



Gautam Sen
Manager Regulatory Affairs

February 7, 2012

RA 12-0014

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Reference: Letter RA 11-0130, dated April 27, 2011, from G. Sen, WCNOC, to
USNRC

Subject: Docket No. 50-482: Correction to Wolf Creek Generating Station
Annual Radioactive Effluent Release Report – Report 34

Gentlemen:

The reference submitted the Wolf Creek Generating Station Annual Radioactive Effluent Release Report – Report 34, for the period of January 1 to December 31, 2010. Subsequent to the submittal of this report, it was discovered that two errors existed in the report.

The first error was made on pages 22-23 of the report in the last paragraph of the discussion of "Carbon-14 (CR 36059)." The value estimated for the total curies released was omitted. This value had been calculated in accordance with the methodology described in EPRI TR 1021106 but was not included in the report.

The second error was identified in the first sentence of the first paragraph on page 58, in the "Updated Information from 2009 ARERR." The first sentence should reflect that the condition described occurred in October 2009 rather than November 2009 as originally reported. While making this change, the entire section was also updated to add the unplanned Waste Water Treatment (WWT) percent curies released compared to the total curies released for the fourth quarter, as well as the dose and dose limit of the WWT release. This is an enhancement to make it easier to identify the impact of the unplanned WWT release. All data was included in the original report tables.

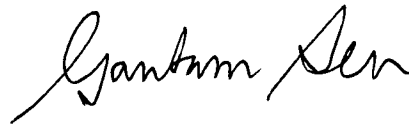
To correct this error, Wolf Creek Nuclear Operating Corporation (WCNOC) has enclosed corrected copies of these three pages to replace those originally submitted.

WCNOC regrets any inconvenience that this error, and its correction, may cause.

TE48
MRR

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4175.

Sincerely,

A handwritten signature in black ink, appearing to read "Gautam Sen". The signature is fluid and cursive, with the first name "Gautam" written in a larger, more prominent script than the last name "Sen".

Gautam Sen

GS/rlt

Enclosure: Corrected pages 22-23, and 58 of Report 34

cc: E. E. Collins (NRC), w/e
J. R. Hall (NRC), w/e
N. F. O'Keefe (NRC), w/e
Senior Resident Inspector (NRC), w/e

sample of the WWT basin. The operator requested a pH be performed on the sample and did not mention that it was also the daily composite. The technician performed the pH as requested and dumped the sample upon completion. The technician was not qualified on compositing samples at the time and did not know this sample was required to be saved. The missing sample resulted in a missed ODCM surveillance, but it was determined that the immediate consequences were minimal.

CR-30138 – GHRE10A, Radwaste Vent radiation monitor, was declared inoperable on October 12, 2011, due to piping configuration issues that possibly affected calculation assumptions. Per ODCM Table 3-2, Action 43, releases may continue for 30 days provided samples are continuously collected with auxiliary methods. As of the 30 days, the modification to the monitor was complete; however, there were Post Maintenance Tests (PMTs) that needed to be performed. The ODCM requirements, including the particulate and iodine samplers and associated piping and pump, were being met for the monitor to be considered operable. It was undetermined, however, if GHRE10A not having the detector, alarm, and actuation capabilities would affect its operability. Conservatively, the monitor remained inoperable until all PMTs were completed. Chemistry maintained auxiliary sampling throughout the evolution, providing continuous monitoring, until work was complete. Ultimately, it was determined that no piping configuration issues affecting calculation assumptions existed.

Carbon-14 (CR 36059)

Regulation 10CFR50.36a requires nuclear power plants to report quantities of principal radionuclides in the annual radioactive effluent release report. In the early 1980s, the NRC decided that C-14 radionuclide would not be required to be reported because it would not make a significant contribution to dose. Since this time, technology has advanced both for effluent isotopic reduction and isotope detection and estimation. It is more likely the C-14 meets the definition of a principal radionuclide in accordance with the newly published Regulatory Guide 1.21 Revision 2 (June 2009).

Carbon-14 (C-14), with a half-life of 5730 years, is a naturally occurring isotope of carbon produced by cosmic ray interactions in the atmosphere. Carbon-14 is a low energy Beta emitter of low biological dose consequence. From natural sources, this isotope becomes incorporated into biological tissue and contributes a dose of 1.64 mrem/yr (EPRI TR 1021106). In nuclear reactors, C-14 is produced from neutron interactions with Nitrogen-14, Oxygen-17, and Carbon-13 present in the reactor coolant. The resulting Carbon-14 creates organic (i.e. methane) compounds and inorganic (i.e. carbon dioxide) compounds. The inorganic compounds are the only portions of Carbon-14 that are considered to be passed through food sources. For Pressurized Water Reactors (PWRs), research has shown that the percentage of C-14 complexed as inorganic compounds ranges from 5% – 30% of the total C-14 produced (EPRI TR 1021106). This same research has also shown that >98% of the release is through the gaseous releases; therefore, only the gaseous portion is required for reporting purposes.

The NRC allows the reporting of this isotope based on estimation methods. EPRI TR 1021106 developed an estimation method based on peer-reviewed research that incorporates parameters of Wolf Creek's reactor design to estimate the gross amount of C-14 produced annually. This value is fed into additional calculations, based on Regulatory Guide 1.109, Calculation of Annual Doses to Man From Routine Releases of Reactor Effluents For the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I, to provide an estimation of annual dose. Based on these theoretical

calculations and assuming the maximum percentage of inorganic C-14 compounds (30%), Wolf Creek has estimated the 2010 release of C-14 to be 10.7 curies and to contribute maximum dose values of 1.30 mrem/yr child bone dose and 0.259 mrem/yr child total body. This is well below the 10CFR50, Appendix I, ALARA design objective of 15 mrem/yr. Additionally, this value is on par with the dose expected from naturally occurring radiocarbon.

Updated Information from 2009 ARERR

8. Additional Information

CR-20999 – On October 21, 2009, Operations personnel placed a clearance order that would allow maintenance to work on valve BGV0195, Blended Supply to Refueling Water Storage Tank (RWST) Isolation. Valves were being opened on various levels of the Auxiliary Building per the clearance order, including a vent valve and a drain valve. A drain line had been placed on the drain valve and routed to a floor drain. When BNV0028, RWST Inlet Header Vent, was opened, water unexpectedly issued from the valve. An additional hose, which had been lying in a stairwell and consisted of several sections linked together, was attached to the vent valve. Instead of disconnecting a section of the hose and routing it to a nearby floor drain, it was left connected to the long run of hose. That hose had not been walked down and had previously been routed to Area 5 Sump, which is a non-contaminated sump. Initially this line was water solid and allowed water to drain through the vent, draining portions of the RWST inlet header.

The Control Room became aware of this condition when discharge flow through valve HFRV0095 was automatically terminated due to HiHi Rad, as indicated on HFRE0095, Secondary Liquid Waste Monitor. This misalignment resulted in an unplanned, monitored release per the ODCM.

Update to information from 2010:

CR-20999

The unplanned monitored release occurred in the 4th quarter 2009 via a normal continuous release discharge path (Waste Water Treatment). Cobalt-58 was the principle isotope in this release. The total 4th quarter 2009 liquid curies released, excluding gas and tritium, was 0.0244, which is 0.48% of the 5 curie limit and includes the unplanned monitored release curies. The unplanned release accounted for 0.018 curies, which is 0.19% of the 5 curie limit and 73% of the curies release for that quarter. The maximum organ dose was 0.02 mR, which is well below the 1.5 mr quarterly limit. Ninety five percent of the dose can be attributed to Co-58. The release continued into the middle of 2010 with only residual Co-58 released (<0.001 curies).