



**ENERGY
NORTHWEST**

Bradley J. Sawatzke
Columbia Generating Station
P.O. Box 968, PE08
Richland, WA 99352-0968
Ph. 509.377.4300 | F. 509.377.4150
bjsawatzke@energy-northwest.com

March 13, 2012
GO2-12-035

10 CFR 50.73

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

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397
SUPPLEMENTAL LICENSEE EVENT REPORT NO. 2012-001-01**

Dear Sir or Madam:

Transmitted herewith is Revision 1 to Licensee Event Report No. 2012-001 for Columbia Generating Station. This report is submitted pursuant to 10 CFR 50.73(a)(2)(i)(B).

There are no commitments being made to the NRC herein. If you have any questions or require additional information, please contact Mr. ZK Dunham at (509) 377-4735.

Respectfully,

BJ Sawatzke
Vice President, Nuclear Generation & Chief Nuclear Officer

Enclosure: Licensee Event Report 2012-001-01

cc: NRC Region IV Administrator
NRC NRR Project Manager
NRC Senior Resident Inspector/988C
RN Sherman – BPA/1399
WA Horin – Winston & Strawn

JE22
NRR

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---------|--|-----------|---|-------------------------------------|---------------|-------------------------------------|---|--|---|-------------------------------------|--|---|---|--|--|---|---|---|--|---|---|--|---|---|---|---|--------------------------------------|--|--------------------------------------|--|--|--|--------------------------------------|---|--|--|--------------------------------|--|---|--|---|
| NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION (10-2010) | | | | APPROVED BY OMB NO. 3150-0104 Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov , and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. FACILITY NAME Columbia Generating Station | | | | 2. DOCKET NUMBER 05000397 | | 3. PAGE 1 OF 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. TITLE DG-3 Inoperable for Longer than Allowed by TS Due to Failed Governor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. EVENT DATE | | | 6. LER NUMBER | | | 7. REPORT DATE | | | 8. OTHER FACILITIES INVOLVED | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REV NO. | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 28 | 2010 | 2012 - 001 - 01 | | | 3 | 13 | 2012 | FACILITY NAME | DOCKET NUMBER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 05000 | 05000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9. OPERATING MODE 1 | | | 11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: <i>(Check all that apply)</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10. POWER LEVEL 100 | | | <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> 20.2201(b)</td> <td><input type="checkbox"/> 20.2203(a)(3)(i)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(C)</td> <td><input type="checkbox"/> 50.73(a)(2)(vii)</td> </tr> <tr> <td><input type="checkbox"/> 20.2201(d)</td> <td><input type="checkbox"/> 20.2203(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(1)</td> <td><input type="checkbox"/> 20.2203(a)(4)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(B)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(i)</td> <td><input type="checkbox"/> 50.36(c)(1)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ix)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(ii)</td> <td><input type="checkbox"/> 50.36(c)(1)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iv)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(x)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iii)</td> <td><input type="checkbox"/> 50.36(c)(2)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(A)</td> <td><input type="checkbox"/> 73.71(a)(4)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iv)</td> <td><input type="checkbox"/> 50.46(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(B)</td> <td><input type="checkbox"/> 73.71(a)(5)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(v)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(C)</td> <td><input type="checkbox"/> OTHER</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(vi)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(D)</td> <td>Specify in Abstract below or in NRC Form 366A</td> </tr> </table> | | | | | | | | <input type="checkbox"/> 20.2201(b) | <input type="checkbox"/> 20.2203(a)(3)(i) | <input type="checkbox"/> 50.73(a)(2)(i)(C) | <input type="checkbox"/> 50.73(a)(2)(vii) | <input type="checkbox"/> 20.2201(d) | <input type="checkbox"/> 20.2203(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(viii)(A) | <input type="checkbox"/> 20.2203(a)(1) | <input type="checkbox"/> 20.2203(a)(4) | <input type="checkbox"/> 50.73(a)(2)(ii)(B) | <input type="checkbox"/> 50.73(a)(2)(viii)(B) | <input type="checkbox"/> 20.2203(a)(2)(i) | <input type="checkbox"/> 50.36(c)(1)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(iii) | <input type="checkbox"/> 50.73(a)(2)(ix)(A) | <input type="checkbox"/> 20.2203(a)(2)(ii) | <input type="checkbox"/> 50.36(c)(1)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(iv)(A) | <input type="checkbox"/> 50.73(a)(2)(x) | <input type="checkbox"/> 20.2203(a)(2)(iii) | <input type="checkbox"/> 50.36(c)(2) | <input type="checkbox"/> 50.73(a)(2)(v)(A) | <input type="checkbox"/> 73.71(a)(4) | <input type="checkbox"/> 20.2203(a)(2)(iv) | <input type="checkbox"/> 50.46(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(v)(B) | <input type="checkbox"/> 73.71(a)(5) | <input type="checkbox"/> 20.2203(a)(2)(v) | <input type="checkbox"/> 50.73(a)(2)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(v)(C) | <input type="checkbox"/> OTHER | <input type="checkbox"/> 20.2203(a)(2)(vi) | <input checked="" type="checkbox"/> 50.73(a)(2)(i)(B) | <input type="checkbox"/> 50.73(a)(2)(v)(D) | Specify in Abstract below or in NRC Form 366A |
| <input type="checkbox"/> 20.2201(b) | <input type="checkbox"/> 20.2203(a)(3)(i) | <input type="checkbox"/> 50.73(a)(2)(i)(C) | <input type="checkbox"/> 50.73(a)(2)(vii) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> 20.2201(d) | <input type="checkbox"/> 20.2203(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(viii)(A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> 20.2203(a)(1) | <input type="checkbox"/> 20.2203(a)(4) | <input type="checkbox"/> 50.73(a)(2)(ii)(B) | <input type="checkbox"/> 50.73(a)(2)(viii)(B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> 20.2203(a)(2)(i) | <input type="checkbox"/> 50.36(c)(1)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(iii) | <input type="checkbox"/> 50.73(a)(2)(ix)(A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> 20.2203(a)(2)(ii) | <input type="checkbox"/> 50.36(c)(1)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(iv)(A) | <input type="checkbox"/> 50.73(a)(2)(x) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> 20.2203(a)(2)(iii) | <input type="checkbox"/> 50.36(c)(2) | <input type="checkbox"/> 50.73(a)(2)(v)(A) | <input type="checkbox"/> 73.71(a)(4) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> 20.2203(a)(2)(iv) | <input type="checkbox"/> 50.46(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(v)(B) | <input type="checkbox"/> 73.71(a)(5) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> 20.2203(a)(2)(v) | <input type="checkbox"/> 50.73(a)(2)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(v)(C) | <input type="checkbox"/> OTHER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> 20.2203(a)(2)(vi) | <input checked="" type="checkbox"/> 50.73(a)(2)(i)(B) | <input type="checkbox"/> 50.73(a)(2)(v)(D) | Specify in Abstract below or in NRC Form 366A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12. LICENSEE CONTACT FOR THIS LER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FACILITY NAME Cherie D. Sonoda, Licensing Engineer | | | | | | | | TELEPHONE NUMBER <i>(Include Area Code)</i> (509) 377-8697 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAUSE | SYSTEM | COMPONENT | MANU-FACTURER | REPORTABLE TO EPIX | CAUSE | SYSTEM | COMPONENT | MANU-FACTURER | REPORTABLE TO EPIX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E | EK | 65 | W290 | Y | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14. SUPPLEMENTAL REPORT EXPECTED | | | | | | 15. EXPECTED SUBMISSION DATE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> YES <i>(If yes, complete 15. EXPECTED SUBMISSION DATE)</i> | | | | | | <input checked="" type="checkbox"/> NO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | MONTH | | DAY | | YEAR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ABSTRACT <i>(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)</i> On February 28, 2010, following investigations of a small amount of oil found in the vicinity of the division 3 emergency diesel generator (DG-3) electro-hydraulic type governor (governor), DG-3 was being operated to validate no oil leakage from the governor. DG-3 started experiencing load oscillations of approximately 300 kW after 45 minutes of full load operation. Subsequent investigative actions revealed the load instabilities were present in all modes of operation (idle, rated speed, and fully loaded) which indicated a governor control problem. Following troubleshooting, the DG-3 governor was replaced. DG-3 testing was completed and was returned to service on March 4, 2010. The direct cause of the event was determined to be the result of foreign material left in the governor as early as 2005. The root cause of the event was organizational decision making did not adequately consider long term risks and consequences associated with operating the governor with known foreign material intrusion. Contributing factors included wear due to aging, flushing the governor with fuel oil, and overfilling the governor. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

| 1. FACILITY NAME | 2. DOCKET | 6. LER NUMBER | | | 3. PAGE |
|-----------------------------|-----------|-----------------|----------------------|------------|---------|
| Columbia Generating Station | 05000397 | YEAR | SEQUENTIAL NUMBER | REV NO. | 2 OF 3 |
| | | 2012 - 001 - 01 | | | |

NARRATIVE**Plant Condition**

Columbia Generating Station (CGS) was operating in Mode 1 at 100% power. There were no structures, systems, or components that were inoperable at the start of this event and that contributed to this event.

Description of Event

On February 28, 2010, following investigations of a small amount of oil found in the vicinity of the division 3 emergency diesel generator (DG-3) [DG] electro-hydraulic type governor (governor) [65], DG-3 was being operated to validate no oil leakage from the governor. DG-3 started experiencing load oscillations of approximately 300 kW after 45 minutes of full load operation. Subsequent investigative actions revealed the load instabilities were present in all modes of operation (idle, rated speed, and fully loaded) which indicated a governor control problem. Following troubleshooting, the governor was replaced. DG-3 completed testing and was returned to service on March 4, 2010.

The forensic investigation of the removed governor revealed a large amount of foreign material throughout. Prior to disassembly, the oil was drained from the governor and evidence of oil product breakdown and fuel oil contamination was found. There were small pieces of terminal strip material (blue in color) found throughout the governor that came from a larger piece that fell into the governor in 2005. Although the blue material was identified as a major contributor to the load oscillations by the forensic investigation vendor, other factors such as wear from aging, flushing the governor with fuel oil, and overfilling the governor could also have contributed to the failure.

On October 14, 2005, during the repair of a failed shutdown solenoid [SOL], a vendor broke a terminal strip which resulted in a broken piece approximately 1/8" by 3/16" falling into the governor. The governor was flushed with fuel oil in an effort to retrieve the piece of broken strip; however, the piece was not found nor recovered. DG-3 was returned to service on October 15, 2005 following satisfactory completion of the monthly surveillance. The justification for continued operation with the foreign material assumed that the softness and the physical size of the material would not adversely impact the ability of the governor to maintain DG-3 engine speed at a specified value. In addition, the foreign material was heavier than the oil and was assumed to sink to the bottom of the oil reservoir. No load oscillations were observed in DG-3 during subsequent surveillance runs prior to the February 28, 2010 post maintenance test event.

Total run time on DG-3 from the last biennial 24 hour surveillance run on May 21, 2008 until the load oscillation event on February 28, 2010 was approximately 78 hours. An evaluation was performed to assess DG-3 operability status from May 21, 2008 to February 28, 2010. Based on the results of the evaluation, which utilized Probabilistic Risk Assessment methods, it is postulated that DG-3 would not have been able to fulfill its design function during a 24 hour run for portions of the timeframe from September 10, 2009 through February 28, 2010. As such, DG-3 would have been inoperable during the portions of the timeframe stated in the evaluation. Technical Specifications (TS) 3.8.1, Condition B requires an inoperable DG to be restored to operable status within 14 days, otherwise Condition F requires the unit to be in Mode 3 within 12 hours and Mode 4 within 36 hours. Consequently, the condition of CGS not in compliance with Condition F is a condition prohibited by TS and reportable to

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

| 1. FACILITY NAME | 2. DOCKET | 6. LER NUMBER | | | 3. PAGE |
|-----------------------------|-----------|-----------------|----------------------|------------|---------|
| Columbia Generating Station | 05000397 | YEAR | SEQUENTIAL NUMBER | REV NO. | 3 OF 3 |
| | | 2012 - 001 - 01 | | | |

NARRATIVE

the NRC in accordance with 10 CFR 50.73(a)(2)(i)(B).

Immediate Corrective Actions

DG-3 was declared inoperable on February 28, 2010, the governor was replaced on March 2, 2010, surveillance testing was completed, and DG-3 was declared operable on March 4, 2010.

Causes

The direct cause of the event was due to foreign material left in the governor as early as 2005. The root cause of the event was organizational decision making did not adequately consider long term risks and consequences associated with operating the governor with known foreign material intrusion. Contributing causes included wear due to aging, flushing the governor with fuel oil, and overfilling the governor.

Further Corrective Actions

Further corrective actions included strengthening foreign material intrusion actions in operability determinations and maintenance procedures and providing training on lessons learned to the management committee responsible for station health issues.

Assessment of Safety Consequences

There were no actual safety consequences as a result of this condition. Critical electrical bus SM-4 [BU] is normally energized from Normal Auxiliary transformer TR-N1 [XFMR] thru non-critical bus SM-2 when the main generator [GEN] is operating and from Startup Auxiliary transformer TR-S thru SM-2 when the main generator is not operating. DG-3 provides emergency power to SM-4. SM-4 was available and powered by either TR-N1 or TR-S throughout the time frame DG-3 was postulated to be inoperable.

Similar Events

A search of CGS Licensee Event Reports and the Corrective Action Program for the last 10 years found no other instances where load oscillations were observed on an emergency diesel generator due to a failed governor.

Energy Industry Identification System (EIIIS) Information

EIIIS information is denoted as [XX], [XXX], or [XXXX] throughout the narrative.