1792 (040)
WYW39400
Jim Bridger Flue Pond
Expansion EA

PacifiCorp

Jim Bridger Power Plant

Flue Pond Expansion

March 8, 2002

Dear Reader:

Attached is a copy of the PacifiCorp Jim Bridger Power Plant Flue Pond Expansion Environmental Assessment. PacifiCorp notified the Bureau of Land Management (BLM), Rock Springs Field Office, of plans to expand a flue gas de-sulfurization pond (Pond 2) at the Jim Bridger Power Plant, located 25 miles northeast of Rock Springs, Wyoming. The expansion activities would take place in Pond 2 located in Section 25, 26, and 36 of T. 21 N., R. 101 W., in Sweetwater County. Pond 1 in Sections 26 and 35 of T. 21 N., R. 101 W., would be allowed to dry up and would be reclaimed after approximately five years. The intent of the project is to extend the pond's (Pond 2) life approximately 30-40 years.

If you are interested in participating in the process and have concerns, issues, or alternatives that have not been addressed, please respond with your written comments by April 8, 2002. If we do not hear from you within this 30-day comment period, we will assume the project is satisfactory and you will not require a Decision Record / FONSI document mailed to you. Send written comments to:

Address: Darlene Horsey, NEPA Coordinator
Rock Springs Field Office
280 Highway 191 North
Rock Springs, Wyoming 82901

Email: rock_springs_wymail@blm.gov
(reference **PacifiCorp Flue Pond Expansion** in the subject field)

Sincerely,

/s/ Ted A. Murphy

Ted A. Murphy
Acting Field Manager

Attachment: Environmental Assessment

ENVIRONMENTAL ASSESSMENT

PACIFICORP - JIM BRIDGER POWER PLANT
FLUE GAS DE-SULFURIZATION POND EXPANSION PROJECT

Prepared for

Bureau of Land Management
Rock Springs Field Office

This Environmental Analysis (EA) was prepared by JBR Environmental Consultants, Inc., an environmental consulting firm, with the guidance, participation, and independent evaluation of the Bureau of Land Management (BLM). The BLM, in accordance with Title 40 Code of Federal Regulations, Part 1506(a) and (b), is in agreement with the findings of the analysis and approves and takes responsibility for the scope and content of this document.

ENVIRONMENTAL ASSESSMENT FOR THE PACIFICORP-JIM BRIDGER POWER PLANT FLUE GAS DE-SULFURIZATION POND EXPANSION PROJECT

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ENVIRONMENTAL ASSESSMENT FOR THE PACIFICORP-JIM BRIDGER POWER PLANT FLUE GAS DE-SULFURIZATION POND EXPANSION PROJECT

1.0 INTRODUCTION/PURPOSE AND NEED FOR ACTION

1.1 Introduction

In 1979, PacifiCorp completed the last of four coal-fired boilers at the Jim Bridger Power Plant (Plant) located approximately 25 miles northeast of Rock Springs, Wyoming (Figure 1). This Plant produces power for the western power grid for power users in the western United States including Utah, Idaho, Washington, Wyoming, and Oregon.

During the energy generating process, the firing of coal in the Plant's operating generators, a chemical process is utilized to remove sulfur from the emissions to prevent the sulfur from entering the atmosphere as mandated by the Environmental Protection Agency (EPA). The Plant is required to remove sulfur from their emissions in order to meet technology-based regulatory criteria of EPA's National Acid Rain Program (Title V of the Clean Air Act, Amendments, 1990) and the State of Wyoming's Air Quality Standards & Regulations (WAQS&R). The WAQS&R state in Chapter 3, Section 4 (b), (c), and (d), the amount of sulfur dioxide emitted from a stationary source is limited based on the amount of heat input into the boilers. WAQS&Rs were last updated December 8, 2000. Removal of sulfur is required to meet these technology-based standards. This chemical process results in a sulfur/salt compound in a water solution that is pumped into two Flue Gas De-sulfurization (FGD) ponds (FGD Pond 1 and FGD Pond 2) located adjacent to the Plant facility.

The FGD ponds are currently nearing capacity. PacifiCorp is proposing to expand the capacity of FGD Pond 2 (the Project), which would provide for an additional 30 to 40 years of storage capacity depending upon the variability of coal quality and sizing parameters. Construction activities would likely begin in the spring of 2002. All associated new disturbance would occur either on land administered by the Bureau of Land Management (BLM) or on land owned by PacifiCorp.

PacifiCorp's expansion activities of FGD Pond 2 would include dike and pond expansion within Sections 25, 26, 35, and 36 of T21N, R101W, in Sweetwater County, Wyoming (Figure 2). PacifiCorp is the holder of two ROW Grants (WYW39400 and WYW62224) in Section 26 and 36 for the two existing FGD ponds and associated facilities. PacifiCorp has requested an amendment to their existing Right-of-Way (ROW) Grant WYW39400 from the BLM for a total of 266.7 acres in Section 26 to expand FGD Pond 2. The dike expansion in Section 36, under ROW Grant WYW39400 would also require an amendment of the existing ROW Grant. PacifiCorp retains ownership of lands for the expansion in Section 25 and 35. The BLM maintains ROWs for those portions of the existing facilities that cross BLM lands, under Title V of the Federal Land Policy and Management Act (FLPMA).

The following summarizes the required acreage for the amended ROW Grants.

Section 26, Trapezoidal Area	11.2	acres
Section 26, E ½ of SW ¼	80.0	acres
Section 26, SE ¼ of NW ¼	40.0	acres
Section 26, S ½ of NE ¼	80.0	acres
Section 26, SE ¼	160.0	acres
Section 26, Portion of WYW39400	(79.8	acres)
Section 26, Portion of WYW62224	(24.7	acres)
Total Net	**266.7**	**Acres**

1.2 Purpose and Need for Action

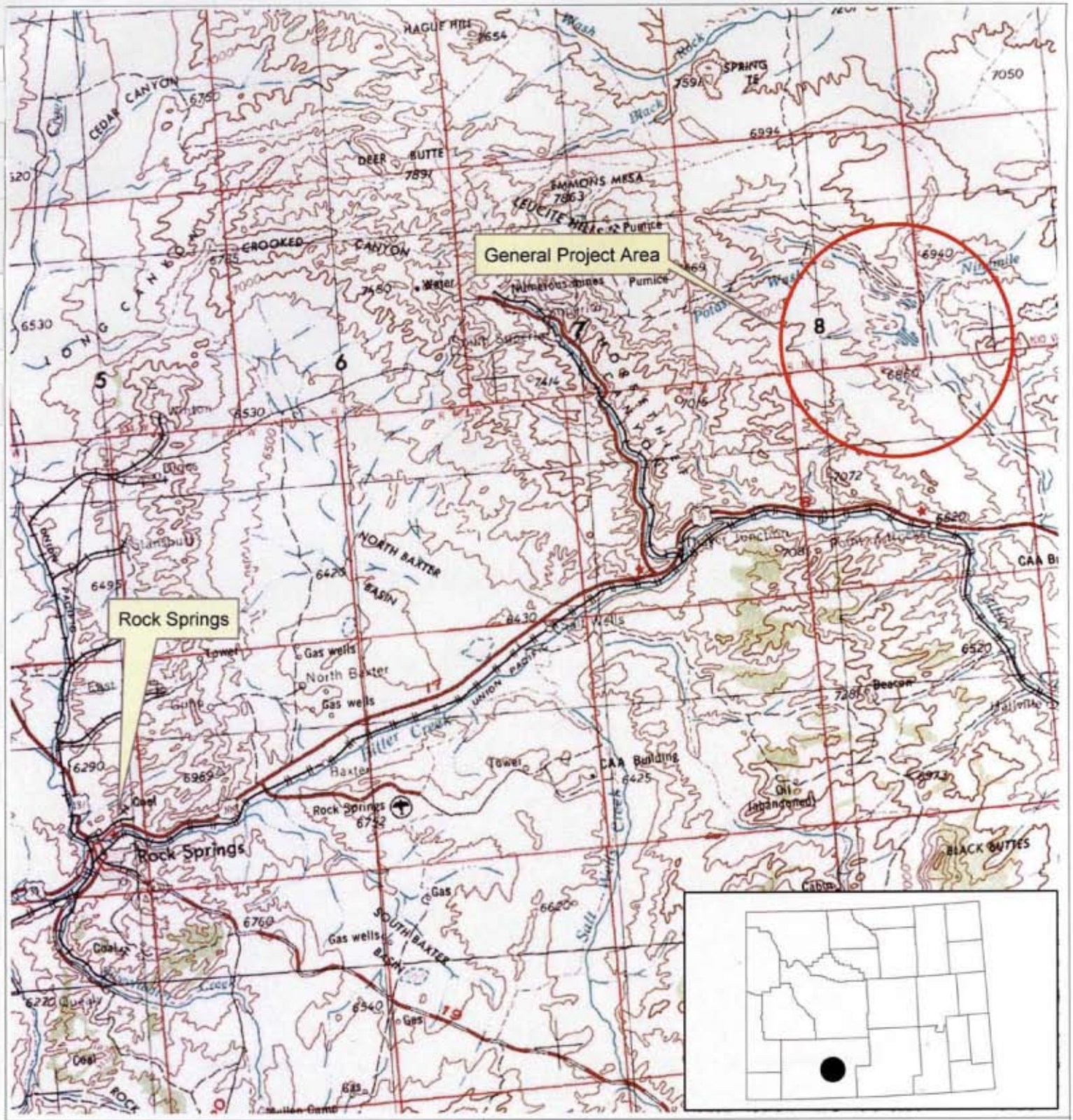
The demand for power as a result of population and industrial growth has increased in the western United States while at the same time, there has been a decrease in the amount of new power plant construction as well as the shut down of existing power plants, especially in California. Within three years it is expected that the existing FGD ponds will be at capacity. Increased FGD pond capacity is an essential element to continued power generation at the Plant, which would continue to provide reliable power supplies to the existing and expanding markets in the western U.S. power grid. The Project would extend the Plant's ability to generate electrical power for those users in the western United States.

1.3 Public Scoping

Notice letters initiating the Environmental Assessment (EA) process were sent out on November 1, 2001 by the BLM to 123 potentially interested and affected individuals, groups, and agencies. The Project was also posted in local newspapers. A total of 10 responses were received during the 30-day comment period that ended on December 4, 2001. Copies of the responses are included in Appendix A. A list of issues was then compiled from the responses along with concerns or issues from the BLM Rock Springs Field Office. The issues identified through scoping are listed below.

<u>Issues identified from scoping</u>

- Potential impacts to wildlife and wildlife habitats within the Project Area.
- Potential impacts to groundwater resources, including existing groundwater contamination.
- Potential impacts to cultural resources within the Project Area.
- Adequacy of the bird hazing system.



Base: Rock Springs, WY - 1:250,000 USGS

N
W E
S

1:220,615

0 1.25 2.5 5 7.5 10 Miles

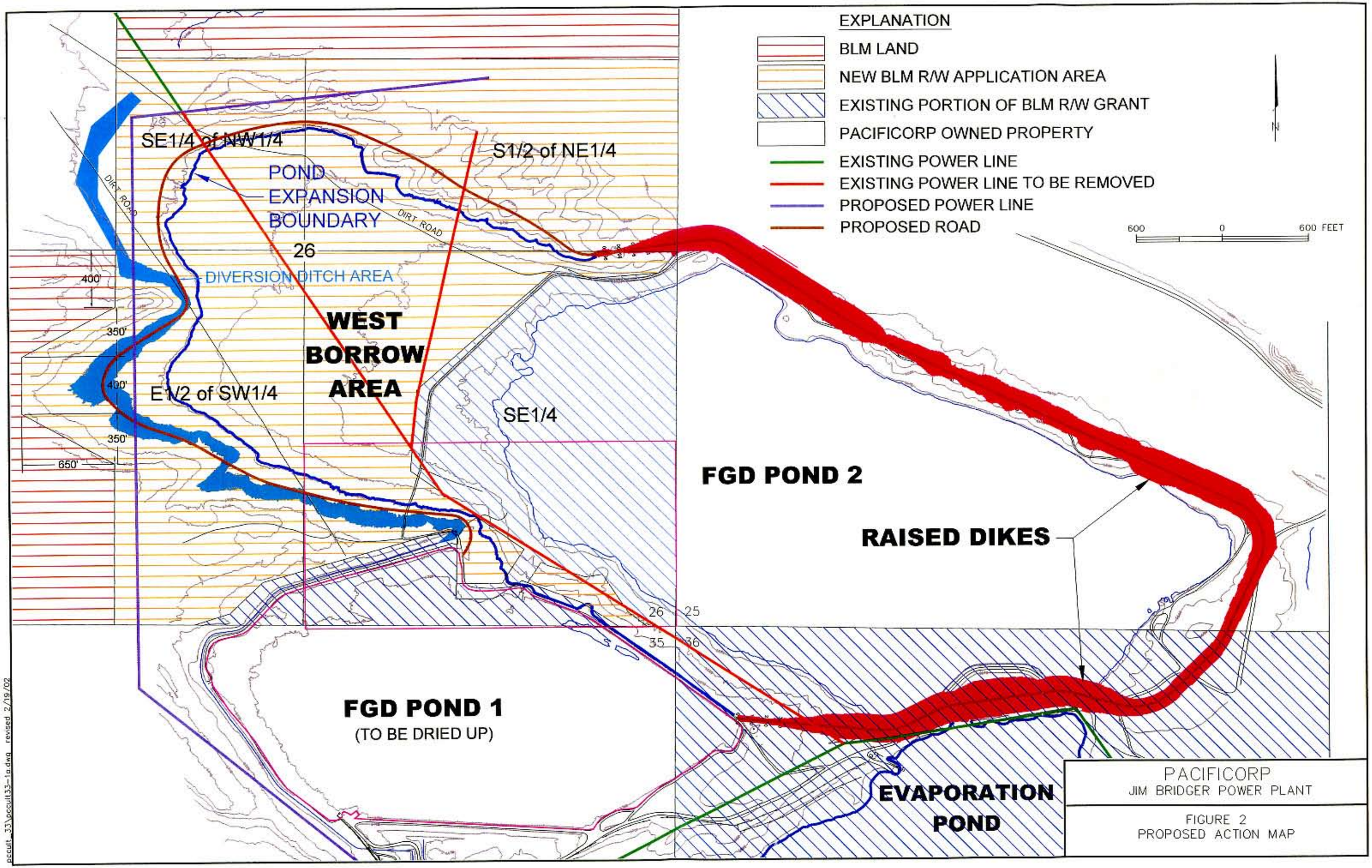
PACIFICORP - Jim Bridger Power Plant

Flue Gas De-Sulfurization Pond Expansion Project

Figure 1. General Project Area

Created: 01 October 2001
Edited: Version 3
06 March 2002

JBR/eah


EXPLANATION
BLM LAND
NEW BLM R/W APPLICATION AREA
EXISTING PORTION OF BLM R/W GRANT
PACIFICORP OWNED PROPERTY
EXISTING POWER LINE
EXISTING POWER LINE TO BE REMOVED
PROPOSED POWER LINE
PROPOSED ROAD
N
600 0 600 FEET
SE1/4 of NW1/4
S1/2 of NE1/4
POND EXPANSION BOUNDARY
DIRT ROAD
DIRT ROAD
26
DIVERSION DITCH AREA
400'
350'
400'
350'
650'
WEST BORROW AREA
E1/2 of SW1/4
SE1/4
FGD POND 2
RAISED DIKES
26
25
35
36
FGD POND 1
(TO BE DRIED UP)
EVAPORATION POND
PACIFICORP
JIM BRIDGER POWER PLANT
FIGURE 2
PROPOSED ACTION MAP
pccult_33\pccult33-1a.dwg revised 2/19/02

1.4 Land Use Plan Conformance Statement

In compliance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality (CEQ) regulations for implementing NEPA, the BLM Rock Springs Field Office has determined that an EA is required to evaluate the Proposed Project. The purpose of this EA is to provide public and government agencies with information about the potential environmental consequences of PacifiCorp's Proposed Project and Alternatives; to allow the public and agency officials the opportunity to evaluate the extent of potential environmental impacts resulting from the Project; to provide an evaluation of practicable means to avoid or minimize adverse environmental impacts that may be associated with the Project; and to provide responsible officials with information upon which to make an informed decision regarding the Project.

The proposed FGD Pond 2 expansion and related facilities are partially located on lands administered by the BLM Rock Springs Field Office. The document that directs management of BLM administered lands within the project area is the Green River Management Plan and Final Environmental Impact Statement (GRRMP) Decision Record, approved August 8, 1997. The GRRMP (page 23) Land and Realty Management Objective states:

- "...to respond to public demand for land use authorizations..." and,
- Public lands would be made available throughout the planning area for rights-of-way, permits and leases.

The proposed FGD Pond 2 expansion project would be in conformance with the RMP. The environmental analysis completed for this Project will incorporate appropriate decisions, terms, and conditions of use described in the RMP decisions.

1.5 Relationship to Statutes, Regulations, or Other Plans

PacifiCorp would be subject to federal laws, EPA, Wyoming Department of Environmental Quality (WDEQ) regulations, the BLM's RMP, PacifiCorp's Plan of Development, the Wyoming State Engineer's Office (WSEO), and any applicable state and Sweetwater County ordinances.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Introduction and Background

The Project Area lies adjacent to the Plant located in uplands and is currently utilized by associated Plant activities and cattle/wild horse grazing. The topography ranges from open flats to low rolling hills. A majority of the Project Area is vegetated with sagebrush/greasewood and grasslands. Elevations in the area range from 6,660 to 6,750 feet.

PacifiCorp has submitted an application requesting an amendment to an existing ROW Grant, under FLPMA Title V for ROWs located on public lands managed and administered by the BLM, in order to authorize the Project.

2.2 Proposed Action

The proposed FGD Pond 2 expansion would occur on 266.7 acres of BLM administered land under an amended ROW Grant WYW39400 and on land owned by PacifiCorp. Expanding the facility would include the following major elements: raising existing dikes and constructing new dikes, stockpiling topsoil for future reclamation, re-routing service roads, modifying outlet structures, improving effluent piping, modifying existing diversion channels and constructing new diversion channels, expanding bird-hazing systems, reseeding disturbed areas, installing new monitoring wells, constructing a pumpback system, and constructing and relocating electrical distribution lines.

2.2.1 Construction of the Expanded Flue Gas De-sulfurization Pond

The existing FGD ponds are designed to handle effluent from the Plant for another three years. FGD Ponds 1 and 2 would continue to be used and operated as originally designed until the expansion of FGD Pond 2 is completed. The FGD ponds are non-discharge industrial wastewater treatment ponds. The Plant uses soda liquor, consisting approximately of 25 % sodium carbonate, from nearby trona (soda ash) processing plants to neutralize the acidity of water used in the flue scrubbers. Water in the scrubbers reduces sulfur dioxide emissions resulting from the burning of fossil fuel for energy. The solid products from the Plant's air pollution scrubbers are transported by pipeline in slurry form from holding basins to the FGD ponds. The slurry consists of mainly sodium, chloride, sulfites, sulfates, carbonates, and bicarbonates, and is considered non-hazardous. Within the FGD ponds, the solids are concentrated through water evaporation. The solids settle out and fill the ponds.

The initial phase of the Project would include raising the existing dikes at FGD Pond 2 approximately 28 feet above the current height. Soil would be excavated from the proposed borrow area, west of the existing FGD Pond 2 for the construction of dike embankments around the pond on the northern, eastern, and southern boundaries. The design of the embankment slopes would meet WSEO requirements; embankments would be protected from wave action as required by the WSEO. The borrow site would be utilized in stages as required for construction and reclamation, to minimize exposed disturbed areas. Topsoil would be stockpiled for reclamation to impacted areas. Impacted areas would be seeded for erosion and dust control and later inundated by effluent as part of the operational plan of the FGD Pond 2.

The Project would increase FGD Pond 2 from 225 acres to about 402 acres, an increase of 79 percent. As a result of the construction, Pond 2 would cover approximately177 additional acres of land, increasing the storage capacity from 2,040 acre-feet to 10,519 acre-feet, a 416 percent increase. It would be approximately 1.4 miles long and 0.6 miles wide.

When the FGD Pond 2 expansion project is completed, the existing FGD Pond 1 would be allowed to dry up over approximately five years. Once Pond 1 is dry, it would be capped to meet Resource Conservation Recovery Act (RCRA) requirements with oversight from the WDEQ. The FGD Pond 1 site would then be permanently reclaimed utilizing material from the borrow area west of FGD Pond 2. The pond site would be covered with topsoil and revegetated according to BLM specifications. FGD Pond 1 reclamation is not part of this Project.

2.2.2 Construction of FGD Pond 2 Expansion Access Roads

Existing roads would be interconnected to the new dike road. A new dike road would be extended around the western shoreline of the expanded FGD Pond 2 that would enable PacifiCorp to gain access to the facility for inspection, operational, and maintenance purposes (Figure 2). A portion of the County Road on the southeastern edge of FGD Pond 2 would be realigned to the top of the dike and would be maintained by PacifiCorp. Service and maintenance roads would be one lane, most likely 12-foot wide with gravel surfaces. Alignments would be established that would minimize impacts to the surrounding area. Drainage would be designed to minimize erosion and ponding on and around the roads. Existing roads, as necessary, would be re-established and/or upgraded within the existing or amended ROW to accommodate operation and maintenance of the facility.

2.2.3 Pumpback System

The current groundwater monitoring system for the FGD ponds would be modified. On-going groundwater monitoring has been conducted by PacifiCorp's Environmental Remediation Company (PERCO) with oversight and permitting from the WDEQ. Some existing monitoring wells would be abandoned and new wells would be developed. The results from the test wells would show the depth and flow direction of the possible ground water contamination. Pumpback systems would be utilized to control plumes of possible groundwater contamination emanating from the FGD ponds. This system would contain groundwater contamination from leaving the site to adjacent areas. Up to nine (9) pumps and associated wells would be required to control the potential underground plume for the expanded FGD Pond 2. This system would pump contaminated groundwater back into the FGD ponds. The wells and pumps for FGD Pond 2 would be located along the northeasterly boundary of the pond. Up to two (2) pumps and associated wells may be required to control the known underground plume of contamination emanating from FGD Pond 1. The wells and pumps for FGD Pond 1, should they be required, would be located on the southern boundary of the pond. The pumpback system would require buildings to house the equipment.

The initial phase of the pumpback system (2 to 3 pumps) located at FGD Pond 2 would be immediately required. Additional pumps would be added as required through monitoring and by the WDEQ. Results of the ongoing monitoring of groundwater contamination would facilitate the placement and number of the pumps. The new pumps and wells would be located within the existing ROWs or on lands owned by PacifiCorp.

2.2.4 Electrical Distribution Lines

Several existing electrical distribution lines would be affected by the FGD Pond 2 expansion and would be re-routed. It is estimated that three distribution lines would be re-routed and two new distribution lines would be routed to facilities associated with the FGD ponds (Figure 2). All lines would be 34.5 kilovolt (kV) capacity. New electrical distribution lines would be developed to service the new pumpback systems and bird hazing facilities. All new routing and re-routing would occur within the existing ROWs, on PacifiCorp owned lands, or would be within the proposed ROW Grant amendment.

2.2.5 Bird-Hazing System

Both FGD Ponds 1 and 2 currently have bird-hazing systems. The system is designed to discourage any wildlife (mainly waterfowl) from entering the FGD ponds. The system includes loud speakers to broadcast acoustic alarm calls, pyrotechnics, and PacifiCorp personnel who scare the birds off and use nets to capture and remove the birds from the FGD ponds. The system utilizes radar to detect approaching wildlife at the FGD ponds. The system at FGD Pond 1 would remain until the pond is dried up and reclaimed. The system at FGD Pond 2 would be modified to provide bird-hazing functions with the expanding surface area. The system would be staged to provide maximum protection as the pond surface increases. The U.S. Fish and Wildlife Service (USFWS) has approved bird-hazing by PacifiCorp. The current power line, which powers the bird-hazing system on FGD Pond 2, would be impacted by the construction of the dikes. Only the siren system on FGD Pond 2 would be turned off for a short period until a new power line distribution system to the bird-hazing system could be constructed. Manual hazing by PacifiCorp personnel would continue utilizing man powered pyrotechnics and netting during the construction of the power distribution lines (see Section 4.7). The bird-hazing system around FGD Pond 1 would remain functional during the Project.

2.2.6 Effluent Pipelines

Two existing 12-inch diameter overland pipelines currently discharge into FGD Pond 1. These pipelines transport the slurry containing the effluent from holding facilities in the Plant to the FGD ponds. Placing the pipelines on the ground surface with supports, allows the pipelines to expand and contract as the environmental temperature changes. In addition, the above ground arrangement enables PacifiCorp to easily inspect and maintain the pipelines. Currently, one of the pipelines is not in service due to leakage, but is scheduled for repair. The other pipeline has been recently serviced. Both of the pipelines would be extended to discharge into the expanded FGD Pond 2. A manifold type discharge would be installed to enable PacifiCorp to change the discharge points at advantageous locations within the pond. The outlet structure would remain in place in FGD Pond 1 until expansion activities are completed on FGD Pond 2 allowing the Plant to continue operations without interruption. All construction of effluent pipelines would occur within the existing ROWs, on lands owned by PacifiCorp, or would be within the proposed ROW Grant amendment.

2.2.7 Diversion Channels

Diversion channels on the west side of the expanded FGD Pond 2 would be constructed and tied into existing drainage or diversion channels (Figure 2). The purpose of these diversion channels is to isolate and reroute the surface runoff from entering the FGD ponds. All construction of new diversion channels would occur within the amended ROW Grant or on lands owned by PacifiCorp.

2.2.8 Schedule and Work Force

The construction of the expanded FGD Pond 2 would be completed in two phases. FGD Pond 2 expansion activities would be scheduled during the spring and summer of 2002 and 2003.

PacifiCorp would employ several separate contractors for the different objectives of the Project. All would be under the direction of PacifiCorp or it's subsidiary PERCO. It is anticipated that for each objective listed below, the contractors will hire their own crews with specialty support from subcontractors:

1. Embankment construction.

2. Bird-hazing system modifications.

3. Pumpback and monitoring systems.

4. Electrical power line distribution modifications.

The construction work force is estimated to be 25 to 35 individuals. Personnel can reside in nearby Rock Springs. The number of vehicles needed within the ROW construction area would vary throughout the execution of the Project. Workers would car pool to the work location from a specified location within the Plant. There would be 4 to 6 construction trailers on site. No temporary campsites are proposed for the Project.

The number of vehicles/machinery needed within the ROW construction area would vary throughout the execution of the work. It is estimated there would be the following vehicles/machinery:

- Eight to twelve scrapers,
- Two to four dozers,
- Two to four compactors,
- Two to four road graders,
- Three to five water trucks,
- One or two tractors with discs,
- One maintenance truck,
- Four to six pickup trucks,
- Minimum one each gas or diesel driven pump with water horse for filling water trucks,
- One or two buses.

2.2.9 Maintenance

The current facility is inspected on a daily basis and would continue to be inspected daily by ground crews for the nominal life expectancy of 30 to 40 years. Although it is not anticipated that failures to the expanded FGD Pond 2 and associated pipelines, power distribution lines, dikes, and other associated equipment would be common, some routine maintenance and service for occasional equipment failures would be required. Access for routine maintenance and unexpected service failures would be limited to the approved and amended ROWs. Terms and Conditions that would address maintenance activities, as outlined by the BLM, would be identified within the ROW permit(s).

2.2.10 Environmental Protection Measures

Implementation of the Proposed Action would comply with all applicable federal and state laws, as well as local ordinances during all phases. PacifiCorp would also comply with the Terms and Conditions attached to the ROW authorization issued by the BLM. These provide for additional levels of environmental protections designed to prevent damage to biological and cultural resources. The following project design features and construction protocols would be in effect during implementation of the Proposed Action.

Fire Control
PacifiCorp would notify the BLM Rock Springs Field Office of any fires observed during construction and would comply with all rules and regulations administered by the BLM concerning the use, prevention, and suppression of fires on federal lands.

In the event of a fire, PacifiCorp or their contractors would initiate fire suppression actions in the work area. Suppression would continue until the fire is out or until the crew is relieved by an authorized representative of the agency or local fire officials. Heavy equipment would not be used for fire suppression outside the ROW without prior approval of the BLM unless there is imminent danger to life or property. PacifiCorp or its contractors would be responsible for all costs associated with the suppression of fires and the rehabilitation of fire damage resulting from their operations.

The burning of debris on the ROW(s) would only be done at times of low fire danger and only with permission from the BLM.

Industrial Wastes and Toxic Substances
No hazardous materials except fuels, oils, and greases, would be used during the construction of the FGD Pond 2 expansion. PacifiCorp and construction contractors would contain industrial wastes and toxic substances during construction activities as follows:

1. Portable toilets would be provided by the contractor(s) for worker use during construction activities.

2. Fueling and servicing products that would be used during construction activities such as gasoline, diesel fuel, oil, and grease would be labeled and have Material Safety Data Sheets (MSDS). Maintenance of construction vehicles would take place within designated areas to minimize surface disturbance.

3. Equipment fueling area(s) would utilize a secondary berm structure for spill containment. In no case would gasoline and/or diesel fuel be permitted to escape the containment area. No fueling would take place within 100 feet of water resources.

Restoration/Rehabilitation of Disturbed Areas
PacifiCorp would restore, reclaim, and rehabilitate all disturbed areas when construction activities are completed. FGD Pond 1 would be reclaimed at a later date when the useful life span is over and allowed to dry up. All disturbed areas would be reclaimed with native vegetation to near pre-existing conditions. The following restoration activities would be implemented:

- Native topsoil would be stockpiled on the ROW for use in restoration activities. Areas of disturbance where construction activities are completed would be covered with native topsoil and seeded.

- The method of drill seeding would be utilized on slopes less than or equal to 1v:3h and broadcast or hydroseeding methods on slopes greater than 1v:3h. PacifiCorp would use weed free seed mixes as prescribed by the BLM. The rate of seed application may vary depending on seed mixture. It is anticipated that the seed application would range from 10 to 20 pounds of pure live seed (pls) per acre. The rate of success would be considered as 30% germination the first year.

- Mulching all seeded areas would be done with straw or wood fiber mulch. Seeding would be performed between September 1st and November 15th to ensure seed germination.

- Fertilizer would be utilized over the entire area to be seeded.

Prior to inundation from the wastewater, the borrow site on the western area of the FGD Pond 2 would be contoured to promote drainage and minimize ponding of storm water. All stripped foliage, debris, and vegetation in the disturbed areas would be stockpiled and burned as approved by the BLM. Upon completion of construction activities, the disturbed areas would be cleaned and restored. Steps would be taken to recontour, minimize erosion and compaction, restore natural ground cover, and allow natural surface drainage.

Cultural, Historical, and Prehistoric Resources
Four cultural resource sites were identified within the Project Area (see Section 3.2.1). None of these sites have been recommended as eligible for the National Register of Historic Places (NRHP). If during any construction activities newly discovered cultural, historical, or prehistoric resources were discovered, the BLM Rock Springs Field Office would be notified and work in the area would stop until inspection by a professionally trained archeologist was conducted and a mitigation plan, if necessary was developed.

2.2.11 Termination and Restoration

A pond closure plan would be submitted to the BLM as the FGD Pond 2 nears it's operational capacity. The pond closure plan would be formulated closer to the planned date of closure to insure that the best available technology is incorporated into the plan. At a minimum, reporting is required by the WDEQ. Monitoring results is mandated. A pumpback system is also going to be required.

2.3 Alternatives Considered But Rejected

During development of the Proposed Action, alternative actions were considered, but rejected due to risk, operational costs, or lack of feasibility. Alternatives considered but rejected are listed below:

1. **Vacuum Filter System:** The vacuum filter system was originally used at PacifiCorp's Hunter and Huntington Plants. The system has been abandoned because of the high maintenance costs and because the filtering process did not work well with a mixture of sulfites and sulfates. The different particle sizes of the sulfite and sulfate precipitates

prevented effective removal of the water. Even though a filter cake could be produced from the vacuum filters, the amount of moisture in the filter cake had to be maintained with some consistency. If the product retained too much moisture, it became somewhat fluid when handled and transported. Conversely, if the filter cake had too much moisture removed, it became a thick, viscous sludge that was difficult to remove from the dump trucks used to transport the scrubber sludge to a landfill. Due to the feasibility, PacifiCorp has abandoned this alternative.

2. **New Pond Location:** Construction of a pond at a different location is not economically feasible. Such a site would likely be further away from the existing plant operations. The WDEQ prefers full utilization of existing ponds rather than development of new ponds, since new environmental impacts are potentially created. The cost of this alternative was estimated to be much greater than expanding FGD Pond 2 and was therefore not recommended by PacifiCorp.

3. **Dredging:** Dredging the existing FGD ponds would be very difficult without adequate de-watering of the tailings. De-watering requires the pond(s) to be out of service for an extended period of time thus disrupting plant operations. The landfill permit would require that scrubber tailings be blended with ash to remove any free liquids. There is not enough ash produced on a daily basis to blend with the excavated tailings. Dredging does not appear to be a viable option. This is one of the more expensive alternatives and was therefore not recommended by PacifiCorp.

4. **Crystallization Process:** Crystallization process purifies, crystallizes and dehydrates the scrubber effluent. The resulting process produces a high quality byproduct, sodium sulfite, which could be sold. Sodium sulfite is primarily used as a pulping and de-chlorination agent by the pulp industry. Other applications include its use to remove oxygen in boiler water and as an antioxidant in film processing. Sodium sulfite also serves to remove chlorine in many industrial applications. However, the soft market for sulfites and the difficulty selling all of the sulfites produced do not provide sufficient economic justification considering the risks. Two previous engineering studies at PacifiCorp's Naughton Plant in 1987 and 1997 resulted in the same conclusions. The overall cost would be much more than the cost of the FGD Pond 2 expansion, thus, this option is not recommended by PacifiCorp.

5. **Bird Hazing Alternatives:** The use of "bird balls" was considered as a part of the bird hazing system. This system utilizes weighted floating balls over the surface area of the FGD ponds. This system, though highly effective in the reduction in bird mortality, was rejected because it drastically prohibits water evaporation which is an integral component in the FGD pond design. Netting of the FGD ponds was not considered as an alternative due to the high costs of covering the large area. A dye coloring added to the effluent was also considered, but the effectiveness of this system is not highly regarded for the types of waterfowl utilizing the area.

2.4 No Action Alternative (Current Situation)

Under the No Action Alternative, the BLM would not authorize the amendment to the existing ROW Grant. PacifiCorp would be unable to expand the FGD Pond 2 onto lands administered by the BLM. FGD Pond 1 and Pond 2 would meet the current holding capacity within three years. Either a costly alternative to clean the current FGD ponds would be required or the Plant would have to be shut down until new FGD ponds were built on PacifiCorp owned land. The possibility would exist that PacifiCorp's Jim Bridger Plant would be temporarily unable to generate electrical power for existing users throughout the northwest power grid, further straining the shortage of available electrical power on demand.

This alternative would likely not meet the Purpose and Need as described in Section 1.2, which is to provide reliable power supplies to existing and expanding markets in the western U.S. power grid. However, this alternative is carried forward for detailed analysis, since it would form a baseline against which to measure impacts related to the Proposed Action.

3.0 AFFECTED ENVIRONMENT

The Affected Environment chapter of this EA for the proposed FGD Pond 2 expansion discusses environmental, social, and economic factors, as they currently exist within the Project Area. Management issues identified by the BLM Rock Springs Field Office, public scoping, field data, and analysis have guided the material presented below.

3.1 Resources Not Brought Forward for Analysis

This Proposal could potentially affect critical elements of the human environment as listed in the BLM's NEPA Handbook H-1790-1 (USDI-BLM 1988). This EA discusses potential effects of the Project on range resources including wild horses, soils, water resources, vegetation (including invasive and non-native species), wildlife, special status species, socio-economics, and cultural resources. The following resource elements, while critical, are not present in the Project Area or would not be affected and therefore will not be addressed further:

Areas of Critical Environmental Concern: The closest Area of Critical Environmental Concern is the Natural Corrals area located approximately 3 miles northwest of the Project Area.

Floodplains: The Project Area is not within a floodplain.

Prime or Unique Farm Lands: The Project Area does not contain or is not nearby any lands considered as prime or unique farmlands.

Visual Resources: The Project Area that occurs on BLM administered lands are within Visual Resource Management (VRM) Class IV, which allows major modification of the character of the landscape, therefore the proposed Project would be within the RMP objectives for VRM. In addition, the Project Area is in a basin that is surrounded by topography higher in elevation, thus not visible from environmentally sensitive surrounding areas.

Wild and Scenic Rivers: No wild or scenic rivers are located within 20 miles of the Project Area.

Wilderness: The nearest Wilderness Study Area, Alkali Basin/East Sand Dunes, is located approximately 20 miles northeast of the Project Area.

Wetlands/Riparian Zones: The Project is located near an evaporation pond; however, the Project Area does not contain existing wetlands or riparian zones. The Army Corps of Engineers (COE) has concurred that no waters of the U.S. would be impacted by the Project.

The following critical resources/elements are present in the Project Area, but would not be adversely affected by the Proposed Action and will not be discussed further in the EA for the reasons stated below:

Air Quality/Noise: The Project Area is located in a remote region with limited access. There are no developed areas near the Project Area except the Plant and associated facilities. Some fugitive dust would occur during construction activities around the expanded FGD Pond 2. Post-construction air quality would be unaffected. The action would not increase emission levels above normal and would meet the State of Wyoming Air Quality Standards. Noise from construction would be of short duration during the summer months.

Environmental Justice: The Proposed Project would occur in Sweetwater County. The Proposed Action would not disproportionately affect low income or minority populations.

Lands: The Project Area is located within lands administered by the BLM. The principal land uses within and adjacent to the Project Area are livestock/wild horse grazing and Plant associated facilities. All measures to mitigate impacts to the environment presented in the EA would be implemented on federal land.

Native American Consultation: Native Americans raised no issues during the public scoping period. In addition, no resources listed by the tribes as being potential traditional cultural properties exist within or adjacent to the Project Area.

Mineral Resources: The Project Area lies within the Green River Basin which contains several important mineral deposits, including large deposits of coal and natural gas and the world's largest deposit of trona. Consultation with the BLM Rock Springs Field Office for a mineral potential report has been completed on the Southeast corner of Section 26, where the Project Area is located. The report states that there are no concerns on locatable minerals, sand and gravel, or solid leaseables; therefore, the Proposed Action would not adversely affect mineral resources.

Oil and Gas Resources: The Project Area is within BLM Oil and Gas Lease # WYW-137749. No conflicts of access to the lease area would be realized from the Proposed Action.

Paleontological Resources: A paleontological review was conducted on lands within and nearby the Project Area by the BLM in 2001. The Project Area is within late Cretaceous Lewis and Fox Hills Formations. These are predominantly marine sediments containing primarily invertebrate fossils. The formations are considered to have a low potential for the occurrence of vertebrate fossils; therefore, no adverse impacts by the Proposed Action are anticipated.

Recreation: The Project Area is not located within a managed recreational use area. The remote access to the region and associated coal mining and Plant facilities allows little or no access for recreation activities.

Hazardous Materials: The FGD Pond 2 expansion Project would not use, transport, or store any hazardous waste materials other than gasoline, diesel fuel, oil, and grease for the construction equipment as described in Section 2.2.10.

3.2 Resources Brought Forward for Analysis

Resources that are not identified as having potential impacts, conflicts or issues will not be discussed further in this EA. The following resources could potentially be affected by the proposed action.

3.2.1 Cultural Resources

Western Archaeological Services, Inc. inventoried the Project Area and a buffer at a Class III level for cultural resources in September of 2001 (Western Archaeological Services, 2002). The inventory recorded two new sites and relocated two previously recorded sites. All sites were tested for buried material and two of the sites required additional testing to establish whether data recovery would be warranted. Based upon the results of the testing program, it is recommended that three of the sites are not eligible for inclusion within the *National Register of Historic Places*. The fourth site is outside the pond expansion area and would not be affected by construction and/or seepage. The Project would not affect this site, thus, no data recovery would be required. The BLM would consult with the State Historic Preservation Office on the proposed project as a no-effect situation.

3.2.2 Soils

General soils types found in the Project Area include the Teagulf, Huguston, Hateron, Wint, Tasselman, Seedskadee, Leckman, and Kandaly. These soils are moderately deep to very shallow, well drained and formed on rolling upland plains dissected by rock ravines, short escarpments, and draws. These soils are coarse to fine sandy loams that formed from residuum and colluvial slope wash weathered from underlying bedrock. These soils are typically found at elevations from 6,100 to 6,700 feet with annual precipitation of 7-9 inches. A more complete description of soils found in the Project Area can be found in the GRRMP.

3.2.3 Geology

The Jim Bridger Power Plant is situated along the northeastern flank of the Rock Springs Uplift. The Uplift is a north-south trending structural anticline formed during the Laramide Orogeny. The structure consists of gently tilted sedimentary beds with a northeasterly dip of approximately 5 degrees. These units were formed in response to a regional uplift that resulted in extensive deltaic depositional sequences. These sequences are highly gradational, due to the transgressive-regressive nature of the depositional process. The sediments are composed of late Cretaceous age sandstones, siltstones, shales, clays and coal beds. Specifically, the formations encountered at the facility include the upper Cretaceous Fox Hills, Lewis and Almond Formations. Figure 3 shows the geology in the Project Area and Figure 4 shows the location of the geologic cross section of A to A′.

The Fox Hills, Lewis and Almond Formations are overlain in the drainage bottoms (i.e. Potash Wash and Deadman Wash) by Quaternary aged alluvium derived from the weathering of exposed sections of these formations. The alluvium is composed of clay and silt with a minor amount of sand. Gravel size material is reported in some down gradient areas of the main drainage bottoms. The alluvium varies in depth across the site from nonexistent on the ridge tops to greater than 100 feet in Deadman Wash.

The Fox Hills Formation is approximately 150 to 300 feet thick. It is composed principally of sandstone with lesser amounts of siltstone, shale and some coal beds. Lithologic logs from monitoring wells completed in the Fox Hills Formation indicate that the contact between the Fox Hills and the underlying Lewis Formation is gradational. The amount of siltstone and shale interbedded with sandstone increases with depth until the sediments become the predominantly shale Lewis Formation.

The Lewis Formation conformably overlies the Almond Formation and underlies the Fox Hills Formation. The Lewis Formation consists of calcareous, silty, gypsum shale with occasional thin beds of limestone, siltstone, bentonite and dark carbonaceous shale. The formation is thin-bedded and ranges from moderately indurated and brittle to relatively plastic. Where exposed, the upper 1 to 60 feet of the Lewis is commonly weathered to silty clay or clayey silt. The formation strikes to the northwest and dips gently to the northeast at 5 degrees.

The Almond Formation is a fine to medium-grained massive quartz sandstone. This thin-bedded formation is calcareous, friable and moderately cemented. Sporadically, strongly indurated beds occur. The total stratigraphic thickness of the Almond Formation is approximately 700 ft. The formation strikes to the northwest and dips gently to the northeast at approximately 5 degrees.

The Ericson Formation conformably underlies the Almond Formation and is predominantly composed of massive sandstones with interbedded shales and clays. Several of the Town of Superior's public water supply wells, located 2.5 miles north of the Plant, are screened in this formation. From data gathered from their lithologic logs, the Ericson Formation is approximately six hundred feet thick.

3.2.4 Water Resources

The Project Area would impact several swales, however, no perennial stream crossings would be encountered within the Project Area. Surface stream flow in the area is primarily ephemeral with the majority of flow occurring in the spring to early summer months or in response to major precipitation events. Deadman Wash is the principal drainage and flows to the southeast across the Project Area. It joins with Bitter Creek, a tributary of the Green River, south of the Plant.

On-going groundwater monitoring has been conducted near the FGD Ponds 1 and 2 since the Plant's inception in the mid 1970's. As mentioned in Section 2.2.3, an extensive array of test wells have been dug in and around the Project Area to monitor the water flow and direction in the various underground formations. These wells have been dug at various depths within the formations and the

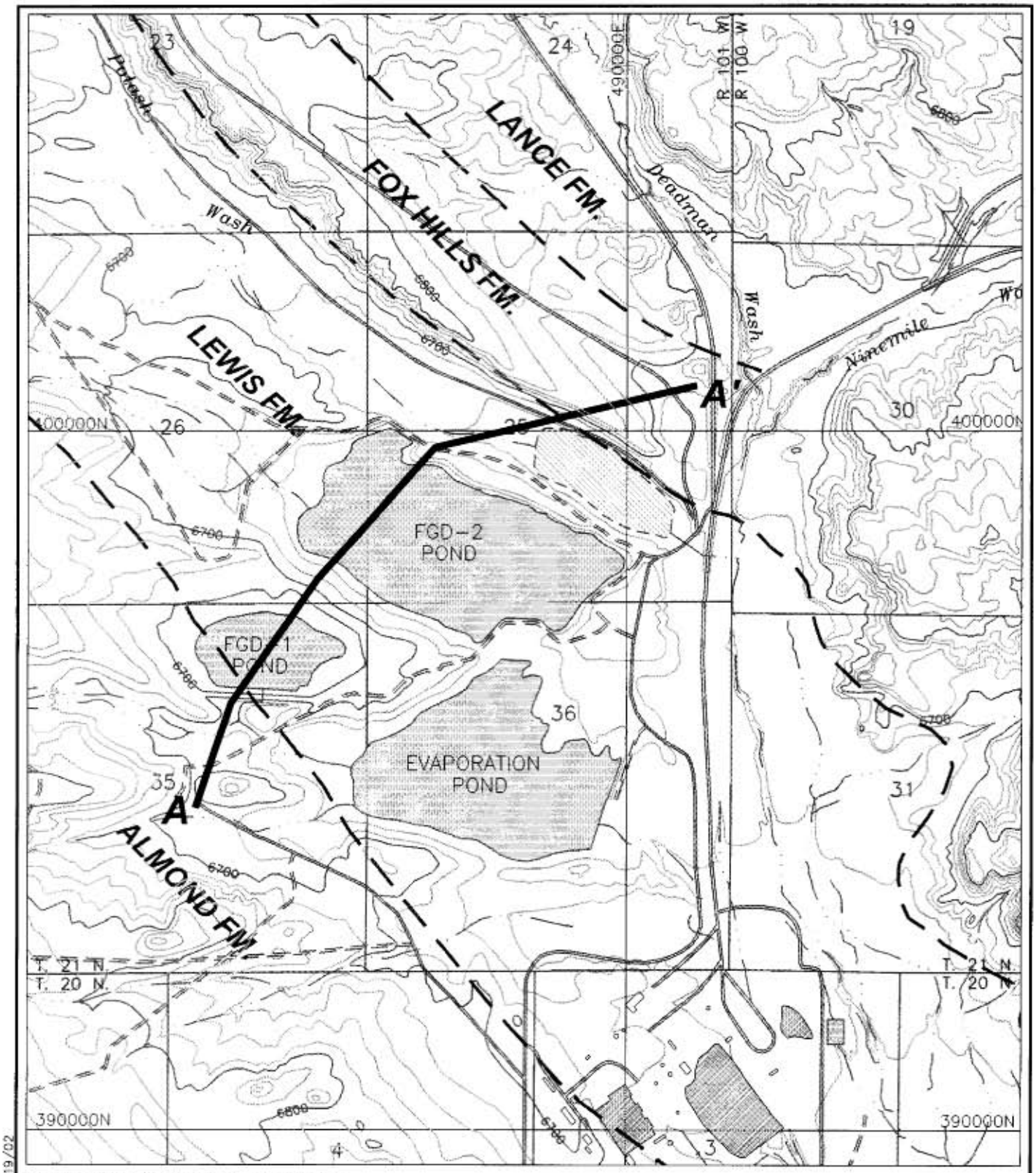
data collected has created a model to show the ground water flow rate and direction within the formations.

A groundwater model for potential contaminate leakage by the FGD ponds was created by the WDEQ between the late 1970's and early 1980's. PacifiCorp contracted Water and Environmental Technologies, LLC (WET) to initiate a more recent ground water model under the direction of the WDEQ. In 1999, ten new monitoring wells were installed and from that a model (May 2001) was established to determine ground water flow patterns. In 2000, a few deeper monitoring wells were installed and in December 2001, 21 additional wells were installed in the Alluvium, Weathered Lewis, Unweathered Lewis, and Almond formations (see Section 3.2.3) to monitor potential groundwater contamination. A copy of the report associated with the ground water monitoring model is located at the BLM Rock Springs Field Office (WET in draft).

There are four major water-bearing units, which control the hydrogeology beneath the Project and Plant site. They are the Quaternary alluvium, the Fox Hills sandstone, the Lewis shale and the upper Almond sandstone. Ground water levels near the ponds have increased over the approximate twenty-year life of the cooling and FGD ponds. Generally, the increase in ground water elevations is greatest near the ponds and decreases with increasing distance from the ponds. A more detailed description of the hydrogeology is also contained within the WET report.

An underground plume of contamination emanating from the FGD Pond 1 into the upper Almond, Lewis, and Fox Hills Formation consisting of higher levels of Total Dissolved Solids (TDS) was discovered by the test wells adjacent to the FGD ponds. The TDS in the ground water consists of sulfates, calcium, and magnesium percolated from the liquor solution within the FGD Pond 2. Since the water table is raised within the pond dike structure, the water within the FGD ponds in turn percolates through the geologic formation of black shale and accumulates higher levels of TDS into the ground water.

WDEQ regulations state that a discharge into an aquifer containing Class I, II, III or Special (A) Groundwater of the State shall not result in variations in the range of any parameter, or concentrations of constituents in excess of the standards of these regulations at any place or places of withdrawal or natural flow to the surface. The WDEQ only regulates the class and use and if the class of use has been impacted. According to WDEQ regulations, they will allow some contamination into the vicinity (WDEQ regulation chapter 8). In turn, Pacificorp must demonstrate that the groundwater would be restored back to its original state of classification. The WDEQ is concerned with the possibility of a plume of contamination leaving the site that would change the quality of water from the existing Wyoming Class III to Class IV if the pumpback system described in Section 2.2.3 were not developed. Wyoming Class III is defined as “suitable for livestock” and Class IV is defined as “suitable for fish and aquatic life”. According to WDEQ regulations, groundwater would be required to return to the original groundwater classification. In addition, the Town of Superior is concerned that ground water contamination from the FGD ponds may affect their drinking supply well (Class I – “Domestic Use Drinking Water”), or provide some form of remediation plan that would restore the water classification if contamination of the drinking supply is realized.



DRAWING MODIFIED FROM PACIFICORP

EXPLANATION

CONTACT (APPROXIMATE)

A — A' CROSS SECTION LOCATION (SEE FIGURE 4)

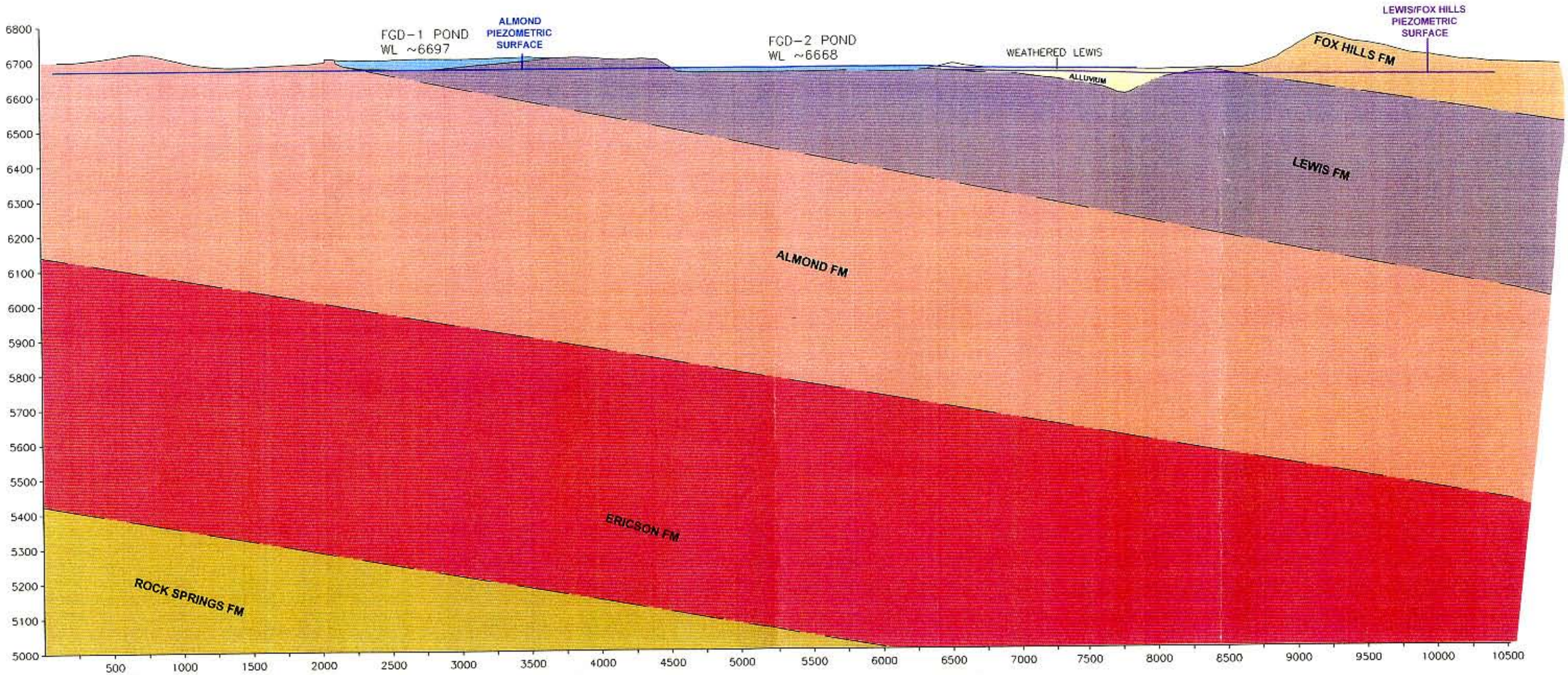
2000 0 2000 FEET

N

PACIFICORP
JIM BRIDGER POWER PLANT

FIGURE 3
GENERALIZED GEOLOGIC MAP

pccult_33\pccult33-2.dwg 2/19/02



750 0 750 FEET

VERTICALLY EXAGGERATED 2.5x

DRAWING FROM WATER & ENVIRONMENTAL TECHNOLOGIES, LLC. FOR PACIFICORP

PACIFICORP
JIM BRIDGER POWER PLANT

FIGURE 4
CROSS SECTION A–A'

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The groundwater contamination emanating from the FGD ponds should remain confined to the uppermost portions of the Almond Formation away from the Town of Superior's public water supply wells for five main reasons:

- The upward gradient in the confined portion of the Almond Formation,
- The upward gradient in the Ericson Formation,
- The low hydraulic conductivity of the Almond Formation,
- The Almond's southeasterly ground water flow direction away from the Superior wells and,
- The Almond's thickness of 700 feet.

3.2.5 Vegetation

The Project Area includes vegetative types that are not unique in the area. Primary shrub species include sagebrush (*Artemisia spp.*), saltbrush (*Atriplex gardneri*), and black greasewood (*Sarcobatus vermiculatus*). Principal grasses and forbs include meadow barley (*Hordeum brachyantherum*), sandberg bluegrass (*Poa secunda*), and basin wildrye (*Elymus cinereus*). No Forestry resources are located within the Project Area. Noxious weeds such as Canada thistle (*Cirsium arvense*) and foxtail barley (*Hordeum jubatum*) occur on roadsides in the general area, however, no noxious weeds exist within the Project Area (personal communication with Jim Glennon, BLM botanist).

3.2.6 Livestock Grazing/Range Management

The Project Area lies within the Rock Springs Allotment, which encompasses 791,593 acres of federal, 20,782 acres of state, and 984,803 acres of private land. A total of 97,361 animal unit months (AUM's) are allowed within this allotment. The Project Area is utilized for grazing from May 15th through December 1st. There are no developed water resources near the Project Area for livestock. Currently, there are no fences to keep out livestock from the FGD ponds. The Project Area is currently under utilized for livestock grazing (personal communication with Thor Stephenson, BLM, 2001).

3.2.7 Wildlife

The vegetation communities within and adjacent to the Project Area are not unique to the surrounding area which supports a variety of wildlife species including big game, raptors, small mammals, waterfowl, and reptiles. Big game found in the area includes mule deer, pronghorn antelope, and elk. The Project Area is within crucial winter range for mule deer.

The FGD ponds and the adjacent evaporation pond (part of the Plant's facilities) are located within the Pacific Flyway in an arid landscape which attracts migratory aquatic birds, especially in the late fall and winter when other nearby bodies of water are dried out or have iced over (Stevens, et. al, 2000). In addition, nesting species of waterfowl including eared grebes also uses the evaporation pond; 140 eared grebe nests were observed during a summer 2000 site visit. Migrating waterfowl include: shovelers, gadwalls, American coots, mallards, pintails, Barrow's golden eye, Canada geese, and teal.

Currently, hazing techniques such as loud speakers and pyrotechnics are arranged around the existing FDG Ponds 1 and 2, which are designed to prevent waterfowl from using the sulfur/salt, precipitate laden water. Radar installations placed near the ponds detect waterfowl or other wildlife species that enter the ponds. In addition, PacifiCorp personnel routinely monitor the FGD ponds for wildlife,

using nets to capture and remove any wildlife that enter the FGD ponds if pyrotechnics do not prevent wildlife from entering the ponds. The evaporation of the water in the FGD ponds is greatest in the summer months, leaving a majority of the surface area of the ponds dry. This occurs at the peak nesting periods for waterfowl in the nearby freshwater evaporation pond.

At temperatures below 23°C, the by-product in the FGD ponds crystallizes on any solid object in or on the water. The salt crystallization on the feathers of birds destroys their insulation and buoyancy. Birds so affected usually die from hypothermia or drown due to the accumulations of minerals on their feathers. If wildlife enters the water and is unable to escape, boats are utilized to capture the wildlife; the wildlife is then cleaned of the chemical precipitate, and returned to the wild. Some waterfowl die from drowning, but a great effort is made to minimize the loss. PacifiCorp personnel conduct daily inspections of the FGD ponds during non-migration periods and twice daily (or more) during the migration period or after storm events.

A study of the effectiveness of the bird-hazing system was conducted on the FGD ponds (Stevens et. al, 2000). The data shows that the system is effective in reducing the number of waterfowl entering the FGD ponds and thus greatly reducing the mortality rates to waterfowl due to the FGD ponds. Prior to the full installation of the bird-hazing system in 1997, in the years 1994 through 1996, an average of 672 birds were recovered annually from the FGD ponds with an average mortality rate of 84 per year. In the years 1997 through 2001, an average of 164 birds were recovered annually from the FGD ponds and returned to the wild. There was an average mortality rate of 20 per year.

Raptors that may be found in the area include red-tailed hawk, American kestral, merlin, great horned owl, prairie falcon, ferruginous hawk, and golden eagle. A cliff band is located within 0.5 miles of the Project Area and provides suitable habitat for nesting opportunities for a variety of raptors. A known golden eagle nest is located within 1.0 mile of the Project Area and appeared to be active in 2000.

3.2.8 Wild Horses

The Project Area is within the Divide Basin Wild Horse Herd Management Area (WHHMA). It encompasses an area from the Rawlins-Rock Springs District boundary west to the Continental Divide. The area consists of 778,915 acres of which 73 percent is public land. Monitoring has been conducted throughout the WHHMA mainly at the grazing allotment level. According to the RMP (BLM, 1996), the grazing allotments within the WHHMA appeared at the time to be in fair to good condition with much of the vegetation and erosion objectives being met. Wild horses currently utilize the Project Area for forage. The current number of wild horses within the WHHMA is approximately 700 (personal communication with Thor Stephenson, BLM), which is considered above the appropriate management level (AML).

3.2.9 Socio-economics

The Project Area is located in Sweetwater County where the minerals industry (coal, gas, and trona) vastly exceeds the other economic sectors such as service, government, agriculture, and recreation in terms of employment, property tax valuation, and revenue. With expansion in natural gas exploration and development, and new mine sites, an increase in population has led to a housing shortage in the recent past. Rock Springs is the closest city to the Project Area. Most, if not all of the work force for the Project would reside and dine in Rock Springs, benefiting the local economy.

3.2.10 Special Status Species

The U.S. Fish and Wildlife Service (USFWS), the BLM, the Wyoming Game and Fish Department (WGF), and the Wyoming Natural Diversity Database (WNDD) maintain occurrence records of Special Status Species. These agencies were contacted in order to determine which federally listed or sensitive species might occur in the Project Area. Dedicated surveys were conducted in the Project Area to search for these and other listed species in 2000 and 2001. In addition, a literature search reviewed the preferred habitats, and elevational ranges, and a determination was made regarding the potential for each species to occur within the Project Area.

Special Status Wildlife Species

The USFWS was officially consulted for a list of federally listed Threatened, Endangered, Proposed, or Candidate species that potentially occur in the Project Area. Five wildlife species were identified by the USFWS as potentially inhabiting the Project Area: bald eagle (*Haliaeetus leucocephalus*) - threatened, black-footed ferret (*Mustela nigripes*) - endangered, mountain plover (*Charadrius montanus*) - proposed, yellow-billed cuckoo (*Coccyzus americanus*) – candidate, and whooping crane (*Grus americanus*) - endangered.

JBR performed field survey/site visits within and around the Project Area in July 2000 and conducted a site visit in August 2001. No federally listed, state, or BLM sensitive species were observed during these surveys/visit. In addition, no federally listed, state, or BLM animal sensitive species are known to inhabit the Project Area (personal communication with Jim Dunder, Wildlife Biologist, BLM, 2001).

Special Status Plant Species

The USFWS was officially consulted for a list of federally listed Threatened, Endangered, Proposed, or Candidate species that potentially occur in the Project Area. One plant species, Ute ladies' tresses (*Spiranthes diluvialis*) - threatened, was identified as potentially occurring within the Project Area. In addition, Mystery wormwood (*Artemisia biennis* var. *diffusa*) a BLM sensitive species could potentially occur in the Project Area.

A Special Status Plant survey was conducted within the Project Area by the BLM in 2001 (personal communication with Jim Glennon, Botanist, BLM, 2001). No federally listed, state, or BLM special status plant species were present in the Project Area.

4.0 ENVIRONMENTAL CONSEQUENCES

The Environmental Consequences chapter of this EA discusses environmental, social, and economic changes when the Project is implemented. Any additional mitigation or monitoring requirements not mentioned in Section 2.2.10 are listed under the appropriate resource.

4.1 Cultural Resources

Impacts of the Proposed Action: No eligible cultural resource sites would be affected by the Project. If any new sites were discovered during construction activities, Environmental Protection Measures outlined in Section 2.2.10 would be initiated.

Impacts of the No Action Alternative: Under the No Action Alternative, any cultural, historical, and prehistoric resources would remain unaltered.

4.2 Soils

Impacts of the Proposed Action: Implementation of the Proposed Action could result in the direct surface disturbance of a maximum of approximately 267 acres. The majority of this disturbance would occur from construction of the dikes surrounding the FGD Pond 2. Soil for the dikes would originate from the borrow area west of the FGD Pond 2. A new road would be built around the expanded pond perimeter as a result of the Project. Stockpiled native topsoil would be used to reclaim FGD Pond 1 and completed areas associated with the expanded FGD Pond 2.

Impacts on the No Action Alternative: Under the No Action Alternative, the majority of previously undisturbed soils would remain unaltered and naturally occurring erosion would continue at the present rate.

4.3 Geology

Impacts of the Proposed Action: Implementation of the Proposed Action would result in the digging of new test wells and pump back systems into the underlying rock formations in the Project Area as described in Section 2.2.3 and 3.2.3. No other impacts to the geologic resources would occur as a result of the Project.

Impacts of the No Action Alternative: The impacts to geologic resources under the No Action Alternative would be the same as the impacts under current conditions.

4.4 Water Resources

Impacts of the Proposed Action: As mentioned in Section 3.2.4, no perennial stream crossings are located within the Project Area. Ground water monitoring wells would be placed in strategic locations around FGD Ponds 1 and 2. A system of wells and pumpback systems would remove contaminated ground water and pump the water back into the FGD ponds. The Project would add an

additional 11 monitoring wells and an associated pumpback system around the FGD ponds; 9 would be located around FGD Pond 2 and an additional 2 wells and pumps, if required, would be located near FGD Pond 1. The pumpback system would be used at the wells to pump contaminated water back into the FGD ponds at these sites. This action would contain the contamination within PacifiCorp property or within BLM ROW Grants and keep the Project in compliance with WDEQ regulations. The pumpback system would be built regardless of the FGD Pond 2 expansion. As such, no adverse affect to the groundwater is anticipated. The WDEQ has and would continue oversight of the ground water monitoring and permit the pumpback system proposed by PacifiCorp. Impacts of the No Action Alternative: The pumpback system would be constructed on existing ROW grants or land owned by PacifiCorp even if the BLM did not grant PacifiCorp the amended ROW for the FGD Pond 2 expansion. As such, no adverse affects to the ground water would be anticipated. The FGD Pond 1 would reach its capacity and Plant production would either discontinue or an unfavorable alternative would have to be considered.

Mitigation: PacifiCorp would install 11 additional monitoring wells and a pumpback system. PacifiCorp well develop an agreement with the Town of Superior to monitor and mitigate, if necessary, groundwater conditions as it relates to the water supply to the Town of Superior. It would be PacifiCorp's responsibility to meet WDEQ requirements for containment of FGD pond seepage.

Monitoring: Monitoring of the ground water around both FGD ponds would continue as required by the WDEQ. Based on data acquired through monitoring, the pumpback system would be modified. Additional pumpback wells would be dug, if required, based upon the performance of the existing wells. The WDEQ would not allow the closure of FGD Pond 1 if the effluent in the bottom of the pond has contact with the ground water.

4.5 Vegetation

Impacts of the Proposed Action: Implementation of the Proposed Action would directly impact a maximum of approximately 267 acres of grassland and sagebrush/greasewood communities. This impact would extend approximately 30 to 40 years into the future. Any vegetation impacted during construction activities which would not be inundated by the FGD Pond 2 expansion, would be revegetated according to BLM specifications. At the completion of the Proposed Action, FGD Pond 1 would be allowed to dry up, reclaimed and revegetated. The result of this action would add approximately 110 acres of new vegetation after reclamation activities are completed.

Impacts of the No Action Alternative: Under the No Action Alternative, the current trend for the majority of existing vegetation communities would continue. A total of 177 acres of vegetation would not be affected by the FGD Pond 2 expansion.

4.6 Livestock Grazing

Impacts of the Proposed Action: The proposed FGD Pond 2 expansion would not adversely affect grazing allotments in the area. The Project Area is located within the nearly two million-acre Rock Springs Allotment. The Proposed Action would affect approximately 266.7 acres of the allotment. In February 2000 an analysis for a proposed land sale that included the Project Area was conducted

by the BLM. It was determined that the acreage affected by the FGD Pond 2 expansion represented approximately 27 AUMs out of over 97,000 AUMS in the allotment. The acreage affected is less than 0.1 percent of the total allotment acreage. In addition, the Proposed Action would not affect water resources for livestock. The Proposed Action would alter Federal grazing permitted use within the Rock Springs Allotment; however, the Project Area is located in an undesirable location due to the lack of water resources. Grazing within the Project Area is currently and has been historically under utilized (personal communication with Thor Stephenson, BLM, 2001).

No fencing is proposed or planned to isolate livestock from the FGD ponds. After the completion of the FGD Pond 2 expansion, FGD Pond 1 would be allowed to dry up and would be reclaimed no sooner than after a 5-year period. After reclamation and revegetation is completed, available forage or livestock would be increased by 110 acres within the allotment, although it would likely remain underutilized.

Impacts of the No Action Alternative: Under the No Action Alternative, the trend for grazing in the Project Area would continue at the presently under utilized rate.

4.7 Wildlife

Impacts of the Proposed Action: The Proposed Action would have no long-term direct impacts on wildlife populations. Minimal indirect impacts to some small, less mobile wildlife would likely occur as they would be forced to disperse from the area or may be killed or injured during construction activities, but populations on a whole would not be affected. A net permanent loss of 266.7 acres of habitat would eliminate a small area of forage and thermal cover. The noise/activity impact to wildlife would be temporary during the construction period.

The timing of the Proposed Action would not coincide with the use of Critical Winter Deer Range within the Project Area. A permanent loss of forage of approximately 177 acres within the critical range habitat would be realized when the flooding of the FGD Pond 2 is complete. At the completion of FGD Pond 2 expansion, FGD Pond 1 would be allowed to dry up and be reclaimed. This would add an additional 110 acres of forage to the Critical Winter Deer Range.

The bird-hazing system surrounding the FGD Pond 2 would be expanded and upgraded as the surface area increases. The FGD Pond 2 would increase in surface area from 225 acres to 402 acres and may have a potential to increase the loss of waterfowl due to drowning and hypothermia. However, after an approximately five year period, FGD Pond 1 would be allowed to dry up, reducing the overall acreage of the FGD Pond areas by 110 acres, and thus reducing the overall potential of mortality to waterfowl.

During construction and the re-routing of the electrical distribution lines, the bird hazing system at the FGD Pond 2 would be shut down temporarily. PacifiCorp personnel would be placed near the FGD Pond 2 utilizing pyrotechnics to discourage waterfowl from entering the Pond and using nets to capture any waterfowl, thus, decreasing the potential for mortality to the waterfowl.

Impacts of the No Action Alternative: Under the No Action Alternative, wildlife would continue to

use the area as they do now. During maintenance activities of the existing facilities, some habitat disturbance and temporary displacement of wildlife would occur.

4.8 Wild Horses

Impacts of the Proposed Action: A loss of 266.7 acres of available forage would be lost for the wild horse population in the approximately 780,000 acres of the WHHMA. The reduction in available forage area is less than 0.1 percent of the management area. According to the BLM, the current population of wild horses is above the AML for the management area. Some wild horses may be displaced from using the immediate area onto adjacent habitat that is readily available in the area. This may cause undesirable interactions between wild horse populations in the area. The noise and construction activity may also cause wild horses to leave the immediate area during the FGD Pond 2 expansion activities further creating conflicts between interacting wild horses; however, according to Thor Stephenson, BLM range management specialist, impacts to wild horses in the Project Area would be minimal. After completion of the FGD Pond 2 expansion, FGD Pond 1 would be reclaimed and revegetated, adding 110 acres of available forage and habitat after an approximately 5-year period.

Impacts of the No Action Alternative: Population trends and use of the Project Area by wild horses would continue at present levels.

4.9 Socio-economics

Impacts of the Proposed Action: Implementation of the Proposed Action would provide beneficial economic impacts to the local community from transient construction personnel. The Plant would continue power production without costly alternative remedies in lieu of the FGD Pond 2 expansion, allowing energy to be delivered to the western grid uninterrupted. The Plant's employees and it's contractors would continue to be housed in the local community. The construction activities associated with the FGD Pond 2 expansion would be short term in nature (two summer seasons) for a small work force (approximately 30 persons). The proposed Project would require temporary housing near the Project Area for work crews if PacifiCorp used non-local contractors for the Pond 2 expansion which would add additional income for local businesses.

Impacts of the No Action Alternative: Under the No Action Alternative, the FGD ponds would be filled to capacity within three years. Costly alternatives would be required to maintain the operations of the Plant. These alternatives may put the economic viability of the Plant in jeopardy, and the possibility would exist that the Plant could be shut down or have reduced capacity to produce power for the western U.S. power grid. This would further reduce available electricity to users, creating higher prices, reducing productivity, and with potential Plant slowdowns or shutdowns, would create a reduced number of available jobs within the local community.

4.10 Special Status Species

Impacts of the Proposed Action: Implementation of the Proposed Action would have no affect on federally listed species because the Project Area does not contain suitable habitat for the bald eagle, black-footed ferret, mountain plover, whooping crane, Mystery wormwood, yellow-billed cuckoo, or

Ute ladies' tresses. No impacts to federally listed, state, or BLM sensitive species would occur from implementation of the Proposed Action.

Impacts of the No Action Alternative: Under the No Action Alternative, population trends and usage of the Project Area for Special Status Species would continue at present levels.

5.0 CUMULATIVE IMPACTS

The Proposed Action would contribute a minor amount of disturbance to the existing environment. Most of the disturbance would be long-term in nature until the life of the Plant is complete and the area is reclaimed and revegetated. This may occur after an approximately 40-year period. A permanent loss of a maximum of 266.7 acres for the Proposed Action, mostly within an existing ROW, would occur for the life of the Plant. The temporary and permanent disturbance would contribute no additional impacts to sensitive natural resources in the area with the exception of the minimal loss of winter deer range. Common activities in the area include coal mining and cattle grazing. Most of these activities have been occurring over the past 80-100 years and species associated with this area are accustomed to these types and levels of disturbance. The Project would not significantly change the level of these impacts. All resource values have been evaluated for cumulative impacts. It has been determined that cumulative impacts would be negligible as a result of the Proposed Action or the No Action Alternative.

6.0 CONSULTATION AND COORDINATION

6.1 List of Preparers

David Dayton	Project Management and Document Preparation
Greg Brown	Document Preparation and Assistant Project Management
Linda Matthews	Document Review

6.2 PacifiCorp

W. Craig Seamons, P.E.	Project Manager
Mike Wolf	Property Agent
Mike Myer	Plant Contact Engineer
Bruce Woodward	Environmental Engineer

6.3 Bureau of Land Management

Darlene Horsey	NEPA Coordinator
Becky Heick	Realty Specialist
Thor Stephenson	Rangeland Management Specialist
Jim Dunder	Wildlife Biologist
Terry Del Bene	Archaeologist
Dave Valenzuela	Geologist
Jim Glennon	Botanist
Scott Sanner	Mining Engineer
Renee Dana	Resource Advisor
John MacDonald	Soil Scientist/NRS
Dennis Doncastor	Hydrologist

6.4 Persons, Groups and Agencies Consulted

David Erickson, Water and Environmental Technologies
Elizabeth Erickson, Water and Environmental Technologies
U. S. Fish and Wildlife Service
Wyoming Game and Fish Department
Wyoming Natural Diversity Database
Rich Webber, Bird-Hazing Specialist
U.S. Army Crops of Engineers

6.5 Coordination Meetings

January 16, 2002 - Information Meeting for the Representatives of Superior – PacifiCorp, Town of Superior, WET, and PERCO attending.

January 25, 2002 – General Information Meeting – BLM, Town of Superior, JBR, WDEQ, WET, and PacifiCorp attending.

February 15, 2002 – General Information Meeting – BLM, Town of Superior, and PacifiCorp attending.

February 28, 2002 – General Information Meeting for the Town of Superior City Council – WDEQ, WET, Town of Superior, Wyoming Rural Water, Citizens of Superior, Law Enforcement of Superior, and PacifiCorp attending.

7.0 REFERENCES

Bureau of Land Management (BLM). 1996. Green River Resource Area Management Plan and Final Impact Environmental Impact Statement. U.S. Department of Interior. Rock Springs Field Office, Wyoming.

Stevens, Gwen R., Rogue Jamie, Weber, Richard, Clark, Larry. 2000. Evaluation of a Radar-activated, Demand-performance Bird Hazing System. International Biodeterioration & Biodegradation 45, pages 129-137.

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Water and Environmental Technologies LLC. In progress. Jim Bridger Power Plant FGD Pond 2 Expansion Permit Application Report.

Western Archeological Services. 2002. A Cultural Resource Inventory of the PacifiCorp FGD Pond 2 Expansion Project, Sweetwater County, Wyoming. Western Archeological Services.