UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE SECRETARY

In the Matter of
Luminant Generation Co., LLC
Comanche Peak Units 3 and 4 **Docket Nos. 52-034, 52-035**
Combined License Adjudication

PETITION FOR ORDER TO STAY COMANCHE PEAK NUCLEAR POWER UNITS 3 AND 4 COMBINED CONSTRUCTION AND OPERATING LICENSING APPLICATION PROCEEDINGS AND HOLD THE COMBINED OPERATING LICENSE APPLICATION IN ABEYANCE PENDING COMPLETION OF THE US-APWR APPLICATION RULEMAKING

Petitioners hereby submit this Petition to the U.S. Nuclear Regulatory Commission (NRC) to stay the Combined Operating and Licensing Application (COLA) adjudication and hold in abeyance all proceedings related to the COLA submitted by Luminant Generation Company, LLC, (Applicant) to build and operate Comanche Peak Nuclear Power Plant Units 3 and 4 in Somervell County, Texas. The Petitioners contend that the Applicant's COLA is incomplete because the U.S. Advanced Pressurized Water Reactor (US-APWR) design proposed for Comanche Peak Units 3 and 4 has not been certified by the NRC pursuant to a completed NRC administrative rulemaking. The NRC should stay the COLA adjudication for Comanche Peak Units 3 and 4 and hold such in abeyance pending the completion of the design certification rulemaking proceeding for the proposed US-APWR design upon which the Applicant's COLA relies.

I. INTRODUCTION

The Atomic Energy Act (AEA) requires that the NRC issue licenses for new nuclear power plants only to applicants that demonstrate the capacity to protect health and minimize harm to life and property. Applicants must also provide the NRC with any technical information and data necessary to assure that licensed facilities are capable of protecting the health and safety of the public. 42 U.S.C. 2133(b)(2)(3). Safety standards have been promulgated by the NRC for licensing nuclear power plants and are codified at 10 CFR parts 20, 50, 51, 55, 73, 100, and 140.

The Administrative Procedure Act, 5 USC 554(b)(c),(APA) the docketing standards at 10 CFR 2.101(a)(2) and 10 CFR 2.104(b) require notice of the factual issues that are subject to a COLA hearing and a meaningful opportunity to participate. However, because the underlying reactor design rulemaking is not completed a proper notice consistent with these legal requirements is not possible.

Under 10 CFR Pt. 52, the NRC may either conduct an adjudication on the entire Comanche Peak Units 3 and 4 COLA, including issues related to the US-APWR design or, alternatively, complete the US- APWR design certification rulemaking prior to commencing an adjudicatory hearing on the COLA. The Part 52 regulations do not allow the NRC to exclude an uncertified reactor design from the scope of the COLA adjudication and refer such to a separate rulemaking. Decoupling the COLA adjudication from the reactor design may be done only if the US-APWR has been certified pursuant to a rulemaking.

The Petitioners contend excluding the uncertified reactor issues from the adjudication would violate the NRC's duty under the AEA to assure that the Applicant's proposed nuclear

plants will protect public health and minimize danger to life and property, 42 USC 2133(b)(2) and the APA's requirements related to fair hearings, 5 USC 554(b)(c).

II. DESCRIPTION OF THE PETITIONERS

This Petition is submitted on behalf of the Sustainable Energy and Economic Development (SEED) Coalition, Public Citizen, True Cost of Nukes, and Texas State Representative Lon Burnam. See: List of Petitioners, attached.

Lon Burnam is the elected representative of House District 90 of the Texas House of Representatives. The district he represents is in Fort Worth, Texas and falls wholly within the 50-mile impact zone of the Comanche Peak Nuclear Power Plant. Representative Burnam represents over 150,000 residents. He resides in Fort Worth within 50 miles of the Comanche Peak Nuclear Power Plant site. See: List of Petitioners and Burnam declaration, attached.

SEED Coalition is a statewide nonprofit working for clean air and clean energy in Texas. The SEED Coalition office is at 1303 San Antonio, #100 in Austin, Texas, 78701. The organization advocates for safe energy alternatives and opposes the development of nuclear power generally, including the proposed Comanche Peak Units 3 and 4. SEED Coalition has members that reside within fifty miles of the proposed site for Comanche Peak Units 3 and 4. The members of SEED Coalition who live within fifty miles of the proposed Comanche Peak Units 3 and 4 include Nita O'Neal who resides in Everman, Texas. Ms. O'Neal wishes to be represented by SEED Coalition in this case. See: List of Petitioners and O'Neal Declaration, attached.

Public Citizen is a non-profit, non-partisan membership organization based in Washington, D.C. with over 100,000 members nationwide. Public Citizen advocates for safe, clean energy alternatives and opposes the development of nuclear power generally, including the proposed Comanche Peak Units 3 and 4. Public Citizen's Texas office is at 1303 San Antonio, Austin, Texas, 78701. Public Citizen has members within fifty miles of the site for the proposed Comanche Peak Units 3 and 4. Those members include Don Young who wishes to be represented by Public Citizen in this case. He resides in Weatherford, Texas. See: List of Petitioners and Young Declaration, attached.

True Cost of Nukes is a local Fort Worth, Texas, citizen organization established to educate citizens about the risks and disadvantages of nuclear power. The group opposes the expansion of the Comanche Peak Nuclear Power Plant and favors the use of energy efficiency and renewable energy instead. True Cost of Nukes has members within fifty miles of the proposed reactors. True Cost of Nukes seeks to intervene on behalf of one of its members, J. Nile Fisher, resides at in Fort Worth, Texas, within 40 miles of the Comanche Peak Nuclear Power Plant site. True Cost of Nukes can be contacted at Mr. Fischer's address and phone number. See: List of Petitioners and Fischer Declaration, attached.

An accident at the proposed nuclear power plant could result in radiological releases and environmental contamination that would adversely affect the health of Representative Lon Burnam, Nita O'Neal, Don Young, and J. Nile Fisher, and the value of their property. These parties and the organizations representing them seek to avoid or minimize those risks by ensuring that safety and environmental concerns are fully addressed in the NRC's licensing proceeding for the proposed Comanche Peak Nuclear Power Plant Units 3 & 4.

As set forth below, the Petitioners have standing, both individually and organizational/representational, to make this request.

III. STANDING

Pursuant to 10 CFR 2.309 the Petitioners herein are required to set forth with particularity their interests in the proceeding, how their interests may be affected by the result of the proceeding, including the reasons why the petitioner should be permitted to intervene with particular reference to the factors set forth in 10 CFR 2.309(d)(1), and the specific aspect or aspects of the subject matter of the proceeding as to which the petitioner wishes to intervene. *In the Matter Pacific Gas & Electric Co.,* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), LBP-02-23, 56 NRC 413, 426 (2002).

According to the Atomic Safety and Licensing Board (ASLB) standing requirements are described as following:

> In determining whether a petitioner has sufficient interest to intervene in a proceeding, the commission has traditionally applied judicial concepts of standing. See *Metropolitan Edison Co.*, (Three Mile Island Nuclear Station, unit 1), CLI-83-25, 18 NRC 327, 332 (1983)(citing *Portland General Electric Co*.(Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610(1976). Contemporaneous judicial standards for standing require a petitioner to demonstrate that (1) it has suffered or will suffer a distinct and palpable harm that constitutes injury-in-fact within the zone of interests arguably protected by the governing statutes (e.g. the Atomic Energy Act of 1954 (AEA), the National Environmental Policy Act of 1969 (NEPA); (2) the injury can be fairly traced to the challenged action; and (3) the injury is likely to be redressed by a favorable decision. See *Carolina Power and Light Co.*,(Shearon Harris Nuclear Power Plant), LBP-99-25, 50 NRC 25, 29 (1999). An organization that wishes to intervene in a proceeding may do so either in its own right by demonstrating harm to its organizational interests, or any representational capacity by demonstrating harm to its members. *See Hydro Resources, Inc. (2929 Coors Road, Suite 101, Albuquerque, NM 87120),* LBP-98-9, 47 NRC to 61, 271 (1998). To intervene in a

> representational capacity, an organization must show not only that at least one of its members would fulfill the standing requirements, but also that he or she has authorized the organization to represent his or her interests. See *Private Fuel 3 Storage*, LLC (Independent Fuel Storage Installation), LBP-98-7, *47 NRC 152, 168, aff'd on other grounds,* CLI-98-13, 48 NRC 26 (1998), *Diablo Canyon*, *supra*, 56 NRC at 426. *See Also, Southern Nuclear Operating Co.* (Vogtle Electric Generating Plant), 52-011-ESP, Board Memorandum and Order (March 12, 2007) (Ruling on Standing and Contentions) at 5-6.

The Petitioners herein have standing to submit this Petition as demonstrated by the declarations attached hereto. The individual petitioners have authorized their affiliated organizations named herein to represent their interests in this proceeding. *See: Diablo Canyon*, 56 NRC at 426.

The attached declarations establish that the individual Petitioners reside within fifty miles of the proposed Comanche Peak Units 3 and 4. Accordingly, the individual Petitioners have presumptive standing because of their proximity to the proposed Comanche Peak Units 3 and 4. *Diablo Canyon*, *supra*, 56 NRC *at* 426-27, citing *Florida Power & Light Co.,* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-6, 53 NRC 138, 146, affirmed, CLI-01-17, 54 NRC 3 (2001)(petitioners who reside within 50 miles of a proposed nuclear power plant have presumptive standing in nuclear reactor construction permit and operating license cases due to an "obvious potential for off-site consequences"). Further, the declarations establish that each would suffer a distinct and palpable harm to constitute injury-in-fact within the zone of interests are to be protected by the governing statutes (AEA, NEPA) and the injury can be fairly traced to the challenged action and the injury is likely to be redressed by a favorable decision.

The Petitioners' objectives in this matter are to protect public health and safety and the environment by opposing the construction and operation of any new nuclear plants, including those proposed for Comanche Peak. Accordingly, the Petitioners' intent is to assure that no COLA is issued by the NRC unless the applicant can establish that it meets the requirements of

the AEA, 42 U.S.C. 2133(b)(d) that require the public's health and safety will not be jeopardized by the applicant's operation of a nuclear plant.

1. NRC Procedural Requirements for Licensing new Reactors

Section 189a of the AEA requires that the NRC must provide interested numbers of the public with a prior opportunity for a hearing on any proposed licensing action for a nuclear facility. 42 U.S.C. 2239(a)(1)(A). The scope of the licensing hearing is required to include all issues that are material to the issuance of license including compliance with NRC safety regulations and the National Environmental Policy Act (NEPA). *Union of Concerned Scientists v. NRC,* 735 F.2d 1437, 1438 (D.C. Cir. 1984), cert. den., 469 U.S. 1132(1985). The section 189a hearing must be "meaningful." Id., 730 F.2d at 1446. The NRC issued a policy statement in 2008 related to the conduct of Part 52 licensing proceedings that provides as follows: "The commission aims to provide a fair hearing process, to avoid unnecessary delays and its review and hearing processes, and to enable the development of an informed adjudicatory record that supports agency decision-making on matters related to the NRC's responsibilities for protecting public health and safety, the common defense and security, and the environment." 73 Fed. Reg. *at* 20, 969.

When the NRC receives a COLA for a new nuclear plant it must make an initial determination concerning whether the application is "complete and acceptable for docketing." 10 CFR 2.101(a)(2). If the NRC determines that the application is complete a docket number is assigned to the application. 10 CFR 2.101(a)(3). Thereafter, NRC is required to publish both a notice of agency action and a notice of opportunity to request a hearing in the Federal Register. 10 CFR 2.104(a). The Administrative Procedure Act requires that a completeness finding be

made as a prerequisite to docketing and the promulgation of the notice of hearing. 5 U.S.C. 554(b). The NRC's notice of hearing must state, among other things, the nature of the hearing, the legal authority under which it is held, the issues of fact or law to be resolved, and the date by which petitions to intervene must be filed. 10 CFR 2.104(b).

The scope of material issues related to a COLA that may be litigated is determined by the content of the contentions that are admitted in the case. *BPI v. Atomic Energy Commission,* 502 F. 2nd 424, 427(D.C. Cir. 1974). Petitions that raise the adequacy of a COLA must specify those contentions and such must be based on documents and other information available when the petition is filed including the application, supporting safety analysis report, and environmental report. 10 CFR 2.309(c)(2). Additionally, 10 CFR 2.309(f) requires that contentions must be specific statements of the law or fact that are controverted, a brief explanation of the basis of that contention, a demonstration that the issue raised by the contention is material and within the scope of the licensing proceeding, a concise statement of the facts or expert opinion that supports the contention, and a demonstration that the petitioner has a genuine dispute with the applicant on a material issue of law or fact.

Generally, NRC regulations provide prospective intervenors only sixty days after the issuance of the hearing notice to submit contentions related to the licensing proceeding. 10 CFR 2.309(b)(3)(i). After the sixty day period has expired contentions may only be submitted if such relate to data or conclusions presented in an environmental impact statement (EIS), and environmental assessment environmental report that are significantly different from the data or conclusions submitted by the applicant. 10 CFR 2.309(c)(2). Otherwise, new or amended contentions may be filed only with leave of the presiding officer if the information supporting the amended contention was not previously available or the contention is materially different

than information previously available, and the amended contention has been submitted in a timely fashion based upon the availability of the subsequent information. 10 CFR 2.309(f)(2)(i)-(iii).

Procedural requirements for adjudications related to proposed nuclear power plant licenses are conducted under the informal hearing procedures in Subpart L at 10 CFR Part 2, as supplemented by Subpart C, 10 CFR 2.310 and 2.1200. The informal hearing procedures anticipate that there will be an exchange of relevant documents under a general discovery provision, 10 CFR 2.336, creation of a hearing file by the staff, 10 CFR 2.1203, submission of written initial and rebuttal evidence, 10 CFR 2.1207, and propounding questions for the presiding officer to ask witnesses in an oral hearing. 10 CFR 2.1209.

A reactor standard design certification is a rule that must be promulgated consistent with the NRC's standards at 10 C.F.R. Part 2 as supplemented by a Part 52 regulations. 10 C.F.R. 52.51. Issues raised related to a design certification rulemaking must be allowed under a notice of proposed rulemaking published in the Federal Register and must provide an opportunity for the submission of comments on the proposed design certification rule. *Id.* Additionally, 10 CFR 2.804 and 2.805 require that the NRC published a notice of proposed rulemaking and take public comments on the proposed reactor design rulemaking.

In 2008, the NRC issued a new policy statement that instructed licensing boards not to accept contentions from petitioners in individual licensing adjudications that challenge uncertified standard designs. The policy statement directed that such contentions be referred for NRC staff resolution in the design certification rulemaking. 73 FR 20, 963.

2. Part 52 Regulations Require Either a Completed Reactor Design Certification rule or an Unrestricted Scope of Relevant Issues in a COLA Adjudication.

The Part 52 licensing scheme anticipates the use of standardized reactor designs and combined licenses that, presumably, are intended to enhance the safety and reliability of nuclear reactors. The scheme is intended to facilitate public participation in licensing proceedings and to reduce the complexity and uncertainty of the process. 53 FR 32,060, 32, 061. (Aug. 23, 1988). The rationale for this regulatory process is that certified standard designs would allow for early determination and resolution of safety issues by allowing public participants in the licensing process an opportunity closer to the beginning of the process to raise safety issues and permit an expedited, yet thorough, NRC staff review of applications that incorporate a certified standard design. *Id.*

In 1989, the NRC promulgated a final rule related to the new part 52 scheme. The centerpiece of that rule is the procedural means to enhance the safety and early resolution of licensing issues by providing for certification of standard designs before consideration of COLAs. 54 Fed. Reg. 15, 372, 15, 374 (April 18, 1989). Accordingly, the regulatory provisions anticipate filing standard design certification applications and 10 CFR Pt.52, Subpart B, and separate provisions for filing and approval of COLAs in Part 52, Subpart C. 10 CFR 52.51 specifies that certified design applications are subject to a notice and comment rulemaking while 10 CFR 52.85 requires that COLAs be subject to separate adversarial adjudications. A COLA that incorporates a certified design rule assumes that all reactor design issues are resolved and not subject to further contest in the COLA adjudication proceeding. 10 CFR 52.63(a)(5).

Applicants have the option to not reference a certified reactor design. 10 CFR 52.73. However, the NRC explained that this provision was anticipated to accommodate COL

applicants that wanted to rely on new designs for which certification pursuant to a rulemaking would not be sought. The NRC rejected a proposal to require that all applications for combined licenses be predicated on a certified design. This proposal was rejected because it would mean that each prototype reactor would have to be licensed in a two-step process. Accordingly, the NRC anticipates that, as a general rule, COL applicants would reference design certification rules and in only in exceptional cases would applicants reference noncertified reactor designs. 73 Fed. Reg. 15, 383.

In 2004 the NRC promulgated revisions to Part 52 and further confirmed its intention that standard design certification rulemakings would precede individual COLA proceedings. The NRC said "[T]he first significant move toward the formalization reactor licensing cases came in 1989 when the NRC completed what a reviewing court described as a 'bold and creative' effort to foster standardization of nuclear power plant designs, as well as the early resolution key safety issues. This was the issuance of a new 10 CFR part 52 which provided for issuance of design certifications and combined licenses for construction and operation of nuclear power plants (54 Fed Reg. 15386). The rule provided that standard designs could be approved by rulemaking with an opportunity for an informal hearing conducted by an Atomic Safety and Licensing Board that would be a 'paper hearing' unless the Licensing Board requested the authority to conduct an oral hearing and the Commission agreed. Subpart G formal hearings would be offered thereafter before the issuance of the combined construction permits/operating license for a specific facility." *Final Rule, Changes to the Adjudicatory Process, 69 FR 2,182, 2,185.*

In 2007, the NRC promulgated revisions related to the Part 52 regulatory requirements. However, the basic concept expressed in the original Part 52 rulemaking was preserved from the 2004 version. Standard designs should be certified before they are referenced in COLAs. 72 FR

49, 352. These revised regulations adopted the provision of 10 CFR 52.73 that allows an applicant for a combined license to reference a standard design certification. 10 CFR 52.55(c) specifies that an applicant for a COLA "may, at its own risk reference in its application a design for which a design certification application has been docketed but not granted." In the *instant* matter, this is precisely what the applicant and NRC have done by advancing a COLA adjudication in the absence of a completed reactor design certification rulemaking.

The 2007 regulatory revisions also establish five separate categories of COLAs with distinct sets of requirements for the content of the applications and restrictions on the scope of issues that are germane in an adjudication for each category. 10 CFR 52.79(a)-(e). COLAs that reference early site permits (ESPs) are covered by 10 CFR 52.79(b); standard design approvals are addressed in 10 CFR 52.79(c); certified design the rulemakings are covered in 10 CFR 52.79(d); licensed manufacturers of nuclear reactors are addressed in 10 CFR 52.79(e). COLAS that do not reference any of the pre-issued rules or permits are covered by 10 CFR 52.79(a). COLAs that reference ESP's, standard design rules, and/or manufactured reactor licenses assume that there have been determinations made in previous permitting or rulemaking proceedings and are considered final and may not be contested in individual COLA adjudications. 10 CFR 52.39(a)(2), 52.63(a)(5), 52.171(a)(3).

Conversely, for any COLA that does not reference a previously issued rule, permit or license, the 2007 Part 52 revisions do not anticipate any restrictions on the scope of issues in COLA adjudications required by 10 CFR 52.85. This is the case even if a standard design has been approved by the NRC staff. The reactor design issues may still be challenged in an individual COLA adjudication if the application does not reference a previously issued rule permit or license. 10 CFR 52.145(b).

IV. THE COMANCHE PEAK COLA IS INCOMPLETE AND AN ADJUDICATION THEREOF MAY NOT PROCEED WITHOUT A DESIGN CERTIFICATION RULE

The notice at 74 FR 6177 that announced the notice and order for hearing and opportunity to petition for leave to intervene in the Comanche Peak COLA adjudication specifies that the US-APWR proposed by the applicant is currently under NRC staff review. Therefore, under the Part 52 licensing scheme, the Applicant has referenced a reactor design that has not been certified. This has significant implications for the subject COLA adjudication. Because the Applicant is proceeding without a reactor design certification rule its COLA is incomplete. Alternatively, the COLA may proceed but only if issues related to reactor design are also subject to adjudication in the same proceeding. However, the current COLA omits reactor design discussions evidently on the assumption that the reactor design will ultimately be certified by NRC rulemaking. That assumption is contrary to the relevant regulatory requirements.

The application is fatally flawed because of the Applicant's failure to obtain a certified reactor design rule before proceeding with the balance of its application. The Applicant and NRC may not restrict the scope of issues related to the reactor design in this proceeding without a reactor design certification rule. Moreover, the subject Federal Register notice published on February 5, 2009 is likewise fatally flawed because it assumes that this proceeding may advance without the certified reactor design rule. This effectively subverts the regulatory intention to preclude an adjudication of the reactor design in a COLA only if the reactor has been certified by a rulemaking.

An effective analysis of the COLA requires that the applicant provide information consistent with 10 CFR 52.79 that specifies *in pertinent part* as follows:

> (a) The application must contain a final safety analysis report that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components of the facility as a

whole. The final safety analysis report shall include the following information, at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved by the Commission before issuance of a combined license:

(2) A description and analysis of the structures, systems, and components of the facility with emphasis upon performance requirements, the bases, with technical justification therefore, upon which these requirements have been established, and the evaluations required to show that safety functions will be accomplished. It is expected that reactors will reflect through their design, construction, and operation an extremely low probability for accidents that could result in the release of significant quantities of radioactive fission products. The descriptions shall be sufficient to permit understanding of the system designs and their relationship to safety evaluations. Items such as the reactor core, reactor coolant system, instrumentation and control systems, electrical systems, containment system, other engineered safety features, auxiliary and emergency systems, power conversion systems, radioactive waste handling systems, and fuel handling systems shall be discussed insofar as they are pertinent. The following power reactor design characteristics and proposed operation will be taken into consideration by the Commission:
(i) Intended use of the reactor including the proposed maximum power level and the nature and inventory of contained radioactive materials;
(ii) The extent to which generally accepted engineering standards are applied to the design of the reactor;
(iii) The extent to which the reactor incorporates unique, unusual or enhanced safety features having a significant bearing on the probability or consequences of accidental release of radioactive materials;
(iv) The safety features that are to be engineered into the facility and those barriers that must be breached as a result of an accident before a release of radioactive material to the environment can occur. Special attention must be directed to plant design features intended to mitigate the radiological consequences of accidents. In performing this assessment, an applicant shall assume a fission product release [7] from the core into the containment assuming that the facility is operated at the ultimate power level contemplated.

The Comanche Peak COLA does not include information about the structure and function of the US-APWR at a level of detail sufficient to make a meaningful analysis. For example, 10 CFR 52.79 requires that the COLA describe in detail how the design, construction and operation of a nuclear plant will assure that there is an extremely low probability of accidents that could cause the release of significant quantities of radioactive fission products. The description must be sufficiently detailed to understand system designs and their relationships to safety. It is

crucial that there be a detailed understanding of the reactor core, reactor coolant system, instrumentation control systems, containment, engineered safety features and emergency systems in order to determine whether the requirements of the AEA have been met that mandate a finding that there is a demonstrated ability of the Applicant to protect the health and safety of the public. 42 U.S.C. 2133(b).

In this matter, the Applicant has short-circuited the process. Instead of providing information in its COLA consistent with the requirements of 10 CFR 52.79, it has assumed that its reactor design will be certified by the NRC staff. Such an assumption is unwarranted considering that the US-APWR has no operational history, whatsoever. Accordingly, the Applicant should either withdraw the COLA until the US-APWR certification rulemaking is complete or reapply for its license under 10 CFR Part 50.

To demonstrate the extent to which this regulatory process is out of sequence, consider the US- APWR application review schedule published at the NRC's website. According to NRC's review schedule, the date for final safety evaluation review of the US-APWR is projected for no sooner than September 2011. The Petitioners contend that a proper inquiry into whether the COLA should be granted is predicated on a completed reactor rulemaking. Without this crucial information decision-makers are operating in the dark. The pending COLA adjudication should not proceed until at least September 2011, at the earliest, assuming that by that time there is a proper reactor design certification rule that covers the US-APWR.

The Comanche Peak Environmental Report assumes that the reactor design is safe and will prevent significant releases of radioactivity. However, this assumption is based on the manufacturer's arguably self-serving description of the US-APWR rather than the NRC staff's

completed evaluation and review of public comments related to the reactor design. It is pointless to conduct a COLA adjudication in the absence of a completed reactor design certification rule. Therefore, the Petitioners contend that this COLA proceeding should be stayed until the completion of the reactor design certification rulemaking.

An analogous situation is the Environmental Impact Statement (EIS) process required under the National Environmental Policy Act (NEPA). 42 U.S.C. 4331 et seq. The purpose of an EIS is to assure that relevant decision-makers have adequate reliable information to evaluate the merits of a particular issue. The absence of a completed reactor certification process precludes an informed judgment about whether a COL should be granted for Comanche Peak units 3 and 4. The EIS required under NEPA must establish that the NRC has in good faith taken a sufficient look at the environmental consequences of a proposed action and at the alternatives of an action. *Save our Sycamore V. Metropolitan Atlanta Transit Authority*, 576 F. 2nd 573, 576 (5th Cir. 1978). The detail required in an EIS related to the Comanche Peak proposal to expand the plant to four reactors must include a means by which decision makers and the public can determine whether the US-APWR is more or less environmentally harmful than practicable alternatives for generating electricity. Similarly, the level of detail for a meaningful COLA proceeding should be predicated on a completed reactor design certification process.

The Commission should reject any attempt to circumvent the requirement that a reactor design be certified prior to proceeding with a COLA adjudication. Pursuant to a policy statement published at 72 Fed. Reg. 20,963 (April 17, 2008) the Commission has taken the position that it may defer certification of a reactor design and allow the licensing adjudication to advance while referring the outstanding reactor certification issues to a separate rulemaking. Petitioners contend that a decision to advance the COLA process without a reactor certification rule violates

Part 52 of the NRC's own regulations. Without a completed reactor certification process the NRC will not be able to make a reasoned judgment about whether a COL should be issued.

The function of a COLA adjudication is to make certain that the NRC has adequate information to allow Comanche Peak Units 3 and 4 to proceed to construction and operation. The absence of a completed reactor certification rulemaking contradicts the policy objectives of Part 52 and allows an essentially artificial framework to govern the content of the COLA related to Comanche Peak Units 3 and 4. *Druid Hills Civic Association, Inc., v. Federal Highway Administration*, 772 F. 2nd 700, 709 11th Cir. (1985). Without the completed reactor certification rulemaking the NRC will essentially be left in the place of a consumer who contemplates the purchase of an automobile without considering whether the engine is a sound design. Such a process is "artificial" and violates the requirement of the AEA, 42 USC 2133.

Completion of the reactor design certification rulemaking is the "key procedural device" in the NRC's Part 52 regulatory mechanism for "bringing about enhanced safety and early resolution of licensing issues." Final Rule, Early Site Permits; Standard Design Certification; and Combined Licenses for Nuclear Power Reactors, 54 Fed. Reg. 15,372, 15,374 (April 18, 1989). It follows therefore, that a COLA must have the benefit of the complete analysis of the proposed reactor design rulemaking in order for decision makers to determine compliance with 42 USC 2133(b) that requires a finding that the Applicant's reactor will protect the health and safety of the public.

The policy published at 72 Fed. Reg. 20, 963 (April 17, 2008), that allows a reactor design certification to be deferred while the balance of the licensing adjudication advances, contradicts regulations that recognize completion of the reactor design certification rulemaking as the key procedural device in the Part 52 regulatory mechanism for enhanced safety and early

resolution of licensing issues. Proceeding with the COLA adjudication without resolution of the reactor certification application is the classic "cart before the horse" problem.

Petitioners recognize that in *Progress Energy Carolina, Inc., Shearon Harris Nuclear Power Plant, units 2 and 3,* CLI-08-15, slip op. (June 23, 2008) the NRC denied a motion to postpone a hearing on the ground that the reactor certification rulemaking had not been completed. The decision relies on 10 CFR 52.55(c) that says an applicant may reference an uncertified reactor design at its own risk. Significantly, 10 CFR 52.55(c) does not address whether a COLA adjudication may proceed on the basis of an applicant's reference to an incomplete reactor certification rulemaking; the regulation only says an applicant that references an uncertified reactor design does so at its own risk. The NRC stated that rather than hold the proceeding in abeyance and complete the reactor certification rulemaking a contention could be developed around this issue citing 73 Fed. Reg. 20,963. The decision stated that contentions related to incomplete applications are commonplace in NRC adjudications. The Petitioners herein urge the NRC to reconsider this decision because it should not be left to Petitioners and development of contentions for the NRC to insist on compliance with its own regulations. By any meaningful standard, the COLA herein is incomplete without a reactor design certification rule and to permit the COLA adjudication to proceed in light of this fact flaunts NRC's regulatory requirements.

V. THE US-APWR IS A SIGNIFICANTLY DIFFERENT DESIGN FROM CURRENT OPERATING US FOUR-LOOP PLANTS. THESE DIFFERENCES AND THE LACK OF AN OPERATING HISTORY FOR THE US-APWR REQUIRE THAT THE COLA EITHER BE HELD IN ABEYANCE PENDING COMPLETION OF THE REACTOR DESIGN CERTIFICATION PROCESS OR THE APPLICANT SHOULD BE REQUIRED TO SUBMIT AN AMENDED APPLICATION AND MAKE ALL REACTOR DESIGN RELATED ISSUES PART OF THE COLA ADJUDICATION PURSUANT TO AN AMENDED HEARING NOTICE.

The failure to complete the reactor design certification process is all the more important because of the differences between the US-APWR and the most closely comparable US 4-loop plants- the Standardized Nuclear Unit Power Plant System (SNUPPS). See US-APWR Design Control Document (DCD) Table 1.3-1. These comparative data indicate that the proposed US-APWR has generally greater dimensions and capacities than current US 4 loop plant counterparts. These differences may impact other operational and technical aspects of the nonreactor parts of the plant and may have radiological ramifications as well. The differences should be carefully considered and issues related thereto resolved in the subject rulemaking before proceeding with the COLA adjudication.

For example, the gross electrical output of a US-APWR is projected to be approximately 1700 MW compared with the typical US current 4 loop plant at 1186 MW. The thermal output of the US-APWR is projected to be 4451 (MWt) compared with the US current 4 loop plant of 3411 (MWt). There is a significantly larger thermal design flow for the US-APWR, 112,000 gpm, compared to 95,700 gpm for the US 4 loop plant.

The fuel assemblies of the US-APWR are 14 feet long compared with 12 feet in the US 4 loop plants. And while both have a 17 X 17 fuel assembly lattice, the US-APWR has 257 fuel assemblies compared to 193 in the US current 4 loop plants. There are 53 rod cluster control assemblies in the US 4 loop plants compared to 69 in the US-APWR. Additional rod control assemblies will increase the volume of irradiated materials required for management during decommissioning even if their operational efficacy is presumed.

The internal volume of the pressurizer in a US 4 loop plant is 1800 ft.^{3}. The US-APWR internal volume is 2900 ft.^{3}. The reactor coolant pipes on the US-APWR are projected to be 31

inches in diameter. The reactor coolant pipes for the US 4 loop plants range from 27 1/2 inches to 31 inches in diameter. The US current 4 loop plant has two residual heat removal pumps, while the US-APWR will have four such pumps.

The containment structure of the US-APWR is considerably larger than its US 4 loop counterpart. The inner diameter of the US-APWR is projected to be 149 feet compared with 140 feet for the US 4 loop plant. The inner height of the US-APWR is 226.5 feet compared to 205 feet for the US 4 loop plant.

The US-APWR also has additional equipment not found on the US 4 loop plant. For example, the 4 loop plant does not use a residual heat exchanger. However, the US-APWR uses four residual heat exchangers. The US 4 loop plant uses 197 containment spray nozzles while the US-APWR is projected to have 348 such nozzles. Again, even if operational efficacy is presumed related to these components (which Petitioners submit that such a presumption is unwarranted in the absence of a design certification rule) there is additional irradiated material to deal with at the end of the plant's operation.

The high-pressure safety injection pump systems on the two designs are also significantly different and the US-APWR equipment is significantly larger. The US 4 loop plant uses two high-pressure safety injection pumps while its US-APWR counterpart uses four such pumps. However, the size of the US-APWR pump is significantly larger with a 1540 gpm capacity compared to 440 gpm capacity for the US four-loop plant. While this is significant for purposes of core coolant capacity, it also represents a considerably larger volume of irradiated materials that will need to be dealt with eventually and could be the source of greater radiation exposures.

Both designs use an accumulator as a safety feature. However, the US-APWR requires 15,850 gallons of water for the accumulator compared to 6,358 gallons for the US 4 loop plant. Not only is the increased volume of water consumption for the US-APWR significant it also represents more irradiated water that would be discharged to the Squaw Creek Reservoir.

The emergency water storage pit for the US four loop plant requires a 394,000 gallon capacity compared to a 607,640 gallon capacity for the US-APWR. Again, this is a significantly larger water requirement for the US-APWR emergency water storage pit and represents additional volumes of irradiated water that would be discharged to Squaw Creek Reservoir.

The US four loop plant relies on two diesel generators compared with the US-APWR that utilizes four gas turbine generators. While the relative merits of gas compared to diesel may be significant, in any event, the additional equipment still represents more irradiated material that will have to be dealt with and that could cause more exposures.

Another significant difference between the US-APWR and its US 4 loop counterpart is in the reactor internals. The US-APWR utilizes ring block type neutron reflectors rather than the baffle structures of current 4 loop plants. DCD, page 1.5-1. The DCD acknowledges that this is a unique reactor internal design but it was only tested at room temperature utilizing a 1/5 scale model using a simulated 12 foot core type APWR. Whether the verification methodology to determine the efficacy of the reactor vessel and internals is valid should be carefully evaluated in the context of the NRC's design certification process because this is a unique design. There should be no assumptions concerning this important component.

In fact, there appear to be problems with the neutron deflectors in a 1/5 scale model of an APWR vessel in Japan, specifically in terms of flow induced vibration. A Science Direct article *Hydraulic flow tests of APWR reactor internals for safety analysis,* states the following:

> The APWR, featuring many innovative technologies for safety and economic improvement, is expected to be a future standardized PWR in Japan. One of the most important design improvements is the concept of a radial neutron reflector which replaces the baffle structures in current PWRs. This new reflector is designed to improve the reliability of the reactor structure and the efficient use of uranium resources. On the other hand, this new design brings about safety problems relevant to the flow induced vibration of reactor internals including the neutron reflector and, coolability and thermal deformation of radial reflector blocks…
> A vibration of the core barrel caused by the turbulent flow in the downcomer shakes the radial reflector through the water between them (Fig. 1). When the radial reflector vibrates, it may make contact with and shake the adjacent fuel bundles and could result in fretting, and possibly rupture, of the fuel pin cladding.[1]

The DCD also makes comparisons between reactor design parameters for the US-APWR and typical 12 foot and 14 foot PWRs. See DCD Table 4.1.1. The most meaningful comparison would appear to be with the 14 foot PWRs since the US-APWR also assumes a 14 foot fuel assembly. Some of the more significant differences between the US-APWR and 14 foot PWRs include the core thermal output-for the US APWR that is anticipated to be approximately 14 percent greater at 4450 MWt compared with 3853 MWt for the 14 foot PWRs.

The vessel formal design flow for the US-APWR also is larger at168.210 lbm/hr compared to 145 lbm/hr for the 14 foot PWRs.

[1] Morii, Tadashi, ScienceDirect, Nuclear Engineering and Design 238 (2008) 469-481, Hydraulic flow tests of APWR reactor internals for safety analysis. www.sciencedirect.com, and www.elsevier.com/locate/nucengdes

The core barrel diameter is larger or for the US-APWR with an inside diameter of 175.8 inches and an outside diameter 181.97 inches. The 14 foot PWRs measures 148 inches for the inside diameter and 152.5 inches for the outside diameter.

The effective heat transfer area on the fuel surface is considerably greater for the US-APWR compared to the 14 foot PWRs. The US APWR has 91,360 ft.² of effective heat transfer area on the fuel surface compared to 69,700 ft.² for the 14 foot PWRs, approximately a twenty-five percent difference.

The differences between the US-APWR and existing 4 loop plants are significant and should be fully considered in the rulemaking before proceeding with the adjudication of the COLA.

VI. PROCEEDING WITH A COLA ADJUDICATION, AS OUTLINED IN 74 FED. REG. 6177, ASSUMES THAT ALL RELEVANT ISSUES OTHER THAN THE REACTOR DESIGN MAY BE DEALT WITH IN THE LICENSING PROCEEDING. THIS IS A FUNDAMENTALLY FLAWED ASSUMPTION THAT VIOLATES THE ATOMIC ENERGY ACT, NRC'S PART 52 REGULATIONS AND THE ADMINISTRATIVE PROCEDURE ACT REQUIREMENTS FOR FAIR HEARINGS.

Under the NRC's own regulations at Part 52 and Part 2 there are only two ways to conduct a COLA proceeding for Comanche Peak Units 3 and 4. The COLA is either subject to an adjudicatory hearing on all issues, including the US APWR design certification application that is referenced in the COLA, or the adjudication on the COLA must be delayed until the rulemaking on the US-APWR is complete. In contrast, NRC regulatory requirements do not permit the exclusion of an uncertified US-APWR design issues from the contested adjudication and defer such to an ongoing but incomplete rulemaking. The Safety Evaluation Report for the US-APWR design is not expected before September 2011 according to the NRC website.

Additionally, proceeding without the design certification rule would effectively deprive the Petitioners of fair and meaningful opportunities to contest all relevant issues related to the Comanche Peak Units 3 and 4 COLA. The adjudication cannot proceed on an attenuated COLA that lacks a design certification rule on an assumption that the subject reactor design will be certified and thereby avoid issues related thereto that design by having such deferred to a date after the COLA contentions are due. Such a process would fundamentally prejudice the Petitioners because it allows an adjudication without consideration of all material issues.

Materiality of issues is fundamental to the NRC licensing decision. *Union of Concerned Scientists*, 735 F.2d at 1443, 1445. The subject COLA is bound by the requirements at 10 C.F.R. 52.79(a) that specifies 46 separate parameters that the final safety analysis report (FSAR) is required to cover. A number of these issues are specifically covered in the DCD and it is the DCD that is under consideration in the reactor design certification rulemaking. Accordingly, to the extent that the COLA adjudication proceeding is intended to afford Petitioners and others a meaningful opportunity to contest material issues the process cannot be artificially truncated by excluding those issues related to reactor design in the absence of a completed reactor design certification rule.

The NRC's part 52 regulations differentiate adjudications and rulemakings. Under 10 C.F.R. 52.85 a COLA is required to be the subject of a notice of hearing that requires either an informal or formal hearing under 10 C.F.R. 2.310. On the other hand, a rulemaking is not the subject of a notice of hearing but instead is subject to a notice of a proposed rulemaking. 10 C.F.R. 2.804. These are fundamentally different proceedings in terms of the opportunity for the Petitioners' participation. An adjudication anticipates an adversarial proceeding while a

rulemaking does not. *Independent Bankers Association of Georgia v. Board of Governors of Federal Reserve System*, 516 F.2d 1206, 1215 (C.A.D.C. 1975)

The Comanche Peak COLA is not subject to the exceptions under 10 C.F.R. 52.79(b) because this is not an ESP. Neither does the COLA qualify for exceptions under 10 C.F.R. 52 .79(d) that references a certified design rule nor 10 C.F.R. 52.79(e) that references a licensed manufacturer reactor. Accordingly, since the Comanche Peak COLA does not meet the requirements for the subject regulatory exceptions all material licensing issues should be within the scope of the adjudication, including the reactor design. This is the case even if the COLA references a reactor design that has received approval from NRC staff. In the absence of a design certification rule the entire COLA must be adjudicated. 10 C.F.R. 52.145(b) specifies that an NRC staff standard design approval is not equivalent to a commitment to issue a permit or license. Nor does staff approval dilute the authority of the NRC, Atomic Safety Licensing Board panel or presiding officers in Part 2 proceedings. This is even more significant in light of the policy pronouncement CLI-08-15, wherein the NRC recognizes that 10 C.F.R. 52.55(c) puts applicants on notice that reference to an uncertified design means that they proceed at their own risk. This policy statement reinforces the regulatory scheme in 10 C.F.R. 52.79 that addresses the scope of issues that must be addressed in a COLA that fails to reference a certified design rule.

The NRC's policy statement in CLI-08-15 also provides that licensing boards are not to accept contentions in individual COLA adjudications that are or are about to become the subject of a general rulemaking. 73 Fed. Reg. 20, 972, citing *Duke Power Co*., (Catawba Nuclear Station, Units 1 and 2), ALAB-813, 22 NRC 59 (1985) and *Potomac Elec. Power Co*., (Douglas

Point Nuclear Generating Station, Units 1and 2), ALAB-218, 8 BEC 79(1974). However, neither of these cases related to a reactor certification rulemaking. In the *Duke Power* case issues regarding the environmental impact of transporting spent fuel to a repository were excluded from an adjudication because such transportation issues were subject to a parallel pending NRC rulemaking. Likewise, in *Potomac Elec. Power Co*., it was determined that contentions regarding environmental impacts related to be the uranium fuel cycle would not be considered in an adjudication because they were being addressed in a separate rulemaking. The regulatory approach applied in *Duke Power Co.* and *Potomac Elec. Power Co.* is distinguishable from the requirements of Part 52 that preclude restriction on the scope of material issues that can be litigated in a COLA adjudication unless it relates to an ESP, a manufactured nuclear reactor license, or standard design rule. None of these apply to the Comanche Peak COLA. Moreover, *Duke Power Co.* and *Potomac Elec. Power Co.* predate the adoption of the COLA process and design certification regulatory scheme of Part 52.

Another fundamental problem with proceeding with the COLA adjudication without a certified design rule is that additional design changes that may result from the design certification rulemaking could lead to further changes in the COLA itself. Deficiencies in the reactor design are likely to trigger collateral changes in technical specifications and operational requirements. Under the NRC's rationale these changes would then be beyond the scope of a COLA adjudication that may have already been completed. Alternatively, if technical specifications or operational procedures require a change subsequent to a concluded reactor design certification rulemaking and another COLA adjudicatory process is required the efficiencies anticipated by the Part 52 regulations would be negated. The NRC has recognized this possibility when it stated that a certified standard design need not be referenced for a

combined license. However, maximum efficiency would be achieved if design related issues are resolved prior to the commencement of the COLA proceeding. 72 FR 49, 446. Hence, requiring COLA adjudications to proceed without an NRC design certification rule may cause petitioners to submit contentions that are incomplete or immaterial.

Unless the COLA proceeding is stayed the adjudication will proceed without the design certification rule that is a fundamental part of the licensing process. This is a violation of the requirement of 42 U.S.C. 2133(b) that anticipates there will be the reactor design maximizes assurance of the protection of the public from radiological hazards.

The process now prescribed under the hearing notice for the COLA would bifurcate the adjudication. Bifurcation is permissible under 10 C.F.R. 2.317(a) if there is a determination that such would promote convenience and avoid prejudice. For the reasons stated above and because, in this COLA adjudication, Petitioners would be prejudiced because what contentions are material in the absence of a reactor design certification rule is unclear.

VII. CONCLUSION

The NRC should stay the Comanche Peak COLA adjudication and hold in abeyance proceedings related thereto pending completion of the US-APWR design certification rulemaking. Alternatively, the NRC should find that the Comanche Peak COLA is subject to an adjudication that includes all issues, including the US-APWR design certification application that is referenced in the Comanche Peak COLA, and publish an amended notice of hearing that incorporates this finding.

Respectfully submitted,

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Certification Pursuant to 10 CFR 2.323(b)

The undersigned hereby certifies that he contacted *via* email counsel for the Applicant and the NRC designated at 74 Fed.Reg. 6178 and informed them of the intent to file the *instant* Petition. Counsel for the Applicant responded and indicated the Applicant could not support the Petition. To date, no response has been received from counsel for NRC.

Robert. V. Eye
Counsel for Petitioners