



**ENERGY
NORTHWEST**

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GO2-07-153

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
RELATED TO REQUEST FOR EMERGENCY PLAN CHANGE**

- References:
1. Letter GO2-07-110, dated July 26, 2007, SK Gambhir (Energy Northwest) to NRC, "Request for Emergency Plan Change"
 2. Letter dated September 24, 2007, NRC to JV Parrish (Energy Northwest) "Columbia Generating Station - Request for Additional Information Related to Emergency Plan Change (TAC NO. MD6177)"

Dear Sir or Madam:

In Reference 1, Energy Northwest submitted a request to change the Columbia Generating Station Emergency Plan (E-Plan). This E-Plan change requests removal of predetermined effluent radiation monitor threshold readings for the Emergency Action Levels (EALs), presented in Section 4, Table 3, "Effluent Monitor Classification Thresholds."

Following a phone call on September 10, 2007, the NRC staff requested additional information in Reference 2. The requests and the Energy Northwest responses are provided as an Attachment to this letter.

There are no new regulatory commitments contained in this request. Should you have any questions or require additional information regarding this matter, please contact Mr. GV Cullen, Licensing Supervisor, at (509) 377-6105.

Respectfully,

SK Gambhir
Vice President, Technical Services

Attachment: Response to Request for Additional Information

cc: EE Collins, Jr. - NRC RIV
CF Lyon - NRC NRR
NRC Sr. Resident Inspector - 988C
RN Sherman - BPA - 1399
WA Horin - Winston & Strawn

AVLS

NRR

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Item 1

Please provide the original E-plan revision from NUREG-0654 to NUMARC-007 and its associated Safety Evaluation, and/or Agencywide Documents Access and Management System (ADAMS) Accession Numbers.

Response

Energy Northwest first implemented the Emergency Plan (E-Plan) based on NUMARC-007 in Revision 15, transmitted to the NRC on April 7, 1995 (Reference 1). The changes to the Emergency Action Levels (EALs) in Revision 15 were based on letters dated December 30, 1993 (Reference 2), and October 13, 1994 (Reference 3). These letters submitted revisions to Plant Procedures "Classifying the Emergency," PPM 13.1.1, Revision 13, and "Classifying the Emergency – Technical Bases," PPM 13.1.1A, Revision 14. The NRC Safety Evaluation for the EALs proposed in References 2 and 3 was provided to Energy Northwest in a letter dated December 9, 1994 (Reference 4, Accession Number 94121500094).

Although Revision 15 was the E-Plan revision based on NUMARC-007, this revision did not include the direction for the use of the Quick Emergency Dose Projection System (QEDPS) instead of the predetermined effluent monitor levels listed in Table 4 (now Table 3). The preferred use of QEDPS was added to the E-Plan in Revision 17. The NRC acknowledged receipt of Revision 17 in a letter dated April 16, 1997 (Reference 5). In the letter the NRC stated:

This letter acknowledges receipt of your memorandum dated August 5, 1996, which transmitted Revision 17 to the Washington Nuclear Project 2 Emergency Plan submitted under the provisions of 10 CFR 50.54(q) (presumed).

Based on your apparent determination that the changes do not decrease the effectiveness of your emergency plan, and that it continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to Part 50, NRC approval is not required. Implementation of these changes will be subject to inspection to confirm that they have not decreased the effectiveness of your emergency plan.

The NRC sent another letter and Safety Evaluation regarding Revision 17 dated April 16, 1998 (Reference 6). This Safety Evaluation does not address the change regarding the use of QEDPS. No other correspondence related to NRC inspection or acceptance of the preferred use of QEDPS was found.

Item 2

Please provide your proposed EALs and Technical Basis specific to offsite radioactivity releases.

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Response

As stated in Reference 7, the EALs for offsite releases are in the E-Plan Table 4-1, Category 5. A change to this page was requested in Reference 7, as shown in Attachment 3 to that letter, to delete only the reference to the values in Table 3. Energy Northwest did not request any changes to other EALs (Reference 9) based on effluent monitoring. The technical basis for these EALs is contained in PPM 13.1.1A (Reference 10). Energy Northwest will revise these procedures upon approval of the proposed change to the E-Plan.

Item 3

Please provide supporting information to justify your conclusion that the referenced Table 3 is not required for your E-plan. In particular, discuss how the timing of EAL identification and/or Protective Action Recommendation determination will be impacted by solely relying on a dose assessment approach versus a combined effluent monitor reading and dose assessment approach. Provide the accuracy of the Quick Emergency Dose Projection System (QEDPS), the differences between the QEDPS and EDPS, and the level of commitment of the QEDPS program.

Response

Justification: As stated in Reference 7, the QEDPS is a robust computer based system, based on RASCAL 2.0. Using real time data, an operator or other emergency support personnel can obtain projected doses in less than one minute. A more detailed justification for the deletion of EALs based solely on predetermined effluent monitor values is provided in Reference 7, Attachment 2.

As discussed in Reference 7, the NRC sent the following to Energy Northwest in Reference 8:

Unless real-time, on-line capability has been installed at WNP-2, or computerized dose assessment capability to promptly obtain computed values has been demonstrated by on-shift personnel, the EAL as written does not meet classification guidelines of 15 minutes to classify from the time plant conditions are in place that require the classification. Instrument values that require minimal conversion and chemical grab sample values where appropriate, that are routinely monitored, alarmed, or measured, should be provided as EALs equivalent to the NUREG-0654 IC. (Emphasis added)

If dose assessment equipment with adequate backup capability has demonstrated its ability to meet classification criteria with the listed EALs, no action is required by the licensee. (Emphasis added)

The EAL equivalents are the predetermined effluent monitor readings now listed in Table 3. The proposed revision to the E-Plan does not eliminate the use of effluent monitor readings in response to events. In fact, QEDPS uses gaseous effluent monitoring instruments listed in Table 3 for the dose assessment, if those instruments are available.

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Timing and Dose Assessment: Removing Table 3 will not change the timing of EAL identification or Protective Action Recommendations (PARs) and does not constitute a change from a combined effluent monitor reading and dose assessment approach to a method that relies solely on a dose assessment approach.

The current E-Plan and emergency procedures direct the use of the effluent monitor readings in Table 3 to determine an emergency level only when the QEDPS is not available. This direction is based on the fact that the dose projection provided by QEDPS is based on real time meteorological and plant data, while the predetermined effluent monitor value does not use any measured meteorological data to establish the emergency level. Without Table 3 values, Table 4-1, Category 5 continues to direct the declaration of an Unusual Event or Alert based on unplanned gaseous or liquid releases. The operators would use gaseous monitors identified in Table 3, if they were available, to make this determination. If the instruments listed in Table 3 are not available, QEDPS has the capability to provide dose projection based on other input, such as containment radiation levels or sample analyses. Using available instrumentation and QEDPS, the emergency staff would be able to project increasing trends in dose levels and potentially affected areas. The emergency staff could also identify EALs and make PARs in the same timeframe as using Table 3.

If an instrument listed in Table 3 is not available, an EAL based on a predetermined values identified in that table cannot be determined. Therefore, if the instrumentation listed in Table 3 is available, emergency personnel can make more informed decisions based on QEDPS than they would be able to make based solely on the EALs dictated by Table 3. If the instruments listed in Table 3 are not available, emergency personnel can continue to determine appropriate EALs and PARs using other data and QEDPS.

The radiation monitors installed in the standby (emergency) service water (SW) and the plant service water (TSW) systems are not monitoring a direct effluent release path and do not provide an accurate indication of realistic dose projections. Prior to release to the environment, the water in the circulating water (CW) system basin would significantly dilute the radioactive concentration in these liquid streams. The floor drain system instrumentation (FDR) monitors planned, batch releases. The plant procedures do not allow operations to release the effluent unless the levels are below the Offsite Dose Calculation Manual (ODCM) limits.

The EALs in Table 3, based on predetermined liquid effluent monitor values, do not provide indication of actual or impending dose release to the public. In summary, no methods of dose projection or protective actions are changed or delayed by the proposed revisions to the E-Plan.

Accuracy: Energy Northwest obtained the Emergency Dose Projection System (EDPS) from Battelle, Pacific Northwest National Laboratory. Battelle reported that the results of the EDPS and QEDPS were consistent with the calculations performed by NRC RASCAL Version 2.1.

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The EDPS consists of three computational components: QEDPS, EDPSMain, and VEDPS (a utility program). The EDPS is a customized version of RASCAL v2.0a. The customization involved:

- Development of a new user interface
- Addition of a source-term prediction capability based on monitor readings
- Modification of the meteorological data processing portion of the code to permit representation of spatial variations in wind, atmospheric stability, and precipitation
- Addition of the capability to calculate dose rate in addition to doses
- Addition of the capability to view the dose and dose rate prediction superimposed on maps of the vicinity
- Addition of the capability to operate in a network environment
- Addition of the capability to archive and distribute EDPS products.

Differences: The atmospheric dispersion model used by QEDPS is based on the straight line Gaussian model. Although EDPS also includes a straight line model, the puff model is the primary model in EDPS.

Level of Commitment: In Revision 17 of the E-Plan, Energy Northwest added the note directing the use of the predetermined effluent values to establish the emergency action level only if offsite dose calculations could not be performed. The E-Plan discusses the use of QEDPS and EPDS to perform offsite dose calculations. The direction has been maintained in the E-Plan since 1997. Therefore, the level of commitment to the QEDPS is codified by the requirements in 10 CFR 50.54(q).

References

Copies of the following references were provided to CF Lyon via e-mail on October 31, 2007.

1. Letter GO2-95-069, dated April 7, 1995, JV Parrish (WPPSS) to NRC, "Transmittal of Revision 15 to the WNP-2 Emergency Plan"
2. Letter GO2-93-302, dated December 30, 1993, JV Parrish (WPPSS) to R. Pate (NRC), "WNP-2 Emergency Plan Implementing Procedures"
3. Letter GO2-94-235, dated October 13, 1994, JV Parrish (WPPSS) to NRC, "Response to NRC Request for Additional Information Regarding WNP-2 Emergency Actions Levels"
4. Letter dated December 9, 1994, JW Clifford (NRC) to JV Parrish (WPPSS), "Emergency Action Level (EAL) Changes for Washington Public Power Supply System Nuclear Project No. 2 (WNP-2)"
5. Letter dated April 16, 1997, AT Howell (NRC) to JV Parrish (Energy Northwest), "Emergency Plan Changes – Revision 17"

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6. Letter dated April 16, 1998, AT Howell (NRC) to JV Parrish (Energy Northwest), "Safety Evaluation for Washington Nuclear Project-2 Emergency Plan Revisions 17-19"
7. Letter GO2-07-110, dated July 26, 2007, SK Gambhir (Energy Northwest) to NRC, "Request for Emergency Plan Change"
8. Letter dated June 30, 1992, RA Scarano (NRC) to GC Sorensen (WPPSS), "Review of the Washington Public Power Supply System Nuclear Project Unit 2 (WNP-2) Emergency Preparedness Plan (EPP), Revision 11, and Emergency Plan Implementing Procedure (EPP) 13.1.1, Revisions 13 and 14"
9. Emergency Plan Implementing Procedure, "Classifying the Emergency," PPM 13.1.1, Revision 36, Dated March 13, 2007
10. Emergency Plan Implementing Procedure, "Classifying the Emergency – Technical Bases," PPM 13.1.1A, Revision 19, Dated March 13, 2007