

PMComanchePekNPPEm Resource

From: Karen Hadden [karen@seedcoalition.org]
Sent: Tuesday, February 17, 2009 3:30 PM
To: Comanche COLEIS Resource; Burton, William; Monarque, Stephen; Willingham, Michael; Burnell, Scott; Fringer, John; Hatchett, Gregory
Cc: Eliza Brown
Subject: Additional Environmental Scoping Comments for Comanche Peak Units 3 and 4
Attachments: Crucial Issues-Comanche Peak.pdf; Troubled History of Comanche Peak.pdf

Dear NRC:

Attached here are supplemental environmental scoping comments submitted on behalf of the Sustainable Energy and Economic Development (SEED) Coalition. The EIS should address all of the issues identified in the piece entitled 'Crucial Issues-Comanche Peak' and answer all questions posed therein.

The second piece entitled 'Troubled History of Comanche Peak' is intended to bolster the case for including consideration of existing reactors' history in the EIS. The past is prelude to the future. The EIS must address the possibility that difficulties similar to those which occurred in the past might occur again. The problems that arose in the past were frequently related to using new technologies. As the USAPWR design proposed for Comanche Peak Units 3 and 4 has never been built anywhere in the world, the likelihood of problems and resulting health and environmental impacts is likely to increase. A full analysis of the difficulties of building the reactors successfully including an examination of the history of existing reactors should be undertaken in the EIS.

Thank You,
Karen Hadden

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Crucial Issues to Raise at the NRC's
Environmental Impact Scoping Hearing
on January 6, 2009 Glen Rose, Texas

Nuclear power is a bad choice for generating electricity and would divert precious resources from readily available technologies to reduce global warming gases that are both cheaper and can be deployed faster.

Nuclear power:

- Is not a useful solution to climate change.
- Is vulnerable to severe climate conditions which prevent reliable operation.
- Is not the alternative to coal. Efficiency, energy storage and renewable energy can do the job.
- Is not clean.
- Is not safe.
- Poses serious terrorism risks.
- Is the most expensive way to generate electricity.
- Radioactive waste remains an unsolved problem.
- Fosters nuclear weapons proliferation.
- Is not the solution to energy independence.
- Has negative health impacts.
- Is not supported by the public at large.

Why is nuclear power even being considered at a time when clean, affordable energy solutions exist? When nuclear reactors were licensed in the 1970's there were no great alternatives. Wind and solar energy are well developed now and more affordable than nuclear power. Energy efficiency helps curb demand. We do not need nuclear power or the risks that it entails. It is time to ask whether it is moral to leave radioactive waste to generations to come and the nightmare of storing and repackaging it for millions of years.

The US-APWR reactors proposed by Luminant are a design that is not approved by the Nuclear Regulatory Commission and has never been built anywhere in the world. Why should Texans be the guinea pigs for a radioactive experiment? The reactor design isn't even scheduled to be approved until shortly before the license is to be granted. Citizens won't have the benefit of the NRC analysis of the design, while the licensing process speeds forward.

The Environmental Impact Statement should stress the need for a complete and approved design before any further steps are taken in the licensing process. Human and environmental health are at risk due to this major

fast-tracking of nuclear reactor licensing. The design should be submitted and not approved until deemed adequate, then construction licensing should be considered, followed by consideration of an operating license, but all three processes are occurring simultaneously in a rush to get plants licensed. Health, safety and economic concerns are being put on the back burner, while Luminant and other utilities greedily reach for loan guarantees, a subsidy that ratepayers will pay for in the end with higher electric bills.

The two proposed Comanche Peak reactors could cost up to \$22 billion according to Luminant's own documents. This is before cost overruns. This amount could make 7.3 million homes more energy efficient. Pursuing efficiency lowers bills, reduces electricity consumed, and creates local jobs. The existing Comanche Peak reactors ran ten times over budget and were years late coming online. What if this happened again?

Cancer: More radiation means higher risk

The Environmental Impact Statement (EIS) should thoroughly examine radiation health risks.

No national (MACT) standard has been set for radionuclide emissions, despite the fact that nuclear reactors routinely emit cancer-causing radioactivity. No new reactors should be licensed until this standard is set.

- Research has shown an increase in cancer rates around nuclear plants. Dr. Joseph Mangano of the Radiation and Public Health Project studied the cancer death rate in the three counties closest to the South Texas Nuclear Project, an area that originally had a cancer rate below the statewide rate. Sixteen years after the reactors began running, the cancer death rate in the in the area had risen over 16%.
- 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. Four reactors at one site would produce significantly more radioactive risk than the two existing reactors. What would be the total amount of low-level radiation emitted? How much would surrounding populations be exposed? How much radioactivity would be in routine operations?
- The EIS should use background radiation levels not only from before the construction of the two existing nuclear reactors also from before the testing of nuclear weapons in the United States, which resulted in radioactive fallout.

Radioactive Waste - No solution in sight

No high or low-level waste sites are available.

- Nuclear reactors produce tons of high and low-level radioactive waste that remains dangerous to living beings for tens of thousands of years. Radioactive and toxic waste is produced at every stage of the fuel cycle, including routine plant operations.
- Federal law prohibits the licensing of any new nuclear plant until there is an adequate waste disposal plan. Nuclear plants have been operating for 50 years, but the waste disposal problem has not been solved. Radioactive waste remains stored onsite at reactors across the county.
- There is no national storage facility for high-level radioactive waste and the Yucca Mountain repository is unlikely to open in the near future. The Associated Press wrote: "The Energy Department is cutting operations and the chief contractor is laying off its staff at the desert site where the government plans to build a national nuclear waste repository..." Jan 8, 2008.
- The Andrews County low-level waste dump application has been deemed incomplete by the Texas Commission on Environmental Quality.

- The impacts and risks of storing additional high -level radioactive waste on site needs to be studied thoroughly in the EIS. The long- term cumulative health impacts of additional low-level radiation need to be studied thoroughly and included in the environmental impact study as well. Impacts on humans, wildlife and plant life need to be considered, with special attention given to threatened and endangered species.
- The EIS should study the additional safety and security risks of more radioactive waste.
- The license for two new reactors at Comanche Peak, or any other reactor, should not be issued since there is no effective resolution of the storage issue.

Accident and Security Risks

- The risk of a nuclear accident and the magnitude of devastation would increase with more reactors on the site.
- The public deserves to know the real risks of nuclear power. 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 Environmental Impact Statement should include a similar study to update these risk figures, since the population of the region has grown and since there would be more reactors.

- The EIS should analyze and publicize the impacts of an airplane crashing into a nuclear reactor or the spent fuel pool and the impact that such a disaster would have for both humans and the environment.
- Terrorists have considered crashing airplanes into nuclear reactors. Terrorist risks must be more thoroughly analyzed, as it would be easy enough to lob mortar from a construction site toward the existing spent fuel pool, creating a major nuclear accident. Heavy construction equipment could breach barricades between a construction site and existing reactors. Workers would come from any number of foreign countries, creating language barriers and security challenges.
- The EIS should recommend that no new nuclear reactors be licensed until they can at least meet the same post-911 security hardening requirements as existing reactors.
- The EIS should also recommend that no design be approved that cannot safely withstand an airplane attack or other form of terrorist assault.

Water Quantity and Contamination Risks

- Nuclear reactors consume vast quantities of water. Each reactor would use over a million gallons of water every minute for the circulating water system used for cooling. 103,717 acre-feet/year would be drawn from Lake Granbury and 42,100 acre-feet/year would be returned.
- Every minute 31,341 gallons of makeup water from Lake Granbury would be needed for each reactor. (from Environmental report 3.3-5) “Makeup water” replaces the water lost to evaporation and the water called “blowdown” would be returned to Lake Granbury.
- Biocide, algacide, pH adjuster, corrosion inhibitor and silt dispersant would be injected into water drawn from Lake Granbury, and only a fraction of the “blowdown” water would be treated before being returned to the lake or sent to an evaporation pond. Why wouldn’t all of the water be treated before being returned to the lake?

- The EIS must do a full analysis of how much of each of these contaminants would end up in Lake Granbury, how much would migrate into the Brazos River and how much would escape through evaporation. The exact chemical names must be included, not just generic terms such as “biocide.” The impacts of exposure of humans, animals and wildlife to these toxic compounds should be analyzed.
- The EIS should examine the impacts of vast water consumption on the aquifer and the water table levels. Will wells be sucked dry? How high is the risk of contamination of the aquifer and other waterways through radioactive leaks? Could the problem ever be remediated if radioactive or chemical leaks occurred?
- Radioactive tritium can leak from nuclear reactors and increase cancer risks. According to NRC reports tritium levels are already high at the Comanche Peak site compared to other reactor sites. What would adding more reactors do to the already high levels of contamination?
- Numerous radioactive tritium leaks in Illinois are so severe that people can’t drink or bathe in their water due to contamination. Cancer cluster, wildlife impacts, fines and lawsuits resulted.
- Nuclear reactors heat up the air and water around them. Several U.S. reactors have had to cut back electric generation because the cooling water got too hot. During the 2006 heat wave in France nuclear and coal plants had to be shut down because the water was too hot to cool them. 2000 MW of energy had to be imported. (Source: False Promises, Debunking Nuclear Industry Propaganda, Nuclear Information and Resource Service, May 2008.)
- If global warming is occurring and as severe as scientists predict will there be enough cool water to operate the reactors safely? The EIS needs to include analysis based on input from global warming scientists.
- In drought conditions, will there be enough water for cities, businesses, farms and ranches if two nuclear reactors are built?

Evacuation Plans Must Be Improved

Luminant and the NRC need to do more to prepare the community for action in the event of an accident or disaster, including distributing potassium iodide tablets. Readiness for an accident is a serious issue.

- If there is an accident, will the community be able to evacuate? What hospitals would be used to care for those who might be exposed to radiation and how many people could they care for? How does the hospital facility availability compare to the number of potential injuries and radiation exposure victims?
- Are there adequate firefighting and police forces? Do they have any training or any equipment to shield themselves from radioactivity in case of a nuclear accident? What more is needed to protect themselves, as well as others?
- Potassium iodide tablets would be needed if there were a nuclear accident. The tablets would reduce human uptake of radioactive iodine, a carcinogen which goes to the thyroid gland. According to NRC rules, residents near nuclear plants must receive potassium iodide tablets in case of emergency.
- Has anyone in the 50-mile radius around the existing two Comanche Peak reactors ever received potassium iodide tablets? Have they been told how to get them?

Need for Power: The need has not been demonstrated, better alternatives exist

Luminant has not proven there is a need for this new energy.

- The application ignores the effect energy efficiency and renewable energy will have in the future. Are recent state-mandated energy efficiency and renewable energy goals be factored into the energy needs assessment?
- Studies have shown that Dallas/Ft. Worth could meet 101% of projected growth in demand using efficiency and renewable energy.
- State energy use projections should be revisited in light of the economic downturn.

Subsidence: Overuse of groundwater

Subsidence is a shifting downward of the earth's surface. Causes of subsidence include depleted groundwater, mining, natural gas and oil extraction. What impacts are there from existing industries that put the area at risk? What landfills are still in existence that could contaminate cooling water? Will local oil and gas operations impact the plant site or vice versa?

Transportation/ Power lines

The new plant will need to use existing roads and to build new ones. Lots of cars, trucks, and machinery will pass over them.

- How will Luminant ensure that roads are not congested? How will Luminant transport uranium and on which highways? Which communities will it pass through, and will their police and firefighting forces be trained to deal with a radioactive accident?
- How would Luminant transport low-level and high-level radioactive waste if offsite storage ever gets approved?
- What land will need to be condemned or purchased in order to build or upgrade new transmission lines?
- What environmental and economic impacts will result from new transmission lines, including the 345 kV line planned to go between the plant site and the Whitney Switch, going through much of Somervell and Bosque Counties?

Environmental Justice

The proposed new plants would affect low income and minority residents.

- How much will rent go up when the influx of construction workers and their families come to Somervell County?
- Will pollution from construction and operation reach low-income housing areas?

Contamination from Uranium would increase in South Texas

Mining and enriching uranium results in radioactive contamination of the environment and risks to public health. Exposure to radon has been shown to cause kidney failure, chronic lung disease, and tumors for the brain, bone, lung, and nasal passage.

- In the last ten years, the Texas Department of Health Services has cited several instances of radioactive waste spills by uranium mining companies, including Cogema Inc.'s 1998 spill of over 20,000 gallons of radioactive solution in Bruni, Texas.
- The Environmental Protection Agency has warned residents of Kleberg County that their groundwater currently contains unsafe levels of uranium, and strongly advises against drinking it.
- Residents of Goliad and Kleberg counties have both publicly opposed the continued operations of mining companies in their communities.
- The aquifer below Karnes County has been contaminated by uranium mill tailings. The Department of Energy estimates clean up will cost \$348 million but, according to a Texas Department of Agriculture report, will not implement the clean up plan.

Competence and Character in question, Poor Track Record at Existing Reactors

Here are some excerpts from articles about Comanche Peak reactors:

NRC Staff Proposes Fine Against Unit of Texas Utilities-Wall Street Journal, 01/02/1984

The Nuclear Regulatory Commission staff charged that a supervisor "intimidated" quality-control inspectors working at Texas Utilities Generating Co.'s Comanche Peak nuclear power plant.

Comanche Peak Plant in Texas Is Undergoing Major NRC Inspection -Wall Street Journal, 7/12/1984

The Nuclear Regulatory commission began a major inspection of the Comanche Peak nuclear power plant because of the large number of unresolved allegations of poor workmanship at the uncompleted plant, principally owned by Texas Utilities Electric Co.

The NRC said 45 inspectors are investigating the 404 complaints that center on safety conditions at the plant, located 75 miles southeast of Dallas near Glen Rose. The commission said the high number of complaints warranted the investigation, which is expected to take 2 ½ months to complete and cost \$1 million.

The inspection will concentrate on the plant's safety, construction, wiring and quality control. The NRC said 181 of the complaints raise questions on the plant's record-keeping process, which includes quality control and safety records.

(This article came 9 ½ years after construction began, a consumer group had already raised concerns about inadequate welding.)

Safety Procedures at Comanche Peak Cited by NRC Panel -Wall Street Journal, 10/02/1984

The troubled plant has been under construction since 1974 when it was expected to cost \$780 million. Since then, Comanche Peak has been plagued by cost overruns and delays, increasing its estimated cost to \$3.89 billion this year.

Texas Utilities Co. Finds New Problems at Comanche Peak - Wall Street Journal, 7/16/1986

Texas Utilities Co. said it discovered new problems at its Comanche Peak nuclear power plant that will increase the plant's cost and delay the start of operations beyond mid-1988.

In a filing with the Securities and Exchange Commission, Texas Utilities said the problems were discovered in several design calculations, reinspection and, in some cases, repairs.

In April the company said it would have to modify about 30% of the pipe supports in Unit 1 and replace sleeves where electrical wires run through walls in the containment buildings, delaying the project and increasing the cost.

Each additional month's delay in the plant's completion costs \$35 million in financing costs, taxes, insurance, staff and utilities.

NRC Criticizes Managers in Texas Office on Data for Comanche Peak Nuclear Unit - Wall Street Journal, 12/12/1986

Nuclear Regulatory Commission investigators found that managers in the commission's Texas regional office pressured agency inspectors to downgrade or delete findings of violations at the Comanche Peak nuclear power plant.

The NRC's Office of Inspector and Auditor also found that also found that the regional office's reports on its own inspections were sometimes inaccurate or flatly false. Further, it concluded that the office's inspection of quality assurance programs at the Comanche Peak plant were inadequate and exacerbated weaknesses of the plant's oversight of its construction quality.

The plant, originally scheduled to begin operating in 1980, currently is aiming for 1989 and the utility estimates its cost will reach \$6.7 billion.

Investigators concluded that it appears the region's quality assurance inspection effort couldn't be relied upon "as evidence of the safe construction" of the plant, which is about 75 miles southwest of Dallas.

The report, however, said some officials believe that a heavily staffed NRC effort to review the plant's parts in recent years may enable the NRC to decide whether the plant should be licensed to operate.

(The separate decision on whether to grant an operating license provided a safety margin that current licensing procedures have eliminated since the construction and operating license is combined.)

Texas Plant Comes Under Scrutiny as Cover-Up of Problems Charged - New York Times, 10/17/1989

The inspectors maintained that Comanche Peak was not ready to begin loading fuel and that senior commission officials had manipulated inspection data to make it look as though it was read.

"We believe that the commission should be aware of what we view as manipulation and the exclusion of factual information" the inspectors wrote in the letter, a copy of which was made available to the Associated Press.

Leak in Cooling System Closes Comanche Peak - Ft. Worth Star-Telegram, 3/20/1991

...the plant was shut down after sodium levels in the water in the non-nuclear parts of the plant became too high. Tests early today showed that the water from Squaw Creek Reservoir, the plant's cooling pond, had mixed with the water used for steam to operate turbines, Hedrick said. The turbine water will need to be chemically cleaned to remove any impurities that entered from the leak. Impurities can cause deposits and corrosion in the turbine, Hedrick said.

EPA Tests Water Near Nuclear Facility – Ft. Worth Star Telegram, 3/23/1991

...investigating a report that 25 to 30 drums are submerged in Squaw Creek Reservoir near the Comanche Peak nuclear power plant outside Glen Rose. At least one drum was marked "Delta Petroleum Products," Reed said.

Brown and root, the contractor building the \$10 billion Comanche Peak project, build seven industrial waste landfills near the reservoir. Two of the landfills were found to have contained a small amount of illegal hazardous waste, Ramsey said.

Brace Hit Plant Lines, TU Says Water Leak Prompts an Early Shutdown – Ft. Worth Star Telegram, 3/28/1991

The Comanche Peak nuclear power plant, scheduled for a 42-day fuel-conserving closure next month, has shut down three weeks early because a temporary metal brace fell and punctured lines that carry water to cool steam used in electricity generation, an official said yesterday. "It was a 3-foot, temporary brace used during construction and, for whatever reason, the brace came loose from its position and struck and damaged three condenser tubes," TU Electric spokesman Jerry Lee said of the March 20 incident. The damage allowed reservoir water to mix with purified steam, triggering an alarm indicating sodium contamination in the system, he said.

The spokesman said the early closure and condenser repair would have minimal economic impact on the plant, completed at a cost of \$9.1 billion, more than 10 times its originally estimated cost of \$779 million.

Comanche Peak Called No. 1 in Safety Violations -Ft. Worth Star Telegram, 4/26/1991

Comanche Peak is a "nuclear lemon" that leads the nation in safety violations but performs slightly better overall than other troubled nuclear plants, says a report released yesterday by a citizen watchdog group. The findings for the plant near Glen Rose, about 45 miles southwest of Fort Worth, reflect a myriad of start-up problems common to many new nuclear plants, say both the watchdog group Public Citizen and officials of TU Electric, which owns the plant. "We should never give a lot of slack to new plants just because they're new," said Ken Bossong, who directs the organization's Critical Mass Energy Project, which monitors safety at nuclear power plants nationwide.

He cited the Three Mile Island plant near Harrisburg, Pa., which had been operating for just six months in 1979 when it became the site of the worst nuclear plant disaster in U.S. history. Comanche Peak also had an unusually large number of emergency plant shutdowns, the group said. It was shut down six times, more than any other plant in the country except the South Texas power plant in Matagorda County, which had to be shut down 18 times.

Utility Delays Restart, Nuclear Plant Looks at Damaged Turbine –Ft. Worth Star-Telegram 05/01/1991

Comanche Peak Nuclear Power Plant officials are searching for the cause of damage to a steam turbine, delaying the reopening of the plant, which has been closed since the discovery of a water leak in March.

Since the plant opened in April 1990, it has shut down 19 times for repairs, said TU Electric spokesman George Hedrick; eleven of those involved the nuclear portion of the plant, he said. None of the problems posed a hazard, he said.

Plant officials and a spokesman for the regional Nuclear Regulatory Commission office in Arlington said problems at the Glen Rose facility have been average for a plant just getting started.

Oil Spill Wiped Up at Reactor, Workers' Error Causes 3,000 Gallon Deluge – Ft. Worth Star-Telegram, 5/05/1991

Cleanup crews for TU Electric and its contractors worked yesterday to clean up nearly 3,000 gallons of heavy-weight oil that spilled from a turbine system at Comanche Peak nuclear power plant, a utility spokesman confirmed last night. TU Electric spokesman Jerry Lee said 90-weight generator oil gushed for nearly five minutes after a pipe was mistakenly opened while workers tried to clean the turbine's hydraulic systems about midnight Monday.

He said the heavy oil covered the second floor of the plant's turbine generator building, spilled onto the ground level and leaked into the plant's drainage system before operators could shut it off.

"The contractors who were working thought they had clearance from the control room to open the system, when they did not," Lee said.

Reactor Turbine Badly Damaged by Heat Surge – Ft. Worth Star-Telegram, 5/16/1999

The owner of the Comanche Peak nuclear power plant is investigating a possible error by plant operators that may have prompted the near destruction of a multimillion dollar steam turbine and will idle the \$9.45 billion facility through the end of May. Records obtained from the Nuclear Regulatory Commission yesterday show that an unexplained heat surge inside one of the three turbines generating electricity from the Unit 1 reactor melted portions of the turbine's rotor blades. The surge also damaged the turbine casing, disintegrated a shroud that guards the blades of the giant turbine and scattered shards of metal throughout the equipment.

Officials of plant owner TU Electric said the turbine could have operated for months in its badly damaged condition.

Contractors checking the equipment April 23 found that the rotor's 4-foot blades had expanded, bent and fused into the middle layer of heavy metal casings in the turbine.

Plant spokesman Jerry Lee said the utility is shortening the rotor blades within the 4-ton turbine system to remove the damaged sections and may restart the plant by the end of May. Lee said replacing the massive rotor will cost several million dollars. A spokesman for the state Public Utility Commission in Austin said yesterday that ratepayers may have to pick up the tab for the damage and some of the lost revenues from the closure. The commission would decide that question when the utility seeks its next rate increase.

COMANCHE PEAK NUCLEAR REACTORS – A TROUBLED HISTORY

The only thing new in the world is the history you don't know – Harry S. Truman

Two additional nuclear reactors are currently proposed by Luminant for the Comanche Peak site southwest of Dallas/Fort Worth near Glen Rose, Texas, where two reactors exist now. The proposed reactors could cost up to \$22 billion. This sum used differently could instead retrofit over seven million homes to make them more energy efficient, saving money for consumers, creating local jobs, reducing pollution and addressing global warming directly right now.

Should nuclear plants even be considered today? What has been the history of the existing Comanche Peak reactors? What lessons should we learn from the past?

With many serious concerns in mind, the Sustainable Energy and Economic Development (SEED) Coalition compiled newspaper articles detailing some of the history of the Comanche Peak reactors 1 and 2. What we found was a reactor history plagued with intimidation and harassment of safety inspectors, fines for violating requirements in the plant's quality control program, charges by inspectors of manipulation of information and cover ups, errors, delays, construction difficulties, cost overruns, violations of Nuclear Regulatory Commission regulations and resulting fines.

There were problems with pipe supports. Sleeves where electrical wires run through walls in the containment buildings had to be replaced, with each month of delay costing \$35 million. The Wall Street Journal reported in 1986 that:

The NRC's Office of Inspector and Auditor also found that the regional office's reports on its own inspections were sometimes inaccurate or flatly false. Further, it concluded that the office's inspection of quality assurance programs at the Comanche Peak plant were inadequate and exacerbated weaknesses of the plant's oversight of its construction quality... The plant, originally scheduled to begin operating in 1980, currently is aiming for 1989 and the utility estimates its cost will reach \$6.7 billion.

In March of 1991 cooling water leaked. Damage to a steam turbine was researched in May of 1991 and the Fort Worth Star-Telegram, reported "Since the plant opened in April 1990, it has shut down 19 times for repairs, said TU Electric spokesman George Hedrick; eleven of those involved the nuclear portion of the plant, he said." Also in May of 1991, workers' error caused a 3,000 gallon heavy oil spill at the plant's turbine. In the same month, an unexplained heat surge from Unit 1 reactor melted and badly damaged one of the turbines.

In July of 1993 cooling water leaked again. In December of 1993, the Fort Worth Star-Telegram reported that the NRC fined TU Electric for the fourth time since it began operation in 1990 for seven violations at the plant causing the accidental release of 24,000 gallons of radioactive water. The reactor shutdowns reported by the Telegram in August of 1994 due to an oil leak and in January 1996 because of electrical problems were only a few out of many. Between 1999 and 2001, the NRC cited 20 violations at the plant.

In September of 2002 yet another reactor shut down, this time due to a leak in a steam-generating tube carrying radioactive water. "After the leak was discovered, workers found a hole in one tube and corrosion and stress cracks in more than 660 others ... The tubes carry radioactive water from the reactor's core," reported Fort Worth Star-Telegram in December. The reactor was "having a tough time getting started again... started and stopped twice since Nov. 15... **In early December, Comanche Peak workers found deposits of boric acid crystals around the leak, a potential concern because a boric acid buildup was blamed for extensive corrosion in the top of the Davis-Besse nuclear reactor near Toledo, Ohio.**" A federal report released later that month said that "Routine inspections at the Comanche Peak nuclear power plant failed to detect a damaged steam generator tube that later ruptured," and that the flaw in the tube was "**clearly identifiable and missed.**"

Excerpts from these articles outlined above are included in this report, but readers are encouraged to read the articles in their original and complete form as well, available at www.NukeFreeTexas.org. Another way to research the history of the reactors is by researching inspection reports from 2000 to the present. Letters regarding the reports, a starting place, are online at the Nuclear Regulatory Commission web site, http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/listofrpts_body.html#cp.

The Sustainable Energy and Economic Development (SEED) Coalition is concerned that if more nuclear reactors are built terrorism and safety risks would increase. In an Oct. 25, 2001 letter, the Nuclear Regulatory Commission wrote to TXU:

Since September 11, 2001, Comanche Peak Steam Electric Station has assumed a heightened level of security based on a series of threat advisories issued by the NRC. Although the NRC is not aware of any specific threat against nuclear facilities, the heightened level of security was recommended for all nuclear power plants and is being maintained due to the uncertainty about the possibility of additional terrorist attacks. The steps recommended by the NRC include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with local law enforcement and military authorities, and limited access of personnel and vehicles to the site.

Vast quantities of increasingly precious water would be consumed, and radioactive waste would be stored onsite since there is still no national nuclear waste repository.

What if construction problems occur again? What if quality control inspectors are once again intimidated? What if safety complaints arise once again? Would anyone heed the voices of concerned workers? The Union of Concerned Scientists pointed out the need for improved oversight by the Nuclear Regulatory Commission in its 2006 report, *Walking A Nuclear Tightrope, Unlearned Lessons of Year-plus Reactor Outages*. Nuclear engineer David Lochbaum recommended that the NRC significantly improve its assessment of corrective action programs at nuclear power plants, noting the following:

More than 70 percent of the 51 year-plus outages were caused by broad, programmatic breakdowns that gradually reduced safety to a level so low that reactor operation could not continue. The NRC essentially tolerated performance declines until they became too serious to ignore—at which point the problems required great expense and longer than a year to correct. This overly passive regulatory posture thus allowed safety levels to fall far lower than necessary and caused plant owners' costs to rise far higher than necessary. Either result would be sufficient grounds to induce reforms at the NRC; the fact that both results occurred signals an urgent need for overdue reforms.

Safer, cleaner, more affordable ways are now available to generate electricity, including wind, solar and geothermal energy. Energy efficiency can reduce electric demand, and help address global warming today, while building the local economy.

The proposed reactor design, USAPWR, has not been certified by the Nuclear Regulatory Commission. However, the NRC is allowing licensing of the reactors to move forward. Construction and operating licenses were once obtained separately, but now the two processes have been combined, eliminating the break point where construction errors would have to be corrected before operations could begin. It was presumed that only preapproved reactor designs would be considered in this fast-tracked licensing process, which is clearly not what is happening now. If a license is granted and construction is shoddy, there won't be a stopping point in between construction and operating licenses, which existed previously.

Article Excerpts

Some liberties have been taken in the arrangement of the excerpts. All of these articles are available in their entirety at www.NukeFreeTexas.org

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The Nuclear Regulatory commission began a major inspection of the Comanche Peak nuclear power plant because of the large number of unresolved allegations of poor workmanship at the uncompleted plant, principally owned by Texas Utilities Electric Co.

The NRC said 45 inspectors are investigating the 404 complaints that center on safety conditions at the plant, located 75 miles southeast of Dallas near Glen Rose. The commission said the high number of complaints warranted the investigation, which is expected to take 2 ½ months to complete and cost \$1 million.

The inspection will concentrate on the plant’s safety, construction, wiring and quality control. The NRC said 181 of the complaints raise questions on the plant’s record-keeping process, which includes quality control and safety records.

Safety Procedures at Comanche Peak Cited by NRC Panel –Wall Street Journal, 10/02/1984

The troubled plant has been under construction since 1974 when it was expected to cost \$780 million. Since then, Comanche Peak has been plagued by cost overruns and delays, increasing its estimated cost to \$3.89 billion this year.

Texas Utilities Co. Faces \$370,000 Fines Proposed by the NRC - Wall Street Journal, 5/05/86

The Nuclear Regulatory Commission said it proposed fining Texas Utilities Co. \$370,000 for violating regulations in the construction of the Comanche Peak nuclear power plant. The commission said it proposed two fines: \$120,000 for intimidation and harassment of quality control workers and \$250,000 for violating requirements in the plant's quality control program.

An NRC spokesman said most of the violations occurred in 1983 and 1984, and most weren't related to the actual construction of the plant. For instance, he said, some workers signed off on some construction items that they didn't actually see. As previously reported, Texas Utilities, which owns 87.6% of the plant, recently pushed back the completion date on Comanche Peak to beyond mid-1987 because of a lengthy reinspection program that turned up needs for additional repairs. Because of the delay, the total cost of the plant likely will exceed \$5.46 billion, the latest cost estimate.

Texas Utilities Co. Finds New Problems at Comanche Peak – Wall Street Journal, 7/16/1986

Texas Utilities Co. said it discovered new problems at its Comanche Peak nuclear power plant that will increase the plant’s cost and delay the start of operations beyond mid-1988.

In a filing with the Securities and Exchange Commission, Texas Utilities said the problems were discovered in several design calculations, reinspection and, in some cases, repairs.

In April the company said it would have to modify about 30% of the pipe supports in Unit 1 and replace sleeves where electrical wires run through walls in the containment buildings, delaying the project and increasing the cost.

Each additional month’s delay in the plant’s completion costs \$35 million in financing costs, taxes, insurance, staff and utilities.

NRC Criticizes Managers in Texas Office On Data for Comanche Peak Nuclear Unit – Wall Street Journal, 12/12/1986

Nuclear Regulatory Commission investigators found that managers in the commission’s Texas regional office pressured agency inspectors to downgrade or delete findings of violations at the Comanche Peak nuclear power plant.

The NRC’s Office of Inspector and Auditor also found that the regional office’s reports on its own inspections were sometimes inaccurate or flatly false. Further, it concluded that the office’s inspection of quality assurance programs at the Comanche Peak plant were inadequate and exacerbated weaknesses of the plant’s oversight of its construction quality.

The plant, originally scheduled to begin operating in 1980, currently is aiming for 1989 and the utility estimates its cost will reach \$6.7 billion.

Investigators concluded that it appears the region’s quality assurance inspection effort couldn’t be relied upon “as evidence of the safe construction” of the plant, which is about 75 miles southwest of Dallas.

The report, however, said some officials believe that a heavily staffed NRC effort to review the plant’s parts in recent years may enable the NRC to decide whether the plant should be licensed to operate.

Texas Plant Comes Under Scrutiny As Cover-Up of Problems Charged – New York Times, Associated Press, 10/17/1989

The inspectors maintained that Comanche Peak was not ready to begin loading fuel and that senior commission officials had manipulated inspection data to make it look as though it was ready to begin loading uranium fuel for tests required before it starts full-scale commercial production.

“We believe that the commission should be aware of what we view as manipulation and the exclusion of factual information” the inspectors wrote in the letter, a copy of which was made available to the Associated Press.

Leak in cooling system closes Comanche Peak – Fort Worth Star-Telegram, 3/20/1991

...the plant was shut down after sodium levels in the water in the non-nuclear parts of the plant became too high. Tests early today showed that the water from Squaw Creek Reservoir, the plant’s cooling pond, had mixed with the water used for steam to operate turbines, Hedrick said. The turbine water will need to be chemically cleaned to remove any impurities that entered from the leak. Impurities can cause deposits and corrosion in the turbine, Hedrick said.

EPA tests water near nuclear facility – Fort Worth Star Telegram, 3/23/1991

...investigating a report that 25 to 30 drums are submerged in Squaw Creek Reservoir near the Comanche Peak nuclear power plant outside Glen Rose. At least one drum was marked “Delta Petroleum Products,” Reed said.

Brown and root, the contractor building the \$10 billion Comanche Peak project, build seven industrial waste landfills near the reservoir. Two of the landfills were found to have contained a small amount of illegal hazardous waste, Ramsey said.

Brace hit plant lines, TU says Water leak prompts an early shutdown – Fort Worth Star Telegram, 3/28/1991

The Comanche Peak nuclear power plant, scheduled for a 42-day fuel-conserving closure next month, has shut down three weeks early because a temporary metal brace fell and punctured lines that carry water to cool steam used in electricity generation, an official said yesterday. "It was a 3-foot, temporary brace used during construction and, for whatever reason, the brace came loose from its position and struck and damaged three condenser tubes," TU Electric spokesman Jerry Lee said of the March 20 incident. The damage allowed reservoir water to mix with purified steam, triggering an alarm indicating sodium contamination in the system, he said.

The spokesman said the early closure and condenser repair would have minimal economic impact on the plant, completed at a cost of \$9.1 billion, more than 10 times its originally estimated cost of \$779 million.

Comanche Peak called No. 1 in safety violations - Fort Worth Star Telegram, 4/26/1991

Comanche Peak is a "nuclear lemon" that leads the nation in safety violations but performs slightly better overall than other troubled nuclear plants, says a report released yesterday by a citizen watchdog group. The findings for the plant near Glen Rose, about 45 miles southwest of Fort Worth, reflect a myriad of start-up problems common to many new nuclear plants, say both the watchdog group Public Citizen and officials of TU Electric, which owns the plant. “We should never give a lot of slack to new plants just because they're new," said Ken Bossong, who directs the organization's Critical Mass Energy Project, which monitors safety at nuclear power plants nationwide.

He cited the Three Mile Island plant near Harrisburg, Pa., which had been operating for just six months in 1979 when it became the site of the worst nuclear plant disaster in U.S. history. Comanche Peak also had an unusually large number of emergency plant shutdowns, the group said. It was shut down six times, more than any other plant in the country except the South Texas power plant in Matagorda County, which had to be shut down 18 times.

Utility delays restart: Nuclear plant looks at damaged turbine –Fort Worth Star-Telegram, 05/01/1991

Comanche Peak Nuclear Power Plant officials are searching for the cause of damage to a steam turbine, delaying the reopening of the plant, which has been closed since the discovery of a water leak in March.

Since the plant opened in April 1990, it has shut down 19 times for repairs, said TU Electric spokesman George Hedrick; eleven of those involved the nuclear portion of the plant, he said. None of the problems posed a hazard, he said.

Plant officials and a spokesman for the regional Nuclear Regulatory Commission office in Arlington said problems at the Glen Rose facility have been average for a plant just getting started.

Oil spill wiped up at reactor: Workers' error causes 3,000 gallon deluge – Fort Worth Star-Telegram, 5/05/1991

Cleanup crews for TU Electric and its contractors worked yesterday to clean up nearly 3,000 gallons of heavy-weight oil that spilled from a turbine system at Comanche Peak nuclear power plant, a utility spokesman confirmed last night. TU Electric spokesman Jerry Lee said 90-weight generator oil gushed for nearly five minutes after a pipe was mistakenly opened while workers tried to clean the turbine's hydraulic systems about midnight Monday.

He said the heavy oil covered the second floor of the plant's turbine generator building, spilled onto the ground level and leaked into the plant's drainage system before operators could shut it off.

"The contractors who were working thought they had clearance from the control room to open the system, when they did not," Lee said.

Reactor turbine badly damaged by heat surge – Fort Worth Star-Telegram, 5/16/1991

The owner of the Comanche Peak nuclear power plant is investigating a possible error by plant operators that may have prompted the near destruction of a multimillion dollar steam turbine and will idle the \$9.45 billion facility through the end of May. Records obtained from the Nuclear Regulatory Commission yesterday show that an unexplained heat surge inside one of the three turbines generating electricity from the Unit 1 reactor melted portions of the turbine's rotor blades. The surge also damaged the turbine casing, disintegrated a shroud that guards the blades of the giant turbine and scattered shards of metal throughout the equipment.

Officials of plant owner TU Electric said the turbine could have operated for months in its badly damaged condition. Contractors checking the equipment April 23 found that the rotor's 4-foot blades had expanded, bent and fused into the middle layer of heavy metal casings in the turbine.

Plant spokesman Jerry Lee said the utility is shortening the rotor blades within the 4-ton turbine system to remove the damaged sections and may restart the plant by the end of May. Lee said replacing the massive rotor will cost several million dollars. A spokesman for the state Public Utility Commission in Austin said yesterday that ratepayers may have to pick up the tab for the damage and some of the lost revenues from the closure. The commission would decide that question when the utility seeks its next rate increase.

Nuclear team studies role of TU Electric - Fort Worth Star-Telegram, 5/50/92

During the 17 hours before a senior inspector for the Nuclear Regulatory Commission spotted the problem, the water in the plant's spent fuel pool climbed 5 degrees. Unsure of regulations and using inaccurate operating documents, plant operators didn't notice the failure of a heat-exchange unit.

The water never reached temperatures beyond 100 degrees Fahrenheit, officials said. A danger warning would have signaled at 159 degrees, they said. The water would have boiled at 212 degrees. If the water had boiled, Johnson said, there is a remote chance that the spent fuel pool could have released radioactive gases.

In March, the utility suspended three workers after they mistakenly opened a chemical valve connected to the Unit I reactor while the plant was up and running. The NRC recently concluded that the workers, who were assigned to fix an identical valve on the dormant Unit II reactor, received no unusual dosages of radiation.

On May 12, the operators bypassed the spent fuel pool's primary pump to allow its repair. But they switched to a back-up pump that also malfunctioned.

Comanche Peak gets a warning – Fort Worth Star-Telegram, 9/01/92

Fire barriers used by many nuclear power plants failed to withstand fire during testing.

Tests of fire barriers identical to those installed at Comanche Peak prompted stern warnings this week to TU Electric and the owners of 74 other nuclear power plants that they will have to alter fire-retardant shields surrounding backup safety systems at the plants.

Acting on tests commissioned by TU Electric, the Nuclear Regulatory Commission said it has found that Thermo-Lag 330 barriers fail to withstand fire during one- and three-hour tests regardless of the size of the barriers. The NRC staff also said that tests conducted by a TU Electric consulting laboratory this month and the National Institute of Standards and Technology

"are indicative of the inability of the Thermo-Lag material itself to provide protection . . . depending on its configuration."

The bulletin was released as TU Electric drafted a \$500,000 plan to enhance the barriers at its Unit I and Unit II reactors near Glen Rose during a routine refueling shutdown this fall.

Comanche Peak leak creates 'unusual event' - Fort Worth Star-Telegram, 7/02/1993 - Associated Press

Water leaked from the reactor coolant system of Unit No. 2 at the Comanche Peak nuclear plant early today, prompting officials to declare an "unusual event."

TU Electric spokesman Mark Manroe said the leak was discovered at 5:15 a.m. Unit No. 2 is in the early stages of testing, he said. The leak amounted to 1.08 gallons of water per minute. The Nuclear Regulatory Agency requires that the plant declare an "unusual event" if the leakage is more than 1 gallon per minute, Manroe said.

Water leak is cited at nuclear plant - Fort Worth Star-Telegram, Arlington Edition, 7/03/93

The leak sent Fort Worth area parents to the telephone to check on the safety of their children who are attending various camps in the area of the Somervell County plant. Jeff Williams, a dispatcher at the Somervell County Sheriff's Department, said he was "swamped" with about 30 calls from parents in the Fort Worth area concerned about children who are staying at camps in the area. The Tarrant Baptist Encampment, Glen Lake Methodist Camp and Stephens Girl Scout Ranch are all within a five-mile radius of Comanche Peak, Williams said.

Comanche Peak violations bring fine - Fort Worth Star-Telegram, 12/31/93

The Nuclear Regulatory Commission has fined TU Electric \$50,000 for seven violations at the Comanche Peak nuclear power plant that allowed contaminated water to be accidentally released within one of the two reactor units Oct. 26. The violations were not a threat to nuclear safety, but the event is considered serious because errors were made, said Dave Fiorelli, a TU Electric spokesman. The commission listed the violations as a Level 3 on a scale of one to five, with five being the least serious, Fiorelli said.

The fine is the fourth levied against Comanche Peak since it began operation in 1990. The largest of those was \$125,000 issued in July 1992 for 12 violations during a cooling system malfunction.

Comanche Peak's largest fine, about \$370,000, was issued in the mid-1980s before the plant opened. It was for a series of unrelated violations that covered several years.

The October accidents occurred while Unit 1 of the facility was out of service for refueling. At 9:50 a.m., a compressed air seal that held back the water was accidentally depressurized, allowing almost 20,000 gallons to drain through the reactor vessel into a section of a steam generator. Later in the day, as workers tried to transfer the water, a valve-alignment error allowed 4,000 more gallons to escape into the steam generator.

Employees could have been injured had they been working in an affected steam generator, NRC officials said in a news release. The hazard would not have been so much from radiation as from the potential for drowning had someone been in the flooded area, Fiorelli said. The water was only mildly radioactive and would have been below the NRC's exposure limit, he said. Several workers in protective clothing did have shoes that were mildly contaminated, he said. Although TU Electric has the option of contesting the NRC decision, Fiorelli said the company will pay the fine.

NRC officials said the agency is concerned about the events because of a combination of violations that involved inattention to design control requirements, a failure to follow established procedures, poor communications and poor decisions, and failure to pay attention to NRC information.

The accident also caught the attention of the Public Utility Commission. PUC Chairman Robert Gee said the incident will become part of an ongoing discussion with the NRC about nuclear plants. "As the agency responsible for regulating electric rates, the Public Utility Commission is keenly interested in the safe and efficient operations of nuclear plants, since inadequate attention could result in adverse rate impacts."

Lab says it falsified data on fire retardant - Fort Worth Star-Telegram, 4/17/94

Utilities across the nation used the phony certifications as proof to regulators that nuclear plants, including the Comanche Peak plant, could be shut down safely in an emergency.

WASHINGTON - A private laboratory provided false test results for a fire retardant used in varying amounts in the Comanche Peak nuclear power plant and 77 other nuclear plants around the nation, according to federal court records. The St. Louis-based company also provided blank letterhead stationery to the manufacturer of the material, which then used the stationery to write reports certifying the safety of the fire barrier material, according to a guilty plea in federal court by the president of the testing company, Allan M. Siegel of Industrial Testing Laboratories Inc. The phony certifications vouched that the material could slow the spread of fire and protect crucial electrical systems. Utilities across the nation used the certifications as proof to the Nuclear Regulatory Commission that their plants could be shut down safely in an emergency.

Industrial Testing Laboratories' admission confirms long-suspected problems with the testing of a fire barrier material called Thermolag. Nuclear watchdog organizations have called for its immediate removal from the nation's nuclear plants, but the NRC has approved more incremental solutions.

The Justice Department records show that Thermolag was used to a greater degree at Comanche Peak and three other plants nationwide than at any other plant - more than 10,000 feet of the product.

Other plants face more difficult and costly solutions - estimates are as much as \$500 million industrywide - because their plants are older. While utilities search for ways to fix the problem, the NRC has allowed plants to use "fire watches," in which employees patrol the plants looking for signs of fire. Frank Miraglia, NRC deputy director of nuclear reactor regulation, said yesterday, "Many licensees would not be in full compliance without fire watches."

Based on the ITL reports, the fire retardant was installed at Comanche Peak and at other nuclear plants to protect important electrical cables needed to help shut down a plant in the case of a nuclear emergency.

The NRC began requiring the use of protective fire retardants after a 1975 fire at the Brown's nuclear plant in Alabama burned through two sets of cables, causing a dangerous temporary loss of control of the reactor.

Nuclear plant unit prepares to repower - Fort Worth Star-Telegram, 6/01/94

Approval of repairs to a sprinkler system, designed to cool down the interior of the containment building to keep pressure from building up, is pending Nuclear Regulatory Commission inspection.

Comanche Peak nuclear power plant's Unit 2 should be back in full operation by June 6 after a final Nuclear Regulatory Commission inspection of repaired leaks in a containment-building water sprinkler system, officials said yesterday.

The leaks were discovered when the unit was taken off-line in April for scheduled maintenance. The repairs delayed the planned repowering of the unit, according to Joe Gilliland, a spokesman for the NRC's Arlington regional office. "We

completed the repairs on May 30 and are conducting tests of the Unit 2 containment sprinkler system," he said. The leaks were blamed on vibrations from powerful pumps serving the sprinkler cooling-system pipes inside the Unit 2 containment building, plant officials said. Plant spokesman Jerry Lee said last week that the problems occurred on three of 20 to 30 tap-in pipes coming off a larger water supply pipe in the sump area of the Unit 2 containment building. The tap-ins lead to instruments that measure the system's water pressure and rate of flow, officials said. The sprinkler system is designed to be triggered if there is a "heat-up" caused by a release of steam from the core into the sealed containment building, Lee said. The sprinklers would come on and cool down the interior to keep pressure from building up inside the containment building. Fiorelli said yesterday that repairs included strengthening some of the pipes, rewelding others and removing some.

Oil leak shuts down Comanche Peak unit - Fort Worth Star-Telegram, 8/17/94

An oil leak on a transformer led TU Electric officials to temporarily shut down Unit 2 at the Comanche Peak nuclear power plant near Glen Rose, TU spokesman Franks Shants said yesterday. The leak was discovered in the transformer's bushings. The oil leak was not considered a major concern by the federal agency. "They've got to clean it up," said Joe Gilliland, a commission spokesman. "It can be a fire hazard, but it's not a nuclear safety concern." In June, Unit 2 was taken off line for three days after the discovery of a burned wire on the plant's main generator and a faulty governor on a backup diesel generator. It had been brought on line the week before, after being closed for scheduled maintenance in mid-April. Meanwhile, the NRC is determining whether Comanche Peak should be fined over a welding problem, Gilliland said. "We have sent them an inspection report, which said we were considering escalated enforcement action, which could be a fine," the commission spokesman said. At issue is scrutiny of systems that can be affected by vibrations, he said. "The best welding in the world, if you don't brace them, eventually will fail. Metallurgists call it metal fatigue." Jerry Lee, a TU spokesman, said the problem stems from a welding repair on the piping of the plant's safety containment spray system. "It was not a safety related issue or a health concern issue," Lee said. "Our initial repair did not fix the problem."

Overheated pump forces power cut at Comanche Peak - Fort Worth Star-Telegram, 9/30/94

TU Electric was forced to sharply cut power at its Comanche Peak nuclear power plant Wednesday night after a feedwater pump serving the Unit 2 steam generator overheated. The Nuclear Regulatory Commission said power was cut by 75 percent. No radioactive steam or other material was released in the incident, said TU Electric spokesman Jerry Lee. The affected pump is one of two that return water to a steam generator after steam turns turbines to make electricity, Lee said. That water is separate from radioactive water that cools nuclear fuel, he said. Lee acknowledged that the plant has had repeated problems with pumps, but he said that that did not reflect an unusual trend or safety problem. He said such a large reduction in power is costly. "Sure, a loss of 550 megawatts of generating power is expensive." However, Lee added that TU planned to shut down Unit 2 within a week anyway to refuel and that TU had ample power to meet customer needs.

Nuclear unit shut down again - Fort Worth Star-Telegram, Arlington Edition, 1/24/96

Comanche Peak power plant reports more electrical problems

For the second time in less than a week, Unit 1 of the Comanche Peak nuclear power plant in Glen Rose has shut down because of electrical problems. Plant employees shut down the unit about 8 a.m. Monday because of instrumentation failure that occurred as workers repaired a related inverter. (An inverter converts DC, or battery power, to AC, or regular electrical power, and in this case is part of a backup power supply for the plant.) A problem with a different inverter caused last week's shutdown. Unit 1 was shut down about six hours after it had returned to full power after last week's problem. Workers were changing a fuse to the inverter when a feed water valve, associated with the inverter, shut down, affecting water flow to generators. Water flow to the nuclear side of the plant was not affected. Last week, the unit shut down automatically when another inverter malfunctioned Jan. 17. The failure caused a false instrument reading that automatically led to pumping of water into the reactor coolant system. The action is part of an emergency cooling system for the nuclear core.

Comanche Peak narrowly averted mishap - Fort Worth Star-Telegram, Austin Bureau, 2/16/00

The nuclear plant's near-miss in October could have exposed workers to high doses of radiation.

The Comanche Peak nuclear plant near Glen Rose narrowly averted an accident in October that could have exposed workers to high doses of radiation, the Nuclear Regulatory Commission said in a report on the incident. The plant was shut down for maintenance when a 40-ton motor being hoisted fell 20 to 30 feet, and was stopped eight feet above its base only because a random link of chain became lodged in a pulley assembly. If the motor had continued its plunge, it could have

damaged piping and caused water to drain from a tank that contained a piece of radioactive equipment. Radioactivity from that piece of equipment, known as a core barrel, could have exposed 20 to 40 people under a worst-case scenario, said Joseph Tapia, a NRC division chief in Arlington.

The NRC report blamed the accident on a gear failure on a 45-ton electricity-driven chain hoist, which was moving the massive motor. The incident occurred during a month long shutdown of the plant for refueling, as personnel were replacing an older piece of equipment with an updated motor. NRC inspectors determined that plant operators violated safety standards, but the agency did not fine the company.

The report noted that the company missed at least two other opportunities to identify problems with the equipment. One opportunity occurred in October 1999, when the company failed to perform a mechanical inspection after the hoist failed to operate correctly. And in 1996, evidence was found during routine maintenance that gears in the hoist had been rubbing on the inside of a cover plate.

The safety violation was among the least severe that the agency has handed out. The utility, however, has been cited for more serious violations at the Glen Rose plant. An NRC official said the company was fined \$50,000 for a safety violation in 1993, and was assessed fines of \$125,000 and \$25,000 in 1992.

Flight ban idles airports near nuclear plant - Fort Worth Star-Telegram, Austin Bureau, 11/01/01

Keyt is among aviation enthusiasts who've been effectively grounded by the Federal Aviation Administration order this week that prevents private aircraft from coming within 11 miles of 86 nuclear plants and other facilities across the nation. The order is scheduled to be lifted Wednesday. For Keyt and members of the Experimental Aircraft Association chapter based at Pecan Plantation Airport near Granbury, the grounding order means that their treasured hobby is put on hold. For the workers and business owners at Granbury Municipal Airport, which is about 10 miles from the Comanche Peak reactor, the order means lost income and uncertainty.

John Holt, who manages the city-owned airport where 40 to 50 planes and small jets take off and land on an average day, said the facility has been eerily still for much of the past two days. "As far as flying in Granbury goes, it killed it," Holt said. "No one is about to go up and risk getting shot down by an F-16."

The flight schools, sky-diving clubs and other airport-based businesses are empty, Holt said. The runway is idle and the hangars are quiet. No one is buying the fuel that the city sells to keep the small airport from having to rely too heavily on subsidies from Granbury taxpayers, he said. Holt says the skies are being cleared so that military leaders can more easily identify and intercept any craft that enters the airspace with malicious intent. "They're not afraid of old John Doe who might decide to cruise around in his own private airplane," Holt said. "They're making it so that the only ones who dare fly around here have absolutely no business being here."

Nuclear plant to get more scrutiny - Fort Worth Star-Telegram, 2/23/02

The U.S. Nuclear Regulatory Commission will increase its oversight at the Comanche Peak nuclear power plant because of improper handling of low-level radioactive waste, federal officials said Friday. Officials at TXU Energy, the plant's owner and operator, said the company is being unfairly punished for a vigilant safety program and will probably appeal the regulatory commission's ruling. The infractions, considered by the NRC to be low to moderate safety problems, posed no threat to the public, officials said. But they violated strict federal rules governing the cleaning and disposal of contaminated clothing and equipment at nuclear power plants, officials said. The Comanche Peak violations occurred between Jan. 24, 2000 and May 24, 2001.

The commission's decision comes one month after its meeting with TXU Energy over 11 incidents in which pliers, glove liners and other contaminated items were found outside the plant's most secure area. The 11 cited violations were among 20 found at the plant between 1999 and 2001, the commission's records show.

The NRC action marks the first significant safety problem at the plant, known as the Comanche Peak Steam Electric Station, in more than eight years, and is the first safety problem the commission noted at either of Texas' two nuclear power plants since the agency adopted a new system of ranking infractions two years ago.

The plant, about 50 miles southwest of Fort Worth near Glen Rose, was last sanctioned in 1993 after radioactive water spilled in a containment area during refueling. The plant was shut down at the time and no water escaped, but the commission fined the company \$50,000.

Regulators, TXU to discuss tubing leak - Fort Worth Star-Telegram, 12/04/02

Leaking and corroded tubing at the Comanche Peak nuclear power plant has prompted federal officials to call a meeting next week with TXU Energy, the plant's operator, to talk about the results of a special inspection.

The inspection followed the shutdown of one of the two Comanche Peak reactors Sept. 28, two days after plant operators discovered a leak in a steam-generating tube carrying radioactive water, said Ken Clark, a Nuclear Regulatory Commission spokesman. Comanche Peak's second reactor, built in 1993, was unaffected and continued to operate during the shutdown of the first unit, built in 1990.

After the leak was discovered, workers found a hole in one tube and corrosion and stress cracks in more than 660 others, TXU spokesman David Beshear TXU spokesman, said. The leak was caused by a "ding" in a tube, Beshear said. The tubes

carry radioactive water from the reactor's core. The radioactive water heats four pools that make steam to turn turbines that generate electricity. There are 4,578 tubes that pass through each of the four pools in each of Comanche Peak's two reactors.

The water is contained in a closed system in a controlled area, Beshear said. Federal rules call for shutting down a nuclear power plant if the tube leakage rate is about two cups per minute, Beshear said. The leak rate at Comanche was about a half-cup per minute, officials said.

"The radiation monitors showed a clear indication of a steam generator tube leak," said Bill Johnson, NRC branch chief responsible for reactor inspections at Comanche Peak and two other nuclear plants. "It was unusual behavior. The higher-than-normal readings went up, drifted back down and went up again." TXU had to plug some additional tubes and put external sleeves on others, Johnson said.

TXU, inspectors to discuss Comanche reactor problems - Fort Worth Star-Telegram, 12/10/02

A reactor at the Comanche Peak nuclear power plant that was shut down in September because of leaking and corroded tubing is having a tough time getting going again, officials said.

The reactor -- which was shut down for 50 days to repair more than 660 corroded and cracked tubes and for refueling -- has been started and stopped twice since Nov. 15 and is under repair and out of service.

The troubled reactor, Unit 1, resumed operation Nov. 15 but was shut down Nov. 23 because of a potential valve problem, TXU officials said. The reactor was back in service two days later. But on Nov. 30, a blown fuse triggered a safety mechanism that caused a control rod to drop into the reactor's core, Beshear said. The control rod is a safety measure that slows the nuclear reaction in the core.

On Dec. 3, the reactor was taken off-line again, this time to repair an electric coil. That's when plant workers found that the coil failure was caused by a leaky weld in a canopy seal at the control rod, Beshear said. He said that the weld has been repaired and that other minor work is being done.

In early December, Comanche Peak workers found deposits of boric acid crystals around the leak, a potential concern because a boric acid buildup was blamed for extensive corrosion in the top of the Davis-Besse nuclear reactor near Toledo, Ohio.

Similar corrosion was not found at Comanche peak, Johnson said. But the leaking and cracked steam-generating tubes, the subject of today's meeting with the NRC, are a longstanding problem at plants that were built with Westinghouse engineered pressurized water reactors.

The Westinghouse systems were installed in both commercial nuclear power plants in Texas, Comanche Peak and the South Texas Project. The thin tubes are made of a stainless steel alloy called Inconel 600. They have cracked and leaked within 10 years at some plants designed to last 40 years, according to NRC records. The tubes carry superheated, radioactive water from the reactor core to convert nonradioactive water into steam for electricity-generating turbines.

The tube problem has led to at least 14 lawsuits against Westinghouse, all of which have been settled out of court with most court documents sealed. At least 19 steam-generating systems have been replaced at U.S. nuclear power plants for \$100 million to \$200 million per plant, records show. The South Texas project replaced its steam generators in the past two years. TXU is "continuing to evaluate replacement" of its steam generators at Comanche Peak," Beshear said.

Flaw in reactor not seen in check - Fort Worth Star-Telegram, 12/11/02

Routine inspections at the Comanche Peak nuclear power plant failed to detect a damaged steam generator tube that later ruptured, forcing a shutdown in September, according to a federal report released Tuesday.

The flaw in the tube was "clearly identifiable and missed" about 18 months ago by workers for TXU Energy, the plant's owner and operator, according to the preliminary findings of a special inspection team of the Nuclear Regulatory Commission.

"Consistent with putting safety first, we shut the plant down," C. Lance Terry, TXU's principal nuclear officer, said at a meeting near the power plant about 50 miles southwest of Fort Worth. Terry said the small leak was well below NRC guidelines and TXU's more conservative guidelines.

The steam generator tubes carry superheated, radioactive water from the reactor's core to heat nonradioactive water, creating steam to run turbines to produce electricity. There are 4,578 tubes in each of the reactor's four steam generators. The September incident was the first time a tube has leaked at either of Comanche Peak's two reactors.

But the Unit I reactor that went on line in 1990 has had its share of problems with cracked and corroded steam tubes that have been repaired or plugged, company officials said. There were no tube problems in the reactor's first five years of operation. But since 1995, about 700 damaged tubes have been identified and plugged -- taken out of service -- before they leaked, said James Kelley, TXU's nuclear engineering vice president.

The most recent inspection of Unit 1, in October, found more than 660 damaged tubes, nearly equal to the total number of damaged tubes found in the past 12 years. The tubes were repaired with sleeves instead of being taken out of service, which would have caused the plant to lose efficiency, Kelley said. Terry told the NRC that he is confident that Unit 1 can operate for another 18 months, but nuclear industry critics warn that the tube problem needs greater attention.

"If a tube breaks and ruptures, it could cause a domino effect, breaking additional tubes," said David Lochbaum, a nuclear

engineer who works with the Union of Concerned Scientists. "It wouldn't take more than 10 broken tubes to let more water flow out than you can put back in, jeopardizing the ability to cool the reactor core," he said.

Steam-tube problems and the cost of replacing entire systems contributed to the early retirement of nuclear power plants in Oregon, Maine and Illinois, said Jim Riccio, a nuclear policy analyst with Greenpeace. At least 19 steam-generating systems have been replaced at nuclear plants for \$100 million to \$200 million per plant, records show.

Kelley said TXU has not made a decision on whether to replace Unit 1's four steam generators, which would cost about \$150 million. Delivery of new steam generators could take about six years, he said. Dwight Chamberlain, the NRC's regional director of reactor safety, said the agency is analyzing the Comanche Peak problem to see if it can learn something about the detection of flaws.

After the September leak, Unit 1 was shut down for 50 days to repair the tubes and for refueling. The unit has been started and stopped twice since Nov. 15, once for a potential valve problem and the second time because of a leaky weld at a control rod.

Unit 1 remains out of service but is expected to be put back in service in a few days, company officials said.

Report issued on shutdown - Fort Worth Star-Telegram, 1/11/03

The failure to find a damaged steam tube before it leaked and caused a shutdown at Comanche Peak nuclear power plant had "potential safety significance," federal officials said in a report released Friday.

The report, by the Nuclear Regulatory Commission, documents the agency's special inspection of the TXU power plant near Glen Rose after the ruptured pipe triggered a radiation monitor in September and forced the shutdown.

"The finding is greater than minor because it adversely affected the reactor safety barrier integrity," the report says.

The NRC has not reached a final determination about the seriousness of the violation, but said that it would not issue a notice of violation at this time against TXU. The findings could change after further review, the report notes. "It could lead to additional inspection and oversight," said Roger Hannah, NRC spokesman in Atlanta. "More serious safety issues can yield civil penalties."

The leaking tube was removed from service and does not present an immediate safety concern, he said. The flaw in the steam-generating tube "was clearly identifiable and missed" by analysts working for TXU Energy, the plant's owner and operator, NRC officials said at a public meeting last month. "The concern is the methodology used to examine the tubes and the apparent misreading of an indication that should have allowed them to identify the leak," Hannah said.

"The public and our employees were never in any danger," he said. "TXU took conservative action to shut the plant down well before we were required to under NRC guidelines."

"Neighbors of Comanche Peak and TXU ratepayers can't afford the risk to their health and their pocketbooks posed by these shoddy operations," said Erin Rogers, Lone Star Sierra Club outreach coordinator. "These plants need to be shut down permanently and replaced with cleaner, safer alternatives, such as wind power," she said. TXU has not yet made a decision to replace the failing steam generators. It would cost the company about \$150 million to replace Unit 1's four steam generators, TXU officials said.

Repair schedule extended – Fort Worth Star-Telegram, 10/28/06

A malfunction in the system that provides water to one of the steam generators at TXU Corp.'s nuclear generating plant at Glen Rose caused TXU to extend the plant's scheduled maintenance outage until next week.

The 2,300-megawatt Comanche Peak plant will stay at half capacity until the restart can be completed next week, TXU spokeswoman Kimberly Morgan said. "The plant had been down for 19 days for maintenance, and we were beginning to bring it back up -- a process that takes several days -- when the incident happened," she said.

A report by the Nuclear Regulatory Commission which described the incident as a "nonemergency," said: "Oscillations were observed on the plant steam dump system. These oscillations caused a high steam generator water level that caused both main feed pumps to trip."



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