

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD PANEL

**In the Matter of
South Texas Project Nuclear Operating Co.
Application for the South Texas Project
Units 3 and 4
Combined Operating License**

Docket Nos. 52-012, 52-013

INTERVENORS' CONTENTIONS REGARDING APPLICANT'S PROPOSED REVISION TO ENVIRONMENTAL REPORT SECTIONS 2.3.1, 5.2, AND 5.4 AND REQUEST FOR HEARING

Introduction

Pursuant to the Board's Order of December 14, 2009, the Intervenors hereby present their contentions regarding the Applicant's November 11, 2009, Proposed Revision to Environmental Report and November 23, 2009, Response to Request for Additional Information.¹ Contentions 8, 9, and 14 of the Intervenors' initial Petition to Intervene on April 21, 2009, were admitted by the Board's Order of September 29, 2009. On November 30, 2009, the Applicant moved to dismiss Contentions 8, 9, and 14 as moot. The Intervenors responded on December 14, 2009, opposing the Applicant's motion and modifying Contention 8. The Intervenors' new contentions herein are in addition to the modified contention and should not be construed as a waiver of Intervenors' arguments in opposition to Applicant's motion to dismiss Contentions 8, 9, and 14.

Legal basis for contentions of omission

10 C.F.R. § 2.309(f)(1)(v) requires the Intervenors to provide a concise statement of the facts that support their positions and upon which they intend to rely at the hearing. However, the requirements of 10 C.F.R. § 2.309(f)(1)(v), that generally call for a specification of facts or expert opinion supporting the

¹ The Board's Order of December 4, 2009 extended the deadline for new contentions to December 23, 2009.

issue raised, are not applicable to a contention of omission beyond identifying the omitted information required under the regulation in question. *North Anna*, LBP-08-15, 68 NRC (slip op. at 27) (quoting Pa'ina Hawaii, LLC (Materials License Application), LBP-06-12, 63 NRC 403, 414 (2006)). Thus, for a contention of omission, the Intervenors' burden is only to show the facts necessary to establish that the application omits information that should have been included. The facts relied on need not show that the facility cannot be safely operated, but rather that the application is incomplete. Catawba Nuclear Station, Units 1 and 2, CLI-02-28, 56 NRC 373, 383 (2002).

The contentions herein are omission based. When an unsubstantiated assertion of fact or the omission of information by the Applicant raises a material dispute, there is a basis for contentions. The contentions herein are within the scope of this proceeding because they deal with environmental impacts of water contamination due to STP Units 3 and 4 operation; as such the contentions are material to the decision the NRC must make concerning licensing. 10 C.F.R. § 2.309(f)(1)(iii)(iv) and 42 U.S.C. § 2133(d). See *North Anna*, *infra*.

Summary of Contentions²

MCR-1. The Environmental Report fails to discuss the actual environmental impacts, including bioaccumulation, bioconcentration, and human health effects, anticipated from radioactive particulates and tritium discharged into the MCR.

MCR-2. The ER does not include monitoring relief well discharge quality nor are there minimum water quality standards applied to these discharges.

MCR-3. The ER fails to account for operational impacts on the MCR's water level.

² The Intervenors will reference the MCR contentions herein by MCR-1 – MCR-5.

MCR-4. The Environmental Report does not fully evaluate the water quality nor does it account for the environmental impacts of all nonradioactive contaminants, including salinity and total dissolved solids (TDS), in the MCR and the seepage water from the MCR.

MCR-5. The Applicant fails to state how the MCR water seepage rate, quantity, and quality will be monitored and controlled.

Contentions

MCR-1. The Environmental Report fails to discuss the actual environmental impacts, including bioaccumulation, bioconcentration, and human health effects, anticipated from radioactive particulates and tritium discharged into the MCR (Main Cooling Reservoir).

Intervenors incorporate by reference the arguments and authorities in their response to the Applicant's motion to dismiss Contention 8.³ Intervenors' Expert Dr. Arjun Makhijani's letter report also provides support for this omission contention.⁴ Dr. Makhijani states:

STP admits that groundwater at the nearest well, 1,400 feet offsite will be contaminated with tritium is used for watering livestock (Stephen Burdick to Michael Gibson, November 12, 2009, Attachment 2, p. 8). But the document does not evaluate the effects of the use of this water for livestock and vegetables. Specifically, some of the tritium in the water will be become bound up in the organic molecules of the livestock as Organically Bound Tritium (OBT). The same will occur when tritiated water is used for irrigation and growing vegetables, fruits, or grains. The health impacts of eating contaminated livestock and vegetables for a given level of radioactivity per gram of food or water are considerably greater for OBT, which stays much longer in the body than tritiated water.

The following table [in attached report] provides research data that indicate that adults get higher doses for a given exposure to tritium when that tritium is in the form of OBT. Relative Biological Effectiveness is a measure of the relative biological damage per unit of energy deposition in the body by a radioactive material. The table also shows that fetal exposure is more damaging than adult exposure and that fetal exposure to OBT is the most damaging of all.

The STP ER modification is incomplete in basic ways in failing to fully address the health consequences of the use of tritiated water in farming.

³ Intervenors' Response to Applicant's Motion to Dismiss Contentions 8, 9, & 14 as Moot, December 14, 2009. pp. 1-5

⁴ Makhijani, Arjun. Letter Report Regarding Proposed Revision to STP ER, November 11, 2009. December 23, 2009 (Makhijani Report)

The Applicant does not differentiate between the environmental and health effects of tritium and organically bound tritium (OBT). As discussed by Dr. Makhijani, the biological damage of OBT is greater than tritium; but the Applicant does not describe or account for such. The Applicant's ER is deficient in this regard and is the basis for an admissible omission contention. *North Anna, infra*.

MCR-2. The ER does not include monitoring for MCR relief well discharge quality nor are there minimum water quality standards applied to these discharges.

Dr. Ross points out that while a TPDES permit authorizes discharges from MCR relief wells there is neither minimum quality standards nor monitoring of the discharges from these wells. Dr. Ross contrasts the discharges from the MCR relief wells that are authorized (but effectively unregulated) with Outfall 001 that is, in comparison, more closely monitored.⁵

The failure to address the means to monitor and control the discharges from the MCR relief wells is a material omission and the basis for an admissible contention. *North Anna, infra*.

MCR-3. The ER fails to account for operational impacts on the MCR's water level.

Dr. Ross notes that the intent is to maintain MCR levels within original design levels during operations of Units 3 & 4.⁶ However, impacts on the MCR's levels from operational increases attributable to Units 3 & 4 have not been addressed in the ER. The impacts on seepage rates from such operational increases should be addressed in the ER in order to determine, *inter alia*, the overall increases in water consumption needed to maintain the MCR within design specifications.

⁵ Ross, Lauren. Letter Report of December 14, 2009, to Robert Eye Regarding Proposed Revision to STP (Ross Report) p.1.

⁶ Ross Report, pp.1-2.

Failure to address this issue is a material omission from the ER and is the basis for an admissible contention. *North Anna, infra.*

MCR-4. The Environmental Report does not fully evaluate the water quality nor does it account for the environmental impacts of all nonradioactive contaminants, including salinity and total dissolved solids (TDS), in the MCR and the seepage water from the MCR.

Intervenors' Expert Dr. Lauren Ross's report provides the basis for this omission contention.⁷

The Applicant's Proposed Revision to ER Section 5.2.3.1 states that the TPDES Permit No.

WQ0001908000 "regulates the outfalls that discharge to the MCR, which assures that necessary treatment and monitoring for nonradioactive contaminants occurs before discharge to the MCR."⁸ Dr. Ross,

however, points out:

The permit does not assure necessary treatment and monitoring for all nonradioactive contaminants. In particular, the permit does not address increases in salinity, or total dissolved solids, which might negatively affect the Colorado River or downstream estuaries. Nor does the permit require treatment and monitoring for all of the contaminants that might be present. The Environmental Report does not fully characterize the quality of water in the MCR.⁹

Regarding water quality standards for the MCR, Dr. Ross states:

Water quality at the site is discussed in Environmental Report Section 2.3.3. The only references to MCR water quality, however, address specific conductance, pH, temperature, and maximum total residual chlorine. These water quality standards provide no information regarding most of the water quality parameters of interest including salinity, toxic metal concentrations, or radionuclides.¹⁰

⁷ Ross Report, p.2.

⁸ Applicant's Proposed Revision to ER, November 11, 2009. Attachment 2, p.1.

⁹ Ross Report, p.3

¹⁰ Id. p.2

The Applicant's Proposed Revision to ER Section 5.2.3.1 states, "This conductivity measurement is a good indicator for the TDS levels in the MCR."¹¹ Dr. Ross, however, points out:

The Environmental Report does not provide a relationship from which total dissolved solids (TDS) could be estimated based on conductivity measurements. Since it does not estimate TDS, it also does not evaluate the environmental consequences from discharge of water from the MCR with an estimated TDS. Furthermore, it does not evaluate the environmental consequences of such a discharge during hot dry periods of low flow, which is the time that higher MCR specific conductance would make such a discharge most likely.¹²

The Applicant's Proposed Revision to ER Section 5.2.3.1 states, "Using historical Colorado River flows, the mean TDS was calculated to increase from 2,178.5 mg/L to 3,076.8 mg/L."¹³ Dr. Ross criticizes this approach.

Mean TDS values fail, however, to capture TDS concentration changes during critical periods and fail to fully represent the environmental consequences of predicted changes in either direct MCR discharges, or MCR discharges through leakage.¹⁴

The ER lacks an adequate characterization of the TDS, salinity, and toxic metal concentrations and radionuclides in the MCR and the environmental impacts related thereto.¹⁵ Additionally, the Environmental Report does not address how it will monitor lead, molybdenum, and vanadium in the MCR, which are all "significantly higher" than EPA screening levels, according to Dr. Ross.¹⁶

The Applicant's ER is deficient in this regard and is the basis for an omission contention. *North Anna, infra.*

¹¹ Nov. 11 Proposed Revision, Attachment 2, p.2

¹² Ross Report, p.3

¹³ Nov. 11 Proposed Revision, Attachment 2, p.3

¹⁴ Ross Report, p.4

¹⁵ As for the deficiency in characterization of the MCR for radionuclides, Intervenors incorporate by reference the report of Dr. Makhijani in support of Contention MCR-1, *supra.* and the arguments and authorities in Intervenors' Response to Applicant's Motion to Dismiss Contention 8, pp.1-5 .

¹⁶ Ross Report, p.3

MCR-5. The Applicant fails to state how the MCR water seepage rate, quantity, and quality will be monitored and controlled.

The Applicant's Proposed Revision to ER Section 2.3.1.1.2.1 states, "The quality of the seepage water from the MCR is regulated by controlling the quality of the water entering the MCR from the operating units and the overall quality of water in the MCR itself."¹⁷ Regulation of contaminants entering the MCR does not constitute an analysis of the environmental effects of unregulated seepage from the MCR. The Applicant's approach is to describe what means it would use to control discharges to the MCR but the Applicant fails to state how the MCR water seepage rate, quantity, and quality will be monitored and controlled. This contention is one of omission and is supported by Dr. Lauren Ross's report.

The Applicant's Environmental Report fails to show how the concentration of contaminants in the MCR seepage water will be monitored and controlled under various conditions including protracted drought. As recently as this past summer, water levels in the MCR dropped to 36.3 feet MSL.¹⁸ As MCR levels drop concentrations of contaminants increase. There is no attempt by the Applicant to account for water quality variations based on reduced MCR levels.

The Applicant's Environmental Report also fails to show how the plant expansion could affect the seepage rate from the MCR. Dr. Ross argues that because the operational level of the MCR will increase to accommodate the plant expansion, "[c]alculations should be made to determine what the increase in seepage rate would be before that impact is determined to be significant."¹⁹ The Applicant does not address how it will monitor or control the variation in seepage rates from the MCR.

Dr. Ross points out two sentences deleted from ER Section 2.3.1.2.3.3. Dr. Ross first notes the difference

¹⁷ Nov. 11 Proposed Revision, Attachment 1, p.2

¹⁸ See attached STP newsletter

¹⁹ Ross Report, p.2

between the original ER language that had said, “Discharge to the environment from the MCR occurs from seepage through the reservoir floor to the groundwater.”²⁰ Dr. Ross addressed this deleted sentence and the proposed revision: “The new text says specifically that the remaining 32% of MCR leakage that isn’t collected in relief wells discharges to the Colorado River. This contradicts the original assertion that it recharges groundwater.”²¹

Why was this sentence removed? How and why did the MCR water seepage change from recharging the groundwater to discharging to the Colorado River? The Applicant needs to clarify this discrepancy and explain how they will monitor and control the water seepage from the MCR. Additionally, the Applicant has not addressed the environmental impacts of the reduction in groundwater recharge because of the discharge to the Colorado River.

The second sentence removed states, “STPNOC periodically monitors the potentiometric head and flow rates at the MCR relief wells to assist in controlling the potentiometric head and seepage within the dike structure.”²² Dr. Ross addresses this deleted sentence stating that “[i]t is no longer stated in this section that STPNOC will continue to monitor potentiometric head and flow rates at the MCR relief wells.”²³ Not only does the Applicant fail to state how the MCR water seepage rate, quantity, and quality will be monitored and controlled, they are now deleting references to monitoring commitments made in previous revisions of their ER.

The omission of information regarding the means to monitor and control the seepage rate, quantity and quality is a material omission from the ER. *North Anna, infra*.

²⁰ Id. p.2

²¹ Ross Report, p.2

²² Nov. 11 Proposed Revision, Attachment 1, p.3

²³ Ross Report, p.2

Conclusion

Based on the arguments and authorities above, Intervenors urge that the contentions specified herein be admitted for adjudication and that a hearing pursuant to 10 C.F.R. Part 2, Subpart L be ordered for these contentions.

Respectfully submitted,

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December 23, 2009

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CERTIFICATE OF SERVICE

I hereby certify that on December 23, 2009 a copy of “Intervenors’ Contentions Regarding Applicant’s Proposed Revision to Environmental Report Sections 2.3.1, 5.2, and 5.4 and Request for Hearing” was served by the Electronic Information Exchange on the following recipients:

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Make-up pumps raise level

After a lengthy decline to nearly a record low during the summer drought, the water level in the reservoir has risen significantly in just two months.

The level dropped to 36.3 feet Mean Sea Level (MSL) in early September, barely above the historic low of 36.2 feet MSL set in October 2000. The reservoir's depth had steadily decreased for more than two years, from a record of approximately 48 feet MSL in July 2007.

"If the level had fallen just a few more inches to below 36 feet MSL, we would have had to replenish the reservoir by pumping fairly brackish water under our contract Water Delivery Plan," Environmental Manager Sandy Dannhardt said.

However coastal and upstream rains in September and October increased the volume and flow of the Colorado River, enabling STP to pump fresh water into the reservoir. With three of the four reservoir make-up pumps operational, capable of pumping 540 cubic feet per second (242,369 gpm), the reservoir level is rising quickly.

"How much we pump and how long we pump depends on the river's flow rate and corresponding water quality," Dannhardt said.

The flow rate was good enough in September for STP Operations personnel to run the pumps up to 24 hours a day for 12 days. They pumped nearly 5,000 acre-feet of water that month, raising the level of the 7,000-acre reservoir nearly a foot.

Heavy rains last month kept the pumps running 25 of the 31 days. The pumps operated around-the-clock on 16 of those days, drawing in 1,070 acre-feet each day and raising the reservoir level approximately a foot each week. More than 21,000 acre-feet of water was pumped into the reservoir in October, increasing the level to 40 feet MSL.

"Whenever the flow rate is sufficient, Operations will keep running the pumps," Dannhardt said. "We'd like to get the level back to 47 feet, which is considered optimal."



The reservoir make-up pumps deliver water from the Colorado River at a rate of 242,369 gallons per minute. At that rate, an average size swimming pool would fill in just six seconds. The reservoir is now at 40 feet MSL (Mean Sea Level).

Issues with head lifting device resolved

As we continue down the critical path of head installation, we are always diligent and careful to make sure the job is performed right the first time.

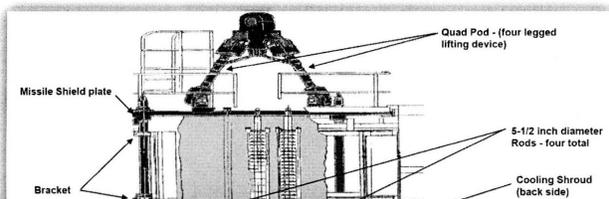
The head lifting device consists of three parts - the quad-pod, the missile shield plate, and the four lift rods. During this latest evolution, we had to overcome the issue of attaching

the lift rods to the new head.

While attempting to re-insert two of the four lift rods into the threaded lifting 'bosses' on the replacement head, two out of the four lift rods would not fit as designed due to an obstruction with the cooling shroud.

We first noticed an issue with the lift rod when we observed threads that appeared to be split. This condition was promptly repaired by our PCI machinists.

A second issue came up after a gauging process when the gauging tool got stuck. The result again was damage to the rod threads. Our own STP mechanical teammates Terry Brewer and Al Plunkett took care of business and repaired the threads.



Pla

As of this month, Unit 1 is in Motion. The Heat Removal train 'B' work we pumps are in serv

Unit 1 is in Motion. The Heat Removal train 'B' work we pumps are in serv. Loss of Offsite Power (LOOP) testing is being performed on the condensate Pump 12. Today's safety focus is on performance persona

Critical path is the replacement head, set. The replacement completion. The filter the head has been testing will complete. We still continuity testing is being disassembled

The Refueling transfer and are installed. We are The Polar Crane is being operated in window for card r

The Turbine test flange leak today. bearing #11 to rep

Mechanical Maintenance Refueling team, a main turbine bearing Feedwater Isolation valve cal Maintenance in 12 motor, perform LOOP testing, and circuit breaker for detector for main t is preparing to replace alarm driver on nu 0032.

Health Physics report date is 58 rem with

