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September 3, 2019

GO2-19-129

10 CFR 21.21(d)(3)(ii)

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

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397**
10 CFR 21 NOTIFICATION

Dear Sir or Madam:

Transmitted herewith is a 10 CFR Part 21 Notification for Columbia Generating Station. This report is submitted pursuant to 10 CFR 21.21(d)(3)(ii). This information was initially reported to the NRC Operations Center on August 8, 2019 (Event Notification #54206).

The attachment to this letter provides the information required by 10 CFR 21.21(d)(4).

There are no commitments being made to the NRC by this letter. If you have any questions or require additional information, please contact Mr. S.A. Nappi, Regulatory Compliance Supervisor, at (509) 377-4598.

Executed on this 3rd day of September, 2019.

Respectfully,

J Kent Dittmer
Vice President, Engineering

Attachment: 10 CFR Part 21 Notification

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

**10 CFR Part 21 Notification
Spectrum Technologies Supplied Control Power Transformers**

(i) Name and address of the individual or individuals informing the Commission.

J Kent Dittmer
Vice President of Engineering
Columbia Generating Station
Energy Northwest
PO Box 968
Richland, WA 99352

(ii) Identification of the facility, the activity, or the basic component supplied for such Facility of such activity within the United States which fails to comply or contains a defect.

Facility:
Columbia Generating Station, Docket No. 50-397
PO Box 968
Richland, WA 99352

Manufacturer:
Paragon Energy Solutions (Spectrum Technologies Inc.)
777 Emory Valley Rd
Oak Ridge, TN 37830

Component: Control Power Transformer
Part Type: Motor Control Center Cubicle (Bucket)
Defective P/N: Micron B150-2957-1

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Paragon Energy Solutions (Spectrum Technologies Inc.)
Paragon Energy Solutions
777 Emory Valley Rd
Oak Ridge, TN 37830

(iv) Nature of the defect or failure to comply and the safety hazard, which is created or could be created by such defect or failure to comply.

Failure analysis concluded that overvoltage conditions caused overheating and the subsequent failures of starter coils contained in Spectrum Technologies buckets (now Paragon Energy Solutions).

Columbia Generating Station's (Columbia) procurement specification required that the Alternating Current (AC) contactor coils be capable of withstanding continuous operation with 528 volts applied to the primary of the Control Power Transformer (CPT). To achieve voltages within the required specification, a CPT with a 4:1 turns ratio should have been utilized. Given the bus voltages that were present during the failures and through independent failure analysis that was conducted, it was confirmed that the CPT turns ratio was actually 3.77:1. A 3.77:1 turns ratio resulted in secondary side voltages exceeding the voltage ratings for the starter coil.

The excess voltage applied to the secondary coil of the CPT resulted in the starter coil overheating due to the associated contactor control voltage being consistently outside of the starter coil rated voltage range. Over time this caused the winding wire insulation to degrade and a short developed in the starter coil resulting in the starter coil failing completely. Therefore, the contactor was not able to supply power to a safety related load. This deviation, were it to remain uncorrected, would constitute a common mode failure to all continuously energized safety related loads that are supplied power from Spectrum Technologies Inc. buckets during normal or accident conditions that contain this type of CPT.

Therefore, the conclusion is that the deviation is a Defect reportable in accordance with 10 CFR Part 21.

(v) The date on which the information of such defect or failure to comply was obtained.

The potential deviation was entered into Columbia's Corrective Action Program (CAP) on June 10, 2019.

The assessment for the Part 21 was completed on August 5, 2019, and determined that the reported deviation constituted a defect in accordance with regulatory definitions.

An officer of the company was notified of the defect and Part 21 reporting requirement on August 7, 2019.

Notification to the NRC of the defect was completed on August 8, 2019 by Event Notification #54206, by the manager of Regulatory Affairs as delegated by the Vice President of Engineering.

- (vi) **In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.**

In order for the failure to occur, the starter coil must be energized for a prolonged overvoltage condition. This condition would only be expected to occur with continuously operated (energized) starter load. The coil that failed was installed for approximately 2 years. The extent of condition includes all normally energized (continuous run) buckets, safety related loads fed from Spectrum Technologies circuit breakers. The total extent of condition is 14 buckets that meet the extent of condition criteria of non-conformance to Procurement Specification 15209 that are also continuously operated safety related loads.

- (vii) **The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.**

Visual inspections were conducted on affected components. These coils have all been in service from 2 to 8 years and exhibit very little degradation (in contrast to the failed coil). The current planned corrective actions are to have the affected CPTs replaced with 4:1 turns ratio transformers in the next refueling outage (May-June 2021) and revise procurement specification 15209 to specify the turns ratio for the impacted CPTs. Columbia is also actively working with Paragon to determine the preferred long term engineering solution.

- (viii) **Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.**

None.

- (ix) **In the case of an early site permit, the entities to whom an early site permit was transferred.**

Not applicable