UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE COMMISSION

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

Docket Nos. 52-012, 52-013

Petitioners' Reply to NRC Staff's Answer to
Petition for Intervention and Request for Hearing

INTRODUCTION

Petitioners offer the following reply for consideration in the *instant* combined operating license adjudication. Petitioners have limited their reply to specific points in selected contentions. The absence of a specific reply does not constitute an agreement by Petitioners with the NRC Staff 's Answer.

The Petitioners submit that all their contentions meet the requirements of 10 C.F.R. Pt. 2 and should be admitted in this adjudication. The contentions raise material issues related to the adjudication, are adequately supported by citation to documents submitted by the Applicant, NRC documentation, information in the public domain, expert analysis and/or rules of law including the Atomic Energy Act, 42 U.S.C. 2011 et seq. All of the contentions are within the scope of the proceeding because they raise issues directly related to the Applicant's documentation, NRC regulatory requirements and/or the Atomic Energy Act, *Id.*

Contention Number One

Contention Number One relates to the Applicant's outstanding permits and licenses that are

related to construction and/or operation of STP Units 3 and 4. The Staff contends that there is no genuine dispute that triggers commission consideration of this contention. Staff Answer pp. 13-15. The Petitioners maintain that the COLA adjudication is not ripe because of the failure of the Applicant to obtain all necessary permits and licenses related to construction and/or operation of STP Units 3 and 4.

The Petitioners have called into question the ambiguous information provided by the Applicant related to on-site storage of spent nuclear fuel. On the one hand, the Applicant posits that it has every intention of transporting its high-level waste and spent nuclear fuel to an off-site facility. However, the Applicant does not specify any off-site facility other than Yucca Mountain, Nevada. The Petitioners contend that reliance on Yucca Mountain Nevada is unreasonable and lacks evidentiary support. Additionally, reliance on repository capacity at Yucca Mountain is unreasonable because its capacity would be exhausted long before the spent nuclear fuel from STP Units 3 and 4 would be ready for off-site disposition. Accordingly, any reliance on access to Yucca Mountain as a disposition point for any spent nuclear fuel or high-level wastes from STP Units 3 and 4 is unreasonable and lacks evidentiary support. Ohio River Valley Environmental Coalition,Inc.v. Kempthorne, 473 F.3d 94,102 (4th Cir. 2006) (Administrative Procedure Act directs review of agency action to determine if decision is product of consideration of relevant factors and whether a clear error of judgment has occurred.)

The ambiguity related to the Applicant's analysis of the necessity for on-site dry caste storage is caused because it appears to plan for the contingency of on-site dry cask storage as evidenced by references in the site layout and the provision that a Part 72 license might be required. The Petitioners contend that given the realities related to geologic repository capacity a Part 72 license should be anticipated as necessary for long-term management of the back end of the uranium fuel cycle at STP. The Applicant cannot have it both ways. The Applicant wants its COLA to be approved on the basis that it will have off-site geologic repository capacity but recognizes that access to such capacity is problematic. However, rather than address the realities that off-site geologic repository capacity is, at best, problematic

and plan for the eventuality of long-term/indefinite duration on-site management of spent nuclear fuel and high-level waste by applying for a Part 72 license, the Applicant brushes off the probability that on-site dry cask storage will be required and simply states that it will apply for Part 72 license if such is required. Implicit in this is the assumption that if a Part 72 license is applied for it will be issued. Surely, the Applicant does not presume that the NRC will issue a Part 72 license simply because it applies for one. And to the extent that long-term management of spent nuclear fuel is a requirement for the licensee there should be as few matters left to chance as possible. It is unreasonable to assume that the Applicant will be licensed under Part 72 to handle spent nuclear fuel and high-level waste on-site without the application for such actually being filed with the Commission.

The Petitioners maintain that there is adequate evidence to justify the requirement that the Applicant file the necessary documents related to an application for Part 72 license as a part of the COLA proceeding. The part 72 license should not be an afterthought left for a future proceeding when it is clear that there is at least a strong probability that the necessity of dry cask storage on site will be necessary at STP. A future Part 72 proceeding will not have the benefit of integrating plant construction and operations to make sure that such are fully compatible with the necessary requirements of the Part 72 license. There should be compatibility between plant construction operations and a Part 72 license.

Similarly, there are other explicit NRC licenses and permits that, while characterized as only contingently necessary by the Applicant, would appear to be a logical necessity if in fact the Applicant operates STP Units 3 and 4. It is noteworthy that the Applicant characterizes the items listed in table 1.2-4 as “required prior to the start of operation". Environmental Report section 1.2.4. For example, the Applicant concedes it would need to obtain licenses and permits for transportation of radioactive waste and materials into the states of Tennessee and Utah. Environmental Report table 1.2-4. Notwithstanding the apparent necessity to transport radioactive waste materials into Tennessee and Utah, the Applicant defers actually obtaining these licenses and says simply that they will be obtained “if required.”

Likewise, the Applicant acknowledges that it may be necessary to obtain a 10 CFR Part 61 license for land disposal of radioactive waste. Environmental Report table 1.2 -4. Once again, it seems contradictory for the Applicant to present a case that it is prepared to operate STP Units 3 and 4 when it has not obtained logically necessary licenses to dispose of its radioactive waste pursuant to 10 CFR Part 61.

Access to groundwater is also an outstanding item in table 1.2 that must be completed for operation of STP Units 3 and 4. The Applicant's acknowledgment that its groundwater well permit application requires favorable treatment in order to operate STP Units 3 and 4 effectively makes that permit a predicate to operation. According to the Applicant it does not anticipate action on the permit application until February 2011. This is another example of why this COLA is not ripe for adjudication.

There is a genuine dispute about a material issue between the Petitioners and the Applicant regarding this contention. The Applicant represents that the COLA adjudication should proceed notwithstanding significant gaps in the licenses and permits it must obtain in order to operate STP Units 3 and 4. The Petitioners, on the other hand, maintain that the COLA adjudication is premature unless and until the Applicant has obtained the predicate licenses and permits that by its own admission are necessary for operation of STP Units 3 and 4. Therefore the requirements under 10 C.F.R. 2.309(f)(1)(vi) are satisfied by the Petitioners.

There is adequate support that the Petitioners have relied upon to justify this contention being admitted. The documentary support comes from the Applicant's Environmental Report. The Environmental Report itself raises the question about management of the uranium fuel cycle related to high-level wastes and spent nuclear fuel. Specifically the Applicant contends its license should issue on the assumption that off-site geologic repository capacity will be available for its high-level waste and spent nuclear fuel. On the other hand, the Applicant makes direct references to the necessity of on-site

storage of spent nuclear fuel and high-level waste and dry cask storage units. This contradictory and ambiguous information presented by the Applicant is the support for the Petitioners' contention. Accordingly it satisfies the requirements of 10 CFR 2.309(f)(1)(v).

Additionally, this contention is within the scope of the *instant* proceeding. The Petitioners contend that the scope of the proceeding is defined by the Atomic Energy Act and its requirement that no license to operate a nuclear power plant should issue unless it is consistent in the public's interest. Forty-two U.S.C. 2133(b). Therefore, the contention satisfies the requirements of 10 CFR 2.309(f)(1).

Contention Number Two

The Staff agrees that the Applicant has not submitted information to meet the requirements of 10 CFR 52.80(d) and that Contention Two should be admitted on that basis. (Answer, p. 16-17) But the Staff opposes the contention to the extent it challenges ongoing generic issues in rulemaking proceedings. (Staff Answer, pp. 16-20) However, the requirements of 10 CFR 50.54(hh) require each COLA to state how compliance with the explosion/fire regulatory requirements will be met. Staff 's position conflicts with the requirements that each COLA submit information to describe how containment integrity, reactor cooling and spent fuel pool cooling will be maintained after the large loss of plant areas caused by explosions/fires. 74 Fed. Reg. 13926, 13944, 13997 (March 27, 2009).

The impact of a large aircraft on a nuclear power plant is regarded as a beyond design-basis event. 74 Fed. Reg. Reg. 13926,14002-14003. The Applicant is now required to anticipate beyond design-basis explosions/fires. *Id.* For example, the new regulation requires Applicants to "include a description and evaluation of design features of functional capabilities to avoid or mitigate, to the extent practical and with reduced reliance upon operator actions, the effects of the aircraft impact. New reactor applicants would be subject to both the requirements of the aircraft impact rule and the requirements of 50.54(hh). The overall objective of the Commission with both rulemakings is to enhance a nuclear plant's

capabilities to withstand the effects of a large fire or explosion, whether caused by an aircraft impact or other event from the standpoint of design and operation." *Id.* These are not generic requirements. Rather, the requirements anticipate that each applicant will evaluate its unique design and operations to meet the specifications of the explosion/fire rule at 10 CFR 50.54(hh). Applicants "will be expected to include a description and evaluation of design features and functional capabilities to avoid or mitigate, to the extent practical and with reduced reliance upon operator actions, the effects of the aircraft impact." 74 Fed. Reg. 13926, 14002. This is not a one-size-fits-all rule. The unique design attributes of particular reactors and operations related thereto require similarly unique responses for each power plant in question.

The Staff also takes issue with the Petitioners' criticisms of the US-APWR DCD is deficient in addressing the regulatory requirements to deal with large-scale explosions and fires. The Staff contends that these criticisms are impermissible because such are, in effect, an attack on the reactor design rulemaking. (Answer, pp. 26-27) The Staff misapprehends the purpose of the Petitioners' criticisms of the DCD. The intent of the Petitioners is to point out that the current documents submitted by the Applicant do not account for beyond design- basis explosions/fires of the magnitude that would result from, for example, the impact of the large commercial airline into the reactor complex. The Petitioners contend that the deficiencies in the DCD are precisely what must be addressed in order to meet the requirements of 10 CFR 50.54(hh). Reference to the DCD is intended to highlight why the Applicant is required to revise its application. The Applicant has conceded that its application will require revisions to address the requirements of 10 CFR 50.54(hh). (Applicant's Answer, p. 33) Accordingly, this contention should be admitted in its entirety so that Petitioners will have a fair opportunity to consider the Applicant's anticipated revisions and whether such meet the requirements of 10 CFR 50.54(hh).

There is a genuine dispute of material issues between the Petitioners and the Applicant regarding compliance with the fire explosion regulations at 10 CFR 50.54(hh). The Petitioners are criticized because the contention related to fires and explosions is considered an implicit challenge of the design

control document (DCD) that, according to the arguments of staff and the Applicant, are impermissible because it is an attack on a commission regulation/rulemaking. The Petitioners citation to pertinent sections of the DCD is evidence of the deficiencies of Applicant's current documentation related to large-scale fires and explosions. To the extent that the Applicant and/or staff rely upon current fire and explosion mitigation information in the DCD, such is unreasonable in light of the requirements of 10 CFR 50.54(hh). Therefore, the Petitioners have met the requirements of 10 CFR 2.309(f)(1)(vi).

The Petitioners have cited adequate support for their contention related to fires and explosions. In fact, the information relied upon by the Petitioners to show that Applicant's fire modeling is inadequate comes directly from the Applicant's documentation and/or NRC source documentation. Accordingly, the Petitioners have met the requirements of 10 CFR 2.309(f)(1)(v).

Additionally, this contention is within the scope of the *instant* proceeding. The Petitioners contend that the scope of the proceeding is defined by the Atomic Energy Act and its requirement that no license to operate a nuclear power plant should issue unless it is consistent in the public's interest. 42 U.S.C. 2133(d). Therefore, the contention satisfies the requirements of 10 CFR 2.309(f)(1). Additionally, this issue is within the scope of this proceeding, at a minimum, as a function of the fire protection requirements at 10 CFR 52.79(a)(6).

Contention Number Three

Staff opposes the admission of Contention Three because it challenges the Waste Confidence Rule at 10 CFR 51.23 and because it addresses issues subject to an ongoing rulemaking. The Staff argues that because of these circumstances proposed Contention Three is not material to any decision the NRC must make on this license application and that there is therefore no material dispute of law or fact. (Answer pp. 20-23) Petitioners maintain they are directly addressing the implicit reliance by the Applicant in the STP Environmental Report at Section 5.7.6 that Yucca Mountain will be available for

disposition of spent fuel and high-level wastes and the further implicit assumption that spent fuel and high-level wastes from STP Units 3 and 4 will be dispositioned therein.

The "recommendation" of Yucca Mountain as a federal repository is, at best, a mixed message. While there have been extensive proceedings related to Yucca Mountain as a repository, the reality is that it is not in use and, based on the statement of Secretary of Energy cited in the Petitioners' Contention Three, it will not be used. The Staff simply ignores this reality and thereby would allow the Applicant to do likewise. However, 10 CFR 52.79(a)(3) specifically requires the Applicant to describe the kinds and quantities of radioactive materials expected to be generated and how radiation limits under 10 CFR Pt. 20 will be met. The Applicant's approach to this duty is to assume disposition of spent fuel and high-level waste in a geologic repository. STP Environmental Report, Section 5.7.6. Petitioners contend this assumption is not based on sufficient evidence and is inadequate to meet the requirement of 10 CFR 52.79(a)(3).

Additionally, it is not reasonable for the Applicant to assume that Yucca Mountain will be available when it is clear that its disposal capacity would be reached long before STP Units 3 and 4 would have high-level waste/spent fuel ready for disposition off-site. Staff does not address or contradict this very specific part of the contention. Rather, it relies on the 1990 version of the Waste Confidence Rule that speculates sufficient repository capacity will be available within 30 years of the licensed life of any reactor. 55 Fed. Reg. 38,474 (Sept. 18, 1990), 10 CFR 51.23(a). Given the volume limitations for Yucca Mountain, reliance on the 1990 version of the Waste Confidence Rule must assume a second repository will be available for disposition of spent fuel and high-level wastes from STP Units 3 and 4. This is not a reasonable assumption. And rather than have the Applicant do an analysis that assumes a repository will not be available, the Staff would permit continued reliance on the Waste Confidence Rule that posits such capacity will exist notwithstanding the uncontradicted evidence to the contrary. This does not satisfy the requirement of 10 CFR 52.79(a)(3). Ohio River Valley Environmental Coalition,Inc.v. Kempthorne, 473

F.3d 94,102 (4th Cir., 2006) Here, relevant factors related to the availability of a geologic repository and the capacity limits of Yucca Mountain have not been addressed and such constitutes a clear misjudgment about a material issue raised in the COLA. Nor can Staff's position be reconciled with the overarching requirements of the AEA that public health and safety be protected. 42 U.S.C. 2133(d).

There is a genuine dispute between the Applicant and the Petitioners regarding the issues raised in Contention Three. The Petitioners contend that reliance on a repository for off-site disposition of high-level waste and spent nuclear fuel is without sufficient evidentiary support. Further, such reliance unreasonably allows the Applicant to proceed with construction and operation of STP Units 3 and 4 with inadequate certainty as to management of the uranium fuel cycle related to high-level wastes and spent nuclear fuel. Therefore, the Petitioners satisfy the requirements of ten C.F.R. 2.309(f)(1)(vi).

The Petitioners have adequately supported this contention by reference to the Applicant's documentation and expert analysis. Therefore the Petitioners have satisfied the requirements of 10 C.F.R. 2.309(f)(1)(v).

Issues related to the uranium fuel cycle are within the scope of this proceeding on the basis of 10 CFR 52.79(a)(3) and the AEA, 42 U.S.C. 2133(d). Therefore the Petitioners have satisfied the requirements of 10 C.F.R. 2.309(f)(1).

Contention Number Five

As pertinent, Petitioners incorporate by reference their Contention Three reply, above.

Staff argues that Petitioners' Contention Five should be rejected because, *inter alia*, the argument that on-site dry cask storage of spent nuclear fuel presents a target for terrorists is an impermissible challenge to the regulatory assumption under 10 CFR 51.23(a) that such storage can be done safely for at

least 30 years in an independent spent fuel storage installation (ISFSI). (Staff Answer, pp. 26-27)

The Atomic Energy Act, 42 U.S.C. 2133(d) requires licenses be issued only if such are not a threat to the public health and safety. Notwithstanding the assumptions implicit in 10 CFR 51.23(a), the realities of a terrorist attack on a nuclear plant are now a regulatory consideration in the context of 10 CFR 50.54(hh) and a similar logic should apply in the context of on-site dry cask storage. It is not reasonable to plan for large losses of a nuclear plant by fires/explosions that implicate containment integrity, reactor cooling and spent fuel pool cooling and assume similar dangers do not exist related to dry cask storage. This is a reasonable expectation considering the requirements of the AEA, 42 U.S.C. 2133(d).

The Staff's Answer also assumes that spent fuel can be stored safely for at least 30 years on-site in an ISFSI. Arguably, this is an implicit recognition that off-site disposal capacity will be available for STP Units 3 and 4 in 40 to 60 years after the units would be licensed and dry cask storage may not be required. (Staff Answer, p.28) On the other hand, to the extent that the recognition by Staff that off-site disposal capacity is unavailable beyond the 40-60 year timeframe, the Applicant should be required to disclose now its plans for on-site storage of spent fuel and high-level wastes beyond this timeframe.

For example, where on the STP site would the ISFSI be located? How will the ISFSI be secured and for how long? What assurance is there that the Applicant or its successors in interest will remain financially viable as a responsible party for the duration of time required to move spent fuel/high level waste off-site? In a bankruptcy does a trustee assume responsibility for the ISFSI? What are the financial costs? These are only representative of the questions that the Applicant should be required to address regarding the ISFSI. Moreover the Staff uses the time frame of 30 years for on-site storage and further states categorically that the on-site capacity would not be needed for 30 to 60 years after the operating license is granted. The Staff also states that the Applicant may never need to use dry cask storage as a

long-term management method. While the Staff is critical of the Petitioners for speculation about the need for on-site storage, the same criticism can be leveled at the Staff for speculating whether on-site storage will be required. (Staff Answer p. 28) In fact, the Staff's assumption about off-site disposal capacity is even more speculative than the probability that on-site storage will be likely for Units 3 and 4. The Staff's assumption that off-site storage will be available is flatly contradicted by the absence of current off-site storage capacity, the rejection of Yucca Mountain as a disposal repository, and the fact that there is no process in place currently to establish alternatives to Yucca Mountain. Consequently, it is much less speculative to require the Applicant to plan now for on-site storage of spent fuel and high-level waste on the reasoned premise that off-site capacity will not be available. In fact, to do otherwise raises the issue whether a clear error of judgment has occurred related to prudent planning for management of spent nuclear fuel and high-level waste. Ohio River Valley Environmental Coalition,Inc.v. Kempthorne, 473 F.3d 94, 102, 42 U.S.C. 2133(d).

There is a genuine dispute between the Applicant and the Petitioners regarding the issues raised in Contention Five. The Petitioners contend that reliance on a repository for off-site disposition of high-level waste and spent nuclear fuel is without sufficient evidentiary support. Further, such reliance unreasonably allows the Applicant to proceed with construction and operation of STP Units 3 and 4 with inadequate certainty as to management of the uranium fuel cycle related to high-level wastes and spent nuclear fuel particularly regarding issues related to on-site storage of spent nuclear fuel and high level wastes for indefinite or indeterminate durations. Therefore, the Petitioners satisfy the requirements of ten C.F.R. 2.309(f)(1)(vi).

The Petitioners have adequately supported this contention by reference to the Applicant’s documentation. Therefore the Petitioners have satisfied the requirements of ten C.F.R. 2.309(f)(1)(v).

Issues related to the uranium fuel cycle are within the scope of this proceeding on the basis of 10

CFR 52.79(a)(3) and the AEA, 42 U.S.C. 2133(d). Therefore the Petitioners have satisfied the requirements of ten C.F.R. 2.309(f)(1).

Contention Number Eight

The Staff disagrees with the Petitioners' assertion that the Main Cooling Reservoir (MCR) is the functional equivalent of a radioactive waste disposal facility. (Staff Answer pp. 37-38) The Staff also contends that the deposition of radioactive particulates is permissible but fails to cite specific legal authority for such. Additionally, the Staff differentiates between liquid effluents and particulates and therefore excuses the discharge of particulates into the MCR because the particulates are carried in liquid effluent. There is an assumption that these radioactive particulates have no significant environmental or public health consequences. However there is no support in the Applicant's Environmental Report for such a conclusion. The NRC should not be satisfied with such an unsupported assertion related to the deposition of radioactive particulates into the MCR.

The Staff does not challenge the Petitioners' assertion that there are radiological consequences related to the radioactive particulates that will remain indefinitely in the sediment of the MCR. And missing from the Applicant's Environmental Report is any discussion of the quantity of radioactive particulates that have been and those anticipated to be discharged into the MCR. Arguably, this violates 10 CFR 52.79(a)(3) that requires specifications of the kinds and quantities of radioactive materials produced by the plant operations and a showing that the discharges into MCR will not exceed regulatory limits. How can there be a reliable projection of radiation levels caused by the particulates when such are unquantified? The assumption that there are no significant radiological consequences that result from the radioactive particulates is unsupported in the Applicant's documents.

The Staff dismisses discussion of failure of the dam that impounds the MCR. (Staff Answer p. 38) The Staff implicitly assumes that the dam will outlast the radioactive particulate that is deposited in

the sediment. Evidently, Staff rejects the claim of the Petitioners that, as a man-made structure, the dam has a finite useful life and takes the position that expert witness support is required for the contention. Staff Answer, pp 38-39. According to the American Society of Civil Engineers, "Like all man-made structures, dams deteriorate. Deferred maintenance accelerates deterioration and causes dams to be more susceptible to failure. As with other critical infrastructure, a significant investment is essential to maintain the benefits and assure the safety that society demands." (http://www.asce.org/reportcard/2005/page.cfm?id=23) See also: http://www.tshaonline.org/handbook/online/articles/SS/hcs12.html, http://www.npr.org/templates/story/story.php?storyId=91293215. This is an assertion of fact that hardly requires expert testimony to accept and establish. Federal Rule of Evidence 702 anticipates that expert testimony is required only where it will assist the trier of fact to understand a fact in issue or evidence related thereto. Expert testimony assists when it provides information beyond the common knowledge of the trier of fact. *Daubert v. Merrill Dow Pharm., Inc.*, 509 U.S. 579, 591 (1993). The Staff's argument assumes the Board in this adjudication should reject the common knowledge that man-made structures have limited useful lives.

The recent failure of coal slurry retention structures is an example of this common knowledge. See: http://www.enquirer.com/editions/2000/ten/16/loc_sludge_closes.html, http://www.enquirer.com/editions/2000/ten/20/loc_spill_heads_down.html, http://www.cbsnews.com/stories/2004/04/01/60minutes/main609889.shtml, http://www.jacksonville.com/tu-online/apnews/stories/ten0902/D7MI4GQ81.html.

Additionally, the 1979 Church Rock, New Mexico uranium tailing dam failed and released 90 million gallons of radioactive water into the Rio Puerco River. This dam failure caused the largest accidental release of radioactive materials in the United States. See: http://serc.carleton.edu/research_education/nativelands/navajo/environmental.html.

The Applicant does not state whether inspections of the dam are conducted and, if so, the results thereof. State agency inspections of dams in Texas are problematic and private dams tend to be inspected less frequently and lack necessary maintenance. See: http://www.news8austin.com/content/news_8_explores/texas_dams/?ArID=195807&SecID=589

Dams and retention structures fail and this Board does not require expertise to establish that fact. Accordingly, the Applicant should be required to conduct adequate analyses of the structural integrity of the dam in order to ensure that it will outlast the half-life/hazardous life of the radionuclides that are in the sediment behind the dam. Additionally, the Applicant should be required to specify the kinds (if other than cobalt and cobalt-60) and quantities of radioactive particulate that are presently deposited in the MCR and specify the same for the anticipated deposition of radioactive particulate from the proposed Units 3 and 4. Adopting the Staff's approach effectively disregards the reality of radioactive particulate in the sediment. This ignores the requirements of the Atomic Energy Act, 42 U.S.C. 2133 (d).

The Staff is likewise dismissive of projections that global warming and climate change could be severe enough to lead to a dewatering of the MCR. (Staff Answer pp. 38-39) However, water issues have become acute for operating nuclear plants even recently. Nuclear plants in drought prone areas are vulnerable to diminished water flows that jeopardize operations. See: http://www.wral.com/news/state/story/2343605/?print_friendly=1

And a 2007 study published in *Science* projected a possible permanent drought by 2050 throughout the southwest portion of the United States. Richard Seager, et.al., "Model Projections of an Imminent Transition to a More Arid Climate in Southwestern North America," *Science* 316 (5828) (2007): 1181-1184. Available at: http://www.sciencemag.org/cgi/content/short/316/5828/1181. Accordingly, assumptions about future availability of water sufficient to maintain the sediment in place

and prevent air transport of radioactive particulates should be examined in the light of projections of protracted drought.

There is a genuine dispute between the Applicant and the Petitioners regarding the MCR. Specifically, the Petitioners contend that discharge of radioactive particulates into the MCR should be adequately characterized by quantity and by kind, if other than cobalt and cobalt-60. This dispute is germane to the COL. The Staff disagrees with the Petitioners' assertion that the MCR is the functional equivalent of a radioactive waste disposal facility. (Staff Answer pp. 40-42) The Staff also contends that the deposition of radioactive particulates is permissible but fails to cite specific legal authority for such. Additionally, the Staff differentiates between liquid effluents and particulates and therefore excuses the discharge of particulates into the MCR because the particulates are carried in liquid effluent. There is no analysis of health consequences related to the particulates even though such are uncontrolled releases to the environment. However there is no support in the Applicant's Environmental Report for such a conclusion. The NRC should not be satisfied with such an unsupported assertion related to the deposition of radioactive particulates into MCR.

The Staff does not challenge the assertion that there are radiological consequences related to the radioactive particulates that will remain indefinitely in the sediment of the MCR. Conspicuously missing from the Applicant's Environmental Report is any discussion of the kind or quantity of radioactive particulates that have been and those anticipated to be discharged into the MCR. Arguably, this violates 10 CFR 52.79(a)(3) that requires specifications of the kinds and quantities of radioactive materials produced by the plant operations and a showing that the discharges into the MCR will not exceed regulatory limits. How can there be a reliable projection of radiation levels caused by the particulates when such are neither described by type, half life/hazardous life or quantity? The Staff's and Applicant's assumption that there are no significant radiological consequences that result from the radioactive particulates is unsupported in the Applicant's documents.

There is adequate support for this contention based on the admission by the Applicant that it currently discharges cobalt and cobalt-60 into the MCR. The contention is likewise adequately supported by the common knowledge that man-made dams deteriorate and fail as illustrated by the coal slurry impoundment structure failures and the failure of the uranium mill tailings dam failures. The contention is also adequately supported based on the documentation related to projections of inadequate water supplies for purposes of plant operations. Therefore, the Petitioners have met the requirements of 10 CFR 2.309(f)(1)(vi).

This contention is within the scope of this proceeding based on the requirements of 10 CFR 52.79(a)(3) and the Atomic Energy Act, 42 U.S.C. 2133(d). Therefore, the Petitioners have satisfied the requirements of 10 CFR 2.309(f)(1).

Contention Number Seventeen

The Staff takes issue with the contention that its LADTAP II is obsolete and systematically underestimates radioactive doses. Dr. Makhijani's reply to these assertions is attached hereto. Dr. Makhijani's analysis of the LADTAP II model establishes that it is an unreliable means to measure radiation exposures. His analysis is applicable to STP Units 3 and 4 because LADTAP II is obsolete, utilizes improper conversion factors and systematically understates doses, especially for children. The fact that the LADTAP XL was originally developed for the Savannah River facility does not exclude its applicability to other nuclear facilities. Exposures must be accurately estimated and the LADTAP XL model is much more precise and reliable than its predecessor, LADTAP II. Dr. Makhijani references, *inter alia*, NRC documents that support his findings, some of which are attached. This contention is adequately supported by expert analysis and should be admitted. The failure to accurately estimate radiation doses is a relevant factor for this adjudication and excluding it is a failure to consider relevant factors and/or is an error of judgment. Ohio River Valley Environmental Coalition,Inc.v. Kempthorne,

473 F.3d 94,ten2, 42 U.S.C. 2133(d).

There is a genuine dispute related to this contention. To the extent that there are fundamental flaws with the LADTAP II model that it systematically provides unreliable dose projection data it is unreasonable to use it in the context of this COLA. The Staff takes issue with the contention that its LADTAP II is obsolete and systematically underestimates radioactive doses. Dr. Makhijani's reply to these assertions is attached hereto. Dr. Makhijani's analysis of the LADTAP II model establishes that it is an unreliable means to measure radiation exposures. His analysis is applicable to South Texas Project Units 3 and 4 because LADTAP II is obsolete, utilizes improper conversion factors and systematically understates doses, especially for children. The fact that the LADTAP XL was originally developed for the Savannah River facility does not exclude its applicability to other nuclear facilities. Exposures must be accurately estimated and the LADTAP XL model is much more precise and reliable than its predecessor, LADTAP II. Dr. Makhijani references, *inter alia*, NRC documents that support his findings, some of which are attached. This contention is adequately supported by expert analysis and should be admitted. The failure to accurately estimate radiation doses is a relevant factor for this adjudication and excluding it is a failure to consider relevant factors and/or is an error of judgment. Ohio River Valley Environmental Coalition,Inc.v. Kempthorne, 473 F.3d 94, 102, 42 U.S.C. 2133(d).

There is a genuine dispute between Petitioners and Applicant regarding this contention. Because the LADTP II model systematically understates radiation doses it is unreasonable to rely on it in the context of this adjudication. This is particularly noteworthy given the availability of a more reliable model, LADTAP XL. Accordingly, the Petitioners have satisfied the requirements of 10 CFR 2.309(f)(1)(vi).

The Petitioners have provided adequate support for this contention. Dr. Makhijani's analysis satisfies requirement for expert support it is adequate for admission of this contention. Therefore the

Petitioners have satisfied the requirements of 10 CFR 2.309(f)(1)(v).

This contention is within the scope of this proceeding based on 10 C.F.R. 52.79(a)(1) and 42 U.S.C. 2133(d). Accordingly, the Petitioners have satisfied the requirements of 10 CFR 2.309(f)(1).

Contention Number Twenty-Six

In Contention Twenty-Six, Petitioners argued that CPS Energy, a municipal utility applicant, has failed to demonstrate a need for power in its service area. Both the Staff and the Applicant's responses point out that since Petitioners did not address the entire Electric Reliability Council of Texas (ERCOT) system.

Petitioners contend that, as a municipal utility applicant, CPS Energy needs to establish it's own separate need for power in its specific service area.

The Applicant's response dismisses CPS Energy's primary role as a municipal utility and uses its ability to sell excess capacity to ERCOT as a way to characterize CPS Energy as a merchant generator and only look at the ERCOT region as a whole. The Region of Interest (ROI) designated by the applicant is appropriate only for NRG Energy, not CPS Energy, which has a much more narrow service area.

The Applicant can't have it both ways: defining CPS Energy as a municipal utility, yet spinning its ability to sell excess capacity (and act as a merchant generator) as a way to consider its ROI as ERCOT. CPS is a municipal utility, not a merchant generator. In addition to establishing a need for power in the Applicant's previously designated ROI, ERCOT, the Applicant must also establish a need for power in CPS Energy's service area.

CPS Energy's service area needs to be considered separately from the other applicants in order to determine whether the CPS Energy's service are demonstrates a need for power. Petitioners contend that the COLA is deficient in that the COLA does not demonstrate a need for power in the CPS Energy service area.

Furthermore, information that is available now indicates that these gas plants will be shut down. To the extent that there is a need to replace that capacity and that that replacement is a justification to build STP Units 3 and 4 the Petitioners contend that the Applicant needs to explain why the present gas capacity is not sufficient to meet their needs. Even if there is no direct connection "that the gas plants are actually being closed in order to facilitate the nuclear market and to create the appearance of a need for power" (Staff reply, p.98), this is immaterial.

Since CPS Energy is retiring baseload capacity, they are proposing to pursue more base-load capacity which is much more expensive than what they have shut down. CPS Energy is removing functioning base-load without justification. They are then using their stated need for base-load as a justification to pursue STP Units 3 and 4. There is still uncertainty about whether retiring gas plants is justified, in light of CPS Energy's pursuance of STP Units 3 and 4.

The contention is adequately supported. For example, the report from Dr. Makhijani related to San Antonio analyzes the need for power question and concludes that the issue for CPS Energy relates more to peak demand for power rather than baseload needs. Dr. Makhijani's analysis indicates that adding baseload generation will actually cause excess capacity for much of the year. Makhijani, *Energy Efficiency Potential: San Antonio's Bright Energy Future*, pp. 12-13 (2008) Additionally, the Petitioners have cited other documentation that supports this contention. Therefore, this contention meets the requirements of 10 C.F.R. 2.309(f)(1)(v).

Conclusion

For the reasons set forth above, the Petitioners urge that their Contentions be admitted to this adjudication.

Respectfully submitted,

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