Docket Nos. 50-445
and 50-446

DEC 4 1978

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Texas Utilities Generating Company
ATTN: R. J. Gary, Executive
Vice President and
General Manager
2001 Bryan Tower
Dallas, Texas 75201

SUBJECT: AMENDMENTS TO CONSTRUCTION PERMITS

Gentlemen:

The Commission has issued the enclosed Amendments No. 1 to Construction Permit Nos. CPPR-126 and CPPR-127 for the Comanche Peak Steam Electric Station. These amendments are in response to your request dated June 30, 1978, and modify Condition 3.E(7) to remove the requirement that a chlorine minimization study be performed and the results submitted to the Commission prior to docketing of the Environmental Report, Operating License Stage.

A copy of the Negative Declaration, the Federal Register Notice and the Environmental Impact Appraisal are also enclosed.

Sincerely,

/s/
Ronald L. Ballard, Chief
Environmental Projects Branch No. 1
Division of Site Safety
and Environmental Analysis

Enclosures:
1. Amendments to CPs
2. Negative Declaration
3. Federal Register Notice
4. Environ. Impact Appraisal

cc w/encl:
See next page

7812120027

OFFICE	DSE:EP-1	DSE:EP-1	OELD	DSE:EP-1		
SURNAME	MSlater:mh	RSCleveland	DSwanson	RLBallard		
DATE	11/9/78	11/13/78	11/28/78	12/4/78		

NRC FORM 318 (9-76) NRCM 0240 ★ U.S. GOVERNMENT PRINTING OFFICE: 1978 - 265 - 769

A

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DeBevoise and Liberman
700 Shoreham Building
806 15th Street, NW
Washington, D. C. 20005

The Honorable Temple Summers
County Judge
Glen Rose, Texas 76043

ETS Coordinator
Region 6 Office
U. S. Environmental Protection
Agency
1201 Elm Street
First International Building
Dallas, Texas 75270

Director
Governor's Budget and
Planning Office
Executive Office Building
411 West 13th Street
Austin, Texas 78701

TEXAS UTILITIES GENERATING COMPANY, ET AL.

DOCKET NO. 50-445

COMANCHE PEAK STEAM ELECTRIC STATION, UNIT NO. 1

AMENDMENT TO CONSTRUCTION PERMIT

Amendment No. 1
Construction Permit No. CPPR-126

The Nuclear Regulatory Commission has issued Amendment No. 1 to Construction Permit No. CPPR-126. The amendment modified Condition 3.E.(7) to read as follows:

(7) The Applicants shall design the facility to control the addition of chlorine to the circulating water system such that the concentration of total residual chlorine at the point of discharge to Squaw Creek Reservoir is 0.1 ppm or the minimum practicable level demonstrated by the Applicants as being necessary. The minimum practicable level of chlorination necessary shall be determined by the Applicants through a study program. This study shall include an evaluation of the effects of residual chlorine releases on Squaw Creek Reservoir, a demonstration of the minimum total residual chlorine level necessary for efficient operation of the station, and an evaluation of the monitoring program to be used to determine total residual chlorine and its effects. Alternative methods of reducing chlorine residuals shall also be investigated, and these shall include but not be limited to optimizing chlorine dosage, modifying condenser design to permit sequential treatment of sections of the condensers, and optimizing the chlorination schedule to coincide with periods of low condenser flow.

This amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By
Roger S. Boyd

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

7812120030

OELD D/waiver - subject to changes as indicated on memo to file dtd 11/28

Date of Issuance
DEC 4 1978 11/28/78

OFFICE	DSE:EP-1	DSE:EP-1	DSE:ADEP	LWR-4	LWR	DPM
SURNAME	MSlater:mh RSCleveland	RLBallard	VAMoore	RNaver SVarga	DVassallo	RSBoyd
DATE	11/9/78 11/13/78	11/13/78	11/ /78	11/ /78	11/ /78	11/ /78

NRC FORM 318 (9-76) NRCM 0240 ★ U.S. GOVERNMENT PRINTING OFFICE: 1978 - 265 - 769

TEXAS UTILITIES GENERATING COMPANY, ET AL.

DOCKET NO. 50-446

COMANCHE PEAK STEAM ELECTRIC STATION, UNIT NO. 2

AMENDMENT TO CONSTRUCTION PERMIT

Amendment No. 1
Construction Permit No. CPPR-127

The Nuclear Regulatory Commission has issued Amendment No. 1 to Construction Permit No. CPPR-127. The amendment modified Condition 3.E.(7) to read as follows:

(7) The Applicants shall design the facility to control the addition of chlorine to the circulating water system such that the concentration of total residual chlorine at the point of discharge to Squaw Creek Reservoir is 0.1 ppm or the minimum practicable level demonstrated by the Applicants as being necessary. The minimum practicable level of chlorination necessary shall be determined by the Applicants through a study program. This study shall include an evaluation of the effects of residual chlorine releases on Squaw Creek Reservoir, a demonstration of the minimum total residual chlorine level necessary for efficient operation of the station, and an evaluation of the monitoring program to be used to determine total residual chlorine and its effects. Alternative methods of reducing chlorine residuals shall also be investigated, and these shall include but not be limited to optimizing chlorine dosage, modifying condenser design to permit sequential treatment of sections of the condensers, and optimizing the chlorination schedule to coincide with periods of low condenser flow.

This amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By
Roger S. Boyd

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

7812120032

OELD

DL - subject to changes indicated in memo to R. Clark dtd 11/28

Date of Issuance
DEC 4 1978

DSwanson 11/28/78

OFFICE	DSE:EP-1	DSE:EP-A	DSE:ADEP	LWR-4	LWR	DPM
SURNAME	WSlater:mh	RLBallard	VAMoore	SVarga	DVassallo	RSBoyd
DATE	11/9/78	11/13/78	11/ /78	11/ /78	12/1 /78	12/1 /78

NRC FORM 318 (9-76) NRCM 0240

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7590-01

NEGATIVE DECLARATION

SUPPORTING AMENDMENT OF CONSTRUCTION PERMITS

COMANCHE PEAK STEAM ELECTRIC STATION, UNIT NOS. 1 AND 2

(CPPR-126 AND CPPR-127)

TEXAS UTILITIES GENERATING COMPANY ET AL.

DOCKET NOS. 50-445 AND 50-446

The staff of the U. S. Nuclear Regulatory Commission (the Commission) has reviewed the proposed amendment relating to the construction permits for the Comanche Peak Steam Electric Station, Units No. 1 and 2 (CPPR-126 and CPPR-127) located in Somervell County, Texas, issued to Texas Utilities Generating Company, et al. The amendment would authorize a modification of Condition 3.E.(7) to remove the requirement that a chlorine minimization study be performed and the results be submitted to the Commission prior to docketing of the Environmental Report, Operating License Stage.

The Commission's Division of Site Safety and Environmental Analysis has prepared an environmental impact appraisal for the amendment and has concluded that an environmental impact statement for this particular action is not warranted. This conclusion is based on the fact that there will be no significant environmental impacts attributable to the proposed action.

The environmental appraisal is available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D. C. A copy may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Site Safety and Environmental Analysis.

7812120034

OFFICE ➤					
SURNAME ➤					
DATE ➤					

7590-01

Dated at Bethesda, Maryland this 4th day of December 1978.

FOR THE NUCLEAR REGULATORY COMMISSION

S/
Ronald L. Ballard, Chief
Environmental Projects Branch 1
Division of Site Safety
and Environmental Analysis

OFFICE ➤	DSE:EP-1 RSC	DSE:EP-1 RSC RLBallard	OELD Dan Swanson	concurred by phone RSC 12/1/78		
SURNAME ➤	RCleveland	12/				
DATE ➤	11/13/78	11/ /78	11/28/78			

7590-01

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-445 AND 50-446

TEXAS UTILITIES GENERATING COMPANY, ET AL.

NOTICE OF ISSUANCE OF AMENDMENTS TO CONSTRUCTION PERMITS

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendments No. 1 to Construction Permits Nos. CPPR-126 and CPPR-127 issued to Texas Utilities Generating Company, et al. for construction of the Comanche Peak Steam Electric Station, Unit Nos. 1 and 2, located at the permittee's site in Somervell County, Texas.

The amendments modify the construction permits to remove the requirement that a chlorine minimization study be performed and the results submitted to the Commission prior to docketing of the Environmental Report, Operating License Stage.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended and the Commission's rules and regulations. Prior public notice of these amendments is not required since the amendments do not involve a significant hazards consideration.

The Commission has prepared an environmental impact appraisal for the amendment to the construction permits and has concluded that an environmental impact statement for this particular action is not warranted because there will be no significant environmental impact attributable to this action.

7812120035

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SURNAME➤						
DATE➤						

7590-01

For further details with respect to this action, see (1) the application for amendments dated June 30, 1978, (2) Amendments No. 1 to Construction Permit Nos. CPPR-126 and CPPR-127, and (3) the Commission's Environmental Impact Appraisal. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C., and in the Somervell County Public Library, On the Square, Glen Rose, Texas. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Site Safety and Environmental Analysis.

Dated at Bethesda, Maryland, this 4th day of December 1978.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/
Ronald L. Ballard, Chief
Environmental Projects Branch No. 1
Division of Site Safety
and Environmental Analysis

OFFICE	DSE:EP-1	DSE:EP-1	OELD			
SURNAME	MSlater:mh RSCleveland	RLBallard	D SWANSON			
DATE	11/13/78	11/13/78	11/28/78			

NRC FORM 318 (9-76) NRCM 0240

★ U.S. GOVERNMENT PRINTING OFFICE: 1978 - 265 - 769

ENVIRONMENTAL IMPACT APPRAISAL
BY THE DIVISION OF SITE SAFETY AND ENVIRONMENTAL ANALYSIS
SUPPORTING AN AMENDMENT RELATING TO THE MODIFICATION OF
A CONSTRUCTION PERMIT REQUIREMENT
COMANCHE PEAK STEAM ELECTRIC STATION, UNIT NOS. 1 AND 2
(CPPR-126 AND CPPR-127)

TEXAS UTILITIES GENERATING COMPANY
DALLAS POWER AND LIGHT COMPANY
TEXAS ELECTRIC SERVICE COMPANY
TEXAS POWER AND LIGHT COMPANY

DOCKETS NOS. 50-445 AND 50-446

1. Description of Proposed Action

The action proposed is the issuance of an amendment to the construction permits pertaining to the Comanche Peak Steam Electric Station (CPSES) Unit Nos. 1 and 2. The proposed modification relates to condition 3.E.(7) of the permits. This condition requires that the Applicants (Texas Utilities Generating Company, et al.) design CPSES to control the addition of chlorine to the circulating water system to control biofouling such that the concentration of the total residual chlorine (TRC) at the point of discharge is 0.1 ppm or the minimum practicable level demonstrated by the Applicants as being necessary. The condition further requires that the Applicants determine the minimum practicable level of chlorination necessary, prior to initiation of power operation, through a study program and that the results of the study be submitted as part of the operating license application.

By letter dated June 30, 1978, the Applicants contended that a theoretical analysis of chlorination needs for CPSES based on conditions at other plants located on other bodies of cooling water is not a practicable procedure. The Applicants also noted that the Environmental Protection Agency (EPA) Region 6 has issued a draft National Pollutant Discharge Elimination System (NPDES) permit for CPSES which called for a chlorine minimization study after station startup. The Applicants proposed that Condition 3.E.(7) of the construction permits be amended to allow the study to be performed after startup of the station.

7812120036

2. Environmental Considerations for the Proposed Action

As support for their amendment request the Applicants submitted with their June 30, 1978 letter an Environmental Assessment of the Performance of an Operational Chlorine Minimization Study. This report was supplemented by additional information furnished in a letter dated September 8, 1978. The Applicants agreed that there was need to control discharges of chlorine and that a study to establish the minimum level needed was appropriate. The Applicants stated that use of chlorine during the study would be limited to a maximum level of 0.5 ppm of total residual chlorine (TRC) in the discharge and assessed the potential impacts of discharges at that level. The Applicants further stated the chlorination would be conducted no more than one-half hour for each unit (two consecutive treatments for two unit operation), repeated every twelve hours.

Comanche Peak Steam Electric Station (CPSES), comprising two 1161 MWe pressurized water reactors, is under construction in Somervell County, Texas approximately 8 kilometers (5 miles) north-northwest of Glen Rose, Texas. The cooling water source is an offstream cooling impoundment of 1306 ha (3228 acres), Squaw Creek Reservoir (SCR). SCR began filling in February 1977 and was approximately one-half full by volume in June 1978.

Each unit will be cooled by four circulating water pumps, each with a capacity of 17 cubic meters per second (275,000 gpm), installed in a circulating water intake structure located in SCR. Discharge to SCR is through one pipe per unit, each 4.9 meters (16 feet) in diameter. The top of each discharge pipe is approximately 6.7 meters (22 feet) below the surface of SCR at the normal high water level of 236 meters (775 feet) MSL. The discharge point is near the head of Panther Branch Arm (PBA), about 1950 meters (6400 feet) from where PBA merges with the main part of the reservoir.

The Applicants' assessment of potential impact on PBA and SCR employed a simulation of the hydrodynamic transport and dissipation of the chlorine in the discharge as it moved down PBA to SCR. The assessment included effects of chemical reaction rates, temperature, sunlight, and variations in number of operating units (1 or 2) and seasons of the year (winter or summer). Entrainment of aquatic biota into the plume and time-weighted exposures to chlorine were computed. Comparisons were noted to an Acute Mortality Threshold.* The Applicants

*Mattice, J.S., "Power Plant Discharges: Toward More Reasonable Effluent Limitations on Chlorine," Nuclear Safety 18 (6), 802-819 (1977).

Mattice, J.S. and H.E. Zittel, "Site Specific Evaluation of Power Plant Chlorination," Water Pollution Control 48(10), 2284-2308 (1976).

found no expected conditions where biota would be exposed in excess of the Acute Mortality Threshold and concluded that there would be no impact resulting from chlorine discharges occurring during the minimization study. The biota subject to impact are those postulated to be present after completion of construction and filling of the reservoir, based on biota found in similar reservoirs in Texas.

Staff and consultants of the NRC's Division of Site Safety and Environmental Analysis (DSE) evaluated the Applicants' assessment and performed their own independent assessment of the effects of chlorination during the minimization study. DSE staff found some apparent flaws in the Applicants' assessment, though the general approach seemed valid, and concluded that the conclusion of no impact on aquatic biota from chlorine discharges was not supported.

Using the simplifying assumption that chlorine concentrations declined as the discharged water moved down PBA only due to chemical reactions (the dilution flow provided by the bottom inflow layer and the effects of longitudinal dispersion were neglected), an upper limit of effect was calculated by the staff. The staff also assumed for the purposes of assessing the biological impact that entrainment of aquatic organisms in the chlorine plume will occur along its entire length. Further, it was assumed that, once entrained into the plume, organisms will not escape, but will be carried along with it and that organisms entrained into the plume in Panther Branch Arm are as sensitive to chlorine toxicity as the most sensitive freshwater organisms in the Mattice-Zittel Acute Mortality Threshold.

The staff assessment led to the finding that about one-half of PBA could be affected by potentially lethal TRC concentrations. PBA accounts for less than 10 percent of the surface area of SCR. Thus a maximum of the equivalent of about 5 percent of the area of Squaw Creek Reservoir might be adversely affected by TRC during the minimization study.

If biological productivity per unit of surface area in Panther Branch Arm is similar to that in the remainder of Squaw Creek Reservoir (no data indicate otherwise and this seems reasonable), the NRC staff considers the predicted biological impact of the proposed chlorination schedule to be acceptable for the following reasons:

(1) It appears that, even under worst case conditions, the adverse effects of TRC will be limited to portions of Panther Branch Arm.

(2) Although phytoplankton and zooplankton in the upper reaches of Panther Branch Arm may be killed by TRC levels proposed by the Applicants, their high reproductive rates will assure adequate population levels in the remainder of the reservoir.

(3) Ichthyoplankton may be adversely affected by the proposed chlorination schedule. While fish species do not have the short generation times of phytoplankton and zooplankton, and could therefore be slower to recover from perturbations, only a small portion of Squaw Creek Reservoir could be impacted by chlorine. The staff does not believe that fish populations in Squaw Creek Reservoir will be significantly affected by chlorine discharges during the minimization study.

(4) Benthic organisms, including macroinvertebrates, fish eggs and larvae, and bottom-dwelling adult fishes, also may be adversely affected by chlorination of Comanche Peak Power Station. However, the assessment of chlorination impact is somewhat different for these organisms than it is for plankton or nekton entrained into the plume, because it is assumed that benthic biota remain stationary on the bottom of Panther Branch Arm. Thus, during each chlorination application, they could be exposed to an elevated concentration of chlorine throughout a period of 60 minutes. The Mattice-Zittel Acute Mortality Threshold indicates that freshwater organisms can tolerate a maximum concentration of about 0.05 ppm TRC for 60 minutes without suffering mortality from acute chlorine toxicity. TRC concentrations of 0.05 ppm or less are predicted for distances of 1219 to 1402 m from the discharge, respectively, depending upon the season and operating conditions. Benthos would be impacted in approximately the same region of Panther Branch Arm as would plankton. The staff considers the potential loss of approximately 5 percent of the benthos in Squaw Creek Reservoir not to be significant.

(5) No other impacts, such as to recreational uses of SCR like fishing or swimming, appear likely to occur to any significant degree as a result of the chlorination study.

3. Conclusion and Basis for Negative Declaration

On the basis of the foregoing analysis and the NRC staff evaluation, it is concluded that there will be no significant environmental impacts attributable to the proposed action. Furthermore, any impacts which do occur will be very small compared to those for the entire project as predicted and described in the staff's Final Environmental Statement (Construction Permit) issued in June 1974. Having made this conclusion, the DSE staff has further concluded that no environmental impact statement for the proposed action need be prepared and that a negative declaration to this effect is appropriate.

Dated:
DEC 4 1978

RSC 12/11/78
Richard Cleveland

RL 12/4/78
Ronald L. Ballard

Concurrence: ESB
12/4/78