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GO2-17-100

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

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397
RESPONSE TO INSPECTION REPORT 05000397/2016009**

Dear Sir or Madam:

The purpose of this letter is to provide Energy Northwest's response to the finding and Non-Cited Violations documented in Inspection Report 05000397/2016009 related to an improperly packaged and manifested radwaste shipment sent by Columbia Generating Station to US Ecology on November 9, 2016.

A Regulatory Conference was held on May 2, 2017, at which time Energy Northwest provided information regarding the event, the root causes of the event, corrective actions that have been and will be taken as a result of the event, as well as considerations for the significance of the preliminary white finding. As discussed, the root cause of the event is that station procedures to implement clean-up activities and the associated radioactive waste surveys, processing, and shipping activities were not sufficient to ensure compliance with all requirements.

Energy Northwest understands the significance of the issues which were addressed in the inspection report and is working to ensure these events are not repeated. Energy Northwest recognizes that there were underlying programmatic and process issues in the Radwaste Shipping and Packaging program, and as described at the Regulatory Conference, Energy Northwest has implemented significant corrective actions to resolve these issues and is implementing station-wide lessons learned from this event.

The attachment to this letter contains a restatement of the findings and provides Energy Northwest's response to the findings. There are no commitments being made to the Nuclear Regulatory Commission herein. If you have any questions, or require additional information, please contact Ms. D. M. Wolfgramm, Regulatory Compliance Supervisor, at (509) 377-4792.

GO2-17-100

Page 2 of 2

Executed on this 9TH day of May, 2017

Respectfully,



W. G. Hettel
Vice President, Operations

Attachment: Response to Non-Cited Violations

cc: A Vogel – NRC RIV
Director, Office of Enforcement – NRC
NRC Project Manager
NRC Senior Resident Inspector/988C
CD Sonoda – BPA/1399
WA Horin – Winston & Strawn

Response to Non-Cited Violations

Documenting Related Violations

Restatement of Violations

Inspection Report 05000397/2016009 documented the following Self-Revealed finding and Apparent Violation, and Non-Cited Violations (NCV).

1. Self-revealed finding and Apparent Violation of 49 CFR 173.427 associated with a shipment of low specific activity (LSA) material consisting of radioactive filters, irradiated components, and dry active waste. The licensee failed to ensure that the radioactive contents in a radwaste liner did not exceed the radiation level requirements for shipping. Specifically, the licensee transported a Type A package containing a Type B quantity of radioactive material as LSA even though it had an external radiation level of 2.1 rem/hr at a distance of 3 meters from the unshielded material, exceeding the 1 rem/hr at 3 meters limit for LSA.
2. Self-revealed, non-cited violation of 10 CFR 20.1501 associated with the failure to conduct adequate surveys of the solid radwaste contents of a shipment that was packaged and transported for ultimate disposal. As a result of the inadequate surveys, the radwaste in shipment No. 16-40 was packaged in the incorrect type of shipping cask, the radwaste manifest and shipping paperwork contained numerous errors, and the waste was not correctly classified in accordance with 10 CFR Part 61.
3. A self-revealed non-cited violation of 10 CFR 30.41(b)(5) for the failure to transfer byproduct material to an authorized waste disposal facility in accordance with the terms of the facility's license. Specifically, License Condition No. 22.C of the US Ecology license required that all radwaste shall be packaged in such a manner that waste containers received at the facility do not show an increase in the external radiation levels as recorded on the manifest, within instrument tolerances.
4. NRC identified non-cited violation of 10 CFR 20.2006(b) for the licensee's failure to ship radwaste with an accurate shipping manifest. Specifically, the licensee failed to provide the correct identification number and proper shipping name, radionuclide activity, net waste volume, surface radiation level, and waste classification. The incorrect surface radiation levels resulted in rejection of the package and the licensee's immediate suspension from usage of the land disposal site at US Ecology.

Energy Northwest's Position

Energy Northwest requests that the above findings be considered for combination into one violation. As stated in Nuclear Regulatory Commission (NRC) Enforcement Manual 1.3.5, Documenting Related Violations, violations may be appropriately grouped as examples of a problem when there is a cause and effect relationship or when they are directly related to the same event.

It is Energy Northwest's position that this performance deficiency of failure to perform adequate surveys of solid radwaste led to each of the other above stated examples of a single event. The inadequate surveys of the material placed into the liner led to higher than expected radiation levels on the liner, which caused the waste to be transported in an incorrect shipping cask. This event also resulted in transporting byproduct material to an authorized waste disposal facility which violated the terms of the facility's license.

Had accurate and up to date surveys been performed, the material would have been correctly classified as Class B waste, which would have been transported in a Type B container. The radiation levels would have been acceptable for Type B containers. This then would have been accepted for disposal with no violation to the facility's license.

As determined in Energy Northwest's root cause evaluation, the decision to use the Type A container was based upon inaccurate characterization which resulted from inadequate surveys which were performed. The effect of these incorrect surveys led to each of the other issues; therefore Energy Northwest respectfully requests that the NRC reconsider these violations be considered for appropriate grouping as examples of a single problem as stated in the NRC Enforcement Manual.

10 CFR 20.1904 – Containers

Restatement of Violation

Inspection Report 05000397/2016009 documented the following NRC Identified NCV:

Non-cited violation of 10 CFR 20.1904 for the licensee's failure to ensure that each container of licensed material in the spent fuel pool bore a label or had documentation providing sufficient information to permit individuals handling the licensed material to minimize exposure.

Energy Northwest's Position

Energy Northwest respectfully disagrees with the violation as stated. In a final ruling, as documented in Federal Register 68043 on December 4, 2007, an exemption was amended to 10 CFR 20.1905. This exemption is for containers holding licensed

materials within nuclear power facilities. The Federal Register (FR) states that Licensees of these facilities need not label containers holding licensed material that are within an area posted under 10 CFR 20.1902, "Posting Requirements," if the containers are conspicuously marked commensurate with the radiological hazard and are accessible only to individuals who have sufficient instruction to minimize radiation exposure while handling or working in the vicinity of the containers. The rule does require the containers to be appropriately labeled under the requirements of 10 CFR 20.1904, "Labeling Containers," before being removed from the posted area.

The FR goes on to state that some licensees interpreted 10 CFR 20.1904 to mean they had to label all containers in a posted area, however; because every container has the potential for internal contamination, this was recognized to put an undue burden on these licensees. The containers located within a posted area are accessible only to individuals who have had instruction under 10 CFR 19.12 and who have been assigned a radiation work permit to control their activities. The final rule does not affect the level of protection for either the health and safety of the workers and the public, or for the environment.

At the Columbia Generating Station (Columbia) the licensed material in question, filters, are stored in the Spent Fuel Pool (SFP) which is not considered to be a container. The SFP is located in an area which is continually posted under 10 CFR 20.1902. Inventories of these materials are kept, and only authorized and knowledgeable individuals have access to these materials. The filters, socks, and their receptacles are not attached to the surface of the SFP by ropes or chains; therefore they cannot be inadvertently pulled to the surface. The material being stored in a radiologically posted area, having the material inventories and corresponding mapping information, and limiting access to those materials to trained individuals qualify as exemptions to the labeling of "containers" requirement, as allowed by 10 CFR 20.1905.

Energy Northwest's procedures specify that underwater storage of radioactive material in a canister or container that is tied off to the side of the pool and accessible from the surface is to be clearly labeled with caution and sufficient information to permit individuals handling the material to take precautions to avoid or minimize exposure.

It is Energy Northwest's position that materials being stored in the Spent Fuel Pool are within a posted area as required by the exemption in 10 CFR 20.1905 and meet the labeling requirements of 10 CFR 20.1904 once they are removed from the radiologically posted area, therefore Energy Northwest respectfully requests that the NRC reconsider the NCV related to labeling of containers and withdraw the finding.

10 CFR 50.71(e) – FSAR

Restatement of Violation

Inspection Report 05000397/2016009 documented the following NRC Identified SL IV NCV:

Severity Level IV non-cited violation of 10 CFR 50.71(e) for the failure of the licensee to periodically provide the NRC a Final Safety Analysis Report (FSAR) update with all changes made in the facility or procedures. Specifically, the licensee changed its radwaste management strategy for the spent fuel pool cooling and cleanup system and material being stored in the spent fuel pool. However, the licensee had not changed its process control program or updated the FSAR to reflect the impact on waste streams from processing items stored in the spent fuel pool including activated metals, Tri-Nuke filters, filter socks, demineralizer filter resins.

Energy Northwest's Position

Energy Northwest respectfully disagrees with the violation as stated. It is Energy Northwest's position that the level of detail which is described in the violation is not required. The violation addresses two issues with the FSAR which are discussed individually below.

The first issue is that the FSAR did not describe and include the backwash resins from the SFP system filter demineralizers as an individual waste stream. Columbia's FSAR Section 11.4.2.1 states "Wet solid wastes include backwash resin from the RWCU system, the condensate filter demineralizer system, *the fuel pool filter demineralizers*, the floor drain and equipment drain filter demineralizers, and spent resin from the floor drain demineralizer and the waste demineralizer" (emphasis added). This fuel pool filter demineralizer waste stream is not included as an individual waste stream because as stated in FSAR Section 11.4.2.4 this waste stream is backwashed to the waste sludge phase separator tank together with other waste streams. The fuel pool filter demineralizer waste stream is not considered to be a major system producing waste, therefore it was not listed in the FSAR as such and is a level of detail beyond which is required to be in the FSAR. The FSAR adequately describes the current radioactive waste practices of backwashing waste streams, such as from fuel pool filter demineralizers, floor drains, and waste collector filter demineralizers. This process is also adequately described in plant procedures. Therefore, it is Energy Northwest's position that the FSAR adequately reflects current processes.

The second issue documented in the inspection report is that the FSAR does not mention Tri-Nuclear® (Tri-Nuke) or sock filters in the Dry Active Waste or Dry Solid Waste System. It is Energy Northwest's position that the statement in FSAR Section

11.4.2.7, Miscellaneous Dry Solid Waste System, description of dry active waste “other similar materials” is inclusive of the Tri-Nuke and sock filters, which are underwater filters. Tri-Nuke and sock filters are specialized items which are used for clean-up of the SFP; Tri-Nuclear® is a specific brand of cylindrical metal filters. They are filters which are used in a vacuum machine located underwater in the SFP, the metal filter is open at the top allowing flow to enter the center area and then exits through the paper filter media to the outside. These filters are similar in design to air filtration media; hence they are included in the FSAR as “other similar materials”.

It is Energy Northwest’s position that the FSAR adequately describes the Miscellaneous Dry Solid Waste System and the components which may be disposed of. Nuclear Energy Institute (NEI) 98-03, Guidelines for Updating Final Safety Analysis Reports, Revision 1, June 1999, discusses simplifying the FSAR to improve focus, clarity, and maintainability. By not specifying brands of filters used in the SFP the FSAR maintains required detail for a description of the types of items used, yet allows for brand changes without a requirement to update the FSAR.

Furthermore, the NRC Enforcement Policy includes information on Traditional Enforcement findings specific to FSAR updates. Section 2.1.3 states that a failure to update the FSAR that does not have a material impact on safety or licensed activities is considered a minor violation of 10 CFR 50.71(e). The failure to include the SFP system filter demineralizers as an individual waste stream and to specify underwater filters did not impact safety or licensed activities. Impacts of the FSAR’s verbiage on the process were not found to be root or contributing causes to the event.

This additional detail not being included in the FSAR did not contribute to the event of failing to accurately characterize the radioactive material; therefore it did not contribute to the failure to ship radwaste with an accurate shipping manifest. It is Energy Northwest’s position that this lack of detail in the FSAR is not required nor does it have an impact on how Energy Northwest safely handles and disposes of the radiological material or the radiological safety of the plant workers or the public. Energy Northwest respectfully requests that the NRC reconsider the finding related to the FSAR and withdraw the finding.

Failure to follow SWP-CAP-06

Restatement of Finding

Inspection Report 05000397/2016009 documented the following NRC Identified finding:

Finding for the failure to follow the requirements of Procedure SWP-CAP-06, “Condition Report Review,” when determining the type of cause evaluation required to assess the causes of the higher than expected dose rates on a

radwaste container. Specifically, Procedure SWP-CAP-06 required that if an event has high risk and high uncertainty, the level of evaluation required is a root cause evaluation. However, the licensee failed to adequately assess the uncertainty associated with the causes of the event and performed an apparent cause evaluation rather than a root cause evaluation.

Energy Northwest's Position

Energy Northwest respectfully disagrees with the finding as stated. Energy Northwest disagrees that requirements in procedure SWP-CAP-06 were not followed when the station determined the uncertainty assessment as "Medium". The NRC has stated that the station failed to adequately assess the uncertainty associated with the causes of the event and performed an Apparent Cause Evaluation (ACE) rather than a Root Cause Evaluation (RCE). It is Energy Northwest's position that the uncertainty assessment was performed appropriately given that the causes and corrective actions were partially known at the time. Additionally, the NRC stated that if the station initially had performed an RCE instead of an ACE, additional insight may have been gained.

On November 10, 2016, the Condition Review Group initially determined the uncertainty assessment of condition report (CR) 357593 as "Medium", signifying that the causes were partially known and the corrective actions were partially known. An event investigation was performed on November 10, 2016. This event investigation was sent via email to the Plant General Manager, Regulatory Affairs/Performance Improvement Manager and Corrective Action Program Supervisor on November 11, 2016, contributing to the station's understanding of what was known of the event. A draft department clock reset identified some actions that, had they been taken, could have prevented the event. An unofficial cause of the event as documented in the department clock reset pointed to improper verification/validation, as it was a known issue that the dose rates would be a challenge for this specific cask. On November 14, 2016, the Management Review Team agreed with the assignment of an ACE and approved the grading of the CR.

Energy Northwest disagrees that an RCE would have provided additional insight, or changed the causes of the event that were determined by the ACE. Contrary to statements made in the inspection report, guidance in CDM-01, Cause Determination Manual, does not require the use of additional analysis techniques when performing a non-SCAQ RCE as opposed to an ACE. The required elements for an ACE and non-SCAQ RCE are the same. The guidance in CDM-01 also does not require the use of specific causal tools for a non-SCAQ RCE, which indicates that had an RCE been performed rather than an ACE, the station would not have been required to use more than the barrier analysis and change analysis techniques that were used in the ACE performed. Additionally, the causes identified in the ACE meet the validation of the root

cause test in accordance with CDM-01; thereby the root cause of the event was identified.

In accordance with 10 CFR 50, Appendix B, Criterion XVI, formal analysis to determine a corrective action to preclude repetition is only required for significant conditions adverse to quality. At the time that the CR was graded there was no knowledge that any US Department of Transportation (DOT) dose rate limits were exceeded, only that higher than expected dose rates were detected at the burial site. Since CR 357593 was not graded as a significant condition adverse to quality, there is no procedural requirement to perform an RCE to determine which causal factors need to be corrected to preclude repetition. This further suggests that the outcome of the cause evaluation would not have been different had the level of evaluation been elevated.

As discussed during the Regulatory Conference, after the station confirmed that the dose rates in the liner were above acceptable US DOT limits for a Type A shipping container on January 13, 2017, Energy Northwest initiated an additional CR with this new knowledge. This CR was graded as a significant condition adverse to quality and the station performed an RCE to determine which causal factors needed to be corrected to preclude repetition.

The interpretation reflected in the inspection report as a procedural requirement is regarded as a limitation within the procedure rather than an example of an allowance. Energy Northwest denies that a violation has occurred and remains in compliance with its station procedures. Energy Northwest respectfully requests that the NRC reconsider the finding related to the requirement for a root cause evaluation and withdraw the finding.

10 CFR 61.56(b)(3) – Void Spaces

Restatement of Violation

Inspection Report 05000397/2016009 documented the following self-revealing NCV:

Non-cited violation of 10 CFR 61.56(a)(3) for the licensee's failure to assure that void spaces within the waste packages were reduced to the extent practicable. Specifically, a shipment of dry active waste sent to US Ecology in May 2016 arrived at the disposal facility with voids in excess of 15 percent of the total waste volume, contrary to the requirements of US Ecology's Radioactive Material License WN-I019-2, License Condition No. 23.

Energy Northwest's Position

Energy Northwest respectfully disagrees with the violation as stated. It should be noted that the inspection report cites License Condition 23; however, the applicable condition is License Condition 24. It is Energy Northwest's position that the void spaces were reduced to the extent practicable as required by 10 CFR 61.56(b)(3).

This event, unrelated to the failure to ship radwaste with an accurate shipping manifest, occurred on July 13, 2016. On this date a call was received from US Ecology, the waste disposal site, informing Energy Northwest that a box shipped that day may have been filled such that there may have been more than 15% void space, contrary to the requirement of US Ecology License WN-I019-2, License Condition 24.

An ACE was performed which determined that the material had settled while waiting for shipment. Personnel statements provided during interviews after the event showed that the container was packed 100% full, and was in fact difficult to close, indicating that the void spaces were reduced to the fullest extent practicable. Therefore, Energy Northwest met the requirement of 10 CFR 61.56(b)(3) during the packing activities and did indeed reduce the void spaces to the extent practicable.

Application of the 15% voids license condition is subjective, as exact measurements are not completed upon arrival at the US Ecology site. Pictures taken at the US Ecology site show the container as being mostly full, and an exact 15% would be difficult to assess without physically measuring the volume.

Additional inspections of other containers from the same waste shipment were conducted and all remaining containers were found to be satisfactory. No further actions were required of Energy Northwest, and Washington Department of Health (WDOH) authorized US Ecology to accept the shipment. The violation of the US Ecology license was an isolated incident and did not result in suspension of shipping privileges to US Ecology.

It is Energy Northwest's position that no violation of 10 CFR 61.56(b)(3) occurred and that although a warning call was received from US Ecology, no physical confirmation was performed to quantify the volume of the void space and the shipment was ultimately accepted for burial, therefore this violation should be considered of minor significance.

Energy Northwest respectfully requests that the NRC reconsider this violation related to reducing void spaces to be of minor significance.