below the highwall. No backfill material shall be obtained from above the highwall, except as shown in the cross sections.

5.9 Diligent efforts shall be made to keep the access road and all public roads adjacent to the project site clear of mud and debris during construction activities. The CONTRACTOR shall remove any such mud and debris on public roads as well as repair, at his own expense, any road damage caused by transporting, operating or loading and unloading the equipment. Crushed limestone shall be spread, as needed, on the access road(s), and at other locations as needed throughout the project duration and as directed by the PROJECT MONITOR.

5.10 At the direction of the PROJECT MONITOR, the CONTRACTOR shall stockpile any topsoil or best material available to plate finished slopes and ditches.

5.11 Finished ground preparation shall consist of minor grading, smoothing to uniform contours and compacting by "tracking in" the finished surface of all disturbed or constructed slopes by successive passes of heavy tracked equipment equivalent in size to a D-8 Caterpillar dozer at frequent and regular intervals along the slopes. The passes shall be made parallel to the slope or as approved by the PROJECT MONITOR. The CONTRACTOR shall smooth-grade all sheet erosion, rills, gullies and washes. The graded areas must be approved by the PROJECT MONITOR for smoothness, compaction, slope and grade, and shall be free of all boulders, rocks, sticks, roots and other debris before final inspection. The cost associated with finished ground preparation shall be included in the bid price for Unclassified Excavation.

5.12 The CONTRACTOR shall be responsible for providing a construction site free from dust pollution caused by trucks entering the project site across access roads and/or trucks, tractors, scrapers or other heavy construction equipment performing construction activities on the project site. The CONTRACTOR shall provide a source of the water as well as providing the equipment capable of hauling and applying the water to the construction site and access or haul roads. The CONTRACTOR shall use erosion control devices to protect the construction areas as well as the adjacent properties during these activities. Any damage caused by air pollution shall be the responsibility of the CONTRACTOR to repair, replace or correct to the satisfaction of the DEPARTMENT. The DEPARTMENT will halt grading activities if adequate dust control measures are not provided by the CONTRACTOR at the site. The CONTRACTOR shall include the cost of dust control on the project site in his bid price for Unclassified Excavation.

5.13 Unclassified excavation is considered a lump sum item. The CONTRACTOR shall be paid for the quantity shown in the Principal Items of Work. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit bid price. When requesting partial payment for the work, the CONTRACTOR shall be paid for quantity of unclassified excavation moved during the construction period, limited to the amount shown in the lump sum bid.

6. EROSION AND SEDIMENT CONTROL MEASURES

6.1 The CONTRACTOR shall be responsible for abiding by all of the rules and regulations of the stormwater discharge permit issued by ADEM. The CONTRACTOR will be responsible for installing and maintaining all forms of erosion control devices as well as making preparations for inclement weather

as forecasted by local meteorologists. Best Management Practices (BMP's) shall be incorporated into the daily activities of the CONTRACTOR's work at the project site.

6.2 The CONTRACTOR shall have all types of erosion control items and devices such as, but not limited to, staked haybales, sediment control logs, and Type A and Type B silt fences, available onsite on a day to day basis in order to replace, repair or add to existing structures.

6.3 The CONTRACTOR will be required to protect all existing drainageways and culverts adjacent to the project limits as well as the existing roadside ditches along the paved roads. The CONTRACTOR shall install riprap checkdams, staked haybales, sediment control logs and silt fencing prior to construction activities at the site.

6.4 Type A and Type B silt fencing shall be installed on the project site at the locations shown on the plans. Riprap checkdams shall be installed (as needed) upstream of the silt fences in the main drainage areas to check erosion and prevent damage to the silt fences.

6.5 Temporary earthen berms with a riprap core shall be constructed at the base of the highwall downstream of the construction grading and backfilling operations to control runoff and prevent sediment from leaving the site. The details for the temporary earthen berm may be found on Sheet 11 of the plans.

6.6 The CONTRACTOR shall be responsible for protecting all drainage outlets from the site to the natural drainageways. Staked haybales, sediment control logs, Type A and Type B silt fencing and other erosion control items shall be

placed in drainage ditches, prior to pumping any impoundments in order to prevent sediment from impacting the offsite drainageways. The CONTRACTOR shall repair or correct (at his expense) any problem arising with these structures regardless of what created the problem.

6.7 The CONTRACTOR and/or his personnel shall be responsible for maintaining the entrance to the access roads and controlling mud, debris and drainage associated with the access roads along its length. Riprap crossings, corrugated plastic pipe, water bars, erosion control blanket, etc. may be used to eliminate erosion problems around the access roads. Water bars shall be directed to the side of the access road that passes through a drainage structure. All drainage leaving the site shall be filtered through riprap checkdams, staked haybale checkdams, or silt fence structures. It shall be the CONTRACTOR's responsibility to see that the erosion and sediment control structures are in place and functioning properly on a week to week or day to day basis especially when severe weather is forecast.

6.8 The CONTRACTOR shall begin installing finished erosion control devices as soon as the grading of the backfill material has been completed in those areas. Finished earthen berms may be constructed in areas where final grading has been completed and the application of temporary seeding is not feasible because of time constraints. Finished earthen berms will be constructed using in place spoil of the finished slopes to build the berms. Class I limestone riprap will be used in the core of the earthen berm and encased with non-woven filter fabric. The finished earthen berm will be removed and the material placed and compacted back into the finished slopes, while the riprap will be used in a riprap-lined ditch or riprap checkdam at that location.

6.9 The CONTRACTOR will be required to cover finished slopes with temporary seeding and/or temporary mulching if those finished slopes will be left exposed to inclement weather conditions and unprotected for an extended period of time. Temporary mulching shall be applied at a rate of one ton per acre. The temporary seed mixture shall be applied at the corresponding rates for the current time of year based on the chart shown in Article 1.4 of the Technical Specifications. The type of mulching material used in the temporary mulching is shown in Article 2.1 of the Technical Specifications. Both items are listed as bid items in the Principal Items of Work.

6.10 Water bars used on finished slopes may be installed to protect the exposed slopes to inclement weather prior to the final revegetation operations. Water bar details are shown on Sheet 10 of the plans. Water bars built in finished slopes are listed as a bid item in the Principal Items of Work.

6.11 Silt fencing, staked haybales, sediment control logs and temporary riprap checkdams shall be left in place until those areas can be prepared for revegetation operations and permanent erosion control structures can be built in place.

6.12 Any damage to adjacent property caused by stormwater run-off flowing from work area of the project site shall be repaired by the CONTRACTOR at his own expense.

7. PIPE

7.1 Pipe shall consist of furnishing and installing the correct pipe size as indicated in the plans, providing couplings and other incidental materials, as well as performing all necessary excavating, backfilling, compacting, and cutting associated with its installation. The pipes in this article shall meet the requirements of Article 13 of the Technical Specifications.

7.2 Six inch corrugated plastic pipe (perforated and solid) shall be used in the French drain system that will be installed at the base of the highwall in certain areas where field conditions show evidence of water seepage coming from the highwall. The perforated pipe shall be used in the transverse (parallel to the highwall) and lateral runs (perpendicular to the highwall) of the French drain system. The last twenty feet of the lateral run will be solid pipe that empties out on to the riprap outfall of the French drain system. Six inch diameter corrugated plastic (perforated) pipe may be used in the riprap checkdams as shown on Sheet 10 of the plans.

7.3 Eighteen (18) inch and twenty-four (24) inch diameter corrugated plastic (N-12) pipes will be used in certain areas of the access roads where cross drains need to convey water and prevent washing and erosion. These pipes will also be used in the access roads onsite once construction activities have been completed.

7.4 PE pipes shall be laid in a trench with a side clearance of twenty-four (24) inches. The trench shall be backfilled with material which is free of rocks and stone fragments and is approved by the PROJECT MONITOR. The trench shall be backfilled in one foot layers and each layer shall be mechanically tamped. In backfilling around the pipe, both sides shall be backfilled simultaneously, beginning at the downstream and proceeding upstream.

7.5 Excavation for the pipes shall be considered as part of its installation and not part of the Unclassified Excavation described in Article 5 of these Special Provisions.

7.6 The six inch diameter perforated and solid corrugated plastic pipes and the eighteen (18) and twenty-four (24) inch diameter corrugated plastic (N-12)

pipes are considered variable quantity items. The CONTRACTOR shall be paid for the actual quantity of pipes installed and made ready for service. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit prices. When requesting partial payment for the work, the CONTRACTOR shall be paid for the actual linear feet of pipe(s) installed and backfilled during the construction period.

8. CONCRETE GROUT

8.1 Concrete grout shall consist of furnishing all labor, equipment, and concrete grout necessary to place concrete grout in and around the riprap, as needed, and directed by the PROJECT ENGINEER or PROJECT MONITOR. This includes any equipment, excavation or other incidental items necessary to construct grouted riprap ditches.

8.2 Concrete grout shall consist of a proportionate mixture of one part cement, and two and a half parts commercial concrete sand, by weight, batched from a central batch plant. The concrete grout shall be delivered to the job site in rotary mixer trucks with a slump from five to eight inches.

8.3 The concrete grout shall be transported and completely placed in the grouted riprap ditch within sixty (60) minutes after water is introduced to the dry cement mixture. No concrete grout shall be placed without written permission of the PROJECT MONITOR when the ambient air temperature is below thirty-five (35) degrees F., or below forty (40) degrees F. and falling.

8.4 Prior to placing the concrete grout, riprap shall be sprayed with water to avoid rapid moisture loss. When the ambient temperature is between 45 degrees F. and 70 degrees F., the riprap will not require any spraying with water prior to concrete placement.

8.5 A concrete pump or concrete buckets shall be used to deliver the grout to the ditch. The grout shall not be allowed to fall more than eighteen (18) inches from any container; nor shall the electric vibrators be used to "run" the grout in the ditch. The grout shall be hand worked between and around the riprap leaving the surface of the riprap exposed.

8.6 The surface of the grout shall be allowed to set to a semi-plastic state, then the complete length and width of the grouted ditch area shall be "broomed" perpendicular to the centerline of the ditch.

8.7 The concrete surface shall be protected in warm weather with wet burlap sacks or by covering the surface with polyethylene for a period of thirty-six (36) hours. In cold weather, the concrete surface shall be protected with concrete insulating blankets or with a six inch layer of hay between two layers of polyethylene, for a period of seventy-two (72) hours. The temperature of the concrete shall be maintained at 50 degrees F. or above during this seventy-two (72) hour period.

8.8 Original vendor's tickets showing the strength of the concrete grout, cubic yards delivered and the time water was introduced into the mixer shall be submitted to the PROJECT MONITOR for each batch delivered to the project, before placement begins.

8.9 Concrete grout is considered a variable quantity item. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit price. When requesting partial payment for the work, the CONTRACTOR shall be paid for the actual quantity of concrete grout installed during the construction period.

9. CRUSHED LIMESTONE

9.1 Crushed limestone shall consist of hauling, installing, compacting and grading crushed limestone and material to the grades shown in the plans. This includes any equipment or other incidental items necessary to perform the work.

9.2 Crushed limestone will be used on all access roads leading to the project area. The CONTRACTOR will be required to place crushed limestone periodically or as needed on the access road to gain entry to the project site during construction activities. ALDOT No. 57 limestone will be used as a base stone application but may be overlaid with No. 8910 limestone as needed when surface compaction is required.

9.3 ALDOT No. 1 limestone shall be used as the stone in the French drain system. A French drain system shall be installed at the base of the highwall and other areas as needed, when field conditions require the use of a French drain system.

9.4 Crushed limestone and ALDOT No. 1 limestone are considered variable quantity items. The CONTRACTOR shall be paid for the actual quantity installed, compacted and made ready for service. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit prices. When requesting partial payment for the work, the CONTRACTOR shall be paid for the actual tonnage of crushed limestone or ALDOT No. 1 limestone installed and compacted during the construction period.

10. RIPRAP

10.1 Riprap shall consist of furnishing, delivering, installing and constructing riprap checkdams, riprap-lined ditches, rock underdrains, and/or placing riprap in other areas as directed by the PROJECT MONITOR. This includes any equipment stabilization fabric, excavation and labor necessary to place the riprap as directed.

10.2 Class I (size 8" – 12") and Class II (size 12" – 18") limestone riprap shall be used on this project. The PROJECT MONITOR and PROJECT ENGINEER shall visit the quarry and select the size and type of riprap before any stone is delivered to the project. Riprap shall be placed in the areas shown on the plans and in the contract specifications as directed by the PROJECT MONITOR.

10.3 Riprap-lined ditches shall have a two feet deep by two foot wide toe wall at the inlet and outlet ends of the ditch. The toe wall shall extend the full width of the ditch and to the outer edge of the riprap-covered side slopes.

10.4 Riprap drainage structure will require geotextile fabrics placed as shown on the details for each structure. Stabilization fabric will be required in the riprap-lined ditch when the slope is greater than negative five percent (-5%). Non-woven filter fabric shall be used to line the riprap ditches on the slopes less than negative five percent (-5%). The cost associated for furnishing and installing the stabilization fabric and non-woven filter fabric is discussed in the articles for those items.

10.5 If field conditions warrant, Class I riprap may be used as an alternative in rock underdrains to alleviate underground water seepage in the backfilled slopes of the highwall. The CONTRACTOR shall use a backhoe to excavate a trench to

the depth of the water seepage and place Class I riprap in an envelope of non-woven filter fabric to convey the water to the ditch at the toe of the highwall slope. Class I riprap shall be placed in an eighteen (18) inch thick layer to construct the rock underdrain.

10.6 Original vendor's tickets, from a certified vendor's scale, showing the producer, size and gross, tare and net weights of the stone shall be submitted to the PROJECT MONITOR to verify the grade and weight of stone used on the project. These tickets shall be required for payment of riprap work.

10.7 Class I and Class II riprap are considered variable quantity items. The CONTRACTOR shall be paid according to certified vendor's tickets for riprap delivered to the project and incorporated into structures shown on the plans and placed at other locations directed by the PROJECT MONITOR. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit prices. When requesting partial payment for the riprap items of work, the CONTRACTOR shall be paid for the quantity of each type of riprap installed on the project during the construction period.

11. STAKED HAYBALES

11.1 Staked haybales shall consist of furnishing and installing rectangular haybales with stakes at the locations designated on the Site Grading Plans and other locations as directed by the PROJECT MONITOR. Any excavation associated with the installation of staked haybales shall be included in the unit price for staked haybales. Haybales used on the project shall meet the standards described in Article 3 of the Technical Specifications.

11.2 Haybales shall be placed with the long dimensions perpendicular to the flow of surface water with their wide dimension against the ground. Bales shall be

placed end-to-end, pushed together and secured with two wooden stakes, as shown on the staked haybale detail.

11.3 Each stake shall be driven at least twelve (12) inches into the underlying soil. The stake shall be driven deep enough to leave the top of the stake flush with the bale top.

11.4 Staked haybales shall be installed on top of the existing ground or keyed into the existing ditches as designated on the Site Grading Plans and in areas designated by the PROJECT MONITOR to help prevent offsite sedimentation during construction. Staked haybales may be used to help reinforce silt fences in areas where concentration of surface run-off or heavy silt buildup is expected. Haybales shall be maintained and/or replaced during the construction period as directed by the PROJECT MONITOR.

11.5 Staked haybales are considered a variable quantity item. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit price. When requesting partial payment for the work, the CONTRACTOR shall be paid for the actual quantity of staked haybales properly installed and made ready for service during the construction period.

12. SEDIMENT CONTROL LOGS

12.1 Twelve (12) inch diameter sediment control logs may be used in places where staked haybales would have been used, i.e. in ditches, in areas around riprap checkdams that are being used for pumping operations, around pipe inlets to protect the pipe from sediment laden run-off and in existing ditches to protect natural drainageways. The sediment control logs to be used are specified in Article 4 of the Technical Specifications.

12.2 Sediment control logs shall be installed so that the length of the logs are laid perpendicular to the flow of water. They shall be staked with wooden stakes (size: 1 inch by 2 inches by 36 inches) on the downstream side making certain to intercept some of the netting as shown on Sheet No. 11 of the construction plans. They shall be staked a minimum of three foot on centers and every two feet when high water concentrations are expected.

12.3 Sediment control logs are considered a variable quantity item. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit price. When requesting partial payment for the work, the CONTRACTOR shall be paid for the actual quantity of sediment control logs properly installed and made ready for service during the construction period.

13. EROSION CONTROL BLANKET

13.1 Erosion control blanket shall consist of furnishing the blanket, six inch wooden stakes, fertilizer, lime, seed and labor required for installation at the locations shown on the plans. The erosion control blanket to be used is specified in Article 5 of the Technical Specifications.

13.2 Erosion control blanket shall be placed at locations shown on the plans after finished ground preparation has been completed. The CONTRACTOR shall apply lime, fertilizer and seed beneath the blanket before it is installed. The seed shall be applied at the required rate stated in Article 1.3 of the Technical Specifications. The lime shall be applied at the rate of six tons per acre, and the fertilizer (13-13-13) at seven hundred fifty (750) pounds per acre. The seedbed shall be prepared using onsite grading equipment such as a front end loader or small dozer.

13.3. Erosion control blanket shall have a minimum width of six and a half feet and shall be placed in terraces and drainage ditches as shown on the plan details. The side and end laps of the blanket material installed in the terrace ditches shall be a minimum of two inches and six inches respectively. The installation of the blanket shall begin from the upstream end and shall be unrolled in the direction of the flow of water.

13.4 The upstream terminal end shall be anchored in a six inch square trench and staked every eighteen (18) inches on centers. The backfilled trench shall be compacted to the density of the surrounding soil. At intervals of thirty (30) feet measured from the upstream terminal end and proceeding downstream, six inch square checkslots shall be cut into the bottom and side slopes of the terrace or drainage ditches perpendicular to the drainage flow. The blanket material shall be folded into the six inch checkslots as represented in the checkslot anchor detail shown in the plans. The blanket material shall be staked in the center and at the overlapped edged prior to backfilling and compacting the checkslots. Then the backfilled trench shall be compacted to the density of the surrounding soil.

13.5 Erosion control blanket shall be staked in place along all sides, side laps and end laps. Upstream end laps shall extend over the downstream laps by six inches. All sides and side laps shall be staked to a minimum of four feet on centers from the beginning to the end. All ends and end laps shall be staked at each corner and laterally at sixteen (16) inch intervals along the lapped edge. A single row of stakes will be required along the center of each roll width, alternating in sequence with the side and side lap staking. The stakes shall be driven vertically into the ground through the blanket material using a rubber mallet or hammer.

13.6 The CONTRACTOR shall be paid for the linear feet of erosion control blanket installed in terraces and ditches as measured by the PROJECT MONITOR based on a minimum width of six and a half feet. Terminal ends, checkslots and sidelaps shall not be included in the measurements to determine the linear footage of erosion control blanket installed on the project. The CONTRACTOR will only be paid for the actual linear feet installed on the project.

13.7 Erosion control blanket is considered a variable quantity item. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit price. When requesting partial payment for the work, the CONTRACTOR shall be paid for the actual quantity of erosion control blanket installed in accordance with the plans and specifications and made ready for service during the construction period.

14. SLOPE PROTECTION BLANKET

14.1 Slope protection blanket shall consist of furnishing the blanket, six inch wooden stakes (only), fertilizer, lime, seed and labor required for installation at the locations shown on the plans. The slope protection blanket to be used is specified in Article 6 of the Technical Specifications.

14.2 Slope protection blanket shall be placed at location shown on the plans after finished ground preparation has been completed. The CONTRACTOR shall apply lime, fertilizer and seed beneath the blanket before it is installed. The seed shall be applied at the required rate stated in Article 1.3 of the Technical Specifications. The lime shall be applied at the rate of six tons per acre, and the fertilizer (13-13-13) at seven hundred and fifty (750) pounds per acre. The seed bed shall be prepared using onsite grading equipment such as a front end loader or small dozer.

14.3 Slope protection blanket shall have a minimum width of six and a half feet and shall be placed on the finished slopes at the locations shown on the plans. The upslope edge of the blanket material shall be installed in a six inch by six inch trench. The trench may be hand dug or mechanically dug using a trenching machine or other technique that is approved by the PROJECT MONITOR. Six inches of the blanket material shall be placed and pinned in the trench. The trench shall be backfilled with the material removed from the trench and the material compacted to the density of the surrounding ground.

14.4 Slope protection blanket shall be staked in placed along lower side and at the center. A single row of stakes will be required along the center and lower edge of each roll width, alternating in sequence from the center to the edge at a six foot spacing. The stakes shall be driven vertically into the ground through the blanket material using a rubber mallet or hammer.

14.5 Slope protection blanket is considered a variable quantity item. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit price. When requesting partial payment for the work, the CONTRACTOR shall be paid for the actual quantity of slope protection blanket installed in accordance with the plans and specifications and made ready for service during the construction period.

15. PERMANENT EROSION CONTROL BLANKET

15.1 Permanent erosion control blanket shall consist of furnishing the blanket, six inch wooden stakes, fertilizer, lime, seed and labor required for installation at the locations shown on the plans. The permanent erosion control blanket to be used is specified in Article 7 of the Technical Specifications.

15.2 Permanent erosion control blanket shall be placed at locations shown on the plans after finished ground preparation has been completed. The CONTRACTOR shall apply lime, fertilizer and seed beneath the blanket before it is installed. The seed shall be applied at the required rate stated in Article 1.3 of the Technical Specifications. The lime shall be applied at the rate of six tons per acre, and the fertilizer (13-13-13) at seven hundred fifty (750) pounds per acre. The seedbed shall be prepared using onsite grading equipment such as a front end loader or small dozer.

15.3. Permanent erosion control blanket shall have a minimum width of six and a half feet and shall be placed in drainage ditches as shown on the plan details. The side and end laps of the blanket material installed in the ditches shall be a minimum of six inches and six inches respectively. The installation of the blanket shall begin from the upstream end and shall be unrolled in the direction of the flow of water.

15.4 The upstream terminal end shall be anchored in a six inch square trench and staked every eighteen (18) inches on centers. The backfilled trench shall be compacted to the density of the surrounding soil. At intervals of thirty (30) feet measured from the upstream terminal end and proceeding downstream, six inch square checkslots shall be cut into the bottom and side slopes of the terrace or drainage ditches perpendicular to the drainage flow. The blanket material shall be folded into the six inch checkslots as represented in the checkslot anchor detail shown in the plans. The blanket material shall be staked in the center and at the overlapped edged prior to backfilling and compacting the checkslots. Then the backfilled trench shall be compacted to the density of the surrounding soil.

15.5 Permanent erosion control blanket shall be staked in place along all sides, side laps and end laps. Upstream end laps shall extend over the downstream laps by six inches. All sides and side laps shall be staked to a minimum of three feet on centers from the beginning to the end. All ends and end laps shall be staked at each corner and laterally at twenty-four (24) inch intervals along the lapped edge. A single row of stakes will be required along the center of each roll width, alternating in sequence with the side and side lap staking. The stakes shall be driven vertically into the ground through the blanket material using a rubber mallet or hammer. A typical staking pattern identified as "Type E" shown in Mirafi specifications may be used as well.

15.6 The CONTRACTOR shall be paid for the linear feet of permanent erosion control blanket installed in ditches as measured by the PROJECT MONITOR based on a minimum width of six and a half feet. Terminal ends, checkslots and sidelaps shall not be included in the measurements to determine the linear footage of erosion control blanket installed on the project. The CONTRACTOR will only be paid for the actual linear feet installed on the project.

15.7 Permanent erosion control blanket is considered a variable quantity item. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit price. When requesting partial payment for the work, the CONTRACTOR shall be paid for the actual quantity of permanent erosion control blanket installed in accordance with the plans and specifications and made ready for service during the construction period.

16. STABILIZATION FABRIC

16.1 Stabilization fabric shall include furnishing and installing the woven fabric in riprap ditches and at other locations as directed by the PROJECT MONITOR. The stabilization fabric to be used is specified in Article 8 of the Technical Specifications.

16.2 Stabilization fabric used for underlining riprap ditches shall extend to the outside edges of the riprap to assure complete coverage. The edge of the stabilization fabric shall be held in place with metal pins until the riprap material has been placed over the entire area of fabric. Installation of stabilization fabric shall require approval of the PROJECT MONITOR before backfilling with riprap material. Stabilization fabric will be required in all ditches when the slope is greater than negative five percent (-5%).

16.3 The fabric shall be lapped a minimum of one foot. The upstream layer of fabric shall be placed over the downstream layer of fabric. The lapped fabric shall be secured to the bottom of the ditch with pins placed on a one foot spacing.

16.4 Stabilization fabric shall include furnishing and installing the woven fabric as shown on the plan details and at other locations as directed by the PROJECT MONITOR.

16.5 Stabilization fabric is considered a variable quantity item. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit price. When requesting partial payment for the work, the CONTRACTOR shall be paid for the actual square yards of stabilization fabric installed in accordance with the plans and specifications and made ready for service during the construction period.

17. NON-WOVEN FILTER FABRIC

17.1 Non-woven filter fabric shall include furnishing and installing the woven fabric in riprap checkdams, riprap ditches, riprap pads and at other locations as directed by the PROJECT MONITOR. The non-woven filter fabric to be used is specified in Article 8 of the Technical Specifications.

17.2 Non-woven filter fabric used for underlining riprap ditches whose slopes are less than five percent. The filter fabric shall extend to the outside edges of the riprap to assure complete coverage. The edge of the non-woven filter fabric shall be held in place with metal pins until the riprap material has been placed over the entire area of fabric. Installation of non-woven filter fabric shall require approval of the PROJECT MONITOR before backfilling with riprap material.

17.3 Non-woven filter fabric used for underlining riprap checkdams shall cover the upstream face. The fabric shall be buried one foot below the bottom of the ditch and extend four feet under the dam. The fabric shall be covered with one foot of riprap on the upstream face as show in the plans.

17.4 The fabric shall be lapped a minimum of one foot. The upstream layer of fabric shall be placed over the downstream layer of fabric. The lapped fabric shall be secured to the bottom of the ditch with pins placed on a one foot spacing.

17.5 Non-woven filter fabric shall be used to encase crushed limestone and perforated pipe used as a French drain to dewater areas from heavy underground water seepage.

17.6 Non-woven filter fabric is considered a variable quantity item. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit price. When requesting partial payment for the work, the CONTRACTOR shall be paid for the actual square yards of non-woven filter fabric installed in accordance with the plans and specifications and made ready for service during the construction period.

18. FRENCH DRAIN

18.1 French Drain shall consist of furnishing and installing ALDOT No. 1 limestone, non-woven filter fabric and six inch perforated and solid plastic pipes and pipe fittings as specified in Article 13 of the Technical Specifications. Installation of the French drain shall include all required excavation, laying of fabric, stone and perforated and solid plastic pipes and fittings and backfilling over the top of the trench. French drain is not shown as a line item in the Principal Items of Work. The costs associated with this article should be included in the ALDOT No. 1 limestone, non-woven filter fabric and each type of the six inch plastic pipes.

18.2 The trench shall be excavated and cleaned of all loose material to provide a smooth surface for the placement of filter fabric. The filter fabric shall be placed (as shown in the plan details) in the trench and fitted along the sides and bottom before placing stone. An eighteen (18) inch wide by four inch thick layer of stone shall be placed over the fabric; then the pipe shall be laid making certain that the three-quarter (3/4) inch diameter holes or slots face downward. The stone shall be placed over the pipe to the required depth, and the filter fabric lapped a minimum of one foot over the stone according to the plan details, so that no stone is exposed. The drain shall be covered with care so that the structure will not be disturbed.

18.3 Six inch French drain shall be used at the approximate locations that are affected by underground springs or natural seepage from the highwall which might adversely affect the finished slope stability. Installation of the six inch French drain will require identifying the wet areas and intercepting the underground springs or water seepage with six inch perforated pipe, which, in turn, will drain into the side of the finished ditch at the toe of the finished slope. The six inch solid pipe will be used to convey the water to the riprap outfall of the French drain.

18.4 French drain is not considered a variable quantity item. The CONTRACTOR shall be paid for the actual quantities of the stone, non-woven filter fabric and six inch corrugated plastic pipes that are installed and made ready for service. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit prices of the stone, filter fabric and six inch pipes. When requesting payment for the work, the CONTRACTOR shall be paid for the quantities installed when constructing the French drain.

19. CONSTRUCTION SIGNS AND SAFETY DEVICES

19.1 Construction signs and safety devices includes furnishing the signs, labor and materials to assemble and erect signs of the designated types at the locations designated by the PROJECT ENGINEER, referred to in these Special Provisions and specified in Article 9 of the Technical Specifications.

19.2 Construction signs shall conform to the standards of the Manual on Uniform Traffic Control Devices, 2009 Edition, published by the U.S. Department of Transportation, Federal Highway Administration. The construction signs used on the project shall be in good condition with legible lettering and exhibit good reflective qualities. Signs with taped-over or marked-out words will not be acceptable.

19.3 The CONTRACTOR shall furnish and erect construction signs for this project and shall leave them in place throughout the construction period. Upon completion and final approval of the project, the CONTRACTOR will remove all construction signs.

19.4 Construction signs shall be maintained during the construction period and replaced by the CONTRACTOR if they become damaged or if they are removed from their original locations.

19.5 Construction signs shown in the plans are required for this project but are not shown as a separate item in the Principal Items of Work. The cost associated with the construction signs is to be included in the bid price for mobilization.

20. SILT FENCE

20.1 Silt fence consists of furnishing and installing Type A and Type B silt fences, complete with posts, and providing all necessary pins and excavation required to complete its installation as specified in Article 12 of the Technical Specifications. Each Type of silt fence shall be installed at locations shown on the plans and as directed by the PROJECT MONITOR.

20.2 Type A and Type B silt fences shall be unrolled and the filter fabric stretched to the manufacturer's recommended post spacing. Type A silt fence may be built in place as per the details shown on the plans. Type B silt fence may be installed from a pre-fabricated kit. The fabric shall be oriented on the upstream side of the post and each post shall be driven into the ground a minimum depth of fifteen (15) inches. The lower six inches shall be pinned to the side of the six inch by six inch trench excavated directly under the fabric of the fence. The trench shall be backfilled with material free of stones and debris, and compacted. In areas where high water concentrations are likely to

develop, the CONTRACTOR shall reinforce the silt fence with staked haybales as shown on the silt fence details in the plans. In area with irregular contours, the area directly under the Type B silt fence shall be smoothed to provide uniform contact of the silt fence and fabric with the underlying surface. Areas excavated for the fence shall be compacted to the satisfaction of the PROJECT MONITOR.

20.3 Successive rolls of Type B silt fence shall be spliced together by driving the first stake of the second roll directly behind the last stake of the first roll of temporary silt fence. The filter fabric of the second roll of silt fence shall pass between the two posts driven back-to-back. The two posts shall be bound at the top and center of the post with two loops of No. 9 gauge wire. The ends of the wire shall be twisted together with three turns of the wire.

20.4 The method of measurement of silt fence shall be as follows: Type A silt fence shall be measured along the top of the fencing as installed, and Type B silt fence shall be measured as per the manufacturer's length per roll of fencing installed plus any fraction of a roll installed as measured along the top edge of the fabric.

20.5 Type A and Type B silt fences are considered a variable quantity item. It shall be the CONTRACTOR's responsibility to include all items associated with this article in the unit prices. When requesting partial payment for work performed, the CONTRACTOR shall be paid for the actual quantity installed on the project as shown on the plans or as directed by the PROJECT MONITOR during the construction period.

21. GROUND PREPARATION

21.1 Ground preparation shall consist of minor grading and smoothing to uniform contours, furnishing and spreading the fertilizer and lime in separate operations and incorporating them into the upper three inches of soil by mechanical means. Ground preparation shall begin immediately upon completion of final grading. All sheet erosion, rills, gullies and washes shall be smooth-graded, seeded and mulched before the final inspection.

21.2 Before ground preparation begins, the graded areas must be approved by the PROJECT MONITOR for smoothness, slope and grade and shall be free of all boulders, rocks, sticks, roots and other debris that would impede vegetation. The CONTRACTOR shall notify the PROJECT MONITOR approximately twenty-four (24) hours before ground preparation begins. The PROJECT MONITOR shall be present during the entire ground preparation operation and approve the type of equipment used to incorporate the lime and fertilizer into the ground. Compacted surface areas, roadways and storage areas may require scarifying with chisel plows or other suitable equipment as directed by the PROJECT MONITOR.

21.3 All areas to receive ground preparation shall be tested by the DEPARTMENT prior to applying lime. If the soil tested indicates a need for a greater quantity of soil amendments than specified in these Special Provisions, the CONTRACTOR shall apply the quantity of amendments recommended by the soil test.

21.4 The CONTRACTOR shall apply a minimum quantity of six tons of dolomitic lime per acre distributed evenly to all areas of the project. Commercial fertilizer shall be applied at a rate of seven hundred fifty (750) pounds per acre to all disturbed areas of the project. The commercial fertilizer shown in

the Principal Items of Work is based on grade 13-13-13 fertilizer. The CONTRACTOR will have the option of using a grade 13-13-13 or a sufficient quantity of any other acceptable grade or grades of commercial fertilizer that will provide the required coverage.

21.5 Areas disturbed by construction at the site shall be shaped to smooth contours to blend with the surrounding terrain. The PROJECT MONITOR shall determine the areas on which ground preparation shall begin. Fertilizer and lime shall be spread in separate operations over the work areas and immediately incorporated into the upper three inches of soil by mechanical means, in order to form a seedbed. Lime shall not be distributed on the project site during windy conditions. The mechanical incorporation shall be conducted parallel to the contour of the finished slope. The application of fertilizer and dolomitic lime shall be completed and incorporated into the soil before applying the designated seeding mixture. The ground preparation operation shall begin before work on other areas is begun. The seeding operation shall begin immediately upon completion of the ground preparation operation. In the event that the seeding operation is delayed longer than twenty-four (24) hours, the seedbed shall be prepared again as stated above.

21.6 Original vendor's tickets, from a certified scale, showing the producer, item and gross, tare and net weights of the materials used on the project shall be submitted to the PROJECT MONITOR before the lime and fertilizer are spread. These tickets shall be required for payment of those items covered in this article.

21.7 Dolomitic lime and commercial fertilizer (13-13-13) are considered variable quantity items. The CONTRACTOR shall be paid for the actual quantity of dolomitic lime and commercial fertilizer used on the project as specified by

these Special Provisions and as directed by the PROJECT MONITOR. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit prices. When requesting partial payment for the work, the CONTRACTOR shall be paid for the approved quantities of dolomitic lime and commercial fertilizer that have been applied to a designated area and incorporated into the ground during the construction period.

22. SEEDING

22.1 Seeding shall consist of furnishing and spreading the seed mixture and compacting the seedbed.

22.2 A seed mixture containing a minimum of two nitrogen-fixing species and two perennial (permanent) species shall be mechanically spread by the CONTRACTOR over the project site. The seed mixture approved for this project is listed in Article 1.3 of the Technical Specifications.

22.3 The seeding operation shall be separate from ground preparation operations and shall begin immediately upon completion of ground preparation. Once prepared, the seedbed must be seeded within twenty-four (24) hours. Seeding operations shall begin on areas where ground preparation has been completed, as directed by the PROJECT MONITOR. The PROJECT MONITOR shall be present during the entire seeding and compacting operations. The CONTRACTOR shall notify the PROJECT MONITOR approximately twenty-four (24) hours before the seeding operation begins.

22.4 If the seeding operation is either delayed longer than twenty-four (24) hours following ground preparation, or if weather (rain) has adversely affected ground conditions prior to seeding as determined by the PROJECT MONITOR, the seedbed shall be prepared again, according to Article 21.5 of these Special Provisions, without additional compensation.

22.5 The seedbed shall be compacted with a cultipacker after the seeds are planted. Compacting of the seedbed shall be accomplished on each area of the site after each area is completely seeded.

22.6 Ground preparation, seeding and mulching operations shall be performed on the project at the time determined by the PROJECT ENGINEER and PROJECT MONITOR. If normal temperatures and rainfall conditions are acceptable, the CONTRACTOR will be allowed to perform revegetation operations during the summer and winter months, even when normal revegetation operations are usually suspended. The CONTRACTOR shall allow enough time to complete the seeding operations within the number of work days specified in the contract. The CONTRACTOR will not be granted any additional time to perform seeding operations. The time needed to complete the seeding operations has been included in the number of work days specified by the contract.

22.7 Once the PROJECT MONITOR has given approval for the CONTRACTOR to begin the seeding operations, the CONTRACTOR shall finish grading or regrade (as needed) any remaining areas on the project, repair any damage that occurred during the delay period and perform ground preparation (including liming and fertilizing) according to Article 21 of these Special Provisions. The appropriate seasonal mixture of ground cover species shall be planted at this time according to the species and rates shown in Section 1.3 of the Technical Specifications. Mulching shall be performed as outlined in Article 23 of these Special Provisions. All remaining items of work shall be completed at this time.

22.8 Seeding is considered a variable quantity item. It shall be the CONTRACTOR's responsibility to include all items associated with this article in his unit price. When requesting partial payment for the work, the

CONTRACTOR shall be paid for the acres of seeding completed and compacted during the construction period.

23. MULCHING

23.1 Mulching shall consist of furnishing, applying mulching material, and crimping the mulch material over the seeded areas at a rate of two tons per acre in accordance with Article 2 of the Technical Specifications.

23.2 The mulching and crimping operations shall be conducted simultaneously. Mulched areas left uncrimped that lose the mulching material, due to weather action or other causes, shall be mulched and crimped again without any additional compensation.

23.3 Mulch shall be applied mechanically to all seeded areas of the project with the exception of those areas hydroseeded or covered with erosion control protection blanket. No mulch shall be placed under or over slope protection or erosion control blanket. The mulching machine shall use rectangular or round bales of hay or cereal straw only.

23.4 Mulch shall be applied mechanically to all slopes (conventionally seeded) and crimped into the seedbed with a crimper having sufficient weight to crimp the mulch to a depth of two inches. The square-edged blades of the crimper shall be spaced along the axle not less than six inches but not more than eight inches on centers measured parallel with the axle. Disc harrows shall not be used to perform the crimping operation. Thick hay build up in spots commonly referred to as "duck nests" caused by an uneven application of mulch shall be corrected by use of hand tools or hand labor in order to minimize disturbance to recently planted areas prior to performing crimping operations.

23.5 Mulching material left on the project for any length of time before use shall be stored in well-drained locations, on wooden pallets and shall be protected from the weather by covering with tarpaulin or six mil plastic sheeting. The covering should be secured to prevent it from being blown off by the wind.

23.6 Mulching is considered a variable quantity item. It is the CONTRACTOR's responsibility to include all items associated with this article in his unit price. When requesting partial payment for the work, the CONTRACTOR shall be paid for the tons of mulching material applied and crimped during the construction period.

24. TERRACES

24.1 Terraces shall be built in the furnished slopes of the highwall backfill and/or Finished cut slopes within the project limits as determined by the PROJECT ENGINEER. The CONTRACTOR shall furnish all equipment and personnel required to complete the excavating, grading and shaping of the terraces. Erosion control blanket shall be installed in the flowline of each terrace as discussed in Article 13 of the special provisions.

24.2 The CONTRACTOR will be required to build the terraces in the locations that are shown on the plans or designated in the field by the PROJECT ENGINEER and/or PROJECT MONITOR. The PROJECT MONITOR will lay out the terraces and the CONTRACTOR will be required to build the terraces on the alignment and slope established by the PROJECT MONITOR.

24.3 Terraces are considered a variable quantity item. It shall be the CONTRACTOR' responsibility to include all items associated with this article in his unit price. The CONTRACTOR will be paid for the total linear feet of

terraces built on the project site. When requesting partial payment for the work, the CONTRACTOR shall be paid for the estimated quantity of terraces constructed during the construction period.

25. ENVIRONMENTAL PROTECTION

25.1 The Clean Water Act, as amended, Title 40, Code of Federal Regulations, Part 122, 123 and 124, dated November 16, 1990, shall apply to this project. An Alabama Department of Environmental Management (ADEM) storm water discharge permit has been secured by the DEPARTMENT. The CONTRACTOR shall keep a copy of the NPDES General Permit for stormwater run-off in his possession at all times while on the construction site. All regulations and provisions of the permit shall be an integral part of these Special Provisions. An ADEM stormwater run-off permit identification sign shall be furnished and installed by the CONTRACTOR as part of the regulations and provision of this permit. Any fines for violations assessed against the DEPARTMENT by ADEM as a result of the CONTRACTOR's negligence or failure to fulfill the provisions of the ADEM permit shall be the responsibility of the CONTRACTOR. Monies for the fine(s) shall be deducted from the CONTRACTOR's final payment.

25.2 The CONTRACTOR shall employ the materials in the Principal Items of Work necessary, as directed by the PROJECT MONITOR, to abate polluted storm water discharge from the project and successfully fulfill all of the ADEM permit requirements.

25.3 Fuel tanks, whether fixed-mounted or tanker trailers, shall be enclosed by an earthen berm built prior to project construction at a location outside the main grading area but within the project limits as directed by the PROJECT MONITOR. The fuel tank(s) shall be located away from streams, and natural

drainage areas. The berm shall be a minimum of two feet high and two feet wide at the crest. The side slopes of the berm shall have a minimum of two horizontal to one vertical slope. The inside toe to toe dimension of the enclosure shall be a minimum of sixteen (16) feet by sixteen (16) feet. The berm shall be constructed of spoil material with the interior of the containment plated with a layer of impervious clay material (or best material available) a minimum of one foot thick. Additional thickness may be required if suitable material is not available. Material used to construct the berm shall be free of large, sharp rocks. A six inch diameter polyvinyl chloride (PVC) pipe shall be installed through the berm with the inlet of the pipe level with the bottom of the enclosure. The pipe shall be equipped with a six inch diameter gate valve, which shall be closed at all times.

25.4 In lieu of plating the side slopes and bottom of the containment area with impervious clay material, a polyethylene (PE) liner may be installed. The liner shall cover the bottom and sides of the containment and extend one foot onto the top of the berm. The edges of the liner shall be secured by steel pins placed two feet on centers. All seams between polyethylene sheets shall be heat welded to form continuous bonds. The PE liner to be used is specified in Article 10 of the Technical Specifications.

25.5 Upon completion of the project, the fuel containment berm and the adjacent area shall be graded to blend with the surrounding terrain. Before reclaiming this area, any contaminated soil and/or the PE liner shall be removed and disposed of at an approved disposal facility.

25.6 The CONTRACTOR shall mount and maintain a durable non-freezable rain gauge, with graduated markings of one tenth of an inch, and install an ADEM stormwater permit identification sign within the project construction limits in

an area unobstructed by anything that would shelter the gauge from direct rainfall. The rain gauge and sign shall be easily accessed by the PROJECT MONITOR and CONTRACTOR's personnel. The rain gauge and sign shall be securely mounted on 4 inch by 4 inch by 8 foot treated posts. The sign shall be installed at a designated location on treated posts set a minimum of eighteen (18) inches in the ground. The sign shall be reinforced with a half inch thick treated plywood with the same outside dimensions as the signs. The CONTRACTOR shall furnish and install an ADEM stormwater identification sign according to the sign detail shown in the Drawing Section of these contract specifications. The cost associated with furnishing and installing the rain gauge and stormwater run-off permit identification sign shall be included in the CONTRACTOR's bid price for Mobilization.

25.7 Normal equipment maintenance may be performed on the project. However, all maintenance residue such as, but not limited to, engine oil, engine fluids, hydraulic fluids, oil filters, air filters, grease products, and other related items shall be collected in approved containers. The products shall then be disposed of offsite at an approved disposal facility or recycling center.

25.8 All fuel and oil spills shall be cleaned up immediately to minimize ground contamination. The CONTRACTOR shall remove and store the contaminated material in approved containers until treatment can be performed. For minor fuel and oil spills or leaks, the contaminated material shall be spread uniformly over black six mil polyethylene material and exposed to the sun for four to five days, which will allow time for the fuel and oil to volatilize. The material shall be stirred and turned over each day and not allowed to be rained on during the drying process. If there is a chance of rain, the material shall be covered with an additional

piece of black polyethylene. Once this process has been completed, the material contaminated from fuel may be disposed of by spreading the material over the entire site. However, the material contaminated from oil shall be tested to determine the total petroleum hydrocarbon (TPH) content. A qualified laboratory shall be used to test the material. If the material does not meet the minimum requirements, more drying time will be required. Further testing and drying will be required until the material meets the minimum requirements. Then, the CONTRACTOR may spread the material contaminated from oil over the project site.

25.9 The CONTRACTOR, his employees, and subcontractors and their personnel shall follow and abide by the rules for good housekeeping. The project site shall be kept clean of all personal garbage and trash (i.e. drink cans, bottles, lunch sacks, plastic wrappers, fast food container, etc.). The CONTRACTOR shall provide onsite containers for employees to place all garbage and trash each day. The trash and garbage shall be removed from the site and/or disposed of properly as directed by the PROJECT MONITOR.

25.10 Environmental protection on this project has not been listed as a line item on the Principal Items of Work. Thus, it is the responsibility of the CONTRACTOR to cover the cost of these items of work in the bid prices of other items of work.

26. MOBILIZATION

26.1 Payment for mobilization is compensation for construction signs, ADEM stormwater permit identification sign, safety devices, clearing for access roads, and assembling equipment, supplies, materials and labor forces at the project. No additional payment will be made for the removal of equipment, supplies,

materials, construction signs and safety devices from the project. The CONTRACTOR's mobilization bid price shall not exceed fifteen percent (15%) of the Total Contract Bid Price.

26.2 Mobilization for this project will be paid as follows:

50% Mobilization bid price paid when project is 10% complete.

Balance of Mobilization bid price paid when project is 50% complete.

The accumulated total amount paid for Mobilization shall not exceed the CONTRACTOR's lump sum bid for Mobilization.

26.3 Mobilization payments may be requested according to Article 27 of these Special Provisions only during regular construction period payment requests.

27. PAYMENT

27.1 Payment for work on this contract will be made on a combination lump sum/variable quantity basis, based on estimated quantities shown or actual quantities used on this project. Unit prices are required on all Principal Items of Work. It is the CONTRACTOR's responsibility to ensure that he has covered all items of work shown in the plans and the contract specifications when submitting unit prices. The CONTRACTOR's unit prices will be used in conjunction with the DEPARTMENT's given estimate of quantities to calculate a Total Contract Bid Price. Failure of the CONTRACTOR to submit unit prices for all items of work will result in the bid being automatically rejected without further consideration.

27.2 The DEPARTMENT's given estimates for lump sum and variable quantity items are only estimates and are explicitly not guaranteed by the DEPARTMENT. If field conditions have altered the scope of work the variable quantities may be increased or decreased at the discretion of the DEPARTMENT. Additional lump sum quantities will not be compensated without prior written approval of the DEPARTMENT. Payment for lump sum items will be based on quantities listed in the Principal Items of Work. The estimated quantities are provided only as a standard guide by which all CONTRACTORS are to bid, in order that a uniform and consistent Total Contract Bid Price can be established for each bid proposal. This will enable the DEPARTMENT to equally compare all bid proposals.

27.3 Each line item on the Bid Proposal Form shall be bid on lump sum or a variable quantity basis according to the DEPARTMENT's estimated quantity. Each extended price will be calculated by multiplying the CONTRACTOR's unit price by the DEPARTMENT's estimated quantity. The extended prices will be totaled to obtain a Total Contract Bid Price. The contract will be awarded based on the Total Contract Bid Price.

27.4 If there is any error in calculating the extended price of a bid item, the unit price submitted by the CONTRACTOR will prevail and the extended price will be re-calculated. Likewise, if there is an error in adding the extended prices to arrive at a Total Contract Bid Price, the Total Contract Bid Price will be re-calculated and the resulting price will prevail.

27.5 If the total amount encumbered by the contract reaches or exceeds the Total Contract Bid Price, the DEPARTMENT may, at its discretion, delete any or all remaining portions of the Principal Items of Work in the contract and thus terminate the contract.

27.6 Payment for work accomplished during each construction period will be based on the DEPARTMENT's review of the CONTRACTOR's estimate of actual work performed and completed during that construction period. Payment for the work accomplished at the site during each construction period will be made only when that item is completed and made ready for service. No payment shall be made for material stored on the project site.

27.7 It is the CONTRACTOR's responsibility to verify all quantities before submitting his unit prices. The CONTRACTOR shall be paid in accordance with Articles 1-3 of the Supplementary Conditions.

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS INDEX

TECHNICAL SPECIFICATIONS

1. REVEGETATION MATERIALS

1.1 The seed mixtures approved for use on this project are listed in Article 1.3 of these Technical Specifications.

1.2 For all seeding operations on this project, each bag of seed used shall have the required Alabama seed certification tag securely affixed. Any bags of seed provided by the CONTRACTOR which do not have the seed tags affixed to the bag will be rejected by the PROJECT MONITOR. All bags of seed shall be opened only in the presence of the PROJECT MONITOR; he alone is authorized to remove the seed certification tag from each bag. Each seed certification tag shall include a listing of each species, percent germination, percent purity, and testing date. Germination shall be at least eighty-five percent (85%) and purity shall be at least ninety-five percent (95%), unless otherwise noted. The seed shall be purchased from only an Alabama licensed dealer and shall have been tested no more than six (6) months prior to planting. If the seed has not been tested within six (6) months, it shall be retested at Auburn University at the CONTRACTOR's expense, and these results shall be presented to the PROJECT MONITOR prior to commencement of seeding operations. The seed shall be premixed with the species specified in Article 1.3. The seed of the nitrogen-fixing species shall be inoculated with the appropriate commercial culture according to the manufacturer's instruction before mixing. The inoculated seed shall be allowed to dry to a free-flowing state before being mixed with the other seeds. Inoculated seeds shall be protected from exposure to the sun and/or contact with commercial fertilizer. All of the procedures outlined above shall be required for payment of the seeding work.

1.3 SEEDING MIXTURES (SPECIES AND RATES)

Winter Wheat	40 lbs./acre
Annual Rye	15 lbs./acre
Little Bluestem	4 lbs./acre
Big Bluestem	4 lbs./acre
Switchgrass	5 lbs./acre
Partridge Peas	7 lbs./acre
Redland MAX Clover	20 lbs./acre
Durana Clover	15 lbs./acre
TOTAL	110 lbs./acre

1.4 TEMPORARYSEEDING MIXTURES (SPECIES AND RATES)*

Winter Wheat	20 lbs./acre
Annual Rye Grass	15 lbs./acre
TOTAL	35 lbs./acre

* These rates are required for the seed only and exclude any weight attributed to inoculated or protective coatings. Seed amount(s) shall be increased to compensate for the weight of the coating.

2. MULCHING MATERIAL

2.1 Mulching material shall be exclusively grass hay or cereal straw, which is sound and fit for animal consumption. The hay or straw shall be free from weeds, bushes or other noxious material. Crop stubble or other coarse material shall not be acceptable as mulching material. A minimum of two tons of rectangular or round bales shall be applied per acre as documented and directed by the PROJECT MONITOR. Temporary mulching shall be applied at a rate of one ton per acre.

2.2 Tickets from a certified vendor's scale, showing the number of haybales, size and gross, tare and net weights of the haybales for each load shall be submitted to the PROJECT MONITOR at the time the mulching material is delivered to the project. These tickets shall be submitted daily and collected by the PROJECT MONITOR, and shall be required prior to payment of Mulching.

2.3 The CONTRACTOR shall make all necessary agreements to weigh the haybales at a certified scale before delivery is made to the project site.

3. STAKED HAYBALES

3.1 Haybales used for staking shall be exclusively grass hay or cereal straw. The baled material shall be sound and fit for animal consumption. The bales shall be tied securely with two strands of plastic twine. Each haybale shall be a minimum of thirty (30) inches long.

3.2 Haybales shall be secured with two stakes, each measuring two inches wide, thirty-six (36) inches long and one inch thick. Each stake shall be cut from commercial grade lumber stock and have one end pointed.

4. SEDIMENT CONTROL LOGS

4.1 Sediment control logs shall be twelve (12) inches in diameter and ten feet long as manufactured by American Excelsior Company. They shall be manufactured from Aspen Excelsior Fibers and bound with a durable tubular polyester netting with metal clips or knotted ends. The logs may be cut to the length desired in the field by first binding the segments with nylon ties to close the ends before cutting the logs.

5. EROSION CONTROL BLANKET

5.1 Erosion control blanket used on this project shall be North American Green, SC-150 or equivalent. Prior approval by the PROJECT ENGINEER is required before any material can be substituted.

5.2 Erosion control blanket shall be manufactured from a mat of wheat or oat stubble at a rate of 0.35 pounds per square yard and coconut fibers at a rate of 0.15 pounds per square yard. The stubble and fibers shall be distributed evenly over the blanket area to produce a mat of uniform thickness. The top and bottom of the mat shall be covered with photodegradable extruded plastic netting. The netting and mat shall be sewn together one and a half (1.5) inches on centers with cotton thread. The mesh opening for one net shall be 3/8 inch by 3/8 inch. The other net shall have a mesh size of 3/4 inch by 3/4 inch openings. The blanket shall have a minimum width of six and a half (6.5) feet and contain sixty (60) square yards per roll.

5.3 The six inch wooden stake used to install the erosion control blanket shall consist of hardwood oak manufactured into a tapered "1" shaped spike resistant to breakage. The hardwood stake shall have the following dimensions:

Crown: 1.25 inches
Body Width: .4 x .6 inches
Total Length: 6 inches

The CONTRACTOR may obtain the six inch wooden stakes from North American Green (1-800-772-2040) or an equivalent manufacturer.

6. SLOPE PROTECTION BLANKET

6.1 Slope protection blanket used on this project shall be North American Green, SC-150 or equivalent. Prior approval by the PROJECT ENGINEER is required before any material can be substituted.

6.2 Slope protection blanket shall be manufactured from a mat of wheat or oat Stubble at a rate of 0.35 pounds per square yard and coconut fibers at a rate of 0.15 pounds per square yard. The stubble and fibers shall be distributed evenly over the blanket area to produce a mat of uniform thickness. The top and bottom of the mat shall be covered with photodegradable extruded plastic netting. The netting and mat shall be sewn together one and a halt inches on centers with cotton thread. The mesh opening for one net shall be 3/8 inch by 3/8 inch. The other net shall have a mesh size of 3/4 inch by 3/4 inch openings. The blanket shall have a minimum width of six and a half feet and contain sixty (60) square yards per roll.

6.3 The six inch wooden stake used to install the slope protection blanket shall consist of hardwood oak manufactured into a tapered "1" shaped spike resistant to breakage. The hardwood stake shall have the following dimensions:

Crown: 1.25 inches
Body Width: .4 x .6 inches
Total Length: 6 inches

The CONTRACTOR may obtain the six inch wooden stakes from North American Green (1-800-772-2040) or an equivalent manufacturer.

7. PERMANENT EROSION CONTROL BLANKET

7.1 Permanent erosion control blanket used on this project shall be North American Green, C-350 or equivalent. Prior approval by the PROJECT ENGINEER is required before any material can be substituted.

7.2 Permanent erosion control blanket shall be manufactured from three reinforced mats of polypropylene grids and coconut fibers at a rate of 0.5 pounds per square yard. The coconut and fibers shall be distributed evenly over the blanket area to produce a mat of uniform thickness. The top mats consist of a grid of polypropylene weighing 8.5 pound per 1,000 square feet and the bottom mat consists of a grid weighing 8.5 pounds per 1,000 square and 20 pounds per 1,000 square feet. The polypropylene grid shall be treated with adequate concentrations of carbon black to provide for ultraviolet protection. The coconut mat shall be sewn together one and a half inch by two inch spacing using cotton thread. The mesh opening for each polypropylene and grid mat shall be ½ inch by ½ inch. The blanket shall have a minimum width of six and a half feet and contain fifty five (55) square yards per roll.

7.3 The six inch wooden stake used to install the slope protection blanket shall consist of hardwood oak manufactured into a tapered "1" shaped spike resistant to breakage. The hardwood stake shall have the following dimensions:

Crown: 1.25 inches
Body Width: .4 x .6 inches
Total Length: 6 inches

The CONTRACTOR may obtain the six inch wooden stakes from North American Green (1-800-772-2040) or an equivalent manufacturer.

8. STABILIZATION FABRIC

8.1 Stabilization fabric used on the project shall be Mirafi 600X or equal. The ground stabilization fabric shall have a design specification equaling or exceeding the minimum requirements described below.

8.2 The fabric shall have a grab strength of 300 pounds, a burst strength of 600 pounds and a trapezoidal tear strength of 120 pounds. The fabric shall contain carbon compounds to protect it from ultraviolet radiation.

8.3 Metal pins shall be used to anchor the stabilization fabric. Metal pins shall be made of 3/16 inch diameter wire with a corrugated design. The pins shall be a minimum of twelve (12) inches long and shall be corrugated to resist uplift pressure. The corrugation shall be in a zigzag pattern for a minimum of twelve (12) inches along the length of the pin. The pin shall be equipped with one and a half inch flat washer and bradded head to effectively secure the fabric to the ground surface.

8.4 Any alteration from the specified stabilization fabric will require approval from the PROJECT ENGINEER before construction begins.

9. NON-WOVEN FILTER FABRIC

9.1 Non-Woven filter fabric for French drains shall be Mirafi 140N or equal. The fabric shall be a minimum of sixty (60) mils thick, have a grab strength of one hundred twenty (120) pounds and have a percolation rate of 205 gallons per minute per square foot of fabric.

9.2 The non-woven filter fabric shall be ultraviolet (UV) protected and stabilized using carbon compounds.

10. CONSTRUCTION SIGNS AND SAFETY DEVICES

10.1 Construction signs shall conform to the standards of the Manual on Uniform Traffic Control Devices, published by the U.S. Department of Transportation, Federal Highway Administration.

10.2 Construction signs shown in the construction sign detail shall be located along the roadway adjacent to the project site as shown on the construction plans.

11. POLYETHYLENE LINER

11.1 Polyethylene liner shall be PERMALON X-150 or equal. The liner shall be nine mils thick, weigh thirty and one half (30.5) pounds per thousand square feet, have a tensile strength of twenty-three (23) pound-feet and an elongation of five hundred fifty (550) percent. The liner shall be ultraviolet (UV) stabilized.

12. SILT FENCE

12.1 Silt fence requirements and specifications for Type A and Type B shall be according to the following articles.

12.2 Type A silt fence shall be made of steel post, wire fencing and geotextile fabric. Type A silt fence shall be pre-fabricated as manufactured by TNS Advanced Technologies or the components purchased as individual parts and assembled in-place at the site.

12.3 The post shall be steel "T" shaped post and the wire fencing shall be thirty-six (36) inches high. The geotextile material shall be a non-woven – 100% polypropylene that is highly resistant to ultraviolet light deterioration. The fabric shall be mold and mildew resistant and non-biodegrable. TNS R035 or equal shall be used for the silt fence material.

12.4 The installation shall be conducted to the details shown in the plans and according to the manufacturers instruction.

12.5 The woven filter fabric for Type B silt fence shall be Filter-X, Mirafi 100X or equivalent fabric. The fabric shall be a minimum of five (5) mils thick, have grab strength of one hundred (100) pounds, a percolation rate of forty (40) gallons per minute per square foot and be protected against ultraviolet radiation.

12.6 Wooden posts furnished with the Type B silt fence shall be pre-weathered hardwood measuring one (1) inch by two (2) inches by four (4) feet long. The maximum spacing of the wood posts shall be eight (8) feet on centers. The thirty-six (36) inch wide fabric shall be attached to the post with two wire staples.

12.7 Type B silt fence shall be completely fabricated in the shop and ready for field installation without any other preparation.

13. PIPE

13.1 Drainage pipe shall be of the sizes and materials shown in these specifications. The eighteen inch and twenty-four inch diameter pipes shall be Advanced Drainage Systems smooth-lined N-12 corrugated plastic pipe or an equivalent as approved by the PROJECT ENGINEER.

13.2 The PE pipe shall be smooth-lined Advanced Drainage Systems, Inc., corrugated polyethylene (PE) tubing and coupling or equivalent. The eighteen (18) inch diameter pipe shall have a pitch of 2.70 and have 4.5 spiral corrugations per linear foot. The twenty-four (24) inch diameter pipe shall

have a pitch of 2.93 inches and have 4.1 spiral corrugations per linear foot. The pipe and couplings shall have adequate concentrations of carbon black to provide for ultraviolet protection.

13.3 Six inch diameter perforated corrugated polyethylene pipe and fittings shall be Advanced Design Systems (ADS) or equal. Tubing and fittings shall conform to ASTM D883 and ASTM 412. The corrugated tubing shall have three perforated holes measuring three quarters (3/4) inch diameter per row spaced at a maximum of four inches or slotted openings located between the corrugations and around the perimeter of the pipe in an alternating sequence along the length of the tubing.

13.4 Six inch diameter corrugated polyethylene solid pipe and fittings shall be Advanced Design Systems (ADS) or equal. Tubing and fittings shall conform to ADTM D883 and ASTM 412. The corrugated tubing shall have no perforated holes (3/4) or slotted opening in the perimeter of the pipe.

PRINCIPAL ITEMS OF WORK

PIPER II
ABANDONED MINE LAND RECLAMATION PROJECT
PRINCIPAL ITEMS OF WORK

The Principal Items of Work are approximately as follows:

(Note: This page is for information only, and is not to be used as a Bid Proposal Form)

DESCRIPTION OF WORK	QUANTITY			UNIT PRICE		EXTENDED PRICE
"LUMP SUM" ITEMS						
Unclassified Excavation	309,500	Cu. Yds.	@	$_____	=	$_____
Mobilization				Lump Sum	=	$_____

SUBTOTAL, LUMP SUM ITEMS.....$_____ = $_____

"VARITABLE QUANTITY" ITEMS:						
Seeding	35	Acres	@	$_____	=	$_____
Temporary Seeding	25	Acres	@	$_____	=	$_____
Mulching	70	Tons	@	$_____	=	$_____
Temporary Mulching	25	Tons	@	$_____	=	$_____
Commercial Fertilizer (13-13-13)	13.1	Tons	@	$_____	=	$_____
Dolomitic Lime	210	Tons	@	$_____	=	$_____
Erosion Control Blanket	6,500	Lin. Ft.	@	$_____	=	$_____
Slope Protection Blanket	8,000	Lin. Ft.	@	$_____	=	$_____
Permanent Erosion Control Blanket	4,000	Lin. Ft.	@	$_____	=	$_____
Staked Haybales	750	Each	@	$_____	=	$_____
Sediment Control Logs (12" Dia.)	1,000	Lin. Ft.	@	$_____	=	$_____
Silt Fence, Type A	1,000	Lin. Ft.	@	$_____	=	$_____
Silt Fence, Type B	6,000	Lin. Ft.	@	$_____	=	$_____
Terraces	6,000	Lin. Ft.	@	$_____	=	$_____
Water Bar	2,500	Lin. Ft.	@	$_____	=	$_____
Crushed Limestone	1,000	Tons	@	$_____	=	$_____
ALDOT No. 1 Limestone	500	Tons	@	$_____	=	$_____
Riprap, Class I Limestone	4,000	Tons	@	$_____	=	$_____
Riprap, Class II Limestone	750	Tons	@	$_____	=	$_____
Non-woven Filter Fabric	2,000	Sq. yds.	@	$_____	=	$_____
Stabilization Fabric	3,500	Sq. Yds.	@	$_____	=	$_____
Pipe, 6" Dia. Corr. PE (Perforated)	200	Lin. Ft.	@	$_____	=	$_____
Pipe, 6" Dia. Corr. PE (Solid)	100	Lin. Ft.	@	$_____	=	$_____
Pipe, 18" Dia. Corr. PE (N-12)	220	Lin. Ft.	@	$_____	=	$_____

PIPER II
PRINCIPAL ITEMS OF WORK (Con't)

DESCRIPTION OF WORK	QUANTITY			UNIT PRICE		EXTENDED PRICE
"VARITABLE QUANTITY" ITEMS:						
Pipe, 24" Dia. Corr. PE (N-12)	100	Lin. Ft.	@	$_____	=	$_____
Concrete Grout	20	Cu. Yds.	@	$_____	=	$_____
Temporary Earthen Berm	8	Each	@	$_____	=	$_____
Finished Earthen Berm	11	Each	@	$_____	=	$_____

SUBTOTAL, VARIABLE QUANTITY ITEMS.....$_____ = $_____

TOTAL CONTRACT BID PRICE....$_____ = $_____

And all other items shown in the plans and called for in the specifications.

COST ESTIMATE

PIPER II
ABANDONED MINE LAND RECLAMATION PROJECT
PROJECT COST ESTIMATE

The cost of the Principal Items of Work is approximately as follows:

DESCRIPTION OF WORK	QUANTITY			UNIT PRICE		EXTENDED PRICE
"LUMP SUM" ITEMS						
Unclassified Excavation	309,500	Cu. Yds.	@	$ 1.75	=	$ 541,625.00
Mobilization				Lump Sum =		$ 40,000.00
SUBTOTAL, LUMP SUM ITEMS				$ 581,625.00	=	$ 581,625.00
"VARITABLE QUANTITY" ITEMS:						
Seeding	35	Acres	@	$ 650.00	=	$ 22,750.00
Temporary Seeding	25	Acres	@	$ 250.00	=	$ 6,250.00
Mulching	70	Tons	@	$ 250.00	=	$ 17,500.00
Temporary Mulching	25	Tons	@	$ 175.00	=	$ 4,375.00
Commercial Fertilizer (13-13-13)	13.1	Tons	@	$ 650.00	=	$ 8,515.00
Dolomitic Lime	210	Tons	@	$ 30.00	=	$ 6,300.00
Erosion Control Blanket	6,500	Lin. Ft.	@	$ 1.75	=	$ 11,375.00
Slope Protection Blanket	8,000	Lin. Ft.	@	$ 2.00	=	$ 16,000.00
Permanent Erosion Control Blanket	4,000	Lin. Ft.	@	$ 5.00	=	$ 20,000.00
Staked Haybales	750	Each	@	$ 5.00	=	$ 3,750.00
Sediment Control Logs (12" Dia.)	1,000	Lin. Ft.	@	$ 5.00	=	$ 5,000.00
Silt Fence, Type A	1,000	Lin. Ft.	@	$ 3.00	=	$ 3,000.00
Silt Fence, Type B	6,000	Lin. Ft.	@	$ 2.00	=	$ 12,000.00
Terraces	6,000	Lin. Ft.	@	$ 2.00	=	$ 12,000.00
Water Bar	2,500	Lin. Ft.	@	$ 1.00	=	$ 2,500.00
Crushed Limestone	1,000	Tons	@	$ 25.00	=	$ 25,000.00
ALDOT No. 1 Limestone	500	Tons	@	$ 25.00	=	$ 12,500.00
Riprap, Class I Limestone	4,000	Tons	@	$ 25.00	=	$ 100,000.00
Riprap, Class II Limestone	750	Tons	@	$ 25.00	=	$ 18,750.00
Non-woven Filter Fabric	2,000	Sq. yds.	@	$ 2.00	=	$ 4,000.00
Stabilization Fabric	3,500	Sq. Yds.	@	$ 2.00	=	$ 7,000.00
Pipe, 6" Dia. Corr. PE (Perforated)	200	Lin. Ft.	@	$ 12.00	=	$ 2,400.00
Pipe, 6" Dia. Corr. PE (Solid)	100	Lin. Ft.	@	$ 12.00	=	$ 1,200.00
Pipe, 18" Dia. Corr. PE (N-12)	220	Lin. Ft.	@	$ 30.00	=	$ 6,600.00

PIPER II
PROJECT COST ESTIMATE (Cont'd)

DESCRIPTION OF WORK	QUANTITY			UNIT PRICE		EXTENDED PRICE
"VARITABLE QUANTITY" ITEMS:						
Pipe, 24" Dia. Corr. PE (N-12)	100	Lin. Ft.	@	$ 40.00	=	$ 4,000.00
Concrete Grout	20	Cu. Yds.	@	$ 200.00	=	$ 4,000.00
Temporary Earthen Berm	8	Each	@	$ 150.00	=	$ 1,200.00
Finished Earthen Berm	11	Each	@	$ 300.00	=	$ 3,300.00

SUBTOTAL, VARIABLE QUANTITY ITEMS..... $ 341,265.00 = $ 347,640.00

TOTAL CONTRACT BID PRICE..... = $ 922,890.00

BID PROPOSAL FORM

PIPER II
ABANDONED MINE LAND RECLAMATION PROJECT
BID PROPOSAL FORM

DESCRIPTION OF WORK	QUANTITY			UNIT PRICE		EXTENDED PRICE
"LUMP SUM" ITEMS						
Unclassified Excavation	309,500	Cu. Yds.	@	$_____	=	$_____
Mobilization				Lump Sum	=	$_____

SUBTOTAL, LUMP SUM ITEMS.....$_____ = $_____

"VARITABLE QUANTITY" ITEMS:

Seeding	35	Acres	@	$_____	=	$_____
Temporary Seeding	25	Acres	@	$_____	=	$_____
Mulching	70	Tons	@	$_____	=	$_____
Temporary Mulching	25	Tons	@	$_____	=	$_____
Commercial Fertilizer (13-13-13)	13.1	Tons	@	$_____	=	$_____
Dolomitic Lime	210	Tons	@	$_____	=	$_____
Erosion Control Blanket	6,500	Lin. Ft.	@	$_____	=	$_____
Slope Protection Blanket	8,000	Lin. Ft.	@	$_____	=	$_____
Permanent Erosion Control Blanket	4,000	Lin. Ft.	@	$_____	=	$_____
Staked Haybales	750	Each	@	$_____	=	$_____
Sediment Control Logs (12" Dia.)	1,000	Lin. Ft.	@	$_____	=	$_____
Silt Fence, Type A	1,000	Lin. Ft.	@	$_____	=	$_____
Silt Fence, Type B	6,000	Lin. Ft.	@	$_____	=	$_____
Terraces	6,000	Lin. Ft.	@	$_____	=	$_____
Water Bar	2,500	Lin. Ft.	@	$_____	=	$_____
Crushed Limestone	1,000	Tons	@	$_____	=	$_____
ALDOT No. 1 Limestone	500	Tons	@	$_____	=	$_____
Riprap, Class I Limestone	4,000	Tons	@	$_____	=	$_____
Riprap, Class II Limestone	750	Tons	@	$_____	=	$_____
Non-woven Filter Fabric	2,000	Sq. yds.	@	$_____	=	$_____
Stabilization Fabric	3,500	Sq. Yds.	@	$_____	=	$_____
Pipe, 6" Dia. Corr. PE (Perforated)	200	Lin. Ft.	@	$_____	=	$_____
Pipe, 6" Dia. Corr. PE (Solid)	100	Lin. Ft.				
Pipe, 18" Dia. Corr. PE (N-12)	220	Lin. Ft.				

PIPER II
BID PROPOSAL FORM (Cont'd)

DESCRIPTION OF WORK	QUANTITY			UNIT PRICE		EXTENDED PRICE
"VARITABLE QUANTITY" ITEMS:						
Pipe, 24" Dia. Corr. PE (N-12)	200	Lin. Ft.	@	$_____	=	$_____
Concrete Grout	20	Cu. Yds.	@	$_____	=	$_____
Temporary Earthen Berm	8	Each	@	$_____	=	$_____
Finished Earthen Berm	11	Each	@	$_____	=	$_____

SUBTOTAL, VARIABLE QUANTITY ITEMS.....$_____ = $_____

TOTAL CONTRACT BID PRICE....$_____ = $_____
(For evaluation of bids only)

_____
Contractor

By:_____ Date:_____

SEQUENCE OF CONSTRUCTION

SEQUENCE OF CONSTRUCTION
(In Order of Completion)

1. Install construction signs before any reclamation work begins at the site.

2. Place all temporary erosion control devices before any grading starts.

3. Install durable non-freezable rain gauge at the proper location to record rainfall and install ADEM Stormwater permit identification sign.

4. Construct an earthen berm for the fuel tank(s) if fuel is stored on the project site.

5. Notify AML Engineering personnel to locate property corners and markers.

6. Obtain a burn permit from the Bibb County Office of the Alabama Forestry Commission.

7. Begin clearing project site of vegetation, dispose of clearing debris and protect all property corners and markers. Remove any residual or household debris found on the site by hauling to an approved landfill.

8. Install all sediment control structures and riprap checkdams prior to dewatering the impoundments, (if water is present).

9. Begin grading spoil material to backfill impoundment and dangerous highwall to the design contours as shown on the plans.

10. Install temporary earthen berms at base of highwall, as needed, during grading operations.

11. Complete grading and placement of spoil material in the highwall and impoundment and compact all finished slopes.

12. Construction drainage ditches and install erosion control devices such as riprap checkdams, riprap lined ditches, terraces, erosion control blanket, slope protection blanket, permanent erosion control blanket and staked haybales.

13. Perform revegetation operations.

14. Clean-up site and remove construction signs.

CONSULTATION LETTERS

United States Department of the Interior

OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT
Birmingham Field Office
Barber Business Park
135 Gemini Circle, Suite 215
Homewood, AL 35209

JAN 24 2013

JAN 2013
Received
Abandoned
Mine Lands
BFO

Mr. Brian J. Wittwer, Acting Director
Mining and Reclamation Division
Alabama Department of Labor
Inspections Division
649 Monroe Street
Montgomery, Alabama 36131-5200

Dear Mr. Wittwer:

The Office of Surface Mining Reclamation and Enforcement (OSM) has reviewed the environmental assessment for the Piper II Abandoned Mine Land Project and determined that it adequately discusses the environmental issues and impacts associated with the project. Based on analysis of this document, we have determined that reclamation of this abandoned mine site would not have significant effects on the quality of the human environment and therefore conclude that no environmental impact Statement is necessary. Accordingly, pursuant to Section 4-160-50D.3 of the Federal Assistance Manual, you are authorized to proceed with this project.

OSM's authorization to proceed for the Piper II Abandoned Mine Land Reclamation Project will expire on 1/24/2015. Construction must begin on the project site prior to that date.

If you have any questions, please contact my staff at (205) 290-7282.

Sincerely,

Sherry Wilson
Field Office Director

Enclosures

SMCRA 35 YEARS

Gray and Indiana bats may use the Cahaba River for foraging or as a travel corridor, but no caves are located within the refuge. Indiana bats are known to use trees with loose or flaking bark as roost trees during the summer. No trees with loose bark are noted within the project area and none should be impacted during this project.

Please note that on August 9, 2007, the bald eagle was officially removed from the Federal list of threatened and endangered species. After the official delisting, the permitting of incidental take under the Endangered Species Act is no longer necessary. However, the bald eagle is still protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (Eagle A ct). Accordingly, all recommendations from the *National Bald Eagle Management Guidelines* should be applied when implementing the proposed project if eagles are discovered in the project area. The guidelines explain when the protective provisions of the Eagle Act are applicable and provide information and recommendations on how to avoid adversely affecting bald eagles, especially during the nesting season. A copy of the document may be downloaded from the Service's website at: http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf. In addition, step-by-step guidance to help you determine if your project is likely to disturb nesting bald eagles (a potential violation of the Eagle Act).

Highwall Reclamation:

Drainage from the proposed project area will enter an abandoned and collapsed mine portal (Discharge Point "2"). However, for the purposed of this consultation the Project Leader (Mr. Steve Miller – Refuge Manager) assumed that the mine portal is unable to accommodate all of the flow from the watershed during certain storm events. The resulting connection to the Cahaba River necessitates the inclusion of the Cahaba River within the action area of the proposed project.

Direct impacts will occur to approximately 45 acres of Refuge habitats within the project area. Habitat value is limited within the loblolly pine plantation that will be impacted. Plans call for the removal of all vegetation from the spoil pile in the project area. The spoil pile would then be used to fill the area below the highwall up to a 4:1 or flatter slope.

Reclamation is expected to increase public safety through the elimination of the highwall that is up to 80 feet in height. Reclamation is also expected to reduce long-term environmental impacts associated with sediment and coal-related contaminants reaching the Cahaba River. There is, however, the potential for the short term increases in the transport of sediment and coal fines to the Cahaba River during the construction phase of the project should the best management practices (BMPs) fail and the rainfall volumes exceed the mine portal acceptance capacity.

To monitor and insure that the Refuge has correctly assessed impacts to aquatic systems resulting from highwall reclamation and to monitor proposed BMPs, the Project Leader will implement a Quality Assurance Plan that was developed for the Refuge by the Alabama Ecological Services Field Office. This plan outlines the proposed monitoring that will be required before, during and after highwall reclamation.

If any of the following occur, than there must be re-initiation on this action:

1. any incidental take occurs
2. new information reveals effects of the Service's action that may affect listed species or critical habitat in a manner or to an extent not considered in this letter;
3. the Service's action is later modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or
4. a new species is listed or critical habitat designated that may be affected by the action.

In instances where any incidental take occurs, the operations causing such take must cease until re-initiation. If re-initiation is required, contact the Alabama Ecological Services Field Office

The location of the proposed project area upstream from the current stormwater discharge portal (Discharge Point "2") provides an additional level of protection. This will allow the Refuge to determine if the BMPs are sufficient to prevent the release of coal related constituents and/or sediments from the project area, and support the Project Leader's determination that the proposed project "may affect, but is not likely to adversely affect" the down stream action area which includes the Cahaba River.

The proposed sampling protocol for this project will also provide an additional level of verification that the proposed action is "not likely to adversely affect" listed, proposed, or candidate species or designated or proposed critical habitat, and support the Refuge's determination that all the effects of the proposed highwall reclamation project will be insignificant and discountable.

Best Management Practice:

Best management practices must be incorporated into the project design and utilized to control erosion during all phases of the proposed projects to prevent impacts to federally listed aquatic threatened and endangered species in the Cahaba River. Erosion control structures/diversions must be inspected within 24 hours of any rain event and immediate corrective action taken if erosion or soil runoff is observed. Maintenance of vegetated buffers adjacent to any ditches or drainages is also an important measure to insure erosion control, as is immediate revegetation of disturbed areas. Any work that results in exposed earth should be executed during periods when rainfall is not predicted. For specific design information, the "Alabama Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas" (2003) is available from the Alabama Soil and Water Conservation Committee, or the 2002 version can be found on-line at http://www.swcc.state.al.us/erosion_handbook.htm.

Wetland Advisory

Upon review of the National Wetland Inventory (NWI) maps, it was determined that creek and wetland areas are along your proposed project area. The U.S. Army Corps of Engineers (COE) recommends that a project managers contact them if any amount of fill material may be placed in waters of the U.S., including any wetland. This includes mechanical land clearing and temporary stream rerouting or diversion. This also includes temporary or permanent basins constructed in intermittent or perennial streams for erosion control or storm water management purposes. Since your project involves a discharge of fill material into water of the U.S., the project managers will be required to apply for a Department of the Army permit. For very small impacts, the project could possibly be authorized under one the COE's Nationwide Permits or Regional Permits (with verification by the COE). However, projects impacting more than 0.5 acres of wetlands or 300 feet of stream will likely require an Individual Department of the Army Permit. The COE will work with the Refuge to assess and minimize the impacts and determine possible mitigation requirements to compensate for wetland or other losses and protect water quality and fish and wildlife.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Office of the Regional Archaeologist
Savannah Coastal Refuges
694 Beech Hill Lane
Hardeeville, South Carolina 29927
(843) 784-6310
CELL (912) 257-5434
FAX (843) 784-2465
email: richard_kanaski@fws.gov

July 10, 2012

Ms. Elizabeth Ann Brown, Deputy SHPO
Alabama Historical Commission
468 South Perry Street
Montgomery, Alabama 36130-0900

Re: Piper Highwall Reclamation Project, Cahaba National Wildlife Refuge, Bibb County, Alabama

Dear Ms. Brown:

The U.S. Fish and Wildlife Service (FWS), in partnership with the Alabama Department of Industrial Relations Abandoned Mines Land Program (ALMP), proposes to undertake the multi-phase Piper Highwall Reclamation Project on Cahaba National Wildlife Refuge in Bibb County (Fig. 1). The project has five major objectives:

- Protect the visiting public from hazards associated with the dangerous strip mine highwall and coal waste piles;
- Protect the Cahaba River, wetlands in the vicinity, and the river's associated rare and endangered biota from offsite sedimentation and any pollution occurring from mine spoil and underground mine refuse eroding into the river;
- Restoration of the hydrology of the stream leading to Discharge Point 1 [see Fig. 1];
- Planting of longleaf pines, native shrubs, grasses, and legumes to provide permanent vegetative cover and to stabilize approximately 45 acres impacted by the undertaking;
- Protect that portion of the former town of Piper located on the Refuge, as well as features associated with the early – mid-20th century coal mining operations.

This undertaking will have "no adverse effect" upon any of the Refuge's or the County's historic properties, including Piper, a coal town established by the Little Cahaba Coal Company in 1901, and early-mid 20th century mining infrastructure, such as the "tipple" and Number 3 Mine Opening. A Phase 1 archaeological reconnaissance is not warranted, but monitoring during operations within or near the site of Piper and the tipple is recommended. These determinations are explained below in more detail. To facilitate your office's review and comment, I have enclosed the relevant sections of the West Blocton East, AL 7.5-minute quadrangle, the Blocton, AL 15-minute quadrangle (1934), the Brookwood, AL 30-minute quadrangle (1899); a section

from Squire's 1890 map of the Cahaba Coal Fields and the Blocton Basin; the 1939, 1950, and 1954 aerial photographs of the project area and Piper; and recent photographs.

Impact Assessment

The FWS and the ALMP seek to restore the ecological and hydrological function in the approximately 520-acre watershed located on the Cahaba National Wildlife Refuge through the multi-phase Piper Highwall Reclamation Project. Tasks include:

- Removal of existing timber and vegetation from the coal waste or spoil piles that run parallel to the strip mine highwall. The timber, primarily loblolly pine, was planted following cessation of the strip mining operations in the 1950s.
- The highwall, which ranges from an estimated height of 80 feet at or near Highway 24 to five or six feet at the southernmost terminus near the Cabaha River, will be backfilled to a 4:1 or flatter slope using the on-site trailing or spoil materials. A series of terraces, riprap-lined ditches, checkdams, silt fences, and staked bales will be used to slow the velocity of run-off and prevent sediment from entering the Cahaba River during and after the completion of this part of the undertaking. The first phase involves approximately 1,200 linear feet of highwall south of and adjacent to Highway 24; the second phase will run to the old Piper Number 3 mine opening; and the final phase will from the opening to the Cahaba River (Figs. 2 & 3).
- Following each phase, the disturbed areas will be limed, fertilized, seeded and mulched to establish a permanent cover of native grasses and legumes. Longleaf pine and native shrubs will be planted a year later to facilitate long-term stabilization.
- The Piper Number 3 mine opening will be permanently closed during the second phase of the highwall reclamation work. The opening will be lined with geo-textile fabric followed by large rock. Soil will be placed over the rock to facilitate establishment of a permanent vegetative cover (Fig. 6).
- The gob pile, which is associated with the Piper Mines' tipple, will be covered with on-site spoil and subsequently re-vegetated (Fig. 4 & 13).
- Above –ground architectural features associated with the town of Piper and the former mining operation, such as the concrete coal storage bin, will be avoided during the work (Fig. 5).

The Natural Resources Conservation Service mapped the soils on this portion of the Refuge as Sipsey-Nauvoo-Townley complex, 6-15% slopes (SnD); Sipsey-Nauvoo-Sunlight complex, 15-35% slopes (SsF); Gorgas-Rock outcrop complex, 35-60% slopes (GrG); and Palmerdale and Brillant soils, 6-45% slopes (PBF) [Fig. 7]. The National Wetlands Inventory (NWI) identified two wetland areas. The first wetland is near the tippler and gob pile site and labeled as one of settling ponds on Fig. 8. NWI labeled it as PFO6F [palustrine forested deciduous semipermanently flooded]/PUBHh [palustrine unconsolidated bottom partially flooded, diked/impounded]. The second wetland is located east of and adjacent to the highwall. NWI labeled it as PUBHx [palustrine unconsolidated bottom permanently flooded, excavated]. This area coincides with the abandoned and collapsed mine portal shown as Discharge Point "2" on Fig. 1. Currently, flow from the larger 520-acre watershed enters the mine portal during all but extreme storm events. During these events, water flows southwest along the base of the highwall

for approximately 800 feet before discharging into the Cahaba River. Closing of the mine portal will restore the hydrology of the stream leading to Discharge Point 1.

A review of the Regional Site Files, which are based upon those maintained by the Office of Archaeological Research at Moundville, did not reveal any recorded historic properties within or near the undertaking's "area of potential effect". The potential for intact precolumbian archaeological sites is quite low primarily due to substantial ground disturbance associated with the early – mid 20th century coal mining operations and slope. Archival and documentary research, however, revealed that the former town of Piper was located within and adjacent to the project area. North of the project area and Highway 24 is the former town of Coleanor (Fig. 1 & 14). The towns, though separated by a deep ravine, were connected by a Southern Railway trestle and swinging bridge.

Coal was mined around the Piper area prior to and during the Civil War; the earliest underground mining occurring around 1856. The Civil War-era mines used slave labor from Mississippi. Forges at Brierfield and nearby used this coal in the iron making process (Adams 2001: 2-3).

Joseph Squire described geology of the Cahaba Coal Field in a monograph published by the Geological Survey of Alabama in 1890. The project area is located within the Blocton Basin, which is 18 miles in length and 5 ¼ miles in width (Fig. 9). The basin is situated south and southwest of Bessemer, southeast of Woodstock and Vance's, north of Centreville, west of Aldrich and Montevallo, and southwest of Gurnee. The town of Blocton is located in the middle of the basin. It is drained by the Cahaba River and its tributaries. Very few railroads or "good wagon roads" exist. The principal railway was constructed by the Cahaba Coal Mining Company in 1890 along the valley edge of Caffey's Creek. The railway serviced its Blocton mines and connected with the Alabama Great Southern Railroad and the Birmingham Mineral Railroad near Woodstock. Another railway, the Brierfield, Blocton, and Birmingham Company's line, enters the basin from the east and runs from Montevallo to Gurnee and Blocton. These lines provided the coal companies access to the Alabama Great Southern Railroad, the Birmingham Mineral System, the Louisville and Nashville Company's main line, and the East Tennessee, Virginia, and Georgia mainline. The principal wagon roads mentioned by Squire included the Woodstock and Blocton Road, the Blocton and Pratt's Ferry Road, the Blocton and Centreville Road, the Blocton and Gurnee Road, the Woodstock and Centreville Road, the Tuscaloosa and Pratt's Ferry Road, the Boothtown and Greenpond Road, the Blocton and Shades Creek Church Road, and the Scottsville and River Bend Road (Squire 1890: 111-113).

Piper, one of the larger coal mining towns or communities in the Cahaba Coal Fields, was established by the Little Cahaba Coal Company in 1901. Coleanor was founded by the Blocton-Cahaba Coal Company in 1900 (Fig. 1 & 12). The Little Cahaba Coal Company opened two mines – Piper No. 1 and Piper No. 2 - in 1901 and 1903; a third mine was opened in 1947. The surface mine, which created the highwall and associated trailings, was mined by Davis, Terrell and Killiam under Permit Number C117, which expired November 30, 1976. 1914 marked the year of greatest employment in the Piper Mines with 432 miners and related workers. These "pick" mines exploited the Thompson Vein, described in 1910 as being between 4 ½ to 5 feet in thickness, and had a daily capacity of 1100 tons of coal (Tables 1 and 2). Jason Wilcox was listed as the Superintendent for both mines in 1911; William Hayes as the foreman of Piper No. 1

Table 1. Seam of Coal, Thickness, Number and Kinds of Openings, Employees, Mode of Ventilation, Etc.

Mine	Seam & Thickness	Openings	Presence of Explosive Gas	Miners	Inside Day Men	Outside Day Men	Total Length	Mode of Ventilation	Kind of Explosive Used
Piper No. 1	Thompson Seam [4-5 feet]	Slope – 1 opening	Yes	110	50	25	185	Fan	Black Powder
Piper No. 2	Thompson Seam [4-5 feet]	Slope – 1 opening	Yes	135	65	35	235	Fan	Black Powder
Coleanor	Thompson Seam [4-5 feet]	Slope – 1 opening	Yes	165	45	15	225	Fan	Black Powder

Source: Nesbitt 1911.

Table 2. Production Days Worked, Price Per Ton for Mining, Railroad Connections, Etc.

Mine	Company	Pick or Machine	Lump	Slack	Run of Mine	Total	Price/Ton	Number of Days Worked	Railroad Connections
Piper No. 1	Little Cahaba Coal Company, Piper	Pick	35,995	8,922	52,369	97,286	52 ½	276 ¾	Louisville & Nash, Southern Railway
Piper No. 2	Little Cahaba Coal Company, Piper	Pick	49,925	10,828	74,182	134,935	52 ½	266	L&N, Southern Railway
Coleanor	Blocton Cahaba Coal Company, Coleanor	Pick	31,397	10,539	42,922	84,858	52 ½	278	L&N, Southern Railway

Source: Nesbitt 1911.

and J.W. Nash as the foreman of Piper No. 2. All three individuals resided in Piper (Cahaba Trace Commission 2000; Alabama Department of Industrial Relations 2011: Nesbitt 1911).

The Thompson or Underwood Seam was one of several workable coal seams present in the Blocton Basin. Squire (1890: 114) described it as a "solid bench of five and a half feet of good quality well suited to coking, steam or domestic purposes". A section of the seam is shown in Fig. 10.

At least four mining accidents occurred in the three underground mines. On February 27, 1906, a gas explosion in Piper No. 2 killed 6 miners and injured 12. Among the dead were Peter Costello, Steve Memeth, Matt Elzt, John Stone, Louise Yanko, and Rich Smith (Negro). The second accident, which occurred in Piper No. 2 in May 1925, killed 6 miners. Their deaths were caused by an accumulation of "black damp" in an unused section of the mine. This section had been closed for two months following a fire in March. The miners – Fred Bashmen, John Wright, L.H. Horton, Steve Scott, Jeff Warren, and Eli Lucan – had entered the mine to ascertain whether the fire had been extinguished. A second party found their bodies approximately 700 yards from the entrance to the heading. Piper No. 1 was sealed in 1935 due to a fire (Cahaba Trace Commission 2000; Birmingham Public Library 2011).

A 1934-35 strike organized by the United Mine Workers Union brought substantial conflict to Piper, Coleanor, and several other mining towns. Both Piper and Coleanor were occupied by the Alabama National Guard during the strike (Cahaba Trace Commission). James W. Walker provides a detailed history of Piper in his 1993 "***The Struggle and the Joy: An American Coal Town, Piper, Alabama***". A copy of the Walker book has been requested for examination through the FWS's National Conservation Training Center Library's inter-library loan system. A more definitive history of the Piper and Coleanor area is being preparation for the Refuge's use.

The town of Piper no longer exists. Its only reminders, beyond the historic mining landscape, are a historical marker erected by the Cahaba Trace Commission and former residents of Piper and Coleanor in 2000 and several houses located northeast of the Refuge. The highwall and associated trailings runs parallel to the road leading to the coal tipple. A series of maps dating from 1899, 1934, and 1980, and the 1950 aerial photograph of the area show the rise and decline of the town between 1899 and 1980 (Figs11-17).

Archaeological investigations are not warranted or recommended, but monitoring is recommended for those phases of work at or near the sites of the town and the tipple. The proposed reclamation will have "no adverse effect" upon any of the Refuge's or the County's historic properties. The reclamation, once completed, will reduce the public safety threats, as well as substantially reduce or alleviate surface erosion that threatens the integrity of the archaeological sites and historic industrial landscape associated with the town of Piper. Re-establishment of longleaf pine, native grasses, and shrubs facilitates soil conservation. Covering the coal tipple's gob pile and back-filling of the entrance to Piper Mine No. 3 represents appropriate treatments that protect these features of the historic industrial site and landscape. Back-filling of the mine portal facilitates the re-establishment of the area's earlier hydrology, eliminates a potential source of contaminants, and eliminates a safety hazard.

The FWS would appreciate your timely review. Should you require additional information, please do not hesitate to contact me at (843) 784-6310 or at richard_kanaski@fws.gov.

Sincerely,

Richard S. Kanaski
Regional Historic Preservation Officer &
Regional Archaeologist
Southeast Region

cc: Clardy, Cahaba NWR

References Cited

Adams, Charles E.
2001 ***Blocton: The History of an Alabama Coal Mining Town***. Cahaba Trace Commission, Briefield, Alabama.

Alabama Department of Industrial Relations, Mining and Reclamation Division
2012 Piper II Abandoned Mine Lands Project, Bibb County, Alabama: Environment Assessment. AML Field Office, Birmingham.

Birmingham Public Library
2011 ***Alabama Mine Accidents: A Bibliography***. On-line database accessed July 10, 2012 at http://www.bplonline.org/locations/central/gov/old/Mine%20Accidents%20Bibliography.asp.

Cahaba National Wildlife Refuge
1954 Aerial Photograph of Piper and Coleanor, Alabama [with the Refuge boundaries shown].

2008 Piper II Highwall Reclamation Project Phase I, Cahaba River NWR.

Cahaba Trace Commission [with former residents of Piper and Coleanor]
2000 Historic Markers for Piper and Coleanor, Alabama.

Natural Resources Conservation Service
n.d. ***Web Soil Survey***. On-line database accessed July 5, 2012 at http://websoilsurvey.nrcs.usda.gov/app/.

Nesbitt, C.H.
1911 ***Coal Mine Statistics of State of Alabama Showing the Locations of Mines,***

Character, Production, Employees, Etc. Alabama Mineral Map Company, Birmingham.

Squire, Joseph

1890a ***Report on the Cahaba Coal Field.*** The Brown Printing Company, Montgomery, Alabama. Downloaded from http://books.google.com/ January 20, 2012.

1890b ***Map of the Cahaba Coal Field.*** Bien and Co., New York. On-line archival collection accessed July 10, 2012 at http://alabamamaps.ua.edu/historicalmaps/geology/index1900.html.

Stewart, John

2010 ***Birmingham Rails: Yesterday and Today.*** Electronic site accessed July 6, 2012 at http://www.bhamrails.info/.

University of Alabama, Cartographic Research Laboratory

1939 Aerial Photograph of Piper-Coleander, Bibb County. On-line collection accessed July 9, 2012 at http://alabamamaps.ua.edu/aerials/Counties/Bibb/index.html.

1954 Aerial Photograph of Piper-Coleander, Bibb County. On-line collection accessed July 9, 2012 at http://alabamamaps.ua.edu/aerials/Counties/Bibb/index.html

U.S. Fish and Wildlife Service

n.d. ***National Wetlands Inventory.*** On-line database accessed July 5, 2012 at http://www.fws.gov/wetlands/Data/Mapper.html.

U.S. Geographic Survey

1899 ***Brookwood, Alabama Quadrangle*** [30 minute series]. On-line collection accessed July 6, 2012 at http://alabamamaps.ua.edu/historicalmaps/topos/.

1934 ***Blocton, Alabama Quadrangle*** [15 minute series]. On-line collection accessed July 6, 2012 at http://alabamamaps.ua.edu/historicalmaps/topos/

1980 ***West Blocton East, Alabama Quadrangle*** [7.5 minute series]. On-line collection accessed July 6, 2012 at http://alabamamaps.ua.edu/historicalmaps/topos/

STATE OF ALABAMA
ALABAMA HISTORICAL COMMISSION
468 SOUTH PERRY STREET
MONTGOMERY, ALABAMA 36130-0900

FRANK W. WHITE
EXECUTIVE DIRECTOR

TEL: 334-242-3184
FAX: 334-240-3477

August 2, 2012

Richard S. Kanaski
U.S. Fish and Wildlife Service
Office of the Regional Archaeologist
Savannah coastal Refuges
694 Beech Hill Lane
Hardeeville, South Carolina 29927

Re: AHC 12-1289
Piper High Wall Reclamation Project
Cahaba National Wildlife Refuge
Bibb County, Alabama

Dear Mr. Kanaski:

Upon review of the information forwarded by your office, we agree that the proposed project should not affect any cultural resources listed on or eligible for the National Register of Historic Places (NRHP). We also agree that due to the potential significance of the Little Cahaba Coal Company "tipple" and No. 3 Mine opening, activities near these resources should be monitored to ensure their safety.

We appreciate your efforts on this project. Should you have any questions, please contact Greg Rhinehart at 334-230-2662.

Truly yours,

Elizabeth Ann Brown

Elizabeth Ann Brown
Deputy State Historic Preservation Officer

EAB/GCR/gcr

DEPARTMENT OF THE ARMY
MOBILE DISTRICT, CORPS OF ENGINEERS
BIRMINGHAM FIELD OFFICE
218 SUMMIT PARKWAY, SUITE 222
HOMEWOOD, ALABAMA 35209

REPLY TO
ATTENTION OF:

September 17, 2012

Inland Section North
Regulatory Division

SUBJECT: Nationwide Permit Authorization - Permit Number SAM-2011-01373-CTM, Department of Industrial Relations, Piper II Reclamation Project

Department of Industrial Relations
Abandoned Mine Lands
Attention: Mr. Michael Vinson
11 West Oxmoor Road, Suite 100
Birmingham, Alabama 35209

Dear Mr. Vinson:

This letter is in response to your application for a Department of the Army (DA) permit to impact 0.35 acres of wetlands in association with the reclamation of property that was left un-reclaimed during previous mining activities at the site. The project is located in Section 10, Township 24 North, Range 10 East (N 33.082678, W 87.058113) Bibb County, Alabama.

DA authorization is necessary because your project will involve the placement of fill material into jurisdictional waters of the United States, regulated under Section 404 of the Clean Water Act. The project will involve the placement of fill into 0.35 acre of wetlands at the project site in association with the reclamation of the site. Mitigation will not be required because of the nature of the project and the minimal amount of impacts associated with the project.

Based upon the information and plans you provided, we hereby verify that the work described above, which would be performed in accordance with the received drawings, is authorized by Nationwide Permit (NWP) 37 in accordance with 33 CFR Part 330 of our regulations. This NWP and its associated Regional and General Conditions can be viewed at our website www.sam.usace.army.mil/RD/reg. You must comply with all of the special and general conditions of this authorization or you may be subject to enforcement action. In the event you have not completed construction of your project within the specified time limit, a separate application or re-verification may be required.

Our verification of this NWP authorization is valid for 2 years from the date of this letter unless the NWP is modified, reissued, or revoked prior to that date. If the authorized work has not been completed by that date, please contact us to discuss the status of your authorization. Failure to comply with all terms and conditions of this NWP verification invalidates this authorization and could result in a violation of Section 404 of the Clean Water Act.

This letter of authorization does not obviate the necessity to obtain any other Federal, State, or local permits, which may be required. Further, please note General Condition 30 requires that you submit a signed certification to us once any work has commenced and when the work and required mitigation are completed. Please complete and submit the attached Notification of Commencement of Work when work has begun and the attached Compliance Certification form to this office within 60 days of completion of the authorized work.

A copy of this authorization is being provided to the Alabama Department of Environmental Management, Attention: Mr. Richard Hulcher, Field Operations Division, 1400 Coliseum Boulevard, Montgomery, Alabama 36110.

Please contact me at 205-290-9096 and refer to File Number SAM-2011-01373-CTM if you have any questions. For additional information about our Regulatory Program, visit our web site at www.sam.usace.army.mil/RD/reg, and please take a moment to complete our customer satisfaction survey while you are there. Your responses are appreciated and will allow us to improve our services.

Sincerely,

Courtney Shea
Project Manager
Regulatory Division
Birmingham Field Office

Enclosures

APPLICATION FOR THE
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
STORMWATER DISCHARGE PERMIT

STATE OF ALABAMA
DEPARTMENT OF INDUSTRIAL RELATIONS

Robert Bentley
Governor

G. Thomas Surtees
Director

May 20, 2011

Dale Mapp, Chief
Field Operations Division
Permits/Compliance Unit
Alabama Dept. of Environmental Management
P.O. Box 301463
Montgomery, Alabama 36130-1463

Dear Mr. Mapp:

The Piper II AML Reclamation Project is located in Bibb County, Alabama and will not have any reclamation work or construction activities performed in any part of the Cahaba River which lies to the southwest of the project limits.

Please advise me if any additional information is required or if you have any questions about the Piper II project.

Sincerely,

Michael H. Vinson, PCE II
Abandoned Mine Lands
Mining & Reclamation Division

/dk

MINING AND RECLAMATION DIVISION ABANDONED MINE LANDS
11 WEST OXMOOR ROAD SUITE 100 BIRMINGHAM, ALABAMA 35209
Telephone: (205) 945-8671 Fax: (205) 945-8685

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (ADEM)
FIELD OPERATIONS DIVISION NPDES STORMWATER PROGRAM

NOTICE OF REGISTRATION (NOR)

THIS FORM IS TO BE USED FOR ADEM ADMINISTRATIVE CODE CHAPTER 335-6-12- NPDES CONSTRUCTION, NONCOAL/NONMETALLIC MINING AND DRY PROCESSING LESS THAN FIVE ACRES, OTHER LAND DISTURBANCE ACTIVITIES, AND AREAS ASSOCIATED WITH THESE ACTIVITIES

PLEASE READ THE INSTRUCTIONS BEGINNING ON PAGE 3 OF THIS FORM CAREFULLY BEFORE COMPLETING. COMPLETE ALL QUESTIONS. RESPOND WITH "N/A" AS APPROPRIATE. INCOMPLETE OR INCORRECT ANSWERS, OR MISSING SIGNATURES WILL DELAY ACCEPTANCE OF REGISTRATION. IF SPACE IS INSUFFICIENT, CONTINUE ON AN ATTACHED SHEET(S) AS NECESSARY. ATTACH CBMPP AND OTHER INFORMATION AS NEEDED. PLEASE TYPE OR PRINT LEGIBLY IN INK.

I. REGISTRANT INFORMATION

Registration: ☒ Modification: ☐ Transfer: ☐ Reauthorization: ☐ ALR_____

REGISTRANT NAME	FACILITY/SITE NAME	# OF YEARS COVERAGE REQUESTED:
ADIR - AML RECLAMATION PROJECT	PIPER II	1

RESPONSIBLE OWNER / OPERATOR OR OFFICIAL AND TITLE	SITE CONTACT AND TITLE
Michael Skates, Director Mining & Reclamation Division, Department of Industrial Relations	John W. Braswell, Field Supervisor
MAILING ADDRESS OF REGISTRANT 649 Monroe Street	**SITE STREET ADDRESS OR LOCATION DESCRIPTION** South side of Hwy. 24, 0.73 miles from the Cahaba River Bridge
CITY Montgomery **STATE** Alabama **ZIP** 36131	**CITY** Piper **STATE** AL **ZIP**

BUSINESS PHONE NUMBER	SITE PHONE NUMBER	FAX NUMBER
(334) 242-8265	(205) 945-8671	(205) 945-8685

RESPONSIBLE OFFICIAL (RO) STREET/PHYSICAL ADDRESS	RO PHONE NUMBER	E-MAIL ADDRESS
649 Monroe Street, Montgomery, AL 36131	(334) 242-8265	michael.skates@dir.alabama.gov

(IF APPLICABLE) REGISTERED AGENT NAME, ADDRESS & PHONE NUMBER
N/A

II. LEGAL STRUCTURE OF APPLICANT

☐ Corporation ☐ Individual ☐ Single Proprietorship ☐ Partnership ☐ LLC ☐ LLP ☒ Government Agency ☐ Other _____

(Y) ☒ (N) ☐ If not an Individual or Single Proprietorship, applicant is properly registered and in good standing with the Alabama Secretary of State's office. If "No", please explain:_____

III. ACTIVITY DESCRIPTION & INFORMATION

County (s) Bibb **Township (s), Range(s), Section(s)** T. 24 N., R. 10 E., Secs. 2, 3 & 10

Directions to Site From downtown West Blocton, Alabama, take Co. Rd. 24 East, go past Cahaba River Bridge 0.73 miles to gravel road on right. Turn right and travel to U.S. Fish and Wildlife parking area. Site is 200 feet on left.

Yes	No	Is/will this facility:	Yes	No	Is/will this facility:
(a) ☐	☒	an existing site which currently discharges to State Waters?	(b) ☐	☒	discharge to waters of or be located in the Coastal Zone?
(c) ☒	☐	a proposed site which will result in a discharge to State Waters?	(d) ☐	☒	be located on any Indian/historically significant lands?

IV. PROPOSED SCHEDULE

Anticipated Activity Schedule: **Commencement Date:** 09/01/11 **Completion date:** 04/01/12

Area of the Permitted Site: **Total area in acres:** 35 **Disturbed area in acres:** 35

V. VIOLATION HISTORY

Identify every Notice of Violation (NOV), Administrative Order, Directive, or Litigation filed by ADEM or EPA during the three year (36 months) period preceding the date on which this form is signed issued to the operator, owner, registrant, partner, parent corporation, subsidiary or LLC Member. Indicate the date of issuance, briefly describe alleged violation, list actions (if any) to abate alleged violation, and indicate date of final resolution:
NONE

VI. MAP SUBMITTAL

☒ Yes ☐ No A 7.5 minute series USGS topographic map(s) or equivalent map (s) is attached according to the instructions beginning on Page 3.
If "No", explain:_____

VII. PROPOSED ACTIVITY(S) TO BE CONDUCTED

If Non-Coal, Non-Metallic Mining, Recovery, or Construction Material Management Site: ☐ Dirt-Chert ☐ Sand-Gravel ☐ Shale-Clay ☐ Crushed-Dimension Stone ☒ Other Reclamation of Disturbed Area ☒ Other Excavation ☒ Other Placement of fill

Primary SIC Code 1629 Brief Description Construction, Noncoal Mining, or Materials Management Activity:

This Abandoned Mine Project will eliminate a dangerous highwall by backfilling, grading, stabilizing, installing erosion control devices and revegetating mine spoil with grasses and planting of pine seedlings.

VIII. RECEIVING WATERS

List name of receiving water(s), latitude & longitude (decimal or deg., min., sec) of location(s) that run-off enters the receiving water, total number of disturbed acres, the total number of drainage acres which will drain through each treatment system of BMP, and the waterbody classification.
If receiving water is designated as ONRW and/or Tier 1 waterbody, attach/submit copy of CBMPP.

Receiving Water	Latitude	Longitude	Disturbed Acres	Drainage Acres	Waterbody Classification	ONRW Y or N	TIER 1 Y or N
Drainage will flow into a mine opening at the base of the dangerous highwall	33° 04' 57"	87° 03' 29"	35	520	N/A	N/A	N/A

IX. MODIFICATION & RE-REGISTRATION - CONTINUING EDUCATION & INSPECTION INFORMATION

☐ Yes ☒ No **Required inspections/monitoring by QCP/QCI have been performed and records retained. If "No", explain:**
Proposed Facility at the Piper II AML project.

List name(s) and designation/certification #s of QCPsQCIs that performed required inspections/monitoring:
AML Inspectors under the direction of Michael H. Vinson, PE License No. 12310

X. QUALIFIED CREDENTIALED PROFESSIONAL (QCP) CERTIFICATION

"I certify under penalty of law that a comprehensive Construction Best Management Practices Plan (CBMPP) Plan for the prevention and minimization of all sources of pollution in stormwater and authorized related process wastewater runoff has been prepared under my supervision for this site/activity and associated regulated areas/activities, utilizing effective BMPs from the Alabama Handbook for Erosion Control, Sediment Control, And Stormwater Management On Constructions Sites and Urban Areas, Alabama Soil and Water Conservation Committee, as amended (ASWCC). If the CBMPP is properly implemented and maintained by the registrant, discharges of pollutants in stormwater runoff can reasonable be expected to be effectively minimized to the maximum extent practicable according to the requirements of ADEM Administrative Code Chapter 335-6-12. The CBMPP describes the pollution abatement/prevention management and effective structural & nonstructural BMPs that must be fully implemented and regularly maintained as needed at the registered site in accordance with sound sediment and erosion practices to ensure the protection of water quality."

QCP Designation/Description: Professional Engineer

Address: 11 W. Oxmoor Road, Suite 100, Birmingham, AL 35209 **Registration/Certification:** PE License No. 12310

ne and Title (type or print): Michael H. Vinson / PCE II **Phone Number:** (205) 945-8671

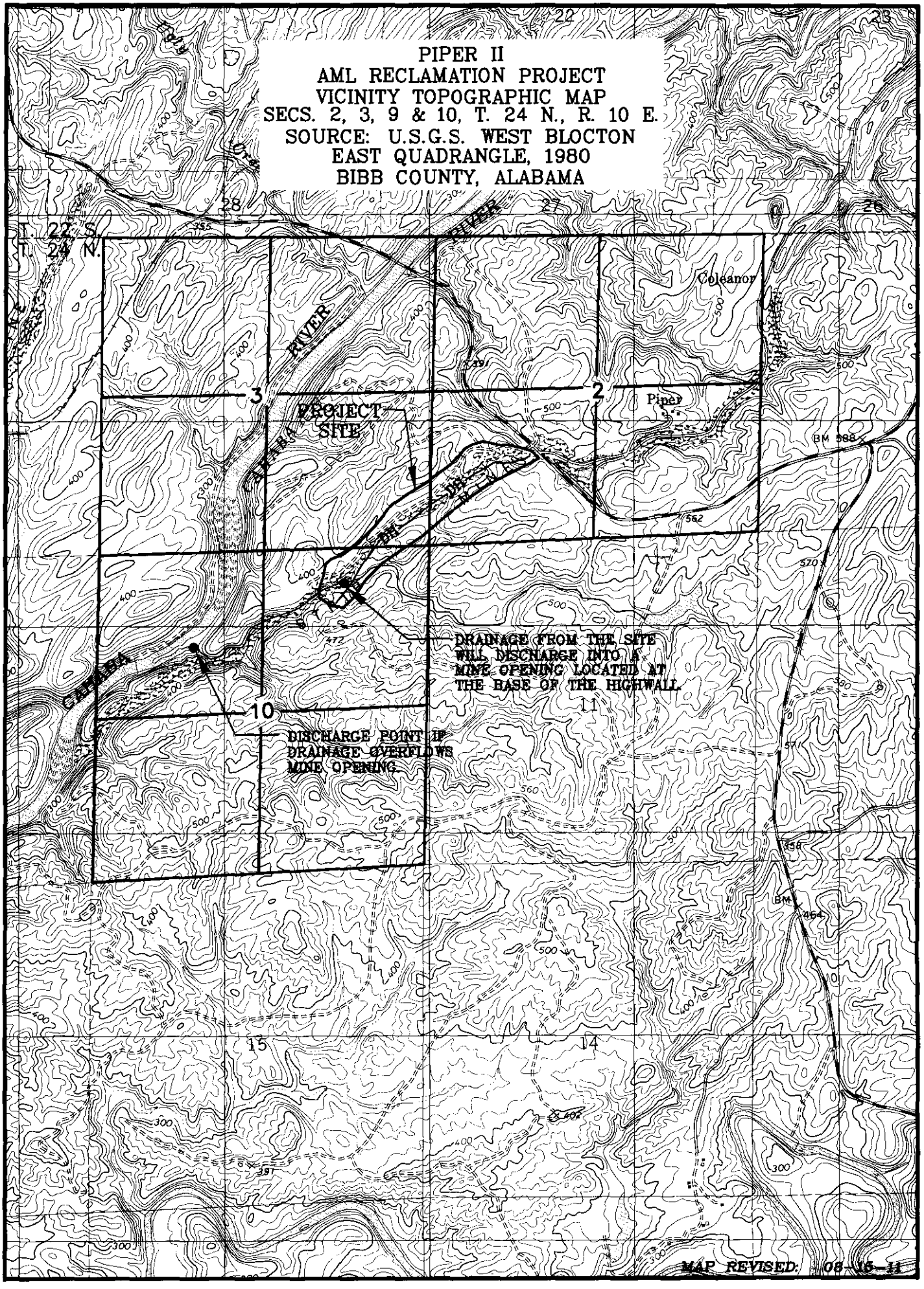
Signature: Michael H Vinson **Date Signed:** 05-20-11

XI. OPERATOR - RESPONSIBLE OFFICIAL SIGNATURE

Pursuant to ADEM Administrative Code Rule 335-6-6-09, t his NOR must be signed by a Responsible Official of the registrant who is the operator, owner, the sole proprietor of a sole proprietorship, a general/controlling member or partner, a ranking elected official or other duly authorized representative for a unit of government; or an executive officer of at least the level of vice-president for a corporation, having overall responsibility and decision making for the site/activity. "I certify under penalty of law that this form, the CBMPP, and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the qualified credentialed professional (QCP) and other person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted, is to the best of my knowledge and belief, true, accurate, correct, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine or imprisonment for knowing violations. I certify that this form has not been altered, and if copied or reproduced, is consistent in format and identical in content to the ADEM approved form. I further certify that the proposed discharges described in this registration have been evaluated for the presence of any non-construction and/or coal/mineral mining, stormwater, or process wastewaters have been fully identified."

Name and Title (type or print): Michael Skates **Official Title:** Director, Mining & Reclamation Division, DIR

Signature: _____ **Date Signed:** _____


PIPER II
AML RECLAMATION PROJECT
VICINITY TOPOGRAPHIC MAP
SECS. 2, 3, 9 & 10, T. 24 N., R. 10 E.
SOURCE: U.S.G.S. WEST BLOCTON
EAST QUADRANGLE, 1980
BIBB COUNTY, ALABAMA
T. 22 S.
T. 24 N.
PROJECT SITE
CAHABA RIVER
Coleanor
Piper
BM 588
DRAINAGE FROM THE SITE WILL DISCHARGE INTO A MINE OPENING LOCATED AT THE BASE OF THE HIGHWALL.
DISCHARGE POINT IF DRAINAGE OVERFLOWS MINE OPENING.
MAP REVISED: 08-15-11

DRAWING SECTION

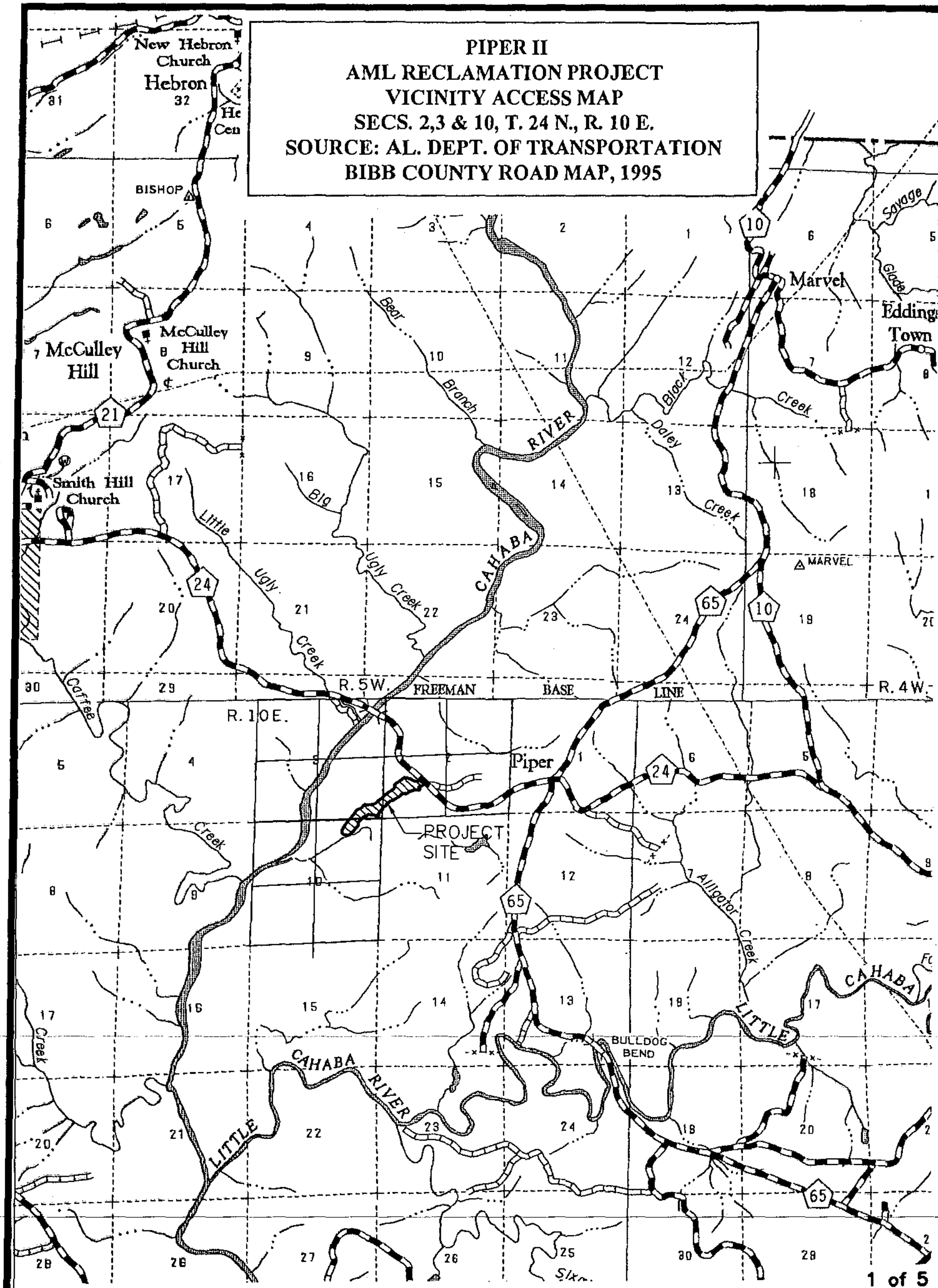
Drawing prepared
And Approved by: _____

Michael H. Vinson, P.E.
License No. 12310

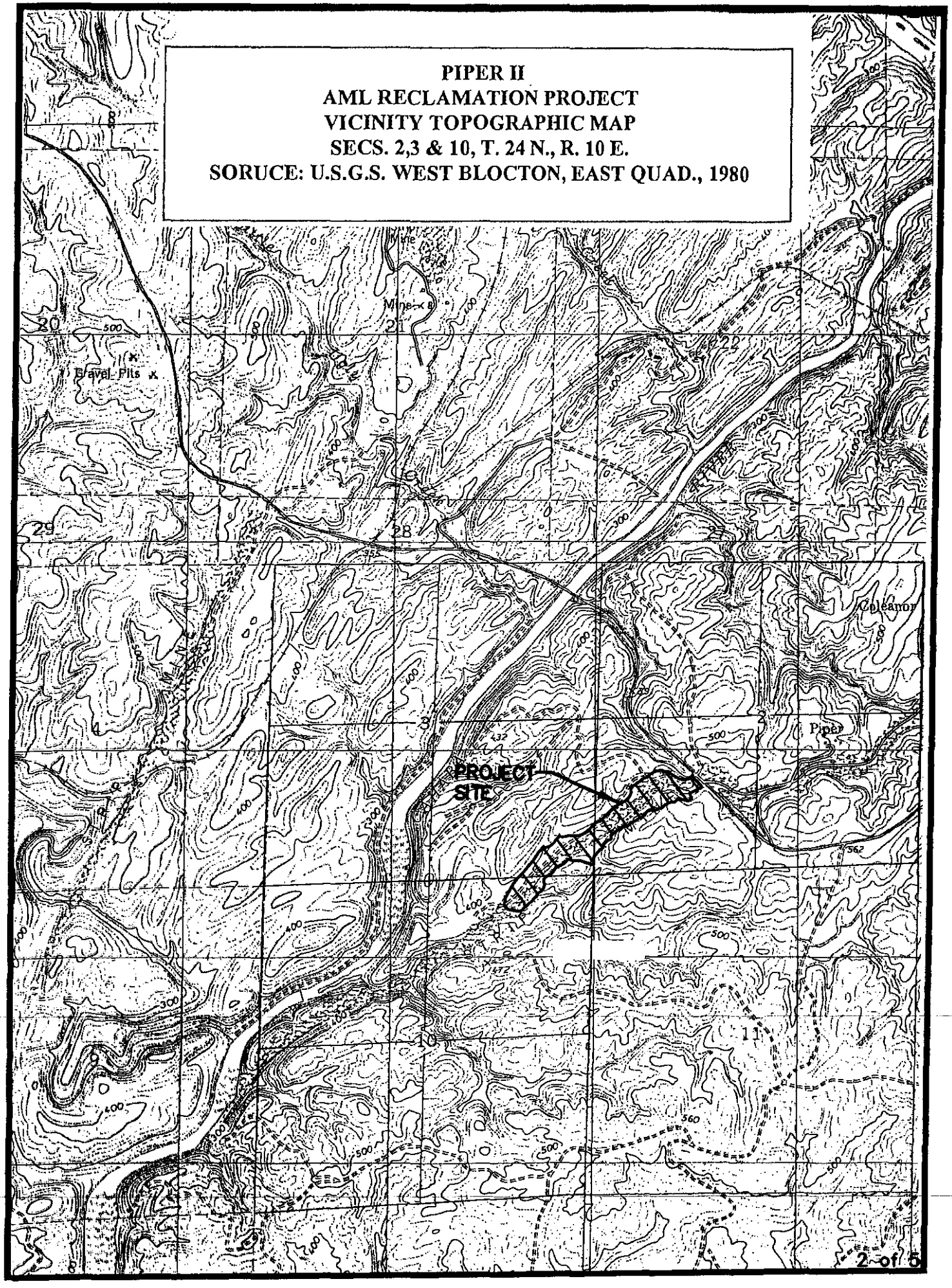
DRAWING SECTION

INDEX

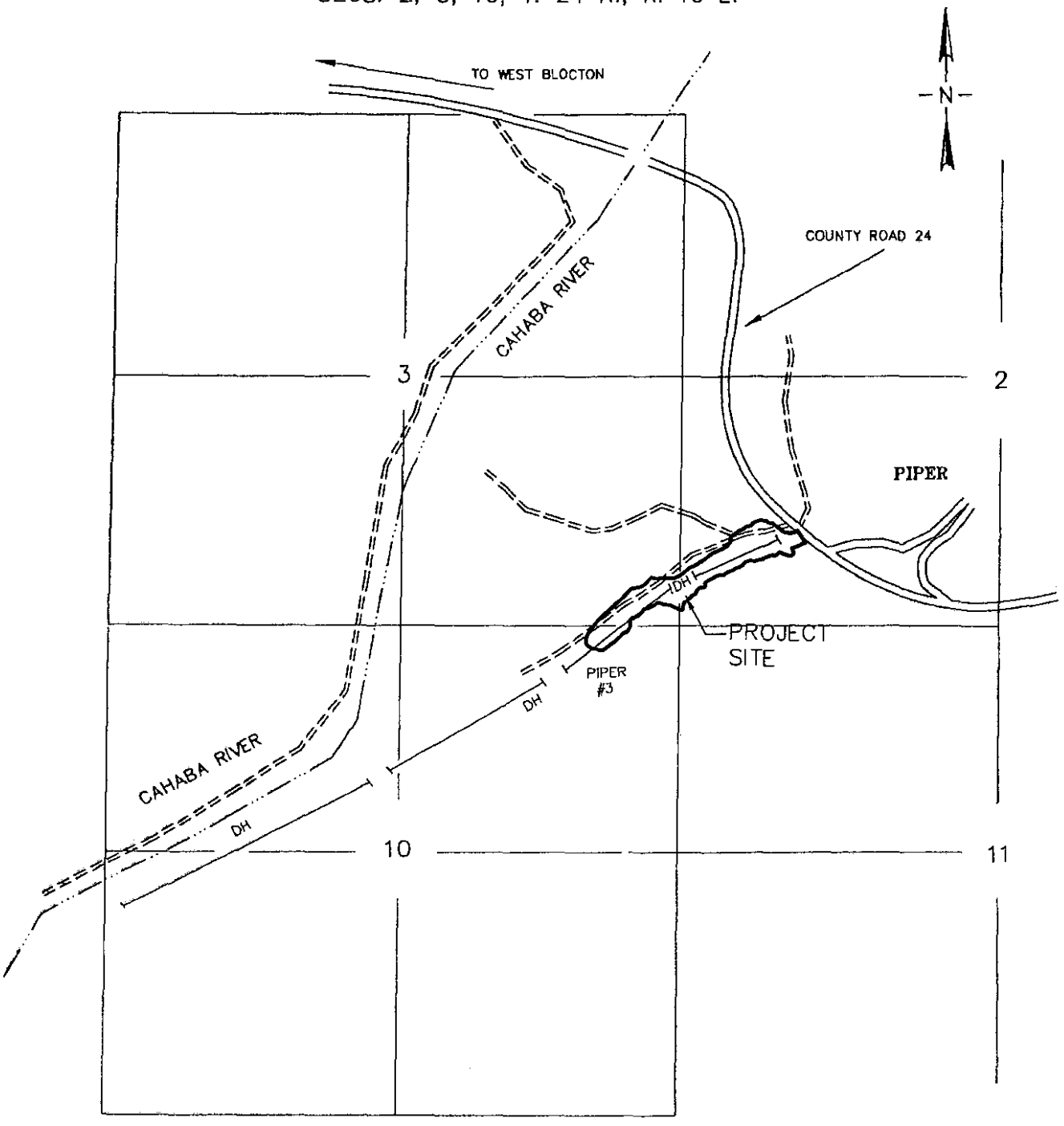
PIPER II
AML RECLAMATION PROJECT
VICINITY ACCESS MAP
SECS. 2,3 & 10, T. 24 N., R. 10 E.
SOURCE: AL. DEPT. OF TRANSPORTATION
BIBB COUNTY ROAD MAP, 1995



PIPER II
AML RECLAMATION PROJECT
VICINITY TOPOGRAPHIC MAP
SECS. 2,3 & 10, T. 24 N., R. 10 E.
SORUCE: U.S.G.S. WEST BLOCTON, EAST QUAD., 1980



BIBB COUNTY
SECS. 2, 3, 10, T. 24 N., R. 10 E.



LEGEND

DANG. HIGHWALL —— DH ——
PAVED ROAD ————————
UNPAVED ROAD = = = = = =
PORTAL Y

ALABAMA DEPARTMENT OF
ABANDONED MINE LAND RECLAMATION

SCALE: N.T.S.	REVISED:	DRAWN BY: C.E.W.
DATE: 02-26-13		DESIGN BY:

PROJECT SITE MAP

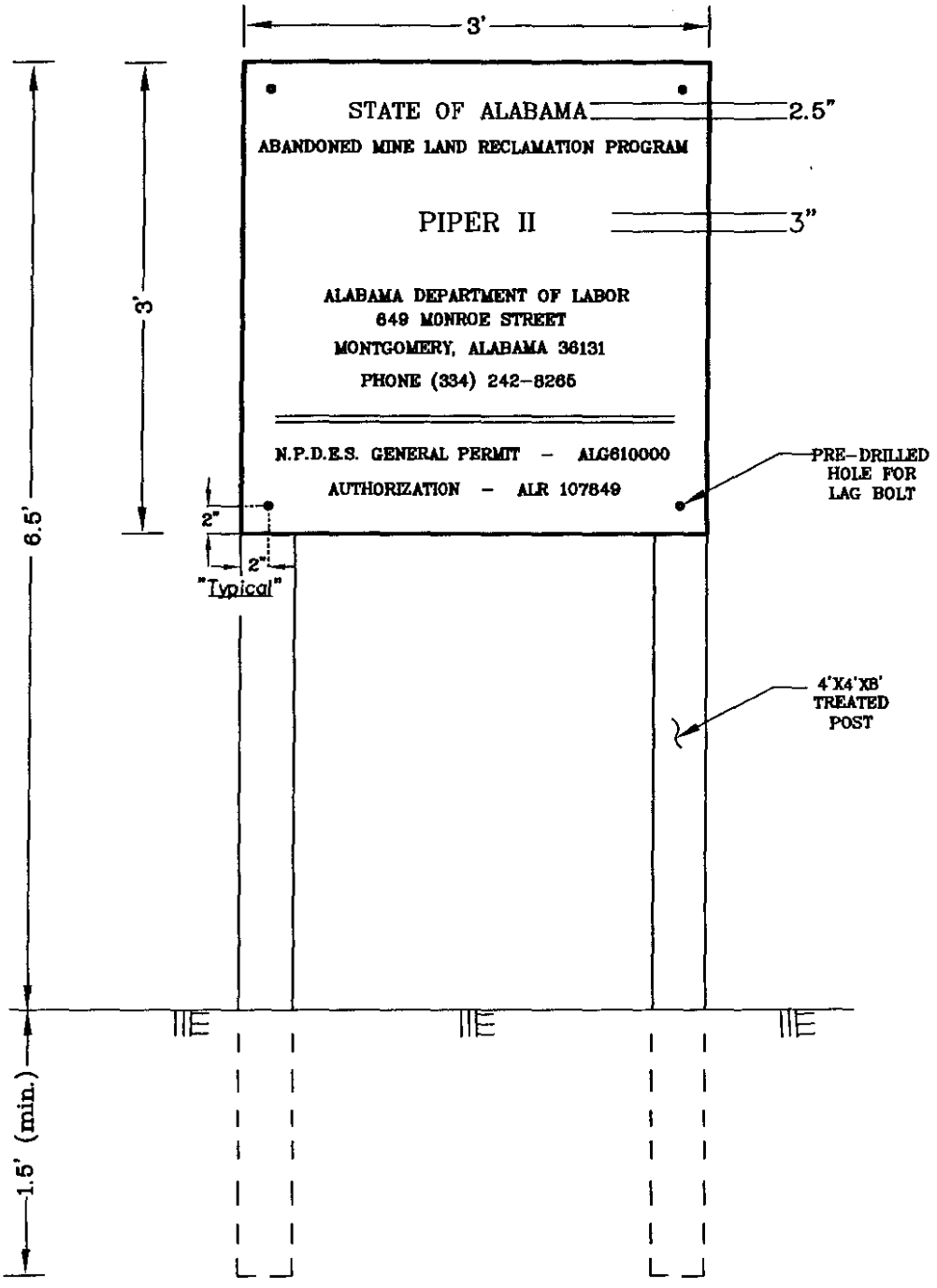
PIPER II AML PROJECT

SHEET NO. 3 of 5

WARNING

UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN 6 FEET OF OVERHEAD HIGH VOLTAGE LINES

ALABAMA DEPARTMENT OF LABOR ABANDONED MINE LAND RECLAMATION PROGRAM			
SCALE: N.T.S.	REVISED:	DRAWN BY:	CYW
DATE: 02-28-13		DESIGN BY:	MHV
WARNING LABEL			
PIPER II		SHEET NO.	4 of 5



A.D.E.M. STORMWATER PERMIT IDENTIFICATION SIGN

(N.T.S.)

NOTES:

1) SIGN SHALL BE INSTALLED AT A LOCATION DESIGNATED BY THE PROJECT MONITOR.

2) SIGN SHALL BE SECURELY MOUNTED ON 4"x 4" x 8' TREATED POSTS SET A MINIMUM OF EIGHTEEN (18) INCHES IN THE GROUND, AND ATTACHED TO POSTS WITH 3/8" LAG BOLTS.

3) SIGN MATERIAL SHALL BE 3' x 3' x 3mm WHITE PLASTIC (PVC) WITH FOUR (4) HOLES REINFORCED BY BRASS GROMMETS, LOCATED 2" FROM EACH EDGE AS SHOWN.

4) LETTERING SHALL BE BLACK BLOCK IN ALL CAPS, TWO (2) INCHES IN HEIGHT EXCEPT AS SHOWN ABOVE, WITH UNIFORM SPACING AS APPROPRIATE.

5) AML CONSTRUCTION BRANCH SHALL NOTIFY CONTRACTOR OF THE ALR NUMBER TO USE ON SIGN.

6) REINFORCE SIGN WITH 1/2" THICK TREATED PLYWOOD.

ALABAMA DEPARTMENT OF LABOR ABANDONED MINE LAND RECLAMATION PROGRAM			
SCALE: N.T.S.	REVISED:	DRAWN BY: M.H.V.	
DATE: 02-28-13		DESIGN BY: M.H.V.	
A.D.E.M. STORMWATER PERMIT SIGN			
PIPER II		SHEET NO. 5 of 5	

Appendix D

Selected USGS and GSA Surface and Groundwater Quantity Monitoring Sites in the Region of Hydrologic Influence (RHI) for Cahaba River NWR, AL.

Source: [USGS] U.S. Geological Survey. 2013. U.S. Geological Survey. National Water Information System. Accessed 2013. Available from: http://waterdata.usgs.gov/nwis.

Site Number	Site Name	Agency	Latitude	Longitude	Water Quantity Monitoring Begin	Water Quantity Monitoring End	Site Type
3325100864330	INVERNESS WASTERWATER TREATMENT PLANT NR HOOVER,AL	USGS	33.419552	-86.724987	--	--	Outfall
2423172	Big Black Creek Trib (S-18) near Margaret, AL.	USGS	33.661213	-86.506651	--	--	Stream
2423820	ALLIGATOR CREEK NEAR MONTEVALLO, AL	USGS	33.064009	-87.002493	4/12/1990	8/30/1991	Stream
242317050	Big Black Creek Trib (S-2) near Margaret, AL.	USGS	33.677879	-86.496373	--	--	Stream
2423181	Middle Black Creek (S-13) near Acmar, AL.	USGS	33.628436	-86.510262	--	--	Stream
242318640	Trib to Big Black Creek Trib (S-12) near Acmar, AL	USGS	33.610103	-86.510818	--	--	Stream
2423418	CAHABA RIVER EAST OF ACTON	USGS	33.423163	-86.71971	--	--	Stream
2423523	CAHABA RIVER NEAR PELHAM	USGS	33.341778	-86.833878	--	--	Stream
332934086353801	BIRMINGHAM WATER WORKS BOARD WELL NEAR LEEDS, ALA.	USGS	33.492772	-86.593735	10/10/2010	present	Well
333639086310700	ACMAR LANDFILL WELL	USGS	33.610936	-86.518596	--	--	Well
2423800	LITTLE CAHABA RIVER NEAR BRIERFIELD AL	USGS	33.057621	-86.952769	2/6/1958	3/20/1970	Stream
2423555	CAHABA RIVER NEAR HELENA AL	USGS	33.284558	-86.88249	2/22/1961	3/10/2011	Stream
2423630	SHADES CREEK NEAR GREENWOOD AL	USGS	33.326223	-86.949714	2/12/1965	9/6/2011	Stream
2423130	CAHABA RIVER AT TRUSSVILLE, AL.	USGS	33.622325	-86.599431	3/4/1989	9/5/2011	Stream
2423190	Big Black Creek (C-8) near Leeds, AL.	USGS	33.595937	-86.531651	6/28/1999	4/4/2000	Stream
2423398	LITTLE CAHABA RIVER NEAR LEEDS AL	USGS	33.524271	-86.57554	2/10/1981	11/15/2007	Stream
2423390	CAHABA RIVER AT BWWB PUMP STATION NR BIRMINGHAM,	USGS	33.451496	-86.716099	2/1/1985	2/20/1991	Stream
2423425	CAHABA RIVER NEAR CAHABA HEIGHTS AL	USGS	33.415664	-86.73971	3/16/1976	3/9/2011	Stream
2423647	CAHABA RIVER NEAR WEST BLOCTON AL	USGS	33.098175	-87.054716	3/16/1976	12/4/1983	Stream
2423620	LITTLE SHADES C AT STATE HWY 150 NR BESSEMER AL	USGS	33.380666	-86.929158	7/11/1980	5/7/2001	Stream
2423500	CAHABA RIVER NEAR ACTON AL	USGS	33.363444	-86.813045	2/28/1939	3/10/2011	Stream
2423380	CAHABA RIVER NEAR MOUNTAIN BROOK AL	USGS	33.481772	-86.712765	4/13/1979	3/9/2011	Stream
2423400	LITTLE CAHABA RIVER NR JEFFERSON PARK, AL.	USGS	33.499827	-86.614152	1/19/1987	9/23/2011	Stream
242340550	COX CREEK NEAR CAHABA HEIGHTS,AL	USGS	33.44844	-86.64443	1/18/1987	2/19/1991	Stream
2423496	CAHABA RIVER NEAR HOOVER, AL	USGS	33.369277	-86.784155	3/5/1989	3/10/2011	Stream
2423397	LITTLE CAHABA RIVER BELOW LEEDS, AL.	USGS	33.534549	-86.562485	1/26/1996	9/23/2011	Stream
2423165	Big Black Creek (S-5) at Simmons Mt Rd nr Margaret	USGS	33.725378	-86.461928	8/27/1997	8/27/1997	Stream
2423166	Big Black Creek Trib (S-6) at near Margaret, AL.	USGS	33.720101	-86.450817	8/27/1997	8/27/1997	Stream
2423167	Big Black Creek (S-4) near Margaret, AL.	USGS	33.708434	-86.472762	8/27/1997	8/27/1997	Stream
2423168	Big Black Creek Trib (S-3) near Margaret, AL.	USGS	33.705656	-86.494707	8/27/1997	8/27/1997	Stream
2423171	Big Black Creek Trib (S-1) near Margaret, AL.	USGS	33.672879	-86.498318	8/27/1997	8/27/1997	Stream
242317225	Trib to Big Black Creek Trib (S-18a) nr Margaret	USGS	33.660657	-86.506651	8/27/1997	8/27/1997	Stream
2423173	Big Black Creek Trib (S-17) near Margaret, AL.	USGS	33.646213	-86.511929	8/27/1997	8/27/1997	Stream
2423174	Big Black Creek Trib (S-16) near Acmar, AL.	USGS	33.636213	-86.518596	8/27/1997	8/27/1997	Stream

Site Number	Site Name	Agency	Latitude	Longitude	Water Quantity Monitoring Begin	Water Quantity Monitoring End	Site Type
2423175	Big Black Creek Trib (S-15) near Acmar, AL.	USGS	33.630658	-86.524429	8/27/1997	8/27/1997	Stream
2423176	Trib to Big Black Creek Trib (S-14) near Acmar, AL	USGS	33.628436	-86.52554	8/27/1997	8/27/1997	Stream
2423179	Middle Black Creek (S-7) near Low Gap, AL.	USGS	33.703434	-86.427483	8/27/1997	8/27/1997	Stream
242317940	Middle Black Creek (S-21) above Margaret, AL.	USGS	33.690379	-86.470262	8/27/1997	8/27/1997	Stream
242317950	Middle Black Creek (S-19) at Margaret, AL.	USGS	33.686212	-86.473317	8/27/1997	8/27/1997	Stream
242318350	Little Black Creek Trib (S-8) at Copper Springs, A	USGS	33.677879	-86.442761	8/27/1997	8/27/1997	Stream
242318425	Little Black Creek Trib (S-20) near Sanie, AL.	USGS	33.65788	-86.463317	8/27/1997	8/27/1997	Stream
242318450	Little Black Creek Trib (S-9) near Sanie, AL.	USGS	33.65288	-86.457205	8/27/1997	8/27/1997	Stream
242318475	Little Black Creek Trib (S-10) near Sanie, AL.	USGS	33.658713	-86.476373	8/27/1997	8/27/1997	Stream
242318675	Big Black Creek Trib (S-11) near Acmar, AL.	USGS	33.610381	-86.511095	8/27/1997	8/27/1997	Stream
2423200	Big Black Creek (C-11) at mouth near Leeds, AL.	USGS	33.588714	-86.549707	8/28/1997	8/28/1997	Stream
2423550	BUCK CREEK AT HELENA AL	USGS	33.297057	-86.843045	9/19/1991	9/2/2010	Stream
2423515	PATTON CREEK NR BLUFF PARK BL PATTON CHAPEL, ALA	USGS	33.388998	-86.827212	6/21/1956	8/30/2010	Stream
242354750	CAHABA VALLEY CREEK AT CROSS CR RD AT PELHAM, AL.	USGS	33.313445	-86.806378	1/31/1999	3/9/2011	Stream
2423581	SHADES CREEK AT SAMFORD UNIV AT HOMEWOOD, AL.	USGS	33.461218	-86.793323	8/19/1998	5/9/2001	Stream
242354650	CABAHA VALLEY CR AT INDIAN TRAIL RD NR INDIAN SPRS	USGS	33.344833	-86.759432	--	--	Stream
2423729	DRY CREEK AT SPRING CR RD NR MONTEVALLO, AL	USGS	33.104841	-86.838044	5/16/2000	5/8/2001	Stream
242372950	SPRING CREEK AT CO RD 16 NR MOORES CROSSROADS, AL.	USGS	33.128451	-86.809155	5/16/2000	5/8/2001	Stream
2423590	UNNAMED TRIB TO SHADES CR AT FEDEX NR OXMOOR, AL	USGS	33.443719	-86.839435	5/17/2000	5/9/2001	Stream
2423536	BUCK CREEK AT BUCK CREEK RD AT ALABASTER, AL.	USGS	33.238448	-86.824711	5/17/2000	5/9/2001	Stream
2423576	SHADES CREEK AT LAKESHORE DR NR MOUNTAIN BROOK, AL	USGS	33.480661	-86.759433	5/18/2000	5/9/2001	Stream
2423586	SHADES CREEK NR HOMEWOOD, ALA	USGS	33.448719	-86.813601	4/3/2001	10/17/2007	Stream
2423414	LITTLE CAHABA RIVER AT CAH BEA RD NR CAHABA HTS AL	USGS	33.439829	-86.698876	8/6/2004	3/9/2011	Stream
2423573	SHADES CREEK NEAR MOUNTAIN BROOK AL	USGS	33.500938	-86.73471	11/15/1948	11/15/1948	Stream
2423465	LITTLE SHADES CR AT PATTON CHAP RD NR ROCKY RIDGE	USGS	33.410386	-86.780822	--	--	Stream
JEFF-1	Along Lakeshore Drive in Birmingham, just northeast of the intersection of Lakeshore Parkway and County Road 42	GSA	33.435667	-86.875248	1975	present	Well
C-1	Bibb County	GSA	33.168889	-87.153333	1985	present	Well
L-4	Bibb County	GSA	33.038056	-87.263056	1967	present	Well
O-5	Bibb County	GSA	32.939444	-87.131944	1983	present	Well
T-6	Bibb County	GSA	32.854722	-86.963889	1967	present	Well
W-3	Bibb County	GSA	32.898333	-87.251111	1983	present	Well
L-5	Jefferson County	GSA	33.632778	-86.595	1968	present	Well

Appendix E

Selected USGS and ADEM Surface Water Quality Monitoring Sites in the Region of Hydrologic Influence (RHI) for Cahaba River NWR, AL.

Source: [USGS] U.S. Geological Survey. 2013. U.S. Geological Survey. National Water Information System. Accessed 2013. Available from: http://waterdata.usgs.gov/nwis.

The USGS uses parameter groups to organize groupings of measured constituents, which are identified by parameter codes. In this appendix the parameter groups are shown for each site with water quality monitoring samples in the RHI. The following is a table of the parameter groups for these sites, along with example constituents. For more information see http://help.waterdata.usgs.gov/codes-and-parameters/parameters.

Parameter Group	Example Constituents
Inorganics, Minor, Metals	Metals not considered "Major" (see below)
Inorganics, Minor, Non-Metals	Cyanide, Arsenic, Selenium, Antimony, etc.
Information	Location, Altitude, Temperature, etc.
Inorganics, Major, Metals	Calcium, Magnesium, Sodium, Potassium
Inorganics, Major, Non-Metals	Hydrogen, Oxygen, CO2, Alkalinity, Acidity, etc.
Microbiological	Total coliform, Fecal coliform, E.coli, etc.
Nutrients	Nitrogen and Phosphorus (various forms)
Physical	Stream velocity, turbidity, hardness, etc.
Biological	Biomass, Chlorophyll-a, Productivity, etc.
Organics, Other	Organics other than pesticides and PCBs
Organics, Pesticide	Atrazine, DDT, Dieldrin, Endosulfan, etc.
Sediment	Bed sediment, suspended sediment, etc.
Organics, PCBs	PCB congeners, Aroclor, etc.
RAD Sediment	Radiochemical parameters

Begin and end sampling dates vary for each individual parameter; the range shown in this appendix covers all water quality parameters sampled at the site.

Map ID	Site Number	Site Name	Agency	Latitude	Longitude	Count	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	02423406	LAKE PURDY AT HWY 119 NR CAHABA HEIGHTS, AL	USGS	33.448163	-86.655542	67	8/7/1986	1/23/1991	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Physical;
	02423405	LAKE PURDY AT IRONDALE BRIDGE NR LEEDS, AL	USGS	33.480661	-86.628875	128	8/8/1986	8/11/1999	Biological; Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Physical;
	332652086392100	LAKE PURDY,CS HWY 119 NR CAHABA HEIGHTS,LEFT 1/4	USGS	33.447885	-86.655819	8	11/17/1986	5/28/1987	Information; Inorganics, Major, Non-Metals; Physical
	332653086391900	LAKE PURDY,CS HWY119 NEAR CAHABA HEIGHTS, RIGHT1/4	USGS	33.448163	-86.655264	5	11/17/1986	5/28/1987	Information; Inorganics, Major, Non-Metals; Physical
	332653086392000	LAKE PURDY,CS HWY 119 NEAR CAHABA HEIGHTS,MIDSTRM	USGS	33.448163	-86.655542	13	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332709086392600	LAKE PURDY,CS E NEAR CAHABA HEIGHTS,LEFT 1/4	USGS	33.452607	-86.657208	31	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332710086392700	LAKE PURDY,CS E NEAR CAHABA HEIGHTS,MIDSTREAM	USGS	33.452885	-86.657486	49	11/17/1986	2/25/1988	Information; Inorganics, Major, Non-Metals; Physical
	332710086392800	LAKE PURDY,CS E NEAR CAHABA HEIGHTS,RIGHT 1/4	USGS	33.452885	-86.657764	38	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332800086383700	LAKE PURDY,CS B NEAR CAHABA HEIGHTS,RIGHT 1/4	USGS	33.466773	-86.643597	33	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332800086384300	LAKE PURDY,CS B NEAR CAHABA HEIGHTS, MIDSTREAM	USGS	33.466773	-86.645264	33	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332800086385100	LAKE PURDY,CS B NEAR CAHABA HEIGHTS,LEFT 1/4	USGS	33.466773	-86.647486	30	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332800086391000	LAKE PURDY,CS A NEAR CAHABA HEIGHTS,LEFT 1/4	USGS	33.466773	-86.652764	49	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332800086391700	LAKE PURDY,CS A NEAR CAHABA HEIGHTS, MIDSTREAM	USGS	33.466773	-86.654708	49	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332800086392500	LAKE PURDY,CS A NEAR CAHABA HEIGHTS, RIGHT 1/4	USGS	33.466773	-86.656931	54	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332849086374200	LAKE PURDY,CS @ IRONDALE BRIDGE NEAR LEEDS,LEFT1/4	USGS	33.480384	-86.628319	19	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332851086374400	LAKE PURDY,CS @ IRONDALE BRIDGE NEAR LEEDS,MIDSTRM	USGS	33.480939	-86.628875	22	11/17/1986	2/25/1988	Information; Inorganics, Major, Non-Metals; Physical
	332852086374500	LAKE PURDY,CS @ IRONDALE BRIDGE NEAR LEEDS,RT 1/4	USGS	33.481217	-86.629152	20	11/17/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical

Map ID	Site Number	Site Name	Agency	Latitude	Longitude	Count	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	332722086395000	LAKE PURDY,CS D NEAR CAHABA HEIGHTS,RIGHT 1/4	USGS	33.456218	-86.663875	40	11/18/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332722086395700	LAKE PURDY,CS D NEAR CAHABA HEIGHTS, MIDSTREAM	USGS	33.456218	-86.66582	60	11/18/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332722086400300	LAKE PURDY,CS D NEAR CAHABA HEIGHTS,LEFT 1/4	USGS	33.456218	-86.667486	55	11/18/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332733086390700	LAKE PURDY,CS C NEAR CAHABA HEIGHTS, RIGHT 1/4	USGS	33.459273	-86.651931	20	11/18/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332733086391200	LAKE PURDY,CS C NEAR CAHABA HEIGHTS, MIDSTREAM	USGS	33.459273	-86.653319	20	11/18/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332733086391800	LAKE PURDY,CS C NEAR CAHABA HEIGHTS, LEFT 1/4	USGS	33.459273	-86.654986	21	11/18/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332734086400400	LAKE PURDY,CS 9 (@DAM) NEAR CAHABA HEIGHTS,LEFT1/4	USGS	33.459551	-86.667764	66	11/18/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332734086400500	LAKE PURDY,CS 9 (@ DAM) NEAR CAHABA HEIGHTS,MDSTRM	USGS	33.459551	-86.668042	67	11/18/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	332735086400600	LAKE PURDY,CS 9 (@ DAM) NEAR CAHABA HEIGHTS,RT 1/4	USGS	33.459829	-86.66832	45	11/18/1986	9/29/1988	Information; Inorganics, Major, Non-Metals; Physical
	0242340750	LAKE PURDY X-SECTION E NR CAHABA HEIGHTS	USGS	33.452885	-86.657486	63	5/24/1989	3/7/1990	Information; Inorganics, Major, Non-Metals; Physical
	0242340604	LAKE PURDY X-SECTION C NR CAHABA HEIGHTS	USGS	33.459273	-86.653319	38	5/24/1989	3/7/1990	Information; Inorganics, Major, Non-Metals; Physical
	0242340606	LAKE PURDY X-SECTION B NR CAHABA HEIGHTS	USGS	33.466773	-86.645264	42	5/24/1989	8/2/1989	Information; Inorganics, Major, Non-Metals; Physical
	0242340710	LAKE PURDY X-SECTION A NR CAHABA HEIGHTS	USGS	33.466773	-86.654708	97	5/24/1989	3/7/1990	Information; Inorganics, Major, Non-Metals; Physical
	02423408	LAKE PURDY X-SECTION D NR CAHABA HEIGHTS	USGS	33.456218	-86.667486	77	5/24/1989	3/7/1990	Information; Inorganics, Major, Non-Metals; Physical
4	330554087034301	LITTLE UGLY CR PIT (CAHABA R NWR) NR W BLOCTON, AL	USGS	33.098556	-87.061944	1	4/29/2009	4/29/2009	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Physical;
9	330457087034401	COAL PILE POND (CAHABA R NWR) NR W BLOCTON, AL	USGS	33.082694	-87.062222	1	4/30/2009	4/30/2009	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Physical;

Map ID	Site Number	Site Name	Agency	Latitude	Longitude	Count	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
3	330552087035001	JIM'S POND (CAHABA R NWR) NR W BLOCTON, AL	USGS	33.097806	-87.063944	1	4/30/2009	4/30/2009	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Physical;
8	330508087035401	RIVER ROAD POOL (CAHABA R NWR) NR W BLOCTON, AL	USGS	33.085778	-87.065083	1	5/1/2009	5/1/2009	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Physical;
	331200087103201	C 2-USGS 331200087103201	USGS	33.194562	-87.179719	1	12/20/1967	12/20/1967	Inorganics, Major, Non-Metals; Physical;
	333322086313101	LEEDS SPRING NEAR LEEDS AL Z 7	USGS	33.556215	-86.525262	1	3/23/1976	3/23/1976	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Physical;
	02423800	LITTLE CAHABA RIVER NEAR BRIERFIELD AL	USGS	33.057621	-86.952769	80	10/31/1962	6/15/1970	Inorganics, Major, Non-Metals; Physical;
	02423555	CAHABA RIVER NEAR HELENA AL	USGS	33.284558	-86.88249	88	6/24/1964	8/25/2005	Inorganics, Minor, Metals; Information; Inorganics, Major, Non-Metals; Nutrients; Physical;
	02423630	SHADES CREEK NEAR GREENWOOD AL	USGS	33.326223	-86.949714	255	9/3/1964	8/25/2005	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	02423130	CAHABA RIVER AT TRUSSVILLE, AL.	USGS	33.622325	-86.599431	85	2/20/1967	8/9/2005	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	02423580	SHADES CREEK NEAR HOMEWOOD AL	USGS	33.465662	-86.781656	9	2/20/1967	7/18/1980	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Physical; Sediment
	02423625	SHADES CREEK AT HOPEWELL AL	USGS	33.354834	-86.936659	3	2/20/1967	10/24/1967	Inorganics, Major, Non-Metals; Physical;

Map ID	Site Number	Site Name	Agency	Latitude	Longitude	Count	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	02423415	CAHABA RIVER NEAR HOMEWOOD, AL.	USGS	33.430663	-86.713321	2	3/28/1967	9/11/1968	Inorganics, Major, Non-Metals; Physical;
	02423730	SHOAL CREEK AT MONTEVALLO AL	USGS	33.094564	-86.862489	2	3/28/1967	9/10/1968	Inorganics, Major, Non-Metals; Physical;
	02423190	Big Black Creek (C-8) near Leeds, AL.	USGS	33.595937	-86.531651	10	3/29/1967	8/30/1999	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	02423623	UNNAMED TRIB TO LITTLE SHADES C NR BESSEMER AL	USGS	33.3715	-86.937214	2	3/30/1967	10/24/1967	Inorganics, Major, Non-Metals; Physical;
	02423875	SIXMILE CREEK NEAR SIXMILE AL	USGS	32.999011	-86.996937		4/6/1968	6/24/1968	Inorganics, Major, Non-Metals; Physical;
	02423870	COPPERAS CREEK NEAR SIX MILE AL	USGS	32.975956	-86.981103		4/18/1968	6/24/1968	Inorganics, Major, Non-Metals; Physical;
	02423785	MAHAN CREEK NEAR BRIERFIELD AL	USGS	33.023732	-86.871656	1	9/10/1968	9/10/1968	Inorganics, Major, Non-Metals; Physical;
	02423398	LITTLE CAHABA RIVER NEAR LEEDS AL	USGS	33.524271	-86.57554	87	11/1/1968	8/10/2005	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Physical; Sediment
	02423390	CAHABA RIVER AT BWWB PUMP STATION NR BIRMINGHAM,	USGS	33.451496	-86.716099	41	10/23/1970	12/19/1990	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Physical;
	02423639	MUD CREEK NEAR GREELY AL	USGS	33.256226	-87.079161	1	9/14/1971	9/14/1971	Inorganics, Major, Non-Metals; Physical;
	02423425	CAHABA RIVER NEAR CAHABA HEIGHTS AL	USGS	33.415664	-86.73971	115	10/7/1975	8/26/2005	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Physical; Sediment
5	02423647	CAHABA RIVER NEAR WEST BLOCTON AL	USGS	33.098175	-87.054716	69	1/8/1976	8/12/1983	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Physical; Sediment

Map ID	Site Number	Site Name	Agency	Latitude	Longitude	Count	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	02423620	LITTLE SHADES C AT STATE HWY 150 NR BESSEMER AL	USGS	33.380666	-86.929158	5	7/11/1980	5/7/2001	Biological; Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	02423500	CAHABA RIVER NEAR ACTON AL	USGS	33.363444	-86.813045	116	4/28/1984	8/25/2005	Information; Physical
	02423380	CAHABA RIVER NEAR MOUNTAIN BROOK AL	USGS	33.481772	-86.712765	102	6/13/1985	8/24/2005	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Physical;
	02423400	LITTLE CAHABA RIVER NR JEFFERSON PARK, AL.	USGS	33.499827	-86.614152	68	8/6/1986	10/26/2000	Biological; Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical;
	02423404	SHEPHARD BRANCH NEAR LEEDS, AL.	USGS	33.450107	-86.647764	38	8/7/1986	7/20/1990	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Physical;
	0242340575	LEE BRANCH NEAR CAHABA HEIGHTS, AL.	USGS	33.431496	-86.660819	63	9/9/1986	6/22/1999	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Physical;
	0242340550	COX CREEK NEAR CAHABA HEIGHTS,AL	USGS	33.44844	-86.64443	68	11/10/1986	8/11/1999	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Physical;
	02423403	UNNAMED TRIB. TO SHEPHARD BRANCH NEAR LEEDS,AL	USGS	33.481772	-86.617763	27	12/10/1986	4/17/1990	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Physical;

Map ID	Site Number	Site Name	Agency	Latitude	Longitude	Count	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	02423407	UNAMED TRIB. TO IKE POND SLOUGH NR. CAHABA HEIGHTS	USGS	33.442052	-86.66582	15	2/9/1987	4/17/1990	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Physical;
	02423496	CAHABA RIVER NEAR HOOVER, AL	USGS	33.369277	-86.784155	66	10/17/1988	6/14/2011	Information; Inorganics, Major, Non-Metals; Physical
	02423305	CAHABA RIVER ON U.S. 78 HWY NR LEEDS, ALA	USGS	33.545938	-86.613042	4	3/27/1990	12/19/1990	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Physical;
	02423514	PATTON CREEK AT KESTWWICK ROAD AT HOOVER,AL	USGS	33.393721	-86.824156	1	1/10/1991	1/10/1991	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Organics, Other; Organics, PCBs; Organics, Pesticide; Physical;
	02423572	SHADES CR TRIB @ MTN DALE RD AT MOUNTAIN BROOK, AL	USGS	33.513994	-86.720821	28	2/13/1992	4/20/1992	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, PCBs; Organics, Pesticide; Physical; Sediment
	0242357007	TRIB TO SHADES CR AT ELDER ST NR IRONDALE, AL.	USGS	33.524549	-86.717488	29	3/18/1992	8/4/1992	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, PCBs; Organics, Pesticide; Physical; Sediment
	02423397	LITTLE CAHABA RIVER BELOW LEEDS, AL.	USGS	33.534549	-86.562485	90	10/4/1995	8/10/2005	Biological; Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	02423165	Big Black Creek (S-5) at Simmons Mt Rd nr Margaret	USGS	33.725378	-86.461928	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical

Map ID	Site Number	Site Name	Agency	Latitude	Longitude	Count	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	02423166	Big Black Creek Trib (S-6) at near Margaret, AL.	USGS	33.720101	-86.450817	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423167	Big Black Creek (S-4) near Margaret, AL.	USGS	33.708434	-86.472762	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423168	Big Black Creek Trib (S-3) near Margaret, AL.	USGS	33.705656	-86.494707	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423170	Big Black Creek (R-5) near Margaret, AL.	USGS	33.675101	-86.493318	1	8/27/1997	8/27/1997	Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Organics, Other; Organics, Pesticide; Physical;
	02423171	Big Black Creek Trib (S-1) near Margaret, AL.	USGS	33.672879	-86.498318	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	0242317225	Trib to Big Black Creek Trib (S-18a) nr Margaret	USGS	33.660657	-86.506651	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423173	Big Black Creek Trib (S-17) near Margaret, AL.	USGS	33.646213	-86.511929	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423174	Big Black Creek Trib (S-16) near Acmar, AL.	USGS	33.636213	-86.518596	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423175	Big Black Creek Trib (S-15) near Acmar, AL.	USGS	33.630658	-86.524429	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423176	Trib to Big Black Creek Trib (S-14) near Acmar, AL	USGS	33.628436	-86.52554	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423179	Middle Black Creek (S-7) near Low Gap, AL.	USGS	33.703434	-86.427483	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	0242317940	Middle Black Creek (S-21) above Margaret, AL.	USGS	33.690379	-86.470262	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	0242317950	Middle Black Creek (S-19) at Margaret, AL.	USGS	33.686212	-86.473317	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423180	Middle Black Creek (R-10) near Sanie, AL.	USGS	33.669268	-86.486373	1	8/27/1997	8/27/1997	Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Organics, Other; Organics, Pesticide; Physical;
	02423183	Big Black Creek (R-1) near Acmar, AL.	USGS	33.618992	-86.516373	2	8/27/1997	8/27/1997	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Organics, Other; Organics, Pesticide; Physical;
	0242318350	Little Black Creek Trib (S-8) at Copper Springs, A	USGS	33.677879	-86.442761	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical

Map ID	Site Number	Site Name	Agency	Latitude	Longitude	Count	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	02423184	Little Black Creek (R-9) near Sanie, AL.	USGS	33.656769	-86.460261	3	8/27/1997	8/27/1997	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Organics, Other; Organics, Pesticide; Physical;
	0242318425	Little Black Creek Trib (S-20) near Sanie, AL.	USGS	33.65788	-86.463317	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	0242318450	Little Black Creek Trib (S-9) near Sanie, AL.	USGS	33.65288	-86.457205	1	8/27/1997	8/27/1997	Information; Physical
	0242318475	Little Black Creek Trib (S-10) near Sanie, AL.	USGS	33.658713	-86.476373	1	8/27/1997	8/27/1997	Information; Physical
	02423185	Little Black Creek (R-3L) near Acmar, AL.	USGS	33.613714	-86.51304	2	8/27/1997	8/27/1997	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Organics, Other; Organics, Pesticide; Physical;
	0242318675	Big Black Creek Trib (S-11) near Acmar, AL.	USGS	33.610381	-86.511095	1	8/27/1997	8/27/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423187	Big Black Creek (C-1) near Braggsville, AL.	USGS	33.610936	-86.512206	2	8/27/1997	8/27/1997	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Organics, Other; Organics, Pesticide; Physical;
	02423188	Big Black Creek (C-4) above Whites Chapel, AL.	USGS	33.611214	-86.518596	2	8/27/1997	8/27/1997	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Organics, Other; Organics, Pesticide; Physical;
	02423189	Big Black Creek (C-6) near Whites Chapel, AL.	USGS	33.604547	-86.528874	2	8/27/1997	8/27/1997	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Organics, Other; Organics, Pesticide; Physical;
	02423200	Big Black Creek (C-11) at mouth near Leeds, AL.	USGS	33.588714	-86.549707	1	8/28/1997	8/28/1997	Information; Inorganics, Major, Non-Metals; Physical
	02423550	BUCK CREEK AT HELENA AL	USGS	33.297057	-86.843045	2	5/20/1998	6/18/1999	Information; Physical
	02423515	PATTON CREEK NR BLUFF PARK BL PATTON CHAPEL, ALA	USGS	33.388998	-86.827212	10	5/20/1998	5/7/2001	Biological; Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	02423601	SHADES CREEK NR PARKWOOD, ALA	USGS	33.355944	-86.889991	2	5/20/1998	6/16/1999	Information; Physical

Map ID	Site Number	Site Name	Agency	Latitude	Longitude	Count	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	0242354750	CAHABA VALLEY CREEK AT CROSS CR RD AT PELHAM, AL.	USGS	33.313445	-86.806378	266	8/19/1998	9/30/2011	Biological; Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, PCBs; Organics, Pesticide; Physical; RAD Sediment
	02423581	SHADES CREEK AT SAMFORD UNIV AT HOMEWOOD, AL.	USGS	33.461218	-86.793323	8	8/19/1998	5/9/2001	Biological; Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, PCBs; Organics, Pesticide; Physical; RAD Sediment
	0242354650	CABAHA VALLEY CR AT INDIAN TRAIL RD NR INDIAN SPRS	USGS	33.344833	-86.759432		5/15/2000	5/10/2001	Biological; Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	02423729	DRY CREEK AT SPRING CR RD NR MONTEVALLO, AL	USGS	33.104841	-86.838044	3	5/16/2000	5/8/2001	Biological; Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	0242372950	SPRING CREEK AT CO RD 16 NR MOORES CROSSROADS, AL.	USGS	33.128451	-86.809155	3	5/16/2000	5/8/2001	Biological; Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	0242339580	LITTLE CAHABA RIVER NR MARKEETA, ALABAMA	USGS	33.568993	-86.524151	3	5/17/2000	5/10/2001	Biological; Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment

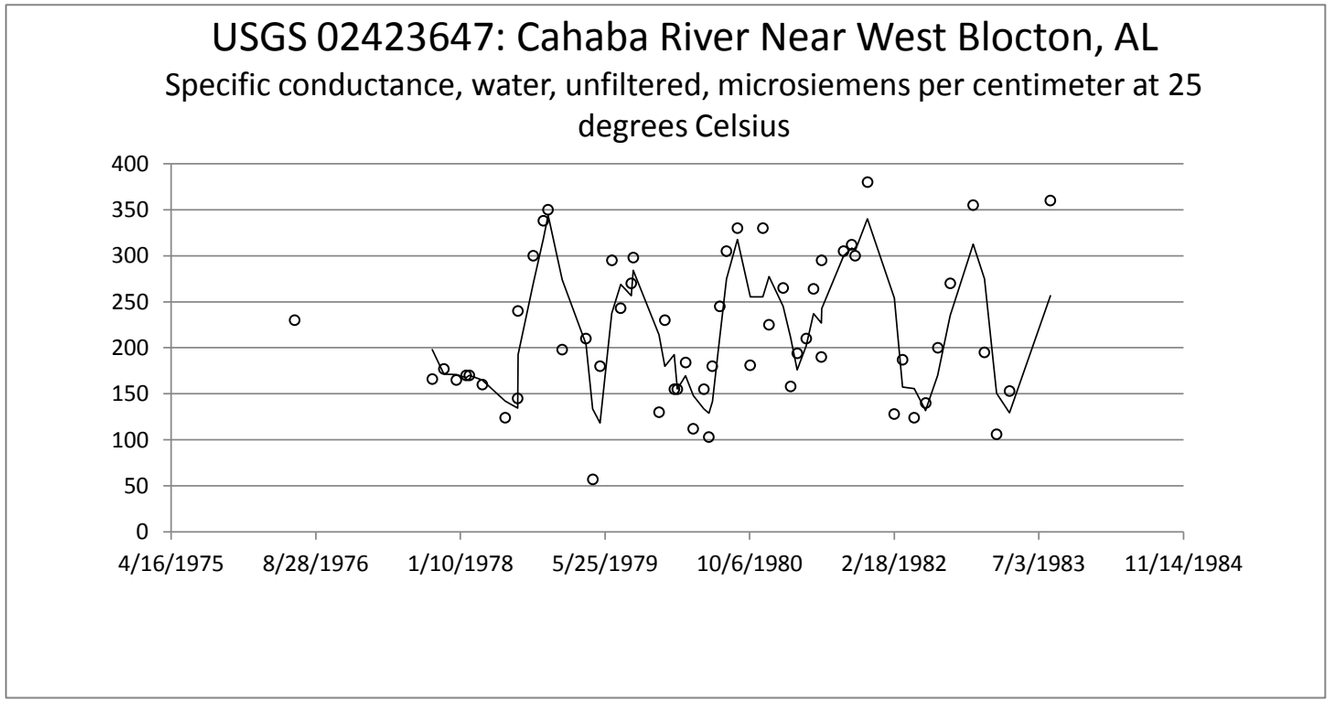
Map ID	Site Number	Site Name	Agency	Latitude	Longitude	Count	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	02423590	UNNAMED TRIB TO SHADES CR AT FEDEX NR OXMOOR, AL	USGS	33.443719	-86.839435	3	5/17/2000	5/9/2001	Biological; Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	02423536	BUCK CREEK AT BUCK CREEK RD AT ALABASTER, AL.	USGS	33.238448	-86.824711	4	5/17/2000	5/7/2001	Biological; Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	02423576	SHADES CREEK AT LAKESHORE DR NR MOUNTAIN BROOK, AL	USGS	33.480661	-86.759433	3	5/18/2000	5/9/2001	Biological; Inorganics, Minor, Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Microbiological; Nutrients; Organics, Other; Organics, Pesticide; Physical; Sediment
	02423586	SHADES CREEK NR HOMEWOOD, ALA	USGS	33.448719	-86.813601	35	9/27/2001	9/6/2005	Information; Physical
	02423414	LITTLE CAHABA RIVER AT CAH BEA RD NR CAHABA HTS AL	USGS	33.439829	-86.698876	13	10/6/2003	8/2/2005	Information; Physical
7	330554087034301	LITTLE UGLY CR (CAHABA R NWR) NR W BLOCTON, AL	USGS	33.095583	-87.057278	1	4/30/2009	4/30/2009	
	2423178	Big Black Creek (R-14) above Acmar, AL.	USGS	33.621214	-86.517762		--	--	
	2423182	Middle Black Creek (R-13) near Acmar, AL.	USGS	33.620936	-86.516373		--	--	
	2423186	Big Black Creek (R-3B) below Acmar, AL.	USGS	33.612603	-86.512484		--	--	
	2423465	LITTLE SHADES CR AT PATTON CHAP RD NR ROCKY RIDGE	USGS	33.410386	-86.780822		--	--	
	CABB-1	Cahaba at Centreville	ADEM	32.94456	-86.13983				
	C3	Cahaba near Helena	ADEM	33.284	-86.88193				
	MAYB-1	Mayberry Creek at unnamed Bibb County Rd (May be 24)off of Bibb Co. Rd. 10.	ADEM	33.07125	-86.938528				

Appendix F

Surface Water Quality Monitoring Data for USGS 02423647 Site on the Cahaba River near West Blocton, AL (1976 – 1983)

Source: [USGS] U.S. Geological Survey. 2013. U.S. Geological Survey. National Water Information System. Accessed 2013. Available from: http://waterdata.usgs.gov/nwis.

Sample Date	SpCond	DO	pH field	pH lab
6/16/1976	230			
10/5/1977	166			
11/14/1977	177			
12/27/1977	165			
1/30/1978	170		7.5	
2/10/1978	170			
3/27/1978	160			
6/14/1978	124	8.3	7.7	
7/27/1978	145			
7/28/1978	240	6.4	8.3	
9/19/1978	300	8.2	7.8	
10/24/1978	338	11		
11/9/1978	350	10	7.8	
12/28/1978	198	11.4	7.8	
3/20/1979	210	10.6	8.2	
4/13/1979	57	8.6	7.1	
5/8/1979	180	8.9	7.6	
6/18/1979	295		8.2	
7/18/1979	243			
8/24/1979	270			
8/31/1979	298		7.4	
11/28/1979	130		6.9	
12/18/1979	230		7	
1/20/1980	155	11	6.6	
1/30/1980	155	11	6.6	
2/28/1980	184	10.8	7.4	
3/25/1980	112		7.4	
5/1/1980	155		6.8	
5/18/1980	103		7.2	
5/30/1980	180		7.6	
6/25/1980	245	6.5	7	
7/18/1980	305	7.3	8	
8/25/1980	330		7.5	
10/8/1980	181	8.8	7.1	7.4
11/21/1980	330	12.2	8.3	8
12/12/1980	225	12	7.6	7.9
1/30/1981	265		7.8	
2/25/1981	158	10.4	7.4	7.7
3/20/1981	194	10.3	7.6	7.8
4/20/1981	210	7.7	7.4	7.9
5/15/1981	264	8.3	7.6	
6/11/1981	190	6.8	6.7	7.7
6/12/1981	295	2.9	7.2	8
8/27/1981	305	8.1	7.3	
9/24/1981	312	9.8	8.2	



10/6/1981	300	8.6	7.8
11/18/1981	380	12	8.5
2/18/1982	128	8.8	7.6
3/19/1982	187	8.8	8.2
4/28/1982	124	8.5	6.8
6/7/1982	140	8.3	7.6
7/19/1982	200	6.5	7.6
8/31/1982	270	9.7	8.2
11/18/1982	355	11.3	7.7
12/27/1982	195	9.8	7.2
2/7/1983	106	11.4	7.3
3/24/1983	153	11	7.1
8/12/1983	360	8.5	8.2

Appendix G

USGS Groundwater Quality Monitoring Sites in the Region of Hydrologic Influence (RHI) for Cahaba River NWR, AL

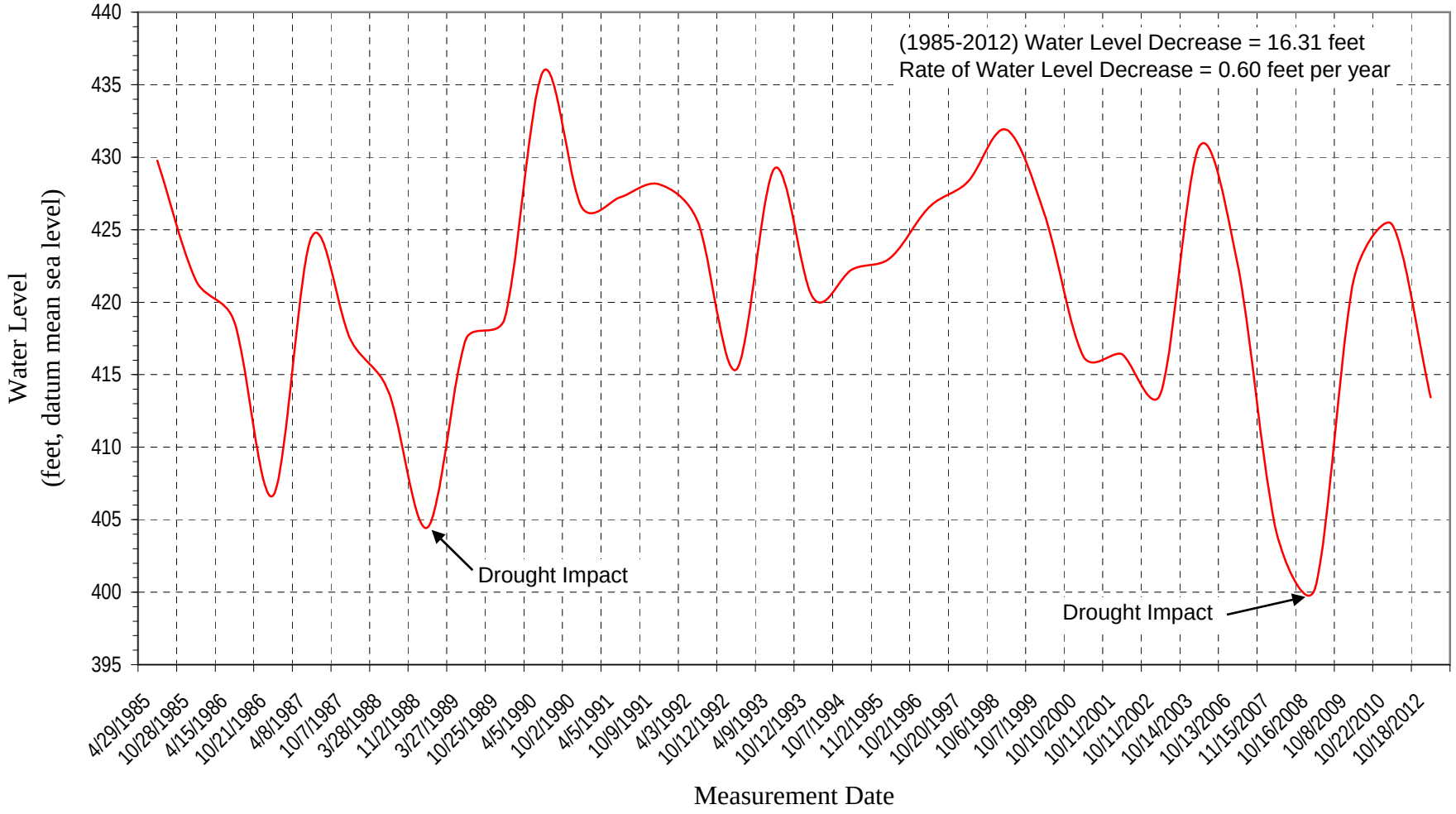
Source: [USGS] U.S. Geological Survey. 2013. U.S. Geological Survey. National Water Information System. Accessed 2013. Available from: http://waterdata.usgs.gov/nwis.

The USGS uses parameter groups to organize groupings of measured constituents, which are identified by parameter codes. In this appendix the parameter groups are shown for each site with water quality monitoring samples in the RHI. The following is a table of the parameter groups for these sites, along with example constituents. For more information see http://help.waterdata.usgs.gov/codes-and-parameters/parameters.

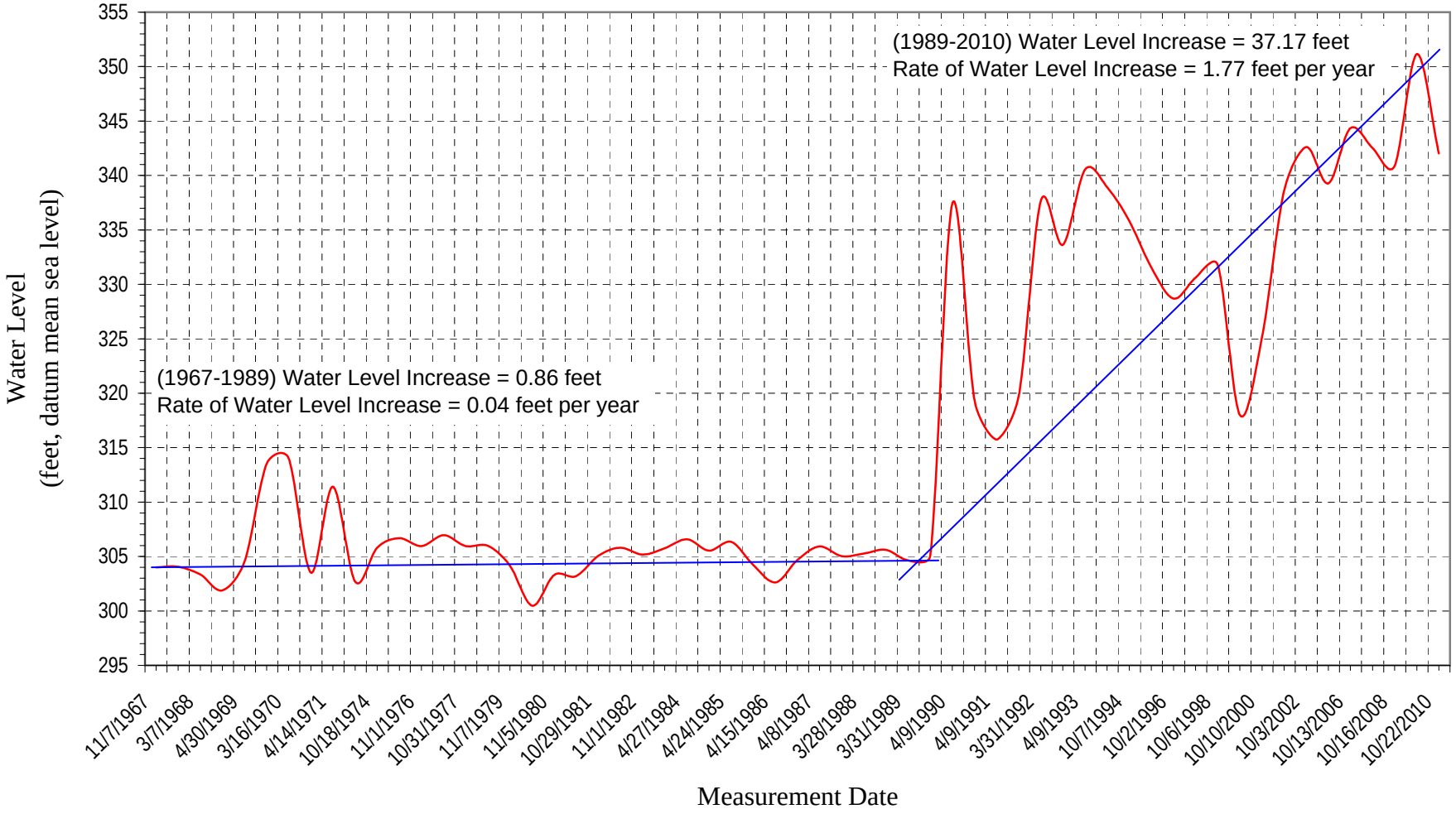
Parameter Group	Example Constituents
Inorganics, Minor, Metals	Metals not considered "Major" (see below)
Inorganics, Minor, Non-Metals	Cyanide, Arsenic, Selenium, Antimony, etc.
Inorganics, Major, Metals	Calcium, Magnesium, Sodium, Potassium
Inorganics, Major, Non-Metals	Hydrogen, Oxygen, CO2, Alkalinity, Acidity, etc.
Nutrients	Nitrogen and Phosphorus (various forms)
Physical	Stream velocity, turbidity, hardness, etc.
Organics, Other	Organics other than pesticides and PCBs
Organics, Pesticide	Atrazine, DDT, Dieldrin, Endosulfan, etc.
Radiochemical	Alpha/beta particles, Radium, Uranium, etc.

Begin and end sampling dates vary for each individual parameter; the range shown in this appendix covers all water quality parameters sampled at the site.

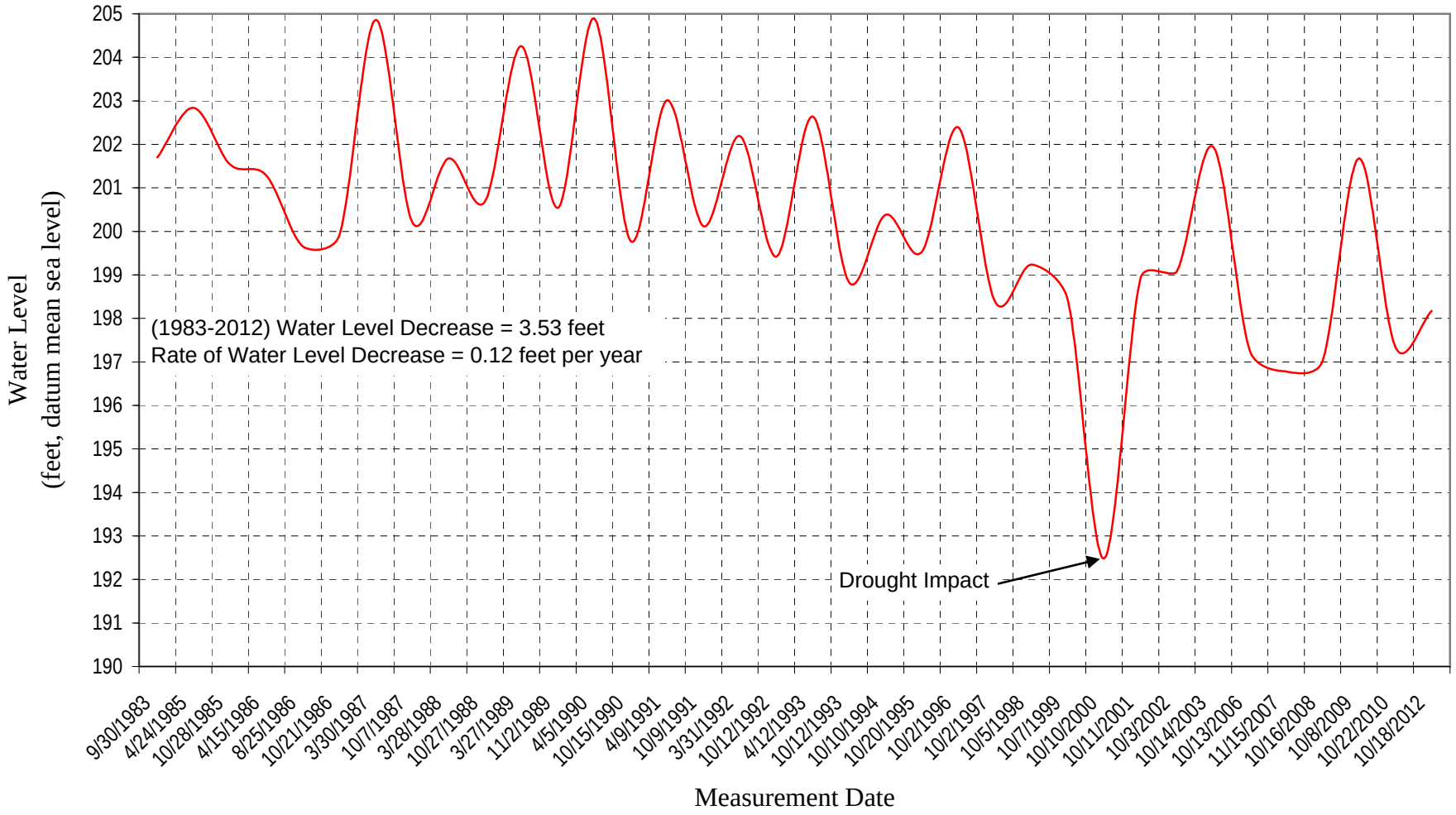
Hydrograph of Unused Well C-1, Bibb County
Chepultepec Dolomite of Early Ordovician Age
Depth 192 ft



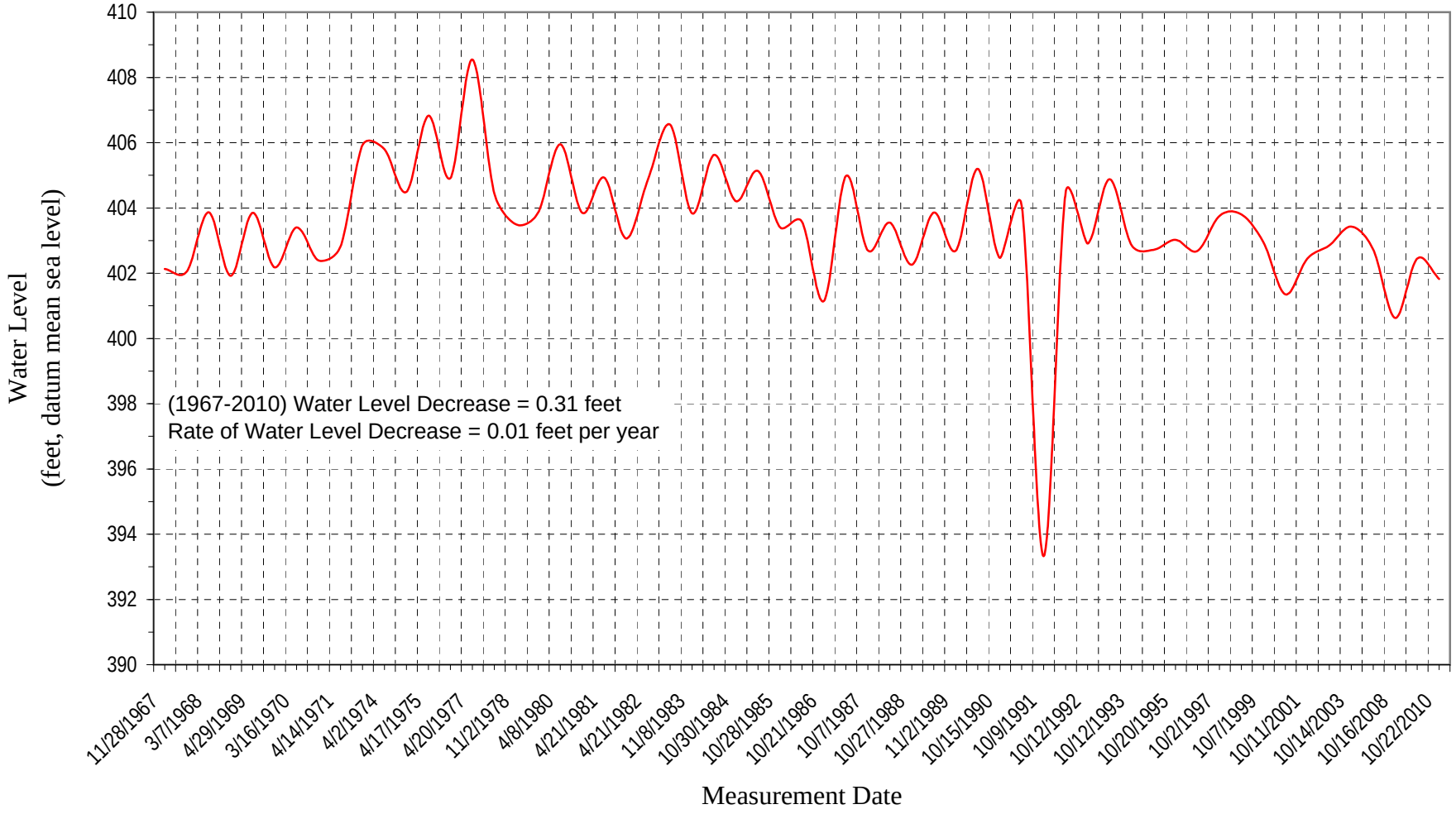
Hydrograph of Domestic Supply Well L-4, Bibb County
Sand of Coker Formation of Late Cretaceous Age
Depth 176 ft



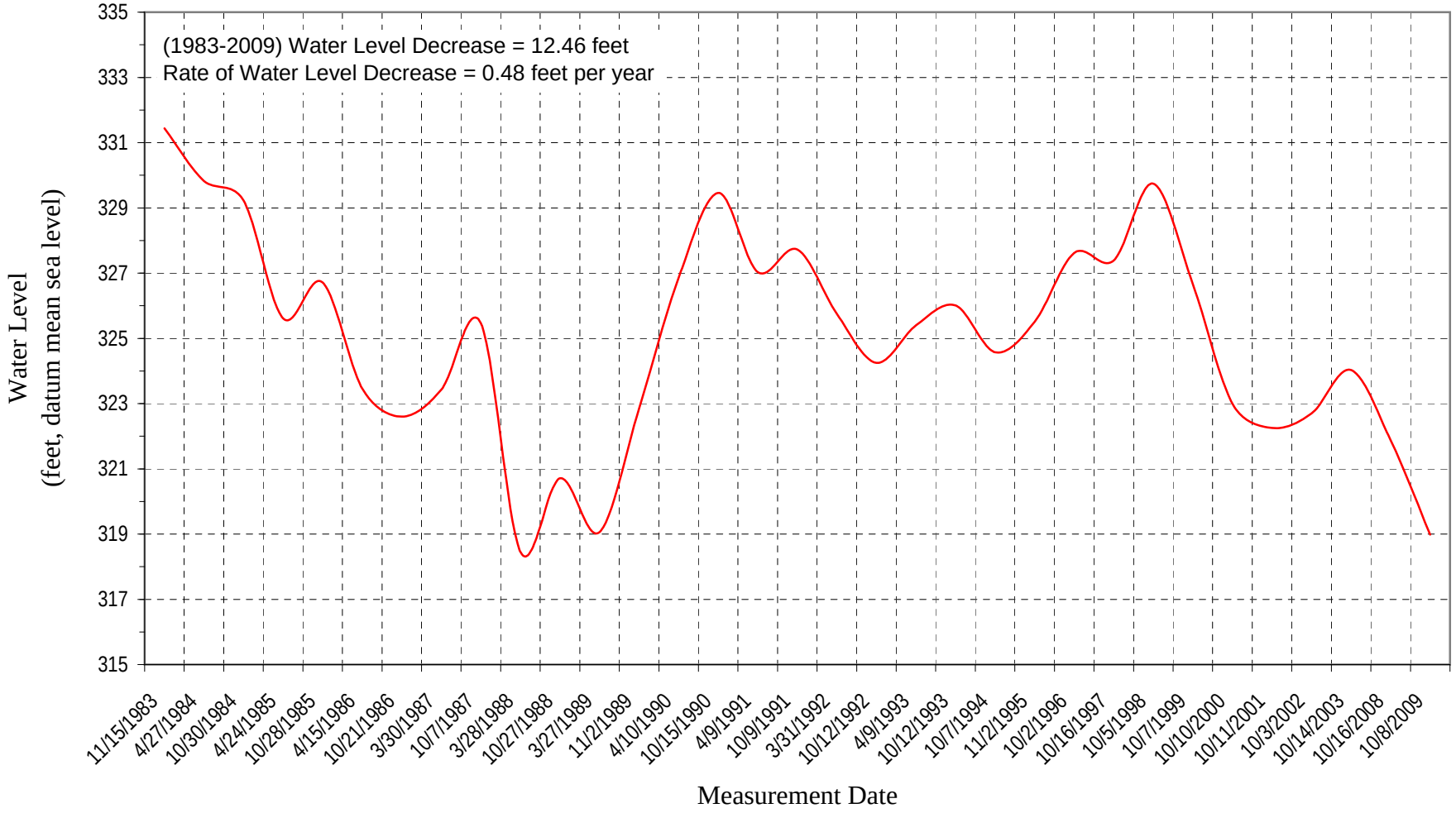
Hydrograph of Unused Well O-5, Bibb County
Copper Ridge Dolomite of Late Cambrian Age and Chepultepec Dolomite of Early Ordovician Age
Depth 404 ft



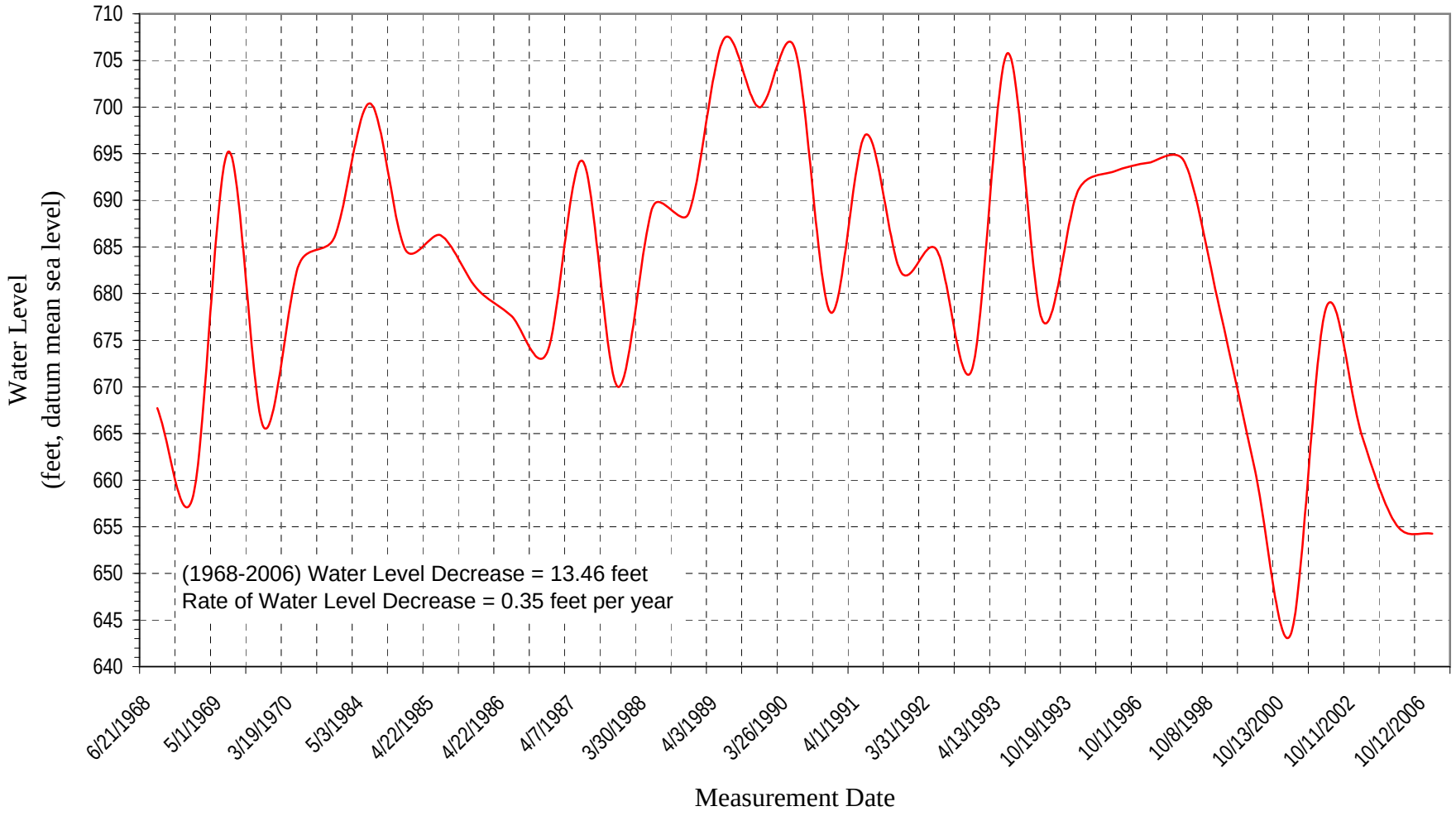
Hydrograph of Domestic Supply Well T-6, Bibb County
Sand of Coker Formation of Late Cretaceous Age
Depth 143 ft



Hydrograph of Domestic Supply Well W-3, Bibb County
Sand of Coker Formation of Late Cretaceous Age
Depth 175 ft



Hydrograph of Public Supply Well L-5, Jefferson County
Fort Payne Chert of Early Mississippian Age
Depth 186 ft



Appendix H

GSA Groundwater Well Hydrographs within or near the Region of Hydrologic Influence (RHI) for Cahaba River NWR, AL.

Map ID	Site Number	Site Name	Latitude	Longitude	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	325520086553201	T 1-USGS 325520086553201	32.924291	-86.921935	12/7/1967	12/7/1967	Inorganics, Major, Non-Metals; Physical
	325530086472901	F 6-USGS 325530086472901	32.943179	-86.792209	6/4/1968	6/4/1968	Inorganics, Major, Non-Metals; Physical
	325636086594001	Q 6-USGS 325636086594001	32.94429	-86.995826	12/1/1967	12/1/1967	Inorganics, Major, Non-Metals; Physical
	325700086481901	F 5-USGS 325700086481901	32.950679	-86.806654	6/5/1968	6/5/1968	Inorganics, Major, Non-Metals; Physical
	325716086550201	R 2-USGS 325716086550201	32.953457	-86.914434	12/7/1967	12/7/1967	Inorganics, Major, Non-Metals; Physical
	325737086450201	F 2 JEMISON PWS-USGS 325737086450201	32.960401	-86.750541	8/8/1968	8/8/1968	Inorganics, Major, Non-Metals; Physical
	325836087005801	Q 4-USGS 325836087005801	32.982345	-87.011104	11/13/1967	11/13/1967	Inorganics, Major, Non-Metals; Physical
	325846086510001	E 2-USGS 325846086510001	32.979845	-86.8536	6/5/1968	6/5/1968	Inorganics, Major, Non-Metals; Physical
	325910086582601	Q 2-USGS 325910086582601	32.990678	-86.974714	11/14/1967	11/14/1967	Inorganics, Major, Non-Metals; Physical
	325920086581601	Q 3-USGS 325920086581601	32.991234	-86.974436	11/14/1967	11/14/1967	Inorganics, Major, Non-Metals; Physical
	330000087003601	Q 1-USGS 330000087003601	33.005678	-87.004993	11/3/1967	11/3/1967	Inorganics, Major, Non-Metals; Physical
	330010086540401	R 1-USGS 330010086540401	33.005122	-86.891934	11/14/1967	11/14/1967	Inorganics, Major, Non-Metals; Physical
	330052086552201	I 5-USGS 330052086552201	33.015122	-86.91999	11/14/1967	11/14/1967	Inorganics, Major, Non-Metals; Physical
	330120086573401	I 4-USGS 330120086573401	33.020399	-86.956102	11/16/1967	11/16/1967	Inorganics, Major, Non-Metals; Physical
	330150086584601	I 3-USGS 330150086584601	33.02901	-86.98277	11/15/1967	11/15/1967	Inorganics, Major, Non-Metals; Physical
	330208086521001	D 2-USGS 330208086521001	33.035954	-86.871934	2/19/1970	2/19/1970	Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Physical
	330222086542801	H 1-USGS 330222086542801	33.039288	-86.908046	11/14/1967	11/14/1967	Inorganics, Major, Non-Metals; Physical
11	330242087060001	J 2-USGS 330242087060001	33.042343	-87.097773	11/9/1967	11/9/1967	Inorganics, Major, Non-Metals; Physical
12	330320087010801	J 3-USGS 330320087010801	33.052343	-87.021104	11/13/1967	11/13/1967	Inorganics, Major, Non-Metals; Physical
	330326086552601	I 1-USGS 330326086552601	33.057898	-86.921935	11/13/1967	11/13/1967	Inorganics, Major, Non-Metals; Physical
	330352086572001	I 2-USGS 330352086572001	33.062898	-86.95638	11/15/1967	11/15/1967	Inorganics, Major, Non-Metals; Physical
	330520087084601	K 2-USGS 330520087084601	33.088453	-87.147218	11/9/1967	11/9/1967	Inorganics, Major, Non-Metals; Physical
	330524087075401	K 1-USGS 330524087075401	33.088176	-87.135273	11/8/1967	11/8/1967	Inorganics, Major, Non-Metals; Physical
10	330538087021801	J 1-USGS 330538087021801	33.089842	-87.040827	1/5/1968	1/5/1968	Inorganics, Major, Non-Metals; Physical
	330614087072401	E 5-USGS 330614087072401	33.098175	-87.126384	12/28/1967	12/28/1967	Inorganics, Major, Non-Metals; Physical
	330644087090601	E 3-USGS 330644087090601	33.110675	-87.149441	12/26/1967	12/26/1967	Inorganics, Major, Non-Metals; Physical
	330716087075401	E 4-USGS 330716087075401	33.112897	-87.128329	4/17/1969	6/10/1969	Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Physical
1	330725087055201	F 2-USGS 330725087055201	33.12373	-87.098328	12/27/1967	12/27/1967	Inorganics, Major, Non-Metals; Physical
	330806087090001	E 2-USGS 330806087090001	33.134841	-87.150274	12/26/1967	12/26/1967	Inorganics, Major, Non-Metals; Physical
	330818086584801	G 1-USGS 330818086584801	33.138451	-86.979992	1/5/1968	1/5/1968	Inorganics, Major, Non-Metals; Physical
	330900087001401	F 1-USGS 330900087001401	33.148729	-87.004159	1/5/1968	1/5/1968	Inorganics, Major, Non-Metals; Physical

Map ID	Site Number	Site Name	Latitude	Longitude	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	330935087091801	C 5-USGS 330935087091801	33.160396	-87.154996	12/26/1967	5/13/1969	Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Physical
	331000087061401	B 4-USGS 331000087061401	33.162618	-87.106106	11/9/1967	11/9/1967	Inorganics, Major, Non-Metals; Physical
	331028087035801	B 5-USGS 331028087035801	33.16734	-87.068327	3/8/1968	3/8/1968	Inorganics, Major, Non-Metals; Physical
	331034087103801	C 4-USGS 331034087103801	33.174284	-87.181108	12/27/1967	12/27/1967	Inorganics, Major, Non-Metals; Physical
	331142087070801	C 3-USGS 331142087070801	33.185395	-87.119995	11/2/1967	11/2/1967	Inorganics, Major, Non-Metals; Physical
	331208087024001	B 3-USGS 331208087024001	33.195672	-87.052494	3/8/1968	3/8/1968	Inorganics, Major, Non-Metals; Physical
	331224086495701	ALABASTER TW 1	33.206782	-86.832489	8/15/1988	8/15/1988	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Physical; Radiochemical
	331302087085501	C 6-USGS 331302087085501	33.217339	-87.148607	7/3/1969	7/3/1969	Inorganics, Major, Non-Metals; Physical
	331332087014801	B 2-USGS 331332087014801	33.220394	-87.037493	11/2/1967	11/2/1967	Inorganics, Major, Non-Metals; Physical
	331400087074001	C 1-USGS 331400087074001	33.222616	-87.12694	11/2/1967	5/13/1969	Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Physical
	333220086423101	W 16 IRONDALE PWS # 5-USGS 333220086423101	33.536216	-86.708599	1/28/1975	9/4/1980	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Physical
	333240086314001	Y 2 LEEDS PWS #2 XXX-USGS 333240086314001	33.543438	-86.52804	3/23/1976	3/23/1976	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Physical
	333334087052801	B 1-USGS 333334087052801	33.21845	-87.093884	11/2/1967	11/2/1967	Inorganics, Major, Non-Metals; Physical
	333616086314300	WELL POINT(C6A)BIG BLACK CR NR WHITES CHAPEL, AL	33.604547	-86.528596	8/27/1997	8/27/1997	Information; Organics, Other; Organics, Pesticide; Physical
	333616086314500	WELL POINT (C6B) AT BIG BLACK CR NR WHITES CHAPEL	33.604547	-86.529151	8/27/1997	8/27/1997	Information; Organics, Other; Organics, Pesticide; Physical
	333640086310600	Well Point C-4A at Big Black Cr ab Whites Chapel	33.611214	-86.518318	8/27/1997	8/27/1997	Information; Organics, Other; Organics, Pesticide; Physical

Map ID	Site Number	Site Name	Latitude	Longitude	Water Quality Monitoring Begin	Water Quality Monitoring End	Parameter Groups
	333640086310800	WELL POINT C4B AT BIG BLACK CR AB WHITES CHAPEL	33.611214	-86.518873	8/27/1997	8/27/1997	Information; Organics, Other; Organics, Pesticide; Physical
	333844086360501	L 10 TRUSSVILLE PWS 5-USGS 333844086360501	33.645658	-86.601654	3/26/1976	6/24/1982	Inorganics, Minor, Metals; Inorganics, Minor, Non-Metals; Information; Inorganics, Major, Metals; Inorganics, Major, Non-Metals; Nutrients; Physical

Appendix I

Water Availability in Bibb County, Alabama
Geological Survey of Alabama Map 144

Source: Causey, L.V., Willmon, J.R. and J.S. Ellard. 1978. Water Availability in Bibb County, Alabama. Map 144. Geological Survey of Alabama.

WATER AVAILABILITY IN BIBB COUNTY, ALABAMA

GEOLOGICAL SURVEY OF ALABAMA *MAP 144*

GEOLOGICAL SURVEY OF ALABAMA

Thomas J. Joiner
State Geologist

WATER RESOURCES DIVISION

Henry C. Barksdale
Chief Hydrologist

MAP 144

WATER AVAILABILITY IN BIBB COUNTY, ALABAMA

By L. V. Causey, J. R. Willmon, and J. S. Ellard

University, Alabama
1978

STATE OF ALABAMA
Honorable George C. Wallace, Governor
GEOLOGICAL SURVEY OF ALABAMA
AND STATE OIL AND GAS BOARD

THOMAS J. JOINER
State Geologist and Oil and Gas Supervisor
A. Charles Freeman, Attorney
Audrey Hartley, Secretary

W. Everett Smith
Director,
Program Review & Quality Control

J. A. Drahovzal
Director,
Operations

George W. Swindel, Jr.
Director,
Administrative Services

Thornton L. Neathery
Director,
Budget & Program Development

Kendall P. Hanby
Assistant Oil and Gas Supervisor

LEGAL
A. Charles Freeman, Attorney
James H. Griggs, Attorney
Jean Smith, Hearings Reporter
Wanda Eubanks, Secretary

ADMINISTRATION
Clarice Booth, Personnel
Dorothy L. Brady, Librarian
Phyllis Clanton, Receptionist
Peggy Abernathy, Secretary
Alex Sartwell, Scientific Aide
G. A. Clements, Scientific Aide
L. M. Hallman, Chief of Maintenance
Thomas Moore, Building Custodian
J. E. Degraffenreid, Custodian
J. H. McCloud, Custodian
Arthur McLin, Custodian

ENVIRONMENTAL
Maurice F. Mettee, Chief Biologist
E. Irene Thompson, Secretary
P. H. Moser, Geologist
*Lee Settlemyre, Environmental Consultant

GEOLOGIC
C. W. Copeland, Jr., Chief Geologist
Merla W. Elliott, Secretary
Gary V. Wilson, Geologist
Jack Kidd, Geologist
Janyth S. Tolson, Geologist
Edna Mae Crowell, Laboratory Aide
Edward G. Rogers, Scientific Aide

REMOTE SENSING-TOPOGRAPHY
Karen E. Richter, Geologist
Don D. Russell, Cartographic Draftsman
Robert L. Barnett, Scientific Aide

WATER RESOURCES
H. C. Barksdale, Chief
Patricia Bunnelle, Secretary
R. E. Kidd, Geologist
R. V. Chandler, Geologist
James D. Moore, Hydrol. Eng.
Frank Hinkle, Geographer
Victor Shamburger, Geologist
Gary R. Walter, Geologist
Arthur McLin, Jr., Scientific Aide

GEOCHEMICAL WATER RESEARCH
A. M. Malatino, Chief Chemist
Elizabeth Brown, Secretary
N. A. Lloyd, Geo-Chemist
George Santa Cruz, Chemist
Juanita Hardy, Chemist
Scott Prescott, Chemist
Mary E. Jones, Laboratory Aide
Delores Burroughs, Scientific Aide
J. C. Beasley, Scientific Aide
Randall Gibson, Laboratory Aide
Mattie McCaa, Laboratory Aide
Phillip Dark, Scientific Aide
Juanita Simpson, Laboratory Aide

ACCOUNTING
Richard Raymond, Accounting Supervisor
*Ray Knight, Accountant
V. A. Shanner, Accountant
Peggy Curtis, Account Clerk
Connie Smith, Account Clerk

MINERAL RESOURCES
M. W. Szabo, Chief Geologist
Jacquelyn C. Otts, Secretary
O. M. Clarke, Geologist
Mirza Beg, Geologist
Lawrence Rheams, Geologist
I. D. George, Scientific Aide

ENERGY RESOURCES
T. W. Daniel, Jr., Chief Geologist
Frank Evans, Geologist
Willard E. Ward, II, Geologist
Camilla Gardner, Scientific Aide

DATA PROCESSING
Marilyn A. Cooke, Data Entry Operator

PUBLICATIONS
T. V. Stone, Chief
Martha Ball, Secretary
M. J. Dean, Publications Sales
Gail Davis, Typographer
Don DeJarnette, Cameraman
Hollis Ezell, Laboratory Aide
C. R. Rayfield, Art Director
Leighanne Norris, Draftsman Illustrator
R. A. Knight, Cartographic Draftsman
J. R. Tunnell, Cartographic Draftsman
D. H. Wheat, Cartographic Draftsman
Gary W. Crawford, Cartographic Draftsman
R. M. Marsh, Duplicator Supervisor
Gary Scruggs, Printer
Katie Sue Clay, Laboratory Aide

OIL AND GAS
H. G. White, Petroleum Engineer
Richard M. Raymond, Petroleum Engineer
J. H. Masingill, Geologist
Phillip Meadows, Scientific Aide
John Cammack, Programmer
Elizabeth Ashcraft, Secretary
Patricia F. Hall, Clerk-Typist
Rebecca M. Willmon, Clerk-Typist

MOBILE OFFICE
James D. Turner, Southern Regional Supervisor
Bob F. White, Petroleum Geologist
Shirley Woulard, Secretary
CITRONELLE OFFICE
William D. McKenzie, Field Agent
Hazel Odom, Secretary
GILBERTOWN OFFICE
Lindsey C. Boney, Jr., Field Agent
BREWTON OFFICE
T. Leon Slay, Field Agent
Carolyn Harris, Secretary

COOPERATIVE STUDIES WITH OTHER AGENCIES
U.S. Bureau of Mines
Office of Water Resources Research
Alabama Water Improvement Commission
Alabama State Highway Department
Alabama Department of Conservation
Alahama Development Office
U.S. Corps of Engineers
U.S. Geological Survey
Tennessee Valley Authority
Environmental Protection Agency
Nation Aeronautics and Space Administration

COOPERATIVE RESEARCH ACTIVITIES WITH UNIVERSITIES AND COLLEGES
University of Alabama, Tuscaloosa
University of Alabama, Huntsville
Florida State University
University of Tennessee at Chattanooga
Georgia State University
Troy State University
University of Wisconsin, Oshkosh
Memphis State University
Auburn University

COOPERATIVE STUDIES WITH U.S. GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
William J. Powell, District Chief
Ernest F. Hubbard, Associate District Chief

*J. T. Allen, Hydrol. Tech.
N. A. Armingeon, Hydrol. Tech.
J. R. Avrett, Hydrologist
D. D. Batemon, Hydrol. Tech.
R. H. Bingham, Hydrologist
L. R. Bohman, Hydrologist
J. E. Bowie, Hydrologist
B. G. Byrd, Hydrol. Tech.
F. D. Byrd, Hydrol. Tech.
R. H. Cobb, Hydrol. Tech.
P. W. Cole, Hydrol. Tech.
M. E. Davis, Hydrologist
*C. B. Denny, Clerk-Typist
T. R. Duvall, Hydrol. Tech.
R. A. Gardner, Hydrologist
I. A. Giles, Hydrol. Tech.
J. E. Harbin, Clerk-Typist
J. R. Harkins, Hydrologist
H. H. Jeffcoat, Hydrologist
F. D. King, Hydrol. Tech.
S. L. King, Hydrol. Tech.
B. L. McCraw, Editorial-Clk
V. W. McGuff, Hydrol. Tech.
R. S. McHenry, Hydrol. Tech.
C. O. Ming, Hydrologist
E. G. Ming, Hydrol. Tech.
G. H. Nelson, Hydrol. Tech.
J. G. Newton, Hydrologist
D. A. Olin, Hydrologist
M. R. Powell, Clerk-DMT
A. J. Roberts, Adm. Off.
J. C. Scott, Hydrologist
F. C. Sedberry, Hydrol. Tech.
S. B. Simpson, Secretary
*T. A. Simpson, Jr., Hydrol. Tech.
*G. D. Swindel, Hydrol. Tech.
J. W. Tucker, Hydrol. Tech.
T. E. Whitbeck, Carto. Tech.

*Intermittent Employment

University, Alabama
March 7, 1978

Honorable George C. Wallace
Governor of Alabama
Montgomery, Alabama

Dear Governor Wallace:

I have the honor to transmit herewith Map 144, "Water Availability in Bibb County, Alabama" one of the special series of maps that we are issuing on water availability for each of our counties.

The largest sources of water in Bibb County are from wells tapping limestone, dolomite, and sand aquifers, and water from the Cahaba and Little Cahaba Rivers. Potential sources of 0.5 mgd (million gallons per day) or more per well are available from limestone and dolomite aquifers in topographic lows and along faults in the central part, and sand aquifers in the southern part of the county. The total average flow of all streams in the county is 1,260 mgd of which 590 mgd originates within the county.

The Cahaba River at Centreville has an average flow of 1,000 mgd and a 7-day Q_2 of about 130 mgd. The Little Cahaba River near Brierfield has an average flow of 130 mgd and a 7-day Q_2 of about 30 mgd.

Water from aquifers and streams in Bibb County is generally of suitable chemical quality for most uses. Water from sand and sandstone aquifers is generally soft to moderately hard and generally contains iron in excess of 0.3 mg/l (milligrams per liter). Water from limestone and dolomite aquifers is generally moderately hard to hard and has an iron content of less than 0.3 mg/l. Water from streams is generally soft to moderately hard and has a dissolved solids content of less than 150 mg/l.

This series of reports and maps has been prepared to aid in the development of Alabama's important water resources.

Respectfully,

Thomas J. Joiner
State Geologist

CONTENTS

ILLUSTRATIONS

(All plates in pocket)

TABLES

WATER AVAILABILITY IN BIBB COUNTY, ALABAMA

By L. V. Causey, J. R. Willmon, and J. S. Ellard

ABSTRACT

The largest sources of water in Bibb County in central Alabama are limestone, dolomite, and sand aquifers, and Cahaba and Little Cahaba Rivers. Potential sources of 0.5 mgd (million gallons per day) or more per well are limestone and dolomite aquifers in topographic lows in the northern part of the county; limestone and dolomite aquifers in topographic lows and along faults in the central part; and sand aquifers in the southern part. The total average flow of all streams in the county is about 1,260 mgd, of which 590 mgd originates within the county. The Cahaba River at Centreville has an average flow of 1,000 mgd and a 7-day Q_2 (median annual 7-day low flow) of about 130 mgd. The Little Cahaba River near Brierfield has an average flow of 130 mgd and a 7-day Q_2 of about 30 mgd.

Wells in northern and central parts of the county are rarely drilled deeper than 300 feet. Wells in the southern part of the county generally range in depth from 150 feet in the Cahaba River valley to 800 feet in upland areas.

Water from aquifers and streams in Bibb County is generally of suitable chemical quality for most uses. Water from sand and sandstone aquifers is generally soft to moderately hard and generally contains iron in excess of 0.3 mg/l (milligrams per liter). Water from limestone and dolomite aquifers is generally moderately hard to hard and has an iron content less than 0.3 mg/l. Water from streams is generally soft to moderately hard and has a dissolved-solids content of less than 150 mg/l.

The average use of water in Bibb County in 1969 was about 1.4 mgd which is less than 1 percent of the quantity available.

INTRODUCTION

The investigation of the availability of water in Bibb County is a part of a statewide study of the geology and availability of water resources in Alabama being conducted by the U.S. Geological Survey in cooperation with the Geological Survey of Alabama. The State was divided into seven study areas corresponding generally to major river basins. The work in each study area is being done by individual counties and resulting reports are being published on the basis of county units. The boundaries of the seven areas and the status of studies in each area are shown on figure 1. This report is one of 10 water-availability reports being prepared for counties in the east-central area of Alabama (Ala-35-C on fig. 1).

The purpose of this report is to present graphically and pictorially general information on the availability of water in Bibb County. The report can be used (1) to quickly appraise the water resources of the county and (2) for comparison with similar reports for other counties in Alabama. Information contained in earlier reports and information collected since the earlier reports were prepared were used in preparing this report.

Acknowledgment is made to water-works superintendents, city and county officials, and local citizens for providing information on wells, springs, and water use. Special appreciation is expressed to well drilling companies for furnishing well cuttings, drillers' logs, and other information concerning well construction and production.

WATER AVAILABILITY

Water in streams and in ground-water reservoirs underlying Bibb County is derived principally from precipitation which averages about 57 inches per year. Approximately 37 of the 57 inches of precipitation returns to the atmosphere by evapotranspiration. The remaining 20 inches, equivalent to 590 mgd (million gallons per day) for the entire county or 0.95 mgd per square mile, runs off and is available in streams. An additional 670 mgd is also available from inflow of streams.

The occurrence and availability of ground and surface water are governed

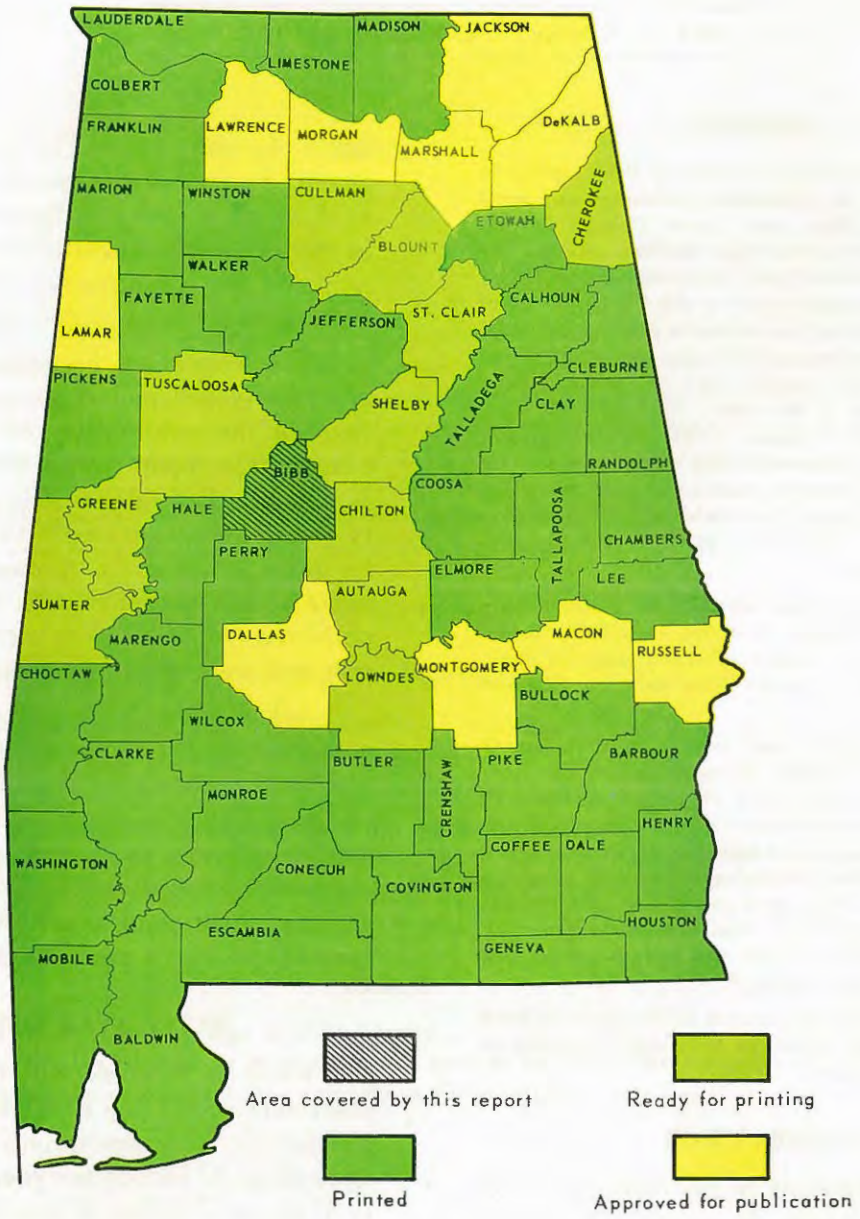


Figure 1.—Status of geologic and water-availability studies in Alabama.

largely by the physical characteristics of geologic formations. All geologic units that crop out in Bibb County contain beds of permeable sand, limestone, dolomite, sandstone, or sandy shale, that serve as natural conduits and reservoirs for water. These permeable beds, called aquifers, are sources of water for wells and springs and in areas of outcrop, they provide the low flow of streams.

GROUND WATER

An appraisal of the availability of ground water in Bibb County is shown on plate 1. Ranges of potential yields from individual wells are depicted by colors. Divisions between colored patterns, in general, coincide with changes in rock type, structure, and topography; however, the divisions between areas should be considered as zones rather than as abrupt lateral changes in the water-bearing characteristics of the rocks. Water-bearing units are designated primarily by rock types in this report for simplicity. Names of geologic units are also given in tables 1 aud 2 of the report to aid in comparing water in individual geologic units in Bibb County to that in the same units in other counties. The appraisal of the availability of ground water is based on data in table 1, on interpretations of subsurface geology and, in part, on hydrologic data from adjacent county studies.

Information on the geologic units underlying Bibb County was obtained as a part of the geologic study made as part of the water-resources study. However, the geologic report will be printed separately and is now in the process of being prepared.

Permeable limestone, dolomite, sand, sandstone, and sandy shale are sources of sufficient water for rural domestic supplies. A supply of 10 gpm (gallons per minute) is considered adequate for most domestic needs. The maximum depths necessary to drill a well in Bibb County that will produce 10 gpm generally are 100 to 200 feet in valley areas and 200 to 300 feet in upland areas.

The principal sources of large quantities of ground water in Bibb County are sand, limestone, and dolomite aquifers. The principal sand aquifer will yield 0.5 mgd or more per well in the southern part of the county. Limestone and dolomite aquifers in central and northern parts of the county generally will yield less than 0.5 mgd per well but locally will yield 0.5 mgd or more.

The elevation of the base of the principal sand aquifer is shown by contours on plate 1. To estimate the depth from the land surface to the base of the sand aquifer at a proposed well site, subtract the numerical value of the contour nearest the well site from the elevation above mean sea level of land surface at the well site. For example, if the elevation of the well site is 300 feet above mean sea level and the nearest contour for the aquifer is -100 (100 feet below mean sea level), the depth necessary to penetrate the entire aquifer would be 400 feet; however, if the nearest contour is 100 (100 feet above mean sea level), the depth would be 200 feet. Wells developed in the principal sand aquifer in the southern part of the county generally range in depth from 150 feet in the Cahaba River valley to 800 feet in upland areas. Wells developed in limestone, dolomite, and sandstone aquifers in northern and central parts of the county are rarely drilled deeper than 300 feet.

SURFACE WATER

Streamflow, depending on precipitation, consists of varying proportions of direct runoff and ground-water discharge. During high flow most of the streamflow consists of direct runoff and during low flow most of the streamflow consists of ground-water discharge.

High and low streamflow occur in seasonal patterns. Figure 2, a bar graph of

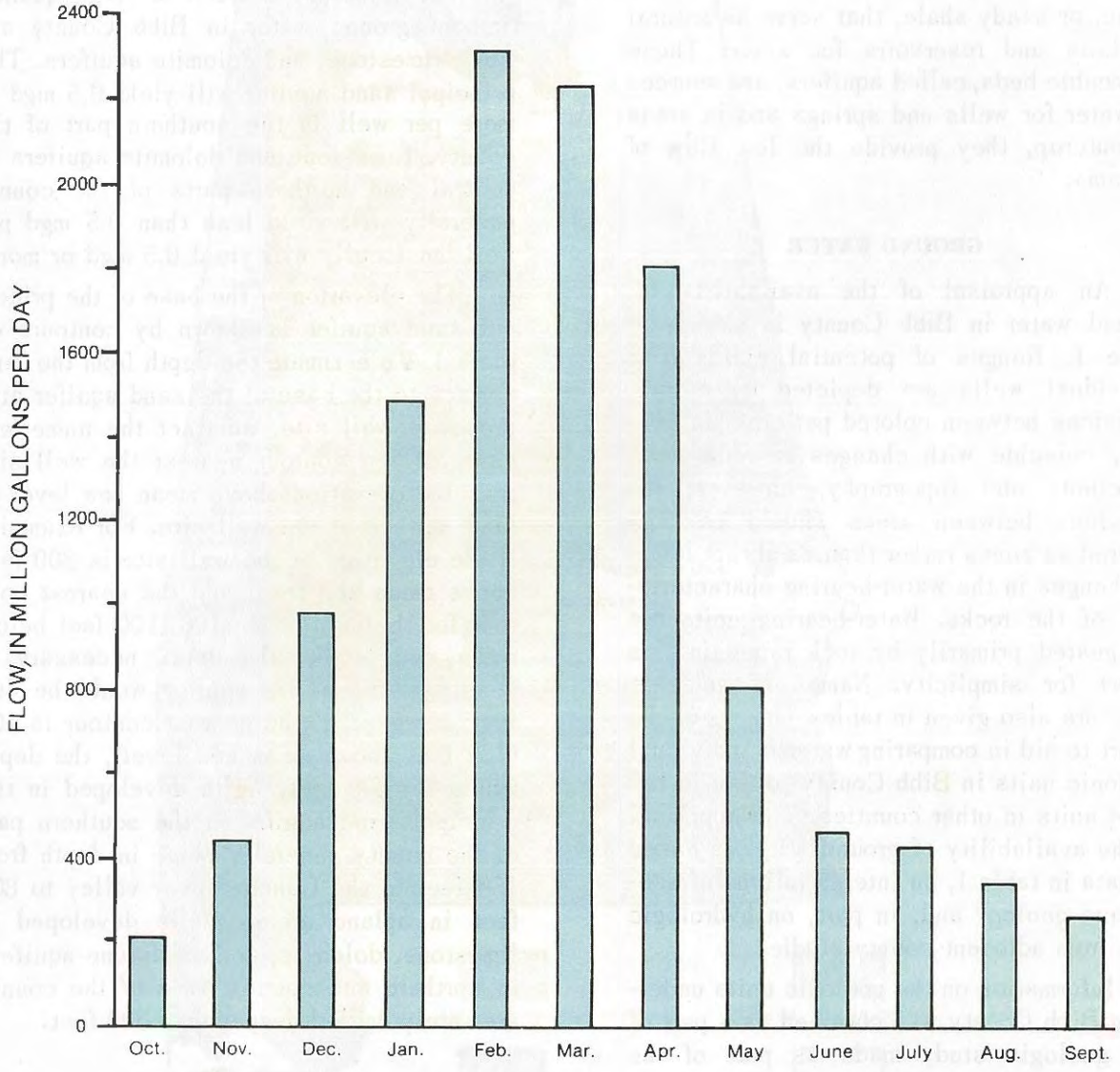


Figure 2.—Average daily flows by month of Cahaba River at Centreville, Alabama.

average daily flows by month of the Cahaba River at Centreville, shows the seasonal variations of streamflow. Streamflow is generally lowest in September and October during months of least rainfall and is highest from January through April during months of greatest rainfall.

The average flow of a stream is the arithmetic mean of all flows of record. In general, the longer the period of record the more accurate is the computed average flow. Average flow data in this report were adjusted to the base period 1940-65, a period including a reasonable balance of wet and dry years.

Average flows of streams in Bibb County are shown on plate 2. The average rate of runoff in the county is about 0.95 mgd per square mile or about 590 mgd for the entire county. The total average flow of all streams in the county is about 1,260 mgd.

Low-flow characteristics of streams may be described in several ways. A low-flow index that is used in this report is the 7-day Q_2 which is defined as the median anuual 7-day minimum flow. For streams that are not regularly gaged, this parameter can be satisfactorily evaluated from a relatively small amount of streamflow data. As a median value, it is a fairly stable parameter, being the average only of position in an array of items and hence unaffected by extreme values. Also as a median, it is a good measure of normal conditions. The recurrence interval for the median value in a series of annual events is always known, being equal to 2 years in any form of frequency distribution. Finally, the 7-day period of low flow is short enough to represent flow that is available for the most part without storage, yet is long enough to suppress the effects of abnormally low transient flows of little hydrologic significance that might result from occasional regulation or from infrequent natural events. Approximate ranges of 7-day Q_2's for streams in Bibb County are depicted on plate 2.

Cahaba River and Little Cahaba River are the largest sources of surface water in Bibb County. The Cahaba River at Centreville has an average flow of 1,000 mgd and a 7-day Q_2 of about 130 mgd. The Little Cahaba River near Brierfield has an average flow of 130 mgd and a 7-day Q_2 of about 30 mgd.

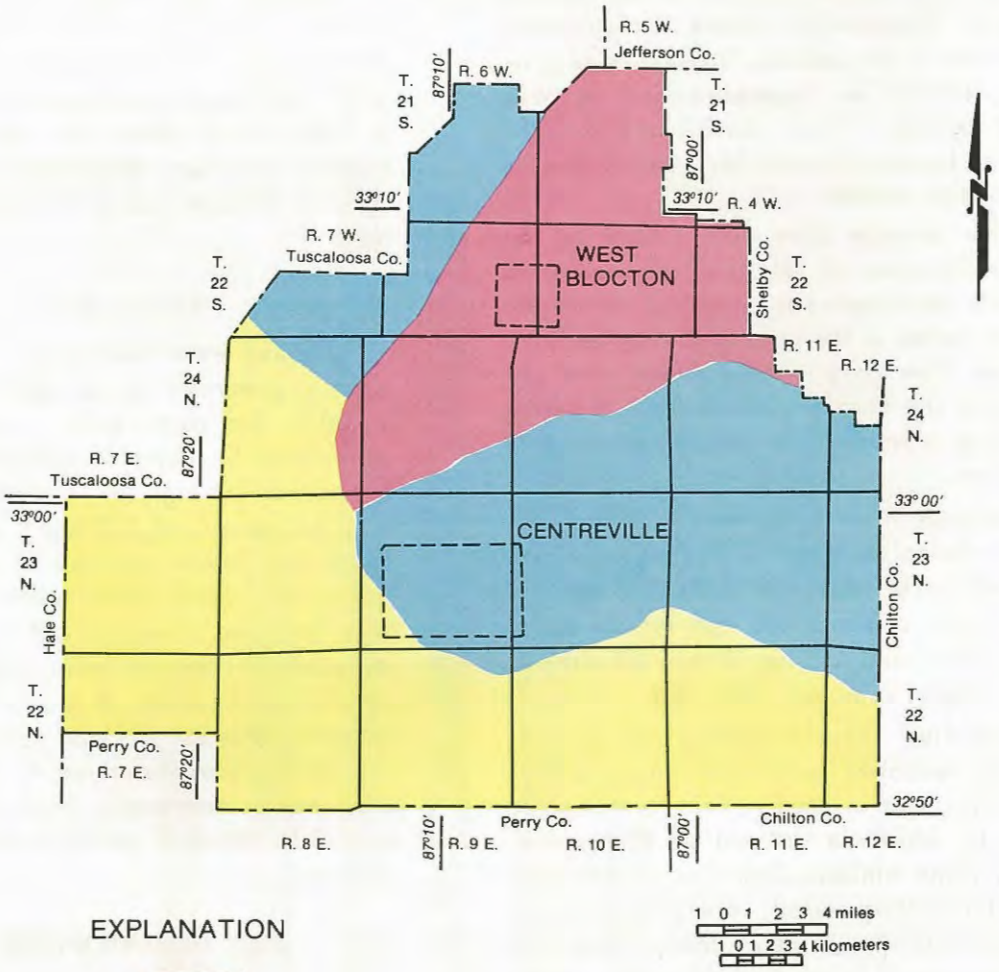
WATER QUALITY

Ground water and surface water in the county generally is of good quality and suitable for most uses. Locally, ground water may be objectionable for some uses because of its high iron content or hardness. Iron in excess of 0.3 mg/l (milligram per liter) may cause staining of plumbing fixtures and fabrics. Hard water is objectionable for some domestic and industrial uses because it increases soap consumption and may deposit scale in pipes and boilers. General terms used in this report to describe the hardness of water are as follows: soft, 0-60 mg/l; moderately hard, 61-120 mg/l; hard, 121-180 mg/l; and very hard, more than 180 mg/l.

GROUND WATER

The general distribution of iron content and hardness of water from aquifers in Bibb County is depicted by colors on figure 3. Chemical analyses of water from wells and springs shown on plate 1 are tabulated in table 2. An analysis of the data indicates that the dissolved-solids content is generally less than 300 mg/l; that water in sand, sandstone, and shale aquifers generally is soft to moderately hard and generally contains iron in excess of 0.3 mg/l; and that water in limestone and dolomite aquifers is generally moderately hard to hard and has an iron content that is less than 0.3 mg/l.

The temperature of water from springs and from wells 300 feet or less in depth in Bibb County ranges from 15° to 19° C (Celsius) or from 59° to 67° F (Fahrenheit).



EXPLANATION

Iron content generally less than 0.3 mg/l (milligrams per liter). Generally moderately hard to very hard (61 to more than 180 mg/l). Principal water-bearing rocks are limestone and dolomite.

Iron content generally exceeds 0.3 mg/l. Generally soft (0 to 60 mg/l). Principal water-bearing rock is sand.

Iron content exceeds 0.3 mg/l. Generally soft to moderately hard (O to 120 mg/l). Principal water-bearing rock is sandstone.

Figure 3.—Generalized distribution of iron content and hardness of ground water in Bibb County, Alabama.

SURFACE WATER

The chemical quality of surface water in Bibb County is significantly influenced by the geologic characteristics of the drainage basins. Water in streams that drain limestone and dolomite generally has a higher bicarbonate content and specific conductance and is harder than that in streams that drain sand, gravel, and clay. Also, the mineral content of the water generally is higher during periods of low streamflow than during periods of high streamflow. The dissolved-solids content (calculated from the specific conductance) is generally less than 150 mg/l; the chloride content less than 5 mg/l; and the hardness less than 140 mg/l.

Chemical analyses of surface water made since October 1967 are tabulated in table 3 and the locations of sampling sites are shown on plate 2. Chemical analyses of water collected earlier at those and other sites are included in several of the reports listed in the selected references.

WATER USE

Ground water from wells and springs is the source of all rural domestic, industrial, and public supplies in Bibb County and is a source for some livestock supplies. Most livestock supplies are obtained from surface-water sources.

Estimated average water use in the county in 1969 was about 1.4 mgd which is about 100 gallons per capita. Water use is less than 1 percent of that available. A summary of ground-water and surface-water use in Bibb County in 1969 is as follows:

Use	Source of supply	
	Ground water	Surface water
	(gallons per day)	
Rural domestic supplies	240,000	
Stock supplies	60,000	150,000
Industrial supplies	20,000	
Public supplies		
Brent	150,000	
Centreville	500,000	
Green Pond	18,000	
West Blocton	100,000	
Rural school supplies	12,000	
Belcher Lumber Co. mill homes	100,000	
Total	1,200,000	150,000

SELECTED REFERENCES

Avrett, J. R., 1966, A compilation of surface water quality data in Alabama: Alabama Geol. Survey Circ. 36, 574 p.

Hains, C. F., 1968, Flow characteristics of Alabama streams: Alabama Geol. Survey Circ. 32, 382 p.

Johnston, W. D., Jr., 1933, Ground water in the Paleozoic rocks of northern Alabama: Alabama Geol. Survey Spec. Rept. 16, pt. 1, 414 p.; pt. 2, 48 well and spring tables.

Monroe, W. H., 1955, Cores of Pre-Selma Cretaceous rocks in the outcrop area in western Alabama, *in* Transactions of the Gulf Coast Association of Geological Societies, v. V, Biloxi, Miss., October 1955: p. 11-38.

Monroe, W. H., Conant, L. C., and Eargle, D. H., 1946, Pre-Selma Upper Cretaceous stratigraphy of western Alabama: Am. Assoc. Petroleum Geologists Bull., v. 30, no. 2, p. 187-212.

Paulson, Q. F., Miller, J. D., Jr., and Drennen, C. W., 1962, Ground-water resources and geology of Tuscaloosa County, Alabama: Alabama Geol. Survey County Rept. 6, 97 p.

Peirce, L. B., 1967, 7-day low flows and flow duration of Alabama streams: Alabama Geol. Survey Bull. 87, Part A, 114 p.

Peirce, L. B., and Brown, Eugene, 1955, Hydrology and surface-water resources of east-central Alabama: Alabama Geol. Survey Spec. Rept. 22, 318 p.

U.S. Geological Survey, 1960, Compilation of records of surface waters of the United States through September 1950, Part 2-B, South Atlantic slope and eastern Gulf of Mexico basins, Ogeechee River to Pearl River: U.S. Geol. Survey Water-Supply Paper 1304, 399 p.

———1963, Compilation of records of surface waters of the United States, October 1950 to September 1960, Part 2-B, South Atlantic slope and eastern Gulf of Mexico basins, Ogeechee River to Pearl River: U.S. Geol. Survey Water-Supply Paper 1724, 458 p.

———1961-64, Surface water records of Alabama: U.S. Geol. Survey, Water Resources Division, Tuscaloosa, Al. (issued annually).

———1965-68, Water resources data for Alabama, Part 1, Surface water records: U.S. Geol. Survey, Water Resources Division, Tuscaloosa, Al., (issued annually).

———1965-68, Water resources data for Alabama, Part 2, Water quality records: U.S. Geol. Survey, Water Resources Division, Tuscaloosa, Al., (issued annually).

BASIC DATA

Table 1.—*Records of wells and springs in Bibb County*

Numbers correspond to those on plate 1.
Depth of well: Depths are given in feet below land surface; S indicates spring.
Water-bearing unit (rock type and geologic unit). Rock type: sc, sand; ls, limestone; dol, dolomite; ss, sandstone; sh, shale. Geologic unit: Cr, Rome Formation; Cc, Conasauga Formation; Cbf, Brierfield Dolomite; Ck, Ketona Dolomite; OCcu, Copper Ridge Dolomite and Chepultepec Dolomite undifferentiated; On, Newala Limestone; Oc, Chickamauga Limestone; Mf, Floyd Shale; IPpv, Pottsville Formation; Kck, Coker Formation.
Altitude: Determined by aneroid barometer.
Water level: Reported water levels are given in feet; measured water levels are given in feet and tenths.
Method of lift: C, cylinder; F, flow; J, jet; M, manual; N, none; S, submersible; T, turbine.
Use of water: D, domestic; I, Industrial; N, not used; P, public supply; S, stock.

Number	Owner	Driller	Year completed	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Remarks
								Above (+) or below land surface (feet)	Date of measurement			
B-1	E. L. Vining	C. S. Glover	1962	87	6	ss, IPpv	662	62	1962	J	D	Casing: 6-in from surface to 20 ft; none below.
B-2	B. R. Williams	Eugene Peal	.....	.....	6	ss, IPpv	385	11.0	11- 2-67	J	D	
B-3	J. R. Tatum	Abston Coal Co	1967	100	6	ss, IPpv	.....	12.2	3- 8-68	J	D	Casing: 6-in from surface to 8.5 ft; none below.
B-4	Raymond Shadrick	Amos Weaver	1960	50	6	ss, IPpv	475	15.2	11- 9-67	J	D	Casing: 6-in from surface to 6 ft; none below.
B-5	Lish Smith	Virgil Peal	.....	60	6	ss, IPpv	430	9.8	3- 8-68	J	D	Casing: 6-in from surface to 10 ft; none below.
C-1	Green Pond Water System	Southern Well Supply Co.	1965	240	6	ls, Cc	580	106	6- 1-66	T	P	Casing: 6-in from surface to 239 ft; none below. Supplies community of Green Pond. Reported drawdown 11 ft after 40 days pumping 170 gpm in 1966.
C-2	H. F. Cleveland	.....	.....	.....	6	sd, Kck	504	.....	.....	J	D	
C-3	W. L. Lightsey	Virgil Peal	1965	104	6	sh, Mf	599	85.0	11- 2-67	J	D	Casing: 6-in from surface to 41 ft; none below.
C-4	Gray Jones	- - Martin	1958	157	6	dol, OCcu	484	130.9	12-27-67	J	D	Casing: 6-in from surface to 150 ft; none below.
C-5	C. R. Goggins	Virgil Peal	1965	58	6	ls, Oc	472	42	1965	J	D	Casing: 6-in from surface to 50 ft; none below.
D-1	W. E. Nelson	H. W. Peerson Drilling Supply Co.	.....	126	6	dol, OCcu	421	86	1- 4-54	J	D	Casing: 6-in from surface to 84.5 ft; none below. Reported yield 25 gpm in 1954.
D-2	W. F. Reach	McCarty Drilling Co	1966	146	6	dol, OCcu	426	96.4	10-26-67	S	D	Casing: 6-in from surface to 134 ft; none below.
E-1	City of West Blocton	.....	.....	S	.....	sd, Kck	423	.....	.....	T	P	Cited as Town Spring by Johnston (1933). Estimated flow 30 gpm on 12-27-67.
E-2	Henry Goodman	Chapman Drilling Co	1959	108	8	sd, Kck	555	36	1959	J	D	Casing: 8-in from surface to 108 ft.
E-3	R. D. Burns	A. L. Weaver	1966	130	6	ss, IPpv	523	50.5	12-26-67	J	D	Casing: 6-in from surface to 88 ft; none below.
E-4	West Blocton High School	.....	1968	245	7	ss, IPpv	458	.....	.....	S	P	Casing: 7-in from surface to 18 ft; none below. Well reportedly taps abandoned mine shaft filled with water. Water used to irrigate football field. Reported to pump 50 gpm in 1968.
E-5	Mrs. Geneva Price	C. S. Glover	1967	158	6	ss, IPpv	543	80.2	12-28-67	J	D	Casing: 6-in from surface to 53 ft; none below.
F-1	E. L. Roberts	H. W. Peerson Drilling Supply Co.	1962	129	6	ss, IPpv	497	52.1	1- 5-68	S	D	Casing: 6-in from surface to 28 ft; none below.

F-2	Marvin T. Hyde		1920	30	6	sd, Kck		1.2	12-27-67	J	D	Casing: 6-in from surface to 30 ft. Well flows after heavy rains.
G-1	Ghuido Melsoni	McCarty Drilling Co	1967	280	6	ss, Ppv		87.7	1- 6-68	S	D	Casing: 6-in from surface to 85 ft; none below.
H-1	Ruby Battle	Graves Drilling Co., Inc.	1959	75	6	dol, Cbf	379	23.4	11-14-67	J	D	Casing: 6-in from surface to 25 ft; none below.
I-1	J. O. Page	Pugh Drilling Co	1967	178	6	dol, Cbf	393	85.6	11-13-67	S	D	Casing: 6-in from surface to 40 ft; none below.
I-2	Julius Gilbert		1965	130	6	sh, Cr	384	30.8	11-15-67	S	D	Casing: 6-in from surface to 50 ft; none below.
I-3	Mrs. J. E. Clark	C. S. Glover	1961	105	6	dol, Cbf	410	83.7	11-15-67	J	D	
I-4	Clara Burt	Southern Well Supply Co.	1967	193	6	dol, OCccu	514	183.9	11-15-67	S	D	Casing: 6-in from surface to 170 ft; none below.
I-5	K. F. Brown	Pugh Drilling Co	1965	180	6	dol, OCccu	509	136.8	11-14-67	J	D	Casing: 6-in from surface to 100 ft; none below.
J-1	John Lutz	Virgil Peal	1964	197	6	ss, Ppv	519	59.5	1- 5-68	J	D	Casing: 6-in from surface to 35 ft; none below.
J-2	Miller Champion	C. S. Glover	1966	400	6	dol, OCccu	380	115	1966	S	D	Casing: 6-in from surface to 100 ft; none below.
J-3	Julian Fancher	Southern Well Supply Co.	1963	85	6	dol, OCccu	334	68.7	11-13-67	J	D	Casing: 6-in from surface to 85 ft; slotted from 80 to 85 ft.
J-4	Cruise Weaver	C. S. Glover	1954	459	6	dol, OCccn	348	115	1954	J	D	Casing: 6-in from surface to 92 ft; none below.
K-1	Mike Nelson	....do	1959	100	6	ss, Ppv	466	40.1	11- 8-67	J	D	Casing: 6-in from surface to 27 ft; none below.
K-2	W. J. Rice	....do	1957	51	6	ss, Ppv	479	28	1957	J	D	Casing: 6-in from surface to 29 ft; none below.
K-3	Erskin Mednos	McCarty Drilling Co	1966	150	6	ss, Ppv	408	83.4	11- 8-67	S	D	
K-4	Curtis Smitherman	....do	1966	200	6	ss, Ppv	347	2	1966	J	D	Casing: 6-in from surface to 70 ft; none below.
L-1	City of West Blocton			S		dol, OCccu	335				P	Known as Williams Spring. Estimated flow 750 gpm on 10-25-67. Reportedly pumped about 3,000 gpm during test in 1967.
L-2	Hogan B. Lewis	Causey Drilling Co	1950	100	4	sd, Kck	494			C	N	Casing: 4-in from surface to 95 ft; screen from 95 to 100 ft. Reported to contain objectionable quantity of iron.
L-3	Rev. Parker Stewart	....do	1966	168	4	sd, Kck	463	126.4	1- 5-68	J	D	Casing: 4-in from surface to 163 ft; screen from 163 to 168 ft.
L-4	Sam Hall	....do	1960	176	4	sd, Kck	437	133.2	11- 7-67	S	D	Casing: 4-in from surface to 171 ft; screen from 171 to 176 ft.
L-5	R. S. Murphy	....do	1967	119	4	sd, Kck	366	86.0	6-27-67	J	D	Casing: 4-in from surface to 114 ft; screen from 114 to 119 ft.
N-1	Eoline Elementary School	....do	1952	82	4	sd, Kck	269	4.7	10-24-67	J	P	Casing: 4-in from surface to 77 ft; screen from 77 to 82 ft.
N-2	Johnny Lemonis	....do		88	4	sd, Kck	353	67		J	D	Casing: 4-in from surface to 83 ft; screen from 83 to 88 ft.
N-3	Troy Wyatt	....do	1962	210	4	sd, Kck	321	73.8	12- 6-67	J	S	Casing: 4-in from surface to 205 ft; screen from 205 to 210 ft.
N-4	G. M. Elam	....do	1962	165	4	sd, Kck	281			J	D	Casing: 4-in from surface to 160 ft; screen from 160 to 165 ft.
O-1	C. H. Parks		1956	153	6	dol, OCccu	298	60.2	11- 7-67	J	D	Casing: 6-in from surface to 54 ft; none below.
O-2	Vic Moore	Causey Drilling Co		180	4	sd, Kck	430	148.2	11- 3-67		D	Casing: 4-in from surface to 175 ft; screen from 175 to 180 ft.
O-3	D. E. Burk	C. S. Glover	1962	373	8	dol, OCccu	259	50	1962	S	D	Casing: 8-in from surface to 44 ft; none below.

Table 1.--*Records of wells and springs in Bibb County*--Continued

Number	Owner	Driller	Year completed	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Remarks
								Above (+) or below land surface (feet)	Date of measurement			
O-4	H. L. Partridge	.....	1920	200	6	dol, €bf	336	.....	.....	S	D	
O-5	Centreville Gin Co	H. W. Peerson Drilling Supply Co.	.....	404	8	dol, O€ccu	231	29.0	10-31-67	N	N	Casing: 8-in from surface to 80 ft; none below. Used by U.S. Geol. Survey as observation well.
O-6	W. E. Belcher Lumber Co.	....do	1946	175	10	dol, O€ccu	225	55	1947	T	P, I	Casing: 10-in from surface to 84 ft; none below. Supplies mill village and lumber plant. Reportedly pumped at 200 gpm for 24 hrs in 1947.
O-7	City of Brent	....do	1953	307	8	dol, O€ccu	225	7 8	1953 1969	T	P	Casing: 8-in from surface to 86 ft; none below. Reported drawdown 25 ft after 24 hrs pumping 200 gpm in 1953. Reported yield 25 gpm with 142 ft drawdown in 1969.
O-8	Olin Belcher Lumber Co	Acme Drilling Co	1963	350	6	dol, O€ccu	240	20	1963	S	I	Casing: 6-in from surface to 100 ft; none below. Reported yield 130 gpm in 1963 and 30 to 40 gpm with 120 ft drawdown in 1969.
O-9	City of Brent	H. W. Peerson Drilling Supply Co.	1946	300	8	dol, O€ccu	234	14	1946	T	P	Casing: 8-in from surface to 80 ft; none below. Reported drawdown 98 ft after 24 hrs pumping 103 gpm in 1946. Reported yield about 30 gpm in 1967.
O-10	W. E. Belcher Lumber Co.	.....	1930	600(?)	6	dol, O€ccu	227	.....	.....	T	I	
P-1	D. C. Weaver	Chapman Drilling Co.	1958	148	6	ls, On	317	57.0	11-13-67	J	D	Casing: 6-in from surface to 16 ft; none below.
P-2	Charlie Cochrane	Southern Well Supply Co	1967	240	6	dol, O€ccu	369	185.8	11- 3-67	S	D	Casing: 6-in from surface to 220 ft; slotted from 200 to 220 ft; none below.
P-3	D. E. Tucker	....do	1967	115	6	ls, €c	417	54.3	11- 3-67	S	D	Casing: 6-in from surface to 73 ft; none below.
P-4	City of Centreville	H. W. Peerson Drilling Supply Co.	1954	110	.....	dol, O€ccu	260	16	1962	T	P	Casing: 6-in from surface to 78 ft; none below. Reported drawdown 70 ft after 24 hrs pumping 180 gpm in 1962.
P-5	....do	Acme Drilling Co.	1963	119	8	dol, O€ccu	252	23	1963	T	P	Casing: 8-in from surface to 101 ft; none below. Reported drawdown 35 ft after 8 hrs pumping 343 gpm in 1963.
P-6	H. F. McCord	C. W. Dunlap	1955	84	3	sd, Kck	324	40	1955	J	D	Casing: 3-in from surface to 74 ft; screen from 74 to 84 ft.
Q-1	Six Mile Elementary School.	.....	.....	.....	.....	dol, €k	388	.....	.....	J	P	
Q-2	D. E. Lovejoy	Graves Drilling Co., Inc.	1960	205	6	dol, O€ccu	369	30	1960	J	D	Casing: 6-in from surface to 96 ft; none below.
Q-3	W. D. Lagrone	Myhand Drilling Co	1967	122	6	dol, O€ccu	370	34.0	11-14-67	S	D	Casing: 6-in from surface to 118 ft; none below.
Q-4	C. C. McCombs	Southern Well Supply Co.	1963	187	6	dol, O€ccu	466	144.6	11-13-67	S	D	Casing: 6-in from surface to 187 ft; slotted from 182 to 187 ft.
Q-5	Lynn Jackson	.....	1900	13	30	sd, Kck	430	6.2	12- 7-67	J	D	Curbing: 30-in from surface to 13 ft.
Q-6	Ben Narramore	Causey Drilling Co	1967	200	4	sd, Kck	518	130	11-19-67	S	D	Casing: 4-in from surface to 195 ft; screen from 195 to 200 ft.

Q-7	C. M. Lawrence.....	Southern Well Supply Co....	1963	100	6	sd, Kck	446	29.0	12- 1-67	J	D	Casing: 6-in from surface to 99 ft; none below.
R-1	Frank Fulgham.....	....do.....	1967	115	6	ls, On	466	59.0	11-14-67	S	D	Casing: 6-in from surface to 115 ft; slotted from 90 to 115 ft.
S-1	Allen P. Howison Memorial School.	.....	1959	100	6	sd, Kck	550	26.5	11-28-67	J	P	Casing: 6-in from surface to 99 ft; none below.
S-2	Ovid Merchant	Dunlap Drilling Co	1954	120	3	sd, Kck	502	30	1954	J	D	Casing: 6-in from surface to 119 ft; none below.
T-1	Lawrence Weeks	.....	1958	50	30	sd, Kck	571	37.8	12- 7-67	J	D	Casing: 30-in from surface to 49 ft; none below.
T-2	Joe Friend	.....	.....	31	30	sd, Kck	402	24.2	12-21-67	J	D	Casing: 30-in from surface to 31 ft.
T-3	....do.....	.....	1956	50	4	sd, Kck	449	33.2	12-21-67	.....	N	Reported to be too muddy for domestic use.
T-4	Tom Matthews	McCarty Drilling Co	1968	195	6	sd, Kck	449	34.3	10- 4-68	S	D	Casing: 4-in from surface to 195 ft; slotted from 155 to 195 ft.
T-5	Grady Burnett.....	.....	1960	25	30	sd, Kck	467	20.0	12- 7-67	J	D	Casing: 30-in from surface to 25 ft.
T-6	C. H. McGee.....	.....	1964	143	4	sd, Kck	446	43.9	11-28-67	J	D	Casing: 4-in from surface to 87 ft; none below.
T-7	Walker Atcheson	.....	1930	13	30	sd, Kck	482	5.2	12-21-67	J	D	Casing: 30-in from surface to 13 ft.
U-1	Ralph Burnett.....	.....	.....	43	30	sd, Kck	578	38.4	12-21-67	J	D	Casing: 30-in from surface to 42 ft; none below.
U-2	R. J. Smith.....	.....	1962	17	30	sd, Kck	.....	12.2	12-11-67	M	D	Casing: 30-in from surface to 17 ft. Measured flow 6,100 gpm on 5-29-57.
V-1	Centreville Industrial Committee.	.....	.....	S	.....	dol, OCccu (?)	197	.....	.....	F	N	
V-2	S. E. Belcher, Jr.....	H. W. Peerson Drilling Supply Co.	1952	270	6	dol, OCccu	254	30	1952	S	D	Casing: 6-in from surface to 190 ft; none below.
V-3	....do.....	.....	.....	150	3	sd, Kck	196	.....	.....	F	N	Measured flow 30 gpm on 12-6-67.
V-4	Bethel Church	.....	.....	165	5	sd, Kck	217	.....	.....	F	N	Measured flow 30 gpm on 11-16-67.
V-5	Reid Griffin	.....	.....	S	.....	sd, Kck	.....	.....	.....	F	S	Measured flow 10 gpm on 12-12-67.
V-6	Robert Griffin.....	.....	1952	27	30	sd, Kck	334	20.6	12-21-67	J	D	Casing: 30-in from surface to 27 ft.
V-7	Cleveland Stewart.....	.....	.....	257	3	sd, Kck	184	.....	.....	F	N	
V-8	H. P. James.....	Cecil F. Radford.....	.....	270	3	sd, Kck	197	.....	.....	F	S	Measured flow 20 gpm on 12-5-67.
V-9	....do.....	....do.....	.....	340	3	sd, Kck	193	.....	.....	F	S	
V-10	Cleveland Stewart.....	C. W. Dunlap	1953	75	4	sd, Kck	271	48.5	12-12-67	J	D	Casing: 4-in from surface to 70 ft; screen from 70 to 75 ft.
W-1	J. E. Mayfield	Causey Drilling Co.....	1964	152	4	sd, Kck	340	102	1964	J	D	Casing: 4-in from surface to 147 ft; screen from 147 to 152 ft.
W-2	Garland Kinard.....	....do.....	1967	195	4	sd, Kck	485	163	1967	S	D	Casing: 4-in from surface to 190 ft; screen from 190 to 195 ft.
W-3	Erby Moore.....	....do.....	1967	175	4	sd, Kck	458	135.2	11-22-67	J	D	Casing: 4-in from surface to 170 ft; screen from 170 to 175 ft.
W-4	William H. Randolph.....	....do.....	1964	126	4	sd, Kck	395	96	1964	J	D	Casing: 4-in from surface to 121 ft; screen from 121 to 126 ft.
W-5	H. P. James.....	Cecil F. Radford.....	.....	286	4	sd, Kck	232	25	1966	S	D	
W-6	James E. Green.....	....do.....	1966	280	4	sd, Kck	242	22.0	11-16-67	S	D	Casing: 4-in from surface to 100 ft; none below.
X-1	U.S. Forest Service	H. C. Blackwell, Jr.....	1964	163	6	sd, Kck	377	121.4	11-22-67	C	D	Casing: 6-in from surface to 158 ft; screen from 158 to 163 ft.

Table 2.—*Chemical analyses of water from wells and springs in Bibb County*

Numbers correspond to those on plate 1 and in table 1. S in well-depth colnmn indicates spring.

Water-bearing unit (rock type and geologic unit). Rock type: dol, dolomite; ls, limestone; sd, sand; ss, sandstone; sh, shale. Geologic unit: €r, Rome Formation; €c, Conasauga Formation; €bf, Brierfield Dolomite; €k, Ketona Dolomite; O€ccu, Copper Ridge Dolomite and Chepultepec Dolomite undifferentiated; On, Newala Limestone; Oc, Chickamauga Limestone; Mf, Floyd Shale; IPpv, Pottsville Formation; Kck, Coker Formation.

Number	Well owner	Date of collection	Water-bearing unit	Well depth (feet)	Milligrams per liter														Specific conductance (micromhos at 25° C)	pH	Temperature	
					Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (calculated)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate			°C	°F
B-1	E. L. Vining	11- 2-67	ss, IPpv	87	.....	0.07	....	....	....	11	0	....	0.8	.....	.....	.....	4	0	17	6.7	...	...
B-2	B. R. Williams	11- 2-67	ss, IPpv	.....	.....	11	....	....	....	129	0	....	1.4	.....	.....	.....	79	0	208	7.7	...	...
B-3	J. R. Tatum	3- 8-68	ss, IPpv	100	.....	7.5	....	....	....	196	3	....	7.2	.....	.....	.....	101	0	353	8.3	...	...
B-4	Raymond Shadrick	11- 9-67	ss, IPpv	50	.....	5.3	....	....	....	107	0	....	4.2	.....	.....	.....	78	0	204	8.0	...	...
B-5	Lish Smith	3- 8-68	ss, IPpv	60	.....	.63	....	....	....	119	0	....	2.2	.....	.....	.....	58	0	191	8.0	...	...
C-1	Green Pond Water System	11- 2-67	ls, €c	240	.....	.06	....	....	....	136	0	....	8.0	.....	.....	.....	119	7	268	7.8	17	63
C-1	....do	5-13-69	ls, €c	240	11	.03	41	3.6	6.2	133	0	0.0	6.5	0.1	15	148	117	8	246	7.3	...	...
C-2	H. F. Cleveland	12-20-67	sd, Kck	.....	.....	17	....	....	....	30	0	....	3.0	.....	.....	.....	8	0	57	6.7	...	...
C-3	W. L. Lightsey	11- 2-67	sh, Mf	104	.....	.12	....	....	....	258	0	....	1.6	.....	.....	.....	176	0	418	7.6	...	...
C-4	Gray Jones	12-27-67	dol, O€ccu	157	.....	.28	....	....	....	134	0	....	1.4	.....	.....	.....	116	6	231	7.8	...	...
C-5	C. R. Goggins	12-26-67	ls, Oc	58	.....	.03	....	....	....	114	0	....	1.8	.....	.....	.....	100	7	207	7.5	...	...
C-5	....do	5-13-69	ls, Oc	58	7.2	.04	38	1.7	.2	120	0	.0	1.6	.0	2.0	110	102	4	195	7.3	...	...
D-1	W. E. Nelson	10-26-67	dol, O€ccu	126	.....	.02	....	....	....	152	0	....	9.6	.....	.....	.....	148	23	315	8.2	...	...
D-2	W. F. Reach	10-26-67	dol, O€ccu	146	.....	.08	....	....	....	120	0	....	1.4	.....	.....	.....	109	11	205	8.0	...	...
E-1	City of West Blocton	12-27-67	sd, Kck	S	.....	.07	....	....	....	90	0	....	1.4	.....	.....	.....	78	4	159	7.8	15	59
E-2	Henry Goodman	12-26-67	sd, Kck	108	.....	1.2	....	....	....	8	0	....	2.8	.....	.....	.....	5	0	21	6.2	...	...
E-3	R. D. Burns	12-26-67	ss, IPpv	130	.....	4.8	....	....	....	58	0	....	2.2	.....	.....	.....	44	0	117	6.7	...	...
E-4	West Blocton High School	4-17-69	ss, IPpv	245	.....	2.1	....	....	....	86	9	.2	6.3	.....	.....	.....	60	0	167	8.6	...	...
E-5	Mrs. Geneva Price	12-28-67	ss, IPpv	158	.....	6.5	....	....	....	49	0	....	2.6	.....	.....	.....	41	1	108	7.2	...	...
F-1	E. L. Roberts	1- 5-68	ss, IPpv	129	.....	2.9	....	....	....	118	0	....	6.4	.....	.....	.....	90	0	228	7.5	...	...
F-2	M. T. Hyde	12-27-67	sd, Kck	30	.....	4.2	....	....	....	87	0	....	4.4	.....	.....	.....	78	7	177	6.6	...	...
G-1	Ghuido Melsoni	1- 5-68	ss, IPpv	280	.....	.22	....	....	....	47	0	....	38	.....	.....	.....	110	21	424	7.0	...	...
H-1	Ruby Battle	11-14-67	dol, €bf	75	.....	.04	....	....	....	187	0	....	2.4	.....	.....	.....	162	9	330	7.7	18	64
I-1	J. O. Page	11-13-67	dol, €bf	178	.....	.04	....	....	....	236	0	....	.8	.....	.....	.....	150	0	392	8.1	...	...
I-2	Julius Gilbert	11-15-67	sh, €r	130	.....	.03	....	....	....	278	0	....	3.8	.....	.....	.....	216	0	469	7.9	17	62
I-3	Mrs. J. E. Clark	11-15-67	dol, €bf	105	.....	.01	....	....	....	184	0	....	5.2	.....	.....	.....	172	21	348	7.9	...	...
I-4	Clara Burt	11-16-67	dol, O€ccu	193	.....	.04	....	....	....	135	0	....	1.0	.....	.....	.....	116	5	235	7.7	17	62
I-5	K. F. Brown	11-14-67	dol, O€ccu	180	.....	.02	....	....	....	242	2	....	.8	.....	.....	.....	158	0	403	8.3	...	...
J-1	John Lutz	1- 5-68	ss, IPpv	197	.....	.56	....	....	....	152	0	....	4.8	.....	.....	.....	95	0	291	7.1	...	...
J-2	Miller Champion	11- 9-67	dol, O€ccu	400	.....	.04	....	....	....	165	11	....	.2	.....	.....	.....	160	25	317	8.4	...	...
J-3	Julian Fancher	11-13-67	dol, O€ccu	85	.....	.07	....	....	....	158	6	....	2.4	.....	.....	.....	155	46	305	8.4	...	...
J-4	Cruise Weaver	11- 9-67	dol, O€ccu	459	.....	.01	....	....	....	124	12	....	2.0	.....	.....	.....	129	39	261	8.3	...	...
K-1	Mike Nelson	11- 8-67	ss, IPpv	100	.....	.34	....	....	....	20	0	....	2.2	.....	.....	.....	30	14	63	7.0	...	...
K-2	W. J. Rice	11- 9-67	ss, IPpv	51	.....	.05	....	....	....	2	0	....	3.6	.....	.....	.....	2	0	26	5.8	...	...
K-3	Erskin Mednos	11- 8-67	ss, IPpv	150	.....	1.8	....	....	....	102	0	....	.4	.....	.....	.....	100	16	206	8.0	...	...
K-4	Curtis Smitherman	10-26-67	ss, IPpv	200	.....	.23	....	....	....	154	4	....	55	.....	.....	.....	78	0	464	8.4	...	...
L-1	City of West Blocton	10-25-67	dol, O€ccu	S	.....	.00	....	....	....	136	6	....	1.4	.....	.....	.....	112	0	239	8.4	...	...
L-1	....do	5-13-69	dol, O€ccu	S	9.4	.02	34	9.7	1.2	150	0	1.2	1.6	.0	1.3	131	125	2	237	...	...	...
L-3	Parker Stewart	1- 5-68	sd, Kck	168	.....	1.2	....	....	....	9	0	....	1.2	.....	.....	.....	5	0	24	6.0	...	...
L-4	Sam Hall	11- 7-67	sd, Kck	176	.....	15	....	....	....	12	0	....	2.0	.....	.....	.....	18	8	42	5.8	...	...
L-5	R. S. Murphy	10-25-67	sd, Kck	119	.....	16	....	....	....	4	0	....	3.8	.....	.....	.....	8	5	25	6.8	...	...
N-1	Eoline Elementary School	10-24-67	sd, Kck	82	.....	.18	....	....	....	8	0	....	4.2	.....	.....	.....	8	1	35	7.3	...	...
N-2	Johnny Lemonis	10-24-67	sd, Kck	88	.....	1.3	....	....	....	10	0	....	1.4	.....	.....	.....	9	1	33	6.8	...	...
N-3	Troy Wyatt	12- 6-67	sd, Kck	210	.....	8.5	....	....	....	28	0	....	1.8	.....	.....	.....	32	9	68	6.1	...	...
N-4	G. M. Elam	12- 6-67	sd, Kck	165	.....	32	....	....	....	36	0	....	1.4	.....	.....	.....	31	1	78	6.2	...	...
O-1	C. H. Parks	10- 7-67	dol, O€ccu	153	.....	.03	....	....	....	130	20	....	4.2	.....	.....	.....	151	44	296	8.4	...	...
O-3	D. E. Burk	11- 7-67	dol, O€ccu	373	.....	.03	....	....	....	196	12	....	1.2	.....	.....	.....	192	31	365	8.7	...	...
O-4	H. L. Partridge	11-16-67	dol, €bf	200	.....	.00	....	....	....	110	0	....	4.2	.....	.....	.....	100	10	218	7.2	18	65

O-6	W. E. Belcher Lumber Co...	5-16-69	dol, OCccu	175	.....	.02	....	....	....	228	0	....	6.0	.....	.....	.....	202	15	382	8.1	...	...
O-7	City of Brent	11-16-67	dol, OCccu	307	.....	1.2	....	....	....	184	8	....	6.2	.....	.....	.....	172	21	368	8.3	19	66
O-9	....do.....	11-16-67	dol, OCccu	300	.....	.03	....	....	....	158	12	....	2.2	.....	.....	.....	162	32	321	8.7	19	66
O-10	W. E. Belcher Lumber Co...	5-16-69	dol, OCccu	600(?)	.....	.03	....	....	....	214	0	....	6.9	.....	.....	.....	190	14	369	7.9	...	...
P-1	D. C. Weaver	11-13-67	ls, On	148	.....	.54	....	....	....	334	0	....	2.8	.....	.....	.....	196	0	555	8.2	...	...
P-1	....do.....	5-17-69	ls, On	148	9.3	.22	60	21	18	323	0	5.0	2.0	.0	2.5	261	235	0	.....	7.4	...	...
P-2	Charlie Cochrane	11- 3-67	dol, OCccu	240	.....	.22	....	....	....	164	0	....	.8	.....	.....	.....	134	0	263	7.9	...	...
P-3	D. E. Tucker	11- 3-67	ls, €c	115	.....	.05	....	....	....	126	4	....	1.4	.....	.....	.....	116	13	230	...	...	...
P-3	....do.....	5-13-69	ls, €c	115	6.8	.03	19	11	.8	104	0	.2	2.0	.0	7.6	99	92	7	183	7.3	...	...
P-4	City of Centreville	10-23-67	dol, OCccu	110	.....	.02	....	....	....	158	0	....	2.0	.....	.....	.....	132	2	253	7.9	18	64
P-5	....do.....	10-23-67	dol, OCccu	119	.....	.00	....	....	....	154	0	....	2.4	.....	.....	.....	130	4	254	7.9	18	65
P-5	....do.....	5-13-69	dol, OCccu	119	9.4	.02	27	12	2.4	141	0	1.0	2.0	.0	3.1	126	118	2	230	7.5	...	...
P-6	H. F. McCord.....	12- 1-67	sd, Kck	84	.....	.05	....	....	....	194	0	....	2.0	.....	.....	.....	161	2	364	7.5	...	...
Q-1	Six Mile Elementary School.	11- 3-67	dol, €k	.....	.....	.01	....	....	....	168	0	....	1.8	.....	.....	.....	139	1	268	7.8	...	...
Q-2	D. E. Lovejoy	11-14-67	dol, OCccu	205	.....	.05	....	....	....	106	8	....	1.6	.....	.....	.....	105	18	218	8.3	18	64
Q-3	W. D. Lagrone	11-14-67	dol, OCccu	122	.....	.69	....	....	....	114	0	....	2.0	.....	.....	.....	105	12	215	7.5	17	62
Q-4	C. C. McCombs	11-13-67	dol, OCccu	187	.....	.06	....	....	....	134	0	....	1.2	.....	.....	.....	111	1	234	7.7	...	...
Q-5	Lynn Jackson	12- 7-67	sd, Kck	13	.....	.07	....	....	....	22	0	....	3.4	.....	.....	.....	44	26	.....	6.8	...	...
Q-6	Ben Narramore	12- 1-67	sd, Kck	200	.....	1.8	....	....	....	36	0	....	3.8	.....	.....	.....	39	9	106	6.5	...	...
Q-7	C. M. Lawrence	12- 1-67	sd, Kck	100	.....	5.6	....	....	....	30	0	....	1.0	.....	.....	.....	14	0	55	6.8	...	...
R-1	Frank Fulgham.....	11-14-67	ls, On	115	.....	.00	....	....	....	180	0	....	3.2	.....	.....	.....	141	0	.....	7.8	18	65
S-1	Allen P. Howison Memorial School.	11-28-67	sd, Kck	100	.....	.48	....	....	....	12	0	....	6.4	.....	.....	.....	14	4	57	6.0	...	...
S-2	Ovid Merchant.....	11-28-67	sd, Kck	120	.....	8.5	....	....	....	18	0	....	25	.....	.....	.....	32	17	130	6.1	...	...
T-1	Lawrence Weeks	12- 7-67	sd, Kck	50	.....	.07	....	....	....	55	0	....	1.4	.....	.....	.....	38	0	105	6.5	...	...
T-2	Joe Friend	12-21-67	sd, Kck	31	.....	1.3	....	....	....	19	0	....	59	.....	.....	.....	51	35	275	5.8	17	62
T-5	Grady Burnett	12- 7-67	sd, Kck	25	.....	.07	....	....	....	31	0	....	4.4	.....	.....	.....	30	5	81	6.3	...	...
T-6	C. H. McGee	11-28-67	sd, Kck	143	.....	13	....	....	....	38	0	....	1.4	.....	.....	.....	22	0	78	6.4	...	...
T-7	Walker Atcheson	12-21-67	sd, Kck	13	.....	.07	....	....	....	36	0	....	13	.....	.....	.....	20	0	117	6.6	16	60
U-1	Ralph Burnett	12-21-67	sd, Kck	43	.....	.05	....	....	....	14	0	....	22	.....	.....	.....	32	21	156	6.6	...	...
U-2	R. J. Smith.....	12-11-67	sd, Kck	17	.....	.34	....	....	....	9	0	....	5.8	.....	.....	.....	2	0	32	6.4	15	59
V-1	Centreville Industrial Committee.	10-24-67	dol, OCccu	S	.....	.08	....	....	....	140	6	....	5.0	.....	.....	.....	128	13	252	8.5	...	...
V-1	....do.....	5-13-69	dol, OCccu	S	8.9	.16	29	13	1.2	146	0	2.8	3.8	.0	.7	131	128	8	242	7.6	...	...
V-2	S. E. Belcher, Jr.....	12- 6-67	dol, OCccu	270	.....	1.5	....	....	....	191	0	....	.6	.....	.....	.....	321	164	686	7.5	18	65
V-3	....do.....	12- 6-67	sd, Kck	150	.....	.04	....	....	....	124	0	....	6.8	.....	.....	.....	110	8	258	7.7	18	65
V-4	Bethel Church	11-16-67	sd, Kck	165	.....	5.6	....	....	....	91	0	....	1.8	.....	.....	.....	92	17	186	7.1	18	64
V-4	....do.....	5-13-69	sd, Kck	165	18	5.0	20	8.3	1.1	96	0	4.4	1.8	.1	.4	101	84	5	177	7.2	...	...
V-5	Reid Griffin	12-12-67	sd, Kck	S	.....	.05	....	....	....	7	0	....	1.8	.....	.....	.....	5	0	22	6.6	17	63
V-6	Robert Griffin.....	12-21-67	sd, Kck	27	.....	.17	....	....	....	20	0	....	9.6	.....	.....	.....	22	6	73	6.1	...	...
V-7	Cleveland Stewart	12-12-67	sd, Kck	257	.....	1.7	....	....	....	96	0	....	2.4	.....	.....	.....	80	1	180	8.0	18	64
V-8	H. P. James.....	12- 5-67	sd, Kck	270	.....	.46	....	....	....	155	0	....	6.6	.....	.....	.....	140	13	305	7.6	19	67
V-9	....do.....	12- 5-67	sd, Kck	340	.....	.82	....	....	....	148	0	....	6.8	.....	.....	.....	125	4	290	7.7	18	65
V-10	Cleveland Stewart.....	12-12-67	sd, Kck	75	.....	20	....	....	....	12	0	....	3.6	.....	.....	.....	9	0	36	5.8	...	...
W-1	J. E. Mayfield	11-22-67	sd, Kck	152	.....	.05	....	....	....	10	0	....	.6	.....	.....	.....	5	0	26	5.6	...	...
W-2	Garland Kinard	11-22-67	sd, Kck	195	.....	1.2	....	....	....	12	0	....	.6	.....	.....	.....	6	0	17	6.9	...	...
W-3	Erby Moore	11-22-67	sd, Kck	175	.....	.82	....	....	....	14	0	....	2.0	.....	.....	.....	5	0	32	5.7	...	...
W-4	William H. Randolph.....	11-22-67	sd, Kck	126	.....	.04	....	....	....	7	0	....	2.4	.....	.....	.....	10	4	46	5.9	...	...
W-5	H. P. James.....	12- 5-67	sd, Kck	286	.....	4.3	....	....	....	56	0	....	2.0	.....	.....	.....	31	0	91	6.5	...	...
W-6	James E. Green.....	11-16-67	sd, Kck	280	.....	3.6	....	....	....	129	0	....	2.2	.....	.....	.....	115	9	240	7.5	...	...
X-1	U.S. Forest Service	11-22-67	sd, Kck	163	.....	3.2	....	....	....	23	0	....	.6	.....	.....	.....	8	0	38	6.1	...	...

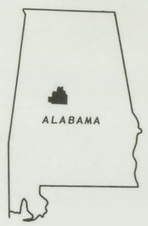
[1] Calculated Na plus K, reported as Na.

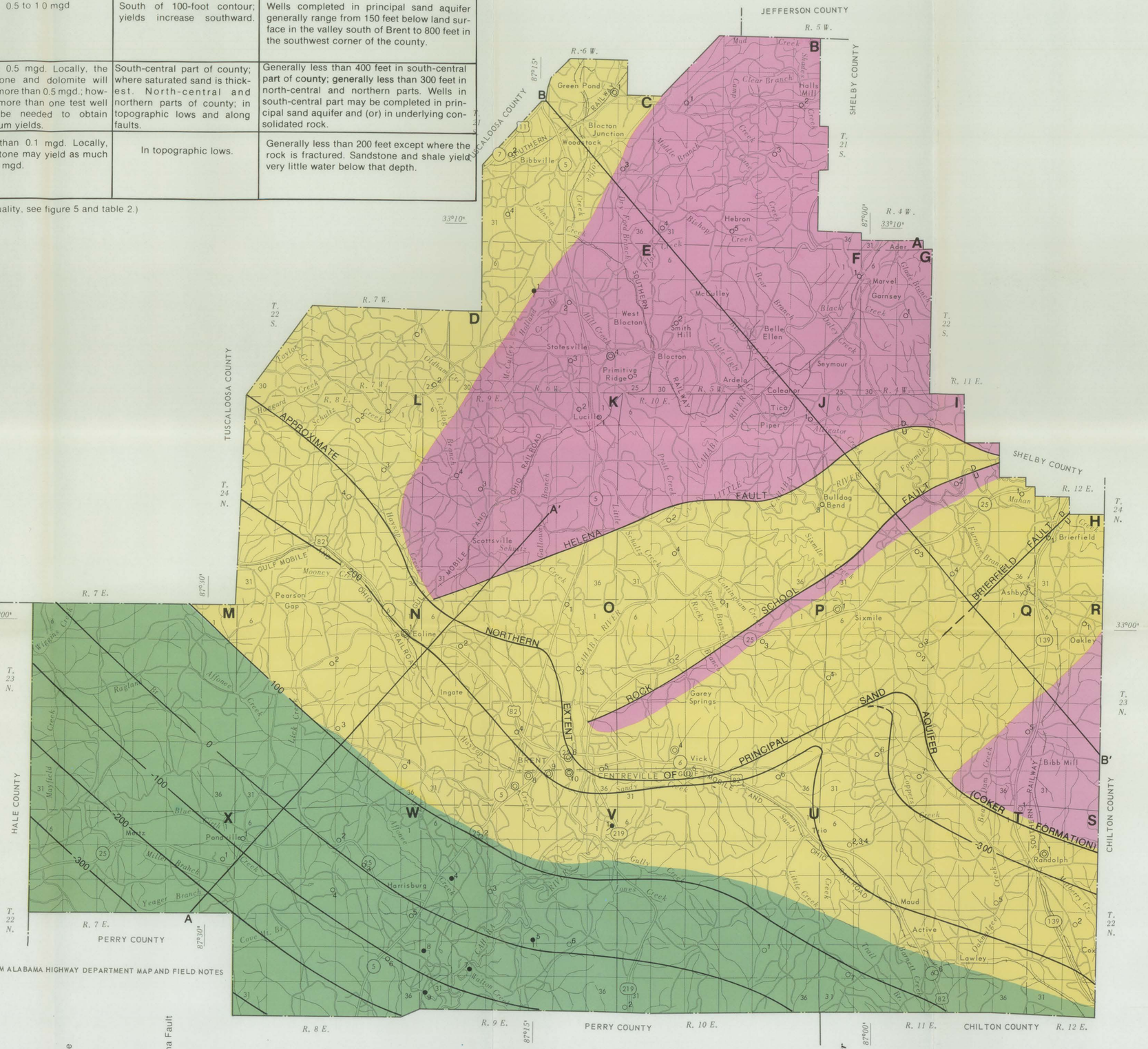
Table 3.—*Chemical analyses of water from streams in Bibb County*

Numbers correspond to those on plate 2.

Number	Stream name	Date of collection	Stream discharge (mgd)	Milligrams per liter						Specific conductance (micromhos at 25° C)	pH	Temperature	
				Bicarbonate (HCO_3)	Carbonate (CO_3)	Chloride (Cl)	[1] Dissolved solids	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate			°C	°F
2-4238.00	Little Cahaba River near Brierfield.	12- 7-67	98.2	109	3	2.0	133	109	15	222	8.5	12	54
		1- 8-68	253	88	0	1.2	106	85	13	176	8.2	7	45
		2-23-68	93.1	128	0	2.2	137	116	11	229	7.3	7	45
		4- 2-68	82.7	126	0	2.0	134	114	11	224	7.7	15	59
		4-18-69	114	120	2	2.2	130	112	10	217	8.4	19	67
		6-24-68	82.1	156	0	1.8	157	139	11	262	7.5	23	74
2-4238.70	Copperas Creek near Sixmile.	4-18-68	6.3	14	0	2.6	21	14	3	35	6.7	16	61
		6-24-68	.8	40	0	1.7	45	34	1	75	7.3	23	74
2-4238.75	Sixmile Creek near Sixmile.	4- 6-68	482	8	0	.8	17	14	7	29	6.7	13	56
		4-18-68	33.6	34	0	2.4	39	31	3	65	7.1	16	61
		6-24-68	9.1	68	0	1.6	71	59	3	119	7.6	23	74
2-4239.15	Schultz Creek near West Blocton.	4- 6-68	111	40	0	2.2	55	45	12	91	7.5	16	61
		4-18-68	31.1	92	0	1.8	94	81	6	156	7.5	19	67
		6-24-68	22.6	124	0	1.8	118	106	4	197	7.8	24	76
2-4239.45	Hill Creek near West Blocton.	4- 6-68	46.5	32	0	1.6	38	29	3	64	7.8	14	58
		4-18-68	13.6	40	0	2.2	47	36	3	78	7.2	18	65
		6-24-68	3.2	44	0	1.6	48	35	0	80	7.7	25	77
2-4240.00	Cahaba River at Centreville	12- 7-67	1,070	56	0	2.2	86	58	12	144	7.8	8	47
		1- 8-68	2,790	52	0	1.6	79	58	15	132	7.8	...	...
		2-23-68	406	100	1	2.6	119	92	8	198	8.3	7	45
		4- 2-68	636	81	0	2.6	100	78	12	167	8.0	17	63
		4- 5-68	12,200	40	0	.2	73	40	7	122	5.7	15	59
		4-18-68	892	74	0	2.8	101	71	10	169	7.6	19	67
		6-24-68	277	124	0	3.4	140	108	6	233	7.5	28	83
2-4240.35	Haysop Creek at Brent	4- 5-68	808	18	0	.8	29	19	4	48	7.1	17	63
		4-18-68	19.4	28	0	2.0	32	24	1	53	7.0	22	72
		6-24-68	3.2	42	0	.0	47	36	2	79	7.4	25	77
2-4242.50	Blue Outtee Creek near Harrisburg.	4- 6-68	162	16	0	.8	26	16	3	44	7.0	16	61
		4-19-68	18.1	6	0	1.8	13	5	0	21	6.1	19	67
		6-24-68	6.2	8	0	1.2	11	5	0	19	6.8	22	72

[1] Approximate dissolved solids = specific conductance x 0.60.





Area	Principal water-bearing rock	Occurrence of water	Estimated yield per well	Most favorable test-drilling localities	General well depths
🟩	Sand.	Interstitial voids in sand.	0.5 to 1 0 mgd	South of 100-foot contour; yields increase southward.	Wells completed in principal sand aquifer generally range from 150 feet below land surface in the valley south of Brent to 800 feet in the southwest corner of the county.
🟨	Sand in south-central part of county; limestone and dolomite in north-central and northern parts.	Interstitial voids in sand; solution cavities in limestone and dolomite; fractured zones along faults.	0.1 to 0.5 mgd. Locally, the limestone and dolomite will yield more than 0.5 mgd.; however, more than one test well may be needed to obtain optimum yields.	South-central part of county; where saturated sand is thickest. North-central and northern parts of county; in topographic lows and along faults.	Generally less than 400 feet in south-central part of county; generally less than 300 feet in north-central and northern parts. Wells in south-central part may be completed in principal sand aquifer and (or) in underlying consolidated rock.
🟪	Shale in east-central part of county Sandstone in northeastern part.	Joints; bedding planes; fractured zones along faults.	Less than 0.1 mgd. Locally, sandstone may yield as much as 0.2 mgd.	In topographic lows.	Generally less than 200 feet except where the rock is fractured. Sandstone and shale yield very little water below that depth.

(For ground-water quality, see figure 5 and table 2.)

EXPLANATION

○4 Domestic or stock well and number

●4 Flowing well and number

◎4 Municipal or industrial well and number

●1 Spring and number

—— -300 ——

Shows elevation base of principal sand aquifer in Coker Formation as shown on section A-A'

Contour interval 100 feet; datum is mean sea level.

Thrust Fault

D, downthrow side; U, upthrow side

Dashed where approximate located

The numbering of wells and springs in Bibb County is based on the Federal system of subdivision of public lands into townships and sections. Each township was assigned a letter, from A in the northeast township through X in the southwest township. Wells and springs within each township are numbered consecutively, and in the report each number is prefixed by the letter identifying the township. For example, wells in township K are identified as K-1, K-2, K-3, etc.

Rock type: sd. sand. gvl. gravel. cl. clay. ss. sandstone. dol. dolomite

Vertical exaggeration X20

GENERALIZED SECTION A-A'

Rock type: ls, limestone, dol, dolomite, ss, sandstone, sh, shale

Vertical exaggeration X20

GENERALIZED SECTION B-B'

AVAILABILITY OF GROUND WATER IN BIBB COUNTY, ALABAMA

By Lawson V. Causey

1978

Prepared by the
UNITED STATES GEOLOGICAL SURVEY
in cooperation with the
GEOLOGICAL SURVEY OF ALABAMA

EXPLANATION

Width between double lines and number in arrow indicate flow in million gallons per day. (Base period 1940-65).

0 100 200 300 mgd

402 mgd

Color along stream indicates range of 7-day Q_2, in million gallons per day. (Base Period 1940-65)

Uncolored and — less than 2

2-10

10-100

100-1000

Estimated 7-day Q_2, in mgd.

30

Network station and number

2-4238.00

Project station and number

2-4238.75

For chemical quality of surface water, see table 3.

1 0 1 2 3 4 Miles

1 0 1 2 3 4 Kilometers

ALABAMA

BASE MAP MODIFIED FROM ALABAMA HIGHWAY DEPARTMENT MAP AND FIELD NOTES

AVAILABILITY OF SURFACE WATER IN BIBB COUNTY, ALABAMA

By Lawson V. Causey

1978

Prepared by the
UNITED STATES GEOLOGICAL SURVEY
in cooperation with the
GEOLOGICAL SURVEY OF ALABAMA

Appendix J

GSA Permits for Oil and Gas Wells within the Refuge Acquisition Boundary for Cahaba River NWR, AL

Permit	Well Name	Operator	Status	Lat	Long	Permit Date	Remarks
7853-C	SEGCO #1-13-433	McKenzie Methane Corp.	Cancelled	33.08631	-87.03459	3/22/1990	PERMIT CANCELLED BY OGB 9-23-90. LOC NOT BUILT.
7855-C	SEGCO #11-3-439	McKenzie Methane Corp.	Cancelled	33.08138	-87.04747	3/22/1990	PERMIT CANCELLED BY OGB 9-23-90. OPEN PIT 1/21/91.
7856-C	SEGCO #11-5-440	McKenzie Methane Corp.	Cancelled	33.07775	-87.05211	3/22/1990	PERMIT CANCELLED BY OGB 9-23-90; LOC NOT BUILT.
7991-C	SEGCO #15-1-446	McKenzie Methane Corp.	Cancelled	33.06778	-87.05677	4/6/1990	PERMIT CANCELLED BY OGB 10-7-90. LOC NOT BUILT.
7993-C	SEGCO #15-10-474	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.12125	-87.04538	4/10/1990	Plugged 9/30/1996
7994-C	SEGCO #15-14-476	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.11673	-87.04969	4/10/1990	Plugged 9/30/1996
7995-C	SEGCO #15-16-477	McKenzie Methane Corp.	Plugged and Abandoned	33.11642	-87.04071	4/10/1990	Plugged 4/25/1990
8040-C	KC SEGCO #2-11-458	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.08861	-87.048	4/12/1990	Plugged 11/11/1996
8035-C	SEGCO #11-7-441	McKenzie Methane Corp.	Cancelled	33.0785	-87.04372	4/12/1990	PERMIT CANCELLED BY OGB 10-13-90; LOC NOT BUILT.
8039-C	KC SEGCO #12-5-456	McKenzie Methane Corp.	Cancelled	33.07914	-87.03509	4/12/1990	PERMIT CANCELLED BY OGB 10-13-90. LOC NOT BUILT.
8042-C	SEGCO #15-6-473	McKenzie Methane Corp.	Cancelled	33.12345	-87.04894	4/12/1990	PERMIT CANCELLED BY OGB 10-13-90. SURF CSG SET AFTER EXPIRATION
8038-C	SEGCO #11-15-445	McKenzie Methane Corp.	Cancelled	33.07162	-87.04396	4/12/1990	PERMIT CANCELLED BY OGB 10-13-90. LOC NOT BUILT.
8037-C	SEGCO #11-13-444	McKenzie Methane Corp.	Cancelled	33.07258	-87.05223	4/12/1990	PERMIT CANCELLED BY OGB 10-13-90; LOC NOT BUILT.
8036-C	SEGCO #11-9-442	McKenzie Methane Corp.	Cancelled	33.07576	-87.03819	4/12/1990	PERMIT CANCELLED BY OGB 10-13-90; LOC NOT BUILT.
8058-C	SEGCO #15-5-448	Gurnee Gas Co., L.L.C.	Dry and Abandoned	33.06477	-87.06934	4/17/1990	Plugged 10/8/1996
8060-C	SEGCO #15-13-451	Gurnee Gas Co., L.L.C.	Dry and Abandoned	33.05571	-87.06829	4/17/1990	Plugged 10/8/1996
8055-C	SEGCO #15-2-471	McKenzie Methane Corp.	Cancelled	33.12801	-87.0451	4/17/1990	PERMIT CANCELLED BY OGB 10-18-90. OPEN PIT 1/21/91.
8059-C	SEGCO #15-7-449	McKenzie Methane Corp.	Cancelled	33.06406	-87.06018	4/17/1990	PERMIT CANCELLED BY OGB 10-18-90; LOC NOT BUILT.
8061-C	SEGCO #15-16-452	McKenzie Methane Corp.	Cancelled	33.0561	-87.05721	4/17/1990	PERMIT CANCELLED BY OGB 10-18-90; LOC NOT BUILT.
8114-C	SEGCO #15-11-450	Gurnee Gas Co., L.L.C.	Dry and Abandoned	33.05983	-87.06445	4/24/1990	Plugged 10/8/1996
8119-C	SEGCO #11-1-438	McKenzie Methane Corp.	Cancelled	33.0822	-87.03941	4/25/1990	PERMIT CANCELLED BY OGB 10-26-90; LOC NOT BUILT.
8163-C	SEGCO #11-11-443	McKenzie Methane Corp.	Cancelled	33.07512	-87.04719	5/1/1990	PERMIT CANCELLED BY OGB 11-2-90
8224-C	USX #21-9-521	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.1051	-87.05772	5/9/1990	Plugged 9/30/1996
8226-C	USX #23-11-533	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.10491	-87.03149	5/9/1990	Plugged 7/8/1999
8227-C	USX #23-13-534	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.10279	-87.03514	5/9/1990	Plugged 4/26/1999
8228-C	SEGCO #15-3-447	Gurnee Gas Co., L.L.C.	Dry and Abandoned	33.06697	-87.06516	5/9/1990	Plugged 10/8/1996
8552-C	SEGCO #3-9-436	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.08836	-87.05482	6/21/1990	Plugged 12/16/1996
8553-C	SEGCO #3-15-437	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.08593	-87.0595	6/21/1990	Plugged 10/8/1996
8628-C	USX #22-11-528	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.10613	-87.05004	6/29/1990	Plugged 9/30/1996
8775-C	SEGCO #3-8-435	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.09365	-87.05461	7/19/1990	Plugged 10/8/1996
9382-C	SEGCO #15-16-477A	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.11642	-87.04064	10/9/1990	Plugged 9/24/1996; SEE 7995-C
9428-C	USX #22-13-529	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.10168	-87.05418	10/15/1990	Plugged 9/24/1996
9429-C	USX #23-7-531	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.10883	-87.02739	10/15/1990	Plugged 8/25/1997; NO LOGS
9430-C	AL2011 #21-15-603	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.10258	-87.06161	10/15/1990	Plugged 9/19/1996
9481-C	AL2011 #28-3-638	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.09953	-87.06773	10/19/1990	Plugged 10/9/1996
9526-C	AL2011 #28-1-623	McKenzie Methane Corp.	Cancelled	33.09926	-87.05991	10/26/1990	PERMIT CANCELLED BY OGB 4-27-91.
9579-C	USX #22-7-527	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.10844	-87.04474	11/1/1990	Plugged 9/24/1996
9578-C	USX #22-3-525	McKenzie Methane Corp.	Cancelled	33.11411	-87.04882	11/1/1990	PERMIT CANCELLED BY OGB 5-2-91. OK FOR BR.
9624-C	USX #22-1-524	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.11325	-87.04144	11/8/1990	Plugged 10/14/1996
9625-C	USX #22-5-526	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.10912	-87.05393	11/8/1990	Plugged 9/19/1996
9788-C	USX #14-15-643	McKenzie Methane Corp.	Cancelled	33.11678	-87.02644	12/12/1990	PERMIT CANCELLED BY OGB 6-13-91.
9870-C	SEGCO #15-6-473	Gurnee Gas Co., L.L.C.	Plugged and Abandoned	33.12345	-87.04894	1/29/1991	Plugged 9/30/1996
10028-C	USX #23-15-535	McKenzie Methane Corp.	Cancelled	33.10135	-87.02778	8/14/1991	PERMIT CANCELLED BY OGB 2-14-92
10029-C	USX #14-15-643	McKenzie Methane Corp.	Cancelled	33.11678	-87.02644	8/14/1991	PERMIT CANCELLED BY OGB 2-14-92.
14730-C	RGGS 23-15-211	GeoMet, Inc.	Cancelled	33.10178	-87.02826	7/7/2006	PERMIT CANCELED BY BOARD 01/08/07.
14872-C	Segco 15-10-297	CDX Gas, LLC	Cancelled	33.12121	-87.04612	9/8/2006	CANCELLED BY OIL & GAS 3-9-07
14889-C	Segco 15-06-219	CDX Gas, LLC	Cancelled	33.12319	-87.04923	9/19/2006	PERMIT CANCELED BY BOARD 03/20/07.
14890-C	Segco 15-14-221	CDX Gas, LLC	Cancelled	33.11661	-87.05002	9/19/2006	PERMIT CANCELED BY BOARD 03/20/07.
14928-C	RGGS 23-11-209	GeoMet, Inc.	Producing	33.10481	-87.03167	10/13/2006	Producing 4/19/2007

Permit	Well Name	Operator	Status	Lat	Long	Permit Date	Remarks
14936-C	RGGS 22-12-233	GeoMet, Inc.	Cancelled	33.10247	-87.04372	10/20/2006	PERMIT CANCELLED BY OIL & GAS BOARD 4-24-07
14977-C	RGGS 23-13-210	GeoMet, Inc.	Producing	33.1029	-87.03501	12/6/2006	Producing 7/11/2007
14979-C	RGGS 23-07-206	GeoMet, Inc.	Producing	33.10881	-87.02746	12/6/2006	Producing 7/11/2007
14978-C	RGGS 23-05-207	GeoMet, Inc.	Cancelled	33.10856	-87.0354	12/6/2006	PERMIT CANCELED BY BOARD 06/07/07.
14998-C	RGGS 14-10-191	GeoMet, Inc.	Producing	33.12113	-87.02721	12/13/2006	Producing 5/6/2007
14997-C	RGGS 14-11-463	GeoMet, Inc.	Cancelled	33.1189	-87.03089	12/13/2006	PERMIT CANCELLED BY OIL & GAS BOARD 06/14/2007
15001-C	RGGS 23-03-205	GeoMet, Inc.	Cancelled	33.11221	-87.0315	12/15/2006	PERMIT CANCELLED BY OIL & GAS BOARD 06/18/2007.
15032-C	RGGS 23-15-211	GeoMet, Inc.	Active	33.10178	-87.02826	1/11/2007	Tested 9/23/2007
15332-C	RGGS 23-05-207	GeoMet, Inc.	Cancelled	33.10856	-87.0354	6/25/2007	PERMIT CANCELED BY OIL & GAS BOARD, EFFECTIVE 12/26/2007
15335-C	RGGS 23-03-205	GeoMet, Inc.	Cancelled	33.11221	-87.0315	6/27/2007	PERMIT CANCELED BY OIL & GAS BOARD, EFFECTIVE 12/28/2007
15337-C	RGGS 14-11-463	GeoMet, Inc.	Cancelled	33.1189	-87.03089	6/28/2007	PERMIT CANCELED BY OIL & GAS BOARD, EFFECTIVE 12/31/2007

Appendix K

NPDES Permits within the Region of Hydrologic Influence (RHI) for Cahaba River

Source: [EPA] United States Environmental Protection Agency. Undated. Integrated Compliance Information System (ICIS). Accessed 2012. Available from: http://www.epa.gov/compliance/data/systems/icis/

For each NPDES permit in this appendix the corresponding interest type is provided. The table below summarizes each interest type. The discharge limitation parameters are included for each major facility.

Environmental Interest Type	Description
ICIS-NPDES MAJOR	Publicly Owned Treatment Works (POTWs) with design flows ≥1 MGD or serve a population ≥10,000 or cause significant water quality impacts. Non-POTW discharges surpassing a point threshold based on criteria such as toxic pollutant potential, flow volume and water quality factors such as impairment of receiving water or proximity of discharge to coastal waters.
ICIS-NPDES NON-MAJOR	CWA NPDES discharger of pollutants into waters of the U.S. that is not designated as major.
ICIS-NPDES UNPERMITTED	Unpermitted, but discharging pollutants into waters of the U.S. and regulated under the CWA NPDES.
NPDES MAJOR	CWA NPDES major discharger of pollutants into waters of the U.S.
NPDES NON-MAJOR	CWA NPDES non-major discharger of pollutants into waters of the U.S.
N/A	Not Applicable

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALD000461	BIBB CO AIRPORT BD	32.943942	-87.117638		ICIS-NPDES UNPERMITTED
ALD000252	BIBB CO ENGINEERING DEPT CR24	32.946146	-87.13614		ICIS-NPDES UNPERMITTED
ALU000521	TERRY WESLEY BORROW PIT	33.17618	-87.13579		ICIS-NPDES UNPERMITTED
ALU000542	TERRY WESLEY BORROW PIT	33.17618	-87.13579		ICIS-NPDES UNPERMITTED
ALU000903	ALLIED WASTE VALLEYVIEW LN	33.365151	-86.74815		ICIS-NPDES UNPERMITTED
ALD000053	BARRY A WIER-HABERSHAW 30/31	33.300022	-86.805853		ICIS-NPDES UNPERMITTED
ALD000202	BUILDER SYSTEMS LLC	33.252355	-86.803544		ICIS-NPDES UNPERMITTED
ALU001025	CHARLES HOPSON	33.29056	-86.87791		ICIS-NPDES UNPERMITTED
ALU000510	COLONIAL GROUP LLC	33.16582	-86.81723		ICIS-NPDES UNPERMITTED
ALU000661	COLONIAL GROUP LLC	33.16582	-86.81723		ICIS-NPDES UNPERMITTED
ALD000051	COMPASS BANK-HABERSHAM 1&21	33.401232	-86.711483		ICIS-NPDES UNPERMITTED
ALD000453	DARRYL DOMINO-HOME SITE	33.319317	-86.804576		ICIS-NPDES UNPERMITTED
ALU000659	DARRYL DOMINO-HOME SITE	33.319317	-86.804576		ICIS-NPDES UNPERMITTED
ALD000218	EARNEST MCCARTY FORD	33.262214	-86.811737		ICIS-NPDES UNPERMITTED
ALU000850	EMERGENCY EQUIPMENT PROFESSI	33.267829	-86.795615		ICIS-NPDES UNPERMITTED
ALU000597	KENT TRACT STOCKPILE	33.20668	-86.85338		ICIS-NPDES UNPERMITTED
ALD000055	KESSLER & BARNETT LOT	33.21905	-86.82445		ICIS-NPDES UNPERMITTED
ALD000404	KINGWOOD ASSEMBLY OF GOD	33.2588	-86.82649		ICIS-NPDES UNPERMITTED
ALD000123	L&W VALLEYDALE-SOUTHLAKE PAR	33.35966	-86.77072		ICIS-NPDES UNPERMITTED
ALU000928	LUMPKIN DEV CR 87 INDUS LOT	33.33375	-86.78814		ICIS-NPDES UNPERMITTED
ALU000929	LUMPKIN DEV CR 87 INDUS LOT	33.33375	-86.78814		ICIS-NPDES UNPERMITTED
ALD000122	MEIZ FOULAD-FOULAD VALLEYDALE	33.36445	-86.76482		ICIS-NPDES UNPERMITTED
ALU000123	OLMEDO SCRAP YARD	33.226898	-86.808614		ICIS-NPDES UNPERMITTED
ALU000715	PELHAM 157 LLC 157 ACRES	33.305833	-86.791944		ICIS-NPDES NON-MAJOR
ALD000086	PRECISION TUNE PELHAM	33.335952	-86.792862		ICIS-NPDES UNPERMITTED
ALU000927	SAGINAW PROPERTIES-CR 87 LOT	33.33375	-86.78814		ICIS-NPDES UNPERMITTED
ALD000054	SCOTCH BUILDING-HABERSHAM LOT	33.418631	-86.674584		ICIS-NPDES UNPERMITTED
ALD000104	SCOTCH BUILDING-HABERSHAM LOT	33.418631	-86.674584		ICIS-NPDES UNPERMITTED
ALD000058	SILVER CREEK L SILVER CREEK S	33.1831	-86.8189		ICIS-NPDES UNPERMITTED
ALD000297	SILVER CREEK L SILVER CREEK S	33.1831	-86.8189		ICIS-NPDES UNPERMITTED
ALU000834	SUE YOUNG HOMESITE	33.485308	-86.701859		ICIS-NPDES UNPERMITTED
ALU000116	TOCALA HEADQUARTERS	33.479553	-86.699381		ICIS-NPDES UNPERMITTED
ALU000634	TOCALA HEADQUARTERS	33.479553	-86.699381		ICIS-NPDES UNPERMITTED
ALD000522	VR DEVELOPERS INC	33.257468	-86.813071		ICIS-NPDES UNPERMITTED
ALU000811	VR DEVELOPERS INC	33.257468	-86.813071		ICIS-NPDES UNPERMITTED
ALD000270	WHEELER WRECKER SERVICE	33.244054	-86.817264		ICIS-NPDES UNPERMITTED
ALU000641	WHEELER WRECKER-CR 16 SITE	33.244054	-86.817264		#N/A
ALD000347	WYNFIELD PARC HOMEOWNERS	33.32569	-86.81584		ICIS-NPDES UNPERMITTED
ALU000803	ALLEN BINKLEY CONST - JACKS	33.443582	-86.837899		ICIS-NPDES UNPERMITTED
ALU000833	B & CC LLC	33.438365	-86.730386		ICIS-NPDES UNPERMITTED
ALD000156	B & G EQUIPMENT AND SUPPLY	33.58337	-86.63697		#N/A
ALU000969	BLACKWOOD MEADOWS	33.418523	-86.797303		ICIS-NPDES UNPERMITTED
ALD000330	BRETT ROBERTS	33.5235	-86.68119		ICIS-NPDES UNPERMITTED
ALD000048	BRYANT BANK-HABERSHAW LOT 13	33.4615	-86.75518		ICIS-NPDES UNPERMITTED
ALD000111	BRYANT BANK-HABERSHAW LOT 13	33.4615	-86.75518		ICIS-NPDES UNPERMITTED
ALD000071	CE HUFFSTUTLER CONSTRUCTION	33.357234	-86.809431		ICIS-NPDES UNPERMITTED
ALD000505	COLON AND RECTAL SURG ASSOC	33.473285	-86.786579		ICIS-NPDES UNPERMITTED
ALD000045	DARMAWAN LUDIRDJA-LOTS 16/17	33.527345	-86.67458		ICIS-NPDES UNPERMITTED
ALU000554	DARMAWAN LUDIRDJA-LOTS 16/17	33.527345	-86.67458		ICIS-NPDES UNPERMITTED
ALU000102	DC HOLDING CO LLC	33.4307	-86.77283		ICIS-NPDES UNPERMITTED
ALD000382	EXPRESS OIL CHANGE	33.4651	-86.837483		#N/A
ALD000383	EXPRESS OIL CHANGE	33.48181	-86.79342		#N/A
ALD000384	EXPRESS OIL CHANGE	33.482845	-86.777069		#N/A
ALD000329	JDJ DEV INC WEDGEWOOD LN SITE	33.70813	-86.49748		ICIS-NPDES UNPERMITTED
ALD000479	JOHN L KONTOS GAMBLE RD SITE	33.25093	-87.11228		ICIS-NPDES UNPERMITTED
ALU000112	K MCDONALD WOODCREST HOMESITE	33.49379	-86.79102		ICIS-NPDES UNPERMITTED
ALD000395	KEITH HALL PROPERTIES INC	33.54107	-86.53558		ICIS-NPDES UNPERMITTED
ALU000613	KMCDONALD WOODCRESTRDHOMESITE	33.493653	-86.790947		ICIS-NPDES UNPERMITTED
ALU000798	LACEYS GROVE POA-LACEYS GROVE	33.460282	-86.733067		ICIS-NPDES UNPERMITTED
ALD000311	MULLINS REX LAKE CIRCLE SITE	33.4934	-86.63733		ICIS-NPDES UNPERMITTED
ALD000549	PRO CLEANERS	33.3651	-86.82394		ICIS-NPDES UNPERMITTED
ALU000758	PRO CLEANERS	33.3651	-86.82394		ICIS-NPDES UNPERMITTED

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALU000870	ROY JONES JONES COMMERCIAL SIT	33.519051	-86.583342		ICIS-NPDES UNPERMITTED
ALU001040	RUSSELL WATTS - 511 LAKEWINDS	33.47539	-86.72967		ICIS-NPDES UNPERMITTED
ALU000918	RYAN AUTOMOTIVE	33.542699	-86.540003		ICIS-NPDES UNPERMITTED
ALD000138	SAMFORD UNIVERSITY	33.46933	-86.80839		ICIS-NPDES UNPERMITTED
ALU000859	SKOOG HOMESITE	33.454136	-86.783682		ICIS-NPDES UNPERMITTED
ALD000539	STEPHENS WHOLESALE CARS	33.568385	-86.537102		ICIS-NPDES UNPERMITTED
ALU000710	STEPHENS WHOLESALE CARS	33.568385	-86.537102		ICIS-NPDES UNPERMITTED
ALD000006	STORM WATER MANAGEMENT AUTHORITY, INC. MS4	33.46489	-86.83136		ICIS-NPDES UNPERMITTED
ALD000050	THE RIDGE	33.44012	-86.77833		ICIS-NPDES UNPERMITTED
ALU000799	UNION STATE BANK LACEY GROVE	33.39115	-86.79712		ICIS-NPDES UNPERMITTED
ALD000255	WARREN JAMES IVY	33.320722	-86.9123		ICIS-NPDES UNPERMITTED
ALU000860	YANCEY HOMESITE	33.457012	-86.780936		ICIS-NPDES UNPERMITTED
ALD000128	MICHAEL MEREDITH MEREDITH LAKE	33.6091	-86.53399		ICIS-NPDES UNPERMITTED
ALR164692	SHELBY COUNTY COUNTY ROAD 107	33.150278	-86.8		ICIS-NPDES NON-MAJOR
ALR161944	DOUBLE OAK COMMONS	33.282222	-86.796667		NPDES NON-MAJOR
ALR161787	IRONWOOD	33.246389	-86.809444		NPDES NON-MAJOR
ALR160371	KIDRON TRACE SUBDIVISION	33.647667	-86.613111		NPDES NON-MAJOR
ALR161968	MCMILLAN PIT 2	32.985528	-87.180722		ICIS-NPDES NON-MAJOR
ALR161966	TVS FILTER CO	33.369444	-86.945833		ICIS-NPDES NON-MAJOR
ALR160248	CARRINGTON LAKES LLC	33.645833	-86.567778		ICIS-NPDES NON-MAJOR
ALR161453	LOCKERBIE PHASE 1 AND 2	33.46237	-86.75456		ICIS-NPDES NON-MAJOR
ALR16C790	LEEDS HIGH SCHOOL SITE	33.549	-86.5697		ICIS-NPDES NON-MAJOR
ALR166190	LACEYS GROVE PLAT 1	33.224722	-86.863333		ICIS-NPDES NON-MAJOR
ALR164729	MADDOX PROPERTY	33.359722	-86.736111		NPDES NON-MAJOR
ALR16EFCS	C R 275 AT RIVERCHASE PARKWAY	33.366389	-86.796944		ICIS-NPDES NON-MAJOR
ALR164917	KENDRICK COVE	33.685833	-86.535278		NPDES NON-MAJOR
ALR169676	RUSSELL'S ADDITION TO PUMP HOUSE ROAD	33.4584	-86.7426		ICIS-NPDES NON-MAJOR
ALR162001	2500 ASSOCIATES LLC	33.346111	-86.916667		ICIS-NPDES NON-MAJOR
ALR161923	UNIVERSITY OF MONTEVALLO	33.103889	-86.87		ICIS-NPDES NON-MAJOR
ALR162004	CROSSCREEK DEVELOPMENT	33.311389	-86.812222		ICIS-NPDES NON-MAJOR
ALR164728	ESSEX MANOR	33.449722	-86.814167		ICIS-NPDES NON-MAJOR
ALR160761	HUDSONS ADD TO BROOK HIGHLAND	33.433333	-86.6825		ICIS-NPDES NON-MAJOR
ALR16EA27	FOCUS DEV INC RIVER GLEN VILLA	33.42657	-86.71737		ICIS-NPDES NON-MAJOR
ALR16EHB5	PUBLIX BORROW PIT	33.269528	-86.792944		ICIS-NPDES NON-MAJOR
ALR169147	PUMPHOUSE VILLAGE	33.456111	-86.718889		ICIS-NPDES NON-MAJOR
ALR164781	BROOKSTONE SUBDIVISION	33.69715	-86.521075		ICIS-NPDES NON-MAJOR
ALR16C843	SOUTHPOINTE RIDGE	33.3125	-86.889722		ICIS-NPDES NON-MAJOR
ALR164727	OAK MOUNTAIN GOLF COURSE	33.3325	-86.766944		ICIS-NPDES NON-MAJOR
ALR16C915	SCREEN PROCESS OF ALABAMA	33.63711	-86.58335		ICIS-NPDES NON-MAJOR
ALR162060	DEERFOOT PARKWAY C STORE	33.639167	-86.581111		NPDES NON-MAJOR
ALR161819	OAKLYN HILLS	33.311389	-86.718056		NPDES NON-MAJOR
ALR164827	STONE FOREST	33.263611	-87.092222		ICIS-NPDES NON-MAJOR
ALR164858	SEWAGE TREATMENT FACILITY EXP	33.295833	-86.836667		ICIS-NPDES NON-MAJOR
ALR162127	THOMSONS AD TO ALTADENA ACRES	33.425278	-86.758889		ICIS-NPDES NON-MAJOR
ALR16EB04	FORMER GOLDKIST FACILITY	33.63472	-86.57332		ICIS-NPDES NON-MAJOR
ALR164839	HURRICANE CREEK	33.378333	-86.823611		ICIS-NPDES NON-MAJOR
ALR164841	WOODLAND TRAILS	33.47774	-86.79382		ICIS-NPDES NON-MAJOR
ALR16EGWN	6531, LLC 12AC PROJECT	33.41651	-86.79794		ICIS-NPDES NON-MAJOR
ALR164722	KIDRON II	33.648889	-86.610472		ICIS-NPDES NON-MAJOR
ALR16EH00	CAHABA BEACH DOG PARK OFFSITE FILL SITE	33.437444	-86.695444		ICIS-NPDES NON-MAJOR
ALR16EDMH	WHISPERING RIDGE	33.176111	-86.796389		ICIS-NPDES NON-MAJOR
ALR162182	CAHABA RIDGE	33.5445	-86.593056		ICIS-NPDES NON-MAJOR
ALR162178	VALLEY SPRINGS SUBDIVISION	33.5275	-86.573333		NPDES NON-MAJOR
ALR164865	PLAYSTATION	33.616667	-86.6075		NPDES NON-MAJOR
ALR16EBAC	JEFFERSON CO BRIGHTON MIDDLE S	33.48708	-86.79261		ICIS-NPDES NON-MAJOR
ALR161455	CHAPEL HILLS	33.3813	-86.82057		NPDES NON-MAJOR
ALR162276	GRANTS MILL ROAD AUTO MALL	33.521361	-86.661056		NPDES NON-MAJOR
ALR162273	CARTERS ADDITION TO SCOTSDALE	33.204306	-86.820194		NPDES NON-MAJOR
ALR162274	SUMMERSET	33.460444	-86.728778		ICIS-NPDES NON-MAJOR
ALR162325	HIGHWAY DEVELOPMENT	33.258056	-86.799444		ICIS-NPDES NON-MAJOR
ALR162039	CAHABA TRUNK SEWER CONTRACT 4	33.431111	-86.716667		ICIS-NPDES NON-MAJOR
ALR162277	ACTON SQUARE	33.340833	-86.806667		NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR162225	BENDING CREEK	33.50997	-86.68239		ICIS-NPDES NON-MAJOR
ALR162210	WILLIAMS RIDGE SUBDIVISION	33.296111	-87.033889		ICIS-NPDES NON-MAJOR
ALR164879	LOGISTA	33.344841	-86.915921		ICIS-NPDES NON-MAJOR
ALR164885	HIGH FOREST LAKES SUBDIV PH 2	33.280278	-87.033611		ICIS-NPDES NON-MAJOR
ALR16C270	COBBLE HILL SUBDIVISION	33.427222	-86.793611		ICIS-NPDES NON-MAJOR
ALR16ECVR	LOWETOWN BORROW PIT - 2009	33.31208	-87.06858		ICIS-NPDES NON-MAJOR
ALR16EGP4	HARBERT INTERNATIONAL WAREHOUSE & OFFICE	33.43972	-86.86245		ICIS-NPDES NON-MAJOR
ALR162220	INTERSECTION CO RD 95 AND 64	33.261944	-86.828333		ICIS-NPDES NON-MAJOR
ALR162212	MCMILLIAN PIT 3	32.995222	-87.085		NPDES NON-MAJOR
ALR161115	CAMERONS COVE SUBDIVISION	33.546667	-86.572222		NPDES NON-MAJOR
ALR162251	IMPROVEMENT TO RILES DRIVE	33.294444	-87.005556		NPDES NON-MAJOR
ALR162331	GLASS PROPERTY	33.228056	-86.829167		NPDES NON-MAJOR
AL0067814	LIBERTY PARK WWTP	33.474806	-86.6885		ICIS-NPDES NON-MAJOR
AL0062766	WOODSTOCK 2	33.230556	-87.138056		NPDES NON-MAJOR
AL0003638	LEHIGH READY MIX CEMENT PLANT	33.541515	-86.543034		#N/A
AL0068829	ALABASTER QUARRY	33.215081	-86.810335		#N/A
AL0054666	PELHAM WWTP	33.287417	-86.790972	BOD, Chlorine, E.coli, Flow, Nitrite + Nitrate, TKN, Ammonia, DO, TP, TSS, pH, Toxicity, Mercury	ICIS-NPDES MAJOR
AL0068217	OWENS PLANT	32.9475	-86.863056		ICIS-NPDES NON-MAJOR
ALR16E169	TRUSSVILLE ASSISTED LIVING	33.6541	-86.5557		ICIS-NPDES NON-MAJOR
ALR165570	ASHTON WAY	33.286389	-87.029722		ICIS-NPDES NON-MAJOR
ALR162566	CLAY BORROW PIT	33.088333	-86.843333		NPDES NON-MAJOR
ALR165505	MORRIS INDUSTRIAL PARK	33.293056	-86.824167		ICIS-NPDES NON-MAJOR
ALR168173	SISTER SERVANTS OF THE ETERNAL WORD SITE IMPROVEMENTS	33.53183	-86.67427		ICIS-NPDES NON-MAJOR
ALR163082	POND	33.074167	-86.833611		ICIS-NPDES NON-MAJOR
ALR16EDWB	SHADES MOUNTAIN FILTER PLANT PHASE 2 UPGRADE	33.4693	-86.7603		ICIS-NPDES NON-MAJOR
ALR163070	THIBODEAUX HOME	33.530278	-86.684444		NPDES NON-MAJOR
ALR161030	ADOT BR 0219 500	32.935	-87.134444		NPDES NON-MAJOR
ALR16D770	PUBLIX HOOVER	33.4789	-86.76889		ICIS-NPDES NON-MAJOR
ALR162968	DITCH WITCH OF BIRMINGHAM	33.194722	-86.789444		NPDES NON-MAJOR
ALR163080	ACCESS ROAD HELENA CITY PARK	33.299917	-86.842806		NPDES NON-MAJOR
ALR16A819	AIRPARK INDUSTRIAL COMPLEX	33.209722	-86.795278		ICIS-NPDES NON-MAJOR
ALR163090	ROLLING WOODS	33.251667	-86.804722		NPDES NON-MAJOR
ALR16B035	IVY PARK - OFFICE CONDO	33.375098	-86.75475		ICIS-NPDES NON-MAJOR
ALR163105	GLEN AT BENT BROOK	33.49533	-86.78161		ICIS-NPDES NON-MAJOR
ALR163122	LAKE FOREST	33.218611	-86.859722		ICIS-NPDES NON-MAJOR
ALR165638	ADOT IM 4594 305	33.433056	-86.739167		ICIS-NPDES NON-MAJOR
ALR168273	GLEN CROSS	33.597544	-86.621811		ICIS-NPDES NON-MAJOR
ALR163109	FURNACE CREEK SUBDIVISION	33.249444	-87.085556		ICIS-NPDES NON-MAJOR
ALR163142	AEI LLC PROPERTY	33.402778	-86.664167		ICIS-NPDES NON-MAJOR
ALR163218	HELENA SPORTS COMPLEX	33.3	-86.858333		NPDES NON-MAJOR
ALR162986	SHADES CREST ROAD RE ALIGNMENT	33.461667	-86.757778		NPDES NON-MAJOR
ALR16B163	SIMMONS ADDITION TO ROEBUCK PLAZA	33.586819	-86.659587		ICIS-NPDES NON-MAJOR
ALR165672	CROSSBRIDGE COMMUNITY CHURCH	33.3075	-86.84		ICIS-NPDES NON-MAJOR
ALR163191	STOCK PILE 1	33.544444	-86.5375		NPDES NON-MAJOR
ALR165238	WARRENS COVE	33.429444	-86.773333		ICIS-NPDES NON-MAJOR
ALR169924	THE HEIGHTS	33.247866	-86.81479		ICIS-NPDES NON-MAJOR
ALR16B096	HERITAGE ASSET MOUNTAIN RIDGE LLC	33.7022	-86.5939		ICIS-NPDES NON-MAJOR
ALR165705	AMSOUTH GREYSTONE	33.415556	-86.666722		ICIS-NPDES NON-MAJOR
ALR16EFMC	WATKINS BROOK FLOOD HAZARD MITIGATION, PHASE II CONTRACT 2	33.48824	-86.76315		ICIS-NPDES NON-MAJOR
ALR165747	WALGREENS	33.275	-86.811944		NPDES NON-MAJOR
ALR165710	LENNOX	33.389444	-86.778889		ICIS-NPDES NON-MAJOR
ALR16EDYT	STMAA-0175(500)	32.734722	-87.285278		ICIS-NPDES NON-MAJOR
ALR163265	LAKE FOREST	33.213889	-86.86		ICIS-NPDES NON-MAJOR
ALR165727	ITT TECH INSTITUTE BESSEMER	33.339167	-86.9		NPDES NON-MAJOR
ALR165640	TWIN ESTATES	33.177361	-87.185556		ICIS-NPDES NON-MAJOR
ALR165729	SECTORS 1 AND 2	33.598056	-86.575833		ICIS-NPDES NON-MAJOR
ALR16A446	LIGHTHOUSE POINT	33.67866	-86.55672		ICIS-NPDES NON-MAJOR
ALR165763	MITCHELLS PLACE	33.499139	-86.696778		NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR16EB28	LEHIGH READY MIX CEMENT PLANT	33.541515	-86.543034		#N/A
ALR165783	BIG SPRINGS VILLAGE	33.482745	-86.779947		ICIS-NPDES NON-MAJOR
ALR16D930	COTSWALD DEVELOP COTSWALD SD	33.45138	-86.69153		ICIS-NPDES NON-MAJOR
ALR16D931	COTSWALD SUBDIVISION	33.45138	-86.69153		ICIS-NPDES NON-MAJOR
AL0057142	PETRO STOPPING CENTER	33.281833	-87.090194		#N/A
AL0067253	ALABAMA HEMATITE PLANT	33.240651	-87.140525		ICIS-NPDES NON-MAJOR
ALR16EFUN	BUD'S BEST COOKIES CORPORATE HEADQUARTERS	33.362807	-86.778131		ICIS-NPDES NON-MAJOR
AL0074039	ALLIANCE MINE 1	33.175	-86.942778		ICIS-NPDES NON-MAJOR
ALG110368	COASTAL CONSULTING AND PRDTS	33.295304	-86.80464		#N/A
ALG110161	HANSON PIPE & PRODUCTS SOUTHEAST INC PELHAM	33.29705	-86.81973		ICIS-NPDES NON-MAJOR
ALG110402	HANSON PIPE PELHAM PLANT	33.299722	-86.82125		NPDES NON-MAJOR
ALG110357	HELENA RD PLANT	33.305	-86.830278		NPDES NON-MAJOR
ALG110367	LAFARGE ALABASTER R/M	33.215064	-86.80988		ICIS-NPDES NON-MAJOR
ALG110447	6531, LLC 12AC PROJECT	33.40966	-86.80685		ICIS-NPDES NON-MAJOR
ALG110231	QUIKRETE BIRMINGHAM, INC.	33.44719	-86.84894		NPDES NON-MAJOR
AL0023299	MONTEVALLO WWTP	33.098278	-86.867056		ICIS-NPDES NON-MAJOR
AL0056251	NORTH SHELBY COUNTY WWTP	33.413528	-86.661333	Copper, Hardness, Lead, Methylene blue active substances, Nickel, TDS, Toxicity, Zinc, pH, BOD, Fecal coliform, Flow, Nitrite + Nitrate, TKN, Ammonia, DO, Orthophoshate, TP, TSS, Mercury, Chlorine, E.coli, Oil & grease	ICIS-NPDES MAJOR
ALG110342	BAMA CONCRETE BIRMINGHAM BRENT PLANT	32.934722	-87.166944		NPDES NON-MAJOR
ALG110299	BAMA CONCRETE BIRMINGHAM WOODSTOCK PLANT	33.23218	-87.15549		ICIS-NPDES NON-MAJOR
ALG110266	ALABASTER PLANT	33.215076	-86.810022		NPDES NON-MAJOR
ALG110261	BAMA CONCRETE PELHAM PLANT	33.28836	-86.81446		ICIS-NPDES NON-MAJOR
ALG110440	BAMA CONCRETE PELHAM PLANT	33.28836	-86.81446		ICIS-NPDES NON-MAJOR
ALG110108	MITCHELL CONCRETE PIPE CO INC	33.220556	-86.7975		NPDES NON-MAJOR
ALG110247	READY MIX USA ALABASTER PLANT	33.269444	-86.783611		#N/A
ALG110269	READY MIX USA, LLC - HELENA FACILITY	33.269444	-86.825278		ICIS-NPDES NON-MAJOR
ALG110162	SHERMAN INDUSTRIES - MONTEVALLO PLANT	33.092389	-86.817356		ICIS-NPDES NON-MAJOR
ALG110117	BAMA CONCRETE BIRMINGHAM IRONDALE	33.558611	-86.609444		ICIS-NPDES NON-MAJOR
ALG110116	BAMA CONCRETE HOOVER	33.36355	-86.81341		ICIS-NPDES NON-MAJOR
ALG110160	HIGHWAY 280 PLANT	33.424167	-86.674444		ICIS-NPDES NON-MAJOR
ALG110113	KIRKPATRICK CONCRETE PLANT 12	33.5784	-86.64166		#N/A
ALG110066	READY MIX USA-IRONDALE FACILITY	33.579333	-86.667737		#N/A
ALG110290	SHERMAN INDUSTRIES - TRUSSVILLE PLANT	33.64959	-86.56144		#N/A
ALG110163	SHERMAN INDUSTRIES INC.	33.544722	-86.521667		#N/A
ALR163947	CENTRAL STEEL	33.310556	-86.808611		ICIS-NPDES NON-MAJOR
ALR163946	LAUREL LAKES PHASE 1	33.2925	-86.935		ICIS-NPDES NON-MAJOR
ALR163967	MONTEVALLO CVS	33.099167	-86.857222		NPDES NON-MAJOR
ALR163982	TIMBERLAKES	33.269722	-86.971111		NPDES NON-MAJOR
ALR163990	ALDOT HWY PROJECT	33.231111	-86.8075		NPDES NON-MAJOR
ALR163767	BUSHWOOD PIT	33.505	-86.685833		NPDES NON-MAJOR
ALR163988	GROUNDS UNLIMITED INCORP	33.560556	-86.564444		ICIS-NPDES NON-MAJOR
ALR16B951	GRAMARCY PARC (AKA THE ABBEY)	33.428407	-86.772333		ICIS-NPDES NON-MAJOR
ALR16ECPY	H & V PROPERTIES PALOMAR INS	33.50038	-86.69467		ICIS-NPDES NON-MAJOR
ALR160148	APRIL PROJECT	33.299722	-87.044167		NPDES NON-MAJOR
ALR160179	BENT RIVER SECTORS 4 AND 5	33.371667	-86.7775		ICIS-NPDES NON-MAJOR
ALR16EGH5	NSH CORP SIGNATURE HOMES	33.39748	-86.88264		ICIS-NPDES NON-MAJOR
ALR163809	BUCK RIDGE SUBDIVISION	33.665	-86.5125		ICIS-NPDES NON-MAJOR
ALR16EGJ3	RIVES CONST CO INC	33.61208	-86.6108		#N/A
ALR164052	PRESERVE SOC03182 THE	33.374722	-86.84		ICIS-NPDES NON-MAJOR
ALR164108	HODGES SITE AT DEERFOOT PKWY	33.687778	-86.598056		NPDES NON-MAJOR
ALR160187	JIM LUNCEFORD LLC	33.336667	-86.780278		NPDES NON-MAJOR
ALR16EGJ1	WATERSTONE PHASE I LOT 52,55,58,59,101,102,105-107 PHASE 2 LOTS 62-74, 83-94	33.39748	-86.88264		ICIS-NPDES NON-MAJOR
ALR16EGJL	LOGANS ROADHOUSE INC	33.567846	-86.518009		ICIS-NPDES NON-MAJOR
ALR16EGKH	AL GAS CORP	33.24539	-86.78868		ICIS-NPDES NON-MAJOR
ALR16EEK8	WAYNE DAVIS ALABASTER SENIOR	33.231716	-86.826303		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR163491	DEERFOOT BORROW PIT	33.667667	-86.577833		ICIS-NPDES NON-MAJOR
ALR163492	LOWETOWN BORROW PIT	33.310278	-87.062222		NPDES NON-MAJOR
ALR162543	SAND PIT	33.216944	-87.185278		ICIS-NPDES NON-MAJOR
ALR166178	100 GILBERT DRIVE	33.26352	-86.79747		ICIS-NPDES NON-MAJOR
ALR166165	ALABAMA BAG COMPANY	33.29675	-86.837861		ICIS-NPDES NON-MAJOR
ALR166177	BRAVEHEART BLDG LLC ROSSBURG	33.15	-86.775		ICIS-NPDES NON-MAJOR
ALR166309	CHINABERRY PHASE 2	33.228333	-86.862222		NPDES NON-MAJOR
ALR165944	CHURCH AT BROOKHILLS THE	33.428856	-86.674811		NPDES NON-MAJOR
ALR162397	FOREST RIDGE	33.180556	-86.802778		ICIS-NPDES NON-MAJOR
ALR164153	GAS STATE AT WM 5262	33.334722	-86.791389		ICIS-NPDES NON-MAJOR
ALR166367	INTERSTATE SEWER LINE REPLACE	33.239833	-86.817778		NPDES NON-MAJOR
ALR166323	LOWES ALABASTER	33.233889	-86.805556		NPDES NON-MAJOR
ALR166388	PIKE NURSERY	33.423889	-86.699444		ICIS-NPDES NON-MAJOR
ALR166315	PINNACLE EXCAVATING INC	33.1653	-86.82507		NPDES NON-MAJOR
ALR161497	SEWAGE TREATMENT PLANT EXP	33.298333	-86.837222		ICIS-NPDES NON-MAJOR
ALR166337	WESTWOOD BAPT CHURCH ALABASTER	33.2425	-86.795		ICIS-NPDES NON-MAJOR
ALR166232	BAINBRIDGE TRACE SUBDIVISION	33.42676	-86.85221		NPDES NON-MAJOR
ALR166399	BEACHUM BUILDERS	33.353709	-86.845724		ICIS-NPDES NON-MAJOR
ALR166175	BOB SMITH CONST INC NEW OFF WH	33.64167	-86.57011		ICIS-NPDES NON-MAJOR
ALR165962	CHURCH AT CAHABA RIDGE	33.701389	-86.606389		ICIS-NPDES NON-MAJOR
ALR166038	CRESCENT THE	33.597778	-86.643889		ICIS-NPDES NON-MAJOR
ALR162103	HOMEWOOD CENTRAL PARK	33.476389	-86.798333		ICIS-NPDES NON-MAJOR
ALR166438	HOMEWOOD CITY HALL	33.47958	-86.78922		ICIS-NPDES NON-MAJOR
ALR165938	INDIAN GAP ADD TO COLEMAN LAKE	33.284444	-87.017778		ICIS-NPDES NON-MAJOR
ALR165913	NORTHPARK BAPTIST CHURCH	33.657583	-86.576583		ICIS-NPDES NON-MAJOR
ALR166251	OXMOOR GLEN	33.431111	-86.854444		ICIS-NPDES NON-MAJOR
ALR166397	PROVIDENCE POINT SUBDIVISION	33.385833	-86.823611		ICIS-NPDES NON-MAJOR
ALR166156	RICE CREEK	33.318333	-86.901667		ICIS-NPDES NON-MAJOR
ALR166310	SALVATION ARMY	33.366111	-86.821111		NPDES NON-MAJOR
ALR166374	STATE FARM INSUR BHAM OPER PRK	33.453056	-86.823611		ICIS-NPDES NON-MAJOR
ALR166243	UNIV FED CRED UNION TRUSSVILLE	33.51504	-86.74714		ICIS-NPDES NON-MAJOR
ALR163121	VINEYARD CHRISTIAN FELLOWSHIP	33.547778	-86.643333		NPDES NON-MAJOR
ALR165942	WOODMEADOW OFFICE BUILDINGS	33.45034	-86.77274		ICIS-NPDES NON-MAJOR
ALR165520	WORD OF LIFE CHRISTIAN CENTER	33.57279	-86.64308		ICIS-NPDES NON-MAJOR
ALR16EGJS	SMT LLC MISTY RIDGE FAMILY DEN	33.64244	-86.61614		ICIS-NPDES NON-MAJOR
ALR16EGK5	D R HORTON INC HOLLAND LAKES S	33.28596	-86.81574		ICIS-NPDES NON-MAJOR
ALR16ECTN	BLUE CROSS BLUE SHIELD OF AL	33.41006	-86.91075		ICIS-NPDES NON-MAJOR
AL0079189	SEGCO MINE NO. 1	33.237778	-86.930278		ICIS-NPDES NON-MAJOR
AL0071501	DOUBLE OAK WATER RECLAM FAC	33.346451	-86.798054		ICIS-NPDES NON-MAJOR
AL0068420	EAST TUSCALOOSA W JEFF WWTP	33.51787	-86.57025		ICIS-NPDES NON-MAJOR
AL0002631	LANDMARK PLANT	33.213889	-86.820833		ICIS-NPDES NON-MAJOR
AL0050971	MOUNTAIN BROOK CITY	33.492778	-86.711167		#N/A
ALR16EGJN	TRINITY MEDICAL CTR 280 CAMPUS	33.44323	-86.71156		ICIS-NPDES NON-MAJOR
ALR164309	OAK MOUNTAIN CENTRE LOT 2	33.334833	-86.79325		ICIS-NPDES NON-MAJOR
ALR160010	HOPEWELL PUMPING STATION SEWER	33.333639	-86.942611		ICIS-NPDES NON-MAJOR
ALR169136	SIGNATURE HOMES EDENTON OFFICE	33.43612	-86.69696		ICIS-NPDES NON-MAJOR
ALR16EGNS	SOUTHEASTERN SEALCOATING INC	33.62958	-86.60574		ICIS-NPDES NON-MAJOR
ALR164209	APAC COUNTY ROAD 16 BORROW PIT	32.923611	-87.168611		NPDES NON-MAJOR
ALR164317	CONCRETE FORM WALLS INCORP	33.579444	-86.631667		ICIS-NPDES NON-MAJOR
ALR160235	STONE CREEK	33.15427	-86.78112		ICIS-NPDES NON-MAJOR
AL0079511	TALCOA MINERALS LLC PIPER MINE	33.075278	-87.071389		ICIS-NPDES NON-MAJOR
ALR160015	SOUTHWOOD COMMONS	33.335278	-86.911667		ICIS-NPDES NON-MAJOR
ALR160018	CAMP COLEMAN PARK	33.638861	-86.576222		ICIS-NPDES NON-MAJOR
ALR16EFFU	PROPOSED OFFICE BUILDING FOR BLR FURTHER	33.4136	-86.67917		ICIS-NPDES NON-MAJOR
ALR16EGNN	DAWSON MEMORIAL BAPTIST CHURCH	33.47425	-86.80581		ICIS-NPDES NON-MAJOR
ALR16EFSM	SHADES CREEK STABILIZATION	33.47404	-86.78063		ICIS-NPDES NON-MAJOR
ALR160299	T AND P DEV LLC POWERS TRUSSVL	33.63475	-86.578889		NPDES NON-MAJOR
ALR164371	SPAIN PARK MIDDLE SCHOOL	33.390833	-86.732778		NPDES NON-MAJOR
ALR16E680	VALLEY ROAD COMMERCIAL	33.63935	-86.61585		ICIS-NPDES NON-MAJOR
ALR160284	J AND N TRAILER PARK	33.191194	-86.819		NPDES NON-MAJOR
ALR164382	FALCON METALS AND SUPPLY CO	33.373333	-86.912222		ICIS-NPDES NON-MAJOR
ALR160369	VANN PROPERTY	33.638889	-86.605556		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR166897	AMERICAN LAND DEVELOPMENT	33.421373	-86.7089		ICIS-NPDES NON-MAJOR
ALR164365	SAMS CLUB GAS STATION 4817 00	33.643889	-86.626389		ICIS-NPDES NON-MAJOR
ALR160367	HIGHWAY 52 SUBDIVISION	33.276389	-86.796389		ICIS-NPDES NON-MAJOR
ALR160370	LAKECREST	33.370556	-86.8625		ICIS-NPDES NON-MAJOR
ALR160347	LOWETOWN AREA	33.311111	-87.061944		NPDES NON-MAJOR
ALR160342	VILLAGE AT LEE BRANCH THE	33.411111	-86.666111		ICIS-NPDES NON-MAJOR
ALR169613	DANVILLE GROUP LLC THE	33.20222	-86.86234		ICIS-NPDES NON-MAJOR
ALR16EGS5	CARDIOVASCULAR ASSOCIATES	33.436944	-86.733333		ICIS-NPDES NON-MAJOR
ALR160391	STERLING OAKS APARTMENTS	33.353333	-86.789722		NPDES NON-MAJOR
ALR160300	STERLING GATE SUBDIVISION	33.245139	-86.85325		ICIS-NPDES NON-MAJOR
ALR160314	ROYAL GROVE	33.2875	-86.928333		ICIS-NPDES NON-MAJOR
ALR160444	BRIDGEWATER PARK	33.358611	-86.820833		NPDES NON-MAJOR
ALR160401	MOUNTAIN VIEW SUBDIVISION	33.401917	-86.897444		NPDES NON-MAJOR
ALR160326	WOOD FRUITTICHER GROCERY CO	33.589167	-86.651111		NPDES NON-MAJOR
ALR160506	JEFF MET NORTH DITCH	33.291667	-87.05		ICIS-NPDES NON-MAJOR
ALR164351	LANCASTER DEERFOOT	33.650556	-86.577222		NPDES NON-MAJOR
ALR160452	HIGHWAY 119 DEVELOPMENT	33.435556	-86.670833		ICIS-NPDES NON-MAJOR
ALR160481	CAHAWBA TRACE PATIO HOMES	33.53695	-86.56516		#N/A
ALR160484	CARRINGTON DEVELOPERS LLC	33.650278	-86.535833		NPDES NON-MAJOR
ALR160463	MEDICAL CENTER EAST MOB III	33.592222	-86.6675		ICIS-NPDES NON-MAJOR
ALR160494	CAMDEN COVE WEST LLC	33.13779	-86.77627		NPDES NON-MAJOR
ALR160458	LOVES TRAVEL STOPS	33.278889	-87.0975		ICIS-NPDES NON-MAJOR
ALR164438	CLAY CORNERS LOTS 5 AND 6	33.699444	-86.604167		ICIS-NPDES NON-MAJOR
ALR164437	CVS PHARMACY VESTAVIA	33.436667	-86.788889		ICIS-NPDES NON-MAJOR
ALR160532	BROOK HIGHLAND	33.440833	-86.666111		ICIS-NPDES NON-MAJOR
ALR160514	HIGHLANDS FALLISTON THE	33.285833	-86.851389		NPDES NON-MAJOR
ALR160926	ADOT ST 659 15	33.365278	-86.889444		NPDES NON-MAJOR
ALR160540	CLAYMONT INC PEPPERTREE	33.655556	-86.55		ICIS-NPDES NON-MAJOR
ALR160545	PATTON CREEK SHOPPING CENTER	33.378333	-86.806389		ICIS-NPDES NON-MAJOR
ALR160546	PATTON FARMS	33.394167	-86.831389		NPDES NON-MAJOR
ALR160535	TIMBERLAKE DEVELOPMENT LLC	33.266111	-86.957222		ICIS-NPDES NON-MAJOR
ALR160547	WOODRUFF ESTATES	33.525278	-86.578056		ICIS-NPDES NON-MAJOR
ALR160539	CARRINGTON LAKES EAST	33.649444	-86.533889		ICIS-NPDES NON-MAJOR
ALR160619	CAHABA RIVER TRUNK SEWER	33.396667	-86.748333		NPDES NON-MAJOR
ALR160757	ALABASTER CITY OF WWT	33.254167	-86.815833		ICIS-NPDES NON-MAJOR
ALR160541	BENT RIVER COMMONS	33.373333	-86.775556		ICIS-NPDES NON-MAJOR
ALR160590	FIELDSTONE PARK HILLSBOROUGH	33.275	-86.8625		ICIS-NPDES NON-MAJOR
ALR160587	SAXON HILL	33.641194	-86.587778		NPDES NON-MAJOR
ALR160630	EBSCO AT 119	33.419167	-86.671944		NPDES NON-MAJOR
ALR160628	ARBOR HILLS LLC	33.358056	-86.811667		ICIS-NPDES NON-MAJOR
ALR160637	GRAND RIVER DEVELOPMENT	33.527778	-86.612778		NPDES NON-MAJOR
ALR160754	HEALTHSOUTH MEDICAL CENTER	33.433889	-86.719722		ICIS-NPDES NON-MAJOR
ALR160635	LAKESHORE LIGHT INDUST SITE	33.37992	-86.93576		NPDES NON-MAJOR
ALR160634	LAKESHORE RETAIL COMMERC SITE	33.380833	-86.936389		NPDES NON-MAJOR
ALR160603	ROYAL OAKS	33.322778	-86.824722		ICIS-NPDES NON-MAJOR
ALR164511	STEWART RESIDENCE THE	33.481194	-86.694361		ICIS-NPDES NON-MAJOR
AL0061786	MINE NO. 1	33.199167	-86.9425		ICIS-NPDES NON-MAJOR
AL0056685	EASTWOOD MH VILLAGE WWTP	33.557	-86.654083		NPDES NON-MAJOR
AL0055247	EASTERN AREA LANDFILL, BIRMINGHAM	33.587611	-86.646139		NPDES NON-MAJOR
ALR16EGT6	WEST MONTEVALLO DISTRICT SUBSTATION	33.10131	-86.86538		ICIS-NPDES NON-MAJOR
AL0054330	FOX VALLEY APARTMENTS	33.24975	-86.850528		ICIS-NPDES NON-MAJOR
ALR164131	ELKS LODGE PROPERTY	33.3425	-86.79		NPDES NON-MAJOR
ALR16ECT5	JEFFERSON CO BOE CLAY CHALKVIL	33.697679	-86.596597		ICIS-NPDES NON-MAJOR
ALR16B414	ADAMS MARLENE ROLLING OAKS M	33.39519	-86.8362		ICIS-NPDES NON-MAJOR
ALR16E789	LEEDS RETAIL CENTER	33.54328	-86.60458		ICIS-NPDES NON-MAJOR
ALR164166	SOUTHGATE DRIVE	33.335556	-86.786389		ICIS-NPDES NON-MAJOR
ALR16EGKF	AVANTI POLAR LIPIDS, INC. -CGMP BUILDING #1000	33.25191	-86.821		ICIS-NPDES NON-MAJOR
ALR16E611	LEHIGH READY MIX CEMENT PLANT	33.541515	-86.543034		#N/A
ALR16EGJK	STADIUM TRACE EXTENSION HOOVER, SHELBY COUNTY, ALABAMA	33.3403	-86.87292		ICIS-NPDES NON-MAJOR
ALR16EGLU	TRACE CROSSINGS SECTOR 28 CREEKSIDE PHASE 2B	33.331389	-86.869722		ICIS-NPDES NON-MAJOR
ALR16EHAK	WESLEY CHERT PIT	33.177222	-87.136111		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR164185	TANGLEWOOD BY THE CREEK	33.178056	-86.811111		ICIS-NPDES NON-MAJOR
ALR16EGH2	BIBB MEDICAL CENTER ADDITION	32.95138	-87.14755		ICIS-NPDES NON-MAJOR
ALR164372	MORGAN ROAD STATION PHASE 2	33.337583	-86.916111		ICIS-NPDES NON-MAJOR
ALR164219	JACK RABBIT CONVENIENCE STORE	33.407556	-86.665194		ICIS-NPDES NON-MAJOR
ALR16EGD1	ADAMS HOMES LLC STONEY MEADOWS	33.2514	-86.8478		ICIS-NPDES NON-MAJOR
ALR164135	BOTANICAL PLACE	33.49174	-86.77936		NPDES NON-MAJOR
ALR164223	MOUNTAIN LAUREL ESTATES 3RD	33.645278	-86.614167		NPDES NON-MAJOR
ALR160007	PANTHER RIDGE	33.307222	-86.821111		NPDES NON-MAJOR
ALR16EDL5	CITY OF CLAY SIDEWALKS	33.697778	-86.600833		ICIS-NPDES NON-MAJOR
ALR16EGN5	CITY OF HOOVER MINERAL GAP RD	33.34476	-86.84999		ICIS-NPDES NON-MAJOR
ALR164272	PERSONAL RESIDENCE	33.503056	-86.707778		ICIS-NPDES NON-MAJOR
ALR164300	PARK AT ROCKY RIDGE THE	33.397722	-86.776222		NPDES NON-MAJOR
ALR160196	LAKEVIEW HOMES	33.364444	-86.829167		ICIS-NPDES NON-MAJOR
ALR16ECW4	ADIR AML RECLAMATION BOOTHTON	33.14747	-86.78564		ICIS-NPDES NON-MAJOR
ALR16EGLG	DOLLAR GENERAL DISTRIBUTION CENTER	33.3875	-86.92917		ICIS-NPDES NON-MAJOR
AL0022934	TRUSSVILLE WWTP	33.61976	-86.60356	Copper, Hardness, Lead, Methylene blue active substances, Nickel, TDS, Toxicity, Zinc, pH, Mercury, BOD, Chlorine, E.coli, Flow, Nitrite + Nitrate, TKN, Ammonia, DO, TP, TSS, Fecal coliform, Oil & grease	ICIS-NPDES MAJOR
ALG340371	SPEEDWAY SUPERAMERICA LLC	33.336456	-86.780653		NPDES NON-MAJOR
ALG340417	BUILDERS TRANSPORT FORMER	33.546028	-86.693278		ICIS-NPDES NON-MAJOR
ALG340357	EXPRESS OIL CHANGE BULK PLANT	33.653999	-86.557309		NPDES NON-MAJOR
ALG340517	HIGGINBOTHAM OIL CO	33.2375	-87.137778		ICIS-NPDES NON-MAJOR
ALG160109	JIL CONTRACTING CO LANDFILL	33.558889	-86.505		NPDES NON-MAJOR
ALR16C303	ALDOT NHF 006 530	32.957364	-87.118325		ICIS-NPDES NON-MAJOR
ALG340021	MAYFIELD OIL COMPANY INCORPORATED	32.94474	-87.142215		NPDES NON-MAJOR
ALG340541	BRIANS QUICK STOP	33.310278	-86.803333		ICIS-NPDES NON-MAJOR
ALG340490	EXPRESSWAY SHELL	33.293	-86.811167		ICIS-NPDES NON-MAJOR
ALG340353	HIGGINBOTHAM OIL CO SUNNY FOOD	33.422876	-86.700125		NPDES NON-MAJOR
ALG340450	FORMER RACETRAC STORE NO 807	33.702889	-86.599389		ICIS-NPDES NON-MAJOR
ALG340366	LANDSCAPE SERVICES INC	33.425534	-86.703922		#N/A
ALG340405	LORNA ROAD CHEVRON	33.393889	-86.798611		NPDES NON-MAJOR
ALG340337	MONTGOMERY OIL, INC. BULK PLANT	33.51746	-86.55161		#N/A
AL0063088	CALDWELL MILL WATER RECLAM SYS	33.414861	-86.740278		NPDES NON-MAJOR
AL0078395	IRONDALE WWTP	33.554444	-86.621389		NPDES NON-MAJOR
AL0061603	PLANTATION PIPELINE CO	33.28952	-86.831413		#N/A
AL0056871	CAHABA PARK WEST LAGOON	32.3785	-87.095778		NPDES NON-MAJOR
ALG340605	GREEN POND GROCERY	33.223931	-87.125294		ICIS-NPDES NON-MAJOR
ALG340617	BRIANS QUICK STOP	33.310278	-86.803333		ICIS-NPDES NON-MAJOR
AL0024473	CHEMICAL LIME CO OF ALABAMA LLC ALABASTER PLANT	33.247101	-86.817528		#N/A
AL0023116	HELENA WWTP	33.297194	-86.835722	Toxicity, BOD, Chlorine, Fecal coliform, Copper, E.coli, Flow, Nitrite + Nitrate, TKN, Ammonia, DO, TP, TSS, Zinc, pH, Mercury	NPDES MAJOR
ALG340551	MONTEVALLO CHEVRON	33.108944	-86.87825		ICIS-NPDES NON-MAJOR
ALG340630	PACIFIC PRIDE #291	33.26372	-86.81122		ICIS-NPDES NON-MAJOR
ALG340001	PELHAM FACILITY	33.281667	-86.803056		ICIS-NPDES NON-MAJOR
ALG340370	PLANTATION PIPELINE CO	33.28952	-86.831413		#N/A
AL0073539	WEATHERLY WATER RECLAMATION CENTER	33.24547	-86.78905		NPDES NON-MAJOR
ALG340483	B AND J FOOD MART	33.551135	-86.61636		ICIS-NPDES NON-MAJOR
ALG340339	MCPHERSON COMPANIES INC	33.64839	-86.56354		NPDES NON-MAJOR
AL0060682	NINNA V MINE	33.375137	-86.755312		ICIS-NPDES NON-MAJOR
ALG340207	VETERANS OIL INC	33.356958	-86.877824		NPDES NON-MAJOR
ALG340430	GABES SERVICE STATION	32.456222	-87.081972		ICIS-NPDES NON-MAJOR
ALR16EFJE	SR 3 (US 31) AND SHELBY CR 87	33.2024	-86.7775		ICIS-NPDES NON-MAJOR
ALR162888	SMOKEY RIDGE ESTATES	33.184444	-86.8045		NPDES NON-MAJOR
ALR16A753	MCCALLA TRACE	33.31716	-86.98951		NPDES NON-MAJOR
ALR168033	SOUTHWEST STADIUM PARKING PROJECT	33.46134	-86.79412		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR16EFC3	MOUNTAIN BROOK MUNICIPAL COMPLEX	33.50216	-86.75556		ICIS-NPDES NON-MAJOR
ALR165387	WOODLANDS INDUSTRIAL PARK EXP	33.557278	-86.619389		NPDES NON-MAJOR
ALR165412	VALLEY AVENUE REPLACEMENT	33.474167	-86.815		NPDES NON-MAJOR
ALR165421	PROPOSED HYDROFLOSS BLDG	33.370278	-86.944167		ICIS-NPDES NON-MAJOR
ALR162827	COUNTRYWOOD INCORPORATION	33.048333	-86.810833		NPDES NON-MAJOR
ALR16EFKH	SHELBY COUNTY ROAD 12 WATER MAIN PROJECT	33.1626	-86.7773		ICIS-NPDES NON-MAJOR
ALR16EFNT	1-20 THRU 1-22, 1-53 THRU 1-60, 1-175 THRU 1-177, 2-02, 2-05 THRU 2-17, 2-21, 3-	33.28878	-87.07691		ICIS-NPDES NON-MAJOR
ALR163783	RIVERBEND	33.0375	-87.100556		#N/A
ALR16EBRF	WEDGWORTH-TYLER ROAD SUBDIVISION	33.416839	-86.822442		ICIS-NPDES NON-MAJOR
ALR165442	PROPOSED RESIDENCE	33.534389	-86.672944		ICIS-NPDES NON-MAJOR
ALR162867	HABERSHAM PLACE	33.410556	-86.702778		ICIS-NPDES NON-MAJOR
ALR16EBRB	ADVANCE AUTO PARTS-HOOVER	33.382778	-86.743611		ICIS-NPDES NON-MAJOR
ALR162890	WOOD DISCOUNT PHARMACY	33.218639	-86.825333		ICIS-NPDES NON-MAJOR
ALR165459	ROOMS TO GO HOOVER	33.378333	-86.815833		NPDES NON-MAJOR
ALR165386	COUNTY ROAD 29 BRIDGE PROJECT	32.716667	-87.341389		ICIS-NPDES NON-MAJOR
ALR165451	COUNTY ROAD 29 BRIDGE PROJECT	32.716667	-87.341389		ICIS-NPDES NON-MAJOR
ALR165467	NEW ACCESS DRIVE	33.411389	-86.675556		ICIS-NPDES NON-MAJOR
ALR162906	UNNAMED ACREAGE	33.292639	-86.808556		ICIS-NPDES NON-MAJOR
ALR16EFR3	WEATHERLY STATION APARTMENTS AND COMMERCIAL CENTER	33.2633	-86.7859		ICIS-NPDES NON-MAJOR
ALR16EDT5	LAKESHORE HOLDINGS CANDLEWOOD	33.39417	-86.88927		ICIS-NPDES NON-MAJOR
ALR16EDE1	STBH-7321(600)	33.38528	-86.82447		ICIS-NPDES NON-MAJOR
ALR162941	WYNWOOD LAKE ESTATES	33.680278	-86.556944		NPDES NON-MAJOR
ALR165517	OVERLOOK CREST PHASE II	33.44	-86.808333		ICIS-NPDES NON-MAJOR
ALR163387	OSCAR KENT PROPERTY - HIGHWAY 78	33.548611	-86.623056		ICIS-NPDES NON-MAJOR
ALR16EFRM	BBVA COMPASS BANK AT	33.35934	-86.84983		ICIS-NPDES NON-MAJOR
ALR165506	ROYAL TERRACE AND ROYAL CREST	33.605	-86.575278		NPDES NON-MAJOR
ALR165550	HIGHLAND MEADOWS	33.371222	-86.850944		ICIS-NPDES NON-MAJOR
ALR165549	TOWNES THE	33.39163	-86.77253		NPDES NON-MAJOR
ALR16EDR8	USVA AL NATIONAL CEMETERY	33.129393	-86.836443		ICIS-NPDES NON-MAJOR
ALR165443	HIGHWAY 31 COMMERCIAL	33.258333	-86.783056		ICIS-NPDES NON-MAJOR
ALR165543	LIBERTY PARK LOT 402	33.459167	-86.685833		NPDES NON-MAJOR
ALR16EDV4	VESTAVIA HILLS PUBLIC LIBRARY	33.431591	-86.788456		ICIS-NPDES NON-MAJOR
ALR163023	CEDAR LANE	33.245278	-86.848056		ICIS-NPDES NON-MAJOR
ALR163024	LAKESHORE RIDGE APARTMENTS	33.434444	-86.857778		ICIS-NPDES NON-MAJOR
ALR160036	GARDEN HOME DEVELOPMENT	33.434167	-86.837778		NPDES NON-MAJOR
ALR16A751	MCCALLA TRACE	33.31716	-86.98951		NPDES NON-MAJOR
ALR162857	ASBURY ROAD GARDEN HOMES	33.462572	-86.73559		ICIS-NPDES NON-MAJOR
AL0052345	HEIBERGER WATER TREATMENT FAC	32.803056	-87.2925		ICIS-NPDES NON-MAJOR
AL0044857	CENTERVILLE BRENT LAGOON	32.926806	-87.152917	BOD, Fecal coliform, Flow, Nitrite + Nitrate, TKN, Ammonia, Nitrate, DO, TP, TSS, pH, Mercury, Chlorine, Toxicity,Oil & grease	ICIS-NPDES MAJOR
AL0056359	TANNEHILL HISTORICAL ST PARK	33.246806	-87.068722		ICIS-NPDES NON-MAJOR
AL0025828	ALABASTER WWTP	33.253389	-86.815417	BOD, Chlorine, Fecal coliform, E.coli, Flow, Nitrite + Nitrate, TKN, Ammonia, DO, TP, TSS, Zinc, pH, Orthophosphate, Mercury, Toxicity, Copper, Hardness, Lead, Methylene blue active substances, Nickel, Oil & grease	ICIS-NPDES MAJOR
AL0058548	ASPHALT CONTR INC OAKMULGEE PT	32.39996	-87.1001		NPDES NON-MAJOR
AL0054682	SEAMAN TIMBER CO INC.	33.062778	-86.898583		#N/A
AL0058971	BORAL BRICKS INC BESSEMER PLANT 6	33.348701	-86.963463		#N/A
ALR16EFHY	AL POWER HELENASTRAVEN BLOCTON	33.30167	-86.84778		ICIS-NPDES NON-MAJOR
ALR16EGUK	CHS BIRMINGHAM DATA CENTER	33.41514	-86.90701		ICIS-NPDES NON-MAJOR
ALR162579	CREEK TRACE	33.292778	-86.970833		ICIS-NPDES NON-MAJOR
ALR162578	CREEK BLUFF	33.266944	-87.010556		ICIS-NPDES NON-MAJOR
ALR162582	MORNINGSIDE ENGLISH VILLAS	33.50768	-86.75888		NPDES NON-MAJOR
ALR167726	STONEY MEADOWS SUBDIVISION	33.40678	-86.80647		ICIS-NPDES NON-MAJOR
ALR16A039	RAST CONSTRUCTION INC. PROPERTY - KILSBY	33.364722	-86.909167		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR16EGXH	THE SUMMIT RETAIL CENTER I	33.447611	-86.731136		ICIS-NPDES NON-MAJOR
ALR162592	LUCAS PROPERTY	33.464056	-86.713833		ICIS-NPDES NON-MAJOR
ALR16EG82	A NEW FACILITY FOR HOPE ANIMAL CLINIC	33.33153	-86.91336		ICIS-NPDES NON-MAJOR
ALR165188	BIRMINGHAM ZOO	33.48675	-86.77574		ICIS-NPDES NON-MAJOR
ALR165195	SOUTHWOOD HIGHLANDS PHASE 4	33.336194	-86.903167		ICIS-NPDES NON-MAJOR
ALR162663	SAIIA COALBURG ROAD PROJECT	33.42676	-86.85221		NPDES NON-MAJOR
ALR162668	GRAYBAR ELECTRIC WAREHOUSE	33.441944	-86.865556		ICIS-NPDES NON-MAJOR
ALR165214	MARK BOOTH ADD TO TRUSSVILLE	33.641667	-86.618056		ICIS-NPDES NON-MAJOR
ALR165215	OFFICE WAREHOUSE	33.560556	-86.647778		ICIS-NPDES NON-MAJOR
ALR162696	BRIARWOOD CHRISTIAN HIGH SCHL	33.390556	-86.689444		NPDES NON-MAJOR
ALR162669	CAHABA RIVER HWY 280 PROJECT	33.431389	-86.713889		ICIS-NPDES NON-MAJOR
ALR167787	JAMESTOWN SUBDIVISION	33.28903	-86.98311		ICIS-NPDES NON-MAJOR
ALR16EFKL	STRELING LAKES SUBDIVISION	33.28724	-86.93713		ICIS-NPDES NON-MAJOR
ALR16EGUH	THE HILL APARTMENTS	33.47796	-86.78977		ICIS-NPDES NON-MAJOR
ALR165260	ARGO SITE	33.7	-86.508333		NPDES NON-MAJOR
ALR16EF17	CROWE PIT	32.80664	-87.03765		ICIS-NPDES NON-MAJOR
ALR162693	MOUNTAIN COVE SUBDIVISION	33.369444	-86.740278		ICIS-NPDES NON-MAJOR
ALR162694	HIGH FOREST LAKES SUBDIVISION	33.278611	-87.017222		NPDES NON-MAJOR
ALR16EFL7	WESTWOOD BAPTIST CHURCH - PARKING LOT EXTENSION	33.24089	-86.79275		ICIS-NPDES NON-MAJOR
ALR160912	ADOT STPBH 9802 901	33.088889	-86.870833		NPDES NON-MAJOR
ALR16D450	RIVERHILLS SUBDIVISION	33.390514	-86.75299		ICIS-NPDES NON-MAJOR
ALR16EBMR	D-1 SPORTS AND TRAINING FACILITY	33.46466	-86.77027		ICIS-NPDES NON-MAJOR
ALR165271	EAGLE RIDGE TOWNES	33.423611	-86.6875		NPDES NON-MAJOR
ALR16EGNR	BIRMINGHAM ZOO	33.48675	-86.77574		ICIS-NPDES NON-MAJOR
ALR165281	HAMPTON INN	33.459167	-86.821667		NPDES NON-MAJOR
ALR165291	CREEKSIDE SUBDIVISION	33.614667	-86.593583		NPDES NON-MAJOR
ALR16EGYX	ALID FOOD STORE	33.344167	-86.806111		ICIS-NPDES NON-MAJOR
ALR16EB08	CHACE LAKE	33.37062	-86.79975		NPDES NON-MAJOR
ALR162290	LAUREL LAKES	33.292222	-86.947694		ICIS-NPDES NON-MAJOR
ALR162731	HWY 11 AND DEERFOOT PARKWAY	33.638444	-86.580972		ICIS-NPDES NON-MAJOR
ALR162729	INVERNESS HEIGHTS MARKET	33.424167	-86.695		ICIS-NPDES NON-MAJOR
ALR16EDPV	HUEYTOWN HIGH SCHOOL	33.39025	-86.79327		ICIS-NPDES NON-MAJOR
ALR16EGRC	BESSEMER AIRPORT	33.308834	-86.926474		#N/A
ALR162748	SUMMIT RETAIL CENTER FOUR	33.445833	-86.733333		NPDES NON-MAJOR
ALR162774	BROOKS RIDGE	33.508611	-86.744444		ICIS-NPDES NON-MAJOR
ALR165334	STONEGATE VILLAGE	33.481111	-86.701389		NPDES NON-MAJOR
ALR165329	TRINITY LIFE CHURCH	33.327778	-86.96		NPDES NON-MAJOR
ALR162759	TUTWILER FARMS 11TH SECTOR	33.624167	-86.625278		NPDES NON-MAJOR
ALR16D498	JACKSON SQUARE	33.42005	-86.81005		ICIS-NPDES NON-MAJOR
ALR165337	CO RD 107 OVER SPRING CREEK	33.153611	-86.800833		NPDES NON-MAJOR
ALR16EGRA	BESSEMER AIRPORT	33.308834	-86.926474		#N/A
ALR162795	PINE TREE COUNTRY CLUB	33.5275	-86.653333		ICIS-NPDES NON-MAJOR
ALR162798	ROCK CREEK CAHABA TRACE SUBD	33.62112	-86.5972		ICIS-NPDES NON-MAJOR
ALR162856	JRS 3RD ADD TRUSSVILLE IND PK	33.643333	-86.5725		NPDES NON-MAJOR
ALR162809	TANNEHILL TOWNHOMES	33.278611	-87.080833		NPDES NON-MAJOR
ALG060389	FOLMAR ARCHITECTURAL MILL INC	33.095115	-86.844901		#N/A
AL0075094	LEHIGH MINE	33.375395	-86.755014		ICIS-NPDES NON-MAJOR
AL0067351	OAK GROVE DEGAS PROJECT	33.350571	-86.846005		ICIS-NPDES NON-MAJOR
ALG060452	CAHABA TIMBER CO	33.036861	-86.969972		#N/A
ALR16EFFF	PARC @ GRANDVIEW	33.43799	-86.71831		ICIS-NPDES NON-MAJOR
ALG060248	TEKPAK INC	32.610985	-87.317473		#N/A
ALG640050	CALERA WATER TREATMENT PLANT	33.144338	-86.792419		ICIS-NPDES NON-MAJOR
ALG640007	HEIBERGER WATER TREATMENT FAC	32.803056	-87.2925		ICIS-NPDES NON-MAJOR
AL0074195	WEST BLOCTON WWTP	33.106389	-87.100833		ICIS-NPDES NON-MAJOR
AL0076163	CCL LABEL	33.545107	-86.69237		#N/A
AL0055395	CAHABA TIMBER CO	33.036861	-86.969972		#N/A
AL0024422	MAYLENE QUARRY	33.186111	-86.865278		NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
AL0067067	LEEDS NORMAN R SKINNER WWTP	33.534889	-86.560583	BOD, Fecal coliform, Flow, TKN, Ammonia, DO, TP, TSS, pH, Copper, Hardness, Lead, Methylene blue active substances, Nickel, TDS, Toxicity, Zinc, Mercury, E.coli, Nitrite + Nitrate, Oil & grease	NPDES MAJOR
ALG060019	BIBB HARDWOOD LUMBER INC	32.933889	-87.134167		#N/A
ALG060082	CAHABA VENEER INC	32.940618	-87.143921		#N/A
ALG060005	SCOTT DAVIS CHIP COMPANY, INC.	32.946111	-87.180278		ICIS-NPDES NON-MAJOR
ALG060396	SIMS BARK COMPANY INC	32.936944	-87.179444		NPDES NON-MAJOR
ALG060401	MILLSOURCE-A DIVISION OF WOODGRAIN	33.095278	-86.860278		NPDES NON-MAJOR
AL0023809	MARION WWTP	32.623694	-87.29625		NPDES NON-MAJOR
ALR160739	AGC STATE HEADQUARTERS	33.546667	-86.656667		NPDES NON-MAJOR
ALR16EDJL	TRACE CROSSING MEDICAL CENTER	33.35	-86.845556		ICIS-NPDES NON-MAJOR
ALR160533	HIGHLAND LAKES DEVELOPMENT	33.4175	-86.661389		ICIS-NPDES NON-MAJOR
ALR160593	HILLSBORO DEVELOPMENT	33.294722	-86.859722		ICIS-NPDES NON-MAJOR
ALR169444	PINE MOUNTAIN PRESERVE	33.48071	-86.77583		ICIS-NPDES NON-MAJOR
ALR160591	TRACE CROSSINGS	33.341667	-86.8525		ICIS-NPDES NON-MAJOR
ALR160680	CARROLLWOOD PARTNERSHIP	33.681944	-86.582222		ICIS-NPDES NON-MAJOR
ALR164460	LOADER SERVICES AND EQUIPMENT	33.299585	-86.812504		ICIS-NPDES NON-MAJOR
ALR160665	WOODRIDGE DEVELOPMENT	33.298611	-86.747778		ICIS-NPDES NON-MAJOR
ALR160656	GREYSTONE DEVELOPMENT CO LLC	33.427778	-86.658889		ICIS-NPDES NON-MAJOR
ALR160729	CAHABA VILLAGE	33.459444	-86.752222		NPDES NON-MAJOR
ALR160826	CLAIRMONT PARK DEVELOPMENT	33.563889	-86.513889		NPDES NON-MAJOR
ALR164221	I 459 INDUSTRIAL PARK	33.336667	-86.915056		NPDES NON-MAJOR
ALR160730	WOOD WEDGEWORTH DEVELOPMENT	33.453056	-86.796111		ICIS-NPDES NON-MAJOR
ALR160662	NOTTINGHAM LLC	33.150556	-86.7725		ICIS-NPDES NON-MAJOR
ALR161259	SPRING VALLEY	33.527778	-86.573333		ICIS-NPDES NON-MAJOR
ALR16EENM	WOODSCAPE OFFICE ADDITION	33.40113	-86.7632		ICIS-NPDES NON-MAJOR
ALR160787	SERENE RIDGE SUBDIVISION	33.275278	-87.053611		ICIS-NPDES NON-MAJOR
ALR160838	GRANDE VIEW ESTATES	33.20104	-86.84934		ICIS-NPDES NON-MAJOR
ALR161110	GRANDVIEW ESTATES	33.190833	-86.855833		NPDES NON-MAJOR
ALR160796	AFFORDABLE STORAGE	33.331944	-86.913611		ICIS-NPDES NON-MAJOR
ALR160844	BROOK HIGHLAND TOWNES	33.425278	-86.685278		ICIS-NPDES NON-MAJOR
ALR160807	CALDWELL CROSSINGS	33.408056	-86.739167		NPDES NON-MAJOR
ALR161129	HIDDEN TRACE	33.610556	-86.610556		ICIS-NPDES NON-MAJOR
ALR161153	LIBERTY PARK	33.473333	-86.691667		NPDES NON-MAJOR
ALR160785	SILVER LAKES SUBDIVISION	33.296667	-86.930556		NPDES NON-MAJOR
ALR160804	GRAND OAKS	33.33455	-86.88393		NPDES NON-MAJOR
ALR160803	OAK PARK	33.42984	-86.8303		ICIS-NPDES NON-MAJOR
ALR160679	OAK MOUNTAIN PARK	33.402778	-86.663333		NPDES NON-MAJOR
ALR161154	HIDDEN TRACE	33.610556	-86.610556		ICIS-NPDES NON-MAJOR
ALR164494	HIGH FOREST LAKES ROAD	33.278611	-87.017222		NPDES NON-MAJOR
ALR160017	JEFFERSON METROPOLITAN PARK	33.311667	-87.034167		ICIS-NPDES NON-MAJOR
ALR160783	RBS BUSINESS CENTER	33.607222	-86.633056		ICIS-NPDES NON-MAJOR
ALR164498	WEATHERLY HIGHLANDS THE LEDGES	33.248944	-86.787917		NPDES NON-MAJOR
ALR160700	RAST CONSTRUCTION INC PROPERTY	33.369167	-86.904722		ICIS-NPDES NON-MAJOR
ALR161167	INDIAN GATE SUBDIVISION	33.381667	-86.75		NPDES NON-MAJOR
ALR160316	ARGO INDUSTRIAL PARK	33.696556	-86.520917		ICIS-NPDES NON-MAJOR
ALR160011	OAKS MANOR	33.391667	-86.775278		ICIS-NPDES NON-MAJOR
ALR161164	HAVEN AT GRAYSTONE THE	33.465278	-86.610556		ICIS-NPDES NON-MAJOR
ALR161166	HIGHWAY 78 LAND CLEARING PROJ	33.207222	-86.772778		NPDES NON-MAJOR
ALR161172	HOLLAND PARK	33.104167	-86.836389		ICIS-NPDES NON-MAJOR
ALR161177	WILLIAMS RIDGE	33.295556	-87.033889		ICIS-NPDES NON-MAJOR
ALR161208	HIGHWAY 261	33.339444	-86.805278		ICIS-NPDES NON-MAJOR
ALR160830	PARKVIEW TOWNHOME DEVELOPEMENT	33.296111	-86.804444		ICIS-NPDES NON-MAJOR
ALR161263	SILVER CREEK SUBDIVISION	33.21905	-86.82445		NPDES NON-MAJOR
ALR160450	CHEROKEE BEND SOUTH	33.507778	-86.6925		NPDES NON-MAJOR
ALR161209	HIGHWAY 150 SITE	33.366306	-86.905944		ICIS-NPDES NON-MAJOR
ALR161185	LAKE CYRUS	33.343889	-86.8775		NPDES NON-MAJOR
ALR161211	OAK CREST	33.441944	-86.81		NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR160600	RIVERCHASE BAPTIST CHURCH	33.364222	-86.80775		ICIS-NPDES NON-MAJOR
ALR16C261	COTSWOLDS NORTH - SELECTED LOTS	33.47098	-86.6764		ICIS-NPDES NON-MAJOR
ALR16EHB1	MARVEL GOB FIRE EMERGENCY	33.143056	-87.004722		ICIS-NPDES NON-MAJOR
ALR164509	COUNTRY RIDGE SUBDIVISION	33.242778	-87.090833		NPDES NON-MAJOR
ALR161238	PPM CONSULTANTS OFFICE	33.5425	-86.631667		ICIS-NPDES NON-MAJOR
ALR160592	ROSS BRIDGE	33.399167	-86.886944		ICIS-NPDES NON-MAJOR
ALR161300	BROOK HIGHLAND CENTER	33.43621	-86.66389		ICIS-NPDES NON-MAJOR
ALR161307	PRAYTOR ROAD INDUSTRIAL PARK	33.630556	-86.582611		NPDES NON-MAJOR
ALR161308	STILL OAKS	33.620556	-86.596111		ICIS-NPDES NON-MAJOR
ALR164461	WOODLAND CREST SUBDIVISION	33.668778	-86.598083		ICIS-NPDES NON-MAJOR
ALR164366	SHELBY HIGHWAY 52 BORROW PIT	33.276667	-86.786111		ICIS-NPDES NON-MAJOR
ALR160244	PARKWOOD SENIOR COMMUNITY	33.361111	-86.892222		ICIS-NPDES NON-MAJOR
ALR164529	TIMBER LEAF SUBDIVISION	33.29682	-87.00869		ICIS-NPDES NON-MAJOR
ALR161378	GRANTS MILL AT ONE NINETEEN	33.475167	-86.6265		ICIS-NPDES NON-MAJOR
ALR16EGUD	RITCHEY PIT	33.1748	-86.8628		ICIS-NPDES NON-MAJOR
ALR164526	CROWNE AT GRANDVIEW II	33.440139	-86.722528		ICIS-NPDES NON-MAJOR
ALR161380	ROWAN SPRINGS	33.53691	-86.56982		ICIS-NPDES NON-MAJOR
ALR160800	CARRINGTON SUBDIVISION	33.161944	-86.7775		NPDES NON-MAJOR
ALR160801	HAYESBURY COMMERCIAL PARK	33.338056	-86.8075		ICIS-NPDES NON-MAJOR
ALR160802	HAYESBURY TOWNHOMES	33.34	-86.805		ICIS-NPDES NON-MAJOR
ALR161387	COURT YARD PLACE	33.640833	-86.613889		ICIS-NPDES NON-MAJOR
ALR161175	SAVANNAH POINTE	33.161389	-86.786944		ICIS-NPDES NON-MAJOR
ALR161427	VALLEY RIDGE FRM ASHLEE JORDAN	33.58525	-86.597111		ICIS-NPDES NON-MAJOR
ALR161462	MONROE INDUSTRIAL PARK	33.264444	-86.796667		ICIS-NPDES NON-MAJOR
ALR161457	ENGLISH TRACE	33.723611	-86.556667		NPDES NON-MAJOR
ALR16C628	SAIIA CONSTRUCTION TANNEHILL	33.42676	-86.85221		NPDES NON-MAJOR
ALR160663	OAK MOUNTAIN BUSINESS PARK LLC	33.276389	-86.7925		NPDES NON-MAJOR
ALR161617	SADDLE CREEK ESTATES	33.525	-86.625		NPDES NON-MAJOR
ALR161182	SHADY OAKS ESTATES	33.712778	-86.525556		ICIS-NPDES NON-MAJOR
ALR169837	CLANTON RETAIL DEVELOPMENT	33.54495	-86.69243		ICIS-NPDES NON-MAJOR
ALR164551	SHELBY CO RD 52 ALDOT RELOC	33.278333	-86.796667		ICIS-NPDES NON-MAJOR
ALR162453	USA 11 SKATE ARENA	33.206667	-87.169722		ICIS-NPDES NON-MAJOR
ALR16EDAA	COSTON GENERAL CONTRACTORS I	33.45306	-86.80515		ICIS-NPDES NON-MAJOR
ALR161272	NATTER PROPERTY	33.338056	-86.791389		ICIS-NPDES NON-MAJOR
ALR161584	GRACE PRESBYTERIAN CHURCH	33.680083	-86.591528		NPDES NON-MAJOR
ALR161265	BIG MOUNTAIN SITE	33.343056	-86.795556		ICIS-NPDES NON-MAJOR
ALR160672	WYNLAKE SUBDIVISION	33.189167	-86.836667		NPDES NON-MAJOR
ALR161615	PLEASANT HILL METHODIST CHURCH	33.38232	-86.93732		ICIS-NPDES NON-MAJOR
ALR168253	KENSINGTON	32.924661	-86.864557		ICIS-NPDES NON-MAJOR
ALR16EGVF	STPAA 0183(501) PS1184	32.82084	-87.00344		ICIS-NPDES NON-MAJOR
ALR164579	ARGO INDUST PARK LOTS 8A AND12	33.695861	-86.520778		NPDES NON-MAJOR
ALR161592	MAGNOLIA COVE ESTATES	33.412472	-86.767		NPDES NON-MAJOR
ALR164583	HERITAGE TRACE	33.141111	-86.823333		ICIS-NPDES NON-MAJOR
ALR164580	CAHABA MANOR	33.596111	-86.576389		ICIS-NPDES NON-MAJOR
ALR161602	SOUTHLAND DRIVE	33.409167	-86.806944		NPDES NON-MAJOR
ALR161756	PATRIOT CORNER	33.240556	-86.812806		ICIS-NPDES NON-MAJOR
ALR161724	FULTON SPRINGS SUBDIVISION	33.47891	-86.769846		ICIS-NPDES NON-MAJOR
ALR161730	VESTAVIA HILLS SIDEWALKS	33.453889	-86.765556		ICIS-NPDES NON-MAJOR
ALR161428	MEADOWS AT MOODY ALABAMA THE	33.586972	-86.523333		NPDES NON-MAJOR
ALR164549	BROOKE TRACE	33.718333	-86.582778		ICIS-NPDES NON-MAJOR
ALR16EEVX	HIGHWAY 52 BORROW	33.28748	-86.88478		ICIS-NPDES NON-MAJOR
ALR164608	TEXAS ROADHOUSE RESTAURANT	33.333889	-86.769167		NPDES NON-MAJOR
ALR164609	SBC FILL LOT AT 78	33.548056	-86.622778		NPDES NON-MAJOR
ALR16EF09	THE COTTAGES OF LAKESHORE	33.468564	-86.784895		ICIS-NPDES NON-MAJOR
ALR160664	WILD TIMBER DEVELOPMENT	33.315278	-86.729167		ICIS-NPDES NON-MAJOR
ALR16EGS2	INTERSTATE 65 & HWY 31 LANDSCAPE	33.412222	-86.806389		ICIS-NPDES NON-MAJOR
ALR164622	BRIDLEWOOD MEADOWS	33.277778	-86.8375		ICIS-NPDES NON-MAJOR
ALR161767	HAWKRIDGE PHASE THREE	33.608611	-86.617222		ICIS-NPDES NON-MAJOR
ALR164615	ROSS BRIDGE PARKWAY	33.374722	-86.862778		ICIS-NPDES NON-MAJOR
ALR160842	AMMERSEE LAKES SUBDIVISION	33.139444	-86.8425		ICIS-NPDES NON-MAJOR
ALR16EGGF	J. ADKINS MECHANICAL FACILITY	33.3896	-86.91973		ICIS-NPDES NON-MAJOR
ALR161440	SNGC NORTH SYSTEM	33.341944	-86.965278		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR164637	ST THOMAS EDUCATIONAL FACILITY	33.157778	-86.822778		NPDES NON-MAJOR
ALR163427	PRESCOTT PLACE	33.277222	-86.909167		ICIS-NPDES NON-MAJOR
ALR161786	SADDLE LAKE FARMS	33.227222	-86.763611		ICIS-NPDES NON-MAJOR
ALR16EEWM	BRASFIELD & GOR HIGHLANDS CENT	33.36176	-86.89075		ICIS-NPDES NON-MAJOR
ALR161769	OLD MILL RUN GARDEN HIGHLAND	33.655278	-86.563333		ICIS-NPDES NON-MAJOR
ALR161768	BETHUNE LAKE	33.64875	-86.547611		ICIS-NPDES NON-MAJOR
ALR161850	ED GRAY COMMERCIAL BUILDING	33.3075	-86.806667		NPDES NON-MAJOR
ALR161857	RYDERS HARLEY DAVIDSON SHOP	33.338056	-86.782222		ICIS-NPDES NON-MAJOR
ALR16EERB	MONROE/HUNTLEY PKWY PROJECT	33.26575	-86.79311		ICIS-NPDES NON-MAJOR
ALR164650	VALLEYDALE MINI STORAGE	33.381667	-86.739722		NPDES NON-MAJOR
ALR164647	KHOURY SITE	32.956806	-87.173389		ICIS-NPDES NON-MAJOR
ALR16EGK6	MCCALLA TRACE SELECTED LOTS	33.31517	-86.99679		ICIS-NPDES NON-MAJOR
ALR16EGX3	NORTH CLAY BAPTIST CHURCH	33.72208	-86.56656		#N/A
ALR16C723	MARTIN MARIETTA ALABASTER QUAR	33.215081	-86.810335		#N/A
ALR16EEYS	BROOKWOOD MEDICAL CENTER	33.46889	-86.77668		ICIS-NPDES NON-MAJOR
ALR164664	ALABASTER BRANCH	33.219028	-86.824333		ICIS-NPDES NON-MAJOR
ALR164674	SHAUN BARR HOME	33.208333	-86.808333		NPDES NON-MAJOR
ALR160806	FOXWOOD ESTATES	33.699444	-86.526		ICIS-NPDES NON-MAJOR
ALR164669	CARRINGTON ESTATES	33.66	-86.525278		ICIS-NPDES NON-MAJOR
ALR161916	COUNTY ROAD 26 OVER BUCK CREEK	33.214917	-86.828139		NPDES NON-MAJOR
ALR161903	CAHABA BEACH COMMERCIAL PARK	33.428611	-86.691667		ICIS-NPDES NON-MAJOR
ALR164696	COLONIAL PROMENADE ALABASTER	33.22825	-86.803333		ICIS-NPDES NON-MAJOR
ALG250045	CHASE CORPORATE CENTER	33.370278	-86.801944		ICIS-NPDES NON-MAJOR
ALR16EF50	BIBB COUNTY HIGH SCHOOL	32.94565	-87.143785		#N/A
ALG250016	AFFINITY HOSPITAL LLC	33.51531	-86.74669		#N/A
ALG250061	AVONDALE PROP VESTAVIA CENTRE	33.436111	-86.810833		ICIS-NPDES NON-MAJOR
ALG250050	BELLSOUTH TELECOMMUNICATIONS	33.435833	-86.729444		ICIS-NPDES NON-MAJOR
ALG250056	COLONIAL PROP 1800 INTERNATION	33.405556	-86.7625		ICIS-NPDES NON-MAJOR
ALG250057	COLONIAL PROP 2000 INTERNATION	33.409444	-86.758611		ICIS-NPDES NON-MAJOR
ALG250060	COLONIAL PROP 3500 COLONADE PK	33.437778	-86.731667		NPDES NON-MAJOR
ALG250059	COLONIAL PROP 3700 COLONADE PK	33.436389	-86.731389		NPDES NON-MAJOR
ALG250058	COLONIAL PROP 3800 COLONADE PK	33.436667	-86.732222		ICIS-NPDES NON-MAJOR
ALG250042	GRANDVIEW I	33.438889	-86.7225		ICIS-NPDES NON-MAJOR
ALG250063	IRS BUILDING	33.433611	-86.846944		ICIS-NPDES NON-MAJOR
ALG250036	PRO ASSURANCE GROUP	33.46578	-86.77288		NPDES NON-MAJOR
ALG250062	REGIONS BANK	33.535536	-86.704281		ICIS-NPDES NON-MAJOR
ALG250037	SOUTHERN BOULEVARD CORP	33.48958	-86.78857		ICIS-NPDES NON-MAJOR
ALG250039	VESTAVIA HILLS HIGH SCHOOL	33.418611	-86.780278		ICIS-NPDES NON-MAJOR
AL0061808	TACOA MINERALS HEBRON MINE 1	33.172222	-87.085556		ICIS-NPDES NON-MAJOR
AL0069108	KODIAK MINE 1	33.2075	-86.930278		ICIS-NPDES NON-MAJOR
AL0079651	BLACKJACK WWTF	33.636389	-86.508611		ICIS-NPDES NON-MAJOR
AL0029068	JEMISON PLANT	32.965222	-86.771		NPDES NON-MAJOR
ALR107599	BLOCTON - CENTREVILLE 115 STORM DAMAGE	33.06787	-87.13283		ICIS-NPDES NON-MAJOR
ALR108072	BLOCTON TC - SOUTH BESSEMER 115 KV SHIELDWIRE REPLACEMENT	33.14325	-87.156333		ICIS-NPDES NON-MAJOR
ALR108690	BRENT SENIOR CENTER	32.961389	-87.17		ICIS-NPDES NON-MAJOR
ALR107831	CAFFEE CREEK SUBDIVISION	33.176742	-87.151803		ICIS-NPDES NON-MAJOR
ALR107992	DRY HOLLOW DS	32.971528	-87.18425		ICIS-NPDES NON-MAJOR
ALR107745	HPP-A146(901) PS1219	33.204167	-87.156111		ICIS-NPDES NON-MAJOR
ALR107790	HPP-A146(901) PS1220	33.1075	-87.137778		ICIS-NPDES NON-MAJOR
ALR108002	NEW LIFE BAPTIST CHURCH, INC	32.962861	-87.149789		ICIS-NPDES NON-MAJOR
ALR107849	PIPER II	33.088056	-87.048333		ICIS-NPDES NON-MAJOR
ALR108247	STPAA-0139(503) PS1240	33.046111	-86.904444		ICIS-NPDES NON-MAJOR
ALR108748	ADAMS HOMES LLC STONEY MEADOWS	33.2514	-86.8478		ICIS-NPDES NON-MAJOR
ALR108484	BLUE RAIN EXPRESS CAR WASH	33.344167	-86.795556		ICIS-NPDES NON-MAJOR
ALR108180	CALERA MIDDLE SCHOOL	33.147059	-86.787978		ICIS-NPDES NON-MAJOR
ALR107882	CONVENANT CLASSICAL SCHOOL & DAYCARE	33.26575	-86.79311		ICIS-NPDES NON-MAJOR
ALR107703	COUNTY ROAD 17 WIDENING AND BRIDGE REPLACEMENT	33.214783	-86.862789		ICIS-NPDES NON-MAJOR
ALR107946	DEER WOOD FOREST	33.040833	-86.806667		ICIS-NPDES NON-MAJOR
ALR107344	EB-HSIP 0025(524) PS1150	33.088611	-86.87		ICIS-NPDES NON-MAJOR
ALR108062	GOLDEN MEADOW SUBDIVISION	33.176667	-86.817778		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR109357	GRAYWATER PROJECT	33.201795	-86.792168		ICIS-NPDES NON-MAJOR
ALR108775	HELENA ELEMENTARY SCHOOL	33.29028	-86.84611		ICIS-NPDES NON-MAJOR
ALR108789	HELENA HIGH SCHOOL	33.27753	-86.87098		ICIS-NPDES NON-MAJOR
ALR109269	LACEY'S GROVE - LOTS 154-167, 182-205, AND 208	33.224722	-86.863333		ICIS-NPDES NON-MAJOR
ALR108055	LAKES AT HIDDEN FOREST PH I & II	33.165833	-86.826944		ICIS-NPDES NON-MAJOR
ALR108751	LIFE TIME FITNESS - VESTAVIA HILLS	33.428333	-86.736667		ICIS-NPDES NON-MAJOR
ALR108667	LIVING RIVER: A RETREAT ON THE CAHABA	33.1725	-87.026389		ICIS-NPDES NON-MAJOR
ALR108046	MARTIN ROCHA	33.303611	-86.904722		ICIS-NPDES NON-MAJOR
AL0080501	MILL CREEK MINE	33.48398	-86.70532		ICIS-NPDES NON-MAJOR
ALR109138	MORIN ACTUATOR	33.291867	-86.801178		#N/A
ALR109919	NEW ADMINISTRATION BUILDING	33.23229	-86.82548		ICIS-NPDES NON-MAJOR
ALR109513	NEW YOUNG RESIDENCE	33.485308	-86.701859		ICIS-NPDES NON-MAJOR
ALR109185	NOTTINGHAM	33.150278	-86.773611		ICIS-NPDES NON-MAJOR
ALR109186	OAK MOUNTAIN BUSINESS PARK	33.27356	-86.78696		ICIS-NPDES NON-MAJOR
ALR108287	OLD CAHABA - PHASE V, ADDITIONS 2 - 6	33.275931	-86.879931		ICIS-NPDES NON-MAJOR
ALR108845	PEAVINE BRIDGE REPLACEMENT	33.261361	-86.795333		ICIS-NPDES NON-MAJOR
ALR108696	PELHAM 157 LLC 157 ACRES	33.305833	-86.791944		ICIS-NPDES NON-MAJOR
ALR107568	SAVANNAH POINTE - PHASE II	33.151111	-86.792222		ICIS-NPDES NON-MAJOR
ALR109310	SHELBY MEDICAL OFFICE BUILDING	33.247286	-86.815496		ICIS-NPDES NON-MAJOR
ALR108005	SILVER CREEK SECTOR III, PHASE II LOTS 351-354, 356-359, 420, 425-435	33.181389	-86.816389		ICIS-NPDES NON-MAJOR
ALR107447	SIMPSON PROPERTY	33.07	-86.860832		ICIS-NPDES NON-MAJOR
ALR107898	SOUTHFIELD GARDEN PIT	33.21905	-86.82445		ICIS-NPDES NON-MAJOR
ALR108004	SOUTHFIELD GARDENS	33.1775	-86.820833		ICIS-NPDES NON-MAJOR
ALR10A037	SR 3 (US 31) AND SHELBY CR 87	33.2024	-86.7775		ICIS-NPDES NON-MAJOR
ALR108719	TANGLEWOOD BY THE CREEK	33.19401	-86.86014		ICIS-NPDES NON-MAJOR
ALR109249	THE AMERICAN VILLAGE	33.137456	-86.828449		ICIS-NPDES NON-MAJOR
ALR107499	THE COTTAGES OF DANBERRY	33.418889	-86.70319		ICIS-NPDES NON-MAJOR
ALR107452	THE LEDGES AT WEATHERLY	33.250278	-86.778889		ICIS-NPDES NON-MAJOR
ALR109328	WATERSTONE SUBDIVISION	33.15268	-86.78102		ICIS-NPDES NON-MAJOR
ALR107863	WEATHERLY STATION APARTMENTS AND COMMERCIAL CENTER	33.2633	-86.7859		ICIS-NPDES NON-MAJOR
ALR109184	WILD TIMBER DEVELOPMENT LLC	33.3153	-86.7292		ICIS-NPDES NON-MAJOR
ALR107429	WORD OF GOD	33.27985	-86.76514		ICIS-NPDES NON-MAJOR
ALR109034	YMCA ALABASTER	33.218306	-86.82549		ICIS-NPDES NON-MAJOR
ALR108001	22	33.46872	-86.77429		ICIS-NPDES NON-MAJOR
ALR109380	22	33.46872	-86.77429		ICIS-NPDES NON-MAJOR
ALR108710	ACTON ROAD SELF STORAGE PHASE TWO	33.42745	-86.74147		ICIS-NPDES NON-MAJOR
ALR108697	ADDITION TO THE FEDERAL EXPRESS GROUND WAREHOUSE	33.550645	-86.660411		ICIS-NPDES NON-MAJOR
ALR109564	ALTADENAVALLEY PRESBYTERIAN CHURCH	33.425598	-86.736105		ICIS-NPDES NON-MAJOR
ALR109440	ALTON ROAD COMMERCIAL SITE	33.584111	-86.648045		ICIS-NPDES NON-MAJOR
ALR108811	APARTMENTS AT LAKESHORE CROSSINGS	33.438889	-86.861944		ICIS-NPDES NON-MAJOR
ALR108910	BENT RIVER, PHASE 4	33.3717	-86.7775		ICIS-NPDES NON-MAJOR
ALR108461	BESSEMER AIRPORT	33.308834	-86.926474		#N/A
ALR109634	BLUE CROSS/BLUE SHIELD CHILD DEVELOPMENT CENTER	33.35381	-86.78476		ICIS-NPDES NON-MAJOR
ALR109749	BROOK MANOR CONDOS - LOTS 3, 6, 7, 8 AND 13-16 (8 LOTS)	33.48123	-86.77527		ICIS-NPDES NON-MAJOR
ALR107470	CAHABA MANOR: LOT #6-12,26-28,46	33.60124	-86.57667		ICIS-NPDES NON-MAJOR
ALR108273	CAHABA MANOR: LOT #6-12,26-28,46	33.60124	-86.57667		ICIS-NPDES NON-MAJOR
ALR108897	CARDIOVASCULAR ASSOCIATES	33.436944	-86.733333		ICIS-NPDES NON-MAJOR
ALR108026	CHAPEL LANE EXTENSION	33.38528	-86.82447		ICIS-NPDES NON-MAJOR
ALR109498	CHASE LAKE	33.37062	-86.79975		ICIS-NPDES NON-MAJOR
ALR109113	CHELSEA PRESERVE	33.48116	-86.77647		ICIS-NPDES NON-MAJOR
ALR107912	CHEROKEE DRIVE WATER AND GAS MAIN REPLACEMENT	33.623	-86.599		ICIS-NPDES NON-MAJOR
ALR108810	CMAQ-9802(921) VILLAGE TRAIL SYSTEM, PHASE 6	33.484589	-86.740717		ICIS-NPDES NON-MAJOR
ALR109382	COBBLE HILL SUBDIVISION	33.427222	-86.793611		ICIS-NPDES NON-MAJOR
ALR108330	COVE AT OVERTON	33.47109	-86.73329		ICIS-NPDES NON-MAJOR
ALR109238	EUCLID AVENUE REPLACEMENT PHASE I	33.503064	-86.758417		ICIS-NPDES NON-MAJOR
ALR107772	FONTAINE SUBDIVISION	33.541828	-86.653392		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR109205	FRAVERT SERVICES EXPANSION	33.456867	-86.845241		ICIS-NPDES NON-MAJOR
ALR108374	FRIAR LANE STORM PROJECT	33.5389	-86.569794		ICIS-NPDES NON-MAJOR
ALR109937	G. R. MANUFACTURING, INC.	33.644217	-86.566773		#N/A
ALR108082	GLEN CROSS	33.597544	-86.621811		ICIS-NPDES NON-MAJOR
ALR109992	GRAMARCY PARC (AKA THE ABBEY)	33.428407	-86.772333		ICIS-NPDES NON-MAJOR
ALR108925	GRANTS MILL CROSSING - PHASE 2	33.53641	-86.67836		ICIS-NPDES NON-MAJOR
ALR107346	HABERSHAM PLACE LOTS 16 & 17	33.527345	-86.67458		ICIS-NPDES NON-MAJOR
ALR107877	HIGHWAY 78 WAREHOUSE	33.541389	-86.535556		ICIS-NPDES NON-MAJOR
ALR109202	HILLSIDE CIRCLE APARTMENTS	33.487018	-86.795194		ICIS-NPDES NON-MAJOR
ALR109449	HOMEWOOD COMMUNITY CENTER	33.47516	-86.798756		ICIS-NPDES NON-MAJOR
ALR109429	HOMEWOOD PATRIOT PARK	33.456619	-86.82851		ICIS-NPDES NON-MAJOR
ALR109187	HOOVER HEALTH & REHABILITATION, LLC	33.412355	-86.810782		ICIS-NPDES NON-MAJOR
ALR108618	HOOVER HIGH SCHOOL	33.3452	-86.83634		ICIS-NPDES NON-MAJOR
ALR109066	JACKSON SQUARE	33.415288	-86.827912		ICIS-NPDES NON-MAJOR
ALR107682	JAMES HILL PHASE III	33.396578	-86.869131		ICIS-NPDES NON-MAJOR
ALR109368	LACEY'S GROVE	33.39115	-86.79712		ICIS-NPDES NON-MAJOR
ALR107708	LAKESHORE PARKWAY IMPROVEMENTS AND INDUST ACESS ROAD	33.393833	-86.925611		ICIS-NPDES NON-MAJOR
ALR108872	LEEDS - CLAY 230KV TL STORM DAMAGE	33.696333	-86.540306		ICIS-NPDES NON-MAJOR
ALR108756	LEEDS RETAIL CENTER	33.54328	-86.60458		ICIS-NPDES NON-MAJOR
ALR108584	MAGELLA-NORTH HELENA 230 KV INSULATOR CHANGEOUT	33.355139	-86.847889		ICIS-NPDES NON-MAJOR
ALR108341	MARTIN BROOK	33.29963	-86.88759		ICIS-NPDES NON-MAJOR
ALR109338	MCCALLA TRACE HOME BUILDING	33.31517	-86.99679		ICIS-NPDES NON-MAJOR
ALR107710	MCCALLA TRACE SELECTED LOTS	33.31517	-86.99679		ICIS-NPDES NON-MAJOR
ALR108647	MCDONALD'S RESTAURANT	33.407419	-86.806539		ICIS-NPDES NON-MAJOR
ALR107316	MOUNTAIN BROOK HIGH SCHOOL PROPERTY	33.493056	-86.709167		ICIS-NPDES NON-MAJOR
ALR107560	MOUNTAIN BROOK MUNICIPAL COMPLEX	33.50216	-86.75556		ICIS-NPDES NON-MAJOR
ALR109922	MOUNTAIN BROOK SHOPPING CENTER	33.48636	-86.77308		ICIS-NPDES NON-MAJOR
ALR107555	NEX OXMOOR K-8 SCHOOL	33.429814	-86.875833		ICIS-NPDES NON-MAJOR
ALR108270	OXMOOR RIDGE SUBDIVISION	33.4225	-86.852222		ICIS-NPDES NON-MAJOR
ALR109195	PATCHWORK FARMS ENTRANCE ROAD	33.431183	-86.734583		ICIS-NPDES NON-MAJOR
ALR109069	PATTON CHAPEL ROAD	33.3913	-86.8066		ICIS-NPDES NON-MAJOR
ALR108769	PRIMROSE SCHOOL CHACE LAKE	33.368889	-86.800556		ICIS-NPDES NON-MAJOR
ALR109669	RACEWAY STORE #143	33.35796	-86.77413		ICIS-NPDES NON-MAJOR
ALR108367	RENASANT BANK LONGMEADOW	33.65944	-86.59672		ICIS-NPDES NON-MAJOR
ALR109387	RETAIL DEVELOPMENT BROOKWOOD VILLAGE	33.47359	-86.76355		ICIS-NPDES NON-MAJOR
ALR108342	RIVERCHASE UNITED METHODIST CHURCH	33.357234	-86.809431		ICIS-NPDES NON-MAJOR
ALR107958	ROSS BRIDGE II APARTMENTS	33.402222	-86.883056		ICIS-NPDES NON-MAJOR
ALR107581	ROSS BRIDGE SECTOR I	33.39748	-86.88264		ICIS-NPDES NON-MAJOR
ALR109551	ROSS BRIDGE SECTOR I	33.39748	-86.88264		ICIS-NPDES NON-MAJOR
ALR108348	ROSS BRIDGE SOUTHWEST SECTOR	33.389061	-86.889667		ICIS-NPDES NON-MAJOR
ALR109353	ROSS RIDGE, PARCEL K	33.40385	-86.8843		ICIS-NPDES NON-MAJOR
ALR107666	SAMFORD UNIVERSITY SOFTBALL COMPLEX	33.461389	-86.793889		ICIS-NPDES NON-MAJOR
ALR109593	SAMFORD UNIVERSITY SOFTBALL COMPLEX	33.461389	-86.793889		ICIS-NPDES NON-MAJOR
ALR107657	SHADES MOUNTAIN BAPTIST CHURCH	33.43873	-86.80791		#N/A
ALR108226	SIMMONS ADDITION TO ROEBUCK PLAZA	33.586819	-86.659587		ICIS-NPDES NON-MAJOR
ALR107449	SOUTHERN RESEARCH INSTITUTE-ERC BUILDING	33.435002	-86.850275		#N/A
ALR108131	SOUTHERN TRACE: THE RIDGE LOT #811,849; PHASE I LOT #1,2,11-13,29,34-36,47,50,59	33.520833	-86.581944		ICIS-NPDES NON-MAJOR
ALR109351	SOUTHPOINTE RIDGE	33.3125	-86.889722		ICIS-NPDES NON-MAJOR
ALR108926	SPRING VALLEY	33.528633	-86.572517		ICIS-NPDES NON-MAJOR
ALR108308	TAPESTRY PARK APARTMENTS	33.51374	-86.74919		ICIS-NPDES NON-MAJOR
ALR108581	TARGET @ BROOKWOOD VILLAGE MALL	33.468056	-86.775		ICIS-NPDES NON-MAJOR
ALR107956	TRILLIUM	33.51349	-86.66814		ICIS-NPDES NON-MAJOR
ALR108896	TRINITY MEDICAL CENTER - PROPOSED 280 CAMPUS	33.434167	-86.720556		ICIS-NPDES NON-MAJOR
ALR109936	VESTAVIA HIGH SCHOOL PARKING ADDITION	33.42403	-86.778795		ICIS-NPDES NON-MAJOR
ALR109833	VON MAUR - RIVERCHASE GALLERIA	33.37858	-86.81121		ICIS-NPDES NON-MAJOR
ALR108576	WATERSTONE PHASE I LOT 55,58,105,106 PHASE 2 LOTS 62-74, 83-94	33.39748	-86.88264		ICIS-NPDES NON-MAJOR
ALR107741	WEDGWORTH-TYLER ROAD SUBDIVISION	33.416839	-86.822442		ICIS-NPDES NON-MAJOR
ALR108402	YMCA - HOMEWOOD	33.46964	-86.77852		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR108505	PHASE II WATER MAIN EXTENSION ALONG HWY 22	32.36842	-87.13691		ICIS-NPDES NON-MAJOR
ALG250091	A.V.C. BUILDING GROUP, LLC	33.43501	-86.733216		ICIS-NPDES NON-MAJOR
ALG250067	BEACON RIDGE LLC	33.47744	-86.81986		ICIS-NPDES NON-MAJOR
ALG250011	BELLSOUTH TELECOMMUNICATIONS	33.44554	-86.73585		ICIS-NPDES NON-MAJOR
ALG250013	BELLSOUTH TELECOMMUNICATIONS	33.372017	-86.796661		ICIS-NPDES NON-MAJOR
ALG250088	BLUE CROSS BLUE SHIELD OF ALABAMA DATA CENTER	33.40601	-86.91343		ICIS-NPDES NON-MAJOR
ALG250078	DANIEL REALTY DIGITAL HOSPITAL	33.434349	-86.719182		#N/A
ALG250076	DANIEL REALTY GRANDVIEW PLAZA	33.432799	-86.723088		ICIS-NPDES NON-MAJOR
ALG250077	DANIEL REALTY NEXITY BUILDING	33.433774	-86.719787		#N/A
ALG250041	GRANDVIEW I	33.438889	-86.7225		ICIS-NPDES NON-MAJOR
ALG250043	LAKESHORE DRIVE FACILITY	33.458889	-86.796667		ICIS-NPDES NON-MAJOR
ALG250044	LAKESHORE PARK PLAZA	33.465556	-86.779444		ICIS-NPDES NON-MAJOR
ALG250048	OXMOOR CENTER LLC	33.40601	-86.91343		NPDES NON-MAJOR
ALG250014	SAMFORD UNIVERSITY	33.46337	-86.7994		ICIS-NPDES UNPERMITTED
ALG250092	SOUTHERN RESEARCH INSTITUTE-ERC BUILDING	33.435002	-86.850275		#N/A
ALG250066	WEST OXMOOR TOWER, LLC	33.45853	-86.84016		ICIS-NPDES NON-MAJOR
ALR162292	HOOVER PUBLIC SAFETY CENTER	33.349722	-86.794722		NPDES NON-MAJOR
ALR16EFCH	HELENA -- BLOCTON 46 KV TL	33.16889	-86.97		ICIS-NPDES NON-MAJOR
ALR16EEVC	US HWY 280 GEOTECHNICAL STUDY	33.48414	-86.78691		ICIS-NPDES NON-MAJOR
ALR164925	MOUNTAIN BROOK CLUB	33.49641	-86.74372		NPDES NON-MAJOR
ALR162320	VILLAGE PARK	33.5425	-86.561389		NPDES NON-MAJOR
ALR162321	LEXINGTON OAKS FOURTH SECTOR	33.591389	-86.59		NPDES NON-MAJOR
ALR164932	LITTLE SHADES CREEK PARK	33.415833	-86.781111		NPDES NON-MAJOR
ALR16C018	BEERS PROPERTY	33.355	-86.8586		ICIS-NPDES NON-MAJOR
ALR16E933	BROOK MANOR CONDOS - LOTS 3, 6, 7, 8 AND 13-16 (8 LOTS)	33.48123	-86.77527		ICIS-NPDES NON-MAJOR
ALR162345	STIRLING PARK	33.627778	-86.620833		ICIS-NPDES NON-MAJOR
ALR162404	ACCESSIBLE SPACE APARTMENTS	33.39491	-86.79679		ICIS-NPDES NON-MAJOR
ALR162346	PINE CREST AND STIRLING CREST	33.623611	-86.626111		ICIS-NPDES NON-MAJOR
ALR164986	EAGLE COVE SUBDIVISION	33.295778	-86.794194		ICIS-NPDES NON-MAJOR
ALR164959	HIGHWAY 69 LOT	33.258056	-86.801389		NPDES NON-MAJOR
ALR162370	FOREST RIDGE	33.180556	-86.802778		ICIS-NPDES NON-MAJOR
ALR160341	GRANTS MILL AUTO MALL	33.517222	-86.6625		NPDES NON-MAJOR
ALR162291	RUSHING PARC	33.331111	-86.88		ICIS-NPDES NON-MAJOR
ALR162387	QUAIL RIDGE SUBDIVISION	33.281667	-86.922778		ICIS-NPDES NON-MAJOR
ALR16EGME	STPAA-0025(521) PS1049	32.97917	-87.12495		ICIS-NPDES NON-MAJOR
ALR16EGLP	IBERIA BANK HOOVER BRANCH 1000500	33.36472	-86.82556		ICIS-NPDES NON-MAJOR
ALR160638	PRESERVE THE	33.378611	-86.833333		ICIS-NPDES NON-MAJOR
ALR164962	TANGLEWOOD BY THE CREEK	33.178333	-86.812778		ICIS-NPDES NON-MAJOR
ALR164968	LONG BRANCH ESTATES	33.37325	-86.76866		NPDES NON-MAJOR
ALR16EEXJ	THE CHURCH AT TRUSSVILLE	33.698155	-86.522078		ICIS-NPDES NON-MAJOR
ALR16EFMV	MOUNTAIN BROOK GOLF PRACTICE AREA	33.49641	-86.74372		ICIS-NPDES NON-MAJOR
ALR165007	SHANNON OXMOOR INDUSTRIAL SD	33.50543	-86.7608		ICIS-NPDES NON-MAJOR
ALR160629	RIVERWOODS PROPERTIES LLC	33.288889	-86.874722		ICIS-NPDES NON-MAJOR
ALR162427	CHINABERRY PHASE ONE	33.229722	-86.860833		NPDES NON-MAJOR
ALR162424	INDIAN LAKE COVE	33.339167	-86.811667		ICIS-NPDES NON-MAJOR
ALR162435	HERITAGE PL CHURCH OF CHRIST	33.549167	-86.645		ICIS-NPDES NON-MAJOR
ALR162503	YESHIE 2	33.081111	-87.112222		ICIS-NPDES NON-MAJOR
ALR165015	CALDWELL CROSSING	33.402778	-86.736667		NPDES NON-MAJOR
ALR165031	ST CHARLES LOT 9	33.424306	-86.650917		NPDES NON-MAJOR
ALR165029	NOLEN HORSE FARM	33.497167	-86.608639		ICIS-NPDES NON-MAJOR
ALR16EGXC	RETAIL DEVELOPMENT BROOKWOOD VILLAGE	33.47359	-86.76355		ICIS-NPDES NON-MAJOR
ALR16EH53	REX LAKE ROAD SOUTH COMMERCIAL PROPERTY PARCEL 3	33.53516	-86.59325		ICIS-NPDES NON-MAJOR
ALR160915	ADOT ACNHF 1020 315	33.546111	-86.586667		ICIS-NPDES NON-MAJOR
ALR162468	HOOVER PUBLIC SAFETY CENTER	33.349722	-86.794722		NPDES NON-MAJOR
ALR165037	SAVANNAH VILLAGE	33.39916	-86.771		NPDES NON-MAJOR
ALR16A331	SELECTIVE INC CARROLL COVE S	33.360074	-86.786667		ICIS-NPDES NON-MAJOR
ALR16EBG6	LOT 2B, ADDITION TO RIVERCHASE	33.35276	-86.78361		ICIS-NPDES NON-MAJOR
ALR162436	CONCRETE CO THE	33.583056	-86.647222		ICIS-NPDES NON-MAJOR
ALR165090	BRISTOL SOUTHSIDE	33.536167	-86.704861		ICIS-NPDES NON-MAJOR
ALR16EGXV	ROSS RIDGE, PARCEL K	33.40385	-86.8843		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALR16EH39	THE HEALING PLACE CHURCH - TRUSSVILLE, AL	33.669246	-86.595208		ICIS-NPDES NON-MAJOR
ALR165107	SCHULER BARN ADDITION	33.448611	-86.745278		ICIS-NPDES NON-MAJOR
ALR16EFF5	CHESAPEAKE	33.18532	-86.88518		ICIS-NPDES NON-MAJOR
ALR16EFE7	GOLDEN MEADOW SUBDIVISION	33.176667	-86.817778		ICIS-NPDES NON-MAJOR
ALR16EFF6	LAKES AT HIDDEN FOREST PH I & II	33.165833	-86.826944		ICIS-NPDES NON-MAJOR
ALR16EFF7	SILVER CREEK SECTOR III, PHASE II LOTS 351-354, 356-359, 420, 425-435	33.181389	-86.816389		ICIS-NPDES NON-MAJOR
ALR16EFD9	SOUTHFIELD GARDENS	33.1775	-86.820833		ICIS-NPDES NON-MAJOR
ALR167624	MISTY RIDGE COMMERCIAL	33.64244	-86.61614		ICIS-NPDES NON-MAJOR
ALR16EH33	PROPOSED BIRMINGHAM REGIONAL INTERMODAL FACILITY	33.3106	-87.0308		ICIS-NPDES NON-MAJOR
ALR162537	PADEN BUSINESS PARK PHASE I	33.313611	-87.056667		NPDES NON-MAJOR
ALR16EH50	ENGLAND PIT	32.696206	-87.105153		ICIS-NPDES NON-MAJOR
ALR162506	HUNTER RIDGE APARTMENTS	33.586667	-86.662222		ICIS-NPDES NON-MAJOR
ALR16EFHK	THE LEDGES AT WEATHERLY	33.250278	-86.778889		ICIS-NPDES NON-MAJOR
ALR16EEUS	JAMES HILL PHASE III	33.3975	-86.864167		ICIS-NPDES NON-MAJOR
ALR162556	SOMERSET PHASE TWO	33.272778	-86.851389		NPDES NON-MAJOR
ALR162576	WELLINGTON MANOR APARTMENTS	33.025556	-86.802778		NPDES NON-MAJOR
ALR161523	LOT 2 ADDITION TO RIVERCHASE	33.353611	-86.781389		ICIS-NPDES NON-MAJOR
ALR165153	HIGHWAY 11 COMMERCIAL	33.258056	-86.801389		ICIS-NPDES NON-MAJOR
ALR16A440	CREEKWATER	33.2675	-86.9344		ICIS-NPDES NON-MAJOR
ALG150072	BARBER MILK LLC	33.458819	-86.838887		NPDES NON-MAJOR
ALG150150	BUFFALO ROCK CO	33.45776	-86.83599		NPDES NON-MAJOR
ALR16EEYJ	WATKINS BROOK FLOOD HAZARD MITIGATION, PHASE II	33.484167	-86.7725		ICIS-NPDES NON-MAJOR
AL0045861	SPARKS RECREATION VEHICLE PARK	32.459889	-87.086139		ICIS-NPDES NON-MAJOR
AL0067831	DOLOMITE QUARRY	33.054798	-86.93773		ICIS-NPDES NON-MAJOR
AL0080837	SAMFORD UNIVERSITY	33.46337	-86.7994		ICIS-NPDES UNPERMITTED
AL0059331	JEMISON WASTEWATER TRMT PLANT	32.957028	-86.773333		#N/A
ALR16EG40	WATKINS RETAIL GROUP HOOVER FA	33.34383	-86.848		ICIS-NPDES NON-MAJOR
ALR163772	HWY 119 BASEBALL COMPLEX	33.184167	-86.826389		NPDES NON-MAJOR
ALR163785	INDEPENDENCE SUBDIVISION	33.268056	-86.836111		NPDES NON-MAJOR
ALR163786	PENHALE PARK SUBDIVISION	33.268333	-86.840833		ICIS-NPDES NON-MAJOR
ALR163821	RIVER GRAND GARDEN HOMES	33.430056	-86.733472		ICIS-NPDES NON-MAJOR
ALR163813	LEVITE FIELD	33.5103	-86.75476		ICIS-NPDES NON-MAJOR
ALR16EGC8	CHURCH OF THE HIGHLANDS R C	33.342266	-86.803602		ICIS-NPDES NON-MAJOR
ALR16EFUB	RIVERCHASE UNITED METHODIST CHURCH	33.357234	-86.809431		ICIS-NPDES NON-MAJOR
ALR16EEBJ	DOSTER CONST CO GUNTERSVILLE V	33.41198	-86.7555		ICIS-NPDES NON-MAJOR
ALR163825	PHASE II EXPANSION	33.466944	-86.784167		NPDES NON-MAJOR
ALR16EGDB	GMRI INC-BIRMINGHAM	33.60567	-86.63608		ICIS-NPDES NON-MAJOR
ALR160167	FAITH PRESBYTERIAN CHURCH PCA	33.384167	-86.731111		NPDES NON-MAJOR
ALR163845	STONEHAVEN TRAIL EXTENSION	33.276111	-86.815556		ICIS-NPDES NON-MAJOR
ALR163823	BIRMINGHAM BEVERAGE CO INCORP	33.448611	-86.8475		ICIS-NPDES NON-MAJOR
ALR163843	FED EX GROUND	33.552722	-86.65775		NPDES NON-MAJOR
ALR160143	SAVANNAH RIDGE LLC	33.38199	-86.7859		ICIS-NPDES NON-MAJOR
ALR163837	HUNTLEY THE	33.277778	-86.797222		ICIS-NPDES NON-MAJOR
ALR16ECKL	CAPSTONE BUILDING CORPORATION	33.47264	-86.78469		ICIS-NPDES NON-MAJOR
ALR16ECH7	PACIFIC RIM RESTAURANT	33.37607	-86.805798		ICIS-NPDES NON-MAJOR
ALR160144	TIMBERLINES CAHABA PARK	33.595	-86.5775		NPDES NON-MAJOR
ALR160156	OAK SPRINGS	33.1708	-86.8164		ICIS-NPDES NON-MAJOR
ALR16EFCX	LEEDS WATER WORKS BD - I-20	33.54328	-86.60458		ICIS-NPDES NON-MAJOR
ALR163871	HOLLAND LAKES	33.278889	-86.815278		NPDES NON-MAJOR
ALR163872	LONGLEAF LAKE	33.282778	-86.9425		ICIS-NPDES NON-MAJOR
ALR168969	GLENN MANOR SUBDIVISION	33.446	-86.7664		ICIS-NPDES NON-MAJOR
ALR163376	BLUFFS THE AT RIVERVIEW APTS	33.434444	-86.719722		ICIS-NPDES NON-MAJOR
ALR160185	LOWES OF LEEDS ALABAMA	33.563889	-86.518889		NPDES NON-MAJOR
ALR16EEHU	COURSE CRAFTERS HOOVER COUNTRY	33.4005	-86.81766		ICIS-NPDES NON-MAJOR
ALR16B913	ASHFORD RIDGE	33.60217	-86.57124		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
AL0050938	CALERA POLLUTION CONTROL PLANT	33.094472	-86.859444	BOD, Chlorine, Fecal coliform, Flow, Nitrite + Nitrate, TKN, Ammonia, DO, TP, TSS, pH, Mercury, Toxicity, E.coli, Oil & grease	ICIS-NPDES MAJOR
AL0073164	LICK CREEK MINE	33.183056	-86.976389		ICIS-NPDES NON-MAJOR
AL0053601	VULCAN CONSTRUCTION MATERIALS, LP- ROBERTA QUARRY	33.108333	-86.815		#N/A
AL0024457	CARMEUSE LIME & STONE INC	33.221944	-86.779722		#N/A
AL0003336	LHOIST NORTH AMERICA OF ALABAMA LLC	33.091944	-86.804444		ICIS-NPDES NON-MAJOR
AL0074276	RESEARCH SOLUTIONS GROUP INC	33.297051	-86.81974		#N/A
AL0047571	LOCKERBIE SUBDIVISION WWTP	33.462333	-86.755778		ICIS-NPDES NON-MAJOR
ALR16E167	OXMOOR CLUBHOUSE ESTATES	33.40964	-86.8877		ICIS-NPDES NON-MAJOR
ALR16EG11	CAHABA SPORTS	32.9445	-87.18803		ICIS-NPDES NON-MAJOR
ALR16EG02	HOME RESIDENCE	33.210846	-86.861775		ICIS-NPDES NON-MAJOR
ALR166032	ACTON ROAD PROFESS OFFICE PAR	33.41648	-86.75203		ICIS-NPDES NON-MAJOR
ALR16EG57	HODO RESIDENCE	33.55485	-86.55838		ICIS-NPDES NON-MAJOR
ALR16EG52	PARK AVENUE SIDEWALK	33.391389	-86.850278		ICIS-NPDES NON-MAJOR
ALR166104	APD 0471 514	33.359641	-86.832233		NPDES NON-MAJOR
ALR16A437	OXMOOR RIDGE SUBDIVISION	33.4225	-86.852222		ICIS-NPDES NON-MAJOR
ALR166052	CROSS CREEK SUBDIVISION	33.216944	-86.865		ICIS-NPDES NON-MAJOR
ALR163606	EAGLE POINT	33.397083	-86.676083		ICIS-NPDES NON-MAJOR
ALR163607	HUNTERS CREEK	33.587222	-86.595278		NPDES NON-MAJOR
ALR163601	STONEGATE	33.288333	-87.037778		NPDES NON-MAJOR
ALR16B364	COVE AT OVERTON	33.47109	-86.73329		ICIS-NPDES NON-MAJOR
ALR166099	LEEDS CHELSEA TAP REBUILD	33.55555	-86.55614		NPDES NON-MAJOR
ALR163632	OLIVER CROSSING SUBDIVISION	33.556389	-86.534722		NPDES NON-MAJOR
ALR16C964	BIRMINGHAM INVE ALTON ROAD COM	33.584111	-86.648045		ICIS-NPDES NON-MAJOR
ALR166119	GROVE THE	33.210833	-86.819444		NPDES NON-MAJOR
ALR166120	MOMENTUM MOTORWORKS PELHAM	33.346389	-86.799444		NPDES NON-MAJOR
ALR166137	LAND DEVELOPERS INC	33.513333	-86.671111		ICIS-NPDES NON-MAJOR
ALR163691	SOUTHERN STORE FIXTURES	33.336722	-86.914583		NPDES NON-MAJOR
ALR16EDP7	IRONDALE COMMUNITY SCHOOL	33.53455	-86.70962		ICIS-NPDES NON-MAJOR
ALR163119	WOODHILL COVE	33.48044	-86.69305		NPDES NON-MAJOR
ALR163692	OAKLEY AVENUE DEVELOPMENT	32.940278	-87.131111		NPDES NON-MAJOR
ALR16B714	NDL	33.61785	-86.52986		ICIS-NPDES NON-MAJOR
ALR160145	WEATHERSTONE	33.267222	-86.948611		ICIS-NPDES NON-MAJOR
ALR16EG72	CITY OF LEEDS ATHLETIC PARK CO	33.53743	-86.56118		ICIS-NPDES NON-MAJOR
ALR16EEE1	RENASANT BANK LONGMEADOW	33.65944	-86.59672		ICIS-NPDES NON-MAJOR
ALR163733	KINGWOOD ASSEMBLY OF GOD	33.2588	-86.82649		ICIS-NPDES UNPERMITTED
ALR166186	OAK BROOK SUBDIVISION	33.254444	-86.936667		ICIS-NPDES NON-MAJOR
ALR163762	WOODRUFF EST PHASES 5 THRU 11	33.525306	-86.594722		NPDES NON-MAJOR
AL0023027	CAHABA RIVER WASTEWATER TREATMENT PLANT	33.374194	-86.786917	Chlorine, Copper, Hardness, Lead, Methylene blue active substances, Nickel, Ammonia, TDS, Toxicity, Zinc, pH, BOD, E.coli, Flow, Nitrite + Nitrate, TKN, DO, TP, TSS, Fecal coliform, Orthophosphate, Mercury, Oil & grease	NPDES MAJOR
AL0041653	HOOVER RIVERCHASE WWTP	33.368917	-86.792639	Toxicity, BOD, Chlorine, E.coli, Flow, Nitrite + Nitrate, TKN, Ammonia, DO, TP, TSS, pH, Copper, Hardness, Lead, Methylene blue active substances, Nickel	NPDES MAJOR
AL0025852	HOOVER INVERNESS WWTP	33.412278	-86.725694		#N/A
AL0062341	BIBB COUNTY MINE	32.852222	-87.249167		NPDES NON-MAJOR
AL0063541	MAJESTIC MINE	33.40883	-86.76433		NPDES NON-MAJOR
AL0079332	COX WOOD WOODSTOCK FACILITY	33.170555	-87.213333		ICIS-NPDES NON-MAJOR
AL0079197	TWIN PINES SEGCO MINE 2	33.2425	-86.875278		ICIS-NPDES NON-MAJOR
AL0001996	VULCAN CONSTRUCT HELENA QUARRY	33.3	-86.833889		NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
AL0061719	MINER HOLLOW MINE	33.375137	-86.755312		ICIS-NPDES NON-MAJOR
AL0077241	THOMPSON SOUTH MINE	33.085278	-87.123333		ICIS-NPDES NON-MAJOR
AL0076236	TWIN PINES TOBY MINE	33.202778	-86.951944		ICIS-NPDES NON-MAJOR
AL0057487	CAHABA MOBILE HOME EST LAGOON	33.551194	-86.616333		NPDES NON-MAJOR
AL0077771	OLD UNION MINE	33.429392	-86.69091		ICIS-NPDES NON-MAJOR
AL0045969	BIRMINGHAM WATER WORKS BOARD	33.46593	-86.75861	BOD, Fecal coliform, Flow, Nitrite + Nitrate, TKN, Ammonia, DO, Orthophosphate, TP, TSS, pH, Toxicity, Mercury, E.coli, Chlorine, Selenium, Zinc, Copper, Hardness, Lead, Methylene blue active substances, Nickel, TDS, Oil & grease	ICIS-NPDES MAJOR
ALR165826	ST CLAIR COUNTY ROAD 10	33.605	-86.548889		ICIS-NPDES NON-MAJOR
ALR165819	ROSS BRIDGE PARCEL B AND E	33.398889	-86.888889		ICIS-NPDES NON-MAJOR
ALR16EC33	WOODS COMMERCIAL COMPLEX	33.22289	-86.80554		ICIS-NPDES NON-MAJOR
ALR163288	ARBOR PLACE	33.414306	-86.66525		ICIS-NPDES NON-MAJOR
ALR163280	PROVIDENCE PARK	33.388056	-86.7325		ICIS-NPDES NON-MAJOR
ALR163346	CHRIST KING LUTHERAN CHURCH	33.364778	-86.796944		NPDES NON-MAJOR
ALR165838	ROSS BRIDGE SECTORS A AND C	33.30411	-86.9033		NPDES NON-MAJOR
ALR16EF99	BROWDER BORROW PIT	32.971074	-87.124906		ICIS-NPDES NON-MAJOR
ALR165850	SENIOR CENTER	33.278889	-86.792222		ICIS-NPDES NON-MAJOR
ALR163318	PRINCE PEACE CATHOLIC CHURCH	33.371667	-86.8525		ICIS-NPDES NON-MAJOR
ALR16EFWK	PHASE II WATER MAIN EXTENSION ALONG HWY 22	32.36842	-87.13691		ICIS-NPDES NON-MAJOR
ALR160925	ADOT ST 659 16	33.353889	-86.861389		NPDES NON-MAJOR
ALR163370	FALLISTON TACOA	33.290278	-86.856667		ICIS-NPDES NON-MAJOR
ALR165894	VOICE OF FAITH INTERNAT MINIST	33.298056	-86.838889		ICIS-NPDES NON-MAJOR
ALR166017	SANITARY SEWER IMPROVEMENTS	32.941667	-87.15		NPDES NON-MAJOR
ALR16B406	SIMMONS MOUNTAIN PROJECT	33.34733	-86.79136		ICIS-NPDES NON-MAJOR
ALR163379	BROOKWOOD VILLAGE	33.4725	-86.767222		NPDES NON-MAJOR
ALR163401	SONRISR COMMUNITY CHURCH	33.315278	-86.9025		NPDES NON-MAJOR
ALR163402	LONGMEADOW SUBDIVISION	33.660278	-86.6075		NPDES NON-MAJOR
ALR16EFTF	CAHABA RIVER WETLAND RESTORATION	32.817275	-87.226122		ICIS-NPDES NON-MAJOR
ALR161501	HUNTINGTON GLEN PHASE II	33.435278	-86.835556		ICIS-NPDES NON-MAJOR
ALR163194	PARK FOREST	33.181111	-86.8225		ICIS-NPDES NON-MAJOR
ALR166020	PROJ SOC04084 INVERNESS HIGHLA	33.412222	-86.700556		NPDES NON-MAJOR
ALR163425	RIVERCHASE UNITED METH CHURCH	33.353056	-86.807222		NPDES NON-MAJOR
ALR16EG05	WATERSTONE SUBDIVISION	33.15268	-86.78102		ICIS-NPDES NON-MAJOR
ALR163428	LANDSCAPE ASSOCIATION	33.372222	-86.914722		NPDES NON-MAJOR
ALR160254	SHILOH FOREST AND ALLSTAR	33.716389	-86.576389		NPDES NON-MAJOR
ALR165845	MOSS ROCK BORROW PIT	33.547389	-86.525		ICIS-NPDES NON-MAJOR
ALR16E070	NEW LIFE EVANGELISTIC WORSHIP	33.54824	-86.64559		ICIS-NPDES NON-MAJOR
ALR163493	CANYON COVE SUBDIVISION	33.3375	-86.870833		NPDES NON-MAJOR
ALR163472	PELHAM PROFESSIONAL PARK	33.288333	-86.808889		ICIS-NPDES NON-MAJOR
ALR163485	BIBB COUNTY ROAD DEPARTMENT	32.995278	-87.238056		ICIS-NPDES NON-MAJOR
ALR163486	BESSEMER AIRPORT	33.308834	-86.926474		#N/A
ALR165963	CREEKVIEW COMMERCIAL PARK	33.286111	-86.765		ICIS-NPDES NON-MAJOR
ALR16EE43	ALAGASCO PROJECT NO. WOC09028 GENERY GAP REINFORCEMENT PHASE III	33.355	-86.936389		ICIS-NPDES NON-MAJOR
ALR163562	CARRINGTON 4TH SECTOR	33.652222	-86.542222		ICIS-NPDES NON-MAJOR
ALR163545	LAKESIDE FARMS GATED COMMUNITY	33.291111	-87.065833		ICIS-NPDES NON-MAJOR
ALR165961	MOUNTAIN BROOK SPORTS PARK	33.47473	-86.76604		ICIS-NPDES NON-MAJOR
ALR16B303	ASHBY BAPTIST CHURCH	33.23108	-87.10581		ICIS-NPDES NON-MAJOR
ALR16EG04	SHADES CREEK (RAILCAR REMOVAL)	33.18654	-87.02969		ICIS-NPDES NON-MAJOR
ALR16EEBX	VCC - NEW POOL & TENNIS FACILITY	33.45377	-86.77267		ICIS-NPDES NON-MAJOR
ALG140272	HORST WHOLESALE FLORAL CO	33.52123	-86.66075		ICIS-NPDES NON-MAJOR
ALG120312	MAYCO INDUSTRIES INC	33.45774	-86.84012		#N/A
ALG120447	CUSTOM FINISHING	33.284203	-86.856042		#N/A
ALG120448	HYDRON METAL INDUSTRIES INC	33.295122	-86.832636		ICIS-NPDES NON-MAJOR
ALG140798	URRUTIA INC	33.201637	-86.782117		ICIS-NPDES NON-MAJOR
ALG180631	BIRMINGHAM STEEL DRUM INC	33.541719	-86.711906		#N/A
ALG140709	DICKEY BOYS SUPER WASH	33.70215	-86.520132		NPDES NON-MAJOR

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALG180644	KIMBRELL AUTO PARTS	33.232941	-87.152228		ICIS-NPDES NON-MAJOR
ALG670001	TRANSCONTINENTAL GAS PL CORP	32.483333	-87.183333		ICIS-NPDES NON-MAJOR
ALR16EG31	JENNIFER FRIEDMAN DBA DANCE ET CETERA	33.313166	-86.824546		#N/A
ALR160542	OLD CAHABA	33.293611	-86.897222		NPDES NON-MAJOR
ALG120407	REISS VIKING CORPORATION	33.221389	-87.162778		NPDES NON-MAJOR
ALG180076	STINNETT ENTERPRISES	33.169418	-87.152654		ICIS-NPDES NON-MAJOR
AL0074829	WEST BLOCTON SITE 1	33.103611	-87.101667		ICIS-NPDES NON-MAJOR
ALG180046	WOODSTOCK AUTO SALVAGE INC	33.165829	-87.152803		NPDES NON-MAJOR
ALG670202	ALABASTER BESSEMER WATER TRANSMISSION MAIN	33.25051	-86.86299		ICIS-NPDES NON-MAJOR
ALG140799	AMOCO FOOD SHOP	33.23613	-86.821612		NPDES NON-MAJOR
AL0024252	ARGOS CEMENT LLC ROBERTA PLANT	33.093661	-86.794947		#N/A
ALG140788	CARMAX AUTO SUPER STORES 7224	33.3625	-86.822778		ICIS-NPDES NON-MAJOR
ALG180672	D AND B RECYCLING	33.125844	-86.918134		#N/A
ALG020088	DUNN CONST ALABASTER PLANT	33.211667	-86.815		ICIS-NPDES NON-MAJOR
ALG020096	DUNN CONSTRUCTION CALERA PLANT	33.136389	-86.759444		ICIS-NPDES NON-MAJOR
ALG140006	EVERGREEN TRANSPORT LLC	33.093604	-86.790883		#N/A
ALG180405	GARCIAS INC LLC	33.093669	-86.789429		#N/A
ALG020161	KELLY CONSTRUCTION CO INC	33.186944	-86.859444		NPDES NON-MAJOR
ALG140520	LELCO INC	33.094504	-86.858188		#N/A
ALG120260	MACLEAN POWER SYSTEMS LLC	33.29276	-86.81188		ICIS-NPDES NON-MAJOR
ALG120190	METROCK STEEL & WIRE CO.	33.092428	-86.816656		#N/A
ALG120347	MID SOUTH STEEL INC	33.310667	-86.803285		#N/A
ALG230065	OLDCASTLE SURFACES INC	33.346902	-86.801443		ICIS-NPDES NON-MAJOR
ALG140837	PRO FIRE G AND W DIESEL INC	33.267829	-86.795615		ICIS-NPDES NON-MAJOR
ALG120525	PROCESS EQUIP BARRON IND INC	33.310737	-86.804453		NPDES NON-MAJOR
ALG180663	SAGINAW RECYCLING LLC	33.21744	-86.798063		ICIS-NPDES NON-MAJOR
ALG200029	SPECIFICATION RUBBER PRODUCTS INC	33.263303	-86.81118		#N/A
ALG140820	SPECTRUM ENVIRONMENTAL SERVICES	33.3366	-86.788231		#N/A
ALG120200	VULCAN THREADED PRODUCTS INC	33.312375	-86.802329		NPDES NON-MAJOR
ALG120187	AMEREX CORP	33.64912	-86.56604		#N/A
ALG140868	AUTOMOTIVE SERVICES GROUP LLC	33.6079	-86.62954		#N/A
ALG140928	B & G EQUIPMENT AND SUPPLY	33.58337	-86.63697		#N/A
ALG230058	BLACK WARRIOR HOLDINGS LLC MCCALLA	33.272574	-87.104022		#N/A
ALG230035	BORAL BRICKS INC BESSEMER PLA NT 5	33.34636	-86.96824		#N/A
ALG120444	C AND B PIPING INC	33.546278	-86.518667		#N/A
ALG180625	C AND D AUTO PARTS	33.2297	-87.11874		NPDES NON-MAJOR
ALG200073	CRB BIRMINGHAM	33.606042	-86.624764		ICIS-NPDES NON-MAJOR
ALG120351	DANIEL INDUSTRIAL METALS, INC	33.60663	-86.62398		#N/A
ALG120372	DEB CORPORATION	33.6374	-86.57942		#N/A
ALG230039	DURA WEAR CORPORATION	33.578521	-86.641697		NPDES NON-MAJOR
ALG120473	EDWARDS FABRICATION	33.60741	-86.62752		ICIS-NPDES NON-MAJOR
ALG140794	FEDERAL EXPRESS CORP BHMA	33.548889	-86.663056		#N/A
ALG140492	FEDERAL EXPRESS CORP HOMEWOOD	33.4436	-86.83868		#N/A
ALG140819	FEDEX GROUND IRONDALE	33.553056	-86.6575		NPDES NON-MAJOR
ALG120518	FLEX N GATE ALABAMA LLC	33.315717	-87.051242		ICIS-NPDES NON-MAJOR
ALG120507	GARDNER DENVER NASH, LLC	33.556253	-86.616325		#N/A
ALG120514	GESTAMP ALABAMA INC	33.30788	-87.04117		NPDES NON-MAJOR
ALG140853	GOO GOO CAR WASH	33.53041	-86.72194		ICIS-NPDES NON-MAJOR
ALG140857	GOO GOO CAR WASH	33.421024	-86.696706		ICIS-NPDES NON-MAJOR
ALG120499	GUZZLER STORE BIRMINGHAM	33.53706	-86.53029		NPDES NON-MAJOR
ALG120498	H AND E EQUIPMENT SERVICES LLC	33.6451	-86.56752		#N/A
ALG120041	HUBBELL POWER SYSTEMS LEEDS	33.5492	-86.55067		#N/A
ALG120146	HUDCO INDUSTRIAL PRODUCTS INC	33.32998	-86.91223		NPDES NON-MAJOR
ALG120084	IKG/BORDEN (IKG INDUSTRIES)	33.534167	-86.537778		ICIS-NPDES NON-MAJOR
ALG020048	INTERNATIONAL OIL CORPORATION	33.53726	-86.70433		#N/A
ALG120436	J & L FABRICATORS, INC.	33.541184	-86.527429		NPDES NON-MAJOR
ALG120365	JWF INDUSTRIES, INC.	33.64422	-86.56678		#N/A
ALG120529	KENNAMETAL - TRICON	33.54089	-86.69498		#N/A
ALG180744	LES SCHMITT AUTO SALES	33.54702	-86.54892		ICIS-NPDES NON-MAJOR
ALG120359	M AND J MATERIALS	33.64813	-86.56748		#N/A
ALG120431	MORRIS MATERIAL HANDLING	33.46086	-86.84352		#N/A
ALG140143	NORFOLK SOUTHERN RAILWAY COMPANY	33.54505	-86.70194		#N/A

NPDES ID	Facility Name	Latitude	Longitude	Discharge Limitation (Parameters)	Interest Type
ALG180074	PALMER BROTHERS AUTO PARTS	33.559328	-86.687989		NPDES NON-MAJOR
ALG200075	PLASTIPAK MCCALLA SITE	33.300833	-87.045		NPDES NON-MAJOR
ALG230034	ROCK WOOL MANUFACTURING CO	33.54398	-86.527199		ICIS-NPDES NON-MAJOR
ALG230032	ROCK WOOL MANUFACTURING COMPANY	33.541111	-86.531667		#N/A
ALG140392	SCHWERMAN TRUCKING COMPANY	33.54322	-86.52412		ICIS-NPDES NON-MAJOR
ALG120213	SELF INDUSTRIES, INC.	33.6051	-86.62605		#N/A
ALG120038	STEEL CITY BOLT AND SCREW INCORPORATED	33.46605	-86.836		#N/A
ALG170013	STEVENS GRAPHICS INC	33.45209	-86.84038		ICIS-NPDES NON-MAJOR
ALG140870	TRUSSVILLE EXPRESS WASH	33.60944	-86.62728		ICIS-NPDES NON-MAJOR
ALG140226	UPS GROUND FREIGHT TRUSSVILLE	33.55222	-86.61885		NPDES NON-MAJOR
ALG120367	WESTERN THREADERS, INC.	33.33654	-86.96148		#N/A
ALG140859	WOOD FRUITTICHER GROCERY CO.	33.586806	-86.654278		ICIS-NPDES NON-MAJOR
AL0076295	HOPE COAL SEYMOUR MINE	33.120278	-87.010556		NPDES NON-MAJOR
AL0050831	OAK MOUNTAIN STATE PARK	33.323972	-86.77625		NPDES NON-MAJOR
AL0057681	OUR LADY OF ANGELS MONASTERY	33.529944	-86.67225		#N/A
AL0076741	HELENA	33.29372	-86.83243		#N/A
AL0058327	BORAL BRICKS INC BESSEMER PLA NT 5	33.34636	-86.96824		#N/A
AL0058076	PYNE ROCK CORPORATION	33.376111	-86.910278		#N/A
ALG180736	CECIL GIBSON SALVAGE YARD	32.92199	-87.18746		ICIS-NPDES NON-MAJOR
AL0057576	HENRY BRICK SHALE OPERATIONS	33.005556	-86.881389		ICIS-NPDES NON-MAJOR
ALG180680	S L AND E AUTO PARTS	33.084218	-87.242508		#N/A
ALG020005	APAC MID SOUTH INC	33.28673	-86.846849		NPDES NON-MAJOR
ALG120438	BARRON FAN TECHNOLOGY INC	33.256267	-86.81621		NPDES NON-MAJOR
ALG140888	BE AND K CONSTRUCTION A KBR COMPANY	33.206944	-86.783056		#N/A
ALG020194	DUNN CONSTRUCTION-LONGVIEW PLANT	33.205917	-86.773056		NPDES NON-MAJOR
ALG140850	INGRAM EQUIPMENT CO LLC	33.267933	-86.795613		NPDES NON-MAJOR
ALG140026	MATERIAL DELIVERY SERVICE INC	33.093705	-86.788743		NPDES NON-MAJOR
ALG140674	NES RENTALS	33.215761	-86.799292		#N/A
ALG140515	NICHOLS CONCRETE EQUIP CO INC	33.277808	-86.797707		ICIS-NPDES NON-MAJOR
ALG020196	WIREGRASS CALERA ASPHALT PLANT	33.136944	-86.759444		ICIS-NPDES NON-MAJOR
ALG140131	ALABAMA POWER CO TRUSSVILLE CREW HEADQUARTERS	33.64623	-86.60777		NPDES NON-MAJOR
ALG140132	ALABAMA POWER COMPANY - PATTON CHAPEL CREW HQS	33.39685	-86.80081		NPDES NON-MAJOR
ALG140822	BIRMINGHAM	33.440556	-86.842778		NPDES NON-MAJOR
ALG140650	BIRMINGHAM LOGISTICS, LLC	33.441333	-86.855222		#N/A
ALG180075	CLINT PALMER AUTO PARTS	33.560447	-86.686614		NPDES NON-MAJOR
ALG140897	COLONIAL PROMENADE-TANNEHILL	33.42678	-86.85223		ICIS-NPDES NON-MAJOR
ALG120726	COWIN AND COMPANY, INC.	33.447086	-86.850629		ICIS-NPDES NON-MAJOR
ALG230048	GRACE CONSTRUCTION PRODUCTS	33.54506	-86.69513		#N/A
ALG140931	GUZZLER STORE - BIRMINGHAM	33.5376	-86.53149		ICIS-NPDES NON-MAJOR
ALG180720	J AND J METALS AND SALVAGE INC DBA EXIT 100 METAL RECYCLING	33.278006	-87.091927		#N/A
ALG120014	M&B HANGERS	33.539444	-86.533889		#N/A
ALG120010	NATIONAL METALS INC	33.549639	-86.546784		#N/A
ALG230001	REFRACTORY SALES & SERVICE CO INC	33.36781	-86.90283		#N/A
ALG120389	SCF INDUSTRIES INC	33.541703	-86.700693		ICIS-NPDES NON-MAJOR
ALG120264	SCHREIBER LLC	33.63593	-86.58082		ICIS-NPDES NON-MAJOR
ALG180773	STEPHENS WHOLESALE CARS	33.568385	-86.537102		ICIS-NPDES UNPERMITTED
ALG140340	UPS BIRMINGHAM	33.45017	-86.84573		NPDES NON-MAJOR
ALG020042	ASPHALT CONTR INC OAKMULGEE PT	32.39996	-87.1001		NPDES NON-MAJOR
ALG020195	MOBILE ASPHALT COMPANY	32.442639	-87.202944		ICIS-NPDES NON-MAJOR

NPDES ID	Facility Name	Address	Latitude	Longitude	Permit Issued	Permit Expiration
AL0079511	TALCOA MINERALS LLC PIPER MINE (currently Jesse Creek Mining LLC)	SEYMOUR CR 10	33.075278	-87.071389	FEB-09-2009	FEB-08-2014
ALR107849	PIPER II	S SIDE OF HWY 24, 0.73 MILES FROM THE CAHABA RIVER	33.088056	-87.048333	AUG-16-2011	MAR-31-2016