

EXPLORATION TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

April 1, 2009

TO: Internal File

THRU: Steve Demczak, Lead *SD by SAS*

FROM: April A. Abate, Environmental Scientist II *AAA*
4-6-09

RE: Notice of Intent to Conduct Minor Coal Exploration, Canyon Fuel Company LLC, Dugout Canyon Mine, C/007/0039 and Project # 3255

SUMMARY:

On March 23, 2009, Ark Land Company (Applicant), an Arch Coal Inc. subsidiary, submitted a Notice of Intent (NOI) to Conduct Minor Coal Exploration to the Division on behalf of Canyon Fuel Company LLC Dugout Canyon Mine.

The minor coal exploration will consist of one drill hole planned for 2009 within the Dugout Canyon Mine Permit Boundary private surface owned by Canyon Fuel Company. The coal will be leased through Utah State Coal Lease (ML-42648).

The exploration area is located approximately 20 miles NE of Wellington, Utah. The proposed exploration hole is located north of Pace Canyon and will be accessed via a county road.

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EXPLORATION TECHNICAL ANALYSIS:

COAL EXPLORATION

Regulatory Reference: R645-200.

REQUIREMENTS FOR NOTICE OF INTENTION TO CONDUCT MINOR COAL EXPLORATION

Regulatory Reference: 30 CFR 772.10; 30 CFR 772.11; R645-100-412; R645-201-200.

Analysis:

A NOI is required for an applicant with the intent to perform coal exploration activities where less than 250 tons of coal will be removed.

Findings:

The Applicant has filed a NOI application with the Division to conduct drilling activities for coal exploration from July 2009 through approximately October 31, 2009 within the existing permit area north of Pace Canyon and located in Section 14 T12S R12E. A narrative and map describing the exploration area were included in the NOI as well as the name and address of the applicant and applicant representatives. The proposed drilling activity will be via rotary rig and is estimated to remove approximately 20 pounds of coal in the form of drill cores. The applicant discusses environmental impact mitigation and reclamation procedures in the NOI. The NOI meets the requirements under R645-201-200.

COMPLIANCE DUTIES

Regulatory Reference: 30 CFR 772.13; R645-202.

OPERATIONAL STANDARDS

Regulatory Reference: 30 CFR 772.13; R645-202-100.

Analysis:

Diversions of Overland flows and streams

The Applicant has indicated that no diversions of overland flows, ephemeral, perennial, or intermittent streams will be made in association with the exploration drill

hole and that no adverse impact will occur to the stream channel during water pumping activities.

Hydrologic Balance

The Applicant states that the drill pad and the lined mud pit will be constructed in a manner that would minimize the effects of run off. The source for water to be used during drilling activities will be from Dugout Creek and hauled or pumped to the drill site either through a series of water lines and/or stored in water/frac tanks. The application does not specifically state the distance between Dugout Creek and the proposed drill site; however based on a conversation with Vicky Miller the stream is within close proximity to the proposed drill site. The applicant indicates that a berm from one to three feet high will be installed around the drill pad.

The applicant also applied for a Temporary Change of Water to the Utah Division of Water Rights for Application Nos. 91-5024 and 91-409. These application numbers represent existing water rights held by the Canyon Fuel Company LLC, the company that presently operates the Dugout Mine. Both applications were filed on April 25, 2008. The Utah state engineer approved both applications for a one-year period.

Acid- or toxic forming materials

The Applicant indicates that acid or toxic forming materials are not anticipated during drilling activities. The NOI only addresses excess drill cores exhibiting acid potential will be either "removed for off-site disposal or buried beneath four feet of cover." There is no discussion as to how drill cores will be disposed of even if they do not exhibit acid potential.

Findings:

The Applicant has indicated that no diversions of overland flows, ephemeral, perennial, or intermittent streams will be made in association with the exploration drill activities and therefore the regulations outlined in **R645-202.234** do not apply.

[**R645-202-200.235, 301-731.121**]. The applicant indicated that a one to three foot berm of subsoil will be constructed around the perimeter of the pad to ensure no runoff occurs. Given the close proximity of the stream to the drill pad area, a *minimum* berm of three feet shall be constructed around the drill pad site. The Division reserves the right to conduct a site inspection to evaluate the proximity of the drill site to the stream drainage channel to determine if any water quality impacts to the stream are possible and adequate sediment control measures are in place. Upon inspection of the site, the Division may

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require additional sediment control measures are implemented, such as hay bales or excelsior logs.

[R645-201-100.130 and 202-200.234] The approval letters issued by the Division of Water Rights included in the NOI are valid for a one-year period and are due to expire on June 17, 2009. According to the timetable submitted in the NOI, drilling activities are to commence beginning in July 2009. The Applicant should file the necessary extensions with the Division of Water Rights and provide the Division with said documentation showing that the water rights applications are valid while drilling and water pumping is occurring.

[R645-202-200.236] During drilling activities, the applicant must include in the NOI that they will have on-site with them the MSDS sheets for the drilling fluids, chemicals or other products used in drilling.

[R645-202-200.236] Because some coal samples have exhibited acid potential, the Division requests that all excess cores not used by the Applicant are disposed of at the waste rock site, regardless of their acid potential.

RECLAMATION STANDARDS

Regulatory Reference: 30 CFR 772.13; R645-202-200.

Analysis:

Boreholes

The Applicant addresses the procedures to plug the boreholes and the removal of surface casing when possible. The Applicant discusses notifying the Division prior to completion of the abandonment should the Division wish to be on site during the reclamation of the borehole.

Findings:

The application meets the reclamation standards for boreholes created during exploration outlined in R645-202.243 as well as all the associated hydrology regulations within that rule.

RECOMMENDATIONS:

The following deficiencies were found and must be addressed prior to approval of this NOI:

[R645-201-100.130 and 202-200.234] The Applicant should provide the Division with updated documents from the Division of Water Rights indicating that the Temporary Change Applications are valid during drilling and water pumping activities.

[R645-202-200.236] The Applicant must include in the NOI that they will have on-site with them the MSDS sheets for the drilling fluids, chemicals or other products used in drilling.

[R645-202-200.236] Since some coal samples have exhibited acid potential, the Division will require that all excess cores not used by the Applicant be disposed of at the waste rock site, regardless of their acid potential.

[R645-202-200.235, 301-731.121] A *minimum* berm of three feet shall be constructed around the drill pad site. Additional sediment controls may be necessary such as hay bales or excelsior logs upon inspection of the drill pad area by the Division.