

May 19, 2003

TO: Internal Files

THRU: Priscilla W. Burton, Sr. Reclamation Specialist/Soils, Team Lead

FROM: Jerriann Ernstsens, PhD, Biologist

RE: Star Point Waste Fuel Mine, Sunnyside Cogeneration Associates, Star Point Waste Fuel Mine, C/007/042-PM02A-1

SUMMARY:

The Division received a permit application for the Star Point Waste Fuel Mine (SPWFM) on April 1, 2002. On June 24, 2002, the Division determined the application for the SPWFM to be Administratively Complete. Sunnyside Cogeneration Associates (SCA) submitted a revised permit application on September 23, 2002 for the coal refuse/waste fuel site located in Sage Brush Canyon. This memo reviews the biology section for the second round of this revised application.

SCA acquired the coal refuse site from Cyprus Plateau Mining Corporation (CPMC). SPWFM plans to remove the coal refuse material and haul it for use at the SCA power generation plant at Sunnyside, Utah. Once the refuse material is removed, the stockpiled growth media will be moved to the refuse site, and the site will be recontoured and revegetated. The site where the growth media is currently stockpiled will be recontoured and revegetated. Both sites will be measured for success using the sagebrush community reference area.

After reviewing the current permit application, there are deficiencies and the application should not be approved until all deficiencies noted in this Technical Analysis have been addressed.

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TECHNICAL ANALYSIS:

Analysis:

Data collected for the Star Point Mine permit area have been collected over several years by different biologist primarily from Endangered Plant Studies, Inc. (EPS). Most of the data was collected during and after 1981. Doctors Welsh and Murdock of EPS conducted the productivity analysis in 1981.

The data in this permit may have been recompiled by PSOMAS or directly taken from aerial photos, field visits, and Endangered Plant Studies, Inc. (EPS) studies.

Findings:

Information provided in the application meets the minimum "Reporting of Technical Data" requirements of the regulations.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.19; R645-301-320.

Analysis:

The undisturbed vegetative resources of the permit and disturbed areas are minimal because of the previous Plateau Mining Corporation (PMC) operations. The coal refuse material was stockpiled by PMC. The Star Point Waste Fuel Mine (SPWFM) plans to remove the refuse material and haul it for use at the Sunnyside Cogeneration Associates (SCA) power generation plant at Sunnyside, Utah. Once the refuse material is removed, the stockpiled growth media will be moved to the refuse site, and the site will be recontoured and revegetated. The site where the growth media is currently stockpiled will be recontoured and revegetated.

The Permit Application describes the approximate vegetative resources of the permit and disturbed areas by referencing Tables 321.100a and 321.100b as well as Appendix Map Section 300. Below are the required descriptions, in brief, and associated maps and tables:

- Probable community types present within the SPWFM permit area and surrounding area before disturbance (Map 321.100a; PSOMAS recompiled from EPS data).
- Estimated acreage for each of the communities present within the SPWFM permit area before disturbance (Table 321.100a; PSOMAS).
- Probable communities disturbed, by PMC, within the SPWFM permit area (Map 321.100b; PSOMAS recompiled from EPS data). The map shows pre- and post-SMCRA disturbance.

- Estimated acreage for each of the communities disturbed, by PMC, within the SPWFM permit area (Table 321.100b).

Descriptions of plant community definitions were provided by EPS. The Permittee describes mountain shrub, pinyon-juniper, sagebrush, and saltbrush communities. The sagebrush community is dominated by two varieties of sage: *Artemisia tridentata tridentata* (valley big sage) and *Artemisia tridentata wyomingensis* (Wyoming sagebrush). This community type will be used to measure revegetation success for the areas disturbed by mining operations. The refuse pile was evaluated by EPS as primarily a sagebrush community. There is approximately fifty-four disturbed acres in the SPWFM permit area that is designated as sagebrush community.

The mountain shrub community is dominated by taller shrubs with *Amelanchier utahensis* (Utah serviceberry), *Cercocarpus montanus* (true mountain mahogany), and *Symphoricarpos oreophilus* (snowberry) as the dominant species. There is approximately eleven disturbed acres in the SPWFM permit area that is designated as mountain shrub community. The pinyon pine (*Pinus edulis*) - Utah juniper (*Juniperus osteosperma*) community is dominated by low growing trees and shrubs with very few herbaceous plants in the understory. The growth media stockpile was evaluated by EPS as primarily a pinyon-juniper community. There is approximately twenty disturbed acres in the SPWFM permit area that is designated as pinyon-juniper community. Shrubs and drought tolerant grasses and forbs dominate the saltbrush community. In the SPWFM permit area, there is only 0.2 acres of this community type and this area has not been disturbed.

Descriptions of productivity for nearby sagebrush and pinyon-juniper communities were provided by EPS. Both community types were rated in 1981 as fair. The pinyon-juniper community areas were measured as producing 1,115 pounds of potential forage with a potential of producing up to 1,650 pounds per acre. The sagebrush areas were measured as producing 1,400 pounds of potential forage with a potential of producing up to 2,000 pounds per acre.

Findings:

Information provided in the application is considered adequate to meet the minimum Vegetation Information section of the Regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.21; R645-301-322.

Analysis:

Utah Division of Wildlife Resources (DWR) has conducted wildlife surveys since 1981. There are two plant and eight animal species in the Carbon county area noted on Utah's federally

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threatened, endangered, or candidate species list. DWR evaluated the SPWFM site and found that there were no endangered or threatened species in the permit area. DWR also conducted surveys to evaluate the potential for special status species present in the SPWFM area. Canyon sweetvetch (*Hedysarum occidentale* var *canone*), Unitah Basin hookless cactus (*Sclerocactus glaucus*), and Graham beardtongue (*Penstemon grahamii*) were the three plant species of interest. Canyon sweetvetch was reported as occurring in adjacent lands, but rated as low probability of occurring at the permit site. Unitah Basin hookless cactus and Graham beardtongue were reported as not occurring and rated as low probability of occurring at the permit area.

Findings:

Information provided in the application is considered adequate to meet the minimum Fish and Wildlife Resource Information requirements of the Regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Vegetation Reference Area Maps

The location and boundary line of the reference area are shown on Map 321.100c.

Findings:

Information provided in the application is considered adequate to meet the minimum Map Information section of the regulations for Environmental Information.

OPERATION PLAN

VEGETATION

Regulatory Reference: R645-301-330, -301-331, -301-332.

Analysis:

SCA reports mining operations will consist of removing the refuse pile and transporting it to the SCA power plant in Sunnyside, Utah. SCA commits to keeping disturbance to areas or

facilities related to refuse pile removal, subsoil stockpile, and environmental-related duties. The Permittee plans to apply interim seed mix on temporary disturbances throughout the mining operations.

SCA reports that there is no expectancy of subsidence during this mining project.

Findings:

Information provided in the application is considered adequate to meet the minimum Vegetation Information section of the regulations for Operation Plan.

RECLAMATION PLAN

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

Analysis:

The Permittee refers to Section 353 for details concerning enhancement measures for terrestrial habitat development during reclamation and postmining phases of operation (342.100) as well as for details on vegetation criteria (342.200).

On raptor electrocution precautions, SCA states that power lines constructed by CPMC since 1977 are “raptor-proof”. It is unclear whether SCA declares power lines in the permit area raptor safe because of “current” power line design or because raptors choose to perch on trees outside the permit area. The Permittee supports their declaration of safety on a USFWS report of no sightings of droppings or electrocuted birds under CPMC lines and on a 1981 UDWR inspection of CPMC power lines.

During a meeting on January 8, 2003, the Permittee stated the following:

- There is no electrical power directed to the power lines remaining on the property.
- There is no electrical power directed to any of the outbuildings.
- The county owns all electrical power substations.

In addition to the points discussed at the meeting, the MRP states that they do not own or operate power lines in or near the permit area (pg. 28).

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On water quality concerns, SCA will continue to monitor water quality and quantity of streams and ponds. The mine operator commits to providing fencing protection for wildlife from toxic materials that may be found in ponds. If water quality is compromised by mining operations or reclamation practices, research will be conducted to assess impacts and guide mitigation efforts.

Section 330 also briefly discusses threatened, endangered, and special interest plant and animal species as well as large mammal migratory passages. The mine operator commits to contact the Division if sensitive species are sighted at the permit area. A proposition to educate employees on the values of wildlife and critical seasons to wildlife is included (333; pg 300-29), although, specifics of an educational program are not provided. For large mammals, SCA agrees to provide passages if migratory paths are blocked by mining operations or structures.

Findings:

The information provided meets the Fish and Wildlife Reclamation requirements of the Regulations.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Revegetation: General Requirements

Proposed plant species and associated application rates are provided in Tables 341.210a and b. There are two seed mix lists – one is the final reclamation species list and the other is the interim species list. These lists also provide proposed seeding rates in pounds of pure live seed (PLS) per acre and number of PLS per square foot. Application rate for the final seed mix is 50.5 PLS per acre, which provides 141.66 PLS per square foot. Application rate for the interim seed mix is 15.1 PLS per acre, which provides 50.21 PLS per square foot.

For the final reclamation, the Division suggests planting container (bareroot or tublings) plants of the shrub species listed in the final seed mix. These transplants could be primarily planted on areas that are commonly difficult for seed to germinate e.g., steep slopes, southern exposures and extremely windy sites. Incorporation of the transplants in the planting method will contribute to soil stabilization (353.140) and to wildlife habitat enhancement (342.100).

The primary planting method will be broadcast seeding. Drill seeding, at half the broadcast rate, may also be used if conditions require. Drill seeding will decrease surface roughness.

Revegetation: Timing

Schedules are provided (Table 341.100a) that describe major reclamation scenarios (542.100) and revegetation strategies. The revegetation schedule proposes that the entire process from plant specifications and seed ordering to planting and mulching may require up to 7-8 months. SCA proposes that seeding will take place anytime after September 15th.

Revegetation: Mulching and Other Soil Stabilizing Practices

The MRP states that up to two tons per acre of Utah certified noxious weed free hay or straw will be incorporated into the previously gouged growth media. The area will most likely be hydroseeded. This hydroseeding will also include 500 pounds per acre of wood fiber hydromulch and 60 pounds per acre of tackifier. (pg. 300-34). Erosion netting may be used in certain areas if necessary.

The Permittee must commit to using the best reclamation technology currently known. At this time, the best technology commonly used is the application of straw or hay for erosion control at a rate of 1 to 2 ton per acre and hydromulch at a rate of 0.5 to 1 ton per acre. The Permittee has reduced the amount of straw/hay and hydromulch by half that recommended by the Division. Furthermore, the Permittee planned to use less than the recommended amount of tackifier. The Permittee may be following manufacturing guidelines for the tackifier, which supersede the Divisions recommendations. The MRP must clearly describe the reason for the decreased rate by referencing the manufacture, product name, and recommended rate, or follow the Division's recommendations for tackifier. (R645-301-333).

No irrigation is planned for this reclamation project.

Revegetation: Standards For Success

Revegetation/Cover: The Permittee's goal is to provide diversity, cover, woody species density, and productivity on all disturbed sites within their permit area. Vegetative cover of the refuse pile (sagebrush community) and growth media stockpile (pinyon-juniper) areas will be compared to the reference area for the success standards. The postmining land uses for these areas are livestock grazing and wildlife habitat. A seed mix that has 19 representative species from grass, forb, and shrub growth habits should provide vegetative cover (Table 341.210a). The seed mix contains four and one native plant species found in the sagebrush and pinyon-juniper communities within the CPMC permit area, respectively. SCA's seed mix selection was based on the success of researched reclamation and succession studies. SCA states that the selected seed mix will provide soil stabilization and cover that is equal or greater than the reference area.

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Revegetation/Species Selection: The species selected will be compatible with the postmining land use and surrounding biota. SCA states that the planting distribution will maximize edge effects, cover, and other benefits to wildlife. Primary considerations of SCA are to provide rapid establishment and soil stabilization. The interim seed mix contains introduced species, while the longer-term seed mix contains natives of the region. None of the species in either mixes are listed on the Utah Noxious Weed Act. The Division recommended deleting nitrogen fertilizer and favored inclusion of nitrogen fixing species in the seed mix (PM02A deficiency written under R645-301-243). The Permittee has changed the long-term seed mix. The updated long-term seed mix contains a high nitrogen fixer - northern sweet vetch and two low nitrogen fixers - mountain mahogany and antelope bitterbrush.

Revegetation/Timing: Revegetation procedures will be scheduled to seed in the fall after September 15th unless weather prevents access to the sites. No temporary cover crops will be applied.

Revegetation/Mulching: Mulching type and procedure is addressed in sections 242, 244 and 341.230. These sections describe the possible placement of hay or straw mulch at a rate of up to 2 tons/acre and incorporation of the mulch with gouging. The MRP must decisively state a plan for the use of straw/hay, tackifier, or other suitable related materials in adequate proportions (see R645-301-333).

Revegetation/Success Standards/Sampling: The Permittee will use a single reference area that is identified as a sagebrush-community type for both the refuse pile and subsoil stockpile. The Permittee will conduct qualitative assessment yearly and quantitative testing following an OGM authorized schedule. Standards for success will be tested at the 90% confidence level with a 10% change in the mean. SCA will measure woody species density based on the number of plants instead of the number of stems, which follows the Division's "Vegetation Guidelines". The Permittee will sample the reclaimed sites for cover and woody species density in years four, six, eight, nine, and ten following replanting. The Permittee will sample for diversity in years four, six, nine, and ten, and sample for productivity in years five, nine, and ten following replanting.

Revegetation/Success Standards: SCA delineated disturbances into pre-, post-SMCRA, and CPMC reclaimed categories. The Permittee states revegetation of the mine site has been mapped (Maps 341.220a and b) according to the Bonding Scenario Reclamation and the final Reclamation (sec. 356.200). Standards for success that quantify cover, woody species diversity, and productivity for all three categories will be compared to the sagebrush community-type reference area. One exception is that productivity for pre-SMCRA will be compared to the estimates provided by National Resource Conservation Service. Woody species density for all three categories will be compared to the standard of 2000 plant per acre.

For areas disturbed post-SMCRA, revegetation success will be based on the effectiveness of the plants for grazing and wildlife habitat. For areas disturbed pre-SMCRA and redisturbed

post-SMCRA, success will be based on the effectiveness of the plants to control erosion and on the percent cover compared to the area pre-redisturbance.

In 1981, the sagebrush community reference area was chosen to represent the overall standard for success. Other community types were removed as classified reference areas. Even though the growth media stockpile is in a pinyon-juniper community, the sagebrush reference area will still be used to evaluate success. CPMC removed the pinyon-juniper community type as a reference area because of low cover and species diversity.

Map 321.100c provides the sagebrush reference area location. The owner of the property will not fence off the reference area or post signs. The owner believes that fencing and signs would divert attention to the site, which may increase vandalism to the site.

T-posts currently mark the reference area. The area is flanked by two roads. One well traveled road leading to the subsoil stockpile and the other an unmaintained BLM road leading to an unknown destination. On a site visit (December 2, 2002), the reference area T-posts were partially buried. The reference area had also been disturbed by vehicles repeatedly driving over the southwest corner. The Division recommends protecting the area especially because the area is difficult to protect using the current method (T-posts). The Division may request to reassign a different site in order to provide an adequate reference area.

Sampling techniques and analysis procedures from year 1981-1990 are provided for the sagebrush community predisturbance and reference areas. Results show that there was no significant difference between the two areas.

Revegetation/Liability Period: SCA will be responsible for successful vegetation for a minimum of 10 years following the seeding of the disturbed areas. Husbandry practices approved by the Division will be applied as needed.

Findings:

Information provided in the application is adequate to meet the minimum Reclamation Plan Revegetation Performance Standard requirements of the regulations. .

RECOMMENDATION

The application should be approved.