CHAPTER 2: PROPOSED ACTION AND ALTERNATIVES

Changes to Chapter 2 of the Draft EIS include new and updated information provided by the Applicant and additional consultation with governmental agencies since the Draft EIS was published. The description of the proposed project has not changed significantly from what was presented in the Draft EIS; however, the 404 (B) (1) Alternatives Analysis has been revised including renumbering the alternative sites. The revised analysis is presented in Appendix A of this Final EIS, and revisions to the text in the Draft EIS are presented below.

2.2.2 Project Facilities

- On Page 2-6 of the Draft EIS, the first sentence of the second paragraph should be deleted and replaced with the following text.

The proposed project includes a cogeneration facility and related components that would be located on an approximately 265-acre site, which includes the 71-acre Bonneville right-of-way.

- On Page 2-6 of the Draft EIS, the following bulleted items should be added to the list after the fourth paragraph.

- Emergency firewater pump;
- Water treatment facilities;

- On Page 2-6 of the Draft EIS, the fifth bullet should be deleted and replaced with the following text.

- One 185 million volt amp (MVA) nominal step-up transformer;

- On Page 2-6 of the Draft EIS, the following item should be added to the second bulleted list at the bottom of the page.

- One 275 MVA step-up transformer;

- On Page 2-8, a portion of Table 2-1 should be revised. The row that lists the component "Electrical Distribution and Control Systems" should be replaced with the following text. The word "universal" in the second column has been replaced with the word "uninterruptible."

Electrical Distribution and Control Systems	Includes power distribution centers, switchgear, and associated metering and control systems for 480V and 4160V systems, and uninterruptible power supply and 125V backup systems.	Applicant	Applicant	EFSEC Corps

- On Page 2-9, the first three rows of components in Table 2-1 should be deleted and replaced with the following rows. Changes have been made under the Construction Responsibility and Owner/Operator columns.

Component	Component Description	Construction Responsibility	Owner/ Operator	Permits and Approvals
Water Supply Connection and Piping	The PUD delivers water to the refinery via an existing 24-inch underground pipeline along Aldergrove Road. New 16-inch piping (location to be determined) would be installed at one of the existing but unused flanges on the 24–inch pipeline.	Whatcom PUD	Whatcom PUD, at fenceline (Torpey, pers. comm., 2004)	Whatcom County and Ecology
Natural Gas Connection and Pipes	A new connection and natural gas pipes would be installed at the existing metering station for the Ferndale pipeline to support both cogeneration and refinery operations. The new pipes would be routed underground from the metering station to the new compressor station approximately 300 feet west. A connection from the compressor station to the refinery would be made with approximately 300 feet of new piping routed back under Blaine Road to connect with existing piping at the metering station. The connection from the compressor station to the cogeneration facility would be via new piping routed along the elevated piperack.	Applicant	Applicant	EFSEC
Natural Gas Compressor Station	A new compressor station would be installed within the refinery approximately 450 feet west of the cogeneration facility, and would include three electrically driven natural gas compressors enclosed in a single building.	Applicant	Applicant	EFSEC

- On Page 2-10, the second component row in Table 2-1 should be deleted and replaced with the following row.

Modifications to Refinery Substation MS3	The 230-kV switchyard would be a breaker and a half arrangement. The Bonneville interconnection would be two 230-kV receiving structures, four 230-kV circuit breakers, eight disconnect switches, and associated metering, protection, control, and communication. The project interconnection to the switchyard would include four 230-kV receiving structures and two 230-kV receiving structures for refinery interconnection. The remaining project interconnection would include eight circuit breakers, 24 disconnect switches, and associated protection, control, and communication. This results in a split of approximately 35% Bonneville and 65% project.	Refinery	Refinery	--

- On Page 2-13 of the Draft EIS, portions of Table 2-2 should be revised. The second row (Boiler Feedwater and Condensate Storage Tank) should be deleted and replaced with the following. The working capacity has been changed from 500,000 to 600,000.

Boiler Feedwater and Condensate Storage Tank - Storage for boiler feedwater (BFW) and condensate returned from the refinery before polishing treatment in demineralizer system	Vertical, cylindrical, atmospheric aboveground tank	600,000	52	32	--

- On Page 2-13 of the Draft EIS, portions of Table 2-2 should be revised. The third row (Demineralized Water Storage Tank) should be deleted and replaced with the following. The working capacity has been changed from 100,000 to 200,000.

Demineralized Water Storage Tank - Provide makeup BFW in case water delivery or treatment is temporarily interrupted	Vertical, cylindrical, atmospheric above ground tank (open vented)	200,000	--	--	--

- On Page 2-13 of the Draft EIS, portions of Table 2-2 should be revised. The 16th row (Wastewater Equilization Tank) should be deleted and replaced with the following. The working capacity has been changed from 400,000 to 500,000.

Wastewater Equalization Tank	Vertical, cylindrical, atmospheric aboveground tank (open vented)	500,000	52	26	--

- On Page 2-13 of the Draft EIS, portions of Table 2-2 should be revised. The 18th row (Filtered Water and Firewater Storage Tank) should be deleted and replaced with the following. The working capacity has been changed from 425,000 to 500,000.

Filtered Water and Firewater Storage Tank	Vertical, cylindrical, atmospheric aboveground tank	500,000	43	40	--

- In the first paragraph on Page 2-18 of the Draft EIS, the second to the last sentence should be deleted and replaced with the following.

The detention pond would be constructed as an unlined pond.

- In the second paragraph on Page 2-18 of the Draft EIS, the last sentence should be deleted and replaced with the following.

Stormwater contained in the secondary containment areas would be evaluated prior to discharge. If the water is not contaminated, it would be routed to the stormwater collection and treatment system. If the water is contaminated, it would be routed to the refinery's wastewater treatment system.

- On Page 2-19 of the Draft EIS, the last two sentences in the fifth paragraph should be deleted and replaced with the following text.

Alcoa Intalco Works uses a maximum of approximately 2,780 gpm of water. The cogeneration facility would require an average of 2,244 to 2,316 gpm of industrial water, although maximum instantaneous use could be greater than 2,780 gpm. When the aluminum smelter is operational, the average remaining 484 to 556 gpm of recycled water would be used by the refinery to provide a similar reduction in the amount of freshwater that needs to be withdrawn from the Nooksack River. When instantaneous use exceeds 2,780 gpm, the Whatcom County PUD would provide makeup water.

- On Page 2-26 of the Draft EIS, the following text should be added at the end of the first paragraph.

It is not know at this time whether the existing pipeline between Alcoa Intalco Works and the BP Cherry Point Refinery is adequate to carry the recycled water. If new construction is necessary, it will be done by the PUD, which will be required to obtain the appropriate permits.

- On Page 2-26 of the Draft EIS, the second sentence of the last paragraph should be deleted and replaced with the following text.

Rerouting stormwater runoff would include installing pipes, culverts, and an inlet channel with diffuse-flow outlets to direct runoff from the proposed detention pond at the cogeneration facility to CMA 2 rather than letting all of it go through a roadside ditch directly to Terrell Creek.

2.2.3 Construction

- On Page 2-28 of the Draft EIS, the second sentence of the fourth paragraph should be deleted and replaced with the following text.

The Application for Site Certification indicates that pile-supported concrete foundations would be used for all major equipment and buildings.

- On Page 2-29 of the Draft EIS, the last two sentences in the second paragraph should be deleted and replaced with the following text.

In general, pipeline trenches would be 5 feet deep depending on soil conditions and the water table, and considering the engineering analysis of expected loads. Minimum fill would be sufficient to bring the trench level with the original grade, but it also would depend on the excavation of loads from vehicle traffic that may pass over the pipeline at designated points.

- On Page 2-30 of the Draft EIS, the first sentence of the first full paragraph should be deleted and replaced with the following text.

The 0.8-mile 230-kV double-circuit transmission line would be installed within a new transmission ROW on Applicant-owned land not to exceed 150 feet in width.

2.2.4 Schedule and Workforce

- On Page 2-35 of the Draft EIS, the first sentence of the third paragraph should be deleted and replaced with the following text.

In general, the cogeneration facility is designed to allow maintenance to occur without a complete plant shutdown; however, maintenance on mechanical parts of the steam turbine would most likely require a complete plant shutdown.

2.3 NO ACTION ALTERNATIVE

- On Page 2-36 of the Draft EIS, the following sentence should be added at the end of the first paragraph.

Finally, additional tax revenues and jobs would not be created within Whatcom County.

- On Page 2-37 of the Draft EIS, the following text should be added at the end of the first paragraph.

If the proposed project is not constructed, it is likely that the region's long term need for power would be addressed by user-end energy efficiency and conservation measures, by existing power generation sources, or by the development of new renewable and non-renewable generation sources. Baseload demand would likely be filled through expansion of existing, or development of new, thermal generation such as gas-fired combustion turbine technology.

2.4 ALTERNATIVES CONSIDERED BUT REJECTED

- Since publication of the Draft EIS, the Applicant revised the 404 (B) (1) Alternative Analysis, which is presented in Appendix A in this Final EIS. This latest revision of the analysis modified site numbers, which in turn requires changes to the text and Figure 2-4 under this section. On Page 2-37 of the Draft EIS, the second paragraph and list of sites should be deleted and replaced with the following text.

In addition to the proposed cogeneration facility site (Site 1), five other potential sites on the Applicant's property were evaluated for the facility location. They are as follows (see Figure 2-4):

Site 1 South of Grandview Road and east of the refinery.
Site 2 South of Site 1 and just north of Brown Road and east of the refinery and the proposed Brown Road Materials Storage Area.
Site 3 South of Brown Road (and Site 2) and adjacent to the east of the refinery.
Site 4 Northeast corner of the refinery south of Grandview Road and west of Blaine Road.
Site 5 Located within the refinery in the area previously used for refinery turnarounds (maintenance).
Site 6 Area located just north of Grandview Road.

- Figure 2-4 in the Draft EIS should be deleted and replaced with the new Figure 2-4, which is located at the end of this section.

- On Page 2-40 of the Draft EIS, the last sentence before Table 2-5 should be deleted and replaced with the following.

Appendix A contains the 404 (B) (1) Alternatives Analysis.

- On Page 2-40 of the Draft EIS, Table 2-5 should be deleted and replaced with the following table.

Table 2-5: Summary of Ratings of Alternative Cogeneration Facility Sites

Site	Size	Proximity to Refinery	Security	Accessibility	Wetland Impacts
1	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	12 acres
2	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	31 acres
3	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	33 acres
4	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	About 20 acres
5	Fails Criterion	Meets Criterion	Meets Criterion	Meets Criterion	2.5 acres
6	Meets Criterion	Fails Criterion	Fails Criterion	Meets Criterion	unknown

- In the Draft EIS, the last three paragraphs on Page 2-40 and the first two paragraphs on Page 2-41 of the Draft EIS should be deleted and replaced with the following text.

Site 2

Site 2 was the first site investigated for the cogeneration project. The site was delineated for wetlands and it was determined that the site is approximately 80% wetlands (30 acres). Although this site rated high in most criteria, the Applicant did not select this site because of greater impacts on wetlands compared to the proposed site.

Site 3

Site 3 is just south of Brown Road and Site 2, and adjacent to the east refinery fence. Site 3 has at least 40 acres available for future development. Although Site 3 would meet four of the five evaluation criteria, it would potentially affect up to 33 acres of wetlands. Therefore, the Applicant did not select this site as a possible location for the cogeneration facility.

Site 4

Site 4 is located within the refinery's boundary fence just south of Grandview Road and west of Blaine Road. This area is used for construction laydown and contractor parking during maintenance programs at the refinery. Portions of Site 4 were delineated for wetlands, and a reconnaissance of the remaining area indicates that the overall site is approximately 80% wetlands (23.5 acres). If Site 4 were chosen for the cogeneration facility site, Site 1 would be required for equipment laydown areas and the wetland areas east of Blaine Road would be affected. Site 4 would also affect Wetland I, which would not be affected by using Site 1 for the project. In addition, the Clean Fuels Project will be constructed by the refinery in the space that is currently used as a maintenance laydown area, which means that the refinery will need additional maintenance laydown space in the future. The Applicant did not select Site 4 as the preferred site because it would have greater wetland impacts than the proposed site and it would make future refinery activities more difficult.

Site 5

Site 5 would provide only 16 acres of space for facility construction. Site 5 also interferes with future refinery modifications. Future refinery process units, such as isomerization and clean diesel units, require a much greater level of interconnection than the cogeneration facility. Because of the interconnections, these process units must be located near existing process units. Therefore, the Applicant did not select this site as a possible location for the cogeneration facility site.

Site 6

Site 6 was evaluated because it contains moderately sized upland area adjacent to Grandview Road. The site is located approximately 0.5-mile east of the refinery on the north side of Grandview Road. This site would require significantly longer segments of piping to deliver steam to the refinery and would also require a 0.5-mile new transmission line to the refinery. The steam pipeline to the refinery would be difficult to construct because existing gas and water pipelines and electrical transmission lines are south of Grandview Road. The Applicant did not select Site 6 because of the distance from the refinery that would result in new utility corridors to the refinery. In addition, the new utility corridors would be less secure than other proposed sites.

2.4.3 Alternative Cooling Systems

- On Page 2-43 of the Draft EIS, the first sentence of the last paragraph should be deleted and replaced with the following text.

A number of design and cost factors were evaluated in the Applicant's decision to initially propose ACC. The Applicant considered a dry cooling system using an ACC for the proposed project to minimize water use; however, after the initial selection of the ACC, an agreement was reached between the Applicant, Whatcom County PUD, and Alcoa Intalco Works allowing purchase of cooling water from the Alcoa Intalco Works. With the availability of recycled water, the size of the cooling system (footprint) would be reduced, costs would be reduced, and environmental impacts would also be reduced as described in the following paragraphs.

- On Page 2-44 of the Draft EIS, the following text should be added at the beginning of the second paragraph.

Regarding cost and efficiency, a water cooled system would cost approximately $6 million, one-third of the cost of an ACC system. A water-cooled plant is 1.6% more efficient than an ACC. For a project of this size, this represents an output of 12 MW of power that would have been lost if an ACC system were chosen.

Finally, the ACC system requires a larger footprint and has greater visual impacts. Choosing a wet cooling system allows the Applicant to minimize the overall project footprint and resulting impacts on wetlands by bringing the stormwater detention pond into the facility fenceline.

2.7 COORDINATION AND CONSULTATION WITH AGENCIES, INDIAN TRIBES, THE PUBLIC, AND NON-GOVERNMENTAL ORGANIZATIONS

- Additional coordination has occurred since the Draft EIS was published. On Page 2-50 of the Draft EIS, the following lines should be added at the end of Table 2-7.

9/5/03	Issuance of Draft Environmental Impact Statement for Public Comment
10/1/03	Public Comment Meeting on Draft EIS
11/7/03	Issuance of draft Prevention of Significant Deterioration/Notice of construction Permit, draft State Waste Discharge permit, and Recommendation for 401 Certification Conditions
12/8/03 to 12/11/03	EFSEC Adjudicative Hearings and Land Use Hearing
12/9/03	EFSEC Public Witness Hearing (including comment on draft permits)
1/26/04	BPA Consultation with US Fish and Wildlife Service, and NOAA Fisheries
6/14/04	U.S. Army Corps of Engineers Consultations with OAHP
7/2/04	Draft NPDES permit issued for Public Comment
7/26/04	Reconvened EFSEC Settlement and Land Use Hearing
8/5/04	Public Comment Hearing on draft NPDES permit

Figure 2-4