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PRELIMINARY ENGINEERING REPORT

CRANDALL CANYON PROPERTY



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Genwal Coal Company is a privately owned corporation chartered in the State of Virginia and now registered to do business in the State of Utah. Genwal Coal Company is the present owner of, and proposes to mine Federal Coal Leases #SL-062648 and #SL-050655 described as follows:

Lease #SL062655 is described as the SW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 5 and the SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 6, Township 16 South Range 7 East, Salt Lake Meridian. This parcel containing 80 acres is located in Crandall Canyon off of Huntington Canyon in Emery County, Utah.

Lease #SL-050655 is described as the SE $\frac{1}{4}$ of the NW $\frac{1}{4}$ and the NE $\frac{1}{4}$ of the SE $\frac{1}{4}$ of Section 13, Township 14 South, Range 6 East, Salt Lake Meridian. This parcel contains 80 acres and is located near the East end of Electric Lake in Huntington Canyon, Emery County, Utah.

Surface ownership of these permit areas and surrounding adjacent areas is Federal and under the administration and management of the U. S. Forest Service.

These properties, located in the Wasatch Plateau area of Utah, comprise 160 acres of coal lands. Mining will be done at the Crandall Canyon property located approximately 12 miles north west of the town of Huntington, in Emery County, by way of State Highway 31. Lease #SL050655 will be relinquished providing an equivalent amount of coal can be obtained through a modification of lease #SL-062648. We have proposed this to BLM as we prefer not to have to mine #SL-050655 in its present location due to environmental restrictions. BLM, U. S. Forest Service, and U. S. G. S. have tentatively agreed to this proposal and the application is being processed. Lease #SL-062648 in Crandall Canyon has been mined in the past, but

has been inactive since the mid 1950's. Within the acreage, we have sufficient reserves to maintain a 150,000 ton per year operation for approximately 25 years. That will be our initial design criteria. If we are able to obtain more Federal Coal in the future, then we will adjust our plans to adequately exhaust further reserves in the most economically feasible manner.

The coal beds that are mined in the Wasatch Plateau area of central Utah occur in the Blackhawk Formation of Late Cretaceous Age. The Blackhawk Formation is comprised of approximately 1000 feet of gray, carbonaceous shales, siltstones, coals and thin interbedded sandstones. The coal beds generally occur in the lower part of the Blackhawk Formation. The Star Point Sandstone, a massive, cliff-forming 700-900 foot thick sandstone unit, underlies the Blackhawk Formation and its top serves as a useful lithologic landmark. The Blackhawk Formation is overlain by approximately 400 feet of the Castlegate Sandstone which is resistant and be readily identified and also used as a lithologic landmark in the Crandall Canyon area.

The formations in the central Wasatch Plateau generally dip gently (1-3 degrees) westward off the west flank of the San Rafael Swell. The regional structure attitude is broken by several north-south trending, high-angle normal faults which offset the rocks from less than ten to approximately 250 feet or more. The major faults as mapped indicate that there are no major faults occurring in the permit areas we intend to mine in Crandall Canyon.

The Bear Canyon and the Hiawatha coal seams contain the principle coal reserves on the Genwal property. U. S. G. S. records indicate the Hiawatha seam varies in thickness from six to seven feet and the Bear Canyon seam, from all outcrop data appears to be 11 feet in thickness above the old

work in the Hiawatha seam on the Crandall property. There is another five foot seam above the Bear Canyon seam which could in the future be minable. Coal analysis indicate that the Hiawatha seam averages 12,500 to 12,700 BTU/lb., 0.46% to 0.75% sulfur, 6.0% to 7.8% ash, 4.0% to 6.0% moisture. No analysis has been made of the Bear Canyon seam, but in other areas, it has generally been of higher quality than the Hiawatha coal. Several other thin, lenticular coal seams occur throughout the property, but none of them are of significant thickness or probable lateral extent to be of any economic interest.

There is also a good probability of Genwal securing further coal leases through BLM on competitive bid or through other considerations as outlined in the Federal Regulations, 43 CFR, October, 1979. The coal lands adjacent and west of the Crandall Canyon property is already delineated by BLM as a tract for further consideration as lands to be put up for competitive bid leasing. This consideration is due in part to considerable expression of interest received by BLM when expression was called for in late 1979, as per 43 CFR. There are at least six sections of adjacent land (approximately 36,000 acres) that will probably be leased by BLM in the near future. The property in Crandall Canyon provides favorable access to all of those coal lands due to environmental and geographic restrictions to access from other areas.

We have already entered the preliminary construction phase as we meet all legal requirements to do business in the State of Utah. All agencies which control and regulate business and taxes in Utah have been contacted and the necessary forms filed. We have also met with all the state and federal regulatory agencies, having concern with the development and operation of an underground coal mine. We are in the process of making submittals

and gathering data for the necessary permits and authorization to begin construction and to mine coal.

Our construction phase will involve, first, the construction of a bridge across the Huntington River. This bridge will be of a type approved by the Utah Department of Transportation and the U. S. Forest Service, and be of a suitable load bearing capacity as to meet our requirements. Design of this bridge will be detailed in the Engineering Report and Specifications of our construction phase and of a size approximately 12 feet wide by 30 feet long.

Secondly, our constructing phase will involve the widening to approximately 20 feet and building-up the road and the creation of a level area near the mine portals. This area will be necessary for stockpiling and loading coal and for the location of any other surface facilities we will need. The approximate size of this load-out area is 6.2 acres and the approximate area is indicated on "Preliminary Map A", submitted with this report.

The third part of our construction phase will be to construct two sedimentation ponds. These will be of complete containment type and of a size to be later determined from final engineering estimates of the total disturbed surface area and capacity capability to withhold a 100 year storm. The area which we propose to locate these ponds is indicated on "Preliminary Map A", submitted with this report.

During this construction phase a chemical toilet will be provided for workmen. A chemical disinfectant hand cleaner and bottled water will also be provided. All scrap and waste materials will be hauled from the property and disposed of at the Emery County Sanitary Landfill. We do not anticipate the use of any toxic substances during construction. No surface

area will be needed for storage during this phase of our operation as we anticipate no use of materials needing to be stored at the project site. State law does not permit the movement of any earth materials or debris into a stream such as Crandall Creek and we will certainly abide by such laws. Neither do we anticipate the discharge of water into Crandall Creek from our construction areas during our operations. Hopefully this also will avoid any pollution of Crandall Creek.

As we begin mining operations, the only permanent facility located at the newly created load-out area will be a stockpile with a base diameter of approximately 50'x10' feet and height of 25' feet with a capacity of 3000 tons. This stockpile would be at a capacity for 6 days of loadout operations should difficulties be encountered in our mining operation. All other surface facilities (office, power generating unit, truck scale) will be of a mobile type.

Our first actual underground operations will consist of widening the existing entries which will be used by our haulage equipment. Some of these entries are only eight to ten feet wide in the old works and will have to be widened to about 20 feet. We will also have to break two more entries from the old works to the outside so we can properly ventilate our working sections in the mine. While doing this a portable face fan will be used to ventilate the faces. Once these new entry are broken to the outside, a permanent fan will be installed as per the drawing on "Preliminary Map B". Once a permanent fan installation has been made, we will proceed to develop the mine using the room and pillar method. Entry widths of 20 feet and on 100 foot centers, leaving pillars of 80 feet by 80 feet are anticipated dimensions. During development we will use an underground work crew of nine persons and one person will be permanently stationed at the

surface area of the mine for communication purposes as required by federal law.

Coal will be mined with a continuous mining machine and loaded from the face area to the conveyor belt loading point at a 400-450 foot maximum haul with 13 ton capacity diesel powered haulage units. Mechanical ventilation will be provided and water sprays will be used for dust abatement. Mechanical roofbolts will be used during mining cycle to support known areas of bad roof. Coal will be transported by conveyor belt out of the mine and stored on the ground in the stockpile area and then loaded with front-end loaders into tandem trucks. These trucks will probably be trucks with a semi-trailer and a full trailer with each having a capacity of 20 tons, and an axel weight of 22,000 lbs. We anticipate loading approximately 500 tons per day in this manner which will require 12 trucks per day and will be equivalent to 36 vehicular miles per day and 8640 vehicular miles per year. The length of the haul road from the truck loading area to the highway is one and a half miles. The road will probably be graded dirt road, pending U. S. Forest Service approval. Water will be sprinkled on the road as necessary for dust abatement. We anticipate no discharge of water from this mine as our preliminary geologic data indicates the mine will probably not make very much water, and initially we anticipate hauling in water for use in our underground operations. Water has been leased from the North Emery Water Users Association and will be diverted by means of a metered pumping station in either Crandall Creek or Huntington Creek. It will then be stored in a sump area of the old works area underground. This water will not be used for culinary or drinking puposes, but for fire suppression and dust allayment only. We are obtaining furthur groundwater and hydrologic information from the

U. S. G. S. and will forward this into the Utah Bureau of Water Pollution as it is received by us.

Power for operation will come from a mobil diesel powered generating unit of approximately 750 KVA capacity. A diesel fuel storage tank of approximately 3000 gallons capacity will be located near the unit. We estimate burning 150 gallons of diesel fuel per day for our power generation.

As stated previously we anticipate that the mine will not make enough water that it will hinder our operation. We do not anticipate having to pump water from the mine and discharging it out through the mine portal. We will contact the Utah Bureau of Water Pollution immediately if we later determine that we will have to discharge water. This will be done prior to any actual discharge of water. We will not drill a well or use a public water system for drinking and culinary water during our operational phase. We will continue to use bottled water for these purposes. For handwashing, a disinfectant chemical hand cleaner will be provided and disposable towels will be made available. Portable chemical toilets will be provided underground and on the surface. The smaller units underground will be emptied into the larger unit of the surface. The larger unit on the surface will be a leased unit and will be pumped out into a tank truck on a regularly scheduled basis, according to the terms of the lease, by the leasing company. As for solid waste disposal and salvage, these materials will be stored in a bin on the surface and trucked to the Emery County Sanitary Landfill on a weekly or bi-weekly basis. Waste oils and lubricants will be picked up at the mine by an individual who will buy the oil to pass it through a reclaiming operation. Disposal of toxic substances will not pose a problem as we do not anticipate the use of any toxic substances during our

operational phase. We do not anticipate needing any surface storage area during our operational phase, but if this changes, we will immediately contact the Utah Bureau of Solid Waste Management.

As requested by the Utah Bureau of Radiation and Occupational Health, we will sample the coal for radiation and any mine water we encounter for any toxic substances or contaminants. Also, all underground work procedures and mining methods will be in strict accordance with all applicable State of Utah and Federal Government Regulations as required by state and federal laws.