Amendment No. 1

to the Site Certificate Application for the

COB Energy Facility

Submitted to the

Oregon Energy Facility Siting Council

July 25, 2003

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Acronyms and Abbreviations

ac-ft/day	acre-feet per day
Applicant	COB Energy Facility, LLC
bgs	below the ground surface
BOP	balance of plant
Btu/kWh	British thermal units per kilowatt-hour
cfs	cubic feet per second
COB	California-Oregon border
Council	Energy Facility Siting Council
CTG	combustion turbine generator
DEQ	Oregon Department of Environmental Quality
GE	General Electric
gpm	gallons per minute
HHV	high heating value
HRSG	heat recovery steam generator
ISO	International Organization for Standardization
MG	million gallon
mgd	million gallons per day
mg/L	milligrams per liter
MMcf/d	million cubic feet per day
MW	megawatt
NRCS	National Resource Conservation Service
OAR	Oregon Administrative Rule
ODOE	Oregon Department of Energy
ODSL	Oregon Division of State Land
OTD	offsite treatment and disposal
OWRD	Oregon Water Resources Department
PFO	Proposed Final Order
PG&E GTN	Portland Gas and Electric Gas Transmission Northwest
PM	particulate matter
psig	pounds per square inch gauge

RAI	request for additional information
RO	reverse osmosis
SCA	site certificate application
SCS	Soil Conservation Service
SHPO	State Historic Preservation Office
STG	steam turbine generator
SWPCW	Stormwater Pollution Control Plan
TDS	total dissolved solids
WPCF	water pollution control facility
WWTP	wastewater treatment plant

Executive Summary

COB Energy Facility, LLC (the Applicant) is pleased to submit to the Oregon Energy Facility Siting Council (Council) Amendment No. 1 to the site certificate application filed with the Oregon Office of Energy on September 5, 2002. This amendment documents the switch from wet cooling to air cooling at the COB Energy Facility. Information provided in this amendment is based on the site certificate application (referred to from this point forward as the original SCA) and the *Request for Additional Information (RAI) Compilation Document* filed on May 9, 2003.

Key Changes

Substantive changes are as follows:

- The switch from wet cooling to air cooling means the cooling towers will be replaced by air-cooled condensers.
- Eliminating the cooling towers will eliminate the water vapor plume. This means that there will no longer be cooling tower salt deposition.
- Air cooling reduces the Energy Facility water requirements by 97 percent (210 gallons per minute [gpm] vs. 7,500 gpm). As with the original SCA, an additional 90 gpm will be used for irrigation around the Energy Facility site.
- The water supply reservoir will be replaced by raw water storage tanks located on the Energy Facility site.
- The preferred alternative disposal option for wastewater will be to store the wastewater in tanks located on the Energy Facility site, and routinely haul the wastewater to a treatment plant. This option eliminates the need for an evaporation pond.
- The back-up wastewater disposal alternative will be a lined, onsite evaporation pond. Owing to the reduced wastewater volumes and concentrations generated by the air-cooled Energy Facility, the evaporation pond will be reduced in size to 36 acres from the 51 acres described in the original SCA. Also, the spray enhancement system described in the original SCA will likely not be necessary, thereby eliminating the potential for spray drift outside the evaporation pond if it is constructed. In addition to use of an evaporation pond, the Applicant may evaluate land application of wastewater.
- The overall permanent disturbance during the 30-year operating life of the Energy Facility will be reduced to 103.5 acres from 194.3. This reduction is a result of the elimination of the water supply reservoir, the evaporation pond, and the cooling tower salt deposition area with the preferred alternative of wastewater. If the back-up option is required, the permanent disturbance will be reduced to 139.5 acres.

This document also identifies minor project changes unrelated to the cooling system changes. In particular:

- The Applicant requests that the Council grant the ability to construct the Energy Facility in one or two phases depending on conditions of the electric power market after approval of the site certificate application.
- The Applicant has decided to revise the carbon dioxide emissions calculation to reflect a 72 percent capacity factor.
- A preliminary soil investigation and shallow groundwater assessment (CH2M HILL, December 2002) were conducted at the COB Energy Facility. The purpose of the investigation and assessment was to provide additional information on cooling tower salt deposition, salt impacts in soil, and shallow groundwater interactions with deposited salts at the COB Energy Facility for the wet-cooled Facility arrangement. While the information and conclusions related to cooling tower salt deposition will not be applicable to air cooling, the information related to soil properties and characteristics as well as the shallow groundwater hydrology are applicable to the air-cooled Facility arrangement.
- A preliminary drainage plan is included this amendment as Amendment No. 1 Figure C-5 and is submitted to meet the requirements in Klamath County Land Development Article 73.

This amendment summarizes changes or additional information by exhibit. If given information in the original SCA is not discussed, that information will not be affected by the switch to air cooling.

Exhibit A–Information About Applicant

No changes or additional information required.

Exhibit B—Project Description

Exhibit B includes information about the proposed Energy Facility, the construction schedule, and temporary disturbances of the site. This exhibit is organized in accordance with the Application requirements set forth in OAR 345-021-0010(1)(b) (the "Rule").

Regulatory Citation

> *Information about the proposed facility, construction schedule and temporary disturbances of the site, including:*
>
> *(A) A description of the proposed energy facility, including as applicable:*
>
> *(i) Major components, structures and systems, including a description of the size, type and configuration of equipment used to generate electricity and useful thermal energy;*

Response

The following changes apply to the Energy Facility site:

- The Energy Facility site will be 45.9 acres instead of the 42.5 acres stated in the Request for Additional Information (RAI) Compilation Document. The slight increase is required because the air-cooled condensers are larger structures than the cooling towers. The Energy Facility site includes an approximately 6-acre laydown and storage area for use during operation of the Energy Facility.
- Based on conditions of the electric power market after approval of the site certificate application (SCA), COB Energy Facility, LLC (the Applicant) may decide to construct the Energy Facility in one phase or two phases:
  - One Phase: If the Energy Facility is constructed in one phase, it will consist of two blocks of a two-on-one configuration in combined-cycle operation as described in the original SCA. A block will consist of two General Electric (GE) model 7 FA (or equivalent) combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs), and one steam turbine generator (STG). The nominal generating capacity at average annual conditions is estimated at 1,160 megawatts (MW). The heat rate on a higher heating value basis (HHV) will be approximately 7,391 British thermal units per kilowatt hour (Btu/kWh) when supplemental duct firing is used and 6,842 Btu/kWh without supplemental duct firing.
  - Two Phases: If the Energy Facility is constructed in two phases, each phase will be a combined-cycle operation consisting of a single block of a two-on-one configuration (Amendment No. 1 Figure B-1a [Figure B-1 in the original SCA]). Each phase will have

a nominal generating capacity of 580 MW at average annual conditions. The base load capacity is approximately 450 MW and supplemental duct firing adds up to 130 MW at average annual conditions for each 580-MW phase. For the first 580-MW phase, the heat rate on a HHV will be approximately 7,391 British Btu/kWh when supplemental duct firing is used and 6,842 Btu/kWh without supplemental duct firing.

- Air-cooled condensers will replace the cooling towers. The particulate matter (PM) air pollution emissions from cooling tower mist will be eliminated. There are no air emissions from the air-cooled condensers.

- Under the preferred wastewater disposal option, the evaporation pond and water supply reservoir described as related and supporting facilities in the original SCA will be replaced by steel storage tanks. The raw water and wastewater storage tanks will be located immediately adjacent to the power generation equipment and will be considered part of the Energy Facility site. The raw water storage tanks will be 1.1 million gallons (MG) each and the wastewater storage tanks will be 2.2 MG each. The back-up wastewater option is discussed in the bulleted list below.

The following changes apply to the related and supporting facilities:

- As described above, the water supply reservoir and evaporation pond will be eliminated and replaced by storage tanks on the Energy Facility site under the preferred wastewater disposal scenario.

- Under the back-up wastewater disposal option, the reduced volume of wastewater will be treated in a lined, onsite evaporation pond. The pond will be in approximately the same location as proposed in the original SCA, but will be reduced in size to 36 acres from 51 acres (a 29 percent reduction). Because the wastewater discharge volume is greatly reduced, the spray enhancement system described in the original SCA will likely not be necessary. The evaporation pond will most likely be designed to operate passively. If the Energy Facility is built in two phases, the evaporation pond will be built in two 18-acre phases as well. A wastewater stream pipeline will take wastewater from the Energy Facility to the evaporation pond. Wastewater stream pipeline features will be as follows:

  - Between 1 and 3 inches in diameter based on final design
  - Installed aboveground
  - Approximately 2,000 feet long
  - Located inside the disturbance area for the Energy Facility (inside the laydown and storage area).

  In addition to use of an evaporation pond, the Applicant may evaluate land application of wastewater.

- The water supply well system will consist of the existing well reconstructed to isolate the shallow zone aquifer from the deep zone aquifer and two additional water supply wells accessing only the deep zone aquifer as described in the original SCA. The two additional water supply wells are necessary for back-up to ensure reliability of the water supply to the

Energy Facility. Whether the Energy Facility is constructed in phases, the water well supply system will be constructed at one time.

- The water from the water supply well system will be pumped through a 6-inch-diameter, 2.8-mile water supply pipeline to the water supply tanks on the Energy Facility site. The route of the water supply pipeline is similar to the route documented in the original SCA, except the section closest to the Energy Facility site has been changed to end at the water supply tanks. The diameter has been reduced to 6 inches from 20 inches. A 2,300-foot section of water supply pipeline between the water supply reservoir and the Energy Facility that allows water to flow by gravity is not required. The revised route of the water supply pipeline will go directly to the water supply storage tanks.
- The permanent laydown and storage area will be reduced to approximately 6 acres and is considered part of the Energy Facility site and not a related and supporting facility.
- The 71 acres of temporary construction parking and laydown areas remain unchanged from the original SCA.

Regulatory Citation

(ii) A site plan and general arrangement of buildings, equipment and structures;

Response

Amendment No. 1 Figures B-2 and B-3 (Figures B-2 and B-3 in the original SCA) are revised visual simulations of the Energy Facility.

Regulatory Citation

(iii) Fuel and chemical storage facilities, including structures and systems for spill containment;

Response

No changes or additional information required.

Regulatory Citation

(iv) Equipment and systems for fire prevention and control;

Response

No changes or additional information required.

Regulatory Citation

(v) Structures, systems and equipment for waste management and waste disposal, including, to the extent known, the amount of wastewater the applicant anticipates and the applicant's plans for disposal of wastewater and storm water. If the applicant has submitted any permit applications to the Office, as described in OAR 345-021-0000(4), that contain this information, the applicant may copy relevant sections of those documents into this exhibit or include in this exhibit cross-references to the relevant sections of those documents;

Response

Wastewater

Wastewater from the flushing and hydrostatic testing (testing and commissioning wastewater) is estimated to be 4.8 MG. This wastewater volume is reduced from the 29 MG in the original SCA by filtering and recycling/reusing water. Hydrostatic testing and flushing will be performed sequentially with water filtered between steps so that water can be reused and recycled to the extent possible.

Under the preferred wastewater disposal option, wastewater during operations will flow to two 2.2-million-gallon storage tanks. One 2.2-million-gallon tank will be constructed per 580-MW block. An annual maximum of approximately 5 MG of wastewater will be generated assuming the Energy Facility has a capacity factor of 72 percent. Monthly volumes will depend on actual operation of the Energy Facility and are expected to average 417,000 gallons with a maximum of 820,000 gallons. The total dissolved solids (TDS) content will be approximately1,004 milligrams per liter (mg/L) and the total suspended solids content will be 1 mg/L. TDS is an order of magnitude lower for the air-cooled arrangement compared to the approximately 16,365 mg/L for TDS in the wet-cooled system described in the SCA. The solid waste described in the original SCA will be eliminated under the preferred wastewater option.

Under the back-up wastewater disposal option, the wastewater from hydrostatic testing and flushing and the wastewater from Energy Facility operations will treated in a lined, onsite evaporation pond. Evaporation will leave a solid waste that will occasionally be removed for disposal in a licensed landfill. This solid waste is a nonhazardous solid waste composed of water-treatment chemicals and constituents concentrated from the raw water supply.

The cooling towers will be replaced by air-cooled condensers. Air-cooled condensers perform the same function as cooling towers, except air is used for heat transfer. There will be no water vapor plume.

Stormwater

During the operations phase, stormwater will be managed in accordance with the requirements of Stormwater General Permit 1200-Z and a Stormwater Pollution Control Plan (SWPCP)**.** The drainage from disturbed areas at the Energy Facility site will be designed to drain to a stormwater detention pond**.** Stormwater runoff from undisturbed areas will be diverted to prevent it from coming in contact with disturbed areas on the Energy Facility site. The outflow

from the stormwater detention pond will go to a Klamath County drainage ditch along the east side of West Langell Valley Road. This drainage ditch discharges to an irrigation canal, labeled High Line Levee Ditch on the U.S. Geological Survey quadrangle map. High Line Levee Ditch eventually discharges to the Lost River. The drainage ditch along the east side of West Langell Valley Road is approximately 8,000 feet long and the irrigation canal to the Lost River is approximately 32,000 feet long. Therefore, stormwater from the Energy Facility site will travel approximately 40,000 feet before it reaches the Lost River.

The stormwater runoff calculations were performed using TR-55 software, which employs the Natural Resource Conservation Service (NRCS, formerly the Soil Conservation Service [SCS]) method for computing stormwater runoff. A weighted curve number of 88 was used for the Energy Facility site. For the same area, a weighted curve number of 69 was used to calculate the predevelopment runoff. A 25-year storm event consisting of 2.5 inches of rainfall was used as the design case for the stormwater detention pond. This storm event resulted in 1.38 inches of runoff from the Energy Facility site, which is approximately 1.5 MG. The peak predevelopment flow was calculated at 12 cubic feet per second (cfs) (5,386 gallons per minute [gpm]) and was used as the peak outflow from the stormwater detention pond. The peak runoff from the Energy Facility site was calculated at 85 cfs (38,151 gpm) and was used as the peak inflow to the stormwater detention pond. Based on the predevelopment flow and the Energy Facility site hydrographs, the stormwater detention pond is sized for 2.3 acre-feet or approximately 750,000 gallons.

Regulatory Citation

> *(vi) For thermal power plants and electric generating facilities producing energy from wind, solar or geothermal energy:*
>
> *(I) A discussion of the source, quantity, availability, and energy content of all fuels (higher heating value) or the wind, solar or geothermal resource used to generate electricity or useful thermal energy. For the purpose of this subparagraph, "source" means the coal field, natural gas pipeline, petroleum distribution terminal or other direct source;*

Response

Diesel fuel will be stored onsite for the diesel-fired fire water pump. The pump will be equipped with a diesel fuel tank of approximately 100 gallons that will be used for diesel fuel storage. The diesel-fired pump and fuel tank will be located inside a concrete spill containment berm sized to contain 110 percent of the fuel tank volume.

Diesel fuel also will be used for the backup generators at the water supply well system and will be stored in skid-mounted, double-walled, diesel fuel tanks. An interior tank will be located inside a rupture containment basin. The tanks will be located inside a concrete spill containment berm sized to contain 110 percent of the fuel tank volume. Each tank will hold approximately 2,150 gallons of diesel fuel. In the original SCA, the diesel fuel storage tanks at the water supply wells were listed as 200 to 500 gallons in size. The size has been increased to accommodate operation of the water supply wells for up to approximately 37 hours on diesel fuel if necessary.

Regulatory Citation

(II) Fuel cycle and usage including the maximum hourly fuel use at net electrical power output at average annual conditions for a base load gas plant and the maximum hourly fuel use at nominal electric generating capacity for a non-base load power plant or a base load gas plant with power augmentation technologies, as applicable;

Response

No changes or additional information required.

Regulatory Citation

(III) Process flow, including power cycle and steam cycle diagrams to describe the energy flows within the system;

Response

Amendment No. 1 Figure B-4a is a revised process flow diagram (Figure B-3 in the RAI Compilation Document and Figure B-4 in the original SCA). Amendment No. 1 Figures B-4b and B-4c diagram process flows for maximum case and average annual case scenarios, respectively.

Regulatory Citation

(IV) Equipment and systems for disposal of waste heat;

Response

The steam from the exhaust of the STG will be routed through a steam exhaust header to an air-cooled condenser where the steam is condensed and condensate is routed back to the individual HRSGs to complete the closed steam cycle. The air-cooled condenser consists of a network of fin tube bundles typically oriented in an A-frame configuration. The tube banks rest on an elevated deck structure that allows free movement of air below. Directly beneath the A-frame tube banks are large, electric-driven fans that force air up through and across the fin tube bundles. Heat is transferred to the air from the steam via the fin and tube surfaces. Once the steam's latent heat is removed and transferred to the air moving over the tube banks, the steam condensation process is complete. The condensed steam (condensate) is gravity-drained back to a condensate collection tank. The warm condensate is then pumped back to the HRSG where it passes through a series of feed water heating stages and is changed back to steam. Then the cycle is repeated.

Regulatory Citation

(V) The maximum number of hours per year and energy content (Btu per year) of alternate fuel use;

Response

No changes or additional information required.

Regulatory Citation

(VI) The nominal electric generating capacity;

Response

At any given moment, the specific output will be a function of ambient conditions and regional power system requirements. If the Energy Facility is constructed in one phase, the nominal generating capacity at average annual conditions in the combined-cycle configuration is estimated at 1,160 MW. If the Energy Facility is constructed in two phases, each phase will have a nominal generating capacity of 580 MW at average annual conditions in the combined-cycle configuration.

Regulatory Citation

(VII) The fuel chargeable to power heat rate;

Response

No changes or additional information required.

Regulatory Citation

(vii) For transmission lines, the rated voltage, load carrying capacity, and type of current;

Response

No changes or additional information required.

Regulatory Citation

(viii) For pipelines, the operating pressure and delivery capacity in thousand cubic feet per day;

Response

The capacity of the 20-inch natural gas pipeline serving the Energy Facility will be 309,000 million cubic feet per day (MMcf/d). The capacity was modeled with a minimum 600-pounds- per-square-inch-gauge (psig) upstream pressure provided by PG&E GTN (consistent with information in the original SCA) and a 550-psig delivery pressure to the regulator at the Energy Facility.

Regulatory Citation

(ix) For surface facilities related to underground gas storage, estimated daily injection and withdrawal rates, horsepower compression required to operate at design injection or withdrawal rates, operating pressure range and fuel type of compressors; and

Response

No changes or additional information required.

Regulatory Citation

(x) For facilities to store liquefied natural gas, the volume, maximum pressure, liquefaction and gasification capacity in thousand cubic feet per hour;

Response

No changes or additional information required.

Regulatory Citation

(B) A description of major components, structures and systems of each related or supporting facility;

Response

The following changes apply to the related and supporting facilities:

- The water supply reservoir will be eliminated and replaced by storage tanks on the Energy Facility site.
- Under the back-up wastewater disposal option, the reduced volume of wastewater will be treated in a lined, onsite evaporation pond. The pond will be in approximately the same location as proposed in the original SCA, but will be reduced in size to 36 acres from 51 acres (a 29 percent reduction). Because the wastewater discharge volume is greatly reduced, the spray enhancement system described in the original SCA will likely not be necessary. The evaporation pond will most likely be designed to operate passively. If the Energy Facility is built in two phases, the evaporation pond will be built in two 18-acre phases as well. A wastewater stream pipeline will take wastewater from the Energy Facility to the evaporation pond.
- The water supply well system will consist of the existing well reconstructed to isolate the shallow zone aquifer from the deep zone aquifer and two additional water supply wells as described in the original SCA. The two additional water supply wells are necessary for back-up to ensure reliability of the water supply to the Energy Facility. Regardless of whether the Energy Facility is constructed in phases, the water supply system will be constructed at one

time. Submersible pumps will be used. Electrical service to the Babson well currently exists. However, the local power company will be responsible for upgrading the electrical service to accommodate the increased electrical load. Emergency back-up power to the pump will be provided by an onsite diesel generator. The generator will be located near the pumphouses but in a separate walk-in weatherproof enclosure. The diesel fuel will be stored in an aboveground storage tank located within secondary containment.

- The water from the water supply well system will be pumped through a 6-inch diameter, 2.8-mile water supply pipeline to the water supply tanks on the Energy Facility site. The route of the water supply pipeline is similar to the route in the original SCA, except the section closest to the Energy Facility site has been changed to end at the water supply tanks. The diameter is reduced to 6 inches from 20 inches due to the reduction in water requirements.
- The laydown and storage area will be reduced to approximately 6-acres and is considered part of the Energy Facility site and not a related and supporting facility.
- The temporary construction parking and laydown areas remain unchanged from the original SCA.

Regulatory Citation

(C) The approximate dimensions of major facility structures and visible features;

Response

Amendment No. 1 Figures B-2 and B-3 are visual simulations of the Energy Facility. The Energy Facility will likely be painted tan to help blend with the surrounding environment.

The following are the approximate dimensions of major Facility structures and visible features (dimensions shown are subject to change during final design) unchanged from the original SCA:

- Power generation equipment and systems: approximately 12 acres by 54 feet tall for the CTGs and 80 feet tall for the HRSGs (not including the stacks)
- Stacks: approximately 150 to 200 feet tall
- Administration/control room building: approximately 0.2 acre by 22 feet tall
- Warehouse/maintenance building: approximately 0.2 acre by 22 feet tall
- Water treatment facilities: approximately 0.2 acre by 22 feet tall for the water treatment building. The 325,000-gallon demineralized water storage tank is approximately 37 feet in diameter by 40 feet tall.
- Septic tank/leach field: less than 1 acre
- The length of the new electric transmission line is approximately 7.2 miles and will consist of approximately 38 transmission towers. Transmission towers will range in height from 100 to

165 feet, with most transmission towers in the 105- to 110-foot range. Transmission towers will rest on four concrete footings, each about 4 feet in diameter, and covering an area of about 35 feet by 35 feet. The electric transmission line will be located within a 154-foot-wide easement corridor. Approximately 6.6 miles of a 15-foot-wide permanent new access road will be located within the easement corridor and approximately 4.9 miles of existing roads will be used.

- The length of the natural gas pipeline is approximately 4.1 miles. The 20-inch-diameter natural gas pipeline will be buried within an 80-foot-wide temporary construction easement or 40-foot wide permanent easement. The easement area will be rehabilitated and revegetated after construction. The gas interconnection work at the PG&E GTN compressor station will include installation of side tap valves and piping, foundations, equipment enclosures, and flow control or shut-in valves connected to the Applicant's natural gas pipeline.
- The length of the water supply pipeline and associated temporary construction access road is approximately 2.8 miles. The 6-inch-diameter water supply pipeline will be buried within a 60-foot-wide temporary construction easement. The easement area will be rehabilitated and revegetated after construction. No permanent access road will remain after construction.
- Three pumphouses (approximately 20 feet by 30 feet with standard height walls) will be located at the water supply well system area, approximately 0.3 acre in size.

The following are the approximate dimensions of major Facility structures and visible features (dimensions shown are subject to change during final design) that change as a result of the switch to air cooling:

- Laydown and storage area: reduced to approximately 6.3 acres from 46.4 acres
- Air-cooled condensers: approximately 4.3 acres by 125 feet tall
- Stormwater detention pond: approximately 1.5 acres
- The two water supply storage tanks are 70 feet in diameter and 40 feet tall. They replace the approximately 21.4-acre water supply reservoir.
- For the preferred wastewater disposal option, the two wastewater storage tanks are 100 feet in diameter and 40 feet tall**.** They replace the approximately 51.2-acre evaporation pond.
- For the back-up wastewater disposal option, the evaporation pond will be approximately 36 acres.

The Energy Facility will be fenced with a standard chain link fence. A broader area outside the Energy Facility site, totaling 749 acres (which includes the 45.9-acre Energy Facility site, a 235.5-acre wildlife mitigation area, and 467.6 acres, which are not proposed for specific Facility uses or for wildlife mitigation purposes), will be enclosed by a wildlife-friendly fence, allowing entry of wildlife. Amendment No. 1 Figure K-3 (Figure K-5 in the RAI Compilation Document) shows the locations of the wildlife-friendly fence and the three areas described in this paragraph.

Amendment No. 1 Table B-1 (Table B-1 in the original SCA) summarizes the permanent disturbance over the 30-year operating life of the Energy Facility and the temporary disturbed areas.

Regulatory Citation

(D) If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a transmission line or pipeline that, by itself, is an energy facility under the definition in ORS 469.300(9), a corridor selection assessment explaining how the applicant selected the corridor(s) for analysis in the application. In the assessment, the applicant shall evaluate the corridor adjustments the Office has described in the project order, if any. The applicant may select any corridor for analysis in the application and may select more than one corridor. However, if the applicant selects a new corridor, then the applicant must explain why the applicant did not present the new corridor for comment at an informational meeting under OAR 345-015-0130. In the assessment, the applicant shall discuss the reasons for selecting the corridor(s), based upon evaluation of the following factors:

(i) Least disturbance to streams, rivers and wetlands during construction;

(ii) Least percentage of the total length of the pipeline or transmission line that would be located within areas of Habitat Category 1, as described by the Oregon Department of Fish and Wildlife;

(iii) Greatest percentage of the total length of the pipeline or transmission line that would be located within or adjacent to public roads, as defined in ORS 368.001, and existing pipeline or transmission line rights-of-way;

(iv) Least percentage of the total length of the pipeline or transmission line that would be located within lands that require zone changes, variances or exceptions;

(v) Least percentage of the total length of the pipeline or transmission line that would be located in a protected area as described in OAR 345-022-0040;

(vi) Least disturbance to areas where historical, cultural or archaeological resources are likely to exist; and

(vii) Greatest percentage of the total length of the pipeline or transmission line that would be located to avoid seismic, geological and soils hazards;

(viii) Least percentage of the total length of the pipeline or transmission line that would be located within lands zoned for exclusive farm use;

Response

No changes or additional information required.

Regulatory Citation

(E) For the corridor(s) the applicant selects under paragraph (D) and for any related or supporting facility that is a pipeline or transmission line, regardless of size:

(i) The length of the pipeline or transmission line;

(ii) The proposed right-of-way width of the pipeline or transmission line, including to what extent new right-of-way will be required or existing right-of-way will be widened;

(iii) The diameter and location, above or below ground, of each pipeline; and

(iv) A description of transmission line structures and their dimensions;

Response

No changes or additional information required.

Regulatory Citation

(F) A construction schedule including the date by which the applicant proposes to begin construction and the date by which the applicant proposes to complete construction. Construction is defined in OAR 345-001-0010. The applicant shall describe in this exhibit all work on the site that the applicant intends to begin before the Council issues a site certificate. The applicant shall include an estimate of the cost of that work. For the purpose of this exhibit, "work on the site" means any work within a site or corridor, other than surveying, exploration or other activities to define or characterize the site or corridor, that the applicant anticipates or has performed as of the time of submitting the application;

Response

Based on conditions of the electric power market after approval of the site certificate application, the Applicant may decide to construct the Facility in one phase or two phases. Therefore, the Applicant requests that the Council grant the ability to construct the Facility in one or two

phases. In addition, if the Facility is constructed in two phases, the Applicant requests that the Council grant the ability to construct the second phase up to 2 years after the first phase starts commercial operation.

If the Facility is constructed in one phase, construction is expected to take 23 months.. If the Facility is constructed in two phases, the first phase of construction is expected to take approximately 18 months. Amendment No. 1 Figure B-8 (Figure B-8 in the original SCA) is a detailed construction schedule for Facility construction in one phase.

Because the conditions of the power market fluctuate and are volatile, the Applicant may choose not to start construction of the Facility until 3 years after the site certificate application is approved. If the Facility is constructed in two phases, the second phase will be constructed up to 2 years after the first phase starts commercial operation.

Regulatory Citation

> *(G) A map showing all areas that may be temporarily disturbed by any activity related to the design, construction and operation of the proposed facility;*

Response

- The temporarily disturbed areas will not change for the following features described in the original SCA: four areas for construction parking and laydown at the Energy Facility site will total 71.0 acres, the 80-foot-wide natural gas pipeline temporary construction easement will total 43.8 acres, the 154-foot-wide easement electric transmission line will total 13.1 acres, and the construction parking and laydown area at the water supply well area will total 1.0 acre.
- The route of the water supply pipeline is similar to the route in the original SCA, except the section closest to the Energy Facility site has been changed to end at the water supply tanks on the Energy Facility site. The overall length of the water supply pipeline will not change. Therefore, the 60-foot-wide construction easement will total 23.0 acres, as shown in Amendment No. 1 Figure C-4b (Figure C-4b in the original SCA).

Amendment No. 1 Tables

B-1 Acreage of Permanent and Temporary Disturbance

Amendment No. 1 Figures

B-1a Typical 2 x 1 580-MW Combined-Cycle One-Line Diagram

B-2 Visual Simulation of View Looking Northeast

B-3 Visual Simulation of View Looking Northwest

B-4a Process Flow Diagram—Water Quality

B-4a Process Flow Diagram—Maximum Case

B-4b Process Flow Diagram—Average Annual Case

B-8 Construction Schedule

AMENDMENT NO. 1 TABLE B-1
Acreage of Permanent and Temporary Disturbance

Description	Area Disturbed (acres) [2]	Permanent or Temporary
Permanent Disturbance [1]		
Energy Facility	45.9	Permanent
Electric Transmission Line New Roads (6.6 miles by 15 feet wide)	43.0	Permanent
Electric Transmission Line Existing Roads (4.9 miles by 15 feet wide)	8.8	Permanent
Electric Transmission Tower Footings with Permanent Turnarounds (nine towers by 15,000 square feet per tower)	3.1	Permanent
Electric Transmission Tower Footings without Permanent Turnarounds (29 towers by 3,600 square feet per tower)	2.4	Permanent
Subtotal: Electric Transmission Line	57.3	Permanent
Water Supply Well System	0.3	Permanent
Total: Permanent Disturbance	**103.5**	**Permanent**
Evaporation pond for back-up wastewater disposal option	36.0	Permanent
Total: Permanent Disturbance with back-up wastewater disposal option	**139.5**	**Permanent**
Temporary Disturbance		
Energy Facility	45.9	Temporary
Construction Parking Lot and Laydown Areas at Energy Facility Site	71.0	Temporary
Subtotal: Energy Facility Site	116.9	Temporary
Natural Gas Pipeline (4.1 miles by 80-foot-wide construction easement, plus extra workspace)	43.8	Temporary
Water Supply Pipeline (2.8 miles by 60-foot-wide construction easement, plus extra workspace)	19.4	Temporary
Water Supply Well System and Staging Area	1.3	Temporary
Electric Transmission Tower Staging Areas	64.9	Temporary
Total: Temporary Disturbance	**246.3**	**Temporary**
Evaporation pond for back-up wastewater disposal option	37.7	Temporary
Total: Temporary Disturbance	**284.0**	**Temporary**

[1] Permanent disturbance is over the 30-year operating life of the Energy Facility.
[2] Acres represent construction of Facility in one phase for 1,160 MW.

Exhibit C—Proposed Location and Maps

Regulatory Citation

This exhibit is organized in accordance with OAR 345-021-0010(1)(c), which requires the following:

> *Information about the location of the proposed facility, including:*
>
> *(A) A map or maps showing the proposed locations of the energy facility site, and all related or supporting facility sites, in relation to major roads, water bodies, cities and towns, important landmarks and topographic features; and*

Response

Amendment No. 1 Figures C-1 (C-1 in the original SCA), C-2 (C-2 in the original SCA and K-4 in the RAI Compilation Document), C-3 (C-3 in the original SCA), and C-4b (C-4b in the original SCA) provide the information required for this citation. Original SCA Figures C-4, C-4a, C-4d, and C-4e are unchanged**.** Amendment No. 1 Figure C-5 shows the drainage plan for the Facility resulting from the introduction of the air-cooled condenser. Amendment No. 1 Figure C-6 shows an arrangement for the back-up wastewater disposal option.

Regulatory Citation

> *(B) A description of the location of the proposed energy facility site and the proposed site of each related or supporting facility, including the approximate land area of each. If a proposed pipeline or transmission line is to follow an existing road, pipeline or transmission line, the applicant shall state to which side of the existing road, pipeline or transmission line the proposed facility will run, to the extent this is known;*

Response

Location and Land Area of the Energy Facility

The proposed Energy Facility is located 3 miles south of Bonanza, Oregon, on the east side of West Langell Valley Road No. 520 in Klamath County. The Applicant has optioned approximately 749 acres of land in Sections 22, 23, 25, and 26, Township 39 South, Range 11 East. The following components, structures, and systems will be located in this area (dimensions are subject to change during final design):

- Power generation equipment and systems—approximately 45.9 acres, including the following components:
  - Stack—approximately 150 to 200 feet tall
  - Administration/control room building—approximately 22 feet tall
  - Warehouse/maintenance building—approximately 22 feet tall
  - Water treatment building—approximately 22 feet tall
  - Demineralized water storage tank—approximately 37 feet in diameter by 40 feet tall
  - Raw water supply storage tanks—approximately 70 feet in diameter by 40 feet tall
  - Wastewater storage tanks—approximately 100 feet in diameter by 40 feet tall (for the preferred wastewater disposal option)
  - Air-cooled condensers—approximately 125 feet tall
  - Laydown and storage area—approximately 6.3 acres
  - Stormwater detention pond
  - Septic tank/leach field
  - Switchyard

Location and Land Area of Related or Supporting Facilities

Natural Gas Pipeline

The location of a 4.1-mile, 20-inch-diameter natural gas pipeline is unchanged from the original SCA. The natural gas pipeline will be located in Sections 16, 17, 20, 21, 22, 23, and 26, Township 39 South, Range 11 East.

Water Supply Well System and Pipeline

The location of a water supply well system location is unchanged and is located in Section 19, Township 39 South, Range 12 East.

Water from the water supply well system will be pumped through a 6-inch diameter, 2.8-mile water supply pipeline to the water supply tanks on the Energy Facility site. The water supply pipeline route will cross an irrigation canal in three locations and two Klamath County roads. The route of the water supply pipeline is similar to the route in the original SCA, except the section closest to the Energy Facility site has been changed to end at the water supply tanks. The diameter is reduced to 6 inches from 20 inches due to the reduction in water requirements. The water supply pipeline will be located in Section 19, Township 39 South, Range 12 East; and Sections 23, 24, and 26, Township 39 South, Range 11 East.

Electric Transmission Line

The location of the new electric transmission line is unchanged. It will be located in easements on land in Sections 26, 27, and 34, Township 39 South, Range 11 East, and in Sections 3, 4, 9, 10, 15, and 22, Township 40 South, Range 12 East.

Evaporation Pond – Backup Wastewater Disposal Option

The location of the evaporation pond for the back-up wastewater disposal option is unchanged, but the pond is smaller in size than in the original SCA and will be located (if constructed) in Section 26, Township 39 South, Range 11 East.

Amendment No. 1 Figures

C-1 Site Map

C-2 Facility Map

C-3 Energy Facility Site Plan

C-4b Temporary Disturbed Area—Water Supply Pipeline

C-5 Drainage Plan

C-6 Facility Map for Back-Up Wastewater Disposal Option

Exhibit D—Organizational, Managerial, and Technical Expertise

No changes or additional information required.

Exhibit E—Permits for Construction and Operation

Regulatory Citation

OAR 345-021-0010(1)(e) requires the Applicant to submit information regarding the permits required for the construction and operation of the COB Energy Facility, including:

1. *Identification of all federal, state and local permits, relevant legal citation governing each permit, and contact information for the agency responsible for each permit*

2. *A description of each permit and the reasons the permit is needed*

3. *Evidence that construction and operation of the facility will comply with all statutes, rules and standards applicable to identified permits*

Response

Identified below are the changes to the permits required for construction and operation of the Energy Facility and related or supporting facilities. Permits are organized into four categories: (1) federal permits, (2) state permits not federally delegated, (3) state permits that are federally delegated, and (4) local permits.

(1) Federal Permits

There are no changes to the federal permits required.

(2) State Permits: Not Federally Delegated

Under the preferred wastewater disposal option the switch to air cooling eliminates the need for an evaporation pond. A water pollution control facility (WPCF) permit listed in the original SCA is no longer required. Attachment E-1 in the original SCA was a permit application for this WPCF permit that is no longer required. For the back-up alternative, the Applicant will submit an amendment to the existing WPCF permit application, reflecting changes to the evaporation pond. If the Applicant decides to implement land application of wastewater, a WPCF permit will be required.

(3) State Permits: Federally Delegated

The air quality modeling for the air permit will be updated. Otherwise, there are no changes to the required state permits that are federally delegated.

(4) Local Permits

There are no changes to the local permits required.

Regulatory Citation

> *(C) For state or local government permits or approvals for which the Council must determine compliance with applicable standards, evidence to support findings by the Council that construction and operation of the proposed facility will comply with all statutes, rules, and standards applicable to the permit. The applicant may show this evidence:*
>
> *(i) In Exhibit J for permits related to wetlands*
>
> *(ii) In Exhibit O for permits related to water rights*
>
> *(D) For federally-delegated permit applications, evidence that the responsible agency has received a permit application and the estimated date when the responsible agency will complete its review and issue a permit decision.*

Response

The Oregon Department of Environmental Quality (DEQ) deemed the air permit application complete on December 6, 2002.

A draft water right permit was issued by the Oregon Water Resources Department (OWRD) in a Proposed Final Order (PFO) dated April 22, 2003. The Applicant is working with OWRD to amend the draft water right permit and PFO to reflect the reduction in water requirements for air cooling.

In the original SCA, a reference was made to a new WPCF permit for wastewater disposal (Attachment E-1). As described above, this permit will not be required for the preferred wastewater disposal option.

Regulatory Citation

> *(E) If the applicant will not itself obtain a state or local government permit or approval for which the Council would ordinarily determine compliance but instead relies on a permit issued to a third party, identification of any such third-party permit and for each:*
>
> *(i) Evidence that the applicant has, or has a reasonable likelihood of entering into, a contract or other agreement with the*

third party for access to the resource or service to be secured by that permit;

(ii) Evidence that the third party has, or has a reasonable likelihood of obtaining, the necessary permit; and

(iii) An assessment of the impact of the proposed facility on any permits that a third party has obtained and on which the applicant relies to comply with any applicable Council standard.

Response

No changes or additional information required.

Regulatory Citation

(F) If the applicant relies on a federally-delegated permit issued to a third party, identification of any such third-party permit and for each:

(i) Evidence that the applicant has, or has a reasonable likelihood of entering into, a contract or other agreement with the third party for access to the resource or service to be secured by that permit;

(ii) Evidence that the responsible agency has received a permit application; and

(iii) The estimated date when the responsible agency will complete its review and issue a permit decision.

Response

No changes or additional information required.

Regulatory Citation

(G) The applicant's proposed monitoring program, if any, for compliance with permit conditions.

Response

No changes or additional information required.

Exhibit F—Property Owners of Record

No changes or additional information required.

Exhibit G—Materials Analysis

Applicable Rules

This exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1)(g) (the "Rule").

Regulatory Citation

> *A materials analysis including:*
>
> *(A) An inventory of substantial quantities of industrial materials flowing into and out of the proposed facility during construction and operation;*

Response

Use of industrial materials is regulated and monitored by local, state, and federal agencies. Systems and procedures used in construction and operation of the Facility must conform to these regulations by law.

Construction

Amendment No. 1 Tables G-1 and G-2 (Tables G-1 and G-2 in the original SCA) summarize the revised estimated quantities of materials flowing into the Facility during construction.

Amendment No. 1 Table G-3 (Table G-3 in the original SCA) summarizes the revised estimated quantities of materials flowing out of the Facility during construction.

Operations

Amendment No. 1 Table G-4 (Table G-4 in the original SCA) summarizes the revised estimated quantities of materials flowing into the Facility during operations.

Amendment No. 1 Table G-5 (Table G-5 in the original SCA) summarizes the revised estimated quantities of materials flowing out of the Facility during operations.

Regulatory Citation

> *(B) The applicant's plans to manage hazardous substances during construction and operation, including measures to prevent and contain spills; and*

Response

Construction

No changes or additional information required.

Operations

No changes or additional information required.

Regulatory Citation

(C) The applicant's plans to manage non-hazardous waste materials during construction and operation;

Response

There will be no changes to the management of sanitary waste and solid waste described in the original SCA.

Wastewater

Under the preferred wastewater disposal option, the evaporation pond will be eliminated. Therefore, there will no longer be a solid waste that requires disposal. Instead, wastewater will be stored in wastewater storage tanks on the Energy Facility site. The wastewater is noncontact and will be generated from the water treatment system to produce demineralized water for the steam system and from service water. Plant drains for the service water system will go through an oil/water separator. Wastewater from commissioning and testing during construction will be stored in the wastewater storage tanks.

The annual wastewater quantity during operations is estimated at approximately 5 MG or an average of 417,000 gallons per month. The maximum monthly quantity of wastewater is estimated at 820,000 gallons. The wastewater will be hauled to a wastewater treatment plant for disposal. Hauling wastewater to the wastewater treatment plant (WWTP) will occur on a regular basis to spread the truck traffic out and provide a roughly consistent delivery quantity to the WWTP. Exhibit W contains additional information about wastewater disposal. Wastewater from commissioning and testing will also be hauled to a WWTP and the amount is approximately 4.8 MG.

Under the back-up wastewater disposal option, wastewater from construction commissioning and testing as well as operations will be managed in a 36-acre evaporation pond. The evaporation pond will most likely be designed to operate passively, thereby eliminating the spray enhancement system described in the original SCA. If the Energy Facility is built in two phases, the evaporation pond will be built in two 18-acre phases as well. Total dissolved solids will be approximately 1,004 mg/L with the air-cooled arrangement versus approximately 16,365 mg/L or an order of magnitude lower.

Amendment No. 1 Tables

G-1 Estimated Materials Flowing into the Proposed Energy Facility—Construction

G-2 Estimated Bulk Construction Materials

G-3 Estimated Waste Materials Flowing Out of the Proposed Energy Facility—Construction

G-4 Estimated Materials Flowing into the Proposed Energy Facility—Operations

G-5 Estimated Waste Materials Flowing Out of the Proposed Energy Facility—Operations

AMENDMENT NO. 1 TABLE G-1
Estimated Materials Flowing into the Proposed Energy Facility—Construction

Material/Chemical	Purpose	Estimated Quantity	Storage Onsite	Storage Method
Diesel fuel	Equipment fuel	1,000 gallons	500 gallons	Aboveground, truck-mounted tank
Gasoline	Vehicle fuel	500 gallons	500 gallons	Aboveground, truck-mounted tank
Medium and heavy weight oil	Equipment lubrication	550 gallons	110 gallons	55-gallon drums
Light lubrication oil	Small equipment lubrication	100 gallons	25 gallons	5-gallon containers
Solvents	Cleaning equipment	50 gallons	10 gallons	1-gallon containers
Paint	Prime and finish painting	1,000 gallons	500 gallons	55-gallon drums and 5-gallon containers
Water	Testing and commissioning of water system	6,500,000 gallons	Raw water storage tanks (1.1 million gallons for each 580 MW block) and wastewater storage tanks (2.2 million gallons for each 580 MW block)	Aboveground steel tanks
EDTA	Chemical cleaning of HRSG	5,000 gallons	500 gallons	500-gallon totes
Pen-7 surfactant	Flush condensate and feedwater system	110 gallons	55 gallons	55-gallon drums
Nitrogen	Purging and storage of the boiler and turbines	15,000 cubic feet	15,000 cubic feet	High-pressure storage canisters

AMENDMENT NO. 1 TABLE G-2
Estimated Bulk Construction Materials

Material	Estimate Quantity
Power block—site and foundation concrete	34,000 cubic yards
Power block—structural steel	1,000 tons
Power block—piping	150,500 lineal feet
Power block—wiring and cabling	1,768,800 lineal feet
Electric transmission line—structural steel	384 tons
Electric transmission line—concrete	2,132 cubic yards
Electric transmission line—conductors • Phases: three 1193 kcmil ACSR, Bunting per phase • Shield/static: two 7#8 Alumoweld	 332,640 feet 73,920 feet
Natural gas pipeline	4.1 miles of 20-inch-diameter carbon steel piping
Water supply pipeline	2.8 miles of 6-inch-diameter steel piping
Water supply pump motors	Three 900 horsepower
Water supply pump house	Three 30-foot by 20-foot buildings (prefabricated)
Water supply well casing	6,000 feet
Raw water storage tanks	Two 1.1 million gallon steel tanks (one tank for each 580 MW block)
Wastewater storage tanks	Two 2.2 million gallon steel tanks (one tank for each 580 MW block)

AMENDMENT NO. 1 TABLE G-3
Estimated Waste Materials Flowing Out of the Proposed Energy Facility—Construction

Waste Material	Type	Estimated Quantity	Storage Method	Disposal Method
Nonhazardous solid waste	Scrap metals, cardboard, packing paper, wood, plastic, glass, and excess excavation materials	350 tons per month	Rolloff containers	Landfill or recycled
Sanitary wastewater	Sanitary wastewater	500 gallons per month	Chemical portable toilets	Licensed contractor
Waste oil	Used oil from equipment and vehicle maintenance	110 gallons	55-gallon drums	Licensed contractor
Hazardous wastes – equipment maintenance	Oily rags, spent batteries, and solvents	1,000 pounds	55-gallon drums	Licensed contractor
Testing and commissioning wastewater	Demineralized water system, heat recovery steam generator (HRSG) and auxiliary boiler, flushing systems before use, condensate and boiler feed water system, and hydrostatic testing of water supply and natural gas pipelines	4,800,000 gallons	Wastewater storage tanks	Transport to wastewater treatment plant for disposal (preferred wastewater disposal option) or sent to onsite evaporation pond (back-up wastewater disposal option)
Stormwater	Rainfall and snowmelt runoff	Variable	Not applicable	Managed according to Stormwater and Erosion Control Plan

AMENDMENT NO. 1 TABLE G-4
Estimated Materials Flowing into the Proposed Energy Facility—Operations

Material/Chemical	Purpose	Estimated Quantity	Storage Onsite	Storage Method
Water	Cooling, service water, and steam generation	30,000,000 gallons at 72 percent capacity factor	1.1 million gallons for 580 MW and 2.2 million gallons for 1,160 MW	Aboveground storage tanks
Natural Gas	Fuel	9,000 MMBtu/hr Max.	None	None
Diesel Fuel	Fuel	780 gallons/year	4,400 gallons	Aboveground storage tanks
Aqueous Ammonia	NOx emissions control	2,200 to 4,200 gal/ day	30,000 gallons	Aboveground storage tank
EDTA or Equal (5%)	Boiler system antiscalant and pipe cleaning (Cleaning needed every 3 years)	5,000 gallons	500 gallons	Tote
Hydrazine (10%)	Steam cycle condensate oxygen scavenging	8 lb/day	400 gallons	Tote
Amine (100% NH_3)	Steam cycle condensate pH control	80 lb/day	400 gallons	Tote
Generator Lube Oil	Lubrication	Minimal	55 gallons	55-gallon drum
Combustion Turbine Lube Oil	Lubrication	Minimal	55 gallons	55-gallon drum
Cleaning Fluid/Detergent	Combustion turbine blade water washes	100 gallons	400 gallons	Washwater skid tank
Sodium Hypochlorite (12%) or Equal	Raw water and RO biocide	17 lb/day	800 gallons	Aboveground storage tank
Sodium Nitrite (5%)	Closed loop cooling system corrosion inhibitor	10 lb/day	400 gallons	Tote
Glycol	Closed loop cooling system	1,600 gallons	55 gallons	55-gallon drum
RO Anti-scalant (100%)	Anti-scalant product for RO	17 lb/day	400 gallons	Tote
Caustic (50% NaOH)	RO pretreatment and steam cycle chemical feed	90 lb/day	800 gallons	Multiple Totes
Sodium Bisulfate (30% NaHSO3)	RO treatment	35 lb/day	400 gallons	Tote
Polymer	Coagulant acid	2.5 lb/day	400 gallons	Tote
Sodium Phosphate (100%)	Boiler treatment	12 lb/day	800 gallons	Multiple totes
Ferric Chloride (100% $FeCl_3$)	Coagulant for RO pretreatment filter	7 lbs/day	400 gallons	Tote

AMENDMENT NO. 1 TABLE G-4
Estimated Materials Flowing into the Proposed Energy Facility—Operations

Material/Chemical	Purpose	Estimated Quantity	Storage Onsite	Storage Method
Nitrogen	Purging and storage of the boiler and turbines	7,200 cubic feet	7,200 cubic feet	High-pressure storage canisters
Hydrogen	Cooling and insulating the generators	2,000 cubic feet	2,000 cubic feet	High-pressure storage canisters
Carbon Dioxide	Fire suppression in the turbine generators and purging the generator	4,500 cubic feet	4,500 cubic feet	High-pressure storage canisters

AMENDMENT NO. 1 TABLE G-5
Estimated Waste Materials Flowing Out of the Proposed Energy Facility—Operations

Material/Chemical	Type	Estimated Quantity	Storage Method	Disposal Method
Nonhazardous Solid Waste	Office waste, turbine air filters, metal and machine parts, electrical materials	50 tons/year	Rolloff containers	Licensed landfill or recycling
Sanitary Wastewater	Sanitary wastewater	2 gpm	Septic system	Septic system
Nonhazardous Wastewater	RO reject from demineralizer system	49 gpm (maximum)	Wastewater storage tanks	Transported to wastewater treatment plant
CO Catalyst	Calcined alumina with platinum metal	4 catalysts	In HRSG per operating procedure	Recycled
SCR Catalyst	Titanium dioxide, tungsten trioxide, ceramic fiber, silicon dioxide, vanadium pentoxide	4 catalysts	In HRSG per operating procedure	Recycled
Hazardous Waste	Oily rags, spent batteries, solvents, waste oil	1,000 pounds/year	55-gallon drums	Licensed contractor
Stormwater from Disturbed Areas	Rainfall and snowmelt runoff	Variable	Not applicable	Managed according to Stormwater and Erosion Control Plan
Stormwater from Undisturbed Areas	Rainfall and snowmelt runoff	Variable	Not applicable	Diverted to West Langell Valley Road drainage ditch

Exhibit H—Geologic and Soil Stability

Amendment No. 1 Figure H-1 has been revised to reflect the arrangement for the air-cooled condenser feature.

Exhibit I—Soil Conditions

This exhibit is organized in accordance with the regulatory citation contained in OAR 345-021-0010(1)(i) (the "Rule").

Regulatory Citation

> *Information from reasonably available sources regarding soil conditions and uses of the site and vicinity, providing evidence to support findings by the Council as required by OAR 345-022-0022, including:*
>
> *(A) Identification and description of the major soil types at the site and its vicinity;*

Response

The near-surface soil at the COB Energy Facility site and vicinity was identified using the Natural Resources Conservation Service (NRCS, formerly Soil Conservation Service) Soil Survey of Klamath County, Oregon, Southern Part (NCRS, 1985). The soil survey describes soil conditions in the upper 5 feet and classifies land capability. Amendment No. 1 Figure I-1 (Figure I-1 in the original SCA) has been revised for the air cooling arrangement and shows the NRCS soil map units for the vicinity.

Sixteen soil map units were identified within the Energy Facility site footprint and the natural gas pipeline, water supply pipeline, and electric transmission line easements. A breakdown of soil areas by Facility feature for permanent and temporary disturbance is presented in Amendment No. 1 Tables I-1 and I-2, respectively (Tables I-1 and I-2, respectively, in the original SCA). General soil descriptions are provided in the original SCA.

A preliminary soil investigation and shallow groundwater assessment were conducted at the COB Energy Facility. The purpose of the preliminary soil investigation and shallow groundwater assessment was to provide additional information relative to cooling tower salt deposition, salt impacts in soil, and shallow groundwater interactions with deposited salts at the COB Energy Facility for the wet-cooled Facility arrangement. While the information and conclusions related to cooling tower salt deposition will not be applicable to air cooling, the information related to soil properties and characteristics as well as the shallow groundwater hydrology are applicable to the air-cooled Facility arrangement.

A field soil investigation was conducted at the proposed COB Energy Facility site on November 12, 2002. Soil borings were made at 15 locations to a depth of 48 inches, where borings were not otherwise restricted by shallow bedrock or hardpan. Soil properties recorded for each boring included texture, moisture, effervescence (using 10 percent hydrochloric acid), and presence of cementation, hardpan, bedrock, and redoximorphic

features. At selected boring locations, composite soil samples were collected to establish background soil chemical characteristics. Amendment No. 1 Attachment I-1 documents the results of the preliminary soil investigation and groundwater assessment.

Regulatory Citation

> *(B) Identification and description of any land uses on the proposed site and in its vicinity, such as growing crops, that require or depend on productive soils;*

Response

No changes or additional information required.

Regulatory Citation

> *(C) Identification and assessment of significant potential adverse impact to soils from construction, operation and retirement of the facility, including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills;*

Response

Potential impacts to soil from construction, operation, and retirement of the Facility are presented as follows.

Construction

No changes or additional information required.

Operations

Operation of the Facility will not cause significant soil erosion. The proposed switch to air-cooled condensers eliminates the water vapor plume and cooling tower deposition. Therefore the soil impacts due to the cooling tower salt deposition impact area described in the original SCA in Exhibits I and Z will be eliminated. The overall permanent disturbance for the Facility is reduced by eliminating the water supply reservoir, the evaporation pond (under preferred wastewater disposal option and reducing its size under the backup wastewater disposal option), and the cooling tower deposition area offset by a small increase in the Energy Facility site owing to the larger footprint area of the air-cooled condensers (relative to cooling towers). See Amendment No. 1 Tables I-1 and I-2, respectively.

Retirement

No changes or additional information required.

Regulatory Citation

(D) A description of any measures the applicant proposes to avoid or mitigate adverse impact to soils; and

Response

No changes or additional information required.

Regulatory Citation

(E) The applicant's proposed monitoring program, if any, for impact to soils;

Response

The impact to soil during operation from cooling tower salt deposition is eliminated. Therefore, the soil monitoring described in the original SCA will no longer be necessary. Otherwise, no changes or additional information required.

Amendment No. 1 Tables

I-1 Soil Area by Facility Feature—Permanent Disturbance (in Acres)

I-2 Soil Area by Facility Feature—Temporary Disturbance (in Acres)

Amendment No. 1 Figure

I-1 Soil Map

Amendment No. 1 Attachment

Attachment I-1 Preliminary Soil Investigation and Shallow Groundwater Assessment

AMENDMENT NO. 1 TABLE I-1
Soil Area by Facility Feature—Permanent Disturbance Over the 30 Year Operating Life of the Energy Facility(in Acres)

Symbol	Map Unit Name	Energy Facility Site	Water Supply Well System	Water Supply Pipeline	Natural Gas Pipeline	Electric Transmission Line	Total Facility
6B	CALIMUS FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES					4.1	4.1
7A	CALIMUS LOAM, 0 TO 2 PERCENT SLOPES	14.2					14.2
7B	CALIMUS LOAM, 2 TO 5 PERCENT SLOPES	3.5				1.9	5.4
7C	CALIMUS LOAM, 5 TO 15 PERCENT SLOPES	2.9				5.3	8.2
9B	CAPONA LOAM, 2 TO 5 PERCENT SLOPES						0.0
23B	HARRIMAN LOAM, 2 TO 5 PERCENT SLOPES					8.3	8.3
23C	HARRIMAN LOAM, 5 TO 15 PERCENT SLOPES					5.3	5.3
26	HENLEY LOAM						0.0
28	HENLEY-LAKI LOAMS						0.0
38	LAKI LOAM						0.0
40	LAKI-HENLEY LOAMS	18.9				1.3	20.2
50E	LORELLA VERY STONY LOAM, 2 TO 35 PERCENT SOUTH SLOPES	6.4	0.3			26.4	33.1
51E	LORELLA-CALIMUS ASSOCIATION, STEEP NORTH SLOPES					4.5	4.5
58B	MODOC FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES					0.2	0.2
74B	STUKEL-CAPONA LOAMS, 2 TO 15 PERCENT SLOPES						0.0
74D	STUKEL-CAPONA LOAMS, 15 TO 25 PERCENT SLOPES						0.0
	TOTALS	**45.9**	**0.3**	**0.0**	**0.0**	**57.3**	**103.5**

AMENDMENT NO. 1 TABLE I-2
Soil Area by Facility Feature—Temporary Disturbance (in Acres)

Symbol	Map Unit Name	Energy Facility	Construction Parking and Laydown	Subtotal: Energy Facility Site	Water Supply Well System	Water Supply Pipeline	Natural Gas Pipeline	Electric Transmission Line	Total Facility
6B	CALIMUS FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES			0.0		0.3		4.8	5.1
7A	CALIMUS LOAM, 0 TO 2 PERCENT SLOPES	14.2	9.7	23.9		0.4	2.9		27.2
7B	CALIMUS LOAM, 2 TO 5 PERCENT SLOPES	3.5	15.6	19.1		1.1	6.1	1.9	28.2
7C	CALIMUS LOAM, 5 TO 15 PERCENT SLOPES	2.9		2.9		0.8		5.5	9.2
9B	CAPONA LOAM, 2 TO 5 PERCENT SLOPES			0.0			3.4		3.4
23B	HARRIMAN LOAM, 2 TO 5 PERCENT SLOPES			0.0				9.6	9.6
23C	HARRIMAN LOAM, 5 TO 15 PERCENT SLOPES			0.0				5.6	5.6
26	HENLEY LOAM			0.0			5.9		5.9
28	HENLEY-LAKI LOAMS			0.0					0.0
38	LAKI LOAM			0.0		0.6			0.6
40	LAKI-HENLEY LOAMS	18.9	17.1	36.0		2.2	0.5	1.6	40.3
50E	LORELLA VERY STONY LOAM, 2 TO 35 PERCENT SOUTH SLOPES	6.4	28.6	35.0	1.3	5.4	15.6	30.9	88.2
51E	LORELLA-CALIMUS ASSOCIATION, STEEP NORTH SLOPES			0.0		5.7		4.7	10.4

AMENDMENT NO. 1 TABLE I-2
Soil Area by Facility Feature—Temporary Disturbance (in Acres)

Symbol	Map Unit Name	Energy Facility	Construction Parking and Laydown	Subtotal: Energy Facility Site	Water Supply Well System	Water Supply Pipeline	Natural Gas Pipeline	Electric Transmission Line	Total Facility
58B	MODOC FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES			0.0				0.3	0.3
74B	STUKEL-CAPONA LOAMS, 2 TO 15 PERCENT SLOPES			0.0		2.9	8.1		11.0
74D	STUKEL-CAPONA LOAMS, 15 TO 25 PERCENT SLOPES			0.0			1.3		1.3
	TOTALS	**45.9**	**71.0**	**116.9**	**1.3**	**19.4**	**43.8**	**64.9**	**246.3**

Exhibit J—Wetlands

No changes to Exhibit J in the original SCA.

A wetland delineation report will be filed with the Oregon Division of State Lands (ODSL) and the US Army Corps of Engineers in August 2003. The Applicant investigated potential wetland areas, including excavated agricultural canals and intermittent creeks, but these areas all failed to satisfy the criteria for the three parameters used to define wetlands and were therefore not considered to be jurisdictional.

Amendment No. 1 Reference

CH2M HILL. *Wetland Delineation Report for the COB Energy Facility*. August 2003.

Exhibit K–Land Use

AMENDMENT NO. 1 TABLE K-1
Zoning for the Facility—Permanent Disturbance

AMENDMENT NO. 1 TABLE K-2
Zoning for the Facility—Temporary Disturbance

Exhibit L—Protected Areas

This exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1)(l) (the "Rule").

Regulatory Citation

Information about the proposed facility's impact on protected areas, providing evidence to support a finding by the Council as required by OAR 345-022-0040, including:

(A) A map showing the location of the proposed facility in relation to the protected areas listed in OAR 345-022-0040 located within the analysis area;

(B) A description of significant potential impacts of the proposed facility, if any, on the protected areas including, but not limited to, potential impacts such as:

(i) Noise resulting from facility construction or operation;

Response

No changes or additional information required.

Regulatory Citation

(ii) Increased traffic resulting from facility construction or operation;

Response

No changes or additional information required.

Regulatory Citation

(iii) Water use during facility construction or operation;

Response

Water use will not affect any of the identified protected areas. Water for construction and operation of the Facility will be drawn from a water supply well system, located east of the Energy Facility. The water will be pumped via a 2.8-mile pipeline to a raw water storage tanks located on the Energy Facility site. The slightly revised route of the water supply pipeline will not cross any protected areas.

Regulatory Citation

> *(iv) Wastewater disposal resulting from facility construction or operation;*

Response

Wastewater disposal will not affect any of the identified protected areas. The wastewater will be hauled to a wastewater treatment plant for disposal.

Regulatory Citation

> *(v) Visual impacts of facility structures, including cooling tower or other plumes, if any; and*

Response

The visual impacts of the Energy Facility structures on any protected areas will not be modified by the switch to air cooling. However, the switch to air cooling will eliminate the cooling tower plume which was discussed in the original SCA. In sum, the modified facility will not cause any significant visual impacts on any protected area.

Regulatory Citation

> *(vi) Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 visual resources as described in OAR 340-204-0050;*

Response

The switch to air cooling will not affect the analysis for Class I visual resources. Therefore, there are no changes.

Exhibit M—Financial Capability

No changes or additional information required.

Exhibit N—Nongenerating Facility Information

No changes or additional information required.

Exhibit O—Water Requirements

The Council's application rule, OAR 345-021-0010(o), requires that Exhibit O include information about anticipated water requirements for construction and operation of the proposed facility.

Regulatory Citation

> *Information about the water requirements the applicant anticipates for construction and operation of the proposed facility. If the applicant has submitted any permit applications to the Office, as described in OAR 345-021-0000(4), that contain this information, the applicant may copy relevant sections of those documents into this exhibit or include in this exhibit cross-references to the relevant sections of those documents. The applicant shall include:*
>
> *(A) A description of each source of water and the applicant's estimate of the amount of water the facility will need from each source under annual average and worst-case conditions.*

Response

The sole source of water for construction and operation of the COB Energy Facility will be groundwater from a deep aquifer system intercepted by an existing well (known as the Babson well) and two additional water supply wells. Under annual average conditions with supplemental duct firing, the Energy Facility will need 36 gpm for one 580-MW block or 72 gpm for the 1,160 MW arrangement from the Babson well. Under maximum consumption conditions with supplemental duct firing, that rate increases to 104 gpm for one 580-MW block or 208 gpm for the 1,160-MW arrangement.

There are no changes or additional information required to the original SCA related to the description of the Babson well, deep zone aquifer, or shallow zone aquifer. The Applicant performed an aquifer test in the summer of 2002 (CH2M HILL, 2002b). The Babson well was pumped at an average rate of 6,800 gpm for approximately 30 days. An expanded observation well network was used that included both shallow wells and deeper irrigation wells in Langell Valley, Yonna Valley, Swan Lake Valley, Malin, and Klamath Falls. There was a hydraulic response in two nearby wells in the observation well network attributable to a leaking well packer. This aside, the data do not indicate that the deep system is in hydraulic connection to a shallow aquifer system. No hydraulic response was observed at Bonanza Big Springs.

Proposed Well Reconstruction

The Applicant will install a new seal in the well from the surface to approximately 1,500 feet below ground surface (bgs). This seal will consist of a 10-inch or 12-inch welded steel casing grouted in place to seal off the shallow aquifer system.

Groundwater Flow and Aquifer Recharge

No changes or additional information required.

Back-up Wells

The additional water supply wells will be a maximum diameter of 12 inches and the depth of the additional water supply wells is expected to be approximately 2,000 feet. No changes to seal depth or location are expected from the original SCA..

Regulatory Citation

> *(B) If a new water right is required, the approximate location of the points of diversion with the estimated quantity of water to be taken at each point;*

Response

The location of the water supply well system in the original SCA is not affected by the switch to air cooling.

On April 22, 2003, the OWRD issued a draft water right permit in a PFO for the water-cooled Facility. The Applicant will ask the Oregon Department of Energy (ODOE) to request that OWRD reissue a revised PFO with a revised draft water right permit that reflects the reduction in water demand for the Facility.

The revised water right will indicate two uses: a maximum instantaneous withdrawal rate of 210 gpm (0.30 million gallons per day [mgd] or 0.92 acre-feet per day [ac-ft/day] or 0.47 cfs) for year-round industrial use (power generation) and 90 gpm (0.13 mgd or 0.40 ac-ft/day or 0.16 cfs) to irrigate up to 16 acres of land between March 1 and October 31 of each year. The maximum, instantaneous rate of combined water withdrawal (industrial and irrigation uses) will be 300 gpm. Approximately 100 gpm (0.14 mgd or 0.43 ac-ft/day or 0.22 cfs) of water will be required during the construction of the Energy Facility. Testing and commissioning of the Energy Facility will require approximately 6.5 MG (19.9 ac-ft or 868,924 cubic feet) of water (see Amendment No. 1 Table O-2 [Table O-2 in the original SCA]).

Water use in the Energy Facility will vary daily and seasonally in response to fluctuating electricity demand and weather conditions. As a result, actual daily water use at the Energy Facility is estimated to vary from 0 gpm when the Energy Facility is offline up to a maximum of 210 gpm (0.30 mgd or 0.92 ac-ft/day or 0.47 cfs). For average annual conditions with duct firing, it is anticipated that the average withdrawal rate from the water supply wells will be approximately 72 gpm (0.10 mgd or 0.31 ac-ft/day or 0.16 cfs).

Two additional water supply wells will be installed near the Babson well. One will be located up to 50 feet northwest and the other up to 500 feet southeast of the existing Babson well. These maximum distances for well locations were included in the OWRD water right application as additional points of diversion. Each of the three wells (the Babson well and the two additional water supply wells) will be designed to produce the maximum, instantaneous rate of 210 gpm. Flexibility to pump 100 percent of the required maximum, instantaneous rate is necessary in the event that two wells are offline simultaneously owing to malfunction or scheduled maintenance.

Regulatory Citation

(C) A description of how the water is to be used;

Response

During construction, water will be used for dust suppression, compaction, vehicle and equipment cleanup, and miscellaneous construction-related uses. Drinking water for construction workers will be bottled water or other potable water trucked to the Energy Facility.

Testing and commissioning water uses include the demineralized water system, HRSG and auxiliary boiler, flushing systems before use, and condensate and boiler feed water system. Water will continue to be used for dust control purposes during the testing and commissioning phase.

Water Use During Operation

During operation, water from the wells will be pumped through a 2.8-mile, 6-inch-diameter water supply pipeline to two 1.1-MG raw water storage tanks on the Energy Facility site. Water will be withdrawn from the raw water storage tanks to the Energy Facility. The water supply pipeline and raw water storage tanks will be constructed prior to testing and commissioning. If the Energy Facility is built in two phases, the 6-inch-diameter water supply pipeline will be constructed, but only one of the raw water storage tanks will be constructed for the first 580-MW block.

During operations, the Energy Facility will use water for steam generation, demineralized water production, potable water and sanitary systems, and service water.

Well water will be used for the plant makeup supply. The well water supply will be combined with recovered wastewater and stored in the Raw Water Storage Tank. Water from the Raw Water Storage Tank will be used for nonpotable plant uses such as plant service water, fire protection, makeup to the evaporative coolers, and makeup to the makeup demineralizer system.

Water Treatment Systems

To reduce raw water requirements, water will be recycled and reused from the plant drains, evaporative cooler blowdown, and HRSG blowdown. Some concentration of the wastewater

may be experienced when the evaporative coolers are in service. The amount of concentration will be dependent on the amount of evaporation from the evaporative coolers and the amount of water used as makeup to the makeup demineralizer system. The maximum concentration of the recovered wastewater loop would occur when the evaporative coolers are in service and the makeup requirement to the HRSG is less than 1.5 percent of the steaming rate. To avoid excessive concentrations in the wastewater loop, the capability to treat water from the raw water storage tank using the unused capacity of the makeup demineralizer and returning the treated water to the wastewater collection basin will be provided. Only reverse osmosis (RO) reject, which is the wastewater containing the highest level of solids, will no longer be used in the water system and will be stored in the wastewater storage tanks for future disposal.

A makeup demineralizer system will supply the demineralized water required for steam cycle makeup, CTG compressor water wash, and other high purity water uses. The make-up demineralizer system will be designed to receive and treat raw water and the recycled/reused water. The make-up demineralizer system will consist of a RO unit followed by a polishing demineralizer.

The reverse osmosis unit will consist of two 100 percent capacity, preassembled, prepiped, skid mounted, permanent onsite, two-stage, RO banks to pretreat the water feeding the demineralizers. Each RO bank will consist of standard size, universally interchangeable, membranes and will be suitable to pretreat the water to the quality required by the polishing demineralizers. Each RO bank will be sized to produce permeate required by the polishing demineralizers for a 1.5 percent (of main steam flow) steam cycle make-up for one 580 MW block operating at base load.

Two 100 percent base load capacity, offsite regenerated mixed bed exchange polishing demineralizer units will be furnished to demineralize the steam cycle make-up water. Each demineralizer unit shall be sized for the maximum combined-cycle steam make-up rate (minimum of 1.5 percent of the main steam flow) of one 580-MW block operating at base load.

Regulatory Citation

> *(D) A description of each avenue of water loss or output from the facility site, the applicant's estimate of the amount of water in each avenue under annual average and worst-case conditions, and the final disposition of all wastewater, including storm water;*

Response

The Energy Facility is designed such that no wastewater or process water will be discharged to the Lost River or other surface water bodies. The primary avenue of water loss will be reject from the water treatment system.

Construction and Testing/Commissioning

Water use during construction and testing/commissioning is available for a single, estimated case and, given the comparatively short construction period, the terms “annual average” and “worst case” do not apply. Amendment No. 1 Table O-2 presents construction water usage and ultimate disposition for each water use activity.

Wastewater from the construction hydrostatic testing and flushing (testing and commissioning wastewater) is estimated to be 4.8 MG (reduced from 29 MG identified in the original SCA). Under the preferred wastewater disposal option this wastewater will be stored in the wastewater storage tanks on the Energy Facility site and eventually transported to a WWTP for disposal. Under the back-up wastewater disposal option, the wastewater from hydrostatic testing and flushing will treated in a lined, onsite evaporation pond.

Operations

Process Water

The Energy Facility will be designed with a low discharge system to recycle and reuse most process wastewater. Water balances showing the flows for the several Energy Facility systems under peak day and average day operating conditions are shown in Amendment No. 1 Figures O-2 and O-3, respectively (Figures O-2 and O-3, respectively in the original SCA). Amendment No. 1 Table O-3 presents the internal water uses and flows for the Energy Facility during operations. Water treatment chemicals used are shown in Amendment No. 1 Table O-4 (Table B-4 in the RAI Compilation Document).

Wastewater from the flushing and hydrostatic testing (testing and commissioning wastewater) is estimated to be 4.8 MG. This wastewater volume is reduced from the 29 MG in the original SCA by filtering and recycling/reusing water. Hydrostatic testing and flushing will be performed sequentially with water filtered in between steps so that water can be reused and recycled to the extent possible.

Under the preferred wastewater disposal option, wastewater during operations will flow to wastewater storage tanks on the Energy Facility site and will transported to a WWTP for disposal. Under the back-up wastewater disposal option, the wastewater from operations will treated in a lined, onsite evaporation pond.

Stormwater

Given the variable nature of stormwater runoff, the terms “annual average” and “worst case” do not apply. The drainage from disturbed areas at the Energy Facility site will be designed to drain to a stormwater detention pond**.** Stormwater runoff from undisturbed areas will be diverted to prevent it from coming in contact with disturbed areas on the Energy Facility site. The stormwater runoff calculations were performed using TR-55 software, which uses the NRCS method for computing stormwater runoff. A weighted curve number of 88 was used for the Energy Facility site. For the same area a weighted curve number of 69 was used to calculate the predevelopment runoff. A 25-year storm event consisting of 2.5 inches of rainfall was used as the design case for the stormwater detention pond. This storm event resulted in 1.38 inches of runoff from the Energy Facility site, which is approximately 1.5 MG. The peak predevelopment flow was calculated at 12 cfs (5,386 gpm) and was used as

the peak outflow from the stormwater detention pond. The peak runoff from the Energy Facility site was calculated at 85 cfs (38,151 gpm) and was used as the peak inflow to the stormwater detention pond. Based on the predevelopment and the Energy Facility site hydrographs, the stormwater detention pond is sized for 2.3 acre-feet or approximately 750,000 gallons.

The outflow from the stormwater detention pond will go to a Klamath County drainage ditch along the east side of West Langell Valley Road. This drainage ditch discharges to an irrigation canal, labeled High Line Levee Ditch on the U.S. Geological Survey quadrangle map. High Line Levee Ditch eventually discharges to the Lost River. The drainage ditch along the east side of West Langell Valley Road is approximately 8,000 feet long and the irrigation canal to the Lost River is approximately 32,000 feet long. Therefore, stormwater from the Energy Facility site will travel approximately 40,000 feet before it reaches the Lost River.

Sanitary Wastewater

There will be a septic system and leachfield for sanitary wastewater from the Energy Facility. An average of 1,500 gallons per day (about 1 gpm) of sanitary wastewater is estimated.

Regulatory Citation

> *(E) For operation, a water balance diagram, including the source of cooling water and the estimated consumptive use of cooling water, based on annual average conditions;*

Response

The water balance diagrams for the Energy Facility based on maximum use and annual average conditions are presented in Amendment No. 1 Figures O-2 and O-3, respectively (Figures O-2 and O-3 in the original SCA).

Regulatory Citation

> *(F) If the facility does not require a groundwater permit, a surface water permit, or a water rights transfer, an explanation why no such permit or transfer is required for the construction and operation of the proposed facility;*

Response

The Energy Facility will require a groundwater permit. Therefore, this application requirement does not apply.

Regulatory Citation

(G) Evidence to support Council findings that the Water Resources Department should issue a groundwater or a surface water permit under ORS Chapter 537 or should approve a transfer of a water use under ORS Chapter 540, including a discussion and evaluation of all relevant factors, including those listed in ORS 537.153(2) and (3), ORS 537.170(8) and OAR Chapter 690, Divisions 15 and 310;

Response

The water supply for the air-cooled Energy Facility will be from the same wells withdrawing water from the same deep aquifer, so there are no changes to the original SCA's discussion of applicable provisions of ORS chapter 537 and OAR chapter 690. A draft water right permit was issued by the OWRD in a PFO dated April 22, 2003. The Applicant will request ODOE to request OWRD amend the draft water right permit and PFO to reflect the reduction in water requirements for air cooling.

Regulatory Citation

(H) A discussion of any steps proposed by the applicant to reduce consumptive water use; and

Response

Construction

The bulk of construction water use will occur in the flushing and filling of the Energy Facility's water systems. Most of that water will be used to fill the fire-water system, demineralizer system, condenser, and HRSG. Flush and wash waters will be cascaded from system to system to minimize water use. To reduce water requirements, the water will be filtered between uses.

Construction water use also will occur in dust suppression. The Applicant will institute steps to ensure that dust suppression water use is not excessive or insufficient.

Operations

The Energy Facility was originally designed to be water cooled. To reduce water requirements, the Applicant will design the Energy Facility to be air cooled. This reduces the maximum water requirements by 97 percent (210 gpm vs. 7,500 gpm). To further reduce raw water requirements, water will be recycled and reused from the plant drains, evaporative cooler blowdown, and HRSG blowdown.

Regulatory Citation

> *(I) A discussion of any mitigation steps proposed by the applicant to address the impact of the applicant's water use on affected resources;*

Response

The switch to air cooling, with a 97 percent reduction in water use, represents an enormous reduction in the Applicant's proposed use of water from the untapped deep aquifer. The results of the 1993 and 2002 aquifer test at the Babson well indicated that no impacts to the shallow aquifer system, Bonanza Springs, or other surface water features would be expected from pumping the well at 3,260 gpm and 6800 gpm respectfully. Hence, no mitigation is proposed or necessary for pumping at a maximum of 300 gpm. As an additional layer of protection, the water right permit will require operational monitoring and appropriate mitigation if any impacts are discovered to the shallow aquifer or surface water.

Public Comments That the Application Should Address (from the Project Order)

The responses to the public comments provided in the Project Order are generally no longer valid because of the switch to air cooling.

Amendment No. 1 Reference

CH2M HILL. 2003. *Water Supply Supplemental Data Report: Deep Aquifer Testing at the COB Energy Facility Water Supply Well*. May 2003.

Amendment No. 1 Tables

O-2 Estimated Construction and Testing/Commissioning Water Use

O-3 Estimated Operations Water Uses and Disposition

O-4 List of Water Treatment Chemicals

Amendment No. 1 Figures

O-1 Proposed Babson Well Reconstruction Diagram

O-2 Water Balance for Maximum Water Use

O-3 Water Balance for Average Annual Conditions

AMENDMENT NO. 1 TABLE O-2
Estimated Construction and Testing/Commissioning Water Use

Activity	Required Quantity (gallons)	Wastewater Quantity (gallons)	Final Disposition
Service/fire protection system filling	1,675,000		OTD
Demineralized water system commissioning	325,000		OTD
HRSG and auxiliary boiler cleaning and flushing	740,000	1,520,000	OTD
BOP/CTG/STG piping tests, flushes, and cleaning		580,000	OTD
Air-cooled condenser testing and cleaning		500,000	OTD
HRSG commissioning/Steam blows	3,760,000	2,150,000	OTD
Subtotal	**6,500,000**	**4,750,000**	
Dust Suppression	**200,000**		Evaporation/ Absorption

Note: Water requirements shown are net water requirements added to the system and do not include reused or recycled water from other commissioning activities.

BOP = balance of plant
CTG = combustion turbine generator
HRSG = heat recovery steam generator
OTD = offsite treatment and disposal by licensed contractor
STG = steam turbine generator

AMENDMENT NO. 1 TABLE O-3
Estimated Operations Water Uses and Disposition

Process Where Flow States	Process Receiving Flow	Water System Flows (gpm) [1)]		Final Disposition
		Peak	Average	
Water supply wells	Raw water storage tanks	210	72	Storage
Raw water storage tanks	Demineralization process	196	88	Recycle/reuse or evaporation
	HRSG blowdown tanks	200	200	Recycle/reuse or evaporation
	Evaporative coolers	216	0	Recycle/reuse or evaporation
	Potable water/sanitary systems	1	1	Septic system
	Service water	6	6	Recycle/reuse or evaporation
	Fire protection	3,000	N/A	Storage
Demineralization process	Demineralization process	146	66	Demineralized water storage
	Wastewater storage tank	48	22	Haul to WWTP for disposal
Demineralized water storage tank	Water/steam cycle	66	66	Recycle/reuse or evaporation
	Wastewater collection basin	82	0	Recycle/reuse or evaporation
Water/steam cycle	HRSG blowdown tanks	22	22	Recycle/reuse or evaporation
	Evaporation	42	42	Evaporation
Evaporative coolers	Evaporation	108	0	Evaporation
	Wastewater collection basin	108	0	Recycle/reuse or evaporation
HRSG blowdown tanks	Evaporation	8	8	Evaporation
	Wastewater collection basin	214	214	Recycle/reuse or evaporation
Wastewater collection basin	Raw water storage tank	410	222	Storage
Stormwater from disturbed areas on Energy Facility site	Stormwater detention pond	Variable	Variable	West Langell Valley Road drainage ditch

AMENDMENT NO. 1 TABLE O-3
Estimated Operations Water Uses and Disposition

Process Where Flow States	Process Receiving Flow	Water System Flows (gpm) [1]		Final Disposition
		Peak	Average	
Stormwater from undisturbed areas	Plant discharge ditch	Variable	Variable	West Langell Valley Road drainage ditch

[1] Rates are for two blocks (1,160 MW) and are with supplemental duct firing.
WWTP = wastewater treatment plant
HRSG = heat recovery steam generator
RO = reverse osmosis

AMENDMENT NO. 1 TABLE O-4
List of Water Treatment Chemicals Added to Water Streams

		Usage, ppm
1	**Raw Water to Tank**	
	Biocide (12.5% NaClO)	up to 5 ppm
2	**RO Pretreatment Filter**	
	Biocide (12.5% NaClO)	up to 5 ppm
	Coagulant (100% FeCl3)	up to 5 ppm
	Coagulant Acid (Polymer)	up to 1 ppm
	RO (2-pass)	
	30% RO $NaHSO_3$	15
	100% RO Anti-Scalant Product	7
	Caustic (50% NaOH)	Depends on CO_2 concentration in raw water (1 ppm of CO_2 requires about 2.2 ppm of 50% NaOH)
3	**Cycle Chemical Feed**	
	Amine (100% NH_3)	up to 3 ppm
	Oxygen Scavenger (100% N_2H_4)	up to 0.3 ppm
4	Sodium Phosphate (100% Na_3PO_4)	up to 50 ppm in drum
	Caustic (50% NaOH)	up to 2 ppm in drum

Exhibit P—Fish and Wildlife

The Council's application rule, OAR 345-021-0010(p), requires that Exhibit P include information about anticipated impacts on fish and wildlife for construction and operation of the proposed facility.

Regulatory Citation

> *Information about the fish and wildlife habitats and the fish and wildlife species, other than the species addressed in subsection (q) that may be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0060. The applicant shall include:*
>
> *(A) Identification and description of all habitat within the analysis area, classified by the habitat categories as set forth in OAR 635-415-0030;*

Response

Ecological Setting

No changes or additional information required.

Habitat Classification

No changes or additional information required. Amendment No. 1 Figure P-1 (Figure P-1 in the original SCA) shows the revised Facility arrangement and general habitat types.

Habitat Types

No changes or additional information required.

Oregon Department of Fish and Wildlife Habitat Categories

No changes or additional information required.

Original SCA Table P-1 provides revised values for temporary disturbance and permanent disturbance over the 30-year operating life of the Energy Facility by ODFW habitat classification system and habitat type. Amendment No. 1 Figure P-2 (Figure P-2 in the original SCA) shows the revised Facility arrangement and the ODFW habitat categories.

Regulatory Citation

(B) A description of biological and botanical surveys performed that support the information in this exhibit, including a discussion of the timing and scope of each survey;

Response

Survey Preparation

No changes or additional information required.

Timing and Scope of Field Surveys

No changes or additional information required.

Results of Field Surveys

No changes or additional information required. Amendment No. 1 Figure P-3 (Figure P-3 in the original SCA) shows the revised Facility arrangement.

Regulatory Citation

(C) A map showing the locations of the habitat identified in (A);

Response

Amendment No. 1 Figure P-1 shows the general vegetation habitat types and Amendment No. 1 Figure P-2 shows the ODFW habitat classifications along with the revised Facility arrangement.

Regulatory Citation

(D) A description of the nature, extent and duration of significant potential impacts on the habitat identified in (A) that may result from construction, operation and retirement of the proposed facility;

Response

Temporary and permanent impacts to habitats are quantified in Amendment No. 1 Table P-2 (Table P-2 in the original SCA) and revised for the air-cooled Facility arrangement. Otherwise, no changes or additional information required.

Energy Facility Site

The majority of the Energy Facility Site (40.1 of the total 45.9 acres) will be located in a fallow agricultural field that has minimal habitat or agricultural value. However, part of the field is mapped by the County as high-density mule deer winter range, 14.3 acres and accordingly is classified conservatively as Category 2. The soil is poor quality. Non-native species such as intermediate wheatgrass have been planted in some areas as forage. There are also 5.8 acres of juniper-sagebrush habitat.

The Applicant will mitigate for all permanently disturbed habitat by restoring, enhancing, and protecting habitat with ODFW habitat mitigation goals and pursuant to the revegetation plan in Attachment P-1 in the original SCA. Permanent impacts to the Energy Facility site by ODFW category are 14.3 acres for Category 2, 3.8 acres for Category 3, and 27.8 acres for Category 4. The Category 2 areas consist of fallow field and juniper-sage. The Category 3 areas consist entirely of fallow fields. Category 4 areas are characterized by ruderal and non-native species such as intermediate wheatgrass, tansy mustard, and clasping pepperweed.

Impacts to these areas are expected to last for the duration of Energy Facility operations. They will be restored after completion of decommissioning and restoration activities.

Noise

No changes or additional information required.

Lighting

No changes or additional information required.

Electric Transmission Line

The water supply reservoir referenced in the original SCA for this citation has been eliminated with the switch to air cooling. The evaporation pond is also eliminated by the preferred wastewater disposal option and reduced in size by the back-up wastewater disposal alternative. Therefore the risk of collisions with the conductors or ground wires will be reduced by eliminating or reducing the size of two features that may have attracted birds. Otherwise, no changes or additional information required.

Natural Gas Pipeline

No changes or additional information required.

Water Supply Pipeline

A 2.8-mile water supply pipeline will extend from the water supply well system to the Energy Facility site. The construction easement for the water supply pipeline will be 60 feet wide, as shown in Figure B-7 in the original SCA. Construction of the water supply pipeline will result in temporary impacts to approximately 19.4 acres, including 6.6 acres of Category 2 habitat (juniper-sagebrush and fallow fields), approximately 1.8 acres of Category 3 habitat, and 11.0 acres of Category 4 habitat. Approximately 10.2 acres of juniper-sagebrush habitat along the easement has an understory of native shrubs, grasses, and forbs. Other habitats temporarily impacted include approximately 6.3 acres of irrigated pasture, 1.4 acres of agricultural crops, 0.8 acres of fallow field, and 0.7 acre of ruderal habitat. Of the

10.2 acres of juniper-sagebrush, 5 acres has been heavily grazed and the understory vegetation is sparse and contains non-native annual species such as cheatgrass and tansy mustard.

Noise disturbance during the 2- to 4-month-long construction season may cause wildlife to temporarily avoid the construction area during construction. Following construction, normal use patterns are expected to return.

Water Supply Well System

No changes or additional information required.

Aquatic Habitats

No changes or additional information required.

Regulatory Citation

> *(E) A description of any measures the applicant proposes to avoid, reduce or mitigate potential adverse impacts;*

Response

The water supply reservoir and evaporation pond have been eliminated by the preferred option. Therefore, mitigation described in this citation for these features is no longer valid. Otherwise, no changes or additional information required.

Regulatory Citation

> *(F) Evidence that the proposed facility, including any proposed mitigation, complies with the fish and wildlife habitat mitigation goals and standards in OAR 635-415-0030; and*

Response

The proposed Facility complies with ODFW's habitat mitigation goals and standards as described below.

ODFW Habitat Category 1

The goal for Category 1 is no disturbance. The construction, operation, and retirement of the Facility will not disturb any Category 1 habitat, so this goal is met.

ODFW Habitat Category 2

The mitigation goal for Category 2 habitat, if impacts are unavoidable, is to have no net loss of either habitat quantity or quality and to provide a net benefit of habitat quantity or quality. Within the analysis area all units mapped as high-density winter mule deer habitat were

classified as Category 2 habitat. A total of 45.5 acres of land included in the high-density mule deer range will be permanently impacted at the Energy Facility site and along the electric transmission line. No Category 2 wetlands or aquatic resources will be impacted by Facility activities.

Approximately 31 percent of the permanent impacts (approximately 13.9 of the 45.5 acres) mapped as high-density deer range are located in a fallow agricultural field. The lack of woody shrubs and native herbaceous vegetation in this area currently provide little beneficial habitat to wintering deer herds, despite the high-density designation. The remaining 31.6 acres of Category 2 is along the electric transmission line, most of which is within juniper-sage habitat. The Applicant proposes to mitigate for the loss of 45.5 acres of Category 2 habitat by restoring approximately 91 acres of what is currently fallow agricultural land. This land will be restored to high-quality deer habitat through the establishment of preferred winter browse species such as big sagebrush, antelope bitterbrush (*Purshia tridentata*), and curl-leaf mountain mahogany. In addition to these woody species, native grasses and forbs will also be established in some areas. The mitigation site will be located adjacent to intact natural habitat areas within the high-density winter deer range (Amendment No. 1 Figure P-4, Figure P-4 in the original SCA). Mitigation will be accomplished pursuant to the revegetation plan attached as P-1 in the original SCA.

In sum, the goal for Category 2 is met because the Applicant's revegetation measures will provide a net benefit to Category 2 habitat quality and quantity in the vicinity of the Facility.

ODFW Habitat Categories 3 and 4

The mitigation goal for Category 3 and Category 4 habitats, if impacts are unavoidable, is no net loss in either existing habitat quantity or quality. Mitigation for Category 3 habitat must be "in-kind" and "in-proximity." Mitigation for Category 4 habitat must be "in-kind or out-of-kind, in-proximity or off-proximity." The proposed Facility will result in 29.9 acres of permanent impacts to Category 3 habitat and 28.1 acres of Category 4 habitat. To mitigate for the permanent impacts to these areas, approximately 145 acres of additional land within the Facility boundary will be enhanced and restored to improve wildlife habitat values.

This brings the total mitigation area to approximately 236 acres. Habitat enhancement will include restoration of fallow agricultural fields to sagebrush-steppe habitat, and enhancement of existing juniper woodland habitat through establishment of preferred browse species such as sagebrush, antelope bitterbrush, curl-leaf mountain mahogany, as well as selective removal of juniper trees. These measures will be accomplished pursuant to the revegetation plan attached as P-1 in the original SCA.

ODFW Habitat Category 6

The mitigation goal for Category 6 habitat is to minimize impacts. Mitigation for Category 6 habitat is to recommend or require "actions that minimize direct habitat loss and avoid impacts to offsite habitat." Approximately 3.6 acres of temporary impacts are expected to occur from the interconnection of the natural gas supply pipeline with the PG&E pump station. The mitigation actions will consist of minimization measures that apply to all habitat categories, as stated above.

Regulatory Citation

(G) The applicant's proposed monitoring program, if any, for impacts to such fish and wildlife species and their habitats;

Response

No changes or additional information required.

Amendment No. 1 Tables

P-2 Permanent and Temporary Impacts

Amendment No. 1 Figures

P-1 Habitat Types

P-2 Oregon Department of Fish and Wildlife Habitat Categories

P-3 Special-Status Species

P-4 Proposed Mitigation Area

AMENDMENT NO. 1 TABLE P-2
Permanent and Temporary Disturbance

Feature	Total	Habitat Category ODFW 2	Habitat Category ODFW 3	Habitat Category ODFW 4	Habitat Category ODFW 5	Habitat Category ODFW 6	Juniper-Sage	Sage-Steppe	Pine	Ag Field	Pasture	Unimproved Pasture	Fallow	Ruderal	Developed
Permanent Disturbance Over the 30 Year Operating Life of the Energy Facility															
Energy Facility Site	45.9	13.9	4.2	27.8			5.8						40.1		
Water supply well system	0.3			0.3							0.3				
Water supply pipeline	0.0														
Natural gas pipeline	0.0														
Electric transmission line	57.3	31.6	25.7				31.6	10.4	12.4			2.1	0.8		
Total	**103.5**	**45.5**	**29.9**	**28.1**	**0.0**	**0.0**	**37.4**	**10.4**	**12.4**	**0.0**	**0.3**	**2.1**	**40.9**	**0.0**	**0.0**
Temporary															
Energy Facility	45.9	13.9	4.2	27.8			5.8						40.1		
Construction parking/laydown	71.0	19.7	6.4	44.9			5.4						65.6		
Subtotal—Energy Facility Site	116.9	33.6	10.6	72.7	0.0	0.0	11.2	0.0	0.0	0.0	0.0	0.0	105.7	0.0	0.0
Water supply well system	1.3			1.3							1.3				
Water supply pipeline	19.4	6.6	1.8	11.0			10.2			1.4	6.3		0.8	0.7	
Natural gas pipeline	43.8	13.1		27.1		3.6	9.0			23.9	0.8		3.5	3.0	3.6
Electric transmission line	64.9	36.3	28.6				35.2	12.2	14.0			2.4	1.1		
Total	**246.3**	**89.6**	**41.0**	**112.1**	**0.0**	**3.6**	**65.6**	**12.2**	**14.0**	**25.3**	**8.4**	**2.4**	**111.1**	**3.7**	**3.6**

Exhibit Q—Threatened and Endangered Plant and Animal Species

No changes or additional information required.

Exhibit R—Scenic and Aesthetic Values

This exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1)(r) (the "Rule").

Regulatory Citation

An analysis of significant potential impacts of the proposed facility, if any, on scenic and aesthetic values identified as significant or important in applicable federal land management plans or in local land use plans for the analysis area, providing evidence to support a finding by the Council as required by OAR 345-022-0080, including:

(A) Identification of the applicable federal land management plans and local land use plans;

Response

No changes or additional information required.

Regulatory Citation

(B) Identification and description of the scenic and aesthetic values identified as significant or important in the applicable plans;

Response

No changes or additional information required.

Regulatory Citation

(C) A description of significant potential significant adverse impacts to the scenic and aesthetic values identified in (B), including, but not limited to, potential impacts such as:

(i) Loss of vegetation or alteration of the landscape as a result of construction or operation;

Response

No changes or additional information required.

Regulatory Citation

(ii) Visual impacts of facility structures, including cooling tower or other plumes, if any; and

Response

The visual impacts of the Energy Facility structures on any recognized scenic values will not be modified by the switch to air cooling. The air-cooled condensers are approximately 125 feet tall, but are shorter than the stacks and larger in bulk than the cooling towers (see Exhibits B and C for size description of the air-cooled condensers). From a distance of 1 mile or more (any recognized scenic areas are much farther) the air-cooled condensers are not expected to appreciably change the visual impact. More importantly, the switch to air cooling will eliminate the cooling tower plume discussed in the original SCA. In sum, the modified facility will not cause any significant visual impacts on any recognized scenic value.

Regulatory Citation

(iii) Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 visual resources as described in OAR 340-031-0120;

Response

No changes or additional information required.

Regulatory Citation

(D) The measures the applicant proposes to avoid, reduce or otherwise mitigate any significant adverse impacts;

Response

No changes or additional information required.

Regulatory Citation

(E) A map or maps showing the location of the visible scenic and aesthetic values analyzed under (B); and

Response

Figure R-3 from the original SCA is no longer required because the water vapor plume is eliminated. Otherwise, no changes or additional information required.

Regulatory Citation

> *(F) The applicant's proposed monitoring program, if any, for impacts to scenic and aesthetic values;*

Response

No changes or additional information required.

Exhibit S—Historic, Cultural, and Archaeological Resources

No changes or additional information required.

In addition, on April 16, 2003, the Oregon State Historic Preservation Office (SHPO) requested additional information regarding discovered cultural resources. Because of the confidential nature of this information, a separate document containing this additional information will be sent to SHPO, ODOE, and the Klamath Tribe.

Exhibit T—Recreational Opportunities

This exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1)(t) (the "Rule").

Regulatory Citation

Information about the impacts the proposed facility would have on important recreational opportunities in the analysis area, providing evidence to support a finding by the Council as required by OAR 345-022-0100, including:

(A) A description of any important recreational opportunities in the analysis area considering the criteria in OAR 345-022-0100;

Response

The water vapor plume will be eliminated and references to the water vapor plume being visible from the Bonanza City Park and Malin City Park are no longer applicable. Otherwise, no changes or additional information are required.

Regulatory Citation

(B) An assessment of significant potential adverse impacts to the opportunities identified in (A) including, but not limited to, potential impacts such as:

(i) Direct or indirect loss of an opportunity as a result of construction or operation;

Response

No changes or additional information required.

Regulatory Citation

(ii) Noise resulting from facility construction or operation;

Response

No changes or additional information required.

Regulatory Citation

(iii) Increased traffic resulting from facility construction or operation;

Response

No changes or additional information required.

Regulatory Citation

(iv) Water use during facility construction or operation;

Response

The water supply reservoir has been eliminated and the maximum water use reduced by 97 percent to 300 gpm from 7,590 gpm. Otherwise, no changes or additional information are required.

Regulatory Citation

(v) Wastewater resulting from facility construction or operation;

Response

Because there are no important recreational opportunities located within the analysis area, wastewater discharge during construction and operation will not have an impact on recreation resources. In any event, project wastewater disposal will have no impact on any recreational opportunity.

Under the preferred wastewater disposal option, wastewater will be collected and stored in wastewater storage tanks on the Energy Facility site. This wastewater will routinely be transported to a WWTP for disposal. The 51.2-acre wastewater evaporation pond described in the original SCA will be eliminated. Under the back-up wastewater disposal option, a 36-acre evaporation pond will be constructed. In either case, wastewater disposal will have no impact on any recreational opportunity

Regulatory Citation

(vi) Visual impacts of facility structures, including cooling tower or other plumes, if any; and

Response

Because there are no important recreational opportunities located within the analysis area, no visual impacts will occur as a result of construction of the Facility. In any case, only three recreational facilities within the analysis area could have views of the stacks and transmission towers. These include the BLM primitive campsites and the Bonanza and Malin City Parks. From the Malin City Park, one or more transmission towers will be visible 5 miles in the distance. From the Bonanza City Park, the stacks and transmission towers will likely be visible 3 miles in the distance. From the BLM sites, any view likely will be obstructed by foreground vegetation. Even assuming any of these recreational opportunities were to be deemed important, the visibility of the Facility features at their respective distances will not create a significant visual impact or affect recreational uses. Furthermore, none of these three resources have designated scenic resources associated with them and are not managed or valued for their scenic views.

Regulatory Citation

> *(vii) Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 visual resources as described in OAR 340-204-0050;*

Response

No changes or additional information required.

Regulatory Citation

> *(C) A description of any measures the applicant proposes to avoid, reduce or otherwise mitigate the significant adverse impacts identified in (B);*

Response

No changes or additional information required.

Regulatory Citation

> *(D) A map of the analysis area showing the locations of important recreational opportunities identified in (A); and*

Response

No changes or additional information required.

Regulatory Citation

(E) The applicant's proposed monitoring program, if any, for impacts to important recreational opportunities;

Response

No changes or additional information required.

Exhibit U—Ability of Public and Private Providers to Provide Services

This exhibit is organized in accordance with the application requirements set forth in OAR 345-021-0010(1)(u) (the "Rule"). Division 21 requires Exhibit U to include:

- Assumptions about the project's service needs
- Information about the service providers in the analysis area
- Potential adverse impacts on the providers' ability to deliver services
- Evidence that project impacts are not likely to be significant; and, if necessary
- Proposed monitoring programs

Regulatory Citation

> *Information about significant potential adverse impacts of construction and operation of the proposed facility on the ability of public and private providers in the analysis area to provide the services listed in OAR 345-022-0110, providing evidence to support a finding by the Council as required by OAR 345-022-0110. The applicant shall include:*
>
> *(A) The important assumptions the applicant used to evaluate potential impacts;*

Response

Introduction

The switch to air cooling reduces the maximum amount of wastewater each year for a 72 percent capacity factor to be managed to 5 MG from 24 MG. As described in Exhibit B to Amendment No. 1, there will be a preferred option and a back-up option for disposal of wastewater:

- The preferred alternative disposal option for wastewater will be to store the wastewater in tanks located on the Energy Facility site, and routinely haul the wastewater to a treatment plant. This option eliminates the need for an evaporation pond.

- The back-up wastewater disposal alternative will be a lined, onsite, 36-acre evaporation pond. This evaporation pond will likely be designed to operate passively, eliminating the need for a spray enhancement system. The back-up wastewater disposal option will be implemented if arrangements cannot be made with a WWTP.

Because of this significant reduction, the Applicant is presently in discussion with the two municipal WWTPs in Klamath Falls—the South Suburban Sanitary District and the City of Klamath Falls Sanitary District. Over the life of the Energy Facility, other WWTPs may be constructed or considered for management of wastewater generated at the Energy Facility. The Applicant will arrange with a trucking company to routinely haul the wastewater stored in the wastewater storage tanks at the Energy Facility to the WWTP.

Each of the two WWTP plants has been contacted by the Applicant. Letters indicating the amount and quality of the wastewater generated at the Energy Facility are provided in Amendment No. 1 Attachments U-4 and U-5.

The back-up wastewater disposal option does not rely on public or private service providers. Other than the disposal of wastewater and reliance on municipal wastewater treatment (in the preferred wastewater disposal option), no changes or additional information are required.

General Assumptions

Population

No changes or additional information required.

Construction

No changes or additional information required.

Operations

No changes or additional information required.

Services

No changes or additional information required.

Traffic Safety Impact Assumptions

The water supply reservoir and evaporation pond (under the preferred wastewater disposal option) will be eliminated by the switch to air cooling. Construction materials required for the evaporation pond and water supply reservoir included 134,500 cubic yards of sand, 40,300 cubic yards of asphalt, 596,800 square feet of 60-mil high-density polyethylene (HDPE) liner, and piping and spray nozzles for the enhanced spray system. The estimated number of truck trips to transport these materials to the Energy Facility site consisted of approximately 7,080 truck loads over 8 months. Offsetting this reduction will be the need to haul 4.8 MG of wastewater from testing and commissioning of the Energy Facility to a WWTP for disposal. Assuming the wastewater is hauled in 5,000-gallon tanker trucks, an estimated total of 1,920 truck loads over an expected 3- to 4-month period is expected. This results in a net reduction of construction-related traffic of 5,160 truck loads.

Other than the reduction in truck traffic, no other changes to this citation.

Regulatory Citation

(B) Identification of the public and private providers in the analysis area that would likely be affected;

Response

No changes or additional information required.

Sewers and Sewage Treatment

No changes or additional information required.

As indicated in the original SCA, the City of Klamath Falls Sanitary District, and the South Suburban Sanitary District are planning changes or expansions to their systems. Both sewer districts in Klamath Falls anticipate increased demand as a result of industrial, residential, and commercial development, and are developing capital facilities plans to address anticipated demands (Brakeman, 2002; Meek, 2002; Matthews, 2002; Hapalla, 2002; Colahan, 2002; Newmeyer, 2002).

The ability of the City of Klamath Falls Sanitary District and the South Suburban Sanitary District to accept wastewater from testing and commissioning of the Energy Facility and the wastewater from operation of the Energy Facility is presently being evaluated. According to managers at both facilities, each will be required to evaluate whether they can meet the EPA categorical standard to accept industrial waste or whether local ordinance provide for acceptance of truck hauled wastewater.

Water and Stormwater

No changes or additional information required.

Solid Waste Management

Landfills

No changes or additional information required.

Transfer Station Siting

No changes or additional information required.

Employment and Housing

Employment

No changes or additional information required.

Housing

No changes or additional information required.

Road Network

No changes or additional information required.

Trucking Limitations

No changes or additional information required.

Existing Levels of Service

No changes or additional information required.

Police and Fire

No changes or additional information required.

Police

No changes or additional information required.

Fire

No changes or additional information required.

Health Care

No changes or additional information required.

Schools

No changes or additional information required.

Regulatory Citation

> *(C) A description of any likely adverse impact to the ability of the providers identified in (B) to provide the services listed in OAR 345-022-0110;*
>
> *(D) Evidence that adverse impacts described in (C) are not likely to be significant, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts; [and]*

Response

General Context and Scale of Potential Impacts

No changes or additional information required.

Construction-Related Impacts

No changes or additional information required.

Operations-Related Impacts

No changes or additional information required.

Sewers and Sewage Treatment

Construction-Related Impacts to Sewer Services

No changes or additional information required.

The ability of the City of Klamath Falls Sanitary District and the South Suburban Sanitary District to accept wastewater from testing and commissioning of the Energy Facility is presently being evaluated.

Operations-Related Impacts to Sewer Services

The ability of the City of Klamath Falls Sanitary District and the South Suburban Sanitary District to accept wastewater from operation of the Energy Facility is presently being evaluated.

The Facility will generate little sanitary sewage during its anticipated 30-year operational period. Conservatively assuming that about 1 gpm or 1,500 gpd of sanitary sewage will be generated and discharged into a septic tank and drainfield, there will be no connection to or reliance on any public sewer system. Many of the 30 jobs created to operate the Energy Facility are likely to be hired locally. Some employees will relocate to the area. Given the slow growth and current vacancy rates in the analysis area, employees required to relocate to the area for employment are not expected to generate substantial demand for new housing units or sewer hookups from any sewer service providers. Therefore, operation of the Facility will have no adverse impact on sewer systems in the analysis area.

Water and Stormwater

Construction-Related Impacts to Water and Stormwater Service Providers

No changes or additional information required.

Operations-Related Impacts to Water and Stormwater Service Providers

No changes or additional information required.

Solid Waste Management

Construction-Related Impacts to Solid Waste Management

No changes or additional information required.

Operations-Related Impacts to Solid Waste Management

No changes or additional information required.

Housing

Construction-Related Impacts to Housing

No changes or additional information required.

Operations-Related Impacts to Housing

No changes or additional information required.

Traffic Capacity and Safety

Construction-Related Impacts

No changes or additional information required.

Operations- and Maintenance-Related Impacts

Energy Facility. As stated in the original SCA, the Energy Facility will operate 24 hours per day, 7 days per week. It will employ approximately 30 individuals in three shifts. A peak workforce of 18 employees (7 a.m. to 5:30 p.m.) will generate up to 36 trips (worst case). An estimated maximum total of 60 trips will be generated during the 24-hour period. During the evening peak, it is anticipated that as many as 18 trips will occur because of shift change.

Wastewater generated under the preferred wastewater disposal option during operations will be stored in wastewater storage tanks and routinely hauled to a WWTP for disposal. Assuming a 72 percent capacity factor, approximately 5.0 MG of wastewater will be generated annually. Tanker trucks will haul the wastewater to the WWTP and the average monthly quantity will average 417,000 gallons and the maximum monthly quantity is estimated at 820,000 gallons. The WWTPs have indicated a preference for a relatively steady delivery, therefore the daily average will be 20,850 gallons and the maximum daily amount will be 41,000 gallons. Assuming a 5,000-gallon tanker truck, the average number of truck trips per day is 5 and the maximum number of truck trips is 9 using 20 days per month. Hauling of wastewater will occur during daytime hours for safety purposes.

During Energy Facility operation, it is anticipated that trucks periodically will deliver and pick up replacement parts, lubricants, liquid fuel, aqueous ammonia, condensed polisher waste, trash, and other consumables. Amendment No. 1 Table U-14 (Table U-14 in the original SCA) highlights expected truck deliveries to the Energy Facility site.

Some of the materials delivered to the Energy Facility (such as aqueous ammonia) could pose an inhalation hazard if spilled. Shippers of inhalation hazardous or explosive materials must contact ODOT and apply for a Hazardous Material Transportation License. Upon receiving this license, the shipper will obtain a handbook that specifies the routes approved to ship inhalation hazardous or explosive materials. Operating convenience is not a consideration. The exact route of the inhalation or explosive material shipment will not be determined until the shipper contacts the OSP and applies for a license.

The traffic analysis has been updated to include the 5 to 9 truck trips per day for wastewater disposal during operations. The proposed route for these wastewater trips into and out of the Energy Facility is along West Langell Valley Road, Harpold Road (north of West Langell Valley Road), Oregon Highway 70 (west of Harpold Road), and Oregon Highway 140 (west of OR 70). Because the trips into and out of the Energy Facility are proposed to use the same route, this generates 10 to 18 trips per day along each of the roads. Although, these trips can reasonably be assumed to occur throughout the day, to be conservative it is assumed that all of these trips occur in the PM peak hour. This change is expected to not cause any noticeable

impacts and the roadway level of service is expected to remain the same as identified in the original SCA.

Amendment No. 1 Table U-15 (Table U-15 in the original SCA) describes current and future traffic volumes updated to include the wastewater trips, and LOS during the operational phase of the Energy Facility, including traffic from the Energy Facility site. As shown in Table U-15, all roadways will operate at LOS B or better during evening peak conditions.

LOS B is above the LOS C threshold identified within the significance criteria. Therefore, no mitigation action is required.

Water Supply Pipeline and Water Supply Well System. No changes or additional information.

Natural Gas Pipeline. No changes or additional information.

Transportation Mitigation Measures

Construction

No changes or additional information.

Operations and Maintenance

No changes or additional information.

Police and Fire

Construction-Related Impacts to Police and Fire Protection

No changes or additional information.

Operations-Related Impacts on Police and Fire Protection

No changes or additional information.

Health Care

No changes or additional information.

Schools

Construction-Related Impacts to Schools

No changes or additional information.

Operations-Related Impacts to Schools

No changes or additional information.

Regulatory Citation

> *(E) The applicant's proposed monitoring program, if any, for impacts to the ability of providers identified in (B) to provide the services listed in OAR 345-022-0110;*

Response

No changes or additional information.

Amendment No. 1 Tables

U-14 Estimated Truck Traffic at the Energy Facility During Operation

U-15 Existing and Future Daily and Peak-Hour Traffic Volumes and LOS with and without Energy Facility Impacts

Amendment No. 1 Attachments

U-4 Letter to South Suburban Sanitary District (New attachment not in original SCA)

U-5 Letter to City of Klamath Falls Sanitary District (New attachment not in original SCA)

AMENDMENT NO. 1 TABLE U-14
Estimated Truck Traffic at the Energy Facility During Operation

Delivery Type	Number and Occurrence of Trucks
Aqueous ammonia	2 per week
Condensed polisher waste	1 per month
Cleaning chemicals	1 per month
Trash pickup	1 per week
Sanitary waste	1 per year
Wastewater	5 to 9 per day

AMENDMENT NO. 1 TABLE U-15
Existing and Future Daily and Peak-Hour Traffic Volumes and LOS with and without Energy Facility Impacts

	2000 Existing PM Peak		**2004 PM Peak *without* Energy Facility**		**2004 PM Peak *with* Energy Facility**	
	Traffic	**LOS**	**Traffic**	**LOS**	**Traffic**	**LOS**
West Langell Valley Road (south of Harpold Road)	40	A	45	A	83	A
Harpold Road (north of West Langell Valley Road)	40	A	45	A	83	A
Harpold Road (south of West Langell Valley Road)	40	A	45	A	65	A
East Langell Valley Road	40	A	45	A	65	A
OR 50 (east of Harpold Road)	150	A	165	A	185	A
OR 50 (west of Harpold Road)	150	A	165	A	185	A
OR 70 (east of Harpold Road/Carol Avenue)	190	A	210	A	230	A
OR 70 (west of Harpold Road)	90	A	100	A	138	A
OR 140 (east of OR 70)	310	B	342	B	360	B
OR 140 (west of OR 70)	330	B	365	B	403	B

LOS = level of service.
Estimated 1 percent growth factor for 2004.
Source: Oregon Department of Transportation

Exhibit V—Generation of Solid Waste and Wastewater

This exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1)(v) (the "Rule").

Regulatory Citation

> *Information about the applicant's plans to minimize the generation of solid waste and wastewater and to recycle or reuse solid waste and wastewater, providing evidence to support a finding by the Council as required by OAR 345-022-0120. The applicant shall include:*
>
> *(A) A description of the major types of solid waste and wastewater that construction, operation and retirement of the facility are likely to generate;*

Response

Construction

No changes or additional information.

Operations

The switch to air cooling eliminates the evaporation pond and the associated solid waste. Therefore, solid waste disposal at a licensed landfill is no longer required. Under the preferred option wastewater will be stored in wastewater storage tanks on the Energy Facility site and routinely hauled to a WWTP. Otherwise, no changes or additional information required.

- The back-up wastewater disposal alternative will be a lined, onsite evaporation pond. Owing to the reduced wastewater volumes generated by the air-cooled Energy Facility the evaporation pond will be reduced in size to 36 acres from 51 acres as described in the original SCA. Also, the spray enhancement system described in the original SCA will likely not be necessary, thereby eliminating the potential of spray drift outside the evaporation pond if it is constructed. Evaporation will leave a solid waste that will occasionally be removed for disposal in a licensed landfill. This solid waste is a nonhazardous solid waste composed of water-treatment chemicals and constituents concentrated from the raw water supply. In addition to use of an evaporation pond, the Applicant may evaluate land application of wastewater.

Retirement

No changes or additional information required.

Regulatory Citation

(B) The applicant's plans to minimize, recycle or reuse the solid waste and wastewater described in (A);

Response

The Energy Facility was originally designed to be water cooled. To reduce water requirements, the Applicant will design the Energy Facility to be air-cooled. Water from the plant drains, evaporative cooler blowdown, and HRSG blowdown will be recycled and reused to further reduce the amount of wastewater generated. The reduction in raw water requirements and recycling/reuse of water in the water treatment system results in a reduction of the average rate of wastewater generated with supplemental duct firing by 71 percent (22 gpm vs. 76 gpm). Assuming a 72 percent capacity factor the annual amount of wastewater generated is reduced to 6 MG from 24 MG. Water balances are shown in Exhibit O (Figures O-2 and O-3).

A concentration prediction of the wastewater constituents is shown in Table V-1 (Table B-3 in the RAI Compilation Document). The wastewater is noncontact and will be generated from the water treatment system to produce demineralized water for the steam system and from service water. Plant drains for the service water system will go through an oil/water separator. Sewage disposal will be by a septic system installed at the site, therefore the wastewater will not contain sewage.

Water treatment will consist of a reverse osmosis (RO) reject unit followed by a polishing demineralizer. The reverse osmosis unit will consist of two 100 percent capacity, preassembled, prepiped, skid mounted, permanent onsite, two stage, RO banks to pretreat the water feeding the demineralizers. Each RO bank will consist of standard size, universally interchangeable, membranes and will be suitable to pretreat the water to the quality required by the polishing demineralizers. Each RO bank will be sized to produce permeate required by the polishing demineralizers for a 1.5 percent (of main steam flow) steam cycle make-up for one 580 MW block operating at base load.

Only, which is the wastewater containing the highest level of solids, will no longer be used in the water system and will be stored in the wastewater storage tanks for future disposal. The total dissolved solids (TDS) content of the wastewater in the wastewater storage tanks is predicted to be 1,004 milligrams per liter (mg/L) and the total suspended solids (TSS) is predicted to be 1 mg/L.

The other waste minimization and recycling activities, generation of solid waste, and decommissioning activities described in the original SCA are unchanged.

Regulatory Citation

(C) A description of any adverse impact on surrounding and adjacent areas from the accumulation, storage, disposal and transportation of waste generated by the construction and operation of the facility;

Response

No changes or additional information required.

Regulatory Citation

> *(D) Evidence that adverse impacts described in (C) are likely to be minimal, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts; and*

Response

Under the preferred wastewater disposal option the evaporation pond will be eliminated with the switch to air cooling, therefore references to it in this citation no longer apply. As described in Exhibit U, transportation of the wastewater results in approximately 3 to 6 trips per day by tanker trucks from the Energy Facility site to a WWTP. Given this low number and frequency of these trips, wastewater transport will not be expected to have adverse impacts on the adjacent or surrounding area.

References in this citation to construction and operation measures to avoid, reduce, and mitigate any possible impacts onsite or to adjacent land will not change from the original SCA. Periodic truck trips to landfills or recycling facilities for wastes other than wastewater will be periodic and are not anticipated to have adverse impacts on the adjacent or surrounding area.

Regulatory Citation

> *(E) The applicant's proposed monitoring program, if any, for minimization of solid waste and wastewater impacts;*

Response

Adverse impacts are not anticipated. As described in the original SCA, the Applicant proposes to implement a stormwater monitoring program required by stormwater permits.

Under the preferred and back-up wastewater disposal options, the switch to air cooling eliminates , the water vapor plume, and cooling tower salt deposition. Therefore, the Applicant will not conduct a hydrogeologic evaluation specific to cooling tower salt deposition.

AMENDMENT NO. 1 TABLE V-1
Water Constituents in Water Streams

	A				B	C			D			E		F					G							H	I		
	Raw Water (Note 1)					Combined Plant Make-up Water			Misc. Plant Drains (O/W Sep. Eff.)					RO Reject ((75% recovery))					Evap. Cooler Blowdown ((50% blowdown))					Combined HRSG Blowdown				Quenched HRSG Blowdown		
Parameter			Max Value	Units			Max Value	Units		Max Value	Units	RO Feed Flow			Max Value	Units	Cycles =	4.00	Demin Feed		Max Value	Units	Cycles =	2		Max Value	Units	Quench Water Flow Rate		Max Value	Units
Peak Case																															
Flow Rate			208	gpm	**Demin Water Dump**		517	gpm		5	gpm	196	gpm		49	gpm			0.0		108.00	gpm				15.00	gpm	100 gpm		115	gpm
					81 gpm														**Raw Water Feed**												
pH			8.4	std Units		<	8.50	std Units	<	8.5	std Units				7.5-8.2	std Units			216	<	8.5	std Units			<	10.2	std Units		<	8.7	std Units
Barium				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Iron			0.0736	mg/l		<	0.171	mg/l	<	0.513	mg/l			<	0.677	mg/l				<	0.342	mg/l			<	1.1	mg/l		<	0.292	mg/l
Copper				mg/l		<	0.008	mg/l	<	0.024	mg/l			<	0.032	mg/l				<	0.016	mg/l			<	0.1	mg/l		<	0.020	mg/l
Zinc				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Manganese		<	0.01	mg/l		<	0.011	mg/l	<	0.034	mg/l			<	0.044	mg/l				<	0.022	mg/l					mg/l		<	0.010	mg/l
Aluminum				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Antimony				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Arsenic				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Beryllium				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Cadmium				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Chromium III				mg/l				mg/l			mg/l					mg/l											mg/l				mg/l
Chromium VI				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Lead				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Mercury				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Nickel				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Selenium				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Thallium				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Cobalt				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Tin				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Calcium			14.8	mg/l		<	16.559	mg/l	<	49.676	mg/l			<	65.572	mg/l				<	33.117	mg/l)			<	0.1	mg/l		<	14.412	mg/l
Magnesium			6.01	mg/l		<	6.721	mg/l	<	20.162	mg/l			<	26.614	mg/l				<	13.442	mg/l					mg/l		<	5.844	mg/l
Sodium			10.3	mg/l		<	13.123	mg/l	<	39.369	mg/l			<	51.967	mg/l				<	26.246	mg/l			<	19.9	mg/l		<	14.007	mg/l
Potassium			2.16	mg/l		<	2.415	mg/l	<	7.246	mg/l			<	9.565	mg/l				<	4.831	mg/l					mg/l		<	2.100	mg/l
Boron		<	0.275	mg/l		<	0.308	mg/l	<	0.923	mg/l			<	1.218	mg/l				<	0.615						mg/l		<	0.267	mg/l
Silica			36.4	mg/l		<	46.213	mg/l	<	138.640	mg/l			<	183.004	mg/l				<	92.426	mg/l			<	68.3	mg/l		<	49.094	mg/l
Bromide				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Chloride			2.12	mg/l		<	3.976	mg/l	<	11.927	mg/l			<	15.743	mg/l				<	7.951	mg/l			<	19.9	mg/l		<	6.053	mg/l
Nitrate as N			0.43	mg/l		<	0.481	mg/l	<	1.443	mg/l			<	1.904	mg/l				<	0.962						mg/l		<	0.418	mg/l
Nitrite as N		<	0.01	mg/l		<	0.011	mg/l	<	0.034	mg/l			<	0.044	mg/l				<	0.022	mg/l					mg/l		<	0.010	mg/l
Ammonia as N				mg/l		<	0.089	mg/l	<	0.266	mg/l			<	0.351	mg/l				<	0.177	mg/l			<	1.1	mg/l		<	0.221	mg/l
Sulfate			3.22	mg/l		<	5.206	mg/l	<	15.617	mg/l				269.8	mg/l				<	10.411	mg/l			<	19.9	mg/l		<	7.122	mg/l
Total Alkalinity			84	mg/l as		<	126.064	mg/l as	<	378.192	mg/l as				250.000	mg/l as				<	252.127	mg/l as CaCO3			<	398.4	mg/l as		<	161.586	mg/l as
Fluoride		<	0.1	mg/l		<	0.112	mg/l	<	0.335	mg/l			<	0.443	mg/l				<	0.224	mg/l					mg/l		<	0.097	mg/l
Phosphorous				mg/l		<	3.669	mg/l	<	11.008	mg/l			<	10	mg/l				<	7.339	mg/l			<	45.5	mg/l		<	9.126	mg/l
Orthophosphate as P				mg/l		<	3.669	mg/l	<	11.008	mg/l			<	10	mg/l				<	7.339	mg/l			<	45.5	mg/l		<	9.126	mg/l
Sulfide				mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Sulfite				mg/l				mg/l			mg/l			<	25	mg/l						mg/l					mg/l				mg/l
Oil & Grease				mg/l		<	2.710	mg/l	<	10	mg/l After			<	10.731	mg/l				<	10	mg/l					mg/l		<	2.356	mg/l
Total Organic Content (TOC)				mg/l		<	2.239	mg/l	<		mg/l			<	8.866	mg/l				<	4.478	mg/l			<	30	mg/l		<	5.860	mg/l
TDS			104	mg/l			254.432	mg/l (excl.		779.6176584	mg/l (excl.				1007.551	mg/l (excl.					508.862	mg/l (excl. constituents			<	1707.4	mg/l (excl. constituents below)		<	443.950	mg/l
TSS				mg/l		<	14.661	mg/l	<	100	mg/l			<	1.000	mg/l				<	50	mg/l			<	14.2	mg/l		<	14.607	mg/l
Phosphonates	(Note 2)			mg/l				mg/l			mg/l			<	30	mg/l						mg/l					mg/l				mg/l
Polyphosphates	(Note 2)			mg/l				mg/l			mg/l					mg/l						mg/l					mg/l				mg/l
Polyacrylate	(Note 2)			mg/l				mg/l			mg/l			<	20.000	mg/l						mg/l					mg/l				mg/l
Free Chlorine	(Note 2)			mg/l		<	0.050	mg/l	<	2	mg/l			<	0.197	mg/l				<	0.100	mg/l					mg/l		<	0.043	mg/l
Average Ambient Case																															
Flow Rate			72	gpm	Demin Water Dump		192	gpm		5	gpm		RO		22	gpm			Demin Feed			gpm				15	gpm	100		115	gpm

AMENDMENT NO. 1 TABLE V-1
Water Constituents in Water Streams

	A				B	C			D			E		F					G								H	I		
	Raw Water (Note 1)					Combined Plant Make-up Water			Misc. Plant Drains (O/W Sep. Eff.)					RO Reject ((75% recovery))					Evap. Cooler Blowdown ((50% blowdown))					Combined HRSG Blowdown				Quenched HRSG Blowdown		
Parameter			Max Value	Units			Max Value	Units		Max Value	Units	RO Feed Flow			Max Value	Units	Cycles =	4.00	Demin Feed		Max Value	Units	Cycles =	2		Max Value	Units	Quench Water Flow Rate		Max Value	Units
												87	gpm															gpm			
pH			8.4	std Units	gpm	<	8.5	std Units	<	8.5	std Units				7.5-8.2	std Units			Raw Water Feed	<	8.5	std Units				<	10.2	std Units		<	8.7	std Units
Barium				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Iron			0.0736	mg/l		<	0.171	mg/l	<	0.513	mg/l			<	0.677	mg/l				<	0.342	mg/l				<	1.1	mg/l		<	0.292	mg/l
Copper				mg/l		<	0.008	mg/l	<	0.024	mg/l			<	0.032	mg/l				<	0.016	mg/l				<	0.1	mg/l		<	0.020	mg/l
Zinc				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Manganese		<	0.01	mg/l		<	0.011	mg/l	<	0.034	mg/l			<	0.044	mg/l				<	0.022	mg/l						mg/l		<	0.010	mg/l
Aluminum				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Antimony				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Arsenic				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Beryllium				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Cadmium				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Chromium III				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Chromium VI				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Lead				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Mercury				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Nickel				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Selenium				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Thallium				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Cobalt				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Tin				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Calcium			14.8	mg/l		<	16.559	mg/l	<	49.676	mg/l			<	65.572	mg/l				<	33.117	mg/l				<	0.1	mg/l		<	14.412	mg/l
Magnesium			6.01	mg/l		<	6.721	mg/l	<	20.162	mg/l			<	26.614	mg/l				<	13.442	mg/l						mg/l		<	5.844	mg/l
Sodium			10.3	mg/l		<	13.123	mg/l	<	39.369	mg/l			<	51.967	mg/l				<	26.246	mg/l				<	19.9	mg/l		<	14.007	mg/l
Potassium			2.16	mg/l		<	2.415	mg/l	<	7.246	mg/l			<	9.565	mg/l				<	4.831	mg/l						mg/l		<	2.100	mg/l
Boron		<	0.275	mg/l		<	0.308	mg/l	<	0.923	mg/l			<	1.218	mg/l				<	0.615	mg/l						mg/l		<	0.267	mg/l
Silica			36.4	mg/l		<	46.213	mg/l	<	138.640	mg/l			<	183.004	mg/l				<	92.426	mg/l				<	68.3	mg/l		<	49.094	mg/l
Bromide				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Chloride			2.12	mg/l		<	3.976	mg/l	<	11.927	mg/l			<	15.743	mg/l				<	7.951	mg/l				<	19.9	mg/l		<	6.053	mg/l
Nitrate as N			0.43	mg/l		<	0.481	mg/l	<	1.443	mg/l			<	1.904	mg/l				<	0.962	mg/l						mg/l		<	0.418	mg/l
Nitrite as N		<	0.01	mg/l		<	0.011	mg/l	<	0.034	mg/l			<	0.044	mg/l				<	0.022	mg/l						mg/l		<	0.010	mg/l
Ammonia as N				mg/l		<	0.089	mg/l	<	0.266	mg/l			<	0.351	mg/l				<	0.177	mg/l				<	1.1	mg/l		<	0.221	mg/l
Sulfate			3.22	mg/l		<	5.206	mg/l	<	15.617	mg/l				269.827	mg/l				<	10.411	mg/l				<	19.9	mg/l		<	7.122	mg/l
Total Alkalinity			84	mg/l as		<	126.064	mg/l as	<	378.192	mg/l as				250.000	mg/l				<	252.127	mg/l as CaCO3				<	398.4	mg/l as		<	161.586	mg/l as
Fluoride		<	0.1	mg/l		<	0.112	mg/l	<	0.335	mg/l			<	0.443	mg/l				<	0.224	mg/l						mg/l		<	0.097	mg/l
Phosphorous				mg/l		<	3.669	mg/l	<	11.008	mg/l			<	10.000	mg/l				<	7.339	mg/l				<	45.5	mg/l		<	9.126	mg/l
Orthophosphate as P				mg/l		<	3.669	mg/l	<	11.008	mg/l			<	10.000	mg/l				<	7.339	mg/l				<	45.5	mg/l		<	9.126	mg/l
Sulfide				mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Sulfite				mg/l				mg/l			mg/l			<	25.000	mg/l						mg/l			(Note 2)			mg/l				mg/l
Oil & Grease				mg/l		<	2.710	mg/l	<	10.000	mg/l After			<	10.731	mg/l				<	10.000	mg/l						mg/l		<	2.356	mg/l
Total Organic Content (TOC)				mg/l		<	2.239	mg/l	<		mg/l			<	8.866	mg/l				<	4.478	mg/l				<	30	mg/l		<	5.860	mg/l
TDS			104	mg/l			254.432	mg/l (excl.		779.618	mg/l (excl.				1007.551	mg/l					508.862	mg/l (excl. constituents				<	1707.4	mg/l (excl. constituents below)		<	443.950	mg/l
TSS				mg/l		<	14.661	mg/l	<	100.000	mg/l			<	1.000	mg/l				<	50.000	mg/l				<	14.24898	mg/l		<	14.607	mg/l
Phosphonates	(Note 2)			mg/l				mg/l			mg/l			<	30.000	mg/l						mg/l						mg/l				mg/l
Polyphosphates	(Note 2)			mg/l				mg/l			mg/l					mg/l						mg/l						mg/l				mg/l
Polyacrylate	(Note 2)			mg/l				mg/l			mg/l			<	20.000	mg/l						mg/l						mg/l				mg/l
Free Chlorine	(Note 2)			mg/l		<	0.050	mg/l	<	2.000	mg/l			<	0.197	mg/l				<	0.100	mg/l						mg/l		<	0.043	mg/l
Mass Calculations (Based on 24 hours/day):																																
Flow Rate			2496000	lbs/day			6204000	lbs/day		60000	lbs/day				588000	lbs/day					1296000	lbs/day					180000	lbs/day				
pH						<			<											<						<						

AMENDMENT NO. 1 TABLE V-1
Water Constituents in Water Streams

	A			B	C		D		E		F					G					H	I		
	Raw Water (Note 1)				Combined Plant Make-up Water		Misc. Plant Drains (O/W Sep. Eff.)				RO Reject ((75% recovery))					Evap. Cooler Blowdown ((50% blowdown))					Combined HRSG Blowdown			Quenched HRSG Blowdown		
Parameter		Max Value	Units			Max Value	Units		Max Value	Units	RO Feed Flow			Max Value	Units	Cycles =	4.00	Demin Feed		Max Value	Units	Cycles =	2	Max Value	Units	Quench Water Flow Rate	Max Value	Units
Barium			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Iron		0.1837056	lbs/day		<	1.060972	lbs/day	<	0.030782546	lbs/day			<	0.398203	lbs/day				<	0.44326663	lbs/day			< 0.198	lbs/day				
Copper			lbs/day		<	0.050032	lbs/day	<	0.001451605	lbs/day			<	0.018778	lbs/day				<	0.02090302	lbs/day			< 0.018	lbs/day				
Zinc			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Manganese	<	0.02496	lbs/day		<	0.069378	lbs/day	<	0.002012893	lbs/day			<	0.026039	lbs/day				<	0.02898552	lbs/day				lbs/day				
Aluminum			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Antimony			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Arsenic			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Beryllium			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Cadmium			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Chromium III			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Chromium VI			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Lead			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Mercury			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Nickel			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Selenium			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Thallium			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Cobalt			lbs/day				lbs/day			lbs/day					lbs/day										lbs/day				
Tin			lbs/day				lbs/day			lbs/day					lbs/day										lbs/day				
Calcium		36.9408	lbs/day		<	102.729	lbs/day	<	2.980532523	lbs/day			<	38.55617	lbs/day				<	42.9194716	lbs/day			< 0.018	lbs/day				
Magnesium		15.00096	lbs/day		<	41.69599	lbs/day	<	1.2097484	lbs/day			<	15.64931	lbs/day				<	17.4202971	lbs/day				lbs/day				
Sodium		25.7088	lbs/day		<	81.41539	lbs/day	<	2.362148717	lbs/day			<	30.55676	lbs/day				<	34.0147856	lbs/day			< 3.582	lbs/day				
Potassium		5.39136	lbs/day		<	14.98558	lbs/day	<	0.434784783	lbs/day			<	5.624376	lbs/day				<	6.26087217	lbs/day				lbs/day				
Boron	<	0.6864	lbs/day		<	1.907887	lbs/day	<	0.055354544	lbs/day			<	0.716066	lbs/day				<	0.79710178	lbs/day				lbs/day				
Silica		90.8544	lbs/day		<	286.7067	lbs/day	<	8.318375079	lbs/day			<	107.6065	lbs/day				<	119.784052	lbs/day			< 12.294	lbs/day				
Bromide			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Chloride		5.29152	lbs/day		<	24.66444	lbs/day	<	0.715602643	lbs/day			<	9.257036	lbs/day				<	10.3046308	lbs/day			< 3.582	lbs/day				
Nitrate as N		1.07328	lbs/day		<	2.983241	lbs/day	<	0.086554378	lbs/day			<	1.119667	lbs/day				<	1.24637733	lbs/day				lbs/day				
Nitrite as N	<	0.02496	lbs/day		<	0.069378	lbs/day	<	0.002012893	lbs/day			<	0.026039	lbs/day				<	0.02898552	lbs/day				lbs/day				
Ammonia as N			lbs/day		<	0.550352	lbs/day	<	0.015967657	lbs/day			<	0.206558	lbs/day				<	0.22993321	lbs/day			< 0.198	lbs/day				
Sulfate		8.03712	lbs/day		<	32.29598	lbs/day	<	0.937020819	lbs/day				158.6584	lbs/day				<	13.493038	lbs/day			< 3.582	lbs/day				
Total Alkalinity		209.664	lbs/day		<	782.1001	lbs/day as	<	22.69149212	lbs/day as				147	lbs/day as CaCO3				<	326.755989	lbs/day as			< 71.712	lbs/day as CaCO3				
Fluoride	<	0.2496	lbs/day		<	0.693777	lbs/day	<	0.020128925	lbs/day			<	0.260388	lbs/day				<	0.28985519	lbs/day				lbs/day				
Phosphorous			lbs/day		<	22.76456	lbs/day	<	0.660480355	lbs/day			<	5.88	lbs/day				<	9.51087353	lbs/day			< 8.19	lbs/day				
Orthophosphate as P			lbs/day		<	22.76456	lbs/day	<	0.660480355	lbs/day			<	5.88	lbs/day				<	9.51087353	lbs/day			< 8.19	lbs/day				
Sulfide			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Sulfite			lbs/day				lbs/day			lbs/day			<	14.7	lbs/day						lbs/day				lbs/day				
Oil & Grease			lbs/day		<	16.8118	lbs/day	<	0.6	lbs/day			<	6.30979	lbs/day				<	12.96	lbs/day				lbs/day				
Total Organic Content (TOC)			lbs/day		<	13.88948	lbs/day	<		lbs/day			<	5.212989	lbs/day				<	5.8029299	lbs/day			< 5.4	lbs/day				
TDS		259.584	lbs/day			1578.496	lbs/day(ex		46.77705951	lbs/day(ex				592.4399	lbs/day(excl. items					659.484778	lbs/day			< 307.332	lbs/day(excl. items below)				
TSS			lbs/day		<	90.9583	lbs/day	<	6	lbs/day			<	0.588	lbs/day				<	64.8	lbs/day			< 2.564816	lbs/day				
Phosphonates			lbs/day				lbs/day			lbs/day			<	17.64	lbs/day						lbs/day				lbs/day				
Polyphosphates			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Polyacrylate			lbs/day				lbs/day			lbs/day			<	11.76	lbs/day						lbs/day				lbs/day				
Free Chlorine			lbs/day		<	0.308655	lbs/day	<	0.12	lbs/day			<	0.115844	lbs/day				<	0.128954	lbs/day				lbs/day				
Flow Rate		864000	lbs/day			2304000	lbs/day		60000	lbs/day				264000	lbs/day						lbs/day				180000	lbs/day			
pH					<			<											<					<					
Barium			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Iron		0.0635904	lbs/day		<	0.394017	lbs/day	<	0.030782546	lbs/day			<	0.178785	lbs/day				<		lbs/day			< 0.198	lbs/day				
Copper			lbs/day		<	0.018581	lbs/day	<	0.001451605	lbs/day			<	0.008431	lbs/day				<		lbs/day			< 0.018	lbs/day				
Zinc			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				
Manganese	<	0.00864	lbs/day		<	0.025765	lbs/day	<	0.002012893	lbs/day			<	0.011691	lbs/day				<		lbs/day				lbs/day				
Aluminum			lbs/day				lbs/day			lbs/day					lbs/day						lbs/day				lbs/day				

AMENDMENT NO. 1 TABLE V-1
Water Constituents in Water Streams

	A	B	C	D	E	F		G		H	I
	Raw Water (Note 1)		Combined Plant Make-up Water	Misc. Plant Drains (O/W Sep. Eff.)		RO Reject ((75% recovery))		Evap. Cooler Blowdown ((50% blowdown))	Combined HRSG Blowdown		Quenched HRSG Blowdown
Parameter	Max Value	Units	Max Value	Max Value	RO Feed Flow	Max Value	Units	Max Value	Max Value	Quench Water Flow Rate	Max Value
		Units	Units	Units		Cycles = 4.00	Demin Feed	Units	Cycles = 2 Units		Units
Antimony		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Arsenic		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Beryllium		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Cadmium		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Chromium III		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Chromium VI		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Lead		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Mercury		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Nickel		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Selenium		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Thallium		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Cobalt		lbs/day	lbs/day	lbs/day		lbs/day			lbs/day		
Tin		lbs/day	lbs/day	lbs/day		lbs/day			lbs/day		
Calcium	12.7872	lbs/day	< 38.15082 lbs/day	< 2.980532523 lbs/day		< 17.31093 lbs/day		< lbs/day	< 0.018 lbs/day		
Magnesium	5.19264	lbs/day	< 15.48478 lbs/day	< 1.2097484 lbs/day		< 7.026219 lbs/day		< lbs/day	lbs/day		
Sodium	8.8992	lbs/day	< 30.2355 lbs/day	< 2.362148717 lbs/day		< 13.71936 lbs/day		< lbs/day	< 3.582 lbs/day		
Potassium	1.86624	lbs/day	< 5.565245 lbs/day	< 0.434784783 lbs/day		< 2.52523 lbs/day		< lbs/day	lbs/day		
Boron	< 0.2376	lbs/day	< 0.708538 lbs/day	< 0.055354544 lbs/day		< 0.321499 lbs/day		< lbs/day	lbs/day		
Silica	31.4496	lbs/day	< 106.4752 lbs/day	< 8.318375079 lbs/day		< 48.31312 lbs/day		< lbs/day	< 12.294 lbs/day		
Bromide		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Chloride	1.83168	lbs/day	< 9.159714 lbs/day	< 0.715602643 lbs/day		< 4.15622 lbs/day		< lbs/day	< 3.582 lbs/day		
Nitrate as N	0.37152	lbs/day	< 1.107896 lbs/day	< 0.086554378 lbs/day		< 0.502708 lbs/day		< lbs/day	lbs/day		
Nitrite as N	< 0.00864	lbs/day	< 0.025765 lbs/day	< 0.002012893 lbs/day		< 0.011691 lbs/day		< lbs/day	lbs/day		
Ammonia as N		lbs/day	< 0.204386 lbs/day	< 0.015967657 lbs/day		< 0.09274 lbs/day		< lbs/day	< 0.198 lbs/day		
Sulfate	2.78208	lbs/day	< 11.99387 lbs/day	< 0.937020819 lbs/day		71.2344 lbs/day		< lbs/day	< 3.582 lbs/day		
Total Alkalinity	72.576	lbs/day	< 290.4511 lbs/day as	< 22.69149212 lbs/day as		66 lbs/day as CaCO3		< lbs/day as	< 71.712 lbs/day as CaCO3		
Fluoride	< 0.0864	lbs/day	< 0.25765 lbs/day	< 0.020128925 lbs/day		< 0.116909 lbs/day		< lbs/day	lbs/day		
Phosphorous		lbs/day	< 8.454149 lbs/day	< 0.660480355 lbs/day		< 2.64 lbs/day		< lbs/day	< 8.19 lbs/day		
Orthophosphate as P		lbs/day	< 8.454149 lbs/day	< 0.660480355 lbs/day		< 2.64 lbs/day		< lbs/day	< 8.19 lbs/day		
Sulfide		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Sulfite		lbs/day	lbs/day	lbs/day		< 6.6 lbs/day		lbs/day	lbs/day		
Oil & Grease		lbs/day	< 6.243453 lbs/day	< 0.6 lbs/day		< 2.832967 lbs/day		< lbs/day	lbs/day		
Total Organic Content (TOC)		lbs/day	< 5.158184 lbs/day	< lbs/day		< 2.340526 lbs/day		< lbs/day	< 5.4 lbs/day		
TDS	89.856	lbs/day	586.2114 lbs/day(ex	46.77705951 lbs/day(ex		265.9934 lbs/day(excl. items		lbs/day	< 307.332 lbs/day(excl. items below)		
TSS		lbs/day	< 33.77948 lbs/day	< 6 lbs/day		< 0.264 lbs/day		< lbs/day	< 2.564816 lbs/day		
Phosphonates		lbs/day	lbs/day	lbs/day		< 7.92 lbs/day		lbs/day	lbs/day		
Polyphosphates		lbs/day	lbs/day	lbs/day		lbs/day		lbs/day	lbs/day		
Polyacrylate		lbs/day	lbs/day	lbs/day		< 5.28 lbs/day		lbs/day	lbs/day		
Free Chlorine		lbs/day	< 0.114626 lbs/day	< 0.12 lbs/day		< 0.052012 lbs/day		< lbs/day	lbs/day		

Notes:
1. The raw water quality data are based on one water analysis provided by Peoples Energy.
2. These constituents are added to the system as treatment chemicals.

Exhibit W—Facility Retirement and Site Restoration

As required by OAR 345-022-0130, the application for the proposed COB Energy Facility must contain information on Energy Facility useful life, retirement and restoration method, and estimated costs of restorations.

Summary

The useful life of the proposed Facility is estimated to be 30 years. At the end of useful life, the Energy Facility will be retired and the site restored to conditions suitable for agricultural use. The estimated cost of site restoration is not expected to exceed $4.446 million, expressed in 2002 dollars. This cost estimate reflects the preferred wastewater disposal option.

Regulatory Citation

> *Information about facility retirement and site restoration, providing evidence to support a finding by the Council as required by OAR 345-022-0050 (1). The applicant shall include:*
>
> *(A) The estimated useful life of the proposed facility;*

Response

No changes or additional information required.

Regulatory Citation

> *(B) The actions that the applicant proposes for retirement of the facility and restoration of the site to a useful, non-hazardous condition; and*

Response

No changes or additional information required.

Regulatory Citation

(C) The estimated costs to retire the facility and restore the site to a useful, non-hazardous condition and a discussion of the methods and assumptions used to estimate retirement and restoration costs;

Response

No Cost Demolition

No changes or additional information required.

Clean Fill

No changes or additional information required.

Cost Summary

The revised cost summary for the demolition of remaining site foundations and building structures is provided in Amendment No. 1 Table W-2. Unit cost assumptions are also shown.

Assumptions

Cost assumptions for retiring the Facility and restoring the site to conditions suitable for agricultural use are as follows:

- Value of used equipment and scrap material will provide adequate revenue to a demolition contractor to support a "no cost" demolitions contract of the plant systems and structures. Scope of the demolition contract will include gas turbines, heat recovery steam generators, stacks, gas turbines, condensers, air-cooled condensers, water treatment systems, auxiliary boiler systems, steam generation equipment, gas turbines, steam turbines, electrical systems, transformers, air systems, fuel systems, fire protection system, and miscellaneous pumps and piping. This contract will also include aboveground components of the electric transmission line (e.g., transmission towers, conductors, insulators), water supply well system pumps and motors, and associated electrical and mechanical equipment.
- No Energy Facility components and systems are removed before initiation of Facility retirement process.
- Useful life of the proposed Energy Facility is 30 years.
- An offsite landfill at a distance of approximately 20 miles from site location is used. Tipping costs are $27 per ton.
- Onsite disposal will be utilized for clean fill. Foundation debris will consist of concrete and foundation rebar.
- Transmission tower foundations will be removed to a depth 5 feet below grade.
- The natural gas and water supply pipelines will be capped. Water supply wells will be abandoned according to Oregon regulations.

- No hazardous construction material abatement is required.
- Buildings and tanks are included for salvage and demolition.
- Foundations on downhill side of 5-foot cover line will be removed. Any below-grade piling is excluded. Transmission tower foundations will be removed to a depth of 5 feet below grade.
- Foundations on the uphill side of the 5-foot cover line will be removed to site finish grade (elevation 4,260 feet).
- The Energy Facility site area will be graded to match existing grade.
- Earthwork and 5-foot cover limit are based on plant area grade at elevation 4,266 feet.
- Market conditions may result in cost variations at time of contract.

Project Contingency

No changes or additional information required.

Basis for Cost Estimate

No changes or additional information required.

Amendment No. 1 Table

W-2 Site Retirement Cost Breakdown

TABLE W-2
Site Retirement Cost Breakdown
Amendment No. 1 to the Site Certificate Application

Activity	Quantity	Unit	Unit Cost	Total Cost
Demolition Activity				
Hauling	7,500	CY	$24.60/CY	**$184,500**
Tipping	9,438	ton	$27.00/ton	**$254,826**
Pavement removal	12,378	SY	$6.25/SY	**$77,363**
Building removal	540,960	CF	$0.25/CF	**$135,240**
Building slab removal	38,640	SF	$5.25/SF	**$202,860**
Building footing removal	3,358	LF	$12.85/LF	**$43,150**
5’ Diameter Pier Removal Cost	500	SF	$50.00/SF	**$25,000**
5-foot-thick footing removal cost	10,197	SF	$18.35/SF	**$187,115**
2.5-foot-thick footing removal cost	780	SF	$7.34/SF	**$5,725**
3-foot-thick footing removal cost	9,708	SF	$9.17/SF	**$89,022**
5-foot-thick heavy reinforced footing removal cost	3,096	SF	$27.53/SF	**$85,233**
7-foot-thick heavy reinforced footing removal cost	13,388	SF	$36.70/SF	**$491,340**
3-foot-diameter x 5-foot pier removal	600	LF	$25.00/LF	**$15,000**
Turbine pedestal removal cost	680	SF	$55.05/SF	**$37,434**
Reinforced concrete wall removal	8,550	SF	$18.90/SF	**$161,595**
Earthwork—Energy Facility				
Onsite cut and fill	490,000	CY	$2.53/CY	$1,239,700
Compaction	245,000	CY	$0.38/CY	$93,100
Switchyard	13,500	SF	$9.17/SF	$123,795
Energy Facility Earthwork Total				**$1,456,595**
Seeding	240,000	SY	$0.45/SY	**$108,000**
Underground Piping Removal				
Excavation and backfill cost	15,385	CY	$7.28/CY	**$112,003**
Chain-link fence removal cost	8,333	LF	$3.00/LF	**$25,000**
Removal of potentially hazardous materials	1	LS	$250,000/LS	**$250,000**
Site monitoring	1	LS	$45,000/LS	**$45,000**
Engineering support	1	LS	$50,000/LS	**$50,000**
Subtotal				**$4,042,000**
Contingency				**$404,000**
Total				**$4,446,000**

Exhibit X—Noise

The Council's application rule requires information about the Facility's potential noise impacts and evidence to support findings of compliance with DEQ's noise standards. This exhibit is organized in accordance with the application requirements in OAR 345-021-0010(1)(x) (the "Rule"). The Rule requirements are set out below, followed by the Applicant's responses.

Regulatory Citation

> *Information about noise generated by construction and operation of the proposed facility, providing evidence to support a finding by the Council that the proposed facility complies with the Oregon Department of Environmental Quality's noise control standards in OAR 340-35-0035. The applicant shall include:*
>
> > *(A) A baseline noise assessment for the proposed site and vicinity;*

Response

No changes or additional information required.

Regulatory Citation

> > *(B) Predicted noise levels resulting from construction and operation of the proposed facility;*

Response

Construction Noise

No changes or additional information required.

Operations Noise

The text below summarizes a noise modeling report from Hessler Associates, Inc., entitled *California-Oregon Border Project Facility Noise Emission Evaluation with ACC Equipment*, dated July 15, 2003.

Modeling Procedure

The noise model was revised to reflect the proposed Energy Facility layout. The primary change was the replacement of the wet cooling towers with air-cooled condensers (ACCs). Modeling is based on the Energy Facility operating under steady-state conditions at full capacity with the combustion and steam turbines at base load and all ACC fans on. Modeling was performed to

predict sound levels at the closest noise sensitive receptors not controlled by the Applicant, R1 and R2, as identified in the original site certificate application (SCA).

Modeling Input

The primary noise sources anticipated with the Energy Facility will be the four CTG packages, the four HRSG packages, the two STG packages, and two air-cooled condensers. Secondary noise sources are anticipated to include the generator step-up transformers (GSUTs), building ventilation systems (HVACs), and boiler feed pumps (BFPs).

The Energy Facility noise sources and associated sound levels are summarized in Amendment No. 1 Table X-8 (located at the end of this exhibit). The sound power level for each component was derived from the vendor-provided noise data. Sound levels for equipment for which specific vendor data are not available are based on first-hand field measurements of similar or identical equipment. In addition to the obvious major sources (for example, CTGs, HRSGs, STGs, ACCs) a number of peripheral sources have been added using conservative sound power levels to avoid underestimating overall noise. Examples include general steam line and valve noise in the vicinity of the steam turbine, along the pipe racks, and on top of the HRSGs at drum level.

As stated in the original SCA, with mitigation incorporated, the Facility will comply with the DEQ standards as shown in Amendment No. 1 Figure X-1 (located at the end of this exhibit).

Regulatory Citation

> *(C) An assessment of the proposed facility's compliance with the applicable noise regulations in OAR 340-35-0035;*

Response

Summary of Regulations

- No changes or additional information required.

Construction Noise

No changes or additional information required.

Decommissioning Noise

No changes or additional information required.

Operations Noise

Energy Facility

Consistent with the original SCA, model results show that the Energy Facility sound level, with mitigation incorporated (see subsection D), is anticipated to be 30.5 dBA or less at all residences, as shown in Amendment No. 1 Figure X-1. This level represents the sound level the Facility would contribute at the nearest residences during ideal sound propagation weather conditions.

Noise emissions from power generation facilities tend to be very steady and broadband in nature without impact-type noise (such as hammering) or tonal noise emissions. The sound is similar in character to many steady mechanical sources which make up the unnoticed background sound level to which people are exposed every day. The noise is similar in character to an idling car or air conditioning compressor. A facility sound level of 30.5 dBA is quiet. For comparison, the ventilation fan on a typical computer is 40 to 45 dBA at the operator position. The Facility noise emissions at neighboring residences, including the Wright residence, are not anticipated to be distinctly audible. In the unlikely scenario that the sounds are audible, they will be heard as a faint, steady noise that would tend to blend into the background sound level.

Electric Transmission Line

No changes or additional information required.

Water Supply Well System and Water Supply Pipeline

The conversion from wet cooling towers to air-cooled condensers reduces the water requirement to a level such that the water supply pumps will be submersible. Minimal noise is anticipated from submersible pumps and the associated water supply pipeline. Consistent with the original SCA, the water supply well system will be designed to mitigate noise levels to less than 27 dBA at R8, the nearest residence, which is located approximately 3,500 feet away from the existing well. No noise is anticipated from the buried water supply pipeline.

Consistent with the original SCA, an emergency generator will be located at the water supply well system area. The emergency operation of the generator would be exempted from DEQ's noise regulations because it is "emergency equipment not operated on a regular or scheduled basis." As stated in the original SCA, scheduled operation of the emergency generator is anticipated to be 15 minutes per month. Operation will be limited to between the hours of 8:00 a.m. and 6:00 p.m. During these hours, the ambient noise levels are elevated from agricultural, transportation, or other activities and the generator noise level should not be a concern at the nearest residence 3,500 feet away. Scheduled operation will likely qualify for an exemption from DEQ's noise restrictions as an "infrequent event" or exempted as "sounds created in construction or maintenance of capital equipment."

Natural Gas Pipeline

No changes or additional information required.

Regulatory Citation

> *(D) Any measures the applicant proposes to reduce noise levels or noise impacts;*

Response

As in the original SCA, noise mitigation was not evaluated for the electric transmission line or the natural gas pipeline because noise from these facilities will not exceed any applicable DEQ noise standard.

Vendor-specific noise data are currently unavailable for equipment associated with the water supply well system (e.g., pumps, motors). However, the major noise-generating equipment will be submerged in the well and is not anticipated to produce significant audible noise. As stated in the original SCA, the Applicant is aware of acoustically designed enclosures that are capable of achieving 20 dBA at 3,000 feet. Therefore, achieving the design goal of 27 dBA at 3,500 feet is feasible, especially given that geometric divergence alone yields an approximate 36 dBA reduction at 3,000 feet and the revised equipment is anticipated to be much quieter than what was originally proposed.

The Energy Facility noise emissions were modeled with sufficient mitigation to ensure compliance with the 30.5 dBA noise requirement at the nearest residential locations. The corresponding Energy Facility noise emissions (noise contours) are shown in Amendment No. 1 Figure X-1. The contours indicate that with appropriate mitigation upgrades, the Energy Facility will comply with the noise requirement level of 30.5 dBA at all residential locations.

Noise emissions from all major equipment at the Facility will be specified at an appropriate level to ensure that the overall Facility sound levels satisfy the noise criteria. Actual mitigation measures will be determined by the equipment manufacturers and suppliers. Anticipated mitigation measures, based on acoustic specification levels at numerous similar facilities, are listed below. These mitigation measures may need to be modified or refined based on the specific equipment vendor requirements.

- **Combustion Turbine Generator Package.** The combustion turbine equipment package noise emissions primarily radiate from the combustion turbine inlet, the combustion turbine equipment package, and the combustion turbine exhaust. The combustion turbine inlet will be equipped with an inlet silencer. Virtually all of the combustion turbine mechanical equipment will be located within an acoustically lined enclosure. The enclosure is constructed of heavy gauge solid steel, 3 to 4 inches of insulation, and a perforated interior metal liner. This enclosure effectively controls the turbine noise emissions. The enclosure ventilation fans and ventilation openings will be equipped with silencers. The combustion turbine exhaust radiates into the HRSG. The HRSG effectively mitigates the combustion turbine exhaust noise.

- **HRSG.** The HRSG itself does not generate noise. However, the combustion turbine noise enters the HRSG and a portion of that noise radiates through the HRSG transition duct walls, boiler casing, and stack walls, and radiates from the HRSG stack exit. The HRSG actually serves as an effective combustion turbine exhaust silencer. To contain the noise emissions from the HRSG, a shroud may be necessary over the HRSG transition duct and a silencer in the HRSG stack is anticipated.

- **Steam Turbine Generator Package.** The steam turbine and generator will be located within acoustic enclosures. These enclosures effectively reduce the steam turbine noise emissions. Equipment associated with the steam turbine, such as vacuum pumps and condensate pumps, will be mitigated as necessary to achieve the noise criteria.

- **Air-Cooled Condenser**. The ACC noise emissions will be specified to ensure compliance with the noise criteria. The ACC is anticipated to require low noise fans to meet the specified noise criteria.

Acoustic Barrier Wall: Modeling results indicate that an acoustic barrier wall along the east side of the combustion turbines, HRSGs, and steam turbines may be required. The modeling incorporates conservative assumptions into the calculation procedures. Therefore, actual Facility noise emissions are anticipated to be lower than predicted by the model. The barrier wall will be reserved as a contingency mitigation measure to be installed in the event a noise exceedance is detected during Facility performance testing. The barrier design (or alternate mitigation) will be optimized based on the results of the acoustic testing.

Regulatory Citation

(E) The assumptions and methods used in the noise analysis; and

Response

The only change from the original SCA is that the noise model assumes attenuation owing to air absorption under International Organization for Standardization (ISO) standard conditions (10°C, 70 percent relative humidity) per the request of the ODOE noise consultant.

Regulatory Citation

(F) The applicant's proposed monitoring program, if any, for noise generated by construction and operation of the facility;

Response

No changes or additional information required.

Amendment No. 1 Reference

Hessler Associates, Inc. 2003. *California-Oregon Border Project Facility Noise Emission Evaluation with ACC Equipment*. July 15, 2003.

Amendment No. 1 Table

X-8 Equipment Sound Power Levels (revised from SCA)

Amendment No. 1 Figure

X-1 Noise Monitoring Locations (revised from SCA)

AMENDMENT NO. 1 TABLE X-8
Equipment Sound Power Levels

	Octave Band Center Frequency (Hz)									**Overall Sound Level (dBA)**
Equipment	31.5	63	125	250	500	1,000	2,000	4,000	8,000	
Combustion Turbine Generator Package	109	110	111	104	103	99	104	105	96	110
Steam Turbine Generator Package	105	109	110	107	106	106	104	103	99	111
HRSG (without Stack)	116	115	110	104	102	100	101	102	96	108
HRSG Stack (with Silencer)	106	115	109	107	92	70	60	58	54	100
Air-Cooled Condenser	117	117	116	110	107	104	97	91	77	109
Generator Step-Up Transformers	95	101	103	98	98	92	87	82	75	98
Auxiliary Equipment, including Pumps and Steam Piping	103	105	101	101	100	99	101	98	98	106

Exhibit Y—Carbon Dioxide Emissions

This exhibit provides information on compliance with the carbon dioxide emissions standard, as required by OAR 345-021-0010(1)(y). The Applicant will comply with the carbon dioxide emissions standard of OAR 345-024-0550 and OAR 345-024-0590 by providing offset funds to The Climate Trust (formerly the Oregon Climate Trust) as allowed by OAR 345-024-0560(3) and OAR 345-024-0590(2). The Applicant's payments will be made in compliance with the monetary path payment requirement of OAR 345-024-0710.

Regulatory Citation

> *If the facility is a base load gas plant, a non-base load power plant, or a nongenerating energy facility that emits carbon dioxide, a statement of the means by which the applicant elects to comply with the applicable carbon dioxide emissions standard under OAR 345-024-0560, OAR 345-024-0600, or OAR 345-024-0630 and information, showing detailed calculations, about the carbon dioxide emissions of the energy facility, including:*
>
> *(A) The total gross carbon dioxide emissions for 30 years, unless an applicant for a non-base load power plant or nongenerating energy facility proposes to limit operation to a shorter time;*

Response

The Applicant has decided to revise the carbon dioxide emission estimate from the original SCA to reflect a 72 percent capacity factor. This change is not related to the switch to air cooling. The carbon dioxide emissions are estimated based on 1,160 MW.

The revised gross annual carbon dioxide (CO_2) emission rate at the Energy Facility is 5,354 million pounds per year. The revised 30-year gross total CO_2 emissions is 160,626 million pounds. Amendment No. 1 TableY-1 (Table Y-1 in the original SCA) shows the data used to generate these values and other values provided in this exhibit.

Regulatory Citation

> *(B) The gross carbon dioxide emissions rate expressed as:*
>
> *(i) Pounds of carbon dioxide per kilowatt-hour of net electric power output for a base load gas plant, including operation with or without power augmentation, as appropriate, or a non-base load power plant;*

Response

The gross CO_2 emission rate is 0.834 pound per kilowatt/hour (lb/kW-hr) net electric output, weighted for 2,925 hours of operation with power augmentation and 3,356 hours of operation without power augmentation for 6,281 hours of operation each year. The total hours of operation reflect a 72 percent capacity factor.

Regulatory Citation

> *(ii) Pounds of carbon dioxide per horsepower hour for nongenerating facilities for which the output is ordinarily measured in horsepower; or*

Response

No changes or additional information required.

Regulatory Citation

> *(iii) A rate comparable to pounds of carbon dioxide per kilowatt hour of net electric power output for nongenerating facilities other than those measured in horsepower;*

Response

No changes or additional information required.

Regulatory Citation

> *(C) The total excess carbon dioxide emissions for 30 years, unless an applicant for a non-base load power plant or a nongenerating energy facility proposes to limit operation to a shorter time;*

Response

A total of 15.349 million tons of excess CO_2 emissions require offset.

Regulatory Citation

> *(D) The excess carbon dioxide emissions rate, using the same measure as required for paragraph (B);*

Response

The excess CO_2 emission rate is 0.159 lb/kW-hr.

Regulatory Citation

> *(E) The average annual site conditions, including temperature, barometric pressure and relative humidity, together with a citation of the source and location of the data collection devices;*

Response

No changes or additional information required.

Regulatory Citation

> *(F) The annual fuel input in British thermal units, higher heating value, to the facility for each type of fuel the facility will use, assuming:*
>
> *(i) For a base load gas plant, a 100 percent capacity factor on a new and clean basis and the maximum number of hours annually that the applicant proposes to use alternative fuels;*
>
> *(ii) For a non-base load power plant, the applicant's proposed annual hours of operation on a new and clean basis, the maximum number of hours annually that the applicant proposes to use alternative fuels and, if the calculation is based on an operational life of fewer than 30 years, the proposed operation life of the facility;*

Response

The annual fuel input for the Energy Facility is 45.8×10^{12} British thermal units per year (BTU/yr) (at HHV). This value is based on the assumption that power augmentation will be used for 2,925 hours per year with a 72 percent capacity factor.

Regulatory Citation

> *(iii) For a nongenerating energy facility, the reasonably likely operation of the facility based on 1-year, 5-year, 15-year, and 30-year averages, unless an applicant proposes to limit operation to a shorter time;*

Response

No changes or additional information required.

Regulatory Citation

(G) For each type of fuel a base load gas plant or a non-base load power plant will use, the estimated heat rate and capacity of the facility measured on a new and clean basis with no thermal energy to cogeneration;

Response

No changes or additional information required.

Regulatory Citation

(H) For each type of fuel a nongenerating energy facility will use, the estimated efficiency and capacity of the facility with no thermal energy to cogeneration;

Response

No changes or additional information required.

Regulatory Citation

(I) If the facility provides thermal energy for cogeneration to lower its net carbon dioxide emissions rate, the applicant shall include:

(i) The estimated annual useful thermal energy available from the facility for non-electric processes, annual useful thermal energy used by non-electric processes, and annual thermal energy rejected as waste heat;

(ii) For a base load gas plant or non-base load power plant, the estimated annual net electric power output and annual fuel input in British thermal units higher heating value for the facility for each type of fuel the facility will use and the basis of such estimates;

(iii) A description of the non-electric thermal processes, the names and addresses of the persons intending to use the non-electric thermal energy, and a description and an estimate of the fuel displaced by cogeneration, including supporting assumptions;

(iv) A description of the products produced and thermal energy needed for production of the primary products made by the persons intending to use the non-electric thermal energy produced by the proposed facility, supported by fuel use and steam production records or estimates, if the production facility is new;

(v) The efficiency of each boiler that the thermal energy will displace,

(vi) For each boiler, the annual fossil fuel displaced in million Btu, higher heating value, by type of fuel that will be displaced by the thermal energy;

(vii) The annual carbon dioxide offset by the cogeneration host, using a rate of 117 pounds of carbon dioxide per million Btu of natural gas fuel and a rate of 161 pounds of carbon dioxide per million Btu of distillate fuel;

(viii) The cumulative carbon dioxide offset by the steam host through the thirtieth year of facility operation, or for a shorter period if an applicant for a nongenerating facility proposes a shorter operational period; and

(ix) A copy of the contractual agreement between the applicant and the cogeneration host for the use of the thermal energy;

Response

No changes or additional information required.

Regulatory Citation

(J) If the applicant proposes to offset carbon dioxide emissions as described in OAR 345-024-0560(2), OAR 345-024-0600(2) or OAR 345-024-0630(1), the applicant shall include:

(i) A description of each offset project;

(ii) A description of who will implement the offset project, including qualifications and experience;

(iii) Detailed estimates of the [of] carbon dioxide offset, measured in short tons, that the offset projects will achieve over the life of the project;

(iv) A proposed monitoring and evaluation program for each project or combination of projects; and

(v) For each offset project, an explanation of how the applicant's estimates of the carbon dioxide offsets account for certainty, quantifiability and verifiability of the offset project and evidence that the offset project would not likely have been implemented if not for the applicant's activities; [and]

Response

No changes or additional information required.

Regulatory Citation

(K) If the applicant elects to comply with the applicable carbon dioxide emissions standard by using the monetary path under OAR 345-024-0560(3), OAR 345-024-0600(3) or OAR 345-024-0630(2), the applicant shall include:

(i) A statement of the applicant's election to use the monetary path;

(ii) The amount of carbon dioxide reduction, in tons, for which the applicant is taking credit by using the monetary path;

(iii) The qualified organization to whom the applicant will provide offset funds and funds for the cost of selecting and contracting for offsets. The applicant shall include evidence that the organization meets the definition of a qualified organization under OAR 345-001-0010. The applicant may identify an organization that has applied for, but has not received, an exemption from federal income taxation, but the Council shall not find that the organization is a qualified organization unless the organization is exempt from federal taxation under section 501(c)(3) of the Internal Revenue Code as amended and in effect on December 31, 1996; [and]

Response

The Applicant will use the monetary path for the entire 15.349 million tons of required CO_2 reduction. The remainder of the information in this citation in the original SCA remains unchanged.

Regulatory Citation

(iv) A statement of whether the applicant intends to provide a bond or letter of credit to secure the funds it must provide to the qualified organization or whether it requests the option of providing either a bond or a letter of credit.

Response

No changes or additional information required.

Amendment No. 1 Table

Y-1 Compliance with CO_2 Standard for Gas Base-Load Plants with Power Augmentation

AMENDMENT NO. 1 TABLE Y-1
Compliance with CO_2 Standard for Gas Base-Load Plants with Power Augmentation

Inputs	
A. CO_2 Standard	
CO_2 Standard for Base-Load Gas Plant (lb CO_2/kWh)	0.675
CO_2 Standard for Power Augmentation (lb CO_2/kWh)	0.675
B. Parameters for Base Load Gas Plant	
Net Power Output (kW)	900,828
New and Clean Heat Rate (Btu/kWh) HHV	6,842
Annual Hours of Operation	6,281
C. Parameters for Power Augmentation	
Net Power Output (kW)	1,160,000
New and Clean Heat Rate (Btu/kWh) HHV	7,391
Annual Hours of Operation	2,925
Calculations	
D. Base Load	
Net Power Output (kW)	900,828
Annual Hours of Operation	3,356
Annual Generation (million kWh/yr)	3,023
Deemed Life of Plant (years) by Statute or Rule	30
Total Plant Output (million kWh for 30 years)	90,695
Heat Rate (Btu/kWh) HHV	6,842
CO_2 Emissions Rate (lb CO_2/Btu)	0.000117
Total CO_2 Emissions (million lb)	72,603
E. Power Augmentation	
Net Power Output (kW)	1,160,000
Capacity Factor	33%
Annual Hours of Operation	2,925
Annual Generation (million kWh/yr)	3,393
Deemed Life of Plant (years) by Statute or Rule	30
Total Plant Output (million kWh for 30 years)	101,790
Heat Rate (Btu/kWh) HHV	7,391
CO_2 Emissions Rate (lb. CO_2/Btu)	0.000117
Total CO_2 Emissions (million lb)	88,023
F. Total Operations	
Combined Output (million kW for 30 years)	192,485
Combined CO_2 Emissions (million lb for 30 years)	160,626
Gross CO_2 Emissions rate (lb CO_2/kWh)	0.834
CO_2 Standard (lb CO_2/kWh)	0.675
Excess CO_2 Emissions Rate (lb CO_2/kWh)	0.159
Excess Tons CO_2 (million tons over 30 years)	15.349

AMENDMENT NO. 1 TABLE Y-1
Compliance with CO_2 Standard for Gas Base-Load Plants with Power Augmentation

Inputs	
G. Monetary Path	
Offset Fund Rate ($/ton CO_2)	$0.85
Offset Funds Required ($ million)	$13.047
Contracting and Selection Funds ($ million)	$0.588
Monetary Path Requirement ($ million)	$13.634

Notes:

Btu/kWh = British thermal units per kilowatt-hour
CO_2 = carbon dioxide
HHV = higher heating value
kW = kilowatt
kWh/yr = kilowatt-hour per year
lb CO_2/Btu = pounds of carbon dioxide per British thermal unit
lb CO_2/kWh = pounds of carbon dioxide per kilowatt-hour

Exhibit Z—Cooling Towers

Exhibit Z no longer applies because the cooling towers will be replaced with air-cooled condensers. The water vapor plume will be eliminated. Therefore, no cooling tower salt deposition will occur.

Exhibit AA–EMFs from Electric Transmission Lines

No changes or additional information required.

Exhibit BB—Project Order Requests

No changes or additional information required.

Exhibit CC—Applicable Statutes, Rules, and Local Government Ordinances

No changes or additional information required.

Attachment I-1
Preliminary Soil Investigation and Shallow Groundwater Assessment

Attachment U-4
Letter to City of Klamath Falls
Publicly Owned Treatment Works

Attachment U-5
Letter to South Suburban Sanitary District