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Sunnyside Coal Company

Operations • Highway 123 • P.O. Box 99 • Sunnyside, Utah 84539

April 15, 1991

Pamela Grubaugh-Littig
Permit Supervisor
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Dear Ms. Grubaugh-Littig:

Re: Environmental Power Corporation Cogeneration Project

Enclosed for your information is a copy of Sunnyside Coal Company's letter to Environmental Power Corporation on April 10, 1991, pertaining to construction on Sunnyside Coal Company's permit area.

Sunnyside Coal Company will promptly provide the Division with any future plans concerning the cogeneration project on our permitted area and would appreciate the Division providing Sunnyside Coal Company with any newly submitted information from other companies concerning the cogeneration project on our permitted site.

If you have any questions please feel free to call me.

Sincerely,

Karl R. Houskeeper

Karl R. Houskeeper
Environmental Coordinator

KRH:dp

Enclosure

cc: Joe Fielder
Gary Gray
Ken Oldham

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APR 18 1991
DIVISION OF
OIL GAS & MINING

Corporate Offices
The Registry
1113 Spruce Street
Boulder, CO 80302
303-938-1506
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Sales Office
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Suite 350
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303-534-3348
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West Coast Division
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Fairfield, CA 94533
707-425-4506

Operations
Highway 123
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Sunnyside, UT 84539
801-888-4421
FAX: 801-888-2581

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April 11, 1991

Mr. Robert E. (Ed) Barton, P.E.
Environmental Power Corporation
2920 N. Academy Boulevard, Suite 201
Colorado Springs, Colorado 80917

Dear Mr. Barton:

Enclosed are copies of the written plans concerning the refuse disposal areas in the existing permit and new permit application.

Our understanding with DOGM is that the proposed cogeneration plan site is within our permit area, and no work may be done within that area without prior DOGM approval of operating and reclamation plans for that specific area.

The attempt in previous years to remove the site from our permit is no longer effective or has been nullified. I am not clear in my understanding of the situation. Please let's get together and discuss your plans and work out the conflicts before any dirt work is done.

Sincerely,

Gary E. Gray
Chief Engineer

GEG:th

Enclosures

cc: Joe Fielder
Ken Oldham

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All surface drainage from the areas above the slurry ponds is diverted away from the embankments by diversion ditches designed to carry the peak runoff from a 100-year, 24-hour precipitation event (Plate III-24, Appendix III-1). The diversions will be maintained to prevent blockage.

Visual inspections by a qualified registered professional engineer or someone under the supervision of a qualified registered professional engineer will be conducted on a weekly basis to assess the stability of the impoundments and determine the amount of seepage, if any. Piezometers installed 8/6/85, in the East Slurry Cell embankment will be monitored weekly when water is present in the structure to access the amount of embankment saturation, if any. Records of the inspection findings and recommendations will be maintained at the mine site. If the inspection discloses that potential hazards exist, the Division will be informed promptly of the findings, the emergency procedures formulated for public protection, and remedial action measures that will be implemented.

Maintenance of the embankments will consist of filling and grading any erosion or other failure features discovered by the above inspections.

Subsidence is not expected to affect the ponds and embankments since the structures do not overlie the coal seam and are located several miles west of the nearest outcrop. Mudflows, rock debris falls or other landslides are not expected to be a problem because the embankments are located at or above the level of the surrounding topography. Possibility of failure downhill of the embankments is limited to a thin layer of colluvial material on bedrock. Failure of this material would not threaten the embankments.

Reclamation of the East Slurry Cell should pose little or no problem because of potentially saturated slurry material. Past experience has shown that vehicles can travel over the pond surface after the pond has dried for a year. The period of time before reclamation can take place could be shortened by dewatering the slurry with a trench and pump system.

(b) Coarse refuse

Coarse refuse or reject materials from the preparation plant are disposed of in a waste bank. The refuse is hauled by truck from the refuse loadout at the preparation plant to the coarse refuse pile (Plate III-1) where it is end dumped in piles. When sufficient material has been hauled to the dump, the refuse is spread out in a 24-inch horizontal layer by a large dozer. Loaded haul trucks transporting the next layer of refuse randomly compact the layer surface to prevent fires and increase the

stability of the structure. The outer slope of the refuse pile is maintained at a 27 degree slope (see Plate III-5). At 50 feet vertical increments, a 20-foot wide terrace is constructed for water runoff and erosion control.

Refuse material from activities located outside the permit area will be disposed of in the waste bank only if approval is obtained from the Division. There are no plans for outside waste disposal.

Construction of the coarse refuse pile will continue as outlined above. Layering of the pile and compaction has been designed to achieve structural stability and to prevent fires. The material is compacted to attain at least 90 percent of the maximum dry density. Within 60 days of permit approval, Kaiser Coal Corporation will provide the Division with ASSHTO T99-74 test results on maximum dry compaction. If inplace compaction does not meet the 90% of maximum dry density standard, then Kaiser will compact the remaining lifts with standard vibratory roller compacting equipment. Construction of the pile was started in 1977 before enactment of the present regulations. As a result, the subdrainage system required by UMC 817.83(a)(1) was not incorporated in the design; however, a 24-inch perforated culvert was placed in the drainage bottom to collect ground water seepage. Geotechnical stability and certification studies have been conducted (see Appendix III-7) to prove the adequacy of the alternate method of construction. The study shows a long-term static factor of safety of 2.31.

All surface drainage from the area above the waste bank and from the crest and face of the final structure will be diverted away from the fill into stabilized diversion channels designed to pass safely the runoff from a 100-year, 24-hour precipitation event. A plan view of the diversion ditches are found on Plate III-27. Calculations are found in Appendix III-1. Drainage culverts (C2-C6) will be installed within 6 months of permit approval.

After construction of the waste bank, the surface will be covered with a minimum of 4-feet of the best available non-toxic and non-combustible material. Borrow material from the current borrow pits will be used. Vegetation will be planted to minimize surface erosion at the site (see Section 3.5). Test plots are being used to determine the minimum depth of soil material needed to revegetate the refuse pile (see Section 3.5). If less material can be used as indicated by the test plot results, the operator will request that the 4-feet minimum amount of cover be reduced to the amount indicated by the testing and the bond accordingly reduced.

Present discharge of water from the toe of the waste bank meets current Division standards. In the past, some samples, after large precipitation events, have exceeded the total iron standards of UMC 817.42 of 7.0 milligrams per liter. During periods of high iron discharge, a polymer floculent and straw bale filter is used to remove the iron from suspension.

The coarse refuse pile will be inspected on a quarterly basis by a qualified, registered engineer or other qualified person for slopes, seepage, and other visable factors which could indicate potential failure. The results of the inspections will be recorded and maintained at the mine site. If any inspection discloses that a potential hazard exists, the Division will be informed of the findings and of the emergency procedures formulated for public protection and remedial action.

Maintenance of the embankments will consist of filling and grading any erosion or other failure features discovered by the above inspections. Ditches on the terraces will be cleaned and graded as need warrants. Rip rap in the drainage system will be repaired as needed.

Subsidence is not expected to affect the refuse pile as the structure does not overlie the coal seam and is several miles west of the nearest outcrop. Mudflows, rock debries falls or other landslides are not expected to be a problem. Possibility of failure near the sides and downhill of the refuse piles is limited to a thin layer of coluvial material on bedrock. Failure of this material would not threaten the refuse pile.

(c) Return of coal processing waste to abandoned underground workings: No coal processing waste disposal facility is proposed to return waste to abandoned underground workings. In the late 1950's and early 1960's a backfill plant was constructed to crush a portion of the preparation plant reject and pump the reject underground to fill air courses that were no longer needed and to fill voids above yieldable arch installations. Approximately 700,000 tons of material were pumped underground. The backfill equipment (crushers, screens, rod mill, pumps, etc.) have been removed and the building is now used as a warehouse for preparation plant equipment and materials. The backfilling was done to stabilize main access and ventilation entries and to reduce the occurrence of bumps in such areas.

(d) Underground development waste: The bulk of underground development waste generated by the mining operation at Sunnyside Mines is disposed of in mined-out areas underground. Before disposal each geological horizon will be tested for SAR, pH, boron, and acid-base potential. If adverse levels of SAR, pH, boron or acid-base potential are found, the rock will be mixed with other waste rock to achieve acceptable levels of acidity or toxicity. Adverse levels in SAR, pH, boron and acid-base potential are defined as, SAR values greater than 10, pH less than 5 or greater than 9, boron greater than 5 PPM, and acid base potential less than -5 tons $CaCO_3$ equivalent per 1000 tons material. If all the rock to be disposed shows unacceptable levels of acidity or toxicity the rock will be disposed in an area that will be hydrologically isolated from the rest of the mine with solid block seals or it will be disposed in the coarse refuse pile along with the coal processing waste. There is no separate disposal structure for the underground development waste on the surface. Prior to mine disposal of development waste material that exhibits acid or toxic drainage characteristics the operator will submit a map to the Division showing where the material will be placed and the locations of the block seals.

The percent of mine voids to be filled with underground development waste will not exceed 0.02% of areas mined. Before waste is disposed of underground, Kaiser Coal Corporation will submit a plan to the Division and MSHA for approval showing specific areas and plans for disposal.

(e) Toxic or acid-forming materials:

The refuse pile located at the Sunnyside Mines has shown indications of toxic material. If all the rock to be disposed shows unacceptable levels of acidity or toxicity, the rock will be disposed in an area the will by hydrologically isolated from the rest of the mine with soild block seals or it will be disposed in the coarse refuse pile along with the coal processing waste. There is no separate disposal structure for the underground development waste on the surface. Prior to mine disposal of development waste material that exhibits acid or toxic drainage characteristics, the operator will submit a map to the Division showing where the material will be placed and the locations of the block seals.

Soil conditions encountered during installation of three piezometers showed that the coarse refuse material in the embankment was not saturated.

All surface drainage from the areas above the slurry ponds is diverted away from the embankments by diversion ditches designed to carry the peak runoff from 100-year, 24-hour precipitation event (Plate 5-1, Appendix 5-1). The diversions will be maintained to prevent blockage.

Visual inspections by a qualified registered professional engineer or a qualified MSHA impoundment inspector will be conducted according to 30 CFR 77.216-3 to assess the stability of the impoundments and determine the amount of seepage, if any. Piezometers installed 8/6/85, in the East Slurry Cell embankment will be monitored weekly when water is present in the structure to access the amount of embankment saturation, if any. Records of the inspection finding and recommendations will by maintained at the mine site. If the inspection discloses that potential hazards exist, the Division will be informed promptly of the findings, the emergency procedures formulated for public protection, and remedial action measures that will be implemented.

Maintenance of the embankments will consist of filling and grading any erosion or other failure features discovered by the above inspections.

Subsidence will not affect the pond and embankments since the structures do not overlie the coal seam and are located several miles west of the nearest outcrop. Mudflows, rock debris falls or other landslides are not expected to be a problem because the embankments are located at or above the level of the surrounding topography. Possibility of failure downhill of the embankments is limited to a thin layer of colluvial material on bedrock. Failure of this material would not threaten the embankments.

(b) Coarse refuse

Coarse refuse or reject materials from the preparation plant are disposed of in a waste bank. The refuse is hauled by truck from the refuse loadout at the preparation plant to the coarse refuse pile (Plate 7-4, (1-3)) where it is end dumped in piles. When sufficient material has been hauled to the dump, the refuse is spread out in a 24-inch horizontal layer by a large dozer. Loaded haul trucks transporting the next layer of refuse randomly compact the layer surface to prevent fire and increase the stability of the structure. The outer slope of the refuse pile is maintained at 27 degree slope. At 50 feet vertical increments, a 20-foot wide terrace is constructed for water runoff and erosion control.

Refuse material from activities located outside the permit

area will be disposed of in the waste bank only if approval is obtained from the Division. There are no plans for outside waste disposal.

Construction of the coarse refuse pile will continue as outlined above. Layering of the pile and compaction has been designed to achieve structural stability and to prevent fires. The material is compacted to attain at least 90 percent of the maximum dry density. Construction of the pile was started in 1977 before enactment of the present regulations. As a result, the subdrainage system required was not incorporated in the design; however, a 24-inch perforated culvert was placed in the drainage bottom to collect ground water seepage. Geotechnical stability and certification studies have been conducted (see Appendix 5-2) to prove the adequacy of the alternate method of construction. The study shows a long-term static factor of safety of 2.31.

All surface drainage from the area above the waste bank and from the crest and face of the final structure will be diverted away from the fill into stabilized diversion channels designed to pass safely the runoff from a 100-year, 24-hour precipitation event. A plan view of the diversion ditches are found on Plate 7-8. Calculations are found in Appendix 5-1.

Present discharge of water from the toe of the waste bank meets current Division standards. In the past, some samples, after large precipitation events, have exceeded the total iron standards of 7.0 milligrams per liter. During periods of high iron discharge, a polymer flocculent and straw bale filter is used to remove the iron from suspension.

The coarse refuse pile will be inspected on a quarterly basis by a qualified, registered engineer or other qualified person for slopes, seepage, and other visible factors which could indicate potential failure. The results of the inspections will be recorded and maintained at the mine site. If any inspection discloses that a potential hazard exists, the Division will be informed of the findings and of the emergency procedures formulated for public protection and remedial action.

Maintenance of the embankments will consist of filling and grading any erosion or other failure features discovered by the above inspections. Ditches on the terraces will be cleaned and graded as need warrants. Riprap in the drainage system will be repaired as needed.

Subsidence will not affect the refuse pile as the structure does not overlie the coal seam and is several miles west of the nearest outcrop. Mudflows, rock debris falls, or other landslides are not expected to be a problem. Possibility of failure near the sides and downhill of the refuse piles is limited to a thin layer of colluvial material on bedrock. Failure of this material would not threaten the refuse pile.

(c) Underground development waste is minimal presently and no large projects are planned for the future (such as air shafts, rock tunnels, large underground bunkers, etc.). The insignificant amounts from overcasts, undercasts, and entry grading is loaded onto the belt haulage system and treated as raw coal production since some coal is part of the material. The waste material then becomes part of the coal processing waste.

(d) Industrial waste: Non-coal waste is disposed in the Sunnyside City Landfill or the industrial waste dump. Material place in the industrial waste dump is primarily from the rotary breaker such as timbers, cans, rock, or other non-coal waste that comes out on the mine belt. All other non-coal waste (office garbage, etc.) is sent to the Sunnyside City Landfill for disposal.

A temporary non-coal industrial waste gathering area in No. 2 Canyon is used to facilitate the final disposal of the non-coal waste to the Carbon County Landfill or the industrial waste dump.

The industrial waste dump has been approved by the State Board of Health (Figure 7-4). It is located at the northeast end of the East and West Slurry Ponds in the refuse disposal area (Plate 7-4, (1-3)). The dump was constructed and is used by excavating a trench, compacting the sides and bottom for a water barrier, and then covering the waste with a minimum of two feet of borrow material.

A major impoundment is Grassy Trail Reservoir (W3a and W3b) which is formed by the Whitmore Canyon Dam and is used to store culinary water for the City of Sunnyside and the City of East Carbon as well as the facilities of Sunnyside Coal Company. This was constructed in 1952 and was designed by Templeton, Linke, and Associates and Company.

The Whitmore Canyon Dam is routinely maintained. Vegetative growth is cut where necessary to facilitate inspection and repairs. Inspections are conducted as frequently as daily by qualified personnel. A yearly inspection of the dam is conducted by a