PMComanchePekNPEm Resource

From: Karen Hadden [karen@seedcoalition.org]
Sent: Monday, February 16, 2009 8:40 PM
To: Comanche COLEIS Resource; Burton, William; Monarque, Stephen; Willingham, Michael; Burnell, Scott; Fringer, John; Hatchett, Gregory
Cc: Robert Eye; Lon Burnam
Subject: Environmental Scoping Comments - Comanche Peak 3 and 4
Attachments: CP EIS Scoping final .pdf

Dear Sirs:

Attached are our Environmental Scoping Comments. Please advise us if you have any difficulty opening the attachment.
These comments were prepared by Robert V. Eye, Attorney at Law.

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On: February 16, 2009

By email to: Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration
Mailstop TWB-05-B01M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
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NUCLEAR REGULATORY COMMISSION DOCKET NOS. 52-034, 52-035

IN RE: ENVIRONMENTAL IMPACT STATEMENT SCOPING COMMENTS FOR COMANCHE PEAK NUCLEAR POWER PLANT UNITS 3 AND 4

Environmental Impact Statement Comments for Comanche Peak Units 3 and 4 -Submitted on Behalf of Texas State Representative Lon Burnam, the Sustainable Energy and Economic Development (SEED) Coalition, Public Citizen, True Cost of Nukes and Debbie Harper

In regard to Federal Register Notice Vol. 73, No. 244, Pages 77076-77078

Sincerely,

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Introduction

These Environmental Impact Statement scoping comments are submitted on behalf of the Sustainable Energy and Economic Development Coalition (SEED) Coalition, True Cost of Nukes and Texas State Representative Lon Burnam, who resides within fifty miles of the site of the proposed Comanche Peak site and who represents 150,000 residents in District 90 in Fort Worth, and Debbie Harper, a citizen residing in Glen Rose, Texas. The SEED Coalition and Public Citizen are statewide organizations in Texas, based in Austin which have members within fifty miles of the site for the proposed Comanche Peak Units 3 and 4. True Cost of Nukes is newly formed organization in the Fort Worth region with members within fifty miles of the proposed reactors. Representative Burnam, Debbie Harper and members of the SEED Coalition and True Cost of Nukes, and Public Citizen would be adversely impacted by the operations of the proposed Comanche Peak Units 3 and 4 and would have standing to participate in regulatory and legal proceedings related thereto.

The environmental impact statement process should be held in abeyance until the completion of the reactor design certification process.

The Nuclear Regulatory Commission should hold in abeyance all proceedings related to the environmental impact statement (EIS). The EIS must be adequate to provide the decision makers with sufficient information of the environmental consequences of their action so that they may make an informed and reasoned decision. *Vermont Yankee Nuclear Power Corp. V. NRDC*, 435 U.S. 519, 98 S.Ct. 1197, 50 5 L. Ed 2nd 460 (1978); *Sierra Club V. Morton*, 510 F. 2nd 813 (5th Cir. 1975). The EIS cannot be considered complete unless and until the completion of the design certification rulemaking proceeding for the proposed U.S. Advanced Pressurized Water Reactor (USAPWR). The scope of the EIS must include a hard look at the environmental consequences of the proposed reactor and, at this point, such

considerations are not possible because the design has not been certified.

The advanced pressurized water reactor designed proposed for the expanded Comanche Peak plant has never been utilized in any other nuclear plant in the world. Accordingly, because the proposed reactor design has neither operational history nor a completed certification process proceeding with the EIS is premature.

The EIS required under the National Environmental Policy Act (NEPA), 42 U.S.C. 4331 et seq., 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 USAPWR is more or less environmentally harmful than practicable alternatives for generating electricity.

The Commission should reject any attempt to circumvent the requirement that a reactor design be certified prior to preparation of the environmental impact statement and the record of decision. 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 designed and allow the licensing proceeding (including presumably, the EIS process) to advance while referring the outstanding certification issues to a separate rulemaking that has been neither scheduled nor commenced. Petitioners contend that such a decision to advance the environmental impact statement process without a reactor certification having been completed violates NEPA. Without a completed reactor certification process decision makers will not be able to make a reasoned judgment about the environmental consequences of the USAPWR nor a reasonable comparative analysis of practicable alternatives.

The function of an EIS is to make certain that decision makers have adequate information to judge environment consequences of an expanded Comanche Peak nuclear plant. The absence of a completed reactor certification process contradicts the policy objectives of an NEPA and allows an essentially artificial framework to govern the content of the EIS related to Comanche Peak. *Druid Hills Civic Association, Inc., v. Federal Highway Administration*, 772 F. 2nd 700, 709 11th Cir. (1985). The artificial process that is at work in this matter relates to the absence of the completed reactor certification process. Without the completed reactor certification process decision makers will essentially be left in the place of a consumer who contemplates the purchase of an automobile without considering whether the engine is of sound design.

Completion of the reactor design certification process 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 an EIS must have the benefit of the complete analysis of the proposed reactor design in order for decision makers to determine potential environmental consequences and make meaningful comparisons with practicable alternatives.

Procedural deficiencies related to the EIS scoping process

The petitioners have been given an inadequate opportunity to fully review and specify their comments related to the EIS scoping process. The Federal Register notice related to the EIS scoping process was published on December 18, 2008, Fed. Reg. Vol. 73, No. 244 pg. 77076-77078. The so-called public hearing for the EIS scoping process was conducted on January 6, 2009. Written comments concerning the EIS scoping process are to be filed by February 17, 2009. This attenuated time schedule is inadequate to fully consider the scope of issues that should be covered in the subject environmental impact statement. The environmental report related to the Comanche Peak nuclear power plant Units 3 and 4 is a voluminous and complex document that covers multiple disciplines. Because of the breadth and depth of issues covered in the environmental report, additional time should be permitted to the public to fully present their comments concerning the scope of issues that should be covered in an EIS.

Inadequate notice was provided to the public, as the scheduling occurred during the holiday season when most people are not at work or checking email. Some people who had already requested to be on the official contact list for the Comanche Peak project never written or even email notice of the so-called January 6th public hearings for the EIS scoping process.

However, without waiving any procedural objections the commentors herein contend that a proper environmental impact statement should at a minimum analyze the issues that follow.

1. The uranium fuel cycle has substantial greenhouse gas impacts that should be considered at each phase of the fuel cycle.

The uranium fuel cycle is a contributor to greenhouse gases. The EIS should carefully consider and include in its analysis the greenhouse gas impacts that are unavoidable as a result of mining, processing, fabrication, transportation fuel burn up, waste streams management, decommissioning and long-term site maintenance that are an integral part of the uranium fuel cycle. While the proponents of an expanded Comanche Peak nuclear plant posit that there will be fewer greenhouse gases produced as a result of the operations of Comanche Peak Units 3 and 4 compared to fossil fueled plants, there are inevitable greenhouse gas emissions associated with each phase of the fuel cycle. These conditions need to be carefully considered to determine the full impact of an expanded Comanche Peak nuclear plant.

The decision in *Massachusetts V. EPA*, 549 U.S.497 (2007) requires that carbon dioxide be considered a pollutant. Carbon dioxide emissions are inevitable in the production of fuel for nuclear plants. Likewise, carbon dioxide emissions can be anticipated during routine operations of a nuclear plant and are foreseeable as a plant is decommissioned. Any benefits derived by operation of a nuclear plant in terms of avoidance of greenhouse gases needs to be considered in light of greenhouse gas production as it occurs in various stages in the fuel cycle. An adequate EIS should require such an analysis.

2. Each part of the uranium fuel cycle has substantial radiological, environmental and public health impacts that are cumulative in nature and should be considered in the context of an EIS.

Each phase of the uranium fuel cycle has radiological, environmental and public health impacts that must be analyzed and quantified in the context of an EIS. For example, mining uranium is known to cause an increase in radiation related illnesses among miners. Mortality and morbidity analyses should be done for uranium mining and associated activities related to supplying fuel to Comanche Peak Units 3 and 4. Additionally, processing uranium into fuel requires substantial amounts of electrical energy and water. The impacts from the use of the substantial amounts of energy and water must be part of a proper EIS. Without this analysis of the use of energy and water in the production of uranium fuel there cannot be a meaningful comparison with practicable alternatives that do not utilize large amounts of water and electricity for fuel production.

3. Expanded use of nuclear power in North Texas assumes that there will be an adequate supply of fresh water for purposes of plant operations. This assumption is faulty because of the failure of the Comanche Peak environmental report to analyze impacts of global warming on rainfall and the hydrological cycle.

Further, the Squaw Creek Reservoir should be analyzed for radiological hazards because of radioactive particulates currently discharged from Comanche Peak Units 1 and 2 that are accumulating in sediment and additional radionuclide loading if Units 3 and 4 are operational. Additional analysis should be undertaken to determine the long-term viability of the Squaw Creek Reservoir retention structure under various scenarios including seismic events, protracted drought and abandonment by the licensee.

Global warming and its impacts on rainfall are better understood now and must be considered in the context of determining whether adequate water resources will be available for nuclear plant operations. It is clear that nuclear plants require enormous amounts of water for operations. In fact, the environmental report states that 30,000 gallons of water are needed for each reactor every minute, and shows in Figure

2.3-30 that approximately two-thirds of this water would evaporate. It is also clear, based on the Comanche Peak environmental report, that the proponents of the plant assume that there will be adequate water resources for purposes of plant operations associated with Comanche Peak Units 3 and 4. However, impacts from global warming will include protracted drought that may seriously compromise water resources required for plant operations. The compromised water resources should be considered both from a quantitative perspective and a temperature sensitive analysis since plant operations are dependent on a narrow band of water temperatures.

Additionally, Comanche Peak Units 1and 2 already utilize Squaw Creek Reservoir as a discharge water body that receives radionuclides including tritium and radioactive particulates. Dr. Arjun Makhijani, president of the Institute for Energy and Environmental Research has noted the relatively high levels of tritium at this site compared to other nuclear reactors, which should be examined and compared to other sites in the EIS, and additional cumulative impacts should be analyzed.

The environmental report indicates that Squaw Creek Reservoir will continue to be the receiving body of water for various discharges from Comanche Peak Units 3 and 4. The Environmental Report concedes that radioactive particulate matter released to Squaw Creek Reservoir in liquid effluents will be deposited into the sediment layer of the reservoir bottom and remain there indefinitely. Comanche Peak NPP Environmental Report, p.5.11-3. In the event of a protracted drought, and inadequate flow into Squaw Creek Reservoir. The sediment layer could become exposed and, if adequately deliquified, would become dust and subject to transport by wind with clear public health and environmental consequences.

Therefore, it is crucial that the EIS include a complete radiological profile of the existing sediment in Squaw Creek Reservoir and an analysis of the cumulative radiological impacts expected from operations on it from Units 3 and 4. This analysis is required in order to fully gauge the environmental and public health impacts from the use of the earthen Squaw Creek Reservoir as a discharge point for radioactive effluent from Comanche Peak Units 3 and 4. Part of this analysis should be an assumption that the Squaw Creek Reservoir dam will at some point fail and release the sediment that is burdened by radioactive particulates. Downstream impacts on water quality, use, and impacts on mortality and morbidity must be a part of a proper EIS. The Squaw Creek Reservoir dam should also be analyzed for structural integrity. Protracted drought, seismic activity, or other natural events have the potential to weaken the dam and if a failure of the structure occurs radioactive sediment could be carried downstream with significant potential for environmental and public health impacts. Additionally, given the very long-term nature of the radiological hazard represented by the accumulation of radioactive particulates discharged during plant operations, it should be assumed that the reservoir will require, at the minimum, management and perimeter security for a time that extends far beyond the term of operation license. Questions surrounding post-license ownership of and responsibility for Squaw Creek Reservoir should be addressed and resolved in the EIS. Accordingly, the EIS should fully consider the structural reliability of the Squaw Creek Reservoir dam and analyze adverse environmental and public health consequences that could occur as a result of its failure.

The study should also include an analysis of pollution impacts downstream from water contaminated by chemical treatment such as biocides, algaecides, pH adjustors, corrosion inhibitor and silt dispersant chemicals injected at the reactor site as well as chlorine, salts and non-radioactive effluent. The differential impact of treatment of 100 percent of the water versus the lesser amount of treatment proposed by the applicant should be considered.

The EIS should also consider whether regional waterways will be impacted in terms of water quantity and quality by the use of vast quantities of water for Units 3 and 4, including Lake Granbury, the Brazos River, the Paluxy River, Whitney Lake, a popular fishing lake, and popular recreational areas such as Possum Kingdom. According to the Texas Parks and Wildlife Department web site, the drinking water at Possum Kingdom State Park is currently non-potable due to a high salt content, and visitors must bring their own water for consumption. The potential to increase salt content of waterways in the region by further drawdown of water levels, including impacts to the local aquifer and drinking wells should be examined thoroughly in the EIS. Coastal environmental impacts are known to result from alterations of freshwater flow into the Gulf of Mexico, affecting lagoons, estuaries and wetlands, altering salinity patterns, nutrients,

dissolved oxygen levels and therefore impacting productivity of coastal plant and animal populations. The biological impacts must be considered in the EIS including the possibility of eutrophication, productivity and sediment impacts, and potential contamination.

The most prevalent global warming impacts come from increased heat and humidity in the atmosphere. At a nuclear power plant two-thirds of the heat energy gets emitted into the air and heated water vapor is released into the air. Thus nuclear reactors themselves are global warming agents in terms of heat, including water vapor from steam and heat radiating from cooling towers and ponds. The EIS should contain an analysis of the production of heat energy emitted into the atmosphere and water by Comanche Peak Units 3 and 4 in terms of contributions to global warming.

4. Based on the assumption that Comanche Peak Units 3 and 4 will utilize MOX fuel, careful analyses of the radiological and public health impacts associated with MOX fuel fabrication should be a part of the EIS.

M0X fuel fabrication has remote handling requirements not associated with uranium fabrication facilities. MOX fuel includes plutonium, a strong alpha emitter, that has a higher specific radioactivity than uranium. The plutonium, if inhaled, presents a well-recognized health hazard. A M0X fuel fabrication facility, while subject to more stringent requirements than a uranium fuel fabrication facility, still involves handling increased amounts of plutonium. The environmental and public health impacts associated with increased use and handling of plutonium should be a part of a proper EIS. CP Environmental Report, page 5. 7-4. The EIS should include environmental impacts associated with routine operations of a M0X fuel fabrication facility as well as accident scenarios that could involve such a facility.

According to the Nuclear Information and Resource Service, the “Use of MOX fuel attacks commercial nuclear reactors where they are the weakest…Because of its high "neutron flux" levels, the reactor pressure vessel can become embrittled and fail during accident conditions. A nuclear accident involving MOX fuel could cause a meltdown more serious than Three Mile Island or Chernobyl, because the levels of radiation inside a reactor using MOX are even higher than in a normal atomic reactor.” These increased risks and the related increased worker and terrorism risks and potential resulting economic impacts from utilization of MOX fuel should be included in the EIS.

5. The cumulative impacts of operating four large reactors in close proximity to each other must be carefully considered for radiological, environmental and public health consequences.

Adding two 1600 MW reactors to a site that has already been impacted by continued operation of Comanche Peak Units 1 and 2 will result in unprecedented concentrations of reactor operations. The cumulative impacts of operational releases of radiation from four operating reactors should be a part of a proper EIS. Additionally, cumulative impacts from accident scenarios should also be considered. For example, the EIS should consider whether a radiological accident, at one plant could interfere/interrupt operations at the remaining plants at the Comanche Peak site. Further, there should be a careful consideration of whether an accident or event at one plant could actually preclude operations at the remaining plants. This is relevant because of the close proximity of the planned Units 3 and 4 to the existing Units 1 and 2.

The cumulative impacts on the food chain from the bioaccumulation and bioconcentration of radionuclides discharged from Units 3 and 4 should be considered in terms of the public health implications and the mortality and morbidity calculations related thereto should be a part of the EIS.

In 1980 the NRC conducted a study of what would happen under a worst-case scenario accident at each nuclear plant site. The Comanche Peak estimates were

- **1210 early deaths (25 mile radius around plant)**
- **13,800 early injuries (35 mile radius)**
- **$117 billion (1980 dollars) in financial consequences**

The EIS should update these risk figures and include the analysis in the report, taking into account the current population since the area has grown significantly since 1980 and since there would be two additional reactors at the site.

The National Academy of Sciences has concluded that radiation is dangerous even at low levels (BEIR VII study). While low-level radiation exposure is not as damaging as high-level radiation on a short-term basis, prolonged exposure to low-level radioactivity can be just as damaging to humans. The EIS should research the extent to which new reactors would add to cancer risks, birth defects and genetic impacts.

The EIS should include analysis of how much radioactivity would be released in routine operations and the frequency of releases that would occur.

Original background radiation levels should be included in the report. Data or radiation estimates from before the two existing nuclear reactors were constructed should be included, as well as calculations of the true original background level that was present before the testing of nuclear weapons in the United States, and the radioactive fallout that resulted.

6. Dependence on foreign sources for uranium should be considered for environmental and public health consequences.

The Comanche Peak environmental report recognizes that there has been an overall reduction of the demand for uranium fuel and the elimination of legal restrictions on importation of foreign uranium which has caused the closing and decommissioning of most domestic uranium mines and mills. The economic conditions pertaining to the uranium market favor utilization of foreign uranium rather than uranium mined in the United States. The Comanche Peak environmental report suggests that these changes have made uranium mining and milling and enrichment more “environmentally friendly". p. 5.7-4. However, there is no analysis in the environmental report of environmental or public health impacts of mining and milling uranium in foreign countries. The EIS should include a full analysis of the impacts of mining and milling uranium in foreign countries.

Dependence on foreign sources for uranium should also be considered in the EIS as a potentially harmful environmental and public health consequence. Recent experience with dependence on foreign sources for oil has heightened awareness that supplies may be interrupted or artificially inflated in costs. The economic impacts from such dependence can be far ranging and adverse. Accordingly, such impacts should be considered in a proper EIS.

The EIS should also consider the vulnerability of the uranium fuel cycle to disruption by terrorists or others with the radiological, environmental and public health consequences related thereto. This is particularly important in the context of reliance on foreign sources for uranium. Long supply lines make access to foreign sources of uranium especially vulnerable to attack by terrorists or others. Therefore, the EIS should consider the environmental and public health impacts of disruptions of uranium from foreign suppliers, both in terms of public health and environmental impacts as well as determining impacts from interrupted fuel supplies and the interruption of electric generating capacity as a result.

7. Health and Environmental Impacts due to uranium mining in Texas should be analyzed thoroughly.

At the same time, a unique situation in Texas has been completely ignored in the Environmental Report. There is a resurgence of uranium mining in South Texas at this time, with nineteen exploration permits being pursued. Impacts on communities in Texas including drinking water contamination which should be researched and examined thoroughly in the EIS. New mining operations are being pursued even though aquifers contaminated by earlier mining operations have not been restored and some residents in Texas still cannot drink their water due to contamination. Adding two more reactors at Comanche Peak would likely impact the amount of mining in South Texas and environmental and health impacts in those communities should be analyzed and considered thoroughly in the EIS.

8. Impacts on downstream municipal water users should be carefully considered for mortality and morbidity consequences.

Because the Comanche Peak nuclear plants discharge radioactive effluent into the Squaw Creek Reservoir that drains into the Brazos River and Paluxy River, the EIS should quantify the mortality and morbidity impacts, potential cancer and birth defect increases and genetic damage from exposure to radioactive water by municipal and other users. This analysis should include consideration of the public health and environmental consequences of a failure of the Squaw Creek dam and the transport downstream of radioactive particulates in the reservoir's sediment.

9. The reference reactor data utilized as a comparison to the Comanche Peak Units 3 and 4 are inadequate because it accounts for neither the health effects of radionuclides nor releases of Radon 222 from the uranium fuel cycle or estimates of Technetium-99 released from waste management or reprocessing activities. Analysis using correct reference reactor data must be included in the EIS.

The Comanche Peak environmental report relies on data from Table S-3. P. 5.7-17. However, Table S-3, fails to consider health effects from radioactive effluents and further does not estimate releases of either Radon- 222 or Technetium-99. The Comanche Peak environmental report does discuss the dose commitment estimates of both RN-222 and TC-99. However, there is no analysis of mortality or morbidity consequences related to conditions of either radionuclide. The EIS should consider the mortality and morbidity consequences related to the emissions of all the radionuclides anticipated from the routine operations of Comanche Peak Units 3 and 4. Mortality and morbidity analyses should also occur for accident scenarios involving releases of radionuclides from Comanche Peak Units 3 and 4.

10. The EIS should consider all radiological waste streams anticipated from operations of Comanche Peak Units 3 and 4, including replacement of major components such as steam generators, and determine the environmental effects and public health consequences related thereto.

The EIS for the proposed expansion of Comanche Peak must account for increased quantities of radiological waste streams and the environmental impacts and public health consequences thereof. The environmental report fails to fully quantify the environmental impacts and public health consequences and omits altogether mortality and morbidity analyses associated therewith. A proper EIS must account for environmental and public health consequences associated with increased quantities of radioactive waste originating at Units 3 and 4. This analysis should include disposition of large plant components such as steam generators that may require replacement before expiration of the reactors' useful lives. Replacement and disposition of steam generators is not a far-fetched or speculative possibility. The Trojan nuclear plant in Oregon replaced its steam generators. Trojan's original steam generators were shipped on the Columbia River by barge to a disposition site in Washington state. The EIS related to Comanche Peak should include an analysis of the environmental impacts and public health consequences of replacing steam generators at Comanche Peak Units 3 and 4 including radiological impacts both on-site and off-site.

11. Air emissions should be considered for their environmental impacts and public health consequences and should be analyzed using a Maximum Achievable Control Technology (MACT) standard.

The EIS for the proposed expansion of Comanche Peak should quantify and speciate the various radionuclides emitted and quantify the total air emissions anticipated as a result of operation of Units 3 and 4 and determine mortality and morbidity consequences thereof. Additionally, because radionuclides are considered a hazardous air pollutant the EIS should analyze radioactive air emissions on a comparative basis with the emissions permitted under the more relaxed standards applied to Units 1 and 2 and air emissions from Units 3 and 4 under a MACT standard.

12. The EIS should consider all radiological, environmental and public health impacts related to decommissioning of Comanche Peak Units 3 and 4.

The Comanche Peak environmental report acknowledges that it does not provide anything more than an initial projection of expected future environmental impacts related to decommissioning. The details related to environmental impacts expected from decommissioning are put off to a future unspecified date. The Comanche Peak environmental report assumes impacts related to decommissioning are either negligible or require, at most, a site-specific assessment. However, the environmental report assumes that site-specific and off-site land use activities and aquatic ecology activities beyond the operational area, terrestrial ecology activities beyond the operational area, threatened and endangered species, environmental justice, and cultural historic resource impacts beyond the operational area are expected to be negligible. However, there is no analysis in the environmental report whatsoever of any of these impacts either from a public health or environmental consequence standpoint. p. 5.9-1. Accordingly, a proper EIS should carefully consider decommissioning impacts including the likelihood that a decommissioned plant will be disassembled and transported to a site that will be the recipient of highly irradiated materials. Additionally, the EIS should consider contingent possibilities that off-site removal of a decommissioned nuclear plant will not be a practicable alternative. In that scenario, the environmental consequences and public health impacts of the *in situ*, long-term radioactive decay of Comanche Peak Units 3 and 4 should be considered in the EIS.

Decommissioning has its own waste stream issues, as well. The EIS should consider the radiological and public health impacts from the various decommissioning waste streams and environmental justice and other implications of disposition of highly irradiated materials off-site. Additionally, the EIS should consider whether off-site disposition of decommissioning materials is even feasible. The decommissioning of nuclear plants is an evolving technology, and the land use, environmental and public health implications of decommissioning activities are not well understood. The EIS should fully analyze the probability that there will be significant resistance to transportation and disposition of highly irradiated decommissioned plant materials to a remote site.

Moreover, in promotional materials published by the reactor manufacture Mitsubishi, it is acknowledged that technology for decommissioning is still in the process of being developed. Mitsubishi Nuclear Plants, p. 27. Hence, there is currently inadequate technology to carry out decommissioning. The assumption appears to be that adequate technologies will be developed in the future. However, a proper EIS should consider the scenario that adequate technologies for decommissioning are not developed in the future or proved to be inadequate for the task. The EIS should take into account contingencies that would require long-term secure storage of Comanche Peak Units 3 and 4 because either decommissioning technology is inadequate where there is no remote site available for the disposition of wastes from decommissioning activities. This analysis would require a consideration of radiological impacts related to the long-term delay in decommissioning, as well as public health and environmental consequences related thereto.

13. The Comanche Peak environmental report assumes that there will be spent fuel disposal capacity available at a federal site. Because no such site is now available and future availability of such site is problematic the EIS should consider the environmental consequences and public health impacts from long-term storage of spent fuel on site at Comanche Peak.

The Comanche Peak environmental report at p. 5.7-3 concedes the fact that there is presently no means by which to dispose of high-level waste. Management of high-level waste on-site is limited to spent fuel pools or dry cask storage units. Alternatively, the environmental report suggests that for plants with inadequate wet or dry on-site storage capacity, spent fuel could be transferred off-site to another plant that has adequate storage capacity available. The EIS therefore, must consider the long-term environmental and public health consequences of spent fuel remaining on site at Comanche Peak indefinitely. A federal repository for spent fuel has not been approved and the prospects for such are, at best, problematic. Long-term spent fuel management on-site represents risks that are not fully assessed in the environmental report. Dry cask storage represents a serious risk for extensive radiological harm if, for example, the storage units were attacked by motivated terrorists. The dry cask storage units represent high-value stationary targets that, if breached, could contaminate widespread areas with long-lived

radionuclides. Risks associated with long term/indefinite/permanent dry cask storage should be considered in the EIS. The availability of appropriately sized dry cask storage units of appropriate size should also be evaluated.

Even if the dry cask storage units are not breached they still represent significant long-term sources of radiation. These radiation measurements should be calculated and added to the current projections for exposures to the extent that the environmental report understates such based on the assumption that spent fuel will eventually be moved off-site. The EIS should assume that the dry cask storage units will remain on Comanche Peak's site indefinitely and make radiation exposure projections accordingly.

14. The EIS should consider the development of proliferation resistant fuel recycling and transmutation technologies that minimize environmental or public health and safety effects.

The Energy Policy Act of 2005 directed the United States Department of Energy to research and develop proliferation resistant fuel recycling and transmutation technologies that are intended to minimize damage to the environment and public health and to enhance safety of spent fuel management. The EIS should consider this alternative and determine whether it is technologically feasible and prudent to pursue. The reason for this alternative to be considered as a spent fuel management technique is because it assumes that a federal repository for spent fuel will not be available. Proliferation resistant fuel recycling and transmutation technologies may have the effect of managing spent fuel in a way that minimizes adverse impacts to the public's health and the environment. Therefore, the EIS should fully develop the state of these technologies and determine whether such would be available for purposes of managing spent fuel at Comanche Peak.

15. The EIS should consider the public health impacts and environmental consequences of requiring governmental units to become the custodian of spent fuel at Comanche Peak site after the operating license has lapsed and post-closure activities have been completed.

Based on the assumption that a federal repository will not be available for spent fuel management, the EIS should consider the environmental and public health consequences of either the State of Texas or the United States government becoming the *de facto* custodians of spent fuel at the Comanche Peak site after the operating license has lapsed and post-closure activities of the licensee have been completed. If, at the end of the post-closure responsibilities of the licensee, spent fuel remains on-site it will have to be managed and secured for the indefinite future. The only institutional capacity for long-term spent fuel management is a unit or units of government. To the extent that units of government are responsible for managing on-site spent fuel, calculations for employee exposures and public exposures should be included in the EIS. Additionally, other public health environmental consequences reasonably associated with indefinite governmental management of spent fuel on site should also be considered in the EIS.

The EIS should also consider specifically what entity would actually have legal ownership of the spent fuel after the operating license has lapsed and post-closure activities have ceased. Will the ownership of the spent fuel default to some unit of government? If so, what costs can be reasonably anticipated by the *de facto* custodian/owner of spent fuel? Do the anticipated costs have environmental and public health consequences? The EIS should resolve these questions.

16. The environmental report assumes that there will be off-site low-level radioactive waste disposal capacity. However, the EIS should consider that such off-site capacity is not available and consider the environmental and public health consequences of this circumstance.

The Comanche Peak environmental report assumes that so-called low-level radioactive waste will be disposed of at land burial facilities. Based on this assumption, the environmental report assumes that there will be no significant radioactive releases to the environment. p. 5.7-8.This assumption is dubious at best considering that low-level radioactive waste streams contain very long-lived radionuclides that would not be adequately sequestered in land burial facilities for the duration of their hazardous lives.

Moreover, the availability of land burial sites is problematic. Attempts to establish new land burial sites for

the so-called low-level radioactive waste stream have largely been unsuccessful. The sites that were planned for Nebraska, California and Texas have been rejected in the past and the TCEQ decision to issue a state permit for a site in West Texas is likely to be appealed,so it should be assumed in the EIS that there will be no off-site capacity to dispose of the so-called low-level radioactive waste stream. The EIS should consider the long-term environmental and public health consequences of managing the so-called low-level radioactive waste stream on the Comanche Peak site. The analysis of this issue should include an analysis of radiation exposures to employees and the public based on the assumption that the low-level radioactive waste stream will not be disposed of off-site.

17. The EIS should consider environmental impacts and public health consequences of accidents and releases related to off-site radioactive waste disposal.

The Comanche Peak environmental report assumes that there will be no significant radioactive releases to the environment related to off-site disposal of the radioactive waste streams that originate at Units 3 and 4. p. 5.7-8. The EIS should not adopt this assumption. The EIS should fully consider the public health and environment consequences of major releases to the environment of radioactive materials as a result of off-site disposal activities. The off-site releases could originate from on-site processing, transportation accidents, off-site processing, and long-term releases from the disposal site because of either improper or inadequate waste site characterization, natural events such as earthquakes, and intentional or unintentional releases. Irrespective of the cause of the releases such should be considered for the impacts to the environment and public health consequences.

18. The Comanche Peak environmental report makes unrealistic assumptions about the efficacy of the emergency evacuation model and plan.

The Comanche Peak emergency evacuation plan assumes that 100% of the affected population from a radiological emergency would be evacuated. p. 7.2-3. The model is further compromised because it does not adequately account for evacuees that are transported 25 miles from the Comanche Peak site as they “disappear” from the emergency evacuation analysis. *Id.* Accordingly, the results of the dose and dollar risk assessments for severe accident analysis are understated in the Comanche Peak environmental report Table 7.2-5. The EIS should not assume that 100% of the affected population will be evacuated. Rejecting this assumption requires that the data in Table 7.2-5 be adjusted to account for increased dose risk, dollar risk, early fatalities, latent fatalities, and water ingestion dose risk. Moreover, there should be an accounting for evacuees and the doses to which they have been exposed even if those evacuees are moved 25 miles beyond the Comanche Peak site.

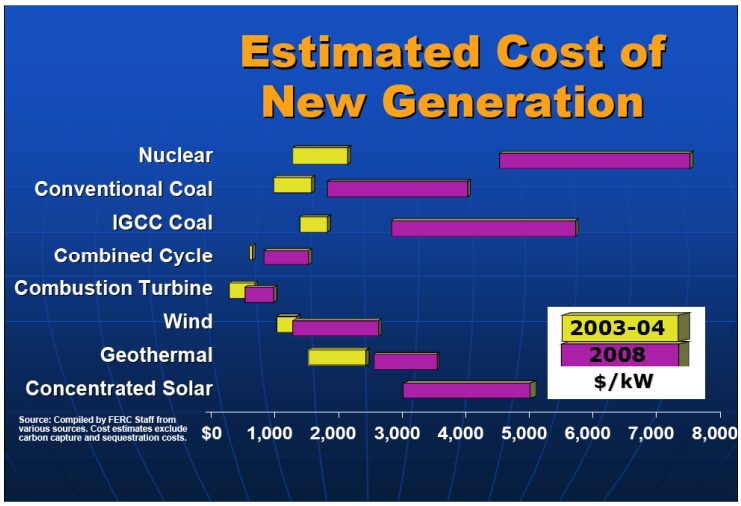
The availability of Potassium Iodide tablets and the method distribution in which it would be distributed should be analyzed as well, and take into consideration that distribution beforehand would be needed, since there is no time to deal with KI distribution after an emergency has occurred.

19. The Comanche Peak environmental report does not adequately assess radiological impacts on the public health and environment of design basis accidents.

The evaluation methodology utilized in the Comanche Peak environmental report for design basis accidents is flawed. P. 7.1-1. The postulated loss of cooling accident assumes that there will be a lower magnitude of radioactivity releases than a worst-case scenario assumes. The EIS should approach a loss of cooling accident from the perspective that a complete loss of radioactive inventory will occur. A complete loss of radioactive inventory should be the base assumption for determining anticipated doses that may be received by the public. Accordingly, the EIS should not adopt the Comanche Peak environmental report evaluation methodology for design basis accidents and should assume a worst-case scenario that includes a complete release of all radiation from both Units 3 and 4.

20. The Comanche Peak environmental report is inadequate because it fails to make reasonable assumptions about alternatives to the proposed action of constructing and operating Comanche Peak Units 3 and 4.

The Comanche Peak environmental report generally understates the efficacy of alternative sources of electric power generation. p. 9.2-1, et seq. The EIS should evaluate alternative sources of generating capacity based on the current data available regarding capacity factors, technological advances that overcome intermittency challenges regarding wind and solar power, and historical operational experience. It should be noted that Texas leads the nation in wind generation. In 2005, Texas set a goal of 5880 MW of wind by 2015, but the state has already exceeded this amount, and nearly $5 billion additional transmission lines have already been approved. The costs of various forms of energy generation should be considered as well, especially considering that the Federal Energy Regulatory Commission (FERC) published the following data in 2008, showing nuclear power to be the most expensive way to generate electricity.



The Comanche Peak environmental report assumes that renewable fuels such as wind and solar cannot provide adequate baseload generating capacity. However, recent advances in technology such as compressed air energy storage and improved battery storage capacity call into question some of the environmental report's assumptions concerning problems with intermittency. Additionally, current technology advances are proving the assumptions about renewable fuels made in the environmental report to be outdated and inaccurate. Expansions of renewable energy capacity are occurring daily. In contrast, nuclear capacity, as a percentage of total generating capacity, is shrinking. The EIS should evaluate the competing technologies in light of current energy policy which places a greater emphasis on renewable fuels than did previous energy policy that favored nuclear power and fossil fuels.

The EIS should compare the environmental report's conclusions concerning renewable fuel technology and application to the development of these technologies

The technique of analysis used in the Comanche Peak environmental report to determine the relative advantages of renewable fuels compared to nuclear power is inherently flawed. For example, the environmental report essentially eliminates conservation/energy efficiency as an alternative that should be considered. p. 9.2-3. The environmental report excuses the consideration of conservation/energy efficiency, because Comanche Peak Units 3 and 4 will be merchant power plants. And as such, conservation and demand side management programs to encourage consumers to modify levels of electricity usage "are not within the capability or responsibility of the wholesale baseload merchant generator." *Id.* However, the Comanche Peak reactors would operate within the ERCOT system in Texas, so the market is not unlimited. They are bound to buy or sell electricity to within ERCOT, which is wholly within the state. The environmental report attempts to rationalize omission of conservation/energy efficiency measures by citing to NRC policy that has determined that conservation measures are not reasonable alternatives to merchant power plants that sell wholesale power. *Id.* However, the EIS should not be controlled by the same artificial constraint. The Comanche Peak nuclear power plant expansion proposal should be viewed in the larger context of other means by which to influence electricity usage.

Adopting the environmental report's conclusions essentially allows merchant power plants to ignore the proven effectiveness of conservation and energy efficiency programs that have been tested numerous time by various utilities as a means to curtail demand.

Texas is in the process of taking further steps to pursue energy efficiency. A new report commissioned by the Texas Public Utilities Commission shows that the state could reduce electric usage by 23% if utilities invest more in efficiency measures, saving Texans as much $11.9 billion on their electric bills. The findings bolster the call by a coalition of local elected officials, business leaders, community groups and faith leaders for the Legislature to increase the mandate on utilities for energy efficiency investments. The Texas legislature passed an energy efficiency bill last session (2007) and is expected to strengthen energy efficiency commitments in 2009, as well as enacting improved buildings codes which will significantly reduce energy demand. The federal stimulus bill includes initiatives and incentives which will further these efficiency efforts and reduce the growth in demand for electricity.

The Comanche Peak environmental report is also flawed to the extent that it fails to make a realistic comparison between the environmental impacts and public health consequences of nuclear power compared to energy efficiency and renewable fuels. For example, there should be a side-by-side comparison of mortality and morbidity consequences of nuclear power compared to energy efficiency and renewable fuels in order to accurately determine the consequences of each. Of course, the comparisons would indicate that energy efficiency and renewable fuels do not cause increased mortality and morbidity while nuclear fuel does. Moreover, there should be a side-by-side comparison of nuclear fuels and energy efficiency and renewable fuels, related to the effects of catastrophic accidents. Such a side-by-side comparison would indicate that a catastrophic loss of, for example, a wind generating accident or capacity loss would be negligible compared to a major loss of cooling accident at Comanche Peak Units 3 and 4. The EIS should engage such a comparative analysis in order to fairly determine the environmental consequences and public health impacts of each.

The Comanche Peak environmental report also fails to carefully compare the greenhouse gas effects expected from each of the alternative technologies. This analysis is crucial because of the relationship between greenhouse gases and global warming and because it is expected that the use of fossil fuels to support the uranium fuel cycle will become more expensive over time. This circumstance will be aggravated by the anticipated use of foreign produced uranium that will have a greater greenhouse gas impact because of, among other reasons, a longer supply line. In contrast, renewable fuel technologies are expanding manufacturing capacities domestically. Hence, the EIS should project anticipated greenhouse gas emissions related to the competing technologies.

Reactor outages can frequently occur during the early years of operation of nuclear reactors, and existing reactors have had outages for a year and longer. The EIS should include analysis of the increased greenhouse gas emissions that would result from having to replace the anticipated nuclear power with natural gas, LNG or coal generated power during reactor outages, and include the expenses that could occur from buying power on the spot market. Japan was unable to meet their greenhouse gas reduction goals when several nuclear reactors were damaged in an earthquake in 2007, and the Japanese utility TEPCO ran at a financial deficit for the first time in thirty years.

21. The Comanche Peak environmental report fails to fully develop the possibilities of a terrorist attack on Comanche Peak Units 3 and 4 and the resulting environmental and public health consequences. Such events are not highly speculative and should be considered in a proper EIS.

The reality of a terrorist attack on a nuclear power plant cannot be discounted. The policy decision of the NRC that terrorist attacks on a nuclear power plant are highly speculative and therefore not amenable to analysis under NEPA has been rejected by the 9th Circuit Court of Appeals in *San Luis Obispo Mothers for Peace v. NRC*, 449 F. 3rd 1016,1030-31 (9th Cir. 2006), cert. den. 127 S.Ct. 1124 (2007). The Ninth Circuit opinion criticized the NRC's policy position and said that it was inconsistent with the government's own efforts to combat terrorist attacks on nuclear facilities. *Id.* Accordingly, the EIS for Comanche Peak Units 3 and 4 should include a detailed analysis of the potential threats represented by terrorist attacks.

The EIS should consider a variety of attack scenarios, including aircraft, breach of perimeter security and forced entry into the control room and other critical areas of the plants and the full range consequential impacts of radiological releases caused thereby. While the NRC has taken the apparent position that it will disregard the Ninth Circuit's decision that indicated compliance with NEPA requires an analysis of terrorist attack possibilities, the EIS for Comanche Peak Units 3 and 4 should not be bound by such an artificial limitation.

22. Each nuclear reactor design has unique flaws and weaknesses, and experience shows equipment and design failures, as well as areas and situations where human error is likely. The history of similar Pressurized Reactor Water (PWR) reactors in Japan should be considered in the EIS analysis, not just the Design Control Document.

The proposed USAPWR reactor design has never been approved and the design has never been built anywhere in the world, but has been developed from the design used in existing PWR reactors in Japan. Problems with existing PWR reactors there could provide clues to potential problems with Comanche Peak Units 3 and 4, allowing estimation of the likelihood that they could result in any number of environmental and health impacts. Design history should be considered in the EIS.

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