THE BIRMINGHAM
WATER WORKS BOARD

August 9, 2011

Dr. Randall C. Johnson
Alabama Surface Mining Commission (ASMC)
P.O. Box 2390
Jasper, AL 35502-2390

RE: Reed Minerals No. 5 Mine
ASMC Permit Application P3957

Dear Dr. Johnson:

The Water Works Board of the City of Birmingham (Board) would like to provide the following comments regarding the permit application for the Reed Minerals No. 5 Mine (ASMC P3957) located in Walker County. Water discharged from this mining operation would enter the Mulberry Fork, upstream from one of our surface water intakes, the Mulberry Intake. The Mulberry Intake has been in operation since 1989 and, as one of the Board's water sources, serves approximately 200,000 people in the Birmingham area. The Board submitted comments to the Alabama Department of Environmental Management (ADEM) regarding the Reed Minerals No. 5 Mine NPDES permit. We are concerned that this proposed mine has the potential to adversely impact the Birmingham area drinking water.

Our comments and requests for the permit application are summarized below:

- *Part II. Section E.2. - Geology* states that "Chemical analyses conducted to identify acid-forming or toxic-forming zones shall be made on a representative number of samples of the overburden within the permit area." It appears that only Acid Base Accounting (ABA) analyses were run on lithologic samples. ABA does not evaluate potential for "toxic-forming" compounds such as enhanced leaching of metals of exposed overburden materials. Evaluation of toxic-forming compounds should be conducted for each lithologic zone sampled.

- *Part II Section F - Groundwater Hydrology* indicates that the baseline groundwater quality investigation is not sufficient. In addition to pH, Iron, Manganese, Acidity, Alkalinity, and Sulfate, a number of constituents should be added to the Groundwater Monitoring Parameters in Section V of the Hydrologic Monitoring Plan including: Aluminum, Arsenic, Copper, Mercury, Antimony, Zinc, Chromium, and Lead.

- *Part II Section G — Surface Water Hydrology* incorrectly identifies the use classification of the Mulberry Fork as Fish and Wildlife only. The Mulberry Fork is classified for Public Water Supply from its junction with the Sipsey Fork, upstream of the proposed mine, to its junction with the Locust Fork, downstream of the proposed mine. In fact, much of the proposed mine area falls within the Source Water Protection Area for the Mulberry Intake, located just downstream. This area defines the "critical, or special, area in the immediate vicinity of a surface water plant intake that is closely scrutinized for contaminant sources."

- *Part II. Section H — Probable Hydrologic Consequences Determination.* The proximity of the proposed mining operation to such a major municipal water supply intake represents an incompatible use. This operation could result in the discharge of mining related pollutants directly to the intake. The NPDES permit and this permit application do not appear to have adequately considered the drinking water use, and are wholly inadequate to protect the Board and its customers from many pollutants commonly associated with mining activities. The attached comments provided to ADEM concern the impact of the mining operation on the water supply.

- No design information has been provided on the sedimentation ponds. These structures are the primary means of maintaining effluent water quality and should be carefully designed with respect to volume, dimensions, sediment storage, baffling, and structural integrity. These ponds, and other treatment systems, should be designed to the best available technology to prevent the additional contribution of settleable and suspended solids to the public water supply. Proposed sediment basin sizing in the applicant's NPDES permit filing does not meet ADEM's design guidance for sediment storage. We request that the ASMC, when reviewing the basin designs, increase the capacity of these structures.

- *Attachment II-I and III-A-3* The permit application makes reference to the possible use of chemical treatment to control pH, metals, TSS. It is highly recommended to implement chemical treatment measures and to include them in the facility design, along with plans/measures to determine appropriate dosing rates. Such measures require careful planning and should not be left as afterthought only to be hurriedly implemented in the event that major problems are discovered.

- Sedimentation control structures are the primary control for surface waters leaving the property. These generally control the sediments, when well-designed, but may not reduce dissolved or ionic constituents that may be elevated due to mining activities. Constituents not controlled may include metals, explosive residue, sulfate from sulfide oxidation, etc. In addition, many trace contaminants in are not likely to be mitigated by settling ponds.

- *Attachment III-D - Hydrologic Monitoring Plan* should be revised to include sampling and reporting of all parameters, even when precipitation event exemptions will be applied for with ADEM. Further, the monitoring plan should be expanded to include the following parameters, sampled monthly at groundwater monitoring wells, the outfalls, and receiving stream: ₭

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Total Suspended Solids	Acidity	Copper (total)
Total Dissolved Solids or	Alkalinity	Chromium (total)
Specific Conductance	Aluminum (total)	Nickel (total)
pH	Arsenic (total)	Iron (total)
Temperature	Cadmium (total)	Manganese (total)
Rainfall	Lead (total)	Mercury (total)
Sulfate	Selenium (total)	Zinc (total)
Antimony	Ethyl benzene	Pyritic Sulfur
Bromide	Xylene	Strontium
Benzene	Lithium	Turbidity
Toluene	Molybdenum	Total Organic Carbon

The groundwater underlying the proposed Reed Minerals No. 5 mine is in direct hydraulic communication with surface water in the Mulberry Fork, which is designated for public water supply. Due to the nature of groundwater flow at this site, contaminants introduced to groundwater from mining operations will discharge to the Mulberry Fork. Further, the groundwater directly underlying the site is likely designated as an "Underground Source of Drinking Water" (USDW) by ADEM Admin. Code r. 335 Division 6 Regulations, defined as "an aquifer or portion thereof 1) which currently supplies drinking water for human consumption, or 2) in which the ground water contains fewer than 10,000 mg/L of total dissolved solids." Baseline ground water sampling and well surveys (municipal and private) should be completed to determine if these criteria are met.

Our Mulberry Intake will be used to provide drinking water to the Birmingham Metropolitan Area for many years in the future and this mine would negatively impact the drinking water supply. Given what is at stake, we feel that this mining permit should not be issued. If the permit is issued, we feel that all of the areas of concern noted above must be addressed in order for us to continue to provide the regions residents with safe drinking water at a reasonable price.

Please email me at djones@bwwsb.com or call 205-244-4404 if you have any questions or comments.

Very Truly Yours,

Darryl R. Jones, P. .
Assistant General Manager
Operations and Technical Services

cc: Mac Underwood, BWWB
Patrick Flannelly, Malcolm Pirnie, Inc.