STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL
PO Box 43172 • Olympia, Washington 98504-3172

FACT SHEET
SATSOP COMBUSTION TURBINE PROJECT
NPDES PERMIT WA-002496-1

July 24, 2002

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1. INTRODUCTION

The federal Clean Water Act (1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) of permits, which is administered by the Environmental Protection Agency (EPA). The EPA is the authorized administrator of the NPDES permit program for the state of Washington and the Energy Facility Site Evaluation Council (EFSEC or Council) on the basis of Chapters 80.50 and 90.48 RCW, which define the Council's authority and obligations in administering the permit program for wastewater discharge.

The regulations adopted by the state include procedures for issuing permits (Chapter 463-38 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before water can be discharged into waters of the state. The regulations also establish the basis for effluent limitations and other requirements that are to be included in the permit. One of the requirements (WAC 463-38-033 and 034) for issuing a permit under the NPDES permit program is the preparation of a tentative determination or draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least 30 days before the permit is issued (WAC 463-38-034). The fact sheet and draft permit are available for review (see Appendix A, Public Involvement, for more detail on the public notice procedures). General information about this project is listed in Table 1. A glossary of terms used in this fact sheet is included in Appendix B.

Table 1: General Information

Applicant	Duke Energy Grays Harbor LLC/Energy Northwest
Facility Name and Address	Satsop Combustion Turbine (CT) Project P.O. Box 26 Satsop, WA 98583
Type of Facility	Electrical Energy Generation
SIC Code	4911
Discharge Location	Outfall 001: Chehalis River (River Mile 19.7) Latitude: 46° 58' 19" N Longitude: 123° 29' 19" W
Water Body ID Number	WA-22-4040
Current Discharge Location	Outfall 002: Chehalis River (River Mile 21.8) Latitude: 46° 58' 30" N Longitude: 123° 29' 15" W
Proposed Discharge Location	Outfall 002B: Ground Latitude: 46° 58' 18" N Longitude: 123° 28' 53" W

The applicant has reviewed the fact sheet and draft permit. Errors and omissions identified during this review have been corrected before going to public notice. After the public comment period has closed, the Council will summarize the substantive comments and respond to each comment. The summary and response to comments will become part of the file on the permit,

and parties submitting comments will receive a copy of the Council's response. The fact sheet will not be revised. Comments and the resulting changes to the permit will be summarized in Appendix C, Response to Comments.

2. BACKGROUND INFORMATION

2.1 Definitions

Bonneville Power Administration (BPA) – Operators of the northwest U.S. electric power grid including transmission lines to the Satsop CT Project site.

Duke Energy Grays Harbor LLC (Duke Energy) – A subsidiary of Duke Energy North America. Duke Energy owns the Satsop CT Project site and will construct Satsop CT Project.

Energy Facility Site Evaluation Council (EFSEC or Council) – The Council coordinates all of the evaluation and licensing steps for siting major energy facilities in Washington. If a project is approved, EFSEC specifies the conditions of construction and operation, issues permits in lieu of any other individual state or local agency authority, and manages an environmental and safety oversight program of facility and site operations.

Energy Northwest – Energy Northwest will operate the Satsop CT Project. Energy Northwest was known as Washington Public Power Supply System (WPPSS) until November 19, 1998, when the WPPSS executive board voted to change the name. WPPSS is the original Site Certification Agreement holder and site owner for the Satsop Nuclear Power Projects No. 3 (WNP-3) and 5 (WNP-5).

Grays Harbor Public Development Authority (PDA) – A public corporation composed of Grays Harbor County, Public Utilities District No. 1 of Grays Harbor County, and the Port of Grays Harbor that was established to oversee the Satsop Development Park.

2.2 History

Site Location and Description

The Satsop Combustion Turbine Project, for which application for renewal and modification of a wastewater discharge permit has been made, is located on 22 acres within an existing construction staging area on the former Satsop Nuclear Power Plant Site (Figure 1). Duke Energy owns the Satsop CT Project site and will construct the Satsop CT Project. Energy Northwest will operate the Satsop CT Project. The Grays Harbor PDA now owns and administers most of the former Satsop Nuclear Power Plant Site. Energy Northwest also owns and is responsible for 72 acres of the former Satsop Nuclear Power Plant Site west of Fuller Creek. Construction of the Satsop CT Project, which began in September 2001, is currently under way.

Figure 1: Project Location

The existing NPDES permit authorizes discharge of wastewater to the Chehalis River at Outfall 001 located at river mile 19.7 (Lat. 46°58'19" N, Long. 123°29'19"W). The locations of outfalls and Ranney Wells (the source of process water) are illustrated in Figure 2. Stormwater is discharged to an infiltration pond (C-1) adjacent to the CT Project site. C-1 is proposed to be the new Outfall 002B (Lat. 46°58'18" N, Long. 123°28'53"W). Stormwater from the partially constructed nuclear site is discharged to an infiltration pond system, which ultimately discharges to the Chehalis River at Outfall 002 located at river mile 21.8 (Lat. 46°58'30" N, Long. 123°29'15"W). Figure 3 shows the Satsop Development Park (the former Satsop Nuclear Power Plant site) with approximate stormwater flow. Wastewater is not currently discharged from Outfall 001. The current Outfall 002 is proposed for removal from NPDES Permit WA-002496-1.

Site History

The site of the WPPSS Nuclear Power Projects WNP-3 and WNP-5, of which Satsop CT is located on a portion, was certified on October 27, 1976. Construction was initiated on both WNP-3 and WNP-5 in 1977. Construction for WNP-5 was halted prior to completion in 1982. Construction for WNP-3 was halted in 1983. At that time, construction of the facilities was suspended. BPA issued a Notice of Intent to prepare an environmental impact statement (EIS) for a 245-megawatt (MW) combustion turbine electrical generating facility on the Satsop Development Park in September 1993. The original proposed Satsop CT Project included two 245-MW units. The EIS focused on only one unit because BPA intended to purchase power from only one unit. Impacts from the second unit were addressed in the cumulative impacts analysis of the EIS, but it was not part of BPA's proposed action. The Final EIS was published in November 1995. The project was revised again, and an Amended Site Certification Agreement (SCA) authorizing the construction of the 490-MW Satsop CT Project and associated 48-mile natural gas pipeline was issued May 21, 1996. On August 12, 1999, the terms and conditions for WNP-3 and WNP-5 were removed from the SCA. On February 12, 2001, the Council approved by resolution (No. 297) the addition of Duke Energy as a co-agreement holder with Energy Northwest. On April 13, 2001, the Council approved by resolution (No. 298) a change in turbine model from Westinghouse to General Electric, which will increase power output from 490 MW to 650 MW. On October 23, 2001, Energy Northwest notified the Council that it will seek an amendment to the SCA for an additional phase (Phase II) to the CT Project, which will add another 650 MW of power output.

2.3 Original NPDES Permit

April 12, 1976 NPDES Permit (WA-002491-1)

The Thermal Power Plant Site Evaluation Council (precursor to EFSEC) approved an NPDES permit (issued April 12, 1976) for WNP-3 and WNP-5 as part of the nuclear electric generating facility SCA executed on October 27, 1976.

Ten outfalls were identified in this permit: Outfalls 001 and 009 to the Chehalis River and the other outfalls to nearby tributary creeks of the Chehalis River (Fuller, Workman's, and Purgatory). Outfall 001 was the primary outfall for recirculated cooling water (blowdown) from the large cooling towers, while Outfalls 002 through 010 were mostly for sedimentation and

Figure 2: Outfall Locations

Figure 3: Satsop Development Park with Approximate Stormwater Flow

erosion control ponds associated with site construction. (Note: Outfall 009 in this permit is later referenced as Outfall 002).

Effluent limitations for the discharge of recirculated cooling water at Outfall 001 included total suspended solids, pH, oil and grease, temperature, chlorine (free available), and copper. The limitations for flow to Outfall 001 were 4 million gallons per day (MGD) (daily maximum) and 3.7 MGD (daily average).

Effluent limitations for the discharge to Outfalls 002 through 010 included total suspended solids, settleable solids, and pH. There were no specific flow limitations for these outfalls except that discharges were not to exceed the maximum storm levels of the creeks. The ponds were originally designed for a 100-year 24-hour rainfall event (5.5 inches per 24 hours).

Transfer of Responsibilities

General

Information regarding the transfer and subsequent division of responsibilities is provided in the February 1999 Transfer Agreement, Satsop Site Real Property and Personal Property, among Grays Harbor County, Port of Grays Harbor, Public Utility District No. 1 of Grays Harbor County, and WPPSS. Pertinent details are contained in Exhibit B to the Transfer Agreement – Terms and Conditions for a Combustion Turbine Project on the Satsop Site.

The general items related to the CT Project site include the following:

WPPSS retains ownership of the CT Project property that was initially 72 acres but was later reduced to 22 acres, which is currently approved in the SCA.
PDA is responsible for utility infrastructure operation and maintenance (O&M) and access to the site to include water supply and water discharge systems.
WPPSS will initially upgrade, pay for, repair, and replace facilities necessary for utility infrastructure. PDA has assumed these responsibilities.
WPPSS initially owned the raw water delivery system components, but now the PDA owns and is responsible for O&M of those components.
Pond C-1 is located on property owned, operated, and maintained by the PDA.

Outfall 001

The transfer agreement states that the transferee (PDA) is responsible for the effluent line's discharge system, which includes the blowdown conveyance line and the diffuser in the Chehalis River.

Outfall 002

Outfall 002 (proposed to be removed from the permit) is the responsibility of PDA. However, according to Item IV in Exhibit B of the Satsop Site Transfer Agreement:

"The CT Project shall be allowed to connect to the make-up water pipeline and blowdown line in the area of Cooling Tower No. 5, and to convey 9.5 cubic feet per second of process water from the Ranney Wells to the CT Project. The CT Project shall also be allowed to use a portion of the stormwater control west ditch to fill (*interpret as store excess Ranney Well water*) the equalization pond with storage water. The CT Project shall be allowed to modify the equalization pond as needed to obtain process water storage capacity for two combustion units for the low flow periods, as required by the SCA. Details of an agreement to control water levels in the equalization pond will be negotiated between the Parties six months prior to beginning construction of either CT unit. "

Pond C-1(stormwater detention pond proposed to be added to permit as Outfall 002B)

According to Item IV in Exhibit B of the Satsop Site Transfer Agreement:

"The CT Project shall also be allowed to use the Cooley-1 (C-1) erosion control pond to control, and if needed, to treat stormwater runoff from the Satsop Property. If necessary during construction, the CT Project may use the Fuller-2 (F-2) pond and erosion control pipeline for stormwater runoff."

2.4 Industrial Process

Overview of the Existing Facility

The primary activity at the site will be the production of commercial electrical power from a natural gas-fired combined-cycle electric generation facility. Its design includes two GE 7FA gas combustion turbine generators (CTG) that each produce approximately 175 MW, two heat recovery steam generators that use the high temperature exhaust from the CTGs to create steam, and one steam turbine generator with a gross capacity of approximately 300 MW (yielding a combined gross capacity of 650 MW).

Overview of the Proposed Changes to the Facility

The Council is currently reviewing the Request for Amendment to the Site Certification Agreement that would allow construction of another 650-MW natural gas-fired combined-cycle electric generation facility called Phase II. Phase II is identical to the existing facility currently under construction (Phase I) with two exceptions. First, the Phase II facility will have a 10-cell cooling tower instead of the 9-cell cooling tower for Phase I. Second, Phase II will be able to share certain facilities constructed for Phase I, such as the administration building and boiler feed water treatment system, rather than constructing duplicates of these facilities.

Process Wastewater

Three separate water streams will enter the discharge conveyance to surface water at Outfall 001:

Cooling tower blowdown (industrial wastewater)
Oil/water separator discharge (industrial wastewater)

Quench water (process water)

Industrial Wastewater Streams

Process water from the cooling tower system that cools the condenser and associated machinery (circulated at approximately 66,000 gallons per minute) is cooled, in turn, by an evaporative process in 19 mechanical draft-cooling towers and recycled.

Cooling tower evaporation and "drift" losses average 6,300-6,400 gallons per minute (gpm) combined flow for Phases I and II. Even with replenishing these losses with new water, the evaporation concentrates the dissolved solids in the circulating water to the point that they would cause excessive deposition in the system, impeding efficiency. To limit the buildup of mineral salts, a small portion of the water is released to the river as "blowdown." Chemicals also are added to retard deposition of solids and to limit corrosion and biological growth in the system. The almost continuous blowdown discharge, expected to be less than 1,230 gpm combined flow for Phases I and II, would contain heat, residuals from any treatment additives, constituents of water from the Chehalis River (concentrated by evaporation), and products used to prevent system corrosion.

The second wastewater stream is the wash water from the plant buildings that has passed through the oil/water separator. This process is almost continuous and is expected to be about 50 gpm combined flow for Phases I and II.

Quench Water

The third wastewater stream that is directed through this same conveyance to the Chehalis River is additional quench water obtained directly from the water source (the Ranney Wells) to cool discharge waters to 15.6°C. In a letter (August 15, 1995) commenting on the draft of the existing NPDES permit for the Satsop CT project, the State of Washington Department of Fish and Wildlife (WDFW) expressed concern about impacts on fish resulting from elevated water temperatures and low levels of dissolved oxygen in the Chehalis River. Because of this concern, WDFW asked the applicant (WPPSS) to calculate the amount of additional quench water that would be necessary to mix with the Combustion Turbine outfall to lower the outfall temperature from the 64.4°F (18°C) as proposed in the application to 60°F (15.6°C). This temperature was suggested because scientific literature identifies 60°F as the threshold at which risk to chinook salmon from disease, reduced oxygen, and abnormalities in alevins increases substantially.

WPPSS engineers predicted that an additional 0.9 cubic feet per second (cfs) would lower the outfall temperature from 64°F to 60°F. WDFW then asked Ecology to consider allowing the applicant to withdraw an additional 0.9 cfs from the Ranney Wells to use for quench water. That additional withdrawal specifically for quench water became part of the settlement agreement submitted to the Council at the start of the adjudicative proceeding.

WDFW recommended in its August 15, 1995 letter that the NPDES permit ultimately issued for the WPPSS Combustion Turbines (Satsop CT project) clearly state that all NPDES discharge limitations are to be met within the 8.6 cfs water authorization identified in the settlement agreement and the additional 0.9 cfs be used only for additional water temperature moderation.

The source and use of quench water is specific only to Phase I and is described in Item A in Article IV to the Site Certification Agreement (Amendment No. 3) between the state of Washington and Energy Northwest:

> "The two combustion turbine units (referring to Phase I – two natural gas fired combined cycle generators and a single steam turbine) are limited to a total of 9.5 cubic feet per second (referring to maximum flow of 4259 gpm), of which 8.6 cubic feet per second (or 3855 gpm) will be used for power production, including quench water to meet the temperature limits of the NPDES permit. The remaining 0.9 cubic feet per second (maximum flow of 404 gpm) is for quench water to cool the Satsop Combustion Turbine Project discharge below the temperature set in the NPDES permit."

2.5 Water Pollution Control Measures

Outfall 001

Cooling Tower Blowdown

The cooling water system will use a circulating cooling tower consisting of 19 cells that are cooled by water withdrawn from the Ranney Wells. Sodium hypochlorite will be added to the system to prevent microbiological growth. If chlorine is detectable, sodium bisulfite will be added to neutralize the residual chlorine. The treated blowdown will be discharged so that the daily maximum free available chlorine will be less than 0.095 mg/l and the monthly average will be less than 0.047 mg/l according to the applicant.

The main condenser in the circulating cooling water will be adjusted for pH to ensure that blowdown discharges are within effluent limits. This would involve the addition of sulfuric acid to depress pH, which would be higher than the effluent limit.

Temperature

The federal Clean Water Act (Section 303[d]) and federal actions (40 CFR 130.7) require Washington State to develop a list of "troubled waters" (the 303[d] list) every two years. Water bodies must meet two criteria to be placed on the list: (1) water quality does not meet state water quality standards, and (2) technology-based controls are not sufficient to achieve water quality standards. In May 1994, Water Body Segment No. WA-22-4040, the Chehalis River from the Wynoochee River to Porter Creek, was placed on the 303(d) list because of excursions of fecal coliform and temperature beyond water quality criteria.

Because the Chehalis is on the 303(d) list for temperature, the current regulation 40 CFR 122.4(i) stipulates that no new permit be issued for a new source or new discharges if it will cause or contribute to a violation of water quality standards. In addition, the Department of Ecology is proposing to revise the existing temperature criteria (18°C for the Chehalis River) within the next year. The new criteria is based on current scientific understanding of the effects of temperature on aquatic species. The criteria will apply to the following key species groupings:

char (bull trout and Dolly Varden), salmon and coastal trout, eastern redband trout, and warm water fish.

It is expected that this project will meet any newly proposed temperature standard because the temperature of the discharge water would be cooled to 15.6°C using a mechanical draft cooling tower (heat exchanger) for Phase II only and/or quench water for both Phases I and II according to the applicant. No information has been provided about details of the mechanical draft cooling tower/heat exchanger. The expected flow will be a maximum of 1,280 gpm combined flow for Phases I and II. The SCA issued by EFSEC requires that discharge from the cooling tower be below 15.6°C.

There is a question about whether quench water can be effective for temperature reduction when the Chehalis River is warmer than average. It is anticipated that water withdrawn from the Ranney Wells would remain a constant 10-11°C regardless of the temperature of the Chehalis River or other nearby surface water bodies. However, this is based on data collected in 1981 for the WPPSS project from Well APW, which is near the Ranney Wells and is assumed to be representative of Ranney Wells water. Additional data are required to determine the actual temperature of flow from Ranney Wells and to confirm that seasonal fluctuations are not present.

Oil/Water Separator

An oil/water separator will collect water from waste streams that may potentially contain oily water, such as the steam turbine purification system and equipment and floor drains. The oil/water separator will be designed to produce an effluent of less than 15 parts per million (ppm) of oil. Water from the oil/water separator will be mixed with the cooling tower blowdown water before entering the blowdown line. A reservoir connected to the oil/water separator will collect the waste oil for offsite recycling.

Chemical Additives

Certain chemicals are added to the main condenser cooling water to maintain cooling efficiency and protect the system components from corrosion. The applicant has provided a comprehensive summary of these chemicals: where they are proposed, the consumption rates, and purposes. Chemicals proposed for use in the cooling tower are summarized in Table 2.

Table 2: Chemical Additives used in Cooling Water System (per Unit)

Chemical	Description and Use	Estimated Usage Rate (pounds per day)
Nalco – Dynacool – 8301D or equivalent	Liquid polymeric dispersant used in circulating water treatment system	58
Nalco – Dynacool – 8308 or equivalent (corrosion inhibitor: phosphonate, phosphonocarboxylate, tolytriazole)	Liquid phosphate-based corrosion inhibitor used in circulating water treatment system	116
Sodium hypochlorite	Liquid treatment chemical for the cooling tower	111
Sulfuric acid	Liquid water treatment chemical used in demineralizer and neutralization tank	335

Pollution Prevention Measures

The applicant developed and submitted the following plans and associated documents to the Council on August 1, 2001 in accordance with the requirements of Section 311 of the Clean Water Act and the attendant regulation, 40 CFR 112, for construction-related activities of Phase I of the Combustion Turbine Project. The applicant intends to apply these to Phase II (construction-related activities) as well.

List of Approved Construction-Support Plans:

Spill Prevention Control and Countermeasure Plan
Hazardous Waste Management Procedure
Environmental Protection Control Plan
Erosion Control Procedure and Plan

The Council approved the above plans on September 19, 2001. The applicant will review and update plans annually and provide revisions for EFSEC or agency review during the summer 2002. As of May 2, 2002, the applicant needs to submit the corresponding plans and associated documents for construction activities for Phase II. In addition, the following plans and documents are required for operating Phases I and II as an industrial facility:

Spill Prevention Control and Countermeasure Plan: Energy Northwest/Duke Energy's Spill Prevention Control and Countermeasure Plan (SPCC) is limited to construction-related activities. A passage in this plan states, "Satsop Combustion Turbine site drains to the C-1 pond. All spills will be routed to this pond, from which it is possible to retrieve spilled material." The SPCC also states, "absorbent material stored on site will be used to retrieve any oil in the pond and drainage ditches leading to the pond. Although the C-1 pond has withstood a 100-year rain event without discharging, should a spill occur, the pond will be monitored closely to ensure that no oil or hazardous material is released to the Chehalis River."

Attachment 6.2 of the SPCC lists the following oils, fuels, and hazardous materials that may be stored at the Satsop CT site: fuel (diesel, kerosene), gasoline, oil, solvents and thinners, paints, antifreeze, sealants, dyes, water treatment chemicals, acids, ammonia, photographic chemicals, corrosion inhibitors, and pesticides.

Allowing spilled materials to be routed with stormwater directly to Pond C-1 is not appropriate. Pond C-1 is proposed as a new outfall that discharges to groundwater. Spilled materials must be contained within the CT site, and stormwater must be treated and monitored closely before routing to drainage ditches and Pond C-1. Several requirements including appropriate evaluation of the pond are discussed later in this fact sheet. The minimal technology that will be required to treat stormwater is properly sized oil-water separators, dead-end sumps, shut-off valves, etc. to be placed near where hazardous materials are handled or where stormwater leaves the CT site and is routed to drainage ditches discharging to Pond C-1. Also missing in the SPCC plan are references to proper design for secondary containment of applicable liquids and operational or structural features to prevent movement of substances offsite.

Stormwater Pollution Prevention Plan: A Stormwater Pollution Prevention Plan (SWPPP) has not been separately developed for the completed CT Project. Because the CT Project is an industrial facility with an SIC Code of 4911, a SWPPP is required as part of the long-term operation of the facility.

Solid Waste Control Plan: The solid waste control plan must address the handling of all solid wastes with the exception of those regulated as dangerous wastes.

The Council will review and approve these plans prior to operation as provided in proposed permit conditions S5, S6, and S8. Proposed permit conditions S6 and S8 outline the frequency of required review and modification of the SPCC and SWPPP.

Sanitary Waste

Sanitary sewage for the Satsop CT Project will be treated in a septic tank system and discharged to a drainfield at the project site. The anticipated sanitary waste stream flow to the onsite system is less than 3,500 gallons per day combined flow for Phases I and II, which allows the applicant to work with Grays Harbor County instead of the Washington Department of Health for permitting. On June 13, 2002, Grays Harbor County approved the sanitary waste facility design for the CT Project. Washington Department of Ecology issued a permit for the sanitary wastewater treatment plant for the PDA area effective June 1, 2002. There is language in the existing NPDES permit associated with the PDA's sanitary wastewater treatment plant. Because there are no plans for the CT Project to discharge sanitary waste to the PDA system, this language will be deleted in the revised Satsop NPDES permit (WA-002496-1).

Discharge Outfall

Outfall 001

Process water will be obtained from the existing Ranney Wells, located next to the Chehalis River west of the plant site. Ranney well water will be delivered to the Satsop CT Project through the existing water line and connected to the existing discharge line originally constructed for WNP-3 and WNP-5 in 1981. Satsop CT Project intends to break the discharge line near the project site and use the remaining discharge line leading to Outfall 001.

Outfall 001 enters the Chehalis River at river mile 19.7, downstream of the confluence with the Satsop River. The conveyance pipe to the outfall consists of a combination of 21-inch-diameter reinforced concrete pipe, 20-inch-diameter carbon steel pipe, and 18-inch-diameter carbon steel pipe that extends north and below the Chehalis River to the diffuser structure. The diffuser structure is approximately 30 feet long with 2-inch-diameter vertical pipe risers that are connected to the horizontal 18-inch-diameter conveyance pipe. The 16 risers are spaced at 8-inch intervals with the discharge ports located about 1 foot above the riverbed. The discharge ports are angled to direct flow in the downstream direction and are positioned at a 12-degree angle above horizontal to minimize channel scouring. The 18-inch-diameter conveyance pipe connected to the 2-inch-diameter risers are encased in concrete. Figure 4 presents a schematic of Outfall 001 as it was installed during construction of the nuclear plants. Recent inspection of the

diffuser revealed that the discharge ports have been sheered off. It is assumed that the risers and possibly a portion of the conveyance pipe contain sediment.

Other than initial testing of the water systems in the early 1980s, there have been no discharges through Outfall 001. In the original and existing versions of the NPDES permit, the concept of a mixing zone was used to propose adequate dilution based on the nuclear plant discharges.

Outfall 002 (proposed to be removed)

Discharge to Outfall 002 is overflow from an infiltration pond system used for containing stormwater associated with the mothballed nuclear site. The infiltration pond system consists of a 140 acre-foot (approximately 46 million gallons as stated in the Transfer Agreement) equalization pond that can discharge to two settling ponds through a weir. The settling ponds ultimately discharge to the Chehalis River through an open channel lined with riprap that leads to Outfall 002.

Specifically, Outfall 002 discharges near the south bank of the Chehalis River at river mile 21.8. The outfall stack is a vertical riser pipe surrounded by riprap to prevent localized scour during discharge. Discharge from the equalization pond is through a valve that leads to a weir in the settling pond, where polymer was added during construction of the main site. From the weir, the water is diffused into two interconnected segments of the settling pond, eventually discharging to a collection weir that funnels water to a discharge pipe. This pipe conveys the discharged water underground to the vertical riser pipe. Thus, discharge through Outfall 002 occurs during significant rainfall, when excess water (flow from the equalization pond) to the settling pond occurs faster than the infiltration and evaporation rates. Outfall 002 is proposed to be removed from the NPDES permit for the CT Project site. Stormwater associated with the CT Project will be routed to Pond C-1, which is discussed below. No stormwater from the Satsop CT site would be managed in the original Outfall 002 system. It is therefore being removed from the proposed permit.

Discharge to Ground (Pond C-1 – proposed to be added as Outfall 002B)

Pond C-1 is part of a stormwater drainage collection and outfall system designed and partially constructed to cover discharges from the West Cooley Laydown Area (the current CT Project area) during construction of WNP-3 and WNP-5. The system was to route stormwater collected from the West Cooley Laydown Area along two unnamed channels north of the project area. The channels merge and discharge at the south bank of the Chehalis River. Design drawings (WPPSS, May 1980) indicate that the one channel was to be regraded and lined with corrugated metal pipe where the channels converge to an energy dissipater near the Chehalis River but upslope of the railroad track. After the dissipater, stormwater would be routed through two 36-inch-diameter corrugated metal pipes underneath the railroad tracks to a riprap platform next to the river.

Figure 4: Schematic of Outfall 001

The applicant provided an updated survey of the pond area dated June 2001 with Phase I construction activities starting in September 2001. Concerns about the pond's structural integrity and capacity to retain stormwater were noted during storm events during the winter of 2001-2002, when overflow of the pond occurred and sandbagging was conducted around important structures to prevent overflow. Because of these events and leaks observed in the pond's walls, the Council decided to take a close look at the background of Pond C-1.

The June 2001 updated survey and cross-section drawings indicate that the existing Pond C-1 was constructed by placing a dike in the one of the channels referred to above that created a small detention/retention pond with provisions for overflow. A detail shows a 12-foot-wide spillway located at the center of the dike. Opposite of the pond on the west side of the dike, the detail shows a 40-foot-long riprap channel with the west side of the dike also covered with riprap.

A rough determination of the pond's holding capacity using the June 2001 drawings indicates that Pond C-1 can hold about 200,000 cubic feet before water would overflow and enter the spillway (assuming slow percolation and no existing water in the pond). This indicates that Pond C-1 may not be large enough to temporarily store rain for the 22-acre CT Project site with additional contribution from the overall 72-acre laydown area after construction is complete. This suggests that further evaluation is warranted to verify that the C-1 erosion control pond is designed and maintained to store runoff from a 100-year rainfall event (5.5 inches in 24 hours) while infiltrating a portion of the runoff to groundwater.

2.6 Permit Status

May 21, 1996 NPDES Permit (WA-002496-1)

EFSEC approved a new NPDES permit for discharge associated with nuclear electric-generating plants WNP-3 and WNP-5 and Units No. 1 and No. 2 of the Satsop CT Project and associated natural gas pipeline. The expiration date for this NPDES permit was May 21, 2001.

The May 21, 1996, NPDES permit was later included in an amended SCA (August 12, 1999) that deleted the nuclear electric-generating plants WNP-3 and WNP-5. Although WPPSS officially changed its name to Energy Northwest by 1996, no changes or amendments were made to the NPDES permit for this change in the SCA. Two outfalls of the original 10 remained part of this permit: Outfall 001 discharging to the Chehalis River (from the cooling water blowdown) and Outfall 002 (formerly Outfall 009) discharging to the Chehalis River from the main stormwater collection system.

Discharge to Outfall 001 was classified as industrial wastewater composed of four streams: low volume waste sources, metal cleaning wastewaters, once-through cooling water, and cooling tower blowdown. Effluent limitations to Outfall 001 included ammonia (total as N), chlorine (total residual), total cadmium, copper, iron, lead, zinc, temperature, pH, and PCBs. The point of compliance for temperature was at a mixing zone boundary that surrounded the discharge at Outfall 001. Flow requirements included 0.74 MGD (daily maximum) and 0.66 MGD (monthly average).

In addition to effluent limitations for discharge to Outfall 001 as a whole, the permit provided effluent limitations for each of the four contributing waste streams. For low volume waste sources, effluent limitations covered total suspended solids and oil and grease. For metal cleaning wastes, effluent limitations were provided for total suspended solids, oil and grease, and total copper and iron. For once-through cooling water, there was an effluent limitation for total residual chlorine. For the cooling tower blowdown waste stream, effluent limitations were provided for free available chlorine and the priority pollutants listed in Appendix A to 40 CFR 423. There were no flow limitations for the separate waste stream contributions.

Discharge to Outfall 002 is potential overflow from the following sources: an infiltration pond system used for containing stormwater associated with the site; potential excess stormwater from construction of the combustion turbine plant flowing to Pond C-1; demolition of the earlier WNP-3; and other non-specific sources. The infiltration pond system consists of a 140-acre-foot equalization pond (approximately 46 million gallons as stated in the Transfer Agreement) that can discharge to two settling ponds through a weir. The settling ponds ultimately discharge to the Chehalis River through an open channel lined with riprap that leads to Outfall 002. Specifically, Outfall 002 discharges near the south bank of the Chehalis River at river mile 21.8. The outfall stack is a vertical riser pipe surrounded by riprap to prevent localized scour during discharge. Discharge from the equalization pond is through a valve that leads to a weir in the settling pond, where polymer was added during construction of the main site. From the weir, the water is diffused into two interconnected segments of the settling pond, eventually discharging to a collection weir that funnels water to a discharge pipe. This pipe conveys the discharged water under ground to the vertical riser pipe. Thus, discharge through Outfall 002 occurs during significant rainfall, when excess water (flow from the equalization pond) to the settling pond occurs faster than the infiltration and evaporation rates. Effluent limitations to Outfall 002 included total suspended solids, settleable solids, and pH. In addition, effluent limitations were placed on non-stormwater discharges entering the equalization pond. These effluent limitations included copper, chromium, zinc, and iron.

Sanitary waste for the CT Project site was to be treated in a septic tank system and discharged to a drainfield at the site. Waste treatment and discharges to the drainfield would be in accordance with manufacturer's instructions and WPPSS's procedures. All sewage effluent discharges were to meet the state regulatory standards in WAC 248-90 and 173-216.

Sanitary waste conditions for the main nuclear site also remained in the NPDES permit. Sanitary wastes generated on the main site were to be collected and treated in a sanitary sewage treatment plant operated by the PDA.

On November 21, 2000, Energy Northwest, the owner/operator of the Satsop CT Project, requested that NPDES Permit No. WA-002496-1 be reissued without modification. The expiration date for the permit was May 21, 2001. On December 14, 2000, EFSEC notified Energy Northwest that the reapplication request was timely and that EFSEC, in cooperation with Ecology, would initiate review of the permit reapplication. In January 2001, Energy Northwest (holder of the SCA) requested that Duke Energy (a wholly owned subsidiary of Duke Energy North America, LLC, which itself is a subsidiary of Duke Energy Corporation) be made co-applicant of the CT Project. In February 2001, EFSEC authorized this amendment to the SCA. In March 2001, Energy Northwest and Duke Energy proposed modifications to the facility to

include a maximum output of 650 MW, but no proposed changes to the existing NPDES permit. In April 2001, EFSEC authorized the technical amendment.

On October 23, 2001, Energy Northwest and Duke Energy notified EFSEC that they would be requesting another amendment to the SCA for a Phase II expansion with two additional gas turbines and an estimated maximum output of 650 MW.

Energy Northwest and Duke Energy requested that the NPDES permit application for Phase II be delayed while the Grays Harbor Public Development Authority requested a general stormwater permit for the Satsop Development Park and a permit application was pending for an onsite sanitary waste treatment plant (to be managed by the PDA). Energy Northwest and Duke Energy believed PDA's actions should support the Council's deletion of the following conditions in the NPDES permit: (1) permit conditions for Outfall 002, and (2) permit conditions for the sanitary waste treatment. On December 7, 2001, Duke Energy submitted its application for a NPDES permit for both Phase I and Phase II of the Satsop CT Project.

2.7 Summary of Compliance with the Previous Permit

Outfall 001

No compliance data are available from Outfall 001 since it has not been used since installation. The existing condition of the 20-year-old pipeline is unknown, and the riser pipes on the diffuser are known to be damaged or broken off, likely because of large woody debris traveling downstream during high volume flows. Permit condition S8 required that the submerged portion of the outfall line and diffuser be evaluated and a report on its integrity be submitted to the Council. This report was not required until a mixing study on the effluent was conducted within 180 days of the start of commercial operation.

There are concerns that sediment in the diffuser may cause water quality standards in the Chehalis River to be exceeded because of excessive turbidity. This system has not been hydrostatically tested.

Outfall 002

Thirty samples were collected during a five-year period at Outfall 002, one sample for each day of discharge in the following years: 1996 - 1 sample; 1997 - 12 samples; 1998 - no samples; 1999 - 13 samples; 2000 - no samples; and 2001 - 4 samples. Table 3 shows the results for Outfall 002.

Table 3: Five-year Summary for Outfall 002

Parameter	Maximum Daily Value	Minimum Daily Value	Average (long-term) Value
Total Suspended Solids	18.6	0.0	3.2
Settleable Solids	<0.1	<0.1	<0.1
pH	6.81	5.88	6.5

Sampling indicated that permit limitations were met for settleable solids and suspended solids for all samples except the one collected on December 20, 2001, which had a pH of 5.88 below the permit limitation of 6.0.

Stormwater Pond C-1 (proposed Outfall 002B)

Energy Northwest/Duke Energy's Erosion Control Plan dated August 31, 2001 (within Satsop Combustion Turbine Project Environmental Commitment Book, Revision 8, August 2001, under Site Procedures, CTP-2-01, Erosion Control) states that operational procedures will follow Ecology's Stormwater Manual for the Puget Sound Basin, 1992 Edition, Volume II – Erosion and Sediment Control. No reference is made to the more current version of this document; Ecology's *Stormwater Management Manual for Western Washington* (August 2001).

In addition, the August 31, 2001, Erosion Control Plan is limited in scope to construction activities, primarily associated with excavating, storing, and transporting soil. The scope of the plan is summarized by the following passage in the document, "the purpose of this plan is to provide a basic erosion control program that will be used in developing contract specifications for all earth moving work, or where soil will be disturbed."

In January of 2002, the earthen dam preventing discharge from Pond C-1 to the man-made route lined with riprap leading to the Chehalis River was breached or developed leaks. Because of this, a surface water quality standard is being set in case of future spillover or breach. The breach was checked daily and the discharge monitored to ensure that it did not reach the Chehalis River. Silt fencing also was installed to help slow down the discharge flow. In May of 2002, the applicant reported that Shotcrete was applied to the face of the dam in an effort to seal the leak. EFSEC staff with the Department of Fish and Wildlife inspected the Shotcrete in June of 2002, and asked for additional information about the integrity of the chosen repair. Although this waste stream is not permitted to discharge to surface water (Chehalis River), a surface water quality standard is being set in case of future spillover or breach. Figure 5 shows the location of major components of the stormwater conveyance system. Figure 6 illustrates Pond C-1 topography. Figure 7 is a schematic of the Pond C-1 dam.

2.8 Wastewater Characterization

Concentration of parameters for wastewater discharge to Outfall 001 for both Phase I and II was obtained from two sources. The background concentrations of metals in influent raw water from the Ranney Wells were collected from several sources referenced below. The flow rates and contributions from sources are based on the process flow diagrams presented in the NPDES permit application dated December 7, 2001 and subsequent communication between Duke Energy and the Council. For simplicity, Tables 4 and 5 are presented to reflect the maximum discharge conditions for Phase I and Phase II. The tables with more information on process water are presented in Appendix D. The tables with the wastewater stream summaries are presented below. Included are process flow diagrams to represent maximum flow conditions. Figure 8 corresponds to Phase I and Figure 9 corresponds to Phase II.

Table 4: Wastewater Characterization, Phase I Maximum

Parameter	Units	Source of Data	Discharge Water Prior to Blending with Additional Quench Water	Additional Quench Water	Discharge Water to Connection to Outfall 001	WAC 173-201A Standards	
						Acute Criteria	Chronic Criteria
Arsenic	(mg/L)	A	0.01426	0.00250	0.00971	0.36	0.19
Cadmium	(mg/L)	A	0.00029	0.00005	0.00019	0.00084	0.00037
Chromium	(mg/L)	A	0.00285	0.00050	0.00194	0.63	0.075
Copper	(mg/L)	A	0.00285	0.00050	0.00194	0.00476	0.00354
Iron	(mg/L)	A	0.04563	0.00800	0.03107	NA	NA
Mercury	(mg/L)	A	0.00057	0.00010	0.00039	0.0021	1.2E-05
Nickel	(mg/L)	A	0.00285	0.00050	0.00194	0.473	0.052
Lead	(mg/L)	A	0.00029	0.00005	0.00019	0.0116	0.00045
Selenium	(mg/L)	A	0.00570	0.00100	0.00388	0.02	0.005
Zinc	(mg/L)	A	0.01426	0.00250	0.00971	0.0365	0.0331
Ammonia	(mg/L)	B	0.00285	0.00050	0.00194		
TDS	(mg/L)	B	553.2	97.0	376.7		
TSS	(mg/L)	B	81.0	14.2	55.1		
Temp.	^{o}C	C	1815.06	16.710.8	17.513.4		
Res. chlorine	(mg/L)	D	0.20	0.00	0.12		
pH		B	8.50	6.85	7.86		
Flow (gpm)			640	404	1044		
Flow (cfs)			1.43	0.90	2.33		
Flow (MGD)			0.92	0.58	1.50		

Table 5: Wastewater Characterization, Phase II Maximum

Parameter	Units	Source of Data	Influent from Ranney Wells	Discharge Water to Connection to Outfall 001	WAC 173-201A Standards	
					Acute Criteria	Chronic Criteria
Arsenic	(mg/L)	A	0.00250	0.01026	0.36	0.19
Cadmium	(mg/L)	A	0.00005	0.00021	0.00084	0.00037
Chromium	(mg/L)	A	0.00050	0.00205	0.63	0.075
Copper	(mg/L)	A	0.00050	0.00205	0.00476	0.00354
Iron	(mg/L)	A	0.00800	0.03283	NA	NA
Mercury	(mg/L)	A	0.00010	0.00041	0.0021	0.000012
Nickel	(mg/L)	A	0.00050	0.00205	0.473	0.052
Lead	(mg/L)	A	0.00005	0.00021	0.0116	0.00045
Selenium	(mg/L)	A	0.00100	0.00410	0.02	0.005
Zinc	(mg/L)	A	0.00250	0.01026	0.0365	0.0331
Ammonia	(mg/L)	B	0.00050	0.00205		
TDS	(mg/L)	B	97.0	398.0		
TSS	(mg/L)	B	14.2	58.3		
Temp.	^{o}C	C	10.8	15.6		
Res. chlorine	(mg/L)	D	0.0	0.20		
pH		B	6.85	8.50		
Flow (gpm)			4259	1044		
Flow (cfs)			9.51	2.33		
Flow (MGD)			6.13	1.50		

Parameter	Units	Source of Data	Discharge Water Prior to Blending with Additional Quench Water	Additional Quench Water	Discharge Water to Connection to Outfall 001	WAC 173-201A Standards

Notes:

Concentrations in bold exceed WAC standards

TDS = Total dissolved solids
TSS = Total suspended solids
Res. Chlorine = residual chlorine
mg/L = milligrams per liter
^{o}C = degrees Centigrade
gpm = gallons per minute
cfs = cubic feet per second
MGD = million gallons per day

Sources of Data:

A Duke Energy North America, LLC (November 19, 2001) Submittal of Request for Amendment #4 to Site Certification Agreement based on mixing zone study for the Satsop Nuclear Power Projects performed in 1980. Satsop Combustion Turbine Project Phase II

B WPPSS (October, 1982), Section 2.4 - Hydrology for WNP-3, Ranney test data, surface water data, or if not available, groundwater data

C Duke Energy North America (November 7, 2001) Request for Amendment #4 to Site Certification Agreement, Appendix B, Table titled "Means and Ranges of Parameters for Metals Monitoring Program at Well APW, 5 November 1980 – 28 October 1981" (Envirosphere, 1982 listed at bottom of table), upper limit for range of temperature given for entire year (10.4 – 10.8 ^{o}C).

D Duke Energy Grays Harbor (December 7, 2001), NPDES Permit Application for Permit No. WA-002496-1 Satsop Combustion Turbine Project Phase

Assumptions:

Parameter concentrations in water from Ranney Wells are uniform.
Parameter concentrations in water from Raw Water Well are same as those from Ranney Wells.
Temperature for water collected from well APW is valid for Ranney Wells.
Temperature extreme of 15.6 ^{o}C for discharge water prior to blending is valid for demonstrating need for quench water.
No evaporation or scaling/deposition of parameters occurs in process.
Boiler feedwater treatment system removes 99.9% of metals and solids.

Figure 5: Major Components of Stormwater Conveyance System

Figure 6: Pond C-1 Topographic Survey

Figure 7: Schematic of Pond C-1 Dam

Figure 8: Phase I Maximum Flow Conditions Diagram

Figure 9: Phase II Maximum Flow Conditions Diagram

The waste characterization shows that effluent from the project will exceed chronic toxicity water quality criteria for mercury for all discharge conditions and will exceed selenium standards for summer maximum flow conditions. In addition, the discharge concentrations for cadmium, copper, and lead were consistently above 50% of the concentration for corresponding chronic toxicity water quality standards.

The applicant will be required to provide further information on discharges from the oil/water separator that in the previous permit included the following waste streams: industrial wastewater, low volume waste, and metal cleaning wastes. The applicant also will be required to include information for the biocide and neutralization agent concentrations and loading rates.

Concentrations of parameters for wastewater discharges to Outfall 002 for both Phase I and II were obtained from the NPDES permit application letter from Duke Energy to EFSEC dated March 29, 2002. Table 6 lists the wastewater characterization for discharges to Outfall 002.

Table 6: Wastewater Characterization for Discharges to Outfall 002

Parameter	Maximum Daily Value	Minimum Daily Value	Average (long-term) Value
Flow	10,000 gpm		
Total Suspended Solids	18.6	0.0	3.2
Settleable Solids	<0.1	<0.1	<0.1
pH	6.81	5.88	6.5

3. PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be evaluated on a technology or water quality basis. Technology-based limitations use available treatment methods to reduce specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3 and Chapter 173-220 WAC). Water quality-based limitations must comply with the surface water quality standards (Chapter 173-201A WAC), groundwater standards (Chapter 173-200 WAC), sediment quality standards (Chapter 173-204 WAC), or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology and water quality basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. Effluent limits for all pollutants that may be reported on the application, as present in the effluent, may not have been developed. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge, but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the applicant is required to notify the Council. The applicant may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

For this permit, four separate waste streams for the existing Outfall 001 are reduced to two proposed waste streams. The existing low volume waste sources and chemical metal cleaning waste streams are proposed to be included in the oil/water separator discharge to Outfall 001. The existing industrial wastewater and cooling water blowdown discharges are proposed to be included in the cooling water blowdown discharge. The existing once-through cooling water waste stream no longer exists and is not included in the cooling water blowdown discharge.

The Outfall 002 discharge in the existing permit to surface water near the Chehalis River will be covered in a separate permit issued by Ecology and is proposed to be removed from this permit. Outfall 002B, the new discharge that will be routed to Pond C-1, is proposed to be added to this permit.

Changes to the discharges are summarized in tables presented in Appendix D.

3.1 Technology-Based Effluent Limitations

EPA has established technology-based effluent limit guidelines for certain categories of industries. Steam-generated electric power is one such industry, with limitations codified in 40 CFR Part 423. These will be applied to the pertinent discharges from this site and are deemed to satisfy the state requirement that all known available and reasonable methods to prevent and control pollution be used. Unless they might violate water quality standards, they will be the permit effluent limits for the guideline parameters.

Cooling Water Blowdown Discharge – Outfall 001

Table 7 lists the EPA guidelines for recirculated cooling water limits:

Table 7: EPA Limit Guidelines for Recirculated Cooling Water

Parameter	Daily Maximum	Monthly Average
pH	Within 6.0 and 9.0	Within 6.0 and 9.0
Total residual chlorine	0.1 mg/L (Note 1)	0.05 mg/L
Free available chlorine	0.5 mg/L (Note 1)	0.2 mg/L
Appendix A (40 CFR 423) priority pollutants except chromium and zinc	Note 2	Note 2
Chromium, total	0.2 mg/L	0.2 mg/L
Zinc, total	1.0 mg/L	1.0 mg/L
Total suspended solids	50.0 mg/L	30.0 mg/L
PCBs	Note 1	Note 1

Notes: 1 Discharge is limited to two hours in any one day, and not more than one unit in any plant may discharge at any one time unless facility can demonstrate to Council that facility cannot operate at or below this level of chlorination.
2 No detectable amount.

Oil/Water Separator Discharges – Outfall 001

Table 8 lists the EPA limit guidelines for low volume waste sources and chemical metal cleaning wastes included in the oil/water separator discharge:

Table 8: EPA Limit Guidelines for Low Volume Waste Sources and Chemical Metal Cleaning Wastes

Parameter	Daily Maximum	Monthly Average
Total suspended solids	100.0 mg/L	30.0 mg/L
Oil and grease	20.0 mg/L	15.0 mg/L
Copper, total	1.0 mg/L	1.0 mg/L
Iron, total	1.0 mg/L	1.0 mg/L

Oil/Water Separator Discharges – Outfall 002B

The following limit guidelines for stormwater discharge from an oil/water separator (Table 9) are adopted from Volume V, Runoff Treatment BMPs, in Ecology's *Stormwater Management Manual for Western Washington* (August 2001) as the technology-based effluent limitations:

Table 9: Ecology Limit Guidelines for Oil/Water Separators

Parameter	Daily Maximum	Monthly Average
Oil and total petroleum hydrocarbons	15.0 mg/L	10.0 mg/L

Note: In addition to the effluent limitation above, the oil/water separator must not cause an ongoing or recurring visible sheen in the stormwater discharge to Pond C-1 (Outfall 002B).

3.2 Surface Water Quality-Based Effluent Limitations

To protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established surface water quality standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation or on a waste load allocation developed during a basinwide total maximum daily loading (TMDL) study.

Numerical Criteria for the Protection of Aquatic Life

Numerical water quality criteria are values set forth in the state's surface water quality standards (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while protecting aquatic life. Numerical criteria set forth in the water quality standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

Numerical Criteria for the Protection of Human Health

EPA has established 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

Narrative Criteria

In addition to numerical criteria, narrative water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations to below those levels that have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

Antidegradation

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the assigned criteria, the natural conditions shall constitute the water quality criteria. Similarly, when the receiving waters are of higher quality than the assigned criteria, the existing water quality shall be protected. More information on the state's Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

Critical Conditions

Surface water quality-based limits are derived for the water body's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

Description of the Receiving Water

The facility discharges to the Chehalis River, which is designated as a Class A receiving water near the outfall. Other nearby point-source discharge includes the Elma Sewage Treatment Plant. Significant nearby non-point sources of pollutants include agricultural activities. Characteristic uses include the following:

Definition 2: Class A (Excellent) water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning, and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses. Distinctive narrative and numerical water quality criteria for this class are outlined in WAC 173-201A-030(2)(c) and WAC 173-201A-040(3).

The Chehalis River near Outfall 001 is on the 303(d) list because of excursions of fecal coliform and temperature beyond water quality criteria (see Table 10). It is not anticipated that the Satsop CT Project would contribute fecal coliform to the Chehalis River. High temperatures in the Chehalis River typically occur during the summer months of July and August.

Surface Water Quality Criteria

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, EPA has established human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized in Table 10.

Table 10: Washington State and EPA Water Quality Criteria

Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	18°C maximum
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTU
Toxics	No toxics in toxic amounts (see Appendix D for numeric criteria for toxics of concern for this discharge)

Consideration of Surface Water Quality-Based Limits for Numeric Criteria

The critical condition for the Chehalis River is the seven-day average low river flow with a recurrence interval of 10 years (7Q10). Outfall 001 discharges to the Chehalis River downstream of its confluence with the Satsop River. River flow is measured on the Chehalis River at Porter (U.S. Geological Survey Station 12035000). For the Chehalis River at Porter, 7Q10 flow is 216 cfs, and on the Satsop River 7Q10 flow is 221 cfs (1992 data based on CT Project application for site certification). Ambient data at critical conditions near Outfall 001 were not available. TMDL studies have been performed for the Upper Chehalis River above Porter and the Lower Chehalis where it flows into Grays Harbor. The TMDL studies on the Upper Chehalis focused on temperature and dissolved oxygen.

Because of the absence of ambient data on critical conditions, water quality-based limits for discharge to the Chehalis River near Outfall 001 will be set at surface water quality criteria outlined Table 10.

Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) - BOD and COD can affect dissolved oxygen (DO) in receiving waters. Although not identified as a concern for the Chehalis River near Outfall 001, the Upper Chehalis River is documented as having low DO.

U.S. Geological Survey's water resources data for water years 1992 through 1994 for the Chehalis River at Porter list a minimum dissolved oxygen concentration of 8.3 mg/L, which is above the water quality criterion. Calculations performed during permit preparation for the 1996 permit (WA-002496-1) demonstrate that even if the oxygen demand in the effluent were instantaneous, the effect outside the mixing zone (allowed for the 1996 NPDES permit for the Satsop CT project) would be negligible. Therefore, no effluent limit was placed on COD in the 1996 NPDES permit, and no limit will be placed with this permit. Also, no effluent limit was placed on BOD because no constituents that create BOD are anticipated to be discharged.

Temperature - Under critical conditions, a violation of the temperature criterion was predicted for the receiving water. Although a temperature effluent limit of 18°C normally protects the temperature criterion, a temperature effluent limit of 15.6°C was imposed because it was found to be the threshold at which risk to chinook salmon from disease, reduced oxygen, and abnormalities in alevins increases substantially.

Toxic Pollutants - Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempt from the water quality standards for surface waters or from surface water quality-based effluent limits. Since no mixing zone is authorized for this permit, the effluent concentrations for toxic pollutants should not exceed surface water quality criteria.

The following toxic pollutants were determined to be present in the discharge: chlorine and metals.

The applicant may provide data that clearly demonstrate the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Metals criteria may be adjusted on a site-specific basis when data are available.

Metals criteria also may be adjusted using the water effects ratio approach established by EPA, as generally guided by the procedures in EPA's Water Quality Standards Handbook (December 1983, as supplemented or replaced).

Mixing Zone

The water quality standards allow the Council to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both acute and chronic mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control, and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA 1992) allows the chronic mixing zone to be used to meet human health criteria.

A mixing zone cannot be granted at this time for Outfall 001, however, because the existing diffuser is damaged and there is no current information on receiving water quality and mixing at Outfall 001. It is possible, based on data provided by the applicant, that a limited list of toxic metals may exceed effluent limits. If it becomes apparent that effluent limits cannot be met without dilution by a mixing zone, the applicant will need to demonstrate that the repair or replacement of the Outfall 001 diffuser includes an appropriate diffuser unit. Also, a current receiving water quality study will need to be conducted. A mixing zone analysis that evaluates

the effect of tidal influence on mixing of the Chehalis River at Outfall 001 will need to be performed as well.

Whole Effluent Toxicity

The water quality standards for surface waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be directly measured by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent on organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

In accordance with WAC 173-205-040, the applicant's effluent has been determined to potentially contain toxic chemicals. Proposed permit conditions S13 through S15 contain requirements for WET testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in Chapter 173-205 WAC. The proposed permit requires the applicant to conduct toxicity testing for one year to characterize both the acute and chronic toxicity of the effluent.

If acute or chronic toxicity is measured during effluent characterization at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity, the proposed permit will set a limit on the acute or chronic toxicity. The proposed permit will require the applicant to continue WET testing, this time to monitor for compliance with either an acute toxicity limit, a chronic toxicity limit, or both an acute and a chronic toxicity limit. The proposed permit also specifies the procedures that the applicant must use for compliance if the limits are exceeded.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC_{50}, EC_{50}, IC_{25}, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria,* which is referenced in the permit. Any applicant interested in receiving a copy of this publication may call the Ecology Publications Distribution Center 360-407-7472 for a copy. The Council recommends that applicants send a copy of the acute or chronic toxicity sections of their permits to their laboratory of choice.

When the WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water toxicity, the applicant will not be given WET limits and will only be required to retest the effluent before permit renewal to demonstrate that toxicity has not increased in the effluent.

If the applicant makes process or material changes that, in the Council's opinion, results in an increased potential for effluent toxicity, then the Council may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, whole effluent toxicity performance standard. The applicant may demonstrate to the Council that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

The acute toxicity limit is set relative to the zone of acute criteria exceedance (acute mixing zone) established in accordance with WAC 173-201A-100. The acute critical effluent concentration (ACEC) is the concentration of effluent existing at the boundary of the acute mixing zone during critical conditions. Because no acute mixing zone has been authorized, the ACEC equals 100% effluent.

The chronic toxicity limit is set relative to the mixing zone established in accordance with WAC 173-201A-100. The chronic critical effluent concentration (CCEC) is the concentration of effluent existing at the boundary of the mixing zone during critical conditions. If no mixing zone has been authorized, the CCEC equals 100% effluent.

Human Health

Washington's water quality standards include 91 numeric health-based criteria that must be considered in NPDES permits. The EPA established these criteria for the state in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Council has determined that the effluent is likely to have chemicals of concern for human health (mercury). The project's potential for discharging mercury that exceeds water quality standards places it in a high priority status. The high priority status is based on knowledge of data or process information indicating regulated chemicals occur in the discharge.

Permit condition S12 requires the applicant to develop a plan to be approved by the Council to analyze the effluent and receiving water for the presence of a number of pollutants anticipated to be in the waste stream discharged to Outfall 001, including mercury. The applicant is required to implement the approved plan and report the results of the analysis to the Council. Based on the findings of the analysis, the Council, working with the applicant, will take the necessary measures to ensure discharges are consistent with water quality standards and conditions of the permit.

Sediment Quality

The Department of Ecology has established aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Council may require applicants to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Council does not anticipate that the Outfall 001 discharge will cause a violation of sediment quality standards. The point of discharge is not expected to be an area of deposition and an accumulation of toxics in the sediments is not anticipated to occur since the permit will require that water quality standards be met before discharge.

3.3 Groundwater Quality Limitations

The Department of Ecology has established groundwater quality standards (Chapter 173-200 WAC) to protect beneficial uses of groundwater. Permits issued by the Council shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100). Stormwater testing for discharge to the ground is not always required if the applicant follows the current guidelines in Volume V, Runoff Treatment BMPs, in Ecology's *Stormwater Management Manual for Western Washington* (August 2001). Runoff treatment best management practices (BMPs) include either infiltration with pretreatment (presettling basin or basic treatment) or enhanced treatment BMP processes for assessing whether Pond C-1 is adequate as a stormwater treatment facility. The Council will require the applicant to perform analytical testing of stormwater flowing to Pond C-1 because this is a new discharge and site-specific BMPs have not been established.

As required by proposed permit condition S10, the applicant will conduct an engineering evaluation of Pond C-1 to ensure that it is capable of meeting current state stormwater guidelines. The findings of the evaluation must be presented in an engineering evaluation report that will be reviewed and approved by the Council. If Pond C-1 is not adequate and does not meet current state guidelines, the applicant must present a plan to design and implement modifications to the pond to the Council for review and approval. Modifications, if required, must be performed before commercial operation of the CT Project can commence. Ongoing studies by the Washington Department of Fish and Wildlife (WDFW) regarding wildlife mitigation also must be considered with this study. If required modifications to improve Pond C-1 are too severe for WDFW approval, a new pond structure may be required. All assessment and design activities must follow Volume V, Runoff Treatment BMPs, in Ecology's *Stormwater Management Manual for Western Washington* (August 2001).

For protecting groundwater quality, effluent limits from WAC 173-200 are adopted. The point of compliance for the stormwater leaving the site is downstream of the required BMPs prior to discharge. In addition to the existing criteria for Outfall 002, the following limit for benzene at Outfall 002B is 1.0 ug/L. Also added is the surface water quality criteria for turbidity of 5.0 NTU to be applied only in the event of a spillover or breach of the stormwater system that could potentially result in stormwater discharge reaching the Chehalis River.

3.4 Comparison of Effluent Limits with the Existing Permit Issued May 21, 1996

The existing permit effluent limits were based on the use of a mixing zone. Mixing zone calculations were derived using flow parameters developed for anticipated discharge from the two nuclear power plants. A mixing zone is not allowed for the proposed permit. The effluent limits established in the proposed permit are based on federal and state water quality criteria. See Appendix D for comparison of existing and proposed limits for Outfalls 001 and 002.

4. MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring for priority pollutant metals is being required to further characterize the effluent. These pollutants could have a significant impact on the quality of the surface water.

The monitoring schedule is detailed in the proposed permit under condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

4.1 Lab Accreditation

All monitoring data required by the Council shall be prepared by a laboratory registered or accredited under the provisions of Accreditation of Environmental Laboratories, Chapter 173-50 WAC. Flow, temperature, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement. Conductivity and pH shall be accredited if the laboratory must otherwise be registered or accredited.

5. REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

5.1 Non-Routine and Unanticipated Discharges

Occasionally, this facility may generate wastewater that is not characterized in the permit application because it is not a routine discharge and was not anticipated at the time of application. These typically are waters used to pressure test storage tanks or fire water systems or leaks from drinking water systems. These are typically clean wastewaters, but may be contaminated with pollutants. The permit contains an authorization for non-routine and unanticipated discharges. The permit requires a characterization of these wastewaters for pollutants and examination of the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and opportunities for reuse, the Council may authorize a direct discharge via the process wastewater outfall or through a stormwater outfall for clean water, require the wastewater to be placed through the facilities wastewater treatment process, or require that the water be reused.

6. OPERATIONS AND MAINTENANCE PLAN

Proposed permit condition S4 requires that the applicant properly operate and maintain all facilities or systems of treatment and control (and related appurtenances) that are installed to achieve compliance with the terms and conditions of the permit. The applicant is also required to develop and update at least annually an operations and maintenance manual in accordance with WAC 173-240-150.

7. SOLID WASTE DISPOSAL

The project has the potential to pollute state waters from leachate of solid waste and from the onsite sewage (septic) system.

Under authority of RCW 90.48.080, proposed permit condition S5 requires that the applicant develop a solid waste plan to prevent solid waste from polluting waters of the state. The plan must be submitted to the local permitting agency for approval, if necessary, and to the Council.

This proposed permit also requires that the applicant comply with current state regulatory standards in 248-90 WAC or 173-216 WAC and the conditions issued by Grays Harbor County in its June 13, 2002 approval of the sanitary waste facility design, WAC 246-272 (onsite sewage systems) for the design, permitting, and approval of the septic system. The plan must be coordinated with the local permitting agency and Grays Harbor County, and submitted to the Council for review and approval. In addition, the Council must receive a pending wastewater discharge permit from the PDA for potential inclusion of sanitary waste discharge from the CT site into the PDA's sanitary waste system. If sanitary waste from the CT facilities eventually falls under the PDA's discharge permit and after thorough review by the Council, the sanitary waste disposal provision for this permit may be deleted.

8. SPILL PLAN

The Council has determined that the applicant stores chemicals that have the potential to cause water pollution if accidentally released. The Council has the authority to require the applicant to develop best management plans to prevent this accidental release under section 402(a)(1) of the federal Water Pollution Control Act and RCW 90.48.080.

Proposed permit condition S6 requires the applicant to develop and implement a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs.

The applicant has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the applicant to update this plan consistent with long-term operations and submit it to the Council.

9. SAMPLING FOR POLLUTANTS OF CONCERN

Proposed permit condition S7 requires the applicant to collect a composite sample of the discharge to Outfall 001 and conduct a priority pollutant scan to determine the characteristics of the discharge water. The results of the priority pollutant scan must be reported to the Council within 180 days of initiation of commercial operations.

10. OUTFALL EVALUATION

Proposed permit condition S9 requires the applicant to conduct a thorough engineering evaluation of both the pipeline and damaged diffuser. The applicant must clean sediment from the diffuser pipes and perform an incremental field test to demonstrate that both systems are sound for continuous operation and that no detrimental effect resulting from the diffuser discharge will occur. Such an effect may create a hydraulic feature that was not anticipated and may degrade water quality in the Lower Chehalis River.

Outfall 001 is a submerged multiple-port diffuser-type outfall. In following Ecology Publication 98-37, *Criteria for Sewerage Works Design*, several design and O&M issues should be considered, especially considering Outfall 001 and the associated conveyance piping were designed and constructed over 20 years ago and were not fully tested.

A simple hydrostatic test of conveyance piping from the project site to the diffuser outfall presents risk to both the project and water quality of the Chehalis River and is therefore not prudent. If the diffuser assembly is plugged either by sediment or damage, the hydrostatic pressure (potentially greater than 130 psi or 300 feet of head) may approach or exceed the design capacity of the pipe and/or fittings around the diffuser. Damage to the diffuser assembly and pipeline could potentially result from such a test.

11. PROCESS WATER EVALUATION

Proposed permit condition S11 requires the applicant to conduct an engineering evaluation of the process water to determine if treatment is required for certain parameters identified in the wastewater characterization section of the fact sheet (including mercury, cadmium, copper, selenium, zinc, and lead) that are near or exceed water quality standards. It must be emphasized that the basis for this requirement is the calculated risk for potential exceedances in wastewater using limited available information.

The Council must review and approve the process water evaluation report. Because exceedances will not be allowed, a treatment plan must be submitted to the Council for review and approval if the approved evaluation report concludes that potential for exceedances exists. Adequate treatment must be in place before operation to ensure no exceedances occur in the discharge water that may degrade water quality in the Chehalis River.

12. RECEIVING WATER STUDY

Proposed permit condition S12 requires that the applicant conduct a thorough evaluation of the effluent and receiving water to determine if the effluent has a reasonable potential to cause a

violation of water quality standards. The applicant will develop an effluent and receiving water sampling and analysis plan to be reviewed and approved by the Council. The approved plan will be implemented and the results reported to the Council. Based on study results, the Council, working with the applicant, will take necessary measures to ensure the discharges are consistent with water quality standards

13. PERMIT REOPENER

Proposed permit condition S16 indicates that the Council may reevaluate the permit and modify permit conditions on the basis of monitoring results or other causes consistent with state and federal regulations.

The Amended Site Certification Agreement (Article IV.A.7) for the Satsop Power Plant Site allows for the use of stored water to provide necessary water for plant operations during low flow periods. Use of stored water was not proposed in the application for renewal and modification of the wastewater permit that is the subject of this fact sheet. If at any time the applicant proposes to use stored water for plant operations, the Council would reopen the permit.

14. GENERAL CONDITIONS

General conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Council.

15. PERMIT ISSUANCE PROCEDURES

15.1 Permit Modifications

The Council may modify this permit to impose numerical limitations, if necessary to meet water quality standards for surface waters, sediment quality standards, or water quality standards for groundwater, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Council may also modify this permit as a result of new or amended state or federal regulations.

15.2 Recommendation for Permit Issuance

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics and protect human health, aquatic life, and beneficial uses of waters of the state of Washington. The Council proposes that this permit be issued for five years.

16. REFERENCES

Environmental Protection Agency (EPA). 1992. *National Toxics Rule*. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

Environmental Protection Agency (EPA). 1991. *Technical Support Document for Water Quality-based Toxics Control.* EPA/505/2-90-001.

Environmental Protection Agency (EPA). 1988. *Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling*. EPA Office of Water, Washington, D.C.

Environmental Protection Agency (EPA). 1985. *Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water*. EPA/600/6-85/002a.

Environmental Protection Agency (EPA). 1983. *Water Quality Standards Handbook*. EPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace. 1972. *Characterization of Stream Reaeration Capacity*. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington Department of Ecology. August 2001. Stormwater Management Manual for Western Washington, Publication Numbers 99-11 through 99-15 (replaces Publication Number 91-75).

Washington Department of Ecology. December 1998. Criteria for Sewage Works Design, Publication Number 98-37.

Washington Department of Ecology. April 1998. Guidance Manual for Developing a Stormwater Pollution Prevention Plan for Industrial Facilities, Publication Number WQ-R-93-015.

Washington Department of Ecology. 1994. Revised January 2001. *Permit Writer's Manual.* Publication Number 92-109

Washington Department of Ecology. Permit and Wastewater Related Information. URL: http://www.ecy.gov/programs/wq/wastewater/index.html.

Washington Department of Ecology. Laws and Regulations. URL: http://www.ecy.gov/laws-rules/laws-etc.html.

Wright, R.M., and A.J. McDonnell. 1979. *In-stream Deoxygenation Rate Prediction*. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A: PUBLIC INVOLVEMENT INFORMATION

The Council tentatively plans to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations, which are described in the rest of this fact sheet.

The Council has published a Public Notice of Draft (PNOD) on:

- August 1, 2002 in The Montesano Vidette;
- August 2, 2002 in The Olympian; and
- August 5, 2002 in The Aberdeen Daily World,

to inform the public that a draft permit and fact sheet are available for review. Interested parties were mailed the notice on July 29, 2002 and are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at EFSEC's office listed below, and at the W.H. Abel Memorial Library, 125 Main Street South, Montesano, WA 98563-3794. Written comments should be mailed to:

Allen Fiksdal
Energy Facility Site Evaluation Council
PO Box 43172
Olympia, Washington 98504-3172

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Council will hold a hearing from 6:30 p.m. to 8:30 p.m. on September 4, 2002 at:

Montesano City Hall
112 North Main Street
Montesano, Washington

Comments should reference specific text followed by proposed modifications or concern when possible. Comments may address technical issues, accuracy, and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Council will consider all comments received within 30 days of the date of public notice indicated above in formulating a final determination to issue, revise, or deny the permit. The Council's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Council by telephone at (360) 956-2124, at the EFSEC web site at www.efsec.wa.gov, or by writing to the address listed above.

APPENDIX B: GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART--An acronym for "all known, available, and reasonable methods of treatment."

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring--Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/state permits issued under both state and federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)--A calculated value five times the MDL (method detection level).

Responsible Corporate Officer--A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the applicant. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C: RESPONSE TO COMMENTS

APPENDIX D: REFERENCE TABLES

COMPARISON OF EXISTING AND PROPOSED EFFLUENT LIMITS

Outfall 001

Parameter	Existing Daily Maximum	Existing Monthly Average	Proposed Daily Maximum	Proposed Monthly Average
Industrial Wastewater	**Included with Cooling Tower Blowdown Discharges**			
Ammonia, total as N	930 mg/L	46 mg/L	Not used	Not used
Chlorine, total residual	95 ug/L	47 ug/L	95 ug/L	47 ug/L
Cadmium, total	5.8 ug/L	2.9 ug/L	0.370.84 ug/L	0.270.37 ug/L
Copper, total	30 ug/L	15 ug/L	3.544.76 ug/L	2.683.54 ug/L
Iron, total	82 ug/L	40 mg/L	Not Used[10]	Not Used[10]
Lead, total	52 ug/L	26 ug/L	0.4511.6 ug/L	0.270.45 ug/L
Zinc, total	229 ug/L	114 ug/L	33 36.5 ug/L	14 33.1 ug/L
Temperature [1]			[1110]	
pH [2]	Between 4.0 and 8.5 [3]		Between 6.0 and 8.5	
Flow	0.74 MGD	0.66 MGD	2.561.90 MGD	2.541.86 MGD
Low Volume Waste Sources[4,5]	**Oil/Water Separator Discharges**			
Total Suspended Solids	100.0 mg/L	30.0 mg/L	100.0 mg/L	30.0 mg/L
Oil and Grease	20.0 mg/L	15.0 mg/L	20.0 mg/L	15.0 mg/L
Metal Cleaning Wastes	**Included with Oil/Water Separator Discharges**			
Total Suspended Solids	100.0 mg/L	30.0 mg/L	(see oil/water separator discharges above)	
Oil and Grease	20.0 mg/L	15.0 mg/L	(see oil/water separator discharges above)	
Copper, total	1.0 mg/L	1.0 mg/L	1.0 mg/L	1.0 mg/L
Iron, total	1.0 mg/L	1.0 mg/L	1.0 mg/L	1.0 mg/L
Once Through Cooling Water	**No longer applicable**			
Total Residual Chlorine/Halogen [76,7,8]	0.20 mg/L			

Outfall 001 Cont.

Cooling Tower Blowdown	Cooling Tower Blowdown			
Free available chlorine/halogen [87,8]	0.5 mg/L	0.2 mg/L	0.5 mg/L	0.2 mg/L
126 Priority Pollutants, except chromium and zinc	[109]	[109]	[109]	[109]
Chromium, total	0.2 ug/L	0.2 ug/L	[1011]	[1011]
Zinc, total	1.0 ug/L	1.0 mg/L	33 36.5 ug/L	14 33.1 ug/L
Total Suspended Solids	Not used	Not used	50.0 mg/L	30.0 mg/L
Mercury	Not used	Not used	0.0122.1 ug/L	0.0100.012 ug/L
Selenium	Not used	Not used	5 20 ug/L	1 5 ug/L

General Note: Existing effluent limits are based on mixing zone. Proposed limits have no mixing zone.

1 The discharge temperature shall be such that the applicable water quality standards for temperature will be complied at the edge of the dilution zone. Temperature shall not exceed 18.0°C. Temperature increases shall not, at any time, exceed t = 28/(T+7), as described in WAC 173-201A-030 for Class A waters. For purposes hereof, "t" represents the maximum permissible temperature increases measured at a mixing zone boundary and "T" represents the background temperature as measured at a point unaffected by the discharge and representative of the highest water temperature in the vicinity of the discharge. When natural conditions exceed 18.0°C, no temperature increases will be allowed which will raise the receiving water temperature by greater than 0.3°C.

2 Applicant shall include alarm systems for pH control to provide indication of any variance from established limits. If the continuous pH instrumentation malfunctions, grab samples taken every 6 to 10 hours shall be substituted.

3 The total time during which pH values are outside this range shall not exceed 7 hours and 26 minutes in any calendar month, and no individual excursion shall exceed 60 minutes. An excursion is an unintentional and temporary incident of pH exceedance. No excursions greater than 9.5 or lower than 5.5 are allowed.

4 The term "low volume waste sources" means, taken collectively as if from one sources, wastewater from all sources except those for which specific limitations are otherwise established in 40 CFR 423. Low volume wastes sources include, but are not limited to, wastewaters from wet scrubber air pollution control systems, ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling water basin cleaning wastes, and recirculating house service water systems. Sanitary and air conditioning wastes are not included.

5 Applicant shall mix effluent from this source with cooling water blowdown when the cooling tower is operational. When the cooling tower is not operational, low volume wastes must be retained or a minimum dilution flow of 200 gpm must be provided from the recirculated cooling waste inventory or plant makeup water supply.

6 Total residual chlorine may not be discharged from any single generating unit for more than 2 hours per day unless the discharge demonstrates to the permitting authority that discharge for more than 2 hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.

7 Neither free available nor total residual chlorine may be discharged from any unit for more than 2 hours in any 1 day and not more than one unit in any plant may be discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Council that the units cannot operate below this level of chlorination.

8 If discharge is continued during the chlorination cycle, continuous amperometric analysis shall be used. A grab sample shall be taken at least weekly to demonstrate continuous monitor performance. If discharge is terminated during chlorination, amperometric titration of grab samples may be used to verify total residual chlorine concentration.

9 No detectable amount.

10 Temperature shall not exceed 15.6°C. A maximum amount of 0.9 cubic feet per second (404 gpm or 0.58 MGD) quench water may be used solely to cool the discharge to 15.6°C, subject to periods in which an additional withdrawal will actually reduce the temperature of the discharge.

11 Hardness data required to determine effluent limit.

Outfall 002

Parameter	Existing (Outfall 002) Daily Maximum	Proposed (Outfall 002B) Daily Maximum
Total suspended solids	50 mg/L	50 mg/L
Settleable solids	0.1 ml/L	0.1 ml/L
Total dissolved solids	Not used	500 mg/L
Benzene	Not used	1.0 ug/L
Oil and Total Petroleum Hydrocarbons	Not used	15 mg/L
Turbidity	Not used	5.0 NTU[1]
pH	Between 6.0 and 8.5	Between 6.5 and 8.5

1 In the event of a spillover or breach of the stormwater system, a turbidity standard of 5.0 NTU must be met.