CEDAR LAKE MINING, INC.

LITTLE SPRING CREEK - EAST MINE, P-39____

ALABAMA SURFACE MINING COMMISSION

SURFACE MINING PERMIT APPLICATION

PART III - D & E

HYDROLOGIC MONITORING PLAN

Prepared by:

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HYDROLOGIC MONITORING PLAN

1. Attach the plan for the monitoring of surface water including those parameters and sampling frequencies required to meet the specifications of the NPDES permit. If a perennial or intermittent stream flows through the proposed permit or potentially impacted off-site areas, develop and attach monitoring plans which logically relates base-line or pre-mine quantity conditions with those to be monitored during surface mining and reclamation operations.

   At minimum, the plan shall include:
   (i) Sample frequency
   (ii) Site location
   (iii) Parameters to be monitored; and
   (iv) Appropriate maps which comply with requirements

   If the predictive evaluation of the groundwater indicates that adverse on-site or off-site impacts may occur to an aquifer, the applicant shall develop a groundwater plan which logically relates the analysis of base line or pre-mining conditions to approved post-mining land use. The plan shall list:

   (i) Parameters to be monitored, including water levels;
   (ii) Sample frequency
   (iii) Site locations; and
   (iv) Appropriate maps and cross sections which comply with requirements.

   If according to the results of the PHC it is determined that groundwater monitoring may not be necessary, the applicant shall submit with the permit application sufficient documentation, including geologic and hydrologic relations, to enable the commission to make a decision regarding a waiver of the monitoring of the groundwater.

F. **SURFACE AND GROUNDWATER DRAINAGE CONTROL PLAN**

The permit application shall contain a plan describing how the applicant intends to control surface and groundwater drainage into, through and from the proposed permit area in accordance with the required plans.

G. SURFACE WATER TREATMENT PLAN

When the PHC determination indicates the need for treatment of surface water leaving the proposed permitted area, the applicant shall submit a plan for such treatment with the permit application which describes how such treatment will be accomplished to meet applicable State and Federal effluent limitation standards.

H. RESTORATION OF RECHARGE PLAN

Attach the plan describing how the approximate recharge capacity of the disturbed area will be restored according to the requirements.

I. PLANS FOR RECORDING AND REPORTING DATA

Describe how surface and groundwater quantity and quality will be collected, recorded and reported to the regulatory authority.

J. PERMANENT ENTRY SEALS AND DOWN SLOPE BARRIERS

Describe in detail, with appropriate maps, plans and cross sections, permanent entry seals and down slope barriers used to ensure hydraulic stability after mining has ceased.

PART III HYDROLOGIC MONITORING PLAN

COMPANY NAME: Cedar Lake Mining, Inc. PERMIT NO.: P-39____

MINE NAME: Little Spring Creek East Mine COUNTY: Walker

*A MAP SHOWING ALL MONITORING POINTS MUST ACCOMPANY THIS PLAN

I. Surface Water Monitoring Program: (Discharge Points)

Discharge points will consist of Sediment Basins 001P, 002P, 003P, 004P and 005P.

Discharges shall be limited and monitored by the Permittee as specified below per ADEM Specifications:

Parameter	Discharge Limitations			Monitoring Requirements		Type[1,2]
	Daily Minimum	Monthly Average	Daily Maximum	Sample Type	Measurement Frequency	
Specific Conductance 00095	****	Report µS/cm	Report µS/cm	Grab	2/Month	Active Mining, Post Mining & Precipitation Event Exemption
Sulfate (As S) 00154	****	Report mg/L	Report mg/L	Grab	2/Month	Active Mining, Post Mining & Precipitation Event Exemption
pH 00400	6.0 s.u.	****	9.0 s.u.	Grab	2/Month	Active Mining, Post Mining & Precipitation Event Exemption
pH 00400	6.0 s.u.	****	10.5 s.u.	Grab	2/Month	Active Mining
Solids, Total Suspended 00095	****	35.0 mg/L	70.0 mg/L	Grab	2/Month	Active Mining
Solids, Settleable 00545	****	****	0.5 mL/L	Grab	2/Month	Post Mining & Precipitation Event Exemption
Iron, Total (As Fe) 01045	****	3.0 mg/L	3.0 mg/L	Grab	2/Month	Active Mining
Iron, Total (As Fe) 01045	****	****	3.0 mg/L	Grab	2/Month	Precipitation Event Exemption[4]
Manganese, Total (As Mn)[5] 01055	****	2.0 mg/L	4.0 mg/L	Grab	2/Month	Active Mining
Flow, In Conduit or Thru Treatment Plant 50050	****	Report MGD	Report MGD	Instantaneous	2/Month	Active Mining, Post Mining & Precipitation Event Exemption
Toxicity, Ceriodaphnia Acute[6] 61425	****	****	0 pass(0)/fail(1)	Grab	1/Quarter	Active Mining
Toxicity, Pimephales Acute[6] 61427	****	****	0 pass(0)/fail(1)	Grab	1/Quarter	Active Mining
Solids, Total Dissolved (TDS) 70296	****	Report mg/L	Report mg/L	Grab	1/Quarter	Active Mining, Post Mining & Precipitation Event Exemption

[1] See Part IV.C. for Precipitation Event Discharge Limitations.
[2] The measurement frequency for Post-Mining monitoring requirements shall be once per month, except for Total Dissolved Solids. See Part IV.D for Post-Mining Discharge Limitations.
[3] See Part IV.E. for pH Exemption Discharge Limitations.
[4] 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.
[5] See Part IV.F. for Manganese Exemption Discharge Limitations.
[6] See Part IV.G. for Effluent Toxicity Limitations and Biomonitoring Requirements for Acute Toxicity.

PART III HYDROLOGIC MONITORING PLAN (Cont'd)

A. Reporting and Recording Specifications

a) NPDES outfalls

Reporting as required for 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 discharge points sampled
7) Date the report was filed with ADEM

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.

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

List Monitoring Points and indicate type or describe location	List Parameters to be Sampled	Frequency	Duration of Monitoring
SW-1 (Downstream) SW-2 (Upstream) SW-3 (Upstream)	pH Conductivity Iron (Fe) Manganese (Mn) Sulfates Discharge	Quarterly	Until Phase III Release

PART III HYDROLOGIC MONITORING PLAN (Cont'd)

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.

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

One (1) sample of inflow to sediment basin proposed for removal shall be collected within 48 hours after commencement of a 24 hour precipitation event. 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 sampled shall be those required by the NPDES permit.

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

List Monitoring Sites Inflow into the following basins:	NPDES Parameters	Sample Frequency	Duration of Monitoring
Sediment Basins: 001P, 002P, 003P, 004P, 005P	pH Iron (Fe) Total Suspended Solids (TSS) Manganese (Mn)	Monthly	No less than monthly for the previous 6 months prior to application for Phase II Bond release**

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

B. Reporting:

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

V. Groundwater Monitoring:

List Monitoring Points and indicate type or describe location	List Parameters to be Sampled	Frequency	Duration of Monitoring
MW-1 MW-2 MW-3 MW-4	pH Conductivity Iron (Fe) Manganese (Mn) Sulfates Water Level	Quarterly	Until Phase III Release

If any wells listed above are destroyed or mined through, it (or they) will be re-drilled at its (their) approximate original location(s) and will be drilled to the approximate same depth as the original well(s). Replacement of the well(s) will be conducted in a manner which will not interrupt the quarterly monitoring of these groundwater sites. The well casing(s) will be installed in such a manner to prevent surficial contamination. A lithologic log of the re-drilled well(s), along with casing specifications, will be submitted to the Regulatory Authority with the first post-restoration sample.

If, according to the results of the PHC, it is determined that groundwater monitoring may not be necessary, the applicant shall submit with the permit application sufficient documentation, including geologic and hydrologic relations, to enable the Commission to make a decision regarding a waiver of the monitoring of the groundwater.

PART III HYDROLOGIC MONITORING PLAN (Cont'd)

A. Reporting and Recording:

Reports to be filed with ASMC quarterly supply 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 the mine office.

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

Cedar Lake Mining, Inc. (Office)

2600 Warrior Jasper Road (Address)

Warrior, Alabama 35180 (City, State, Zip)

Bruce Sanders, Administrative Vice-President (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 post-mining land use.

The performance monitoring as proposed for this site will provide more than sufficient data to determine any alterations and/or variations in the hydrologic balance as impacted by the proposed mining operations. Maintaining an on-going data base and adequate/efficient records will be necessary to generate base-line, production and post-production data.

Surface water monitoring station SW-1 is located downstream and SW-2 is located upstream respectively of any mining to be conducted by Cedar Lake Mining, Inc., Little Spring Creek East Mine. SW-3 was added after the mine acreage was reduced from 1149 acres to 589 acres to add additional baseline data of upstream flow to more accurately document the new mining area. Premining baseline analyses can be compared to production data once active mining is commenced to determine the impact to Little Spring Creek once mining begins. Monitoring wells MW-1, MW-2,MW-3 and MW-4 will monitor the characteristics of the groundwater within the proposed permit site. Data from these wells can be compared to baseline sample results to determine potential impacts to the groundwater and can be compared to predictions made in the PHC.

In the event that major changes to the surface water and ground water regimes are observed during the sampling periods, additional parameters may be monitored and the hydrologic monitoring plan will be revised, with appropriate approvals from the Regulatory Authority, to address said changes.

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)

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.

All samples shall be taken according to Standard Methods 1060 and "Collection and Preservation of Samples" or the equally valid approved methods.

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 approved methods.

The pH of all samples will be measured in the field (within two (2) hours). The sample will be stored in ice or near 4º C and all other parameters will be analyzed within twenty-four (24) hours . If samples cannot be analyzed within twenty-four (24) hours, after the pH has been measured, the pH will be adjusted to 2.0 s.u. or less with Nitric Acid (about 2 ml per liter) which allows samples to be stored up to 6 months at room temperature. Prior to analyzing other parameters, the pH was re-adjusted to between 4.0 and 5.0 s.u. with 0.1 N Sodium Hydroxide. Samples for TSS and Sulfates that were not run within twenty-four (24) hours were refrigerated near 4º C and TSS analyzed within seven (7) days and Sulfates within twenty-eight (28) days. Sample preservation if used was in accordance with Table 1060:I (Summary of Special Sampling or Handling Requirements) from Standard Methods for the Examination of Water and Wastewater 17th Edition 1989 (pages 1-37).

Groundwater samples shall be taken by the hand-dip "grab" method as defined by the 17th Edition of Standard Methods for the Examination of Water and Wastewater.

The quantity of the water will be determined by comparing the depth to the bottom of the well and to the depth to the water. Appropriate adjustments will be made for well casing "stick-up" to determine correct ground-surface elevation.

The sampling methods for pH, Fe, Mn and SO_4 are to be sampled in accordance to Hach Water Analysis Handbook. These methods are EPA approved and are adapted from Standard Methods for the Examination of Water and Wastewater.

Sampling will be recorded and reported to the Regulatory Authority as outlined in Part III - D & E of this application.