



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
REGION IV  
1600 EAST LAMAR BLVD  
ARLINGTON, TEXAS 76011-4511

July 26, 2012

EA-12-092

Mr. Mark E. Reddemann  
Chief, Executive Officer  
Energy Northwest  
P.O. Box 968 (Mail Drop 1023)  
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION – NRC BASELINE INSPECTION  
REPORT NO. 05000397/2012502, PRELIMINARY WHITE FINDINGS

Dear Mr. Reddemann:

This letter refers to the inspection conducted October 18, 2011, through June 27, 2012 at Energy Northwest's Columbia Generating Station, with onsite inspection February 6-9, 2012. The inspection reviewed changes made to site dose assessment methods and emergency action levels between September 2000 and December 2011. The enclosed report presents the results of this inspection. The preliminary results of this inspection were discussed onsite with site management on February 9, 2012, and during subsequent conference calls between the NRC and site representatives on February 24, February 27, March 1, and March 12, 2012. The results of this inspection were discussed with site management during exit meetings conducted by conference call on May 16 and June 27, 2012.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions in your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel.

The enclosed inspection report discusses two findings that have preliminarily been determined to be White findings with low to moderate safety significance that may require additional NRC inspections. These findings are associated with failure to maintain a standard emergency action level scheme as required by 10 CFR 50.47(b)(4) and failure to maintain adequate methods for assessing the potential consequences of a radiological emergency condition in accordance with the requirements of 10 CFR 50.47(b)(9). These deficiencies were corrected on January 5, 2012 and December 17, 2011, respectively. These findings are also apparent violations of NRC requirements and are being considered for escalated enforcement action in accordance with the

Enforcement Policy, which can be found on the NRC's Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. In addition, one apparent traditional violation was identified and is being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The apparent violation is associated with failure to report to the NRC a major loss of emergency assessment capability in accordance with the requirements of 10 CFR 50.72(b)(3)(xiii).

The preliminary low to moderate safety significance (White) findings were assessed based on the best available information, using the Emergency Preparedness Significance Determination Process (SDP) and the NRC Enforcement Policy. The basis for the NRC's preliminary significance determinations are described in the enclosed report. The final resolution of these findings will be conveyed in separate correspondence.

In accordance with NRC Inspection Manual Chapter (IMC) 0609, we intend to complete our evaluation of the White findings, using the best available information, and issue our final determination of safety significance within 90 days of the date of this letter. The significance determination process encourages an open dialogue between the NRC staff and the licensee; however, the dialogue should not impact the timeliness of the staff's final determination. Before we make a final decision on this matter, we are providing you with an opportunity to: (1) attend a Regulatory Conference where you can present to the NRC your perspective on the facts and assumptions the NRC used to arrive at the findings and assess their significance, or (2) submit your position on the findings to the NRC in writing.

Additionally, as part of the enforcement process for an apparent traditional violation, you will have the opportunity to request a Predecisional Enforcement Conference, the conference will afford you the opportunity to provide your perspective on the apparent traditional violation and any other information that you believe the NRC should take into consideration before making an enforcement decision. The topics discussed during this conference may include the following: information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned to be taken. In presenting your corrective actions, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing a civil penalty, if any, for the apparent violation.

If you request a Regulatory Conference and Predecisional Enforcement Conference, it should be held within thirty days of the receipt of this letter and we encourage you to submit supporting documentation at least one week prior to the Conference in an effort to make the Conference more efficient and effective. If a Conference is held, it will be open for public observation and a public meeting notice and press release will be issued to announce the conference. If you decide to submit only a written response, such submittal should be sent to the NRC within thirty days of your receipt of this letter. If you decline to request a Conference or to submit a written response, you relinquish your right to appeal the final SDP determination; in that, by not doing either you fail to meet the appeal requirements stated in the Prerequisite and Limitation Sections of Attachment 2 of IMC 0609.

If you choose to provide a written response, it should be clearly marked as "Response to Apparent Violations in Inspection Report No. 05000397/2012502; EA-12-092" and for each apparent violation discussed should include: (1) the reason for the apparent violation, or, if contested, the basis for disputing the apparent violation; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full compliance was (will be) achieved. Your response may

reference or include previously docketed correspondence, if the correspondence adequately addresses the required response.

Please contact Mr. Michael Hay, Chief, Plant Support Branch 1, at 817-200-1527, within ten days from the issue date of this letter to notify the NRC of your intentions. If we have not heard from you within ten days, we will continue with our significance determination and enforcement decision. Since the NRC has not made a final determination in these matters, Notices of Violation are not being issued for these inspection findings at this time. In addition, please be advised that the number and characterization of the apparent violations may change as a result of further NRC review.

Furthermore, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. The NRC is treating this violation as a non-cited violation consistent with Section 2.3.2 of the Enforcement Policy. If you contest this non-cited violation, you should provide a response within thirty days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Columbia Generating Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agency-wide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

If you have any questions concerning this matter, please contact Mr. Michael Hay, Chief, Plant Support Branch 1, at 817-200-1527.

Sincerely,

**/RA/**

Thomas Blount, Acting Director  
Division of Reactor Safety

Docket No. 50-397  
License No. NPF-21

Enclosure:  
Inspection Report 05000397/2012502  
w/Attachment

Electronic Distribution for Columbia Generation Station

## Electronic distribution by RIV:

Regional Administrator (Elmo.Collins@nrc.gov)  
 Deputy Regional Administrator (Art.Howell@nrc.gov)  
 DRP Director (Kriss.Kennedy@nrc.gov)  
 Acting DRP Deputy Director (Allen.Howe@nrc.gov)  
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 Acting DRS Deputy Director (Patrick.Louden@nrc.gov)  
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 Resident Inspector (Mahdi.Hayes@nrc.gov)  
 Branch Chief, DRP/A (Wayne.Walker@nrc.gov)  
 Senior Project Engineer, DRP/A (David.Proulx@nrc.gov)  
 Project Engineer, DRP/A (Jason.Dykert@nrc.gov)  
 Site Administrative Assistant (Crystal.Myers@nrc.gov)  
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 Project Manager (Lauren.Gibson@nrc.gov)  
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 OEMail Resource  
 RIV/ETA: OEDO (Silas.Kennedy@nrc.gov)  
 DRS/TSB STA (Dale.Powers@nrc.gov)  
 Senior Enforcement Specialist (Ray.Kellar@nrc.gov)

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 50-397

License: NPF-21

Report: 05000397/2012502

Facility: Columbia Generating Station

Licensee: Energy Northwest

Location: Richland, Washington

Dates: October 18, 2011, through June 27, 2012

Inspectors: Paul J. Elkmann, Senior Emergency Preparedness Inspector  
Gilbert L. Guerra, CHP, Emergency Preparedness Inspector  
Eric Schrader, Emergency Preparedness Specialist, NSIR/DPR/EP

Approved By: Thomas Blount, Acting Director  
Division of Reactor Safety

## SUMMARY OF FINDINGS

IR 05000397/2012502; 10/18/2011 – 06/27/2012; Columbia Generating Station, Regional Report; Emergency Plan Focused Baseline Inspection, 7111404, 7111405

The report covered an announced baseline inspection by region-based inspectors and a technical specialist from the Office of Nuclear Security and Incident Response. Three apparent violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross Cutting Areas." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Emergency Preparedness

- TBD. An apparent violation of 10 CFR 50.54(q) was identified involving the failure to maintain a standard emergency action level scheme in September 2000 and November 2010 in accordance with the requirements of 10 CFR 50.47(b)(4). The licensee inappropriately calculated and changed Site Area Emergency and General Emergency radiation monitor threshold values on EAL (Emergency Action Levels) Table 3, "Effluent Monitor Classification Thresholds." These changes adversely affected the ability of the licensee to properly classify events involving a radiological release.

The inspectors determined the licensee's inaccurate calculation of Site Area Emergency and General Emergency radiation monitor thresholds in September 2000 and November 2010 were performance deficiencies within the licensee's control. This finding is more than minor because it was associated with the procedure quality and emergency response organization performance cornerstone attributes. This finding was evaluated using the Emergency Preparedness Significance Determination Process and was preliminarily determined to be of low to moderate safety significance (White) because it was a degraded risk significant planning standard function. The planning standard function was degraded because Columbia Generating Station would have been delayed in recognizing Site Area Emergencies and General Emergencies because of the inaccurate reactor building stack monitor EAL Table 3 values. This finding was entered into the licensee's corrective action system as Action Requests AR00244316, AR00244578, and AR00244838 (Section 1EP4).

- TBD. An apparent violation of 10 CFR 50.54(q) was identified involving the failure to maintain adequate methods for assessing the actual or potential consequences of a radiological emergency between April 2000 and December 2011 in accordance with the requirements of 10 CFR 50.47(b)(9). The licensee incorporated inaccurate gas calibration and Xenon equivalency factors into dose projection software, resulting in inaccurate offsite dose calculations involving radiological releases measured by the reactor building effluent radiation monitor.

The inspectors determined the failure to maintain a dose assessment process capable of providing a technically adequate estimate of offsite dose was a performance deficiency within the licensee's control. This finding is more than minor because it was associated with the emergency response organization performance and the Facilities and Equipment cornerstone attributes. This finding was evaluated using the Emergency Preparedness Significance Determination Process and was preliminarily determined to be of low to moderate safety significance (White) because it was a degraded risk significant planning standard function. The planning standard function was degraded because some methods for assessing the offsite consequences of a radiological release were inaccurate between April 2000 and December 2011. This issue has been entered into the licensee's corrective action system as Action Requests AR00244316 and AR00244578 (Section 1EP5).

- TBD. An apparent Severity Level III violation was identified for failure to notify the NRC of a major loss of emergency assessment capability identified on October 18, 2011, as required by 10 CFR 50.72(b)(3)(xiii). The licensee failed to identify that these deficiencies adversely affected the licensee's ability to project offsite dose during a radiological event and therefore constituted a major loss of emergency assessment capability.

The failure to report was evaluated using the NRC Enforcement Policy and was determined to be an apparent Severity Level III violation because it was associated with a Reactor Oversight Program issue of low to moderate safety significance (White). This issue has been entered into the licensee's corrective action system as Action Requests AR00244578, Revision 2, AR00244838, and AR00264998 (Section 1EP5).

## **B. Licensee-Identified Violations**

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking number is listed in Section 4OA7.

## REPORT DETAILS

### 1. REACTOR SAFETY

#### Cornerstone: Emergency Preparedness

#### 1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

##### a. Inspection Scope

The inspectors performed in-office and on-site reviews of licensee changes to emergency action level Table 3, "Effluent Monitor Classification Thresholds," made between September 2000 and December 2011. The inspectors reviewed:

- Columbia Generating Station Emergency Plan, Revisions 52, 54, 55, and 56;
- Procedure 13.1.1, "Classifying the Emergency," Revisions 28, 29, 35, 39, and 40;
- Procedure 13.1.1A, "Classifying the Emergency – Technical Bases," Revisions 7, and 24; and,
- Action Request AR00244578, Root Cause Evaluation, "Inappropriate Emergency Action Level Modification," Revision. 2, dated October 18, 2011.

These documents were compared to their previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, to Nuclear Energy Institute Report 99-01, "Emergency Action Level Methodology," Revisions 2 and 4, and to the standards in 10 CFR 50.47(b), to determine if the revisions adequately implemented the requirements of 10 CFR 50.54(q). The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.04-05.

##### b. Findings

Introduction. An apparent violation was identified involving inappropriate changes to EAL Table 3 in September 2000 and November 2010, which adversely affected the licensee's ability to classify a radiological release emergency event.

Description. Two examples were identified in which the licensee inappropriately calculated Site Area Emergency (SAE) and General Emergency (GE) radiation monitor threshold values on EAL Table 3, "Effluent Monitor Classification Thresholds."

In April of 2000 chemistry personnel failed to properly calibrate the reactor building stack effluent monitor. The error involved improper positioning of the radiation source resulting in the technician inappropriately concluding the detector gas calibration factor had changed from a value of 34.9 to 413.29. This significant change was not questioned by chemistry personnel and the new value was provided to the emergency preparedness personnel for use in the offsite dose assessment model. In September 2000 emergency



preparedness personnel changed the Table 3 SAE value for the reactor building stack effluent monitor from 9.65E2 counts/second (cps) to 9.65E3 cps, and the GE radiation monitor value from 9.35E3 cps to 9.35E4 cps. These values were calculated using the dose assessment model after the incorrect gas calibration factor of 413.29 was incorporated into the model. Both thresholds were a factor of 10 higher than necessary to indicate a release magnitude associated with a SAE or GE. As a result, the classification would not have been made when the release magnitude, upon which the EAL was based, warranted it.

In November 2010 the licensee changed the Table 3 GE value for the reactor building stack effluent monitor. This threshold was calculated using an incorrect Xenon-133 Equivalent Response value of 0.128, instead of the correct value of 12.8, an error of a factor of 100. The GE EAL threshold was changed from 9.35E4 cps to 9.35E6 cps. Given the earlier error by a factor of 10, this EAL threshold was a value 1000 times higher than necessary to indicate a SAE or GE release. Additionally, the maximum range for the reactor building stack effluent monitor meter in the control room is 1.0E6 cps, so the as-changed value would be off-scale high. As a result of these two conditions, the GE classification would not have been made when the radiological release magnitude warranted it. Emergency Preparedness staff failed to recognize the error in the Xenon-133 Equivalent Response factor and did not recognize the resulting GE EAL exceeded the instrument range. The staff did not question an unexpected change by a factor of 100, and did not validate the change.

The NRC identified during this inspection that the licensee failed to recognize that changes to emergency action level (EAL) Table 3 decreased the effectiveness of the site emergency plan. The licensee was unable to provide a 50.54(q) review of the September 2000 emergency action level change. Licensee staff considered the November 2010 emergency action level change to be an editorial change and the licensee found no evidence this change received a 50.54(q) review. These failures are not being treated under the NRC's Enforcement Policy (traditional enforcement) because the underlying problems are performance deficiencies in maintaining the emergency preparedness program being addressed in this report.

The NRC also identified during this inspection that the licensee failed to update Notification of Unusual Event and Alert effluent radiation monitor thresholds on Table 3 to ensure accurate classification following changes to the Offsite Dose Calculation Manual in March 2002. This finding was an additional example of a performance deficiency related to 10 CFR 50.47(b)(4) because it affected the licensee's ability to classify an event at the Alert emergency classification level. The licensee entered this issue into their corrective action program as Action Request 00244315.

The licensee corrected the errors on EAL Table 3, "Effluent Monitor Classification Thresholds" in Procedure 13.1.1A, "Classifying the Emergency, Technical Bases," Revision 24, dated January 5, 2012.

Analysis. The inspectors determined the licensee's inaccurate calculation of Site Area Emergency and General Emergency radiation monitor thresholds in September 2000 and November 2010 were performance deficiencies within the licensee's control. The finding had a credible impact on the emergency preparedness cornerstone objective because the licensee's capability to implement adequate measures to protect public health and safety was degraded when emergency action levels were inaccurate. This

finding is more than minor because it was associated with the procedure quality and emergency response organization performance cornerstone attributes. The finding was associated with a violation of NRC requirements. This finding was evaluated using the Emergency Preparedness Significance Determination Process and was preliminarily determined to be of low to moderate safety significance (White) because it was a failure to comply with NRC requirements and resulted in a degraded risk significant planning standard function. The planning standard function was degraded, rather than lost, because Site Area Emergencies and General Emergencies could still have been declared, albeit delayed, using EAL thresholds for dose projection results and/or environmental measurements. Specifically, Columbia Generating Station would have been delayed in recognizing Site Area Emergencies and General Emergencies because of the inaccurate reactor building stack monitor EAL Table 3 values. This finding was entered into the licensee's corrective action system as Action Requests AR00244316, AR00244578, and AR00244838. The finding was not assigned a cross-cutting area component because the underlying performance deficiencies are not representative of current performance.

Enforcement. Title 10 of the Code of Federal Regulations, Part 50.54(q), states, in part, that a holder of a nuclear power reactor operating license shall follow and maintain in effect emergency plans which meet the standards in 50.47(b). 10 CFR 50.47(b)(4), requires, in part, that a standard emergency classification and action level scheme is in use by the licensee, the bases of which include facility system and effluent parameters.

Contrary to the above, between September 2000 and December 2011, Columbia Generating Station did not follow and maintain in effect an emergency plan using a standard emergency classification and action level scheme, the bases of which included facility system and effluent parameters. Specifically, personnel errors in September of 2000 and November of 2010 resulted in the inaccurate calculation of Site Area Emergency and General Emergency effluent thresholds that were incorporated into emergency action level Table 3, "Effluent Monitor Classification Thresholds." As a result, these errors adversely affected the licensee's ability to classify an emergency event involving a radiological release: AV 05000397-2012502-01 (Failure to Maintain Accurate EAL Thresholds).

#### **1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)**

##### **a. Inspection Scope**

The inspectors,

- Performed in-office and on-site reviews of site procedures,
- Reviewed AR00244315, Apparent Cause Evaluation, "Stack Monitors Non-Functional for Extended Periods," Revision. 2, dated October 21, 2011;
- Reviewed AR00244578, Root Cause Evaluation, "Inappropriate Emergency Action Level Modification," Revision 2, dated October 18, 2011;
- Evaluated the operability of radiation detector PRM-RE-1C, Reactor Building Exhaust High Range, by reviewing system work packages and records;

- Reviewed test case calculations performed using the Quick Emergency Dose Projection System;
- Examined the installed effluent monitoring system (detector PRM-RE-1C);
- Reviewed the licensee's Offsite Dose Calculation Manual, Revision 1; and,
- Reviewed the licensee's reportability evaluation for Condition Report CR244578, "Inability to project dose using Reactor Building Stack Monitors," dated February 21, 2012.

The inspectors evaluated licensee root cause analyses, apparent cause analyses, and the response to corrective action requests according to the requirements of procedure SWP-CAP-1, "Corrective Action Program," Revision 24-3, and CDM-01, "Cause Determination Manual," Revision 6-1, to determine the licensee's ability to identify, evaluate, and correct problems. Inspectors reviewed corrective actions associated with the effluent monitoring system, site emergency action levels, and the Quick Emergency Dose Projection System, initiated between September 2000 and August 2011. Licensee corrective actions were also compared to the requirements of planning standard 10 CFR 50.47(b)(14) and Appendix E to 10 CFR Part 50. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.05-05.

b. Findings

.1 Failure to Maintain Adequate Methods to Assess Radiological Consequences

Introduction. An apparent violation was identified involving the failure to maintain adequate methods for assessing the actual or potential consequences of a radiological emergency because of erroneous parameters in the dose assessment model, resulting in inaccurate dose assessments between April 2000 and December 2011.

Description. Two deficiencies were identified that degraded the licensee's ability to accurately assess the offsite dose consequences of a radiological release. In April of 2000 chemistry personnel failed to properly calibrate the reactor building stack effluent monitor because the source was not placed in the proper position, and in December 2007 chemistry personnel changed the Xe-133 Equivalent Response Factor used in the dose assessment model to an incorrect value.

The failure to properly calibrate the effluent monitor in April 2000 occurred because of an inadequate calibration procedure and human performance errors by chemistry technicians. The calibration error involved improper positioning of the source, resulting in the technician inappropriately concluding the detector efficiency had changed. This error resulted in the licensee changing the gas calibration factor from the correct value of 34.9 to 413.29. Neither chemistry nor emergency preparedness staff questioned an unexpected change of this magnitude and the new factor was subsequently incorporated into the dose assessment model. This error resulted in the dose assessment model overestimating offsite dose by a factor of approximately 12 between April 2000 and

December 2007. As previously discussed this error also resulted in inappropriate changes to the EAL thresholds for the reactor building stack effluent radiation monitor.

In December of 2007 the dose projection model gas calibration factor of 413.29 was changed to 12.8. The 12.8 value was listed in the FSAR as the Xe-133 Equivalent Response factor; however, the change was not appropriate since the gas calibration factor is derived from the detector calibration. This change was not well documented and the licensee concluded the individual making the change did not understand the impact. This error resulted in the offsite dose assessment model underestimating offsite dose by a factor of approximately 3 between December 2007 and December 2011.

The licensee corrected the dose projection model Gas Calibration and Xe-133 Equivalent Response Factors used in the Quick Emergency Dose Projection System on December 17, 2011.

Analysis. The inspectors determined the failure to maintain a dose assessment process capable of providing a technically adequate estimate of offsite dose is a performance deficiency within the licensee's control. This finding is more than minor because it affected the licensee's ability to implement adequate measures to protect the health and safety of the public, and affected the facilities and equipment and emergency response organization performance cornerstone attributes. The finding was associated with a violation of NRC requirements. This finding was evaluated using the Emergency Preparedness Significance Determination Process and was preliminarily determined to be of low to moderate safety significance (White) because it was a failure to comply with NRC requirements and was a degraded risk significant planning standard function. The planning standard function was degraded because methods to assess the offsite consequences of a radiological release via the reactor building stack were inaccurate between April 2000 and December 2011. However, these errors did not affect other calculations performed by the dose assessment model. This issue has been entered into the licensee's corrective action system as Action Requests AR00244316 and AR00244578. A cross-cutting aspect was not assigned to this finding because the performance deficiencies were not reflective of current licensee performance.

Enforcement. Title 10 of the Code of Federal Regulations, Part 50.54(q), requires, in part, that the holder of a nuclear power reactor operating license shall follow and maintain in effect emergency plans which meet the standards of 50.47(b). 10 CFR Part 50.47(b)(9) requires, in part, that licensees have adequate methods for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition.

Contrary to the above, between April 2000 and December 2011, Columbia Generating Station failed to follow and maintain in effect adequate methods for assessing and monitoring potential offsite consequences of a radiological emergency. Specifically, changes to offsite dose calculation methods using the reactor building effluent monitor resulted in a process that produced inaccurate offsite doses for the reactor building stack: AV 05000397-2012502-02 (Failure to Maintain Accurate Methods for Dose Assessment).

## .2 Failure to Report to the NRC a major loss of Emergency Assessment Capability

Introduction. An apparent Severity Level III violation was identified for failure to notify the NRC of a major loss of emergency assessment capability identified on October 18, 2011.

Description. Licensee root cause analysis AR00244578, Revision 2, dated October 18, 2011, identified that the emergency action level Table 3 radiation monitor threshold values changed in September 2000 and November 2010 were derived from an inaccurate Quick Emergency Dose Projection System. The Quick Emergency Dose Projection System systematically calculated inaccurate offsite doses from the effluent stack radiation monitor between April 2000 and December 2011. Specifically, between April 2000 and December 2007 the Quick Emergency Dose Projection System would overestimate offsite dose by a factor of approximately 12. Between December 2007 and December 2011 the system would underestimate offsite dose by a factor of approximately 3.

The licensee determined on February 21, 2012, that systemic inaccuracies in the Quick Emergency Dose Projection System were not reportable to the NRC. The NRC determined that long-term systemic inaccuracies in dose assessment methods did constitute a major loss of emergency assessment capability that should have been reported to the NRC after being identified on October 18, 2011. After discussions with the NRC the licensee reevaluated the reportability decision of this deficiency and reported to the NRC a major loss of emergency assessment capability on June 7, 2012.

Analysis. The inspectors determined the inadequate assessment of deficiencies in methods for offsite radiological assessment was a performance deficiency within the licensee's control. The performance deficiency was evaluated using the NRC Enforcement Policy and was determined to be a Severity Level III violation because it was associated with a Reactor Oversight Program issue of low to moderate safety significance (White). This issue has been entered into the licensee's corrective action system as Action Requests AR00244578, Revision 2, AR00244838, and AR00264998.

### Enforcement.

Title 10 of the Code of Federal Regulations, Part 50.72(b)(3)(xiii) states that a licensee shall notify the NRC as soon as practical and in all cases within eight hours of any event that results in a major loss of emergency assessment capability. Contrary to the above, on October 18, 2011, the licensee did failed to notify the NRC a within eight hours of any event that results in major loss of emergency assessment capability. Specifically, the licensee failed to recognize longstanding inaccuracies in the Quick Emergency Dose Projection System as a major loss of emergency assessment capability, and failed to report these deficiencies in radiological assessment methods to the NRC: AV 05000397-2012502-03 (Failure to Report a Loss of Emergency Capability).

## **4. OTHER ACTIVITIES**

### **4OA6 Meetings**

#### Exit Meeting Summary

On February 9, 2012, the inspectors discussed the onsite inspection of the licensee's radiological emergency action levels and dose assessment capabilities with Mr. B. Sawatzke, Chief Nuclear Officer, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On May 16, 2012, the inspectors conducted an exit meeting with Mr. B. Sawatzke, Chief Nuclear Officer, and other members of the licensee's staff by conference call, to communicate the inspection results regarding the licensee's radiological emergency action levels and dose assessment capabilities. The licensee acknowledged the issues presented.

On June 27, 2012, the inspectors conducted an exit meeting with Mr. W. Hettell, Vice President Operations, and other members of the licensee's staff by conference call, to recharacterize the inspection results regarding changes to the licensee's radiological emergency action levels and the failure to report to the NRC a major loss of emergency assessment capability. The licensee acknowledged the issues presented.

### **4OA7 Licensee-Identified Violations**

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section 2.3.2 of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

#### **.1 Failure to Maintain Radiation Detector PRM-RE-1C**

Title 10 of the Code of Federal Regulations, Part 50.47(b)(8) requires, that adequate emergency facilities and equipment to support the emergency response are provided and maintained. Contrary to the above, between April 2000 and February 2012, the licensee failed to provide and maintain adequate emergency equipment to support an emergency response. Specifically, radiation detector PRM-RE-1C, Reactor Building High Range Exhaust, was not adequately maintained. The Reactor Building High Range Exhaust monitor was unavailable 38 of 149 months and corrective actions were ineffective in restoring the availability and reliability of the monitor. The finding had a credible impact on the emergency preparedness cornerstone objective because it affected the cornerstone attributes of emergency response organization performance (program elements meet the 50.47(b) standards) and facilities and equipment (maintenance surveillance and testing). The finding is more than minor because the licensee's ability to implement adequate measures to protect the public's health and safety is degraded when equipment used to assess the consequences of a radiological event is not adequately maintained. This finding was evaluated using the Emergency Preparedness Significance Determination Process and was determined to be of very low safety significance because the planning standard function was degraded, causing potential delays in the associated key emergency response organization functions of

classification and radiological assessment. The issue was entered into the licensee's corrective action system as Action Request AR00244315, "Stack Monitors Non-Functional for Extended Periods," Revision. 2.

**SUPPLEMENTAL INFORMATION**  
**KEY POINTS OF CONTACT**

**Licensee Personnel**

D. Brown, Manager, Operations  
G. Davis, Quality Auditor  
M. Davis, Manager, Radiological Services  
Z. Dunham, Supervisor, Regulatory Affairs  
C. England, Manager, Organizational Effectiveness  
R. Fahnstock, Manager, Emergency Preparedness  
R. Garcia, Engineer, Regulatory Affairs  
D. Gregoire, Manager, Regulatory Affairs  
W. Hettell, Vice President, Operations  
A. Javorik, Vice President, Engineering  
C. King, Assistant Plant Manager  
S. McCain, Emergency Management Consultant  
B. MacKissock, Plant General Manager  
C. Moon, Manager, Training  
M. Reddemann, Chief Executive Officer  
B. Sawatzke, Chief Nuclear Officer  
D. Swank, Assistant Vice President, Engineering  
R. Torres, Manager, Quality  
L. Williams, Acting Supervisor, Regulatory Affairs

**NRC Personnel**

J. Groom, Senior Resident Inspector  
M. Hayes, Resident Inspector

**LIST OF ITEMS OPENED AND CLOSED**

**Opened**

05000397-2012502-01	AV	Failure to Maintain Accurate EAL Thresholds (1EP4)
05000397-2012502-02	AV	Failure to Maintain Accurate Methods for Dose Assessment (1EP5)
05000397-2012502-03	AV	Failure to Report a Loss of Emergency Capability (1EP5)



## LIST OF DOCUMENTS REVIEWED

### Section 1EP4: Emergency Action Level and Emergency Plan Changes

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS / DATE</u>
AR00244315	Apparent Cause Evaluation, "Stack Monitors Non-Functional for Extended Periods"	Revision. 2, October 21, 2011
AR00244578	Root Cause Evaluation, "Inappropriate Emergency Action Level Modification"	Revision. 2, October 18, 2011
PPM 13.1.1A	Classifying the Emergency, Technical Bases	22, 23
PPM 16.14.2	Offsite Dose Assessment Manual	Revision 1, March 2002
	Surveillance CSP-PRMRE-X302	3 – 8
	Calculation NE-020-09-02," CGS Emergency Action Levels Technical Bases"	November 8, 2011
	Work Order 01012603-03	April 27, 2000
	Work Request 29009900	
	Chemistry Calculation 96-01	March 19, 1996
	Problem Evaluation Request 296-0176	March 6, 1996
	Condition Report 2-07-04069	May 8, 2007
	Condition Report 183656, Action 2 (EC9323)	July 20, 2009
	Condition Report 202259, Action 6	April 19, 2010
SWP-LIC-01	Regulatory Commitment Management	
SWP-LIC-02	Licensing Basis Impact Determinations	
SWP-LIC-03	Licensing Document Change Process	
LBDM-01	License Basis Documents Review and Maintenance Manual	
EPI-16	Emergency Plan Change Processing	

### Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS / DATE</u>
AR00244315	Apparent Cause Evaluation, "Stack Monitors Non-Functional for Extended Periods"	Revision. 2, October 21, 2011
AR00244578	Root Cause Evaluation, "Inappropriate Emergency Action Level Modification"	Revision. 2, October 18, 2011
PPM 13.8.1	Computerized Emergency Dose Projection System Operations	20 - 30
PPM 13.9.1	Environmental Field Monitoring Operations	25 - 40
PPM 13.14.9	Emergency Program Maintenance	18 – 28
OD23.17	Emergency Dose Projection System Manual	Revision 0, October 31, 1989
OD23.17	Emergency Dose Projection System Manual	Revision 1, August 1994
	QEDPS 2.0, A Near-Field Dose Assessment Model for Emergency Response at the WNP2 Nuclear Facility	March 1998
	PRM-RE-1C Instrument Operating History	2000 - 2011
	System Health Reports – Process Radiation Monitors	
	CGS System Description, Vol. 8, Ch. 6, "Process Radiation	

**Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS / DATE</u>
	Monitors”	
	Letter, W.A Macon (NRC) to Mr. J.V. Parrish (Energy Northwest) approving emergency plan changes	August 31, 2004
	Letter, C.F Lyon (NRC) to Mr. M.E. Reddeman (Energy Northwest) approving emergency plan changes	November 3, 2010

**ACTION REQUESTS (CORRECTIVE ACTIONS)**

00020836	00021004	00024065	00037594	00120718
00121367	00190759	00191685	00216221	00221079
00244315	00244838	00246173	00246178	00246607
00247162	00264998			

**MISCELLANEOUS****MISCELLANEOUS DOCUMENTS**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Columbia Generating Station Emergency Plan	56