



**ENERGY  
NORTHWEST**

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February 7, 2012  
GO2-12-021

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555-0001

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397  
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION  
LICENSE RENEWAL APPLICATION**

References: 1) Letter, GO2-10-11, dated January 19, 2010, WS Oxenford (Energy Northwest) to NRC, "License Renewal Application"

2) Letter dated January 6, 2012, NRC to AL Javorik (Energy Northwest), "Request for Additional Information for the Review of the Columbia Generating Station, License Renewal Application - Environmental Review," (ADAMS Accession No. ML11342A250)

Dear Sir or Madam:

By Reference 1, Energy Northwest requested the renewal of the Columbia Generating Station (Columbia) operating license. Via Reference 2, the Nuclear Regulatory Commission (NRC) requested additional information related to the Energy Northwest submittal.

Responses to the requests for additional information are provided in the attachment. Enclosed in this letter are three photographs (Enclosure 1) and a letter (Enclosure 2) transmitted to Energy Northwest from the Energy Facility Site Evaluation Council (EFSEC) in support of the responses provided in the attachment. There are no new or revised commitments contained in this letter.

If you have any questions or require additional information, please contact John Twomey at (509) 377-4678.

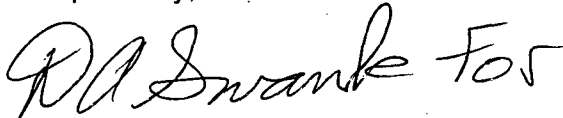
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NRC

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I declare under penalty of perjury that the foregoing is true and correct. Executed on the date of this letter.

Respectfully,

A handwritten signature in black ink, appearing to read "AL Javorik For". The signature is fluid and cursive.

AL Javorik  
Vice President, Engineering

Attachment: Response to Request for Additional Information  
Enclosure 1: Photographs (3) Cooling Tower Plume at Columbia  
Enclosure 2: Letter – EFSEC to Energy Northwest, dated January 27, 2012

cc: NRC Region IV Administrator  
NRC NRR Project Manager  
NRC Senior Resident Inspector/988C  
EFSEC Manager  
RN Sherman – BPA/1399  
WA Horin – Winston & Strawn  
D Doyle - NRC NRR (w/a)  
MA Galloway – NRC NRR  
RR Cowley – WDOH

## **RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LICENSE RENEWAL APPLICATION**

Attachment

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### **RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

"Request for Additional Information for the Review of the Columbia Generating Station,  
License Renewal Application - Environmental Review,"  
(ADAMS Accession No. ML11342A250)

#### **Requests:**

1. For the purposes of describing the visual impact of Columbia Generating Station, provide a general description of the aerial plume of condensation from the mechanical draft cooling towers. For example, when is it typically visible (months of the year, time of day, approximate temperature ranges)? Provide an estimate of the typical height of the plume, when visible. Does it have any noteworthy visual characteristics?

#### **Energy Northwest Response:**

Part of the moisture in the cooling tower effluents condenses to form a visible plume except during extremely hot and dry summer days. Under most meteorological conditions, this visible plume will rise above the cooling towers and either evaporate or level off some distance above the ground

The dimensions and trajectory of the visible vapor plume from the Columbia Generating Station (Columbia) cooling towers are determined by the prevailing meteorological conditions (ambient air temperature, humidity, wind speed, and atmospheric stability). Generally, the plume is most visible during those times when the ambient air is coolest. The plume reaches the greatest heights on the relatively infrequent mid-winter days that have a clear, stable atmosphere and no, or very little, wind. On these occasions the merged plume from the six cooling towers can rise vertically to several thousand feet and can be seen at distances of 10 miles or more (Photo #1). A typical condition in the mid-Columbia Basin in the winter months is an inversion that persists for several weeks creating a low cloud layer that inhibits the plume rise (Photo #2). During the summer months, with warm, dry ambient conditions, the visible plume usually dissipates from view with much less distance (Photo #3). On most afternoons in July through September the condensed vapor from the six towers evaporates before merging.

Energy Northwest has not made field measurements of the height and length of the visible plume. However, analytical work done to support the Operating License Stage Environmental Report provides conservative predictions of plume lengths based on Gaussian plume rise equations and a cloud model. These calculations estimated that visible plume lengths would reach 10 km only 0.81 percent of the year or a total of 71 hours. The longest plumes were predicted for the southeast to south-southwest directions with air temperatures of 0°C or less. December and January were predicted to have the longest elevated visible plumes while in July and August all plumes were predicted to be less than 8 km. The predictions also showed a seasonal variation of plume widths, with widths up to about 300 meters at 6 km downwind in December. These predictions have been consistent with the actual plume as seen during the past twenty-seven years of operation at Columbia.

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The enclosed photographs help show the seasonal variation in visible plume lengths. Photo #1 shows the plume from the west on a cool day with a relatively stable atmosphere. Photo #2 shows the plume from a location on the ridgeline of Rattlesnake Mountain approximately 13 miles from Columbia on a hazy January morning with air temperatures less than 0°C. Photo #3 shows the plume from the southwest on a warm day.

**2. Provide the current status of the following permits and certifications:**

- a. National Pollutant Discharge Elimination System (NPDES) permit
- b. Permit for operation of public water system
- c. Certification for operation of public water system
- d. Certification for operation of wastewater treatment system
- e. Permit for use of commercial low-level radwaste disposal facility
- f. Certification for operation of accredited laboratory

**Energy Northwest Response:**

Permit/Certificate	Document Number	Current	Expires	Comments
NPDES permit	WA-002515-1	yes	see comments	See response to request 3.
Permit for operation of public water system	92024 0	yes	11/30/2012	
Certification for operation of public water system	011452	yes	12/31/2012	
Certification for operation of wastewater treatment system	5835	yes	12/31/2012	
Permit for use of commercial low-level radwaste disposal facility	G1018	yes	2/29/2012	Permit renewal application sent to WA Dept. of Ecology on January 27, 2012.
Certification for operation of accredited laboratory				
Environmental Laboratory	Lab ID 1563	yes	8/7/2012	
Environmental Services Laboratory	Lab ID S866	yes	4/11/2012	

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3. Depending on the State, specific environmental conditions at the plant, the plant's location, and the permit or certificate's terms, the NRC may not issue a renewed license without the certification or permit process being complete. For example, section 307 of the Coastal Zone Management Act (CZMA) requires applicant coordination with the State prior to NRC issuing a renewed license ("No license or permit shall be granted by the Federal agency until the state or its designated agency has concurred with the applicant's certification ... ").

As such, please provide documentation of State concurrence (or, if required, other Federal agencies' concurrence) or, if the process is not complete, a statement describing the status of obtaining such concurrence/permit/certificate for all necessary permits and certificates that must be obtained prior to NRC issuing a renewed license.

**Energy Northwest Response:**

On May 17, 2011, Energy Facility Site Evaluation Council (EFSEC) extended the existing NPDES permit until reissuance of a renewal permit. EFSEC extended the permit until the discharge characterization data necessary to reissue the permit is available after the condenser replacement project completion and submittal of supplemental discharge characterization data. However, EFSEC has recommended Energy Northwest delay characterization of the NPDES discharge until EFSEC finalizes technical support contracting services from the Washington Department of Ecology. Estimated renewal is July 2013. The EFSEC letter containing this and additional information regarding the NPDES permit for Columbia is provided as an enclosure to this letter.

No other state or federal agency concurrence/permit/certificate is required.

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Enclosure 1

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**Photographs (3) Cooling Tower Plume at Columbia**





Photo 1 - Plume from the west on a cool day with relatively stable atmospheric conditions.



Photo 2 - Plume from west atop Rattlesnake Mountain on hazy January morning with temperature less than 0°C





Photo 3 - Plume from the southwest at ground level on a warm day.



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Enclosure 2

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Letter

**EFSEC to Energy Northwest, dated January 27, 2012**



STATE OF WASHINGTON  
ENERGY FACILITY SITE EVALUATION COUNCIL  
1300 S. Evergreen Park Dr. S.W., PO Box 43172 • Olympia, Washington 98504-3172

January 27, 2012

Mr. Dale Atkinson  
Vice President of Employee Development/Corporate Services  
Energy Northwest  
PO Box 968, Mail Drop PE03  
Richland, Washington 99352-0968

Subject: Columbia Generating Station: Nuclear Regulatory Commission Relicensing – Clarification of National Pollutant Discharge Elimination System Permit Renewal Timeline and Compliance with Water Quality Standards

Dear Mr. Atkinson:

This is in response to your request for a status update of Energy Northwest's (ENW) National Pollutant Discharge Elimination System (NPDES) Permit renewal and a state determination of compliance with water quality standards. This letter describes the status of the permit renewal and the Columbia Generating Station's (CGS) compliance with water quality standards.

Background

On May 25, 2006 the Energy Facility Site Evaluation Council (EFSEC) issued the CGS NPDES Permit No. WA-002515-1, which was valid for five years. EFSEC received ENW's application for permit renewal on November 24, 2010. In a letter dated December 29, 2010, EFSEC acknowledged ENW's timely and sufficient submittal of its application. EFSEC's letter also stated that the application would be complete and the permit would be reissued after completion of the condenser replacement project and submittal of supplemental discharge characterization data.

Permit Renewal

EFSEC's extension of ENW's NPDES Permit is authorized in Washington Administrative Code 463-76-061(4), which states: *When a permittee has made timely and sufficient application for the renewal of a permit, an expiring permit remains in effect and enforceable until a replacement permit has been issued by the council.* Federal regulations allow extension of state-issued permits: *States authorized to administer the NPDES program may continue either EPA or state-issued permits until the effective date of the new permits, if state law allows.* (40 CFR 122.6(d)). On May 17, 2011 EFSEC extended the existing NPDES permit until reissuance of a renewal permit.

ENW completed the condenser replacement project in September, 2011. An essential part of the permit renewal process requires ENW to thoroughly characterize the cooling water discharge to the Columbia River and conduct additional technical studies that will provide the basis for the renewed permit. EFSEC has recommended ENW delay characterization of the NPDES discharge until EFSEC finalizes technical support contracting services from the Washington Department of Ecology (Ecology). EFSEC anticipates it will finalize the necessary technical support from Ecology in the next three months.



Compliance with Water Quality Standards

Special Condition S11 of the current permit contains a schedule of compliance that requires ENW demonstrate compliance with the state's Surface Water Quality Standards (Chapter 173-201A Washington Administrative Code (WAC)) and Ground Water Quality Standards (Chapter 173-200 WAC). The permit requires ENW to: 1) inspect the outfall diffuser in the Columbia River and photographically document functionality, 2) conduct an effluent mixing study, and 3) conduct whole effluent toxicity (WET) testing. In addition, the application process requires ENW to fully characterize its discharge for priority pollutants.

EFSEC received the outfall inspection report in 2007 and the effluent mixing study report in 2008. Both reports were evaluated by Ecology and approved by EFSEC in 2008. WET testing and priority pollutant characterization data are necessary to verify compliance with surface water quality standards and to renew the permit. WET testing typically requires quarterly sampling over a 12-month period. The timing for testing and characterization for priority pollutants are related to completion of the condenser replacement project and will occur as soon as EFSEC arranges technical support from Ecology.

The schedule of compliance also requires ENW to verify that its discharges to ground water comply with state ground water quality standards. ENW's ground water sampling program has been completed, Ecology has reviewed and commented on the draft report, and EFSEC expects to receive the final report for review in July, 2012.

Summary

At this time EFSEC has determined CGS is in regulatory compliance with the requirements of its current NPDES Permit. Due to the characterizations still required, EFSEC anticipates it will reissue the permit in July 2013.

Please contact me at (360) 664-1360 if you have any questions concerning this matter.

Sincerely,



Al Wright  
EFSEC Manager