STATE OF ALABAMA
SURFACE MINING COMMISSION

Permit Number:P- 3980 -64-20-S

License Number:L- 743

PERMIT TO ENGAGE IN SURFACE COAL MINING OPERATIONS

Pursuant to **The Alabama Surface Mining Control and Reclamation Act of 1981**, as amended, **ALA. Code** Section 9-16-70 et. seq. (1975) a permit to engage in Surface Coal Mining Operations in the State of Alabama is hereby granted to:

Quality Coal Co., Inc.
Post Office Box 2705
Jasper, AL 35502
(Dutton Hill Mine No. 2)

Such operations are restricted to 159 acres as defined on the permit map and located in:

SE/NE, NE/SE, SW/SE, SE/SE of Section 22; SW/NW, NW/SW, SW/SW of Section 23; NW/NW, SW/NW, SE/NW, NW/SW, NE/SW of Section 26; SW/NE, SE/NE, NE/SE of Section 27, Township 14 South, Range 8 West, all in Walker County, Alabama.

This permit is subject to suspension or revocation upon violation of any of the following conditions:

1. The permittee shall conduct Surface Coal Mining and Reclamation Operations in accordance with the plans, provisions and schedules in the permit application.

2. The permittee shall conduct operations in a manner to prevent damage or harm to the environment and public health and safety and shall notify ASMC and the public in accordance with ASMC Rule 880-X-8K-.16 of any condition which threatens the environment or public health and safety.

CONDITIONS TO BE PLACED ON PERMIT P-3980-64- 20-S

3. Surface coal mining operations are restricted to those areas for which sufficient bond has been posted with ASMC. On the date of issuance of this permit, bond was posted only for increment(s) 06 consisting of 5 acres as defined on the permit map.

4. No mining disturbance is to occur on any part of the permit on which legal "right of entry" has not been obtained. When such rights are "pending" the applicant shall submit acceptable evidence, to the Director, that such rights have been obtained according to ASMC Regulation 880-X-8D-.07.

5. No disturbance is to occur on any properties on which land use comments from legal owners of record are "pending" prior to the applicant providing acceptable comments.

6. No disturbance is to occur in the 300' setback area to any occupied dwelling prior to the applicant providing acceptable evidence to ASMC of its having secured a waiver of each subject area signed by the owner of the dwelling.

7. No mining disturbance shall occur within the l00' setback of any public road or the relocation of any public road prior to the applicant providing acceptable evidence, to the Director, of its having secured approval for a waiver from the appropriate jurisdictional authority and specific written waiver from ASMC.

8. The permittee shall notify the ASMC and seek consultation with the US Fish and Wildlife Service if:

   a. The permit is modified in any way that causes an effect on species or Critical Habitat listed under the Endangered Species Act of 1973.
   b. New information reveals the operation may affect Federally protected species or designated Critical Habitat in a manner or extent not previously considered or
   c. A new species is listed or Critical Habitat is designated under the Endangered Species Act that may be affected by the operation.

9. The permittee shall contact the ASMC and consult with the Alabama Historic Preservation Officer if the permit is modified or if previously unknown archaeological or historic resources are discovered on the permit area. Upon discovery of previously unknown artifacts or archaeological features the permittee shall cease operations until the Alabama Historic Preservation Officer approves resumption of operations.

CONDITIONS TO BE PLACED ON PERMIT P-3980-64-20-S

10. Diversion 8-9 shall require a construction certification to be submitted to the ASMC by a licensed professional engineer prior to mine disturbance within the watershed of Diversion 8-9.

DATE ISSUED: October 16, 2015
DATED EFFECTIVE: October 16, 2015
EXPIRATION DATE: October 15, 2020

Randall C. Johnson, Director

/ml
cc: I&E
Permit File

FINDINGS

PERMIT NO.: P-3980-64-20-S

The ASMC, acting by and through its Director, hereby finds, on the basis of information set forth in the application or from information otherwise available, that --

1. The permit application is complete and accurate and the applicant has complied with all requirements of the Act and the regulatory program.

2. The applicant has demonstrated that reclamation as required by the Act and the regulatory program can be accomplished under the reclamation plan contained in the permit application.

3. The proposed permit area is:

   (a) Not within an area under study or administrative proceedings under a petition, filed pursuant to Chapter 880-X-7 to have an area designated as unsuitable for surface coal mining operations;

   (b) Not within an area designated as unsuitable for mining pursuant to Chapter 880-X-7 or subject to the prohibitions or limitations of Section 880-X-7B.-06 and Section 880-X-7B-.07 of this chapter; or

4. For mining operations where the private mineral estate to be mined has been severed from the private surface estate, the applicant has submitted to the Regulatory Authority the documentation required under Section 880-X-8D.07 and Section 880-X-8G-.07 of this chapter.

5. The Regulatory Authority has made an assessment of the probable cumulative impacts of all anticipated coal mining on the hydrologic balance in the cumulative impact area and has determined that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

6. The applicant has demonstrated that any existing structure will comply with Section 880-X-2B-.01, and the applicable performance standards of Chapter 3 or 10.

7. The applicant has paid all reclamation fees from previous and existing operations as required by 30 C.F.R., Subchapter R.

8. The applicant has satisfied the applicable requirements of Subchapter 880-X-8J.

9. The applicant has, if applicable, satisfied the requirements for approval of a long-term, intensive agricultural, postmining land use, in accordance with the requirements of 880-X-l0C-.58(4) and 880-X-10D-.52(4).

10. The operation will not affect the continued existence of endangered or threatened species, or result in destruction or adverse modification of their critical habitats, as determined under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

11. The Regulatory Authority has taken into account the effect of the proposed permitting action on properties listed or eligible for listing on the National Register of Historic Places. This finding is supported in part by inclusion of appropriate permit conditions or changes in the operation plan protecting historic resources, or a documented decision that the Regulatory Authority has determined that no additional protection measures are necessary.

12. For a proposed remining operation where the applicant intends to reclaim in accordance with the requirements of Section 880-X-l0C-.56 or 880-X-10D.-49, the site of the operation is a previously mined area as defined in Section 880-X-2A-.06.

13. Surface coal mining and reclamation operations will not adversely affect a cemetery.

14. After application approval but prior to issue of permit, ASMC reconsidered its approval, based on the compliance review required by Section 880-X-8K-.10(2)(a) in light of any new information submitted under 880-X-8D-.05(8).

15. The applicant has submitted the performance bond or other equivalent guarantee required under Chapter 880-X-9 of the ASMC Rules prior to the issuance of the permit.

16. For mining operations where a waiver is granted from the 100' setback from a public road according to 880-X-7B-.07, the interests of the public and affected landowners have been protected.

17. The Regulatory Authority has taken into account the effect of the proposed permitting action on properties listed or eligible for listing on the National Register of Historic Places. In a letter dated November 5, 2012 the University of Alabama, Office of Archaeological Research (OAR) conducted a Phase I Cultural Resource Survey for approximately 601 acres in Walker County, Alabama, from October 4-5 and 18-19, 2012. As a result of the Phase 1 survey one archaeological site, 1Wa280, was added to the Alabama State Site File (ASSF). Site 1Wa779 is not considered eligible for the National Register of Historic Places (NRHP). Based on the findings OAR recommends that the proposed Dutton Hill Mine No 2 will have no effect on any significant historic properties and a finding of no properties is recommended. By a letter dated January 18, 2013 the State Historical Preservation Office (SHPO), based on the cultural resource assessment conducted by the OAR, determined that the project activities will not affect any cultural resources listed or eligible for the NRHP and therefore concur with the project. In a letter dated January 30, 2013 TerraXplorations Inc. (TXI) conducted a Phase I Cultural Resource Survey for additional area "A" approximately 31 acres in Walker County, Alabama, from January 21, 2013. The Phase 1 cultural resource survey failed to reveal any historic of prehistoric resources in the project area. Based on the findings of the Phase 1 survey, TXI recommends no further archaeological studies for the subject property. By a letter dated February 19, 2013 SHPO, based on the cultural resource assessment conducted by the TXI, determined that the project activities will have no adverse effect on any cultural resources listed or eligible for the NRHP and therefore concur with the project. This finding is supported in part by inclusion of appropriate permit conditions or changes in the operation plan protecting historic resources, or a documented decision that the Regulatory Authority has determined that no additional protection measures are necessary. Concerns for unknown resources, which might be discovered during mining, have been made conditions of the permit.

18. McGehee Engineering Corp (MEC) conducted a biological habitat assessment for approximately 610 acres in Walker County, Alabama from August 27-30, 2012. Possible summer roosting habitat for the Indiana Bat exists along Lost Creek, no bats were observed during the survey. No evidence was found for all other Threatened and Endangered species and critical habitat. On August 31, 2012 MEC conducted a biological habitat survey specifically for the Indiana Bat on approximately 212 acres within the project area. Habitat does not exist within the project area for this species and MEC recommends no other studies for this area. MEC conducted a biological habitat

assessment for additional area "A", approximately 31 acres, on January 22, 2013. No habitat was found for threatened and endangered species. No evidence was found or observed for the presence or possible presence of the listed species. A 100 foot vegetated buffer from Lost Creek and state required BMP's will be used to protect any listed species critical habitat in Lost Creek. The US Fish and Wildlife Service (FWS), in comments dated January 29 and February 6, 2013, agreed with MEC that no federally listed species/habitats occur within the project area. In letters dated August 22, 2012 and January 16 2013 the Alabama Department of Conservation and Natural Resources (ADCNR) suggested a biological survey be conducted by trained professionals for the project area. In a letter dated, April 13, 2015 the US Army Corps of Engineers (USACE) authorize the activities by Permit Number: SAM-2012-1500-CMS. Mitigation is not required because the impacts are considered minimal. The ASMC finds that the proposed operation will not jeopardize the continued existence of endangered or threatened species or critical habitat thereof.

19. The proposed permit area is:

a. Not within an area under study or administrative proceedings under a petition, filed pursuant to Chapter 880-X-7 to have an area designated as unsuitable for surface coal mining operations.

b. Not within an area designated as unsuitable for mining pursuant to Chapter 880-X-7 or subject to the prohibitions or limitations of Section 880-X-7B-.06 and Section 880-X-7B.-07 of this chapter.

BASED ON THESE FINDINGS, I RECOMMEND THAT THIS PERMIT BE ISSUED.

DATE: October 16, 2015

Robert Armes
Permit Manager

/ml
cc: I & E, Permit File

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Permit Number P-3980
Quality Coal Company, Inc.
Dutton Hill Mine No. 2
HUC 03160109-170

NPDES AL0071081
NPDES AL0075086
NPDES AL0078972

As required under Federal Public Law 95-87, Section 510(b)(3), the Alabama Surface Mining Commission (ASMC) must find in writing the following proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The applicant must submit a determination of probable hydrologic consequences of mining and reclamation operations in Part II.H of the permit application for areas both on and off the mine site. This determination will allow the ASMC to assess probable cumulative impacts of all anticipated mining activities on the surface and ground water hydrology of the permit and adjacent areas as stated in Federal Public Law 95-87, Section 507(b)(11) and ASMC Rule 880-X-8E-.06(1)(g). The following assessment and findings are intended to fulfill the above.

I. GENERAL INFORMATION

The Quality Coal Company, Inc. (P-3980) Dutton Hill Mine No. 2 is for a surface coal mining and auger mining operation originally encompassing 159 acres in Jefferson County. The proposed mine site is located in parts of Sections 22, 23, 26 & 27, Township 14 South, Range 8 West, Walker County, Alabama as seen from the 1981 Jasper USGS Quadrangle. Of the 159 acres, approximately 152 acres are mining acres and 7 acres are basins, diversions, haul roads, office and stockpile areas. The site is bound by Burlington Northern Railroad to the north, Lost Creek to the south and west, and wooded land to the east. Map No. 1 shows the permit area as well as adjacent permits.

Geology of the Warrior Coal Basin

The Pottsville Formation of Early and Middle Pennsylvanian age in Alabama is divided into four fields: the Warrior, Cahaba, Coosa and Plateau fields. All fields were once connected by an unbroken area of coal measures, however separation occurred as a result of folding, faulting and erosion of uplifted areas.

The Warrior coal field is a gently folded or flat-lying area classified as the Cumberland Plateau. It lies in a large, gentle monclinal structure that extends west into central Mississippi. The regional dip is towards the southwest. This regional southwest dip is interrupted by two anticlines (the Blue Creek anticline and the Sequatchie anticline) and three synclines or basins (the Blue Creek basin, Coalburg syncline and Warrior syncline).

The Warrior field has numerous normal faults that trend north and northwest up to 4 miles in length with up to 200 feet of displacement ("Geology of Coal Resources of the Coal-Bearing Rocks of Alabama, Alabama Geological Survey Bulletin 1182-B").

During the beginning of the Pennsylvanian age (approximately 320 million years ago), most of Alabama was still part of a shallow, warm ocean basin. The transgressions and regressions of the seas lead to the rhythmic cycle of sandstone, underclay, coal beds, and shale with zones of marine and brackish water fossils that rest on the basal resistant conglomerate orthoquarzite of the Boyles sandstone formation. This sequence immediately repeats itself with similar rocks (marine shale, sandstone or clay, coal seam, freshwater shale and sandstone). This appears to show the rise of sea level, depositing marine sediments, then the falling of sea level allowing the coal producing forests to grow. This was followed by an influx of river deposited sands and muds, which would rapidly accumulate plant material. Then, the sea would rise again repeating the process.

At the end of the Pennsylvanian, the uplift of the region left the coal bearing ecosystem behind. During this periods of uplift, no new sediments could be deposited for at least 200 million years. The gap in time between the Pennsylvanian deposition and the Cretaceous deposition resulted in an unconformity that allows for surface coal mining to exist in the Alabama coal fields.

II. CUMULATIVE IMPACT AREA (CIA)

The Cumulative Impact Area (CIA) is that area, including the permit area, within which impacts resulting from the proposed operation may interact with the hydrologic impacts of all other past, current and anticipated coal mining on the surface and groundwater systems.

The CIA for surface water for Permit P-3980 has been defined as the area that surrounds P-3980, P-3947, part of P-3920 and part of P-3858 which drain to Lost Creek. All the sediment basins for P-3980 drain into Rocky Branch and Lost Creek. Other stream reaches in the surface water CIA include Pumpkin Creek, Slate Creek, Horse Creek, Sparks Branch and Queen Branch. This includes those areas of mining operations that may impact this assessment area affected by mining (See Map No. 2).

The CIA for groundwater for this permit is limited to the general permit area itself. The CIA has been selected based upon the Department's assessment of the possible hydrologic impacts, which may occur as a result of mining operations. The subsurface hydrologic components considered in this assessment include all significant water-bearing units in, and within the vicinity of, the proposed permit. No cumulative impacts to groundwater are expected due to the site being hydraulically isolated based on the topography of the mine site and adjacent areas as well as the lack of a widespread, regional aquifer system. (See Map No. 2).

Active or Proposed Mines

Active mining in this watershed that would interact with activities of the proposed permit include the Quality Coal Co., Inc. Sparks Branch No. 2 Mine (P-3947), part of the Quality Coal Co., Inc. Dutton Hill Mine (P-3920), Quality Coal Co., Inc. Slate Creek Mine (P-3929), and part of the Cedar Lake Mining, Inc. Coal Valley East Mine (P-3958). At the time of this assessment, no other proposed mines are known within the vicinity.

A. Geologic/Hydrogeologic Information

i. Geology

The proposed P-3980 permit area is located in the Warrior Coal Basin. According to the "Depositional Settings of the Pottsville Formation in the Black Warrior Basin", the Plateau Coal Field is a small, transitional basin which connects the Black Warrior Basin with smaller basins in southeastern Tennessee. The Pottsville Formation underlies and outcrops in this region, which is of Pennsylvanian Age.

Locally, the strata which outcrops in the immediate vicinity of the Dutton Hill No. 2 Mine site includes sandstones, shales, underclays and coal seams associated with the Mary Lee Coal group. The target seams at this site include the New Castle, Mary Lee and Blue Creek coal seams.

The New Castle seam lays between approximately 349' and 400' MSL and outcrops within the permit area. It averages 0.8 ft. thick. The Mary Lee seam lays between approximately 318' and 365' MSL and averages 2.0 feet. The Blue Creek lays between approximately 360' and 325. MSL and averages 1.5 feet.

ii. Potentially Acid- and Toxic-Forming Materials

Overburden analysis was conducted on two overburden samples adjacent to and inside of the permit area. The analysis was run to determine the potential for acid- and toxic-forming properties. Potentially acid- and toxic-forming materials are those that exhibit a pH of less than 4.0 s. u. or a deficiency in calcium carbonate equivalent of at least 0.0 tons per 1,000 tons of material (T/KT). Samples were collected every 5 feet or change in lithology and analyzed for pH (paste), total sulfur, potential acidity, neutralization potential and fizz rating. Results of analysis show that the overburden at the Dutton Hill Mine No. 2 contains +2030 tons $CaCO_3$/1000 tons overburden excess neutralization potential, with an acid-base account of +10.36 (tons $CaCO_3$/1000 tons overburden). Information from the permits within the CIA was also considered in evaluating the potential for neutralization. This includes the overburden analysis from P-3947, P-3920, P-3929, P-3844 (expired Pleasant Grove South Permit) and P-3858. Along with overburden analysis information, water quality history of the above referenced surrounding permits was taken into consideration.

iii. Surface Water

The permit area is located in the Warrior Basin and is drained Rocky Branch and Lost Creek. It is located in sub watershed 170 of HUC 03160109. Three basins are proposed for this site, two of which are proposed as permanent structures, and one as a temporary structure. Four surface water monitoring sites have been established for this permit. One upstream and one downstream on Rocky Branch as well as one upstream and downstream on Lost Creek.

To characterize the existing quality and quantity of water within the above-mentioned stream, baseline data was obtained and submitted in the permit application. Baseline

water quality was characterized from a downstream site on Rocky Branch, an upstream site on Lost Creek, as well as a downstream site on Lost Creek, which includes sampling from 1994 through 2001 from closed permit P-3465, Pleasant Grove Mine. Also included is current water data on the same downstream point on Lost Creek. Lost Creek shows little to no impact from previous mining of the watershed at this location. This is most likely due to the size of the watershed.

Post-Mining water quality and quantity estimates are based on several factors:

1. Baseline surface water quality
2. Estimated impact during mining
3. Size of the permit area compared to the impacted watershed
4. Amount of previous mining within the watershed

Table 3 at the end of this assessment shows the post mining water quality projections for surface water site 2454000, downstream on Lost Creek.

Map No. 2 shows the Cumulative Impact Area for the original permit area. It extends to the P-3858 Cedar Lake Mining, Coal Valley East Mine to the west, which has a split drainage area and encompasses P-3947 as well as part of P-3920.

All drainage from this minesite enters Lost Creek. Impact from these mines will best be seen in surface water monitoring site 2454000 downstream on Lost Creek.

iv. Ground Water

Groundwater in the Warrior Basin occurs in fractures and along bedding planes in the Pottsville Formation. The sandstone beds within 250 to 350 ft. of the surface generally contain the most productive water-bearing openings. Regionally, the primary source of recharge to groundwater is rainfall, which averages 54 inches per year. According to the U.S. Geological Survey Report: Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 3 Water-Resources Investigations Report 88-4120, the Pottsville aquifer is tightly cemented and has small primary porosity and permeability, and the yields of public water for wells completed in this aquifer are less than 0.15 Mgal/d (million gallons per day). This aquifer is also commonly high in iron.

Domestic Wells

A well inventory conducted in December, 2013 showed 70 structures or residences within a ½ mile radius of the mine site. Twelve of those had wells, with three residences using ground water wells as their only water source.

Company Installed Wells

To characterize existing groundwater conditions at the site and adjacent, three groundwater monitoring sites were utilized for information. These include monitoring wells MW-1/OB-1, MW-2 and P-3920 MW-2/OB-1. The data collected includes information dating to back to 2008.

MW-1/OB-1 is drilled to a total depth of 163 feet, below the Mary Lee seam, into a shale unit. It is cased to approximately 20 feet in red clay, then open hole for the remainder of the depth. This well was used both for overburden analysis, and will be utilized as a groundwater monitoring well for the life of the mine.

Monitoring well MW-2 is drilled to a depth of 153 feet, below the Mary Lee seam, into a shale unit. It is cased to approximately 20 feet in red clay, then open hole for the remainder of the depth. This well will be monitored quarterly for the life of the mine.

Monitoring well P-3920 MW-2 was drilled by Quality Coal Company, Inc. for the Dutton Hill Mine. It is drilled to a depth of 103.1 feet, below the Blue Creek seam into a sandy shale. It is cased approximately 20 feet into a sandy shale, then open hole for the remainder of the depth. It is to be monitored quarterly for the life of the mine. A summary of the baseline data is at the end of this assessment in Table 4. A representation of the wells can be viewed in the permit application, Geology/Hydrology section, located in the Jasper office.

Well locations that will be used for performance monitoring can be seen in Map No. 2.

There are no known wellhead protection zones or public water supply wells in or within 1,000 feet of the proposed permit area.

B. Coal Processing Waste

Coal processing waste (gob and slurry) will not be generated or disposed of at the site.

C. Material Damages

"Material Damage" is not defined in SMCRA or at 30 CFR §701.5. The intent of not defining "material damage to the hydrologic balance" is for regulatory authorities to develop a definition based on regional environmental and regulatory conditions. It can be considered a long term effect on the hydrologic balance by the mining operation that prevents the reasonable foreseeable future use of surface or ground water from supporting its current, potential or existing use outside of the permit area.

With respect to the CHIA, material damage to the hydrologic balance means quantifiable changes to the hydrologic balance caused by surface mining and reclamation operations to the extent that these changes would significantly affect present or potential uses as designated by the regulatory authority and that cannot be mitigated by reclamation or provision of alternate water supplies. This includes the hydrologic impact that results from the cumulation of flows from all coal mining sites in a cumulative impact area. Examples of material damage are: permanent destruction of a major regional aquifer; temporary contamination of an aquifer in use that cannot be mitigated; and solute contributions to streams above receiving stream standards.

A CHIA is based on the best currently available data and is a prediction of mining-related impacts to the hydrologic balance. Permittees (and permit applicants) are required to monitor water quality and quantity. Exceeding material damage thresholds might also cause significant reduction of the capability of an area to support aquatic life, livestock and wildlife communities.

III. FINDINGS

Based on the information presented above, the following findings have been made relative to the proposed permit area.

A. Potentially Acid- and Toxic-Forming Materials

Laboratory analyses of the bedrock overlying, and immediately below, the Black Creek Seam reveals favorable overburden with an average of +17.11 tons/acre excess $CaCO_3$. Because of the excess neutralization potential adverse effects to the hydrologic balance of the area are not anticipated if the overburden is mixed thoroughly prior to reclamation.

The materials handling plan included in the permit application will require any potentially acid- and toxic-forming strata encountered (such as spoiled coal) to be covered with a minimum of four feet of non-toxic, non-combustible earthen material. Also, this material may not be placed within the root zone. The material will undergo relatively quick burial that will restrict the development of acid-forming conditions.

As mentioned earlier, data from adjacent permits was also utilized in the determination for potential acid- and toxic-forming materials. Permit P-3844 (originally Bailey Excavating Company, Inc.) is located south of the Dutton Hill Mine No. 2 area (see Map No. 1) and is geologically similar to the Dutton Hill Mine No. 2 area. This permit was issued in July of 2005 and has since expired and has received a phase III bond release or is in reclamation. The New Castle and Mary Lee seams were mined on this permit. Initial overburden data showed an average of 6.51 (tons CaCO3/1000 tons overburden) excess neutralization potential.

The Quality Coal Co., Inc. Dutton Hill Mine, P-3920) is adjacent to the east of the Dutton Hill No. 2 area. The geology is identical for these two permits, with mining on the new Castle, Mary Lee and Blue Creek seams. The permit was issued in January 2010. Average neutralization potential showed +20.49 (tons CaCO3/1000 tons overburden).

Also utilized for information purposes was the Quality Coal Co., Inc. Sparks Branch Mine No. 2, P-3947. This permit is located directly north of the Dutton Hill No 2 area, with identical geology and hydrology including mining on the New Castle, Mary Lee and Blue Creek seams. This permit was issued in March of 2012, and is active. Average neutralization potential showed +9.93 (tons CaCO3/1000 tons overburden).

Each of these permits is essential in the determination of potential impacts from the Dutton Hill Mine No. 2 permit. They cover several years of mining activities, and are in different phases of the mining process.

B. Surface Water

Laboratory analyses of the samples collected from the waterways reveal relatively low conductivity levels and sulfate values considering previous coal related disturbance in this watershed. According to the Alabama Department of Environmental Management the receiving streams' use classification is 'Fish and Wildlife'. Current surface mining regulations include Best Management Practices and mining techniques that have greatly improved environmental protection since pre-law mining days.

Water quality within Lost Creek shows alkaline pH, slightly elevated iron, low manganese and low suspended solids, varying on the discharge at the time of sample. Rocky Branch, a much smaller water way, shows alkaline pH, low to moderate iron, low manganese and low suspended solid values.

Although the existing quality of the waters within the waterways is evidence of the effect mining can have on the hydrologic components in an area, the proposed mining operations will utilize improved management practices and techniques that were not employed during the historical mining operations. Changes in the quantity and quality of the waters in the streams draining the site are expected to be minimal due to the proposed mining activities. During mining, runoff from the disturbed areas will be diverted into sediment basins. Effluent from the sediment basins will be monitored by the permittee in accordance with National Pollution Discharge Elimination System (NPDES) permit requirements issued by the Alabama Department of Environmental Management. The effluent will be chemically treated, if necessary, in accordance with the NPDES permit. The basins will be monitored quarterly through final bond release in order to characterize and document any effects the mining may have on the surface-water hydrologic balance. The basins are all proposed as permanent water impoundments.

Once mining has begun, the applicant will continue to sample and monitor Lost Creek and Rocky Branch at two locations. Surface Water monitoring site SW-4 is located upstream on Rocky Branch, with corresponding site P-3920 SW-2 downstream on Rocky Branch. Surface Water monitoring site P3929 is located as an upstream and downstream site (mid permit) with corresponding downstream site P3844-02454 located downstream on Lost Creek. Baseline data is summarized in Table 1. This includes several years of data for all three sites used for baseline. These surface water monitoring sites will be used to characterize and document any effects the mining may have on the surface-water hydrologic balance. Table 2 shows metals analysis for the baseline sites. Parameters and frequency of monitoring can be seen in the approved Hydrologic Monitoring Plan.

C. Ground Water

Laboratory analyses of samples collected from the installed wells reveal the ground water within the bedrock strata below the Black Creek seam ranges from neutral to slightly alkaline. The water is mineralized with elevated levels of (at a minimum) iron and manganese resulting in high conductivity measurements. For a summary of the baseline data collected from the bedrock wells, please refer to Table 3 presented at the end of this assessment.

The proposed operations are not expected to have a permanent adverse impact on the overall quality of the ground water at the site or surroundings. No long term impact is anticipated to the ground water quality for the aquifer below the Black Creek Seam due to the inability of infiltrated water to migrate downwards into an insitu hydrostratigraphic unit. The groundwater above the bedrock strata is generally mineralized resulting in marginal quality, and show indications of coal related impact.

Monitoring wells MW-1/OB-1, MW-2 and P-3920 MW-2/OB-1 will be monitored quarterly through final bond release for pH, iron, manganese and water. If it is indicated that further parameters need to be monitored, they will be added to the Hydrologic Monitoring Plan as needed.

As discussed previously, the bedrock strata that will be excavated during the mining operations are predominantly non-acid and non-toxic. Although the strata are the same units that were disturbed during the previous mining, improved mining and management practices/techniques and contemporaneous reclamation should result in less water quality issues as compared to the historical mining. Should any increase in mineralization occur in the ground water as a result of the proposed activities, it is anticipated the levels will diminish and return to pre-mining concentrations once mining and reclamation activities are complete. Ground water will be further protected by properly sealing and abandoning all drill holes completed at the site (with the exception of blast holes) that will not be used for monitoring purposes. With regard to the availability of ground water after mining and reclamation is complete as compared to existing quantities, the backfilled spoil material will have a greater recharge capacity as compared to the undisturbed strata.

IV. CONCLUSION

The assessment of probable cumulative impacts of the Quality Coal Company, Inc. Dutton Hill Mine No. 2 (P-3980) finds the proposed operations have been designed to prevent material damage to the hydrologic balance outside the proposed permit area.

Table 1
Ranges/Averages of Surface-Water Quality/Quantity
Baseline Data
P-3980

Parameter	P-3920 SW-2 DS Rocky Branch	P-3929 SW-3 US/DS Lost Creek	P3844-2454 US Locust Fork
Discharge Rate (cfs)	0.03 – 4.0803 (1.2456)	18 - 571 (135.2)	47 - 2285 (236.7)
Field pH (S. U.)	7.28 - 8.42 (7.55)	6.57 – 8.32 (7.44)	7.03 – 8.16 (7.75)
Acidity* (mg/L)	N/A	6- 9 (8)	0 - 9 (6)
Alkalinity*(mg/L)	N/A	141 - 184 (161)	143 - 192 (161)
Total Suspended Solids (mg/L)	1 -7 (3)	2 - 24 (5)	2 - 56 (9)
Total Iron (mg/L)	BDL – 0.58 (0.18)	0.07- 1.13 (0.28)	0.26 – 2.70 (0.48)
Total Manganese (mg/L)	BML – 0.05 (0.02)	0.06 – 1.00 (0.28)	0.04 – 0.22 (0.08)
Sulfates* (mg/L)	N/A	23 - 174 (104)	86 - 153 (45.8)
Specific Conductance (u-mhos/cm)	423 - 565 (491)	223 - 1328 (878)	236 - 1161 (826)

Average values are set in parentheses.
Averages calculated as geometric means.
pH averaged in logarithmic form
* Not analyzed on all sample occasions
DS = Downstream
US = Upstream
N/A = Not Available
BDL = Below Detection Limit
BML = Below Measurable Limit

Table 2
Metals Baseline Data

Parameter	P-3920 SW-2 High / Low	P-3929 SW-3 High / Low	P3844-02454 High / Low
Antimony (µg/l)	BML	BML	BML
Arsenic (µg/l)	0.35 / 0.28	BML / 0.62	BML / 0.56
Beryllium (µg/l)	BML	BML	BML
Cadmium (µg/l)	BML	BML / 0.26	BML
Chromium (µg/l)	BML	BML	BML
Copper (µg/l)	BML	1.11 / 2.41	BML
Lead (µg/l)	BML	BML / 0.57	BML
Nickel (µg/l)	BML	BML	BML
Selenium (µg/l)	BML	BML	BML
Silver (µg/l)	BML	BML / 0.98	BML
Thallium (µg/l)	BML	BML	BML
Zinc (µg/l)	BML	BML	BML

BML = Below Measurable Limits

Table 3
Post Mining Water Quality Estimates for P3844-02454
Average Event, Post Mining
P-3980

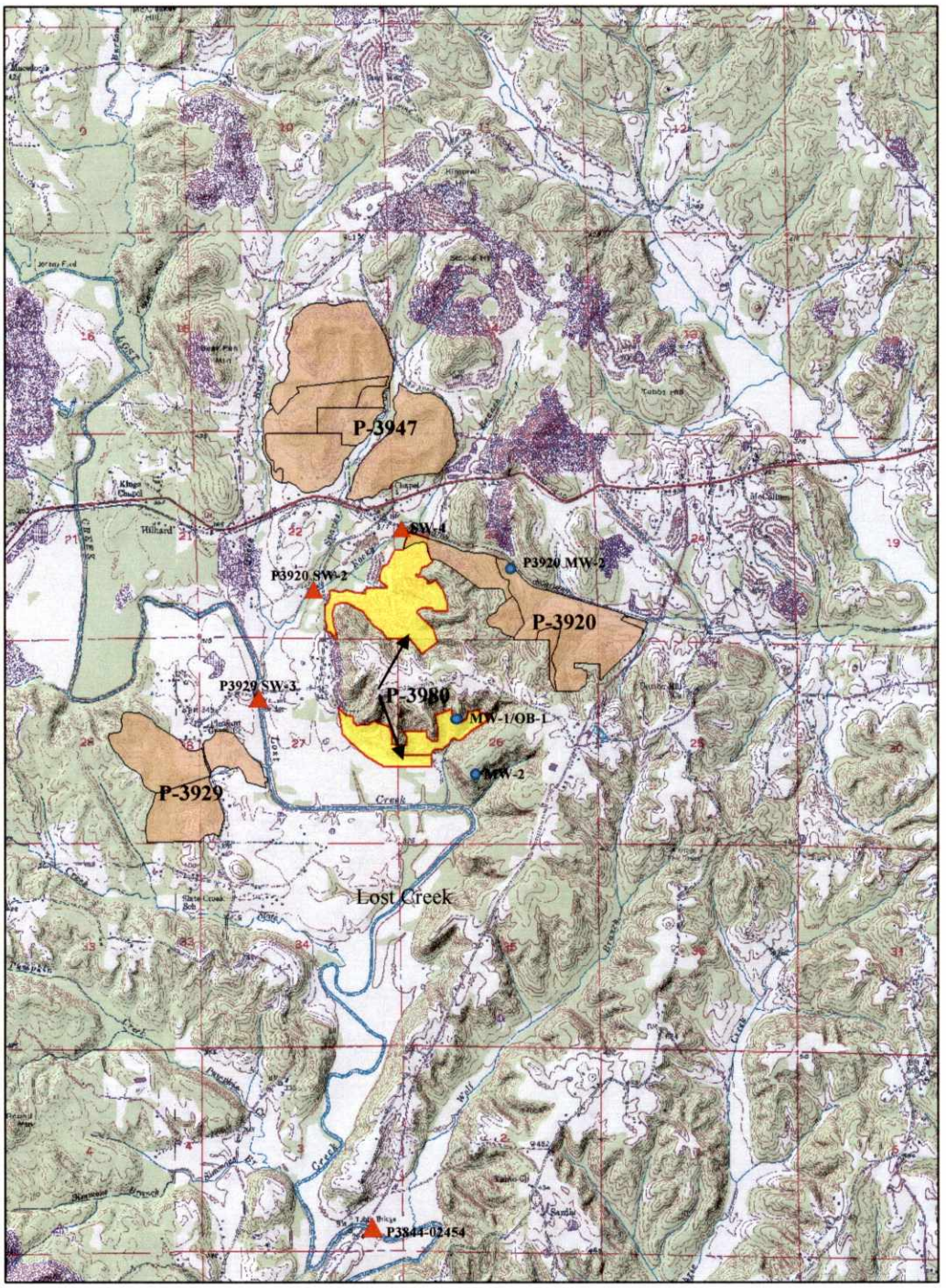
Parameter	P3844-024554
pH (S. U.)	7.75
Total Suspended Solids (mg/L)	7
Total Iron (mg/L)	0.45
Total Manganese (mg/L)	0.15
Specific Conductance (u-mhos/cm)	727

Table 4
Ground Water Data
P-3980

Parameter	MW-OB-1	MW-2	P-3920 MW-2/OB-1
Water Level (feet below surface)	38 - 81 (46.84)	111 - 143 (136.25)	8.0 – 11.67 (9.19)
Acidity (mg/L)	28 - 106 (62)	0 - 15 (2)	*0 – 199 (14)
Alkalinity (mg/L)	16 - 122 (107)	20 - 296 (233)	*39 – 162 (111)
Field pH (S. U.)	6.44 – 7.46 (6.58)	7.89 – 8.48 (8.07)	6.28 – 8.16 (7.11)
Total Iron (mg/L)	1.64 – 33.28 (12.18)	1.62 – 22.83 (4.87)	0.03 – 4.93 (2.09)
Total Manganese (mg/L)	BML – 1.41 (0.50)	BML – 0.28 (0.10)	0.01 – 1.50 (0.33)
Specific Conductivity 25 ^{0}C (μmhos/cm)	301 - 448 (355)	381 - 631 (436)	232 - 499 (436)
Sulfates (mg/L)	19 - 242 (67)	9 - 21 (12)	*12 – 101 (54)

Average values are set in parentheses.
Averages calculated as geometric means
* Data only available from 6-9-09 through 11-03-08
BML = Below Method Detection Level

P-3980 Map No. 1



1

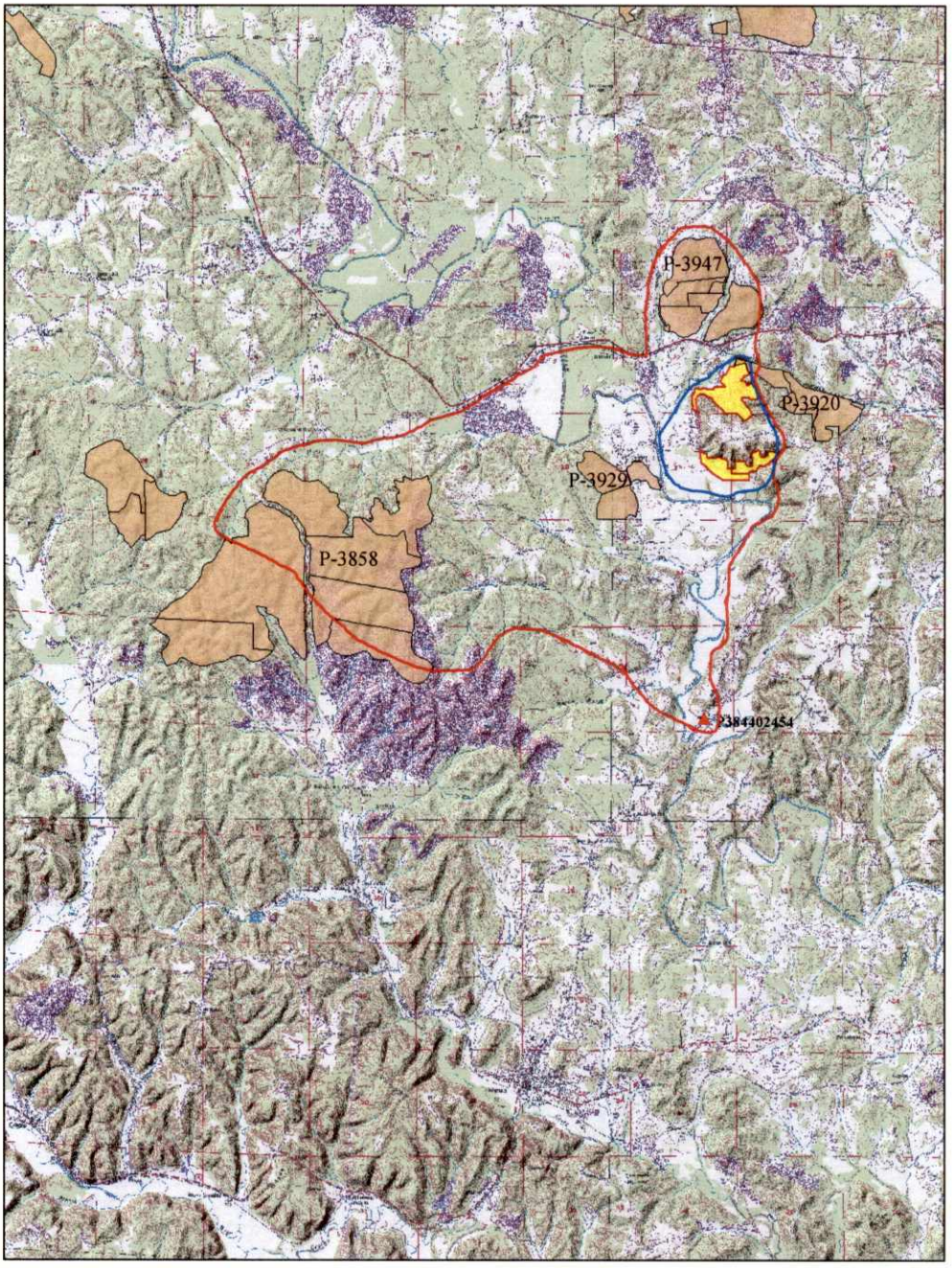
0 0.25 0.5 1 1.5 2 Miles

Base Map: USGS Shaded Relief Mosaic Map

▲ Surface Water Site

● Groundwater Site

P-3980 Map No. 2
Cumulative Impact Areas



1

Base map: USGS Shaded Relief Mosaic Map

0 0.475 0.95 1.9 2.85 3.8
Miles

Surface Water CIA

Groundwater CIA

P-3980 Permit Area

Active Permits