FACT SHEET
And
NPDES WASTEWATER DISCHARGE PERMIT EVALUATION

DRAFT

Department of Environmental Quality
Northwest Region – Portland Office
2020 SW 4th Ave., Suite 400, Portland, OR 97201
Telephone: (503) 229-5263

PERMITTEE:
Portland General Electric (PGE)
121 S.W. Salmon Street, 3WTCR05
Portland, OR 97204

FILE NUMBER: 74860

SOURCE LOCATION:

This source is located north of the City of Clatskanie on the south bank of the Columbia River. The station's outfall is located at river mile (RM) 53.

SOURCE CONTACT:
Dennis Norton — Telephone Number: 503-464-8522
Portland General Electric
121 S.W. Salmon Street, 3WTCR05
Portland, OR 97204

PERMIT WRITER:
Garry L. Sage, EIT — Telephone Number: 503-229-5690
Senior Engineering Technician
Sage.garry@deq.state.or.us

PROPOSED ACTION:

Issue a renewal national pollutant discharge elimination system (NPDES) wastewater discharge permit to discharge to waters of the State (Columbia River).

SOURCE CATEGORY: Minor – Industrial

PERMIT APPLICATION DATE: May 31, 2007

PERMIT APPLICATION NUMBER: 974648

EPA REFERENCE NUMBER: *OR002743-0*

TABLE OF CONTENTS PAGE

1.0 OVERVIEW 3

2.0 BACKGROUND 3

3.0 ENVIRONMENTAL ISSUES 5

4.0 TECHNOLOGY AND WATER QUALITY BASED LIMITS ... 9

5.0 DISCUSSION OF PROPOSED PERMIT 12

6.0 NEXT STEPS 16

7.0 ATTACHMENTS

- **7.1 PGE BEAVER STATION FLOW DIAGRAM**
- **7.2 DMR DATA SPREAD SHEET**
- **7.3 RPA SPREAD SHEET FOR METALS**
- **7.4 RPA SPREAD SHEET FOR CHLORINE**
- **7.5 THERMAL LOAD SPREAD SHEET FOR MZ**
- **7.6 THERMAL PLUME SPREAD SHEET FOR ZID**

1.0 OVERVIEW

1.1 Proposed Permit Action. The Beaver Generating Station is owned by Portland General Electric (PGE), Incorporated. A National Pollutant Discharge Elimination System (NPDES) permit was issued to the facility on December 13, 2002 for an approximate 5-year term that expires on November 30, 2007. A renewal application was received by the Oregon Department of Environmental Quality (ODEQ) on May 31, 2007. The Department is proposing to renew the NPDES permit for the PGE Beaver Generating Station.

1.2 Description of Activity Needing Permit. The PGE Beaver facility discharges effluent to the Columbia River at Outfall 001that is located at river mile (RM) 53. The effluent is a mixture of cooling water, demineralizer back-wash, neutralization tank effluent, and oil-water separator effluent. The Federal Water Pollution Control Act of 1972 and subsequent amendments require a NPDES permit for discharge of wastewater to surface waters. Furthermore, Oregon Revised Statutes (ORS 468B.050) also requires a permit for the discharge of wastewater to surface water. This proposed permit action by the Department fulfills both federal and state requirements.

2.0 BACKGROUND

2.1 Background Information. The PGE Beaver Generation Station is a combined cycle electric generating facility consisting of six turbine generators that exhaust to six heat recovery steam generators (HRSGs). The HRSGs produce steam that is routed to a steam turbine generator. Electricity is generated by each of the six gas turbine generators and by the steam turbine generator. The gas turbines are fueled by natural gas (delivered by pipeline) or by #2 diesel oil (delivered by truck, rail, or barge). The 520 megawatt (MW) generating facility is primarily a peak load power plant, operating intermittently whenever power generation is economically viable. When not in operation, the gas turbines are usually maintained in standby, capable of being brought on line in 20 minutes. The steam turbine generator has a closed-loop condenser with cooling by evaporation in cooling towers. Make-up water is added to the loop for blow-down make-up and replacement of evaporative losses in the cooling towers. The plant utilizes a holding pond system with approximately 1,000,000 gallons capacity. When necessary, the ponds are used for cooling, neutralization, and retention time. Outfall 001 discharges through a 6-inch diameter pipe with 1-inch diameter perforations spaced 1-foot apart. The outfall discharges approximately 32 feet below the surface of the Columbia River at a point 450 feet from shore. A mixing zone study was completed for this facility in 1999, and was subsequently reviewed and approved by the ODEQ.

2.2 Internal Monitoring points. The facility has four internal effluent monitoring points (internal outfalls).

- Internal Outfall 101 – Cooling tower blow-down prior to mixing with other effluent streams.
- Internal Outfall 201 – HRSG blow-down prior to mixing with other effluent steams.
- Internal Outfall 301 – Low volume waste sources prior to mixing with other streams.
- Internal Outfall 401 – Oil-water separator effluent prior to mixing with other streams.

2.3 Waste Water Sources and Characteristics. The Beaver Generating Station discharges at Outfall 001 a mixture of the waste streams listed in Paragraph 2.2. A water/waste water flow diagram for the PGE Beaver Station is attached. Typically, water is pumped from the Columbia River at a rate of 1750 gallons per minute (gpm) which is 2.5 million gallons per day

(mgd). The maximum amount that can be pumped is 3600 gpm when the plant is on full load. For every 1750 gpm of river water supplied to the Beaver facility, about 77% (1350 gpm) is used as make-up water for the cooling tower. After losses in the cooling tower (about 800 gpm is evaporated), 550 gpm is directed to a pond prior to discharge to the Columbia River. Approximately 23% (400 gpm) of the water pumped from the Columbia River is treated before further use within the facility. In addition to cooling tower blow-down, the following intermittent sources contribute waste water to Outfall 001:

- Demineralizer back-wash (6 gpm),
- HRSG blow-down (70 gpm),
- Turbine building sump (50 gpm), and
- Miscellaneous sources (60 gpm) .

A summary of discharge monitoring report (DMR) data for Outfall 001 and internal monitoring points 101, 201, 301, and 401 is attached.

2.4 Columbia River Flow at Outfall 001. The estimated low flow in the Columbia River in the vicinity of the Beaver Generating Station's Outfall 001 is calculated using the minimum release rates at Bonneville Dam and 10-year, 7-day average (7Q10) low flows from major tributaries down stream of Bonneville Dam.

LOCATION	ESTIMATED LOW FLOW (CFS)
Columbia River at Bonneville Dam	82,000
Sandy River	273
Willamette River	5910
Lewis River	688
Cowlitz River	1676
Columbia River at Beaver Station	**90,547**

2.5 *Outfall 001 Mixing Zone*. The Columbia River is a perennial stream with an estimated **7Q10** low flow of approximately **90,547 cubic feet per second (cfs)**, per Paragraph 2.4. At 7Q10 low flow, the river provides a whole-river minimum dilution ratio for the PGE Beaver discharge of approximately 90,547 cfs/2.23 cfs = **40,604:1**. At PGE Beaver's outfall, there is a minimum dilution of **77** in the zone of immediate dilution (ZID); and a minimum mixing zone (MZ) boundary dilution of **116** during 7Q10 low flow conditions at slack tide (see November 1, 1999; Dilution Ratio Study, Effluent Mixing Zone Beaver Generating Plant, Clatskanie, Oregon).

The proposed permitted MZ at Outfall 001 is defined as follows (see Schedule A, 4):

> The allowable mixing zone (MZ) is that portion of the Columbia River within 200 feet of the point of discharge. The zone of immediate dilution (ZID) is defined as that portion of the Columbia River within 20 feet of the discharge point.

This MZ description is the same as that used in the current permit, except for minor rewording to improve syntax. The Department proposes to use this MZ description for the renewal permit.

2.6 Compliance History. The Department issued a Notice of Noncompliance (NON) letter to Beaver Station on February 6, 2004 for a Class II discharge violation that occurred during the months of October, November, and December 2003. The NON was issued for an unauthorized discharge of waste water to holding ponds at the facility. Rinse water derived from cleaning the HRSG unit was discharged in violation of the facility's NPDES permit. The waste water had a high metal content inconsistent with the definition of a "Low Volume Waste Source," per 40 CFR 423.11 (b) (Code of Federal Regulations). The Department determined that the rinse water was more appropriately classified as a metal cleaning waste or a chemical cleaning waste, per 40 CFR 423.11 (c) & (d). No further permit violations have occurred.

2.7 Inspections. The Beaver Station was last inspected on September 1, 2006. The inspection concluded that the facility was in compliance with the requirements of its NPDES permit.

3.0 ENVIRONMENTAL ISSUES

3.3 Applicable Water Quality Standards. The water quality standards for the Main Stem Columbia River are found in Oregon Administrative Rule (OAR) 340-041-0101, Table 101A. They are intended to be protective of the beneficial uses for the basin. They include:

BENEFICIAL USES	COLUMBIA RIVER (MOUTH TO RM 86)
Public Domestic Water Supply[1]	X
Private Domestic Water Supply[1]	X
Industrial Water Supply	X
Irrigation	X
Livestock Watering	X
Fish & Aquatic Life[2]	X
Wildlife & Hunting	X
Fishing	X
Boating	X
Water contact Recreation	X
Aesthetic Quality	X
Commercial Navigation & Transportation	X
[1]With adequate pretreatment and natural quality that meets drinking water standards.	
[2]See also Table 101B for fish use designations for this river.	

3.2 Fish Uses. OAR 340-041-0101, Table 101B, Beneficial Use Designations – Fish Uses Mainstem Columbia River shows

GEOGRAPHIC EXTENT OF USE	SALMON & STEELHEAD MIGRATION CORRIDORS (20 °C)
Main Stem Columbia River	
Mouth to WA Border (RM 309)	X

3.3 303(d) Listing Status. Section 303(d) of the Clean Water Act requires each state to develop a list of water bodies that do not meet state surface water quality standards after implementation of technology based controls. The state is then required to complete a Total Maximum Daily Load (TMDL) program for water bodies on the 303(d) List. The TMDL program must address water quality on a basin-wide scale to ensure that overall water quality standards will be met. The Clean Water Act prohibits new or increased discharges until a TMDL has been established for 303(d) List water bodies, unless the discharge does not contribute pollutants that cause the stream to violate water quality standards.

The Beaver Station discharges waste water through Outfall 001 at RM 53. This portion of the Columbia River is listed as being water quality limited for certain parameters in the Department's 2004/2006 Integrated Report Database (Report). The Report lists the following 303(d) parameters for which water quality standards in the Columbia River are not met and the season when standards are exceeded:

STREAM SEGMENT (RM)	PARAMETER	SEASON
35.2 to 98	Arsenic	Year Around
35.2 to 98	DDT Metabolite (DDE)	Year Around
35.2 to 98	PCB	Year Around
0 to 306.1	Temperature	Year Around

The following parameters are listed in ODEQ's 2004/2006 Integrated Report Database and in OAR 340-041-0103 for the United States Environmental Protection Agency's (USEPA's) approved TMDLs for the stream segment in the vicinity of PGE's Beaver Plant:

STREAM SEGMENT (RM)	PARAMETER	SEASON
35.2 to 98	Dioxin (2,3,7,8-TCDD)	Year Around
35.2 to 98	Total Dissolved Gas	Year Around

Of the 303(d) pollutants and TMDL parameters shown in the two tables above, only temperature is expected to be a pollutant of concern at the Beaver Station. The remaining parameters are not associated with this discharge.

3.4 Temperature. In response to temperature issues at this facility, PGE submitted a Temperature Management Plan dated October 10, 2003. The actions listed in the Plan were approved by the Department on October 14, 2003; and were subsequently implemented by the permittee. The plan describes process related actions to control discharge temperature at Outfall 001, including:

- Programming cooling tower blow-down to occur during late evening/early morning,
- Initiation of early morning discharge,
- Recirculation of water among the holding ponds, and
- Monitoring of temperature at the dock prior to discharge to the river.

The Department's modeling for this facility indicates that effluent temperature does not cause water quality standards or criteria violations in the ZID, MZ, or Columbia River in the vicinity of the outfall. The effluent discharge complies with OAR 340-041-0028 (12) (b) as follows:

- (A) Prior to the completion of a temperature TMDL or other cumulative effects analysis, no single NPDES point source that discharges into a temperature water quality limited water may cause the temperature of the water body to increase more than 0.3 degrees Celsius (0.5 Fahrenheit) above the applicable criteria after mixing with either twenty five (25) percent of the stream flow, or the temperature mixing zone, whichever is more restrictive; or
- (B) Following a temperature TMDL or other cumulative effects analysis, waste load and load allocations will restrict all NPDES point sources and nonpoint sources to a cumulative increase of no greater than 0.3 degrees Celsius (0.5 Fahrenheit) above the applicable criteria after complete mixing in the water body, and at the point of maximum impact.
- (C) Point sources must be in compliance with the additional mixing zone requirements set out in OAR 340-041-0053 (2) (d).
- (D) A point source in compliance with the temperature conditions of its NPDES permit is deemed in compliance with the applicable criteria.

The effluent discharge complies with OAR 340-041-0053 (2) (d), Temperature Thermal Plume Limitations. This section of the rule requires that temperature mixing zones and effluent limits authorized under 340-041-0028 (12) (b) will be established to prevent or minimize the following adverse effects to salmonids inside the mixing zone (only applicable sections shown):

- (B) Acute impairment or instantaneous lethality is prevented or minimized by limiting potential fish exposure to temperatures of 32.0 degrees Celsius (89.6 degrees Fahrenheit) or more to less than 2 seconds;
- (C) Thermal shock caused by a sudden increase in water temperature is prevented or minimized by limiting potential fish exposure to temperatures of 25.0 degrees Celsius (77.0 degrees Fahrenheit) or more to less than 5 percent of the cross section of 100 percent of the 7Q10 low flow of the water body; the Department may develop additional exposure timing restrictions to prevent thermal shock; and
- (D) Unless the ambient temperature is 21.0 degrees or greater, migration blockage is prevented or minimized by limiting potential fish exposure to temperatures of 21.0 degrees Celsius (69.8 degrees Fahrenheit) or more to less than 25 percent of the cross section of 100 percent of the 7Q10 low flow of the water body.

Department temperature modeling shows that the above elements of rule are met by the Beaver discharge at Outfall 001. Specifically, ODEQ Modeling shows:

- Under worst case 7Q10 low flow conditions, dilution in the mixing zone (**116**) is adequate to cool effluent at the maximum permitted discharge temperature (35 °C) and flow (1.44 mgd) to 20.13 °C at the MZ boundary when ambient river temperature is 20 °C. This increase is less than the maximum allowed (0.3 °C) for the most restrictive condition.

- Should a temperature TMDL be completed and a waste load allocation be assigned to the Beaver facility, the Columbia River appears to have adequate assimilative capacity at this location (see Paragraph 2.5 above for whole river dilution).
- ZID dilution is adequate to prevent a violation of OAR 340-041-0053 (2) (d). Worst case effluent temperature and flow for worst case ZID dilution (77) indicates that effluent temperature will be ≤ 0.2 °C above ambient at the ZID boundary (ZID boundary extends only 20 feet from the discharge point). Since worst case flow is 1000 gpm, it is probable that the effluent plume will traverse the 20 foot ZID radius in less than 2 seconds for compliance with OAR 340-041-0053 (2) (d) (B).

The excess thermal load limits (see permit Schedule A) for monthly average (1.60 MW) and daily maximum (3.95 MW) are fully protective, since they are based on the temperature and flow assumptions listed above. The Department proposes to use the current excess thermal load limits in Schedule A of the renewal permit. The current excess thermal loads are calculated as follows:

- Daily maximum temperature reading and daily average temperature calculation must be recorded on a daily basis.
- The daily maximum excess thermal load must be calculated using the daily maximum temperature and the corresponding flow rate when the maximum temperature was recorded.
- The monthly average excess thermal load must be calculated using the average of the daily average temperatures and the average of the daily average flows during the month.
- If the calculation results in a heat load value less than zero, the results must be recorded as zero.

Daily maximum and monthly average excess thermal loads must be calculated using the formula below:

$$\mathbf{H = \rho\, C_p\, Q\, (\Delta T)}\ (1000\ \mathrm{L/m^3})\ \{1\mathrm{W}/1\mathrm{J/s}\}\ (1\ \mathrm{MW}/10^6\ \mathrm{W}) = \mathrm{MW}$$

Where:
H = Excess thermal load {Megawatts (MW)}
ρ = Density of water (1.0 kg/L)
C_p = Specific heat of water (4182 Joules/kg-°C)
Q = Discharge flow (meters^3/sec)
ΔT = Daily maximum effluent temperature or average of daily average temperature (°C) minus criterion (20 °C) for calculation of daily maximum or monthly average excess thermal load, respectively.

3.5 Antidegradation Review. The Department's antidegradation policy in OAR 340-041-0004 requires that a review of discharges to surface waters be conducted to ensure that existing water quality is not lowered, unless there are no reasonable alternatives available and the lowering of water quality is necessary for economic and social benefit. The proposed NPDES permit renewal for PGE's discharge from the Beaver Station is a renewal with no increase in discharge load. Permit renewals with the same discharge load as the previous permit are not considered to lower water quality from existing water quality. Thus, the Department finds that the discharge is not subject to an in-depth antidegradation review. An Antidegradation Review Sheet was completed for this source, and a copy is in the permit file.

4.0 TECHNOLOGY AND WATER QUALITY BASED LIMITS

4.1 Technology Based Effluent Limitations for Outfall 001.

Development of effluent limitations for the discharge from the Beaver Station involves first determining applicable technology based limits and then determining water quality based limits. The NPDES permit contains the more stringent of the two limits.

The USEPA has developed effluent limitation guidelines (ELGs) for many types of industries. The ELGs are typically expressed in terms of mass of a particular pollutant allowed per unit of production or unit of flow. ELGs are also expressed as concentration in which case the production is not relevant. If ELGs are not published for a particular industry, ODEQ is required to follow federal guidelines and develop equivalent technology based guidelines.

For existing point source discharges, ELGs have been developed for three categories: (1) **Best practicable** control **technology** currently available (**BPT**), (2) **Best conventional** pollutant control **technology** (**BCT**), and (3) **Best available technology** economically achievable (**BAT**). BPT represents the minimum technology level and applies to all existing point source discharges for which ELGs have been published. BCT replaces BPT for conventional pollutants, and BAT replaces BPT for non-conventional and toxic pollutants. BPT limitations must be met upon publication of the ELGs. The USEPA allows additional time for facilities to comply with BCT and BAT limitations.

The applicable technology based standards for the Beaver Station are contained in 40 CFR Part 423 – Steam Electric Power Generating Point Source Category. For the Beaver Station, BAT requirements apply for toxic and non-conventional pollutants and BPT requirements apply for conventional pollutants (BCT has not been promulgated). As noted in 40 CFR 423, the technology based standards apply "to discharges resulting from the operation of a generating unit by an establishment primarily engaged in the generation of electricity for distribution and sale which results primarily from a process utilizing fossil type fuel (coal, oil, or gas) or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium."

The applicable 40 CFR 423 requirements that apply to the waste streams at the Beaver Station are as follows:

Technology Limits for Cooling Tower Blow-Down

PARAMETER	BASIS	DAILY MAXIMUM	MONTHLY AVERAGE
Free Available Chlorine[1]	BAT	0.5 mg/L	0.2 mg/L

[1]Chlorine must not be discharged for more than two hours on any day.

Technology Limits for Low Volume Waste Sources[3]

PARAMETER	BASIS	DAILY MAXIMUM	MONTHLY AVERAGE
TSS	BPT	100 mg/L	30 mg/L
Oil & Grease	BPT	20 mg/L	15 mg/L

[3]Low volume waste sources means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations are otherwise established in this part. Low volume waste sources include, but are not limited to waste water from: wet scrubber air pollution control system, ion exchange water treatment system, water treatment evaporator blow-down, floor drains, cooling tower basin cleaning wastes, and re-circulating house service water systems. Sanitary and air conditioning wastes are not included.

The Beaver Station does not discharge metal cleaning wastes, which are defined in 40 CFR 423.11 as, "wastewater resulting from cleaning (with or without chemical cleaning compounds) any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air preheater cleaning." 40 CFR 423 specifically states that in instances where the waste streams from various sources are combined, the quantity of each pollutant or pollutant property shall not exceed the specified limitations for that source. In accordance with this requirement, the current permit and proposed permit contain internal monitoring points to control pollutants from each waste stream.

The technology based limitations also state that there shall be no discharge of polychlorinated biphenyl compounds, such as those commonly used for transformer fluid. This statement is included in the current and draft permit.

4.2 Water Quality Based Effluent Limitations.

This section determines pollutants of concern and evaluates each parameter to determine whether the concentration of the pollutant in the discharge represents a *reasonable potential to exceed* water quality standards. The analysis is based on discharge information submitted by PGE, Columbia River water quality data, and the mixing zone analysis referenced in Paragraph 2.5.

Outfall 001

Primary and Secondary Pollutants of Concern. Based on the ODEQ review of effluent data and monitoring conducted for the NPDES permit renewal application, the primary pollutants of concern associated with the discharge from the Beaver Station are:

- Temperature,
- Chlorine,
- Oil & grease,
- TSS,
- Copper,
- Iron, and
- pH.

Secondary parameters of concern at Outfall 001 include antimony, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, selenium, silver, thallium, and zinc.

Monitoring data for Outfall 001 was used with ODEQ's *reasonable potential analysis* (RPA) spread sheet to evaluate potential toxicity for the primary and secondary metals listed above. The RPA spread sheet indicates that Outfall 001 effluent has *no reasonable potential* to violate water quality standards for the above metals (see attachment).

Analytical results for volatile, semi-volatile, and base-neutral organic compounds at Outfall 001 were below detection limits. Thus, organic pollutants are not included as parameters of concern.

Conventional Pollutants. For oil & grease, and TSS there are no water quality standards. The effluent limits in the current permit are as follows:

PARAMETER	DAILY MAXIMUM	MONTHLY AVERAGE
TSS	30 mg/L	15 mg/L
Oil & Grease	15 mg/L	10 mg/L

The Beaver Station has consistently met the limitations for TSS and oil & grease at Outfall 001. Thus, the Department proposes to use the current permit limits listed above in the renewal permit.

The water quality standard for pH in Columbia River is 7.0 – 8.5, per OAR 340-041-0104. The pH limit in the current permit is 6.0 – 9.0. With the dilution available within the MZ, the discharge from the Beaver Station will be able to meet the water quality standard for pH. Thus, a pH of 6.0 – 9.0 is proposed for Outfall 001in the renewal permit.

Toxic Pollutants. For chlorine, copper, and iron a *reasonable potential analysis* was conducted to determine whether water quality based limits were necessary. The maximum concentration measured in data collected during the current permit cycle for each pollutant was used in the RPA,

unless other considerations proved more useful. In the case of chlorine (internal monitoring Station 101), the current permit limits proved to be more restrictive, and the permitted daily maximum for chlorine was used in the RPA. For copper (internal monitoring Station 201) 33% of the daily maximum concentration was used in the RPA, since this individual waste stream is discharged to a pond where 67% of the entering flow comes from other sources. Copper and iron values under the current permit are noticeably higher than under the preceding permit because the monitoring point was moved from the mixed pond water to the 201 discharge pipe. The Department's RPA spread sheets for chorine, copper, and iron are attached. For each parameter, given worst case conditions, there was *no reasonable potential* for acute or chronic toxicity in the MZ.

Temperature. As noted in Paragraph 3.4, temperature standards and criteria applicable to Outfall 001, the MZ, and the Columbia River in the vicinity of the outfall are protected by current permit limits. The Department proposes to use the maximum daily and monthly average excess thermal loads listed in Schedule A of the current permit for the renewal permit. Excess thermal loads will be calculated using the parameters and the equation listed in Paragraph 3.4 above.

The excess thermal load limits for the PGE Beaver Station are presented below:

WQ CRITERIA	EFFLUENT TEMPERATURE	EFFLUENT FLOW	EXCESS HEAT LOAD	
			DAILY MAX	MONTHLY AVERAGE
20 °C	35 °C (Daily Max)	1.44 mgd (0.063 m^3/sec) Design Max	3.95 MW	***
20 °C	32 °C (Max Month)	0.72 mgd (0.032 m^3/sec) Max Month	***	1.60 MW

The daily maximum excess thermal load was calculated using the maximum effluent temperature allowed under the current permit and the design flow for the facility. The monthly average maximum excess thermal load was calculated using 50% of the daily maximum flow (i.e. 0.72 mgd) and the estimated maximum month temperature under the current permit. The Department proposed to continue using the current excess thermal load limits in the renewal permit.

5.0 DISCUSSION OF THE PROPOSED PERMIT

5.1 Permit Outline.

The proposed NPDES permit is organized into a face page and several schedules that are discussed further in this section. The schedules include:

- Schedule A – Waste Discharge Limitations
- Schedule B – Minimum Monitoring and Reporting Requirements
- Schedule C – *Not Used* (there are no Compliance Conditions and Schedules)
- Schedule D – Special Conditions

- Schedule E – *Not Applicable* (this schedule is reserved for federal pretreatment requirements for publicly owned treatment works and is not applicable to this permit)
- Schedule F – General Conditions

5.2 Face Page.

The face page of the NPDES permit identifies that PGE is permitted to discharge cooling water, demineralizer back-wash, neutralizing tank water, oil-water separator effluent, and other miscellaneous waste streams to the Columbia River at RM 53 in accordance with the conditions and limitations of the permit. The permit will be issued for a period not to exceed five years from the date of issuance.

5.3 Schedule A – Waste Discharge Limitations.

For Outfall 001, effluent limits are proposed for TSS, oil & grease, pH, flow, and excess thermal load. Effluent limits are not required for any toxics at this facility, as discussed above in Paragraph 4.2; since there is *no reasonable potential* for toxicity from pollutants of concern. The proposed effluent limits are the same as those listed in Schedule A of the current permit. The renewal permit states that upon approval of a TMDL for temperature for the Lower Columbia River, the permit may be re-opened and new temperature and/or thermal load limits may be assigned.

The same pollutant limits listed in the current permit for internal monitoring points are proposed for the renewal permit as follows:

5.3.1. Outfall 101 (Internal Monitoring Point): Cooling tower blow-down prior to mixing with other waste streams.

PARAMETER	MONTHLY AVERAGE	DAILY MAXIMUM
Free Available Chlorine	0.2 mg/L	0.5 mg/L

Chlorine must not be discharged for more than two hours on any day. Further, there must be no discharge of cooling tower blow-down during chlorination.

5.3.2. Outfall 201 (Internal Monitoring Point): Heat Recovery Steam Generator (HRSG) blow-down prior to mixing with other waste streams.

PARAMETER	MONTHLY AVERAGE	DAILY MAXIMUM
Total Suspended Solids	30 mg/L	100 mg/L
Oil & Grease	15 mg/L	20 mg/L

5.3.3. Outfall 301 (Internal Monitoring Point): Low volume waste sources.

PARAMETER	MONTHLY AVERAGE	DAILY MAXIMUM
Total Suspended Solids	30 mg/L	100 mg/L
Oil & Grease	15 mg/L	20 mg/L

Low volume waste sources are collectively considered to be one source; i.e. all waste water from sources not covered by specific limitations otherwise established in this part. Low volume waste sources include, but are not limited to waste water from:

- Wet scrubber air pollution control system,
- Ion exchange water treatment system,
- Water treatment evaporator blow-down,
- Floor drains,
- Cooling tower basin cleaning wastes, and
- Re-circulating house service water systems.

Sanitary and air conditioning wastes are not included.

5.3.4. Outfall 401 (Internal Monitoring Point): Storm water discharge from the tank farm oil-water separator prior to mixing with other waste streams.

PARAMETER	MONTHLY AVERAGE	DAILY MAXIMUM
Total Suspended Solids	30 mg/L	100 mg/L
Oil & Grease	15 mg/L	20 mg/L

Schedule A also includes a prohibition against:

- The use of zinc and chromates as corrosion inhibitors, except in closed systems, and
- The discharge of polychlorinated biphenyl compounds (i.e. transformer fluids).

The proposed regulatory mixing zone (see Paragraph 2.5), with the exception of two minor grammatical adjustments, remains unchanged. The MZ boundary extends 200 feet beyond the discharge point, and the ZID is defined as 10% of the MZ; i.e. it extends 20 feet from the discharge point.

5.4 Schedule B – Minimum Monitoring and Reporting Requirements.

Outfall 001. At Outfall 001, the draft permit requires PGE to monitor continuously for flow and temperature. Weekly monitoring for TSS, oil & grease, and pH is required. Daily maximum temperature, daily average temperature, and daily maximum excess thermal load must be calculated daily. The monthly average excess thermal load must be calculated monthly. The monitoring frequencies for these parameters are the same as those in the current permit. The thermal load calculations must use the equation listed in Paragraph 3.4 above.

Outfall 101. The draft permit proposes that internal Outfall 101 (Cooling tower blow-down prior to mixing with other waste streams) be monitored daily for flow during blow-down and for total residual chlorine prior to initiating blow-down after chlorination is used. These monitoring requirements are the same as those in the current permit.

Outfall 201. Internal monitoring point 201 [heat recovery steam generator (HRSG)] must be monitored for oil & grease, TSS, copper, and iron at a two per month frequency. Monitoring must occur prior to mixing this flow with other waste streams. These requirements are the same as those in the current permit.

Outfall 301. Internal monitoring point 301 (low volume waste sources) must be monitored twice per month for oil & grease, and TSS; the same as in the current permit.

Outfall 401. Internal monitoring point 401 was established to measure oil & grease and TSS in storm water discharged from the tank farm oil-water separator prior to mixing with other waste steams. Monitoring is required two times per month when there is a discharge. These requirements are the same as those in the current permit.

Reporting Requirements. There are four reporting requirements:

- Report monitoring results on approved forms by the 15th day of the following month,
- Report non-detect (ND) sample results as ND (mg/L),
- List and provide the signature of the authorized compliance person on each monitoring report, and
- Prepare reports in ink, and line-out errors and initial changes with ink when corrections are required.

5.5 Schedule C – Compliance Conditions and Schedules.

The renewal permit has no compliance conditions or schedules. Schedule C is not required.

5.6 Schedule D – Special Conditions.

There are seven special conditions in Schedule D of the renewal permit:

- The permit may be re-opened to include changes required by the completion of a TMDL for the Lower Columbia River,
- Permittee must continue effluent temperature reduction steps initiated under the current permit,
- Water treatment solids must be treated and handled in accordance with the Solids Management Plan,
- Storm water must be managed to prevent oil sheen discharges,
- Keep the spill contingency plan updated and educate employees concerning all plan requirements,
- Designate qualified personnel to carry out the operation and maintenance of the waste collection, treatment, and disposal systems at this facility, and
- Permittee must notify ODEQ of malfunctions in accordance with requirements listed in Schedule F.

5.7 Schedule E – Pretreatment.

There is no Schedule E in the current or proposed permit because it is not required for this type of facility.

5.8 Schedule F – General Conditions.

This schedule contains standard NPDES permit conditions applicable to all industrial sources. The Department proposes to include these standard conditions in the draft permit.

6.0 NEXT STEPS?

6.1 Applicant Review. Applicant is given official notice of the draft NPDES permit, fact sheet, and public notice documents. The applicant has 15-days to comment on the drafts. Further comment is possible during the 35-day Public Notice period, if the applicant so chooses.

6.2 Public Notice. After applicant review of the drafts, the updated renewal permit, fact sheet, and public notice documents are placed on Public Notice for a period of at least 35-days.

6.3 Response to Comments. At the end of the 35-day Public Notice review period, ODEQ will review the public comments that it has received. ODEQ will make an official response to comments and modify the permit accordingly.

6.4 Issue Permit. ODEQ will issue the NPDES permit.

GLS: PGE Beaver Generating Station, Fact Sheet, 6Nov07.doc
Revised: November 13, 2007