III-D and III-E 880-X-8E-.06(1)(l)7(j)

HYDROLOGIC MONITORING PLAN

COMPANY NAME Cahaba Resources, LLC. MINE NAME Carter Mine

COUNTY Tuscaloosa NPDES # AL0082414

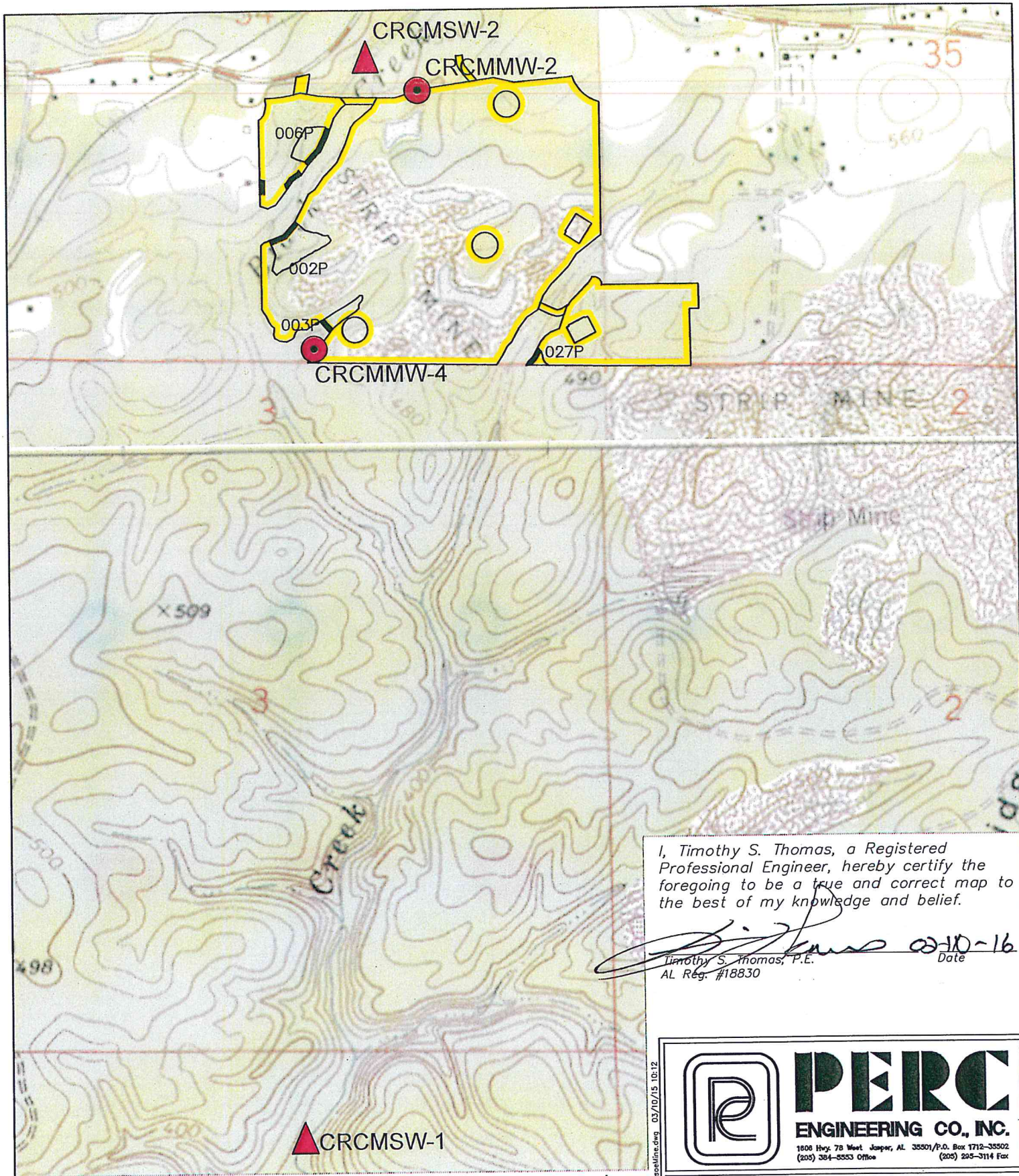
*A MAP SHOWING ALL MONITORING POINTS MUST ACCOMPANY THIS PLAN

I. Surface Water Monitoring Program: (Discharge Points)

List each discharge point to be monitored and indicate type or source of discharge	List parameters to be sampled for each discharge point	List frequency of sampling for each discharge point	Duration of Monitoring
Basins: 002P 003P 006P 027P	NPDES parameters (See attached)	Twice monthly	Until joint approval by ASMC and ADEM. In no case sooner than ASMC approval of Phase II Bond release.

If a sample is taken during or within 24-hours after an applicable precipitation event (an increase in discharge volume caused by an applicable 24-hour precipitation event), an exemption for Iron (Total), Manganese (Total) and Total Suspended Solids may be claimed and Settleable Solids, pH and Flow run and reported. The exemption is only applicable if the ADEM "New Source Coal Mine and Associated Discharge Limitations, Conditions and Requirements" are followed.

Note: Performance monitoring to commence no sooner than original opening of mine. See attached map for all monitoring site locations.



I, Timothy S. Thomas, a Registered Professional Engineer, hereby certify the foregoing to be a true and correct map to the best of my knowledge and belief.

Timothy S. Thomas, P.E.
AL Reg. #18830

03-10-16
Date

MAP LEGEND

- PERMIT BOUNDARY
- CRCMDH-1 — GEOCHEMICAL ANALYSIS SITE
- CRCMMW-3 — GROUNDWATER MONITORING SITE
- CRCMSW-1 — SURFACE WATER MONITORING SITE
- 004P — SEDIMENT BASIN

PERC ENGINEERING CO., INC.
1608 Hwy. 78 West Jasper, AL 35501/P.O. Box 1712-35502
(205) 384-5553 Office (205) 295-3114 Fax

CAHABA RESOURCES, LLC
CARTER MINE
HYDROLOGIC MONITORING PLAN MAP

DWG NAME:	CR Carter Mine	DATE:	04/02/2015
DRAWN BY:	S.A.E.	SCALE:	1"=1000'
APPROVED BY:	T.S.T.	JOB NUMBER:	13-04068-001

V:\Mining\Red Mesa Bledsoe Mine\RM\BledsoeMine.dwg 03/10/15 10:12

Alabama Department of Environmental Management

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM INDIVIDUAL PERMIT

PERMITTEE: Cahaba Resources, LLC
PO Box 122
Vance, AL 35490

FACILITY LOCATION: Carter Mine
15567 Highway 216
Brookwood, AL 35444
Tuscaloosa County
T20S, R8W, Section 34
T21S, R8W, Section 3

PERMIT NUMBER: AL0082414

DSN	RECEIVING STREAM
001-1	Black Creek
003-1	Black Creek
005-1	Unnamed tributary to Black Creek
007-1	Black Creek
009-1	Black Creek
011-1	Black Creek
013-1	Unnamed tributary to Black Creek
015-1	Unnamed tributary to Black Creek
017-1	Black Creek
019-1	Black Creek
021-1	Black Creek
023-1	Unnamed tributary to Black Creek
025-1	Unnamed tributary to Black Creek
027-1	Unnamed tributary to Black Creek
029-1	Unnamed tributary to Black Creek
031-1	Black Creek

DSN	RECEIVING STREAM
002-1	Black Creek
004-1	Unnamed tributary to Black Creek
006-1	Black Creek
008-1	Black Creek
010-1	Black Creek
012-1	Black Creek
014-1	Unnamed tributary to Black Creek
016-1	Unnamed tributary to Black Creek
018-1	Black Creek
020-1	Black Creek
022-1	Unnamed tributary to Black Creek
024-1	Unnamed tributary to Black Creek
026-1	Unnamed tributary to Black Creek
028-1	Unnamed tributary to Black Creek
030-1	Black Creek

In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§1251-1378 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 (the "AWPCA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, §§22-22A-1 to 22-22A-16, and rules and regulations adopted thereunder, and subject further to the terms and conditions set forth in this permit, the Permittee is hereby authorized to discharge into the above-named receiving waters.

ISSUANCE DATE: January 15, 2016

EFFECTIVE DATE: February 1, 2016

EXPIRATION DATE: January 31, 2021

Glenda L. Dean
Alabama Department of Environmental Management

PART I DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

1. Active Mining Limitations and Monitoring Requirements

During the period beginning on the effective date of this Permit and lasting through the expiration date of this Permit, the Permittee is authorized to discharge from each point source identified on Page 1 of this Permit and described more fully in the Permittee's application, if the outfalls have been constructed and certified. Except as provided in Parts I.A.2. and 3., discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Discharge Limitations				Monitoring Requirements	
	4-Day Average	Daily Minimum	Monthly Average	Daily Maximum	Sample Type	Measurement Frequency[1]
Specific Conductance 00095	-------	-------	Report µS/cm	Report µS/cm	Grab	2/Month
Sulfate (As S) 00154	-------	-------	Report mg/L	Report mg/L	Grab	2/Month
pH 00400	-------	6.0 s.u.	-------	9.0 s.u.	Grab	2/Month
pH[2] 00400	-------	6.0 s.u.	-------	10.5 s.u.	Grab	2/Month
Solids, Total Suspended 00530	-------	-------	35.0 mg/L	70.0 mg/L	Grab	2/Month
Selenium, Total Recoverable (As Se)[3] 00981	-------	-------	5.0 µg/L	20.0 µg/L	Grab	1/Month
Cadmium, Dissolved (As Cd) 01025	-------	-------	0.152 µg/L	1.026 µg/L	Grab	1/Month
Copper, Dissolved (As Cu) 01040	-------	-------	4.95 µg/L	6.99 µg/L	Grab	1/Month
Iron, Total (As Fe)[3] 01045	3.45 mg/L	-------	3.0 mg/L	6.0 mg/L	Grab	2/Month
Manganese, Total (As Mn)[4] 01055	-------	-------	2.0 mg/L	4.0 mg/L	Grab	2/Month
Thallium, Dissolved (As Tl) 01057	-------	-------	0.274 µg/L	Report µg/L	Grab	1/Month
Nickel, Dissolved (As Ni) 01065	-------	-------	28.9 µg/L	260.5 µg/L	Grab	1/Month
Aluminum, Total (As Al)[3] 01105	-------	-------	Report mg/L	Report mg/L	Grab	2/Month
Arsenic, Trivalent Dissolved (As As) 22680	-------	-------	0.303 µg/L	Report µg/L	Grab	1/Month
Flow, In Conduit or Thru Treatment Plant[5] 50050	Report MGD	-------	Report MGD	Report MGD	Instantaneous	2/Month
Cyanide, Free Available 51173	-------	-------	5.2 µg/L	22.0 µg/L	Grab	1/Month
Toxicity, Ceriodaphnia Acute[6] 61425	-------	-------	-------	0 pass(0)/fail(1)	Grab	1/Quarter
Toxicity, Pimephales Acute[6] 61427	-------	-------	-------	0 pass(0)/fail(1)	Grab	1/Quarter
Solids, Total Dissolved (TDS) 70296	-------	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Mercury, Total Recoverable[3] 71901		-------	.012 µg/L	2.4 µg/L	Grab	1 /Month

1 See Part I.C.2. for further measurement frequency requirements.
2 See Part IV.D. for pH Exemption Discharge Limitations.
3 For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.
4 See Part IV.E. for Manganese Exemption Discharge Limitations.
5 Flow must be determined at the time of sample collection by direct measurement, calculation, or other method acceptable to the Department.
6 See Part IV.F. for Effluent Toxicity Limitations and Biomonitoring Requirements for Acute Toxicity.

2. Precipitation Exemption Limitations and Monitoring Requirements[7]

During the period beginning on the effective date of this Permit and lasting through the expiration date of this Permit, the Permittee is authorized to discharge from each point source identified on Page 1 of this Permit and described more fully in the Permittee's application, if the outfalls have been constructed and certified. During periods of applicable 24-hour precipitation events for which the Permittee claims an exemption of standard mining limits as provided by Part IV.B., such discharge shall be limited and monitored by the Permittee as specified below:

Parameter	Discharge Limitations				Monitoring Requirements	
	4-Day Average	Daily Minimum	Monthly Average	Daily Maximum	Sample Type	Measurement Frequency[8]
Specific Conductance 00095	-------	-------	Report µS/cm	Report µS/cm	Grab	2/Month
Sulfate (As S) 00154	-------	-------	Report mg/L	Report mg/L	Grab	2/Month
pH 00400	-------	6.0 s.u.	-------	9.0 s.u.	Grab	2/Month
Solids, Settleable[9] 00545	-------	-------	-------	0.5 mL/L	Grab	2/Month
Selenium, Total Recoverable (As Se)[11] 00981	-------	-------	Report µg/L	Report µg/L	Grab	1/Month
Cadmium, Dissolved (As Cd) 01025	-------	-------	Report µg/L	Report µg/L	Grab	1/Month
Copper, Dissolved (As Cu) 01040	-------	-------	Report µg/L	Report µg/L	Grab	1/Month
Iron, Total (As Fe)[10] 01045	3.45 mg/L	-------	-------	7.0 mg/L	Grab	2/Month
Thallium, Dissolved (As Tl) 01057	-------	-------	Report µg/L	Report µg/L	Grab	1/Month
Nickel, Dissolved (As Ni) 01065	-------	-------	Report µg/L	Report µg/L	Grab	1/Month
Aluminum, Total (As Al)[11] 01105	-------	-------	Report mg/L	Report mg/L	Grab	2/Month
Arsenic, Trivalent Dissolved (As As) 22680	-------	-------	Report µg/L	Report µg/L	Grab	1/Month
Flow, In Conduit or Thru Treatment Plant[12] 50050	Report MGD	-------	Report MGD	Report MGD	Instantaneous	2/Month
Cyanide, Free Available 51173	-------	-------	Report µg/L	Report µg/L	Grab	1/Month
Solids, Total Dissolved (TDS) 70296	-------	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Mercury, Total Recoverable[11] 71901		-------	Report µg/L	Report µg/L	Grab	1/Month

7 See Part IV.B. for Precipitation Event Discharge Limitations.
8 See Part I.C.2. for further measurement frequency requirements.
9 The discharge limitation for Settleable Solids is not applicable for precipitation events greater than a 10-year, 24-hour precipitation event.
10 The discharge limitation for Total Iron (As Fe) is only applicable for precipitation events less than or equal to a 2-year, 24-hour precipitation event.
11 For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.
12 Flow must be determined at the time of sample collection by direct measurement, calculation, or other method acceptable to the Department.

HYDROLOGIC MONITORING PLAN (continued)

A. Reporting and Recording Specifications:

a)NPDES outfalls:

Reporting as required by NPDES permit to Alabama Department of Environmental Management plus a simultaneous Notice of Filing to ASMC containing the following:

1)Name of Company
2)Name of Mine
3)ASMC permit number
4)NPDES number
5)Sampling period covered by report
6)List of the discharge points sampled and analysis results

b) Other:

B. Non-Compliant Discharge Reporting:

Reporting as required by the NPDES permit to Alabama Department of Environmental Management plus simultaneous copy (indicating ASMC permit number) to ASMC.

HYDROLOGIC MONITORING PLAN (continued)

II. Other Surface Water Monitoring.
Bodies of water receiving discharges from the mine:

Black Creek , Unnamed tributary to Black Creek

List Monitoring Points and indicate type or describe location	List Parameters to be sampled	Frequency (minimum)	Duration of Monitoring
CRCMSW-1 downstream	Discharge pH Manganese Iron Total Suspended Solids Specific Conductance	Quarterly	Life of mine
CRCMSW-2 upstream	Same as Above	Same as Above	Same as Above

Note: Turbidity sampling site locations (upstream and downstream from the proposed permit area) which are required by ADEM, are subject to change as mining develops, therefore this sampling will be conducted as required by ADEM and a copy of said monitoring results will be submitted concurrently to ASMC.

4. **Instream Monitoring**

a. During the period beginning on the effective date of this Permit and lasting through the expiration date of this Permit, the Permittee is authorized to discharge from all outfalls, which are described more fully in the Permittee's application. In addition to the limitations and monitoring requirements presented in Parts I.A.1. through 3. of this Permit, such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Discharge Limitations			Monitoring Requirements	
	Daily Minimum	Monthly Average	Daily Maximum	Sample Type	Measurement Frequency[18]
Turbidity, Background (Upstream) 52330	-------	-------	Report NTU	Instantaneous	1/Month
Turbidity (Downstream) 00070	-------	-------	Report NTU	Instantaneous	1/Month
Turbidity, Increase Over Background 52350	-------	-------	50 NTU	Calculated	1/Month

The instream monitoring addressed by Part I.A.4 is the reporting requirement implemented to monitor the change in turbidity of the receiving stream.

b. The Upstream Background Turbidity shall be taken at a location in the receiving stream approved of by the Department immediately upstream of the most upstream certified outfall. The Downstream Turbidity shall be taken at a location in the receiving steam approved of by the Department immediately downstream of all certified outfalls.

c. A topographic map with all certified outfalls identified as well as the instream sampling locations proposed to be used by the Permittee must be submitted at the time of each certification required by Part I. B. 1. Should the Department object to the instream sampling locations proposed to be used by the Permittee, the Permittee must adjust the instream sampling locations to locations that do meet the Department's approval.

B. REQUIREMENTS TO ACTIVATE A PROPOSED MINING OUTFALL

1. Discharge from any point source identified on Page 1 of this Permit which is a proposed outfall is not authorized by this Permit until the outfall has been constructed and certification received by the Department from a professional engineer, registered in the State of Alabama, certifying that such facility has been constructed in accordance with plans and specifications approved by the ASMC, if applicable. This requirement shall not apply to pumped discharges from the underground works of underground coal mines where no surface structure is required by the ASMC, provided the Department is notified in writing of the completion or installation of such facilities, and the pumped discharges will meet permit effluent limits without treatment.

2. Certification required by Part I.B.1. shall be submitted on a completed ADEM Form 432. The certification shall include the latitude and longitude of the constructed and certified outfall.

3. Discharge monitoring and Discharge Monitoring Report (DMR) reporting requirements described in Part I.C. of this Permit do not apply to point sources that have not been constructed and certified.

[18] See Part I.C.2. for further measurement frequency requirements.

HYDROLOGIC MONITORING PLAN (continued)

A. Reporting and Recording Specifications:

1) Frequency of Reporting: Quarterly

2) Contents of Report: Name of company, mine name, ASMC permit number and for all monitoring locations, the dates samples were taken and sample results for each parameter and who collected and analyzed the samples.

III. Monitoring requirements for removal of sediment ponds and other treatment facilities:

Monthly for 6 months prior to application for approval to remove facility. Monitoring data will be submitted to ASMC with application to remove the facility.
Monitoring sites shall be located to sample water entering the facility (i.e., untreated drainage).
Show proposed locations on the monitoring location map.
Parameters to be samples shall be those required by the NPDES permit.

HYDROLOGIC MONITORING PLAN (continued)

IV.
A.Monitoring requirements for Phase II bond release:

List Monitoring Sites	Parameters	Sample Frequency	Duration of Monitoring
inflow* into the following basins: 002P 003P 006P 027P	NPDES parameters (See attached)	Monthly	No less than monthly for previous 6 months prior to applica-tion for Phase II Bond release.**

* If no inflow into basin, then a sample of basin discharge. If no basin discharge, then grab sample from basin itself.

** For the Increment within which the respective basin is bonded, or the respective basin's drainage area is located.

Note: When additional outfalls are added to the NPDES permit, or sampling requirements are added or removed by ADEM, this monitoring plan will be modified to comply without ASMC revision.

B. Reporting:
Reports shall be submitted with application for Phase II Bond Release indicating Sample location number, monitoring period and analysis results and date for each sample, plus sampling and analytical data. A map showing location of the sample sites should be included.

3. Post Mining Limitations and Monitoring Requirements[13]

During the period beginning on the effective date of this Permit and lasting through the expiration date of this Permit, the Permittee is authorized to discharge from each point source identified on Page 1 of this Permit and described more fully in the Permittee's application, if the outfalls have been constructed and certified. For those outfalls which the Department has granted written approval pursuant to Part IV.C., such discharge shall be limited and monitored by the Permittee as specified below:

Parameter	Discharge Limitations				Monitoring Requirements	
	4 Day Average	Daily Minimum	Monthly Average	Daily Maximum	Sample Type	Measurement Frequency[14]
Specific Conductance 00095	-------	-------	Report µS/cm	Report µS/cm	Grab	1/Month
Sulfate (As S) 00154	-------	-------	Report mg/L	Report mg/L	Grab	1/Month
pH 00400	-------	6.0 s.u.	-------	9.0 s.u.	Grab	1/Month
Solids, Settleable[15] 00545	-------	-------	-------	0.5 mL/L	Grab	1/Month
Selenium, Total Recoverable (As Se)[16] 00981	-------	-------	5.0 µg/L	20.0 µg/L	Grab	1/Month
Cadmium, Dissolved (As Cd) 01025	-------	-------	0.152 µg/L	1.026 µg/L	Grab	1/Month
Copper, Dissolved (As Cu) 01040	-------	-------	4.95 µg/L	6.99 µg/L	Grab	1/Month
Iron, Total (As Fe) 01045	3.45 mg/L	-------	-------	-------	Grab	2/Month
Thallium, Dissolved (As Tl) 01057	-------	-------	0.274 µg/L	Report µg/L	Grab	1/Month
Nickel, Dissolved (As Ni) 01065	-------	-------	28.9 µg/L	260.5 µg/L	Grab	1/Month
Aluminum, Total (As Al)[16] 01105	-------	-------	Report mg/L	Report mg/L	Grab	2/Month
Arsenic, Trivalent Dissolved (As As) 22680	-------	-------	0.303 µg/L	Report µg/L	Grab	1/Month
Flow, In Conduit or Thru Treatment Plant[17] 50050	Report MGD	-------	Report MGD	Report MGD	Instantaneous	2/Month
Cyanide, Free Available 51173	-------	-------	5.2 µg/L	22.0 µg/L	Grab	1/Month
Solids, Total Dissolved (TDS) 70296	-------	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Mercury, Total Recoverable[16] 71901	-------	-------	0.12 µg/L	2.4 µg/L	Grab	1/Month

[13] See Part IV.C. for Post-Mining Discharge Limitations.
[14] See Part I.C.2. for further measurement frequency requirements.
[15] The discharge limitation for Setteable Solids is not applicable for precipitation events greater than a 10-year, 24-hour precipitation event.
[16] For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.
[17] Flow must be determined at the time of sample collection by direct measurement, calculation, or other method acceptable to the Department.

HYDROLOGIC MONITORING PLAN (continued)

V. Groundwater Monitoring

List Monitoring Sites and indicate type of site	Parameters	Frequency (minimum)	Duration of Monitoring
CRCMMW-2 (Cretaceous Aquifer)	Iron Manganese pH Specific Conductance Water level	Quarterly	Life of mine
CRCMMW-4 (Below Carter Seam)	Same as Above	Same as Above	Until Mined Thru

- If CRCMMW-2 is destroyed during mining and reclamation operations, the well will be re-drilled in approximately the same location. The well will be drilled to the same depth, and casing standards will be similar to those shown in 'Casing Specifications' in this report.

HYDROLOGIC MONITORING PLAN (continued)

A. Reporting and Recording

Reports to be filed with ASMC quarterly supplying the following information: Company name, mine name, permit number, and for each monitoring site, the date and sample results for each parameter. Include sampling and analytical information for all samples.

VI. Maintenance of records and Availability for Inspection:

a) Active Mining - copies of all monitoring records shall be maintained at office.

b) During periods of temporary cessation of operations and after active mining, all monitoring records will be kept at:

Cahaba Resources, LLC. (Office)

P.O. Box 122 (Address)

Vance, AL 35490 (City & State)

Randy Crawford (Custodian of Records)

c) All monitoring records will be made available upon request to ASMC Personnel for inspection.

VII. Describe how the data obtained from the performance monitoring may be used to determine the impacts of the operation upon the hydrologic balance. Describe how parameters to be monitored relate to the suitability of the surface and groundwater for current and approved postmining land use.

Surface Water Monitoring Site CRCMSW-1 is downstream of all mining to be conducted by Cahaba Resources, LLC. Results of performance monitoring as outlined in the monitoring plan can be compared to the results of performance monitoring for Surface Water Monitoring Site CRCMSW-2 to determine impact to the receiving streams and confirm or deny the estimates of the PHC. Groundwater Monitoring Sites CRCMMW-2 and CRCMMW-4 will monitor the characteristics of the aquifer above and below the target coal seam. Performance monitoring data will be compared to results of analysis from baseline sampling to determine impact to these aquifers and be compared to predictions made in the PHC. The proposed postmining land use is undeveloped or no current land use or management (grasses utilized as terminal vegetation). Alabama Department of Environmental Management recommendations for water quality to support this land use on this stream classification are less stringent than those limitations currently in force for surface mine effluent, therefore the existing monitoring plan is adequate and no additional parameters are recommended.

VIII. Please NOTE: ALL PERFORMANCE MONITORING REPORTS should be submitted in duplicate. For companies with multiple permits, each permit should have a corresponding monitoring report. Sites serving multiple permits should be included in all pertinent monitoring reports.

IX. If a waiver is requested for a particular water-bearing stratum, give details. 880-X-8H-.06-(1)(h)(2)

None proposed.

X. Plans For Recording and Reporting Data (779.13)

Describe how surface and groundwater quantity and quality data will be collected, recorded, and reported to the Regulatory Authority according to Section 816.52.

Surface water samples shall be taken by the 'grab method. Flowrate measurement of surface water samples shall be according to ASTM D3858 "Standard Practice for Open Channel Flow Measurement of Water by Velocity - Area Method" or other equally valid approved methods. Groundwater samples shall be taken according to Standard Methods 105 "Collection and Preservation of Samples" and 906A "Collection" or other equally valid approved methods. pH of all samples will be measured in the field. The sample will be stored in ice and all other parameters will be analyzed within their allowable holding times as specified by Standard Methods. Practices employed concerning the volume of groundwater extracted at groundwater monitoring sites prior to sampling is outlined as follows: Where recharge of groundwater is sufficient, three well volumes of groundwater (measured from the static depth) are pumped prior to sampling so the sample obtained is from recharge. Where recharge is slow, and three well volumes cannot be obtained within the monitoring cycle (usually monthly), only one well volume will be pumped. The well will then be allowed to recharge and a sample will be obtained after a volume equal to the volume of the pump line has been discharged. In infrequent instances where recharge is very limited, and the volume of water in the well is too small to be pumped to the surface, a 'bottom sampler' is employed to bail as much water as possible from the well. The well will then be allowed to recharge and the bottom sampler will be used to obtain a sample when ample groundwater is present to be collected.