

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

CHAPTER 1
INTRODUCTION

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
1.0	INTRODUCTION	1.0-1
1.1	THE PROPOSED PROJECT	1.1-1
1.1.1	THE APPLICANT AND OWNER.....	1.1-1
1.1.2	SITE LOCATION.....	1.1-2
1.1.3	REACTOR INFORMATION	1.1-3
1.1.4	COOLING SYSTEM INFORMATION.....	1.1-3
1.1.5	TRANSMISSION SYSTEM INFORMATION.....	1.1-3
1.1.6	CONSTRUCTION OVERVIEW.....	1.1-4
1.1.7	REFERENCES.....	1.1-4
1.2	STATUS OF REVIEWS, APPROVALS, AND CONSULTATIONS	1.2-1
1.2.1	AGENCIES AND AUTHORITIES INVOLVED	1.2-1
1.2.2	REFERENCES.....	1.2-2
1.3	METHODOLOGY.....	1.3-1

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

LIST OF TABLES

<u>Number</u>	<u>Title</u>
1.1-1	Duration of Construction and Startup of CPNPP Units 3 and 4
1.2-1	Federal, State, and Local Authorizations
1.3-1	ER Responses to Combined Operating License Regulatory Requirements
1.3-2	Additional Sections in the CPNPP Units 3 and 4 ER

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

LIST OF FIGURES

<u>Number</u>	<u>Title</u>
1.1-1	Regional Base Map
1.1-2	Vicinity Base Map
1.1-3	Site Base Map
1.1-4	Off-site Cooling Water Pipelines
1.1-5	Electrical Transmission Corridors

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
µgm/m ³	micrograms per cubic meter
/Q	relative air concentration
AADT	annual average daily traffic
A/B	auxiliary building
ac	acre
AC	alternating current
ac-ft	acre-feet
ACFT	acre-feet
ACRS	advisory committee on reactor safeguards
ACSR	aluminum-clad steel reinforced
ADFGR	Alaska Department of Fish and Game Restoration
AEA	Atomic Energy Act
AEC	U.S. Atomic Energy Commission
AHD	American Heritage Dictionary
agl	above ground level
ALA	American Lifelines Alliance
ALARA	as low as reasonably achievable
AMUD	Acton Municipal Utility District
ANL	Argonne National Laboratory
ANSI	American National Standards Institute
AOO	anticipated operational occurrences
APE	areas of potential effect
APWR	Advanced Pressurized Water Reactor

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

ARLIS	Alaska Resources Library and Information Services
ARRS	airborne radioactivity removal system
AS	ancillary services
ASCE	American Society of Civil Engineers
AVT	all volatile treatment
AWG	American wire gauge
BAT	best available technology
bbl	barrel
BC	Business Commercial
BDTF	Blowdown Treatment Facility
BEA	U.S. Bureau of Economic Analysis
BEG	U.S. Bureau of Economic Geology
bgs	below ground surface
BLS	U.S. Bureau of Labor Statistics
BMP	best management practice
BOD	Biologic Oxygen Demand
BOP	Federal Bureau of Prisons
BRA	Brazos River Authority
bre	below reference elevation
BRM	Brazos River Mile
BSII	Big Stone II
BTI	Breakthrough Technologies Institute
BTS	U.S. Bureau of Transportation Statistics
BTU	British thermal units
BUL	Balancing Up Load

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

BW	Business Week
BWR	boiling water reactor
CAA	Clean Air Act
CBA	cost-benefit analysis
CBD	Central Business District
CCI	Chambers County Incinerator
CCTV	closed-circuit television
CCW	component cooling water
CCWS	component cooling water system
CDC	Centers for Disease Control and Prevention
CDF	Core Damage Frequency
CDR	Capacity, Demand, and Reserves
CEC	California Energy Commission
CEDE	committed effective dose equivalent
CEED	Center for Energy and Economic Development
CEQ	Council on Environmental Quality
CESQG	conditionally exempt small quantity generator
CFC	chlorofluorocarbon
CFE	Comisin Federal de Electricidad
CFR	Code of Federal Regulations
cfs	cubic feet per second
CFS	chemical treatment system
CG	cloud-to-ground
CGT	Cogeneration Technologies
CHL	Central Hockey League

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

CO	carbon monoxide
CO ₂	carbon dioxide
COD	Chemical Oxygen Demand
COL	combined construction and operating license
COLA	combined construction and operating license application
CORMIX	Cornell Mixing Zone Expert System
CPI	Consumer Price Index
CPP	continuing planning process
CPS	condensate polishing system
CPNPP	Comanche Peak Nuclear Power Plant
CPSES	Comanche Peak Steam Electric Station
CRDM	control rod drive mechanism cooling system
CRP	Clean Rivers Program
CS	containment spray
Cs-134	cesium-134
Cs-137	cesium 137
CST	Central Standard Time
CST	condensate storage tank
CT	completion times
CT	cooling tower
cu ft	cubic feet
C/V	containment vessel
CVCS	chemical and volume control system
CVDT	containment vessel reactor coolant drain tank
CWA	Clean Water Act

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

CWS	circulating water system
DAW	dry active waste
dBA	decibels
DBA	design basis accident
DBH	diameter at breast height
DC	direct current
DCD	Design Control Document
DDT	dichlorodiphenyltrichloroethane
DF	decontamination factor
DFPS	Department of Family and Protective Services
DFW	Dallas/Fort Worth
DO	dissolved oxygen
DOE	U.S. Department of Energy
DOL	Department of Labor
DOT	U.S. Department of Transportation
DPS	Department of Public Safety
D/Q	deposition
DSHS	Department of State Health Services
DSM	Demand Side Management
DSN	discharge serial numbers
DSWD	Demand Side Working Group
DVSP	Dinosaur Valley State Park
DWS	demineralized water system
DWST	demineralized water storage tank
E	Federally Endangered

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

EA	Environmental Assessment
EAB	exclusion area boundary
E. coli	Escherichia coli
EDC	Economic Development Corp.
EDE	effective dose equivalent
EEl	Edison Electric Institute
EEER	Energy Efficiency and Renewable Energy
EFH	Energy Future Holdings Corporation
EFW	energy from waste
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EJ	environmental justice
ELCC	Effective Load-Carrying Capacity
EMFs	electromagnetic fields
EO	Executive Order
EOF	emergency operation facility
EPA	U.S. Environmental Protection Agency
EPRI	Electric Power Research Institute
EPZ	emergency planning zone
ER	Environmental Report
ERA	Environmental Resource Associates
ERCOT	Electric Reliability Council of Texas
ESA	Endangered Species Act
ESP	Early Site Permit
ESRP	Environmental Standard Review Plan

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

ESW	essential service cooling water
ESWS	essential service water system
F&N	Freese & Nicholas, Inc.
FAA	U.S. Federal Aviation Administration
FAC	flow-accelerated corrosion
FBC	fluidized bed combustion
FCT	Fuel Cell Today
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FFCA	Federal Facilities Compliance Act
FLMNH	Florida Museum of Natural History
FM	farm-to-market
FP	fire protection
FPL	Florida Power and Light
FPS	fire protection system
FPSC	Florida Public Service Commission
FR	Federal Register
FSAR	Final Safety Analysis Report
FSL	Forecast Systems Laboratory
ft	feet
FWAT	flow weighted average temperature
FWCOC	Fort Worth Chamber of Commerce
FWS	U.S. Fish and Wildlife Service
gal	gallon
GAM	General Area Monitoring

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

GAO	U.S. General Accountability Office
GDEM	Governor's Division of Emergency Management
GEA	Geothermal Energy Association
GEIS	Generic Environmental Impact Statement
GEOL	overall geological
GFD	ground flash density
GIS	gas-insulated switchgear
GIS	Geographic Information System
GMT	Greenwich Mean Time
gpd	gallons per day
gph	gallons per hour
gpm	gallons per minute
gps	gallons per second
GRCVB	Glen Rose, Texas Convention and Visitors Bureau
GST	gas surge tank
GTC	Gasification Technologies Conference
GTG	gas turbine generators
GWMS	gaseous waste management system
H-3	radioactive tritium
HC	Heavy Commercial
HCl	Hydrochloric Acid
HCP	Ham Creek Park
HEM	hexane extractable material
HEPA	high efficiency particulate air
HIC	high integrity container

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

HL	high-level
HNO ₃	Nitric Acid
hr	hour(s)
HRCQ	highway route-controlled quantity
H ₂ SO ₄	Sulfuric Acid
HT	holdup tank
HTC	Historic Texas Cemetery
HUC	hydrologic unit code
HUD	U.S. Department of Housing and Urban Development
HVAC	heating, ventilating, and air-conditioning
I	Industrial
I-131	iodine-131
IAEA	International Atomic Energy Agency
I&C	instrumentation and control
IEC	Iowa Energy Center
IGCC	Integrated Gasification Combined Cycle
IH	Interim Holding
in	inch
INEEL	Idaho National Engineering and Environmental Laboratory
IOUs	investor-owned electric utilities
IPE	individual plant examination
ISD	Independent School District
ISFSI	independent spent fuel storage installation
ISO	independent system operator
ISO rating	International Standards Organization rating

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

ISU	Idaho State University
JAMA	Journal of the American Medical Association
K-40	potassium-40
KC	Keystone Center
JRB	Joint Reserve Base
km	kilometer
kVA	kilovolt-ampere
kWh	kilowatt hour
L	LARGE
LaaR	Load Acting as a Resource
LANL	Los Alamos National Laboratory
lb	pounds
LC	Light Commercial
LG	Lake Granbury
LL	low-level
LLD	lower limits of detection
LLMW	low-level mixed waste
LNG	liquid natural gas
LOCA	loss of coolant accident
LPSD	low-power and shutdown
LPZ	low population zone
LQG	large-quantity hazardous waste generators
LRS	load research sampling
LTSA	long term system assessment
Luminant	Luminant Generation Company LLC

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

LVW	low volume waste
LWA	Limited Work Authorization
LWMS	liquid waste management system
LWPS	liquid waste processing system
LWR	light water reactor
M	MODERATE
ma	milliamperes
MACCS2	Melcor Accident Consequence Code System
MCES	Main Condenser Evacuation System
Mcf	thousand cubic feet
MCPE	Market Clearing Price for Energy
MCR	main control room
MD-1	Duplex
MDA	minimum detected activity
MDCT	mechanical draft cooling tower
MEIs	maximally exposed individuals
MF	Multi-Family
mG	milliGauss
mg/l	milligrams per liter
mg/m ³	milligrams per cubic meter
MH	Manufactured Housing
MHI	Mitsubishi Heavy Industries
mi	mile
mi ²	square miles
MIT	Massachusetts Institute of Technology

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

MMbbl	million barrels
MMBtu	million Btu
MNES	Mitsubishi Nuclear Energy Systems Inc.
MOU	municipally-owned utility
MOV	motor operated valve
MOX	mixed oxide fuel
mph	miles per hour
MSDS	Materials Safety Data Sheets
msl	mean sea level
MSR	maximum steaming rate
MSW	municipal solid waste
MT	Main Transformer
MTU	metric tons of uranium
MW	megawatts
MW	monitoring wells
MWd	megawatt-days
MWd/MTU	megawatt–days per metric ton uranium
MWe	megawatts electrical
MWh	megawatt hour
MWS	makeup water system
MWt	megawatts thermal
NAAQS	National Ambient Air Quality Standards
NAPA	Natural Areas Preserve Association
NAP	National Academies Press
NAR	National Association of Realtors

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

NARM	accelerator-produced radioactive material
NAS	Naval Air Station
NASS	National Agricultural Statistics Service
NCA	Noise Control Act
NCDC	National Climatic Data Center
NCDENR	North Carolina Department of Environmental and Natural Resources
NCES	National Center for Educational Statistics
NCI	National Cancer Institute
NCTCOG	North Central Texas Council of Governments
ND	no discharge
NDCT	natural draft cooling towers
NEI	Nuclear Energy Institute
NELAC	National Environmental Laboratory Accreditation Conference
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation/Council
NESC	National Electrical Safety Code
NESDIS	National Environmental Satellite, Data, and Information Service
NESW	non-essential service water cooling system
NESWS	non-essential service water system
NETL	National Energy Technology Laboratory
NHPA	National Historic Preservation Act
NHS	National Hurricane Center
NINI	National Institute of Nuclear Investigations
NIOSH	National Institute for Occupational Safety and Health

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

NIST	U.S. National Institute of Standards and Technology
NJCEP	NJ Clean Energy Program
NLDN	National Lightning Detection Network
NOAA	National Oceanic and Atmospheric Administration
NOAEC	no observable adverse effects concentration
NOI	Notice of Intent
NOIE	non-opt-in entities
NO _x	oxides of nitrogen
NP	Nacogdoches Power
NPDES	National Pollutant Discharge Elimination System
NPS	nonpoint source
NR	not required
NRC	U.S. Nuclear Regulatory Commission
NREL	U.S. National Renewable Energy Laboratory
NRHP	National Register of Historic Places
NRRI	National Regulatory Research Institute
NSPS	New Source Performance Standards
NSSS	nuclear steam supply system
NTAD	National Transportation Atlas Database
NVLAP	National Voluntary Laboratory Accreditation Program
NWI	National Wetlands Inventory
NWS	National Weather Service
NWSRS	National Wild and Scenic Rivers System
O ₂	Oxygen
O ₃	Ozone

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

ODCM	Off-site Dose Calculation Manual
OECD	Organization for Economic Co-operation and Development
O&M	operations and maintenance
ORNL	Oak Ridge National Laboratory
ORP	oxidation-reduction potential
OSHA	Occupational Safety and Health Act
OW	observation well
P&A	plugging and abandonment
PAM	primary amoebic meningoencephalitis
PD	Planned Development
PDL	Proposed for Delisting
PE	probability of exceedances
percent g	percent of gravity
PET	Potential Evapotranspiration
PFBC	pressurized fluidized bed combustion
PFD	Process Flow Diagram
PGA	peak ground acceleration
PGC	power generation company
PH	Patio Home
P&ID	pipng and instrumentation diagram
PM	particulate matter
PM ₁₀	particulate matter less than 10 microns diameter
PM _{2.5}	particulate matter less than 2.5 microns diameter
PMF	probable maximum flood
PMH	probable maximum hurricane

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

PMP	probable maximum precipitation
PMWP	probable maximum winter precipitation
PMWS	probable maximum windstorm
PPE	plant parameter envelope
ppm	parts per million
PPS	preferred power supply
PRA	probabilistic risk assessment
PSD	Prevention of Significant Deterioration (permit)
PSWS	potable and sanitary water system
PUC	Public Utility Commission
PUCT	Public Utility Commission of Texas
PURA	Public Utilities Regulatory Act
PWR	pressurized water reactors
QA	quality assurance
QC	quality control
QSE	qualified scheduling entities
R10	Single-Family Residential
R12	Single-Family Residential
R7	Single-Family Residential
R8.4	Single-Family Residential
RAT	Reserve Auxiliary Transformer
RB	reactor building
R/B	reactor building
RCDS	reactor coolant drain system
RCDT	reactor coolant drain tank

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

RCRA	Resource Conservation and Recovery Act
RCS	reactor coolant system
RDA	Radiosonde Database Access
REC	renewable energy credit
REIRS	Radiation Exposure Information and Reporting System
RELFRC	release fractions
rem	roentgen equivalent man
REMP	radiological environmental monitoring program
REP	retail electric providers
REPP	Renewable Energy Policy Project
RFI	Request for Information
RG	Regulatory Guide
RHR	residual heat removal
RIMS II	regional input-output modeling system
RMR	Reliability Must-Run
Rn ₂₂₂	Radon-222
RO	reverse osmosis
ROI	region of interest
ROW	right of way
RPG	regional planning group
RRY	reactor reference year
RTHL	Recorded Texas Historic Landmarks
RTO	regional transmission organization
Ru-103	ruthenium-103
RW	test well

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

RWSAT	refueling waste storage auxiliary tank
RWST	refueling water storage tank
RY	reactor-year
S	SMALL
SACTI	Seasonal/Annual Cooling Tower Impact Prediction Code
SAL	State Archaeological Landmark
SAMA	severe accident mitigation alternative
SAMDA	severe accident mitigation design alternative
SB	Senate Bill
SCR	Squaw Creek Reservoir
SCDC	Somervell County Development Commission
scf	standard cubic feet
SCWD	Somervell County Water District
SDS	sanitary drainage system
SECO	State Energy Conservation Office
SER	Safety Evaluation Report
SERC	SERC Reliability Corporation
SERI	System Energy Resources, Inc.
SFPC	spent fuel pool cooling and cleanup system
SG	steam generator
SGBD	steam generator blow-down
SGBDS	steam generator blow-down system
SGs	steam generators
SGTR	steam generator tube rupture
SH	State Highway

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SMP	State Marketing Profiles
SMU	Southern Methodist University
SOP	Standard Operations Permit
SO ₂	sulfur dioxide
SO _x	sulfur
SPCCP	Spill Prevention Control and Countermeasures Plan
SPP	Southwest Power Pool
SQG	small-quantity generators
sq mi	square miles
SRCC	Southern Regional Climate Center
SRP	Standard Review Plan
SRST	spent resin storage tank
SSAR	Site Safety Analysis Report
SSC	structures, systems, and components
SSI	Safe Shutdown Impoundment
SSURGO	Soil Survey Geographic
SWATS	Surface Water and Treatment System
SWMS	solid waste management system
SWPC	spent fuel pool cooling and cleanup system
SWP3	Storm Water Pollution Prevention Plan
SWS	service water system
SWWTS	sanitary wastewater treatment system
T	Federally Threatened

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

t	ton
TAC	technical advisory committee
TAC	Texas Administrative Code
TB	turbine building
Tc ₉₉	Technetium-99
TCEQ	Texas Commission on Environmental Quality
TCPS	Texas Center for Policy Studies
TCR	transmission congestion rights
TCS	turbine component cooling water system
TCWC	Texas Cooperative Wildlife Collection
T&D	transmission and distribution utility
TDCJ	Texas Department of Criminal Justice
TDOH	Texas Department of Health
TDOT	Texas Department of Transportation
TDPS	Texas Department of Public Safety
TDS	total dissolved solids
TDSHS	Texas Department of State Health Services
TDSP	transmission and distribution service provider
TDWR	Texas Department of Water Resources
TEDE	total effective dose equivalent
TGLO	Texas General Land Office
TGPC	Texas Groundwater Protection Committee
TH	Townhome
THC	Texas Historical Commission
THPOs	tribal historic preservation officers

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

TIS	Texas Interconnected System
TLD	Thermoluminescence Dosemeter
TMDLs	total maximum daily loads
TMM	Texas Memorial Museum
TOs	Transmission Owners
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
tpy	tons per year
TRAGIS	Transportation Routing Analysis Geographic Information System
TRB	Transportation Research Board
TRC	total recordable cases
TRE	Trinity Railway Express
TSC	technical support center
TSD	thunderstorm days per year
TSD	treatment, storage, and disposal
TSDC	Texas State Data Center
TSHA	Texas State Historical Association
TSP	transmission service provider
TSWQS	Texas Surface Water Quality Standards
TSS	total suspended sediment
TTS	The Transit System (Glen Rose)
TUGC	Texas Utilities Generating Company
TUSI	Texas Utilities Services Inc.
TWC	Texas Workforce Commission
TWDB	Texas Water Development Board

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

TWR	Texas Weather Records
TWRI	Texas Water Resources Institute
TxDOT	Texas Department of Transportation
TXU	Texas Utilities Corporation
TXU DevCo	TXU Generation Development Company LLC
UC	University of Chicago
UFC	uranium fuel cycle
UHS	Ultimate Heat Sink
UIC	Uranium Information Center
UO ₂	uranium dioxide
USACE	U.S. Army Corps of Engineers
US-APWR	(MHI) United States-advanced pressurized water reactor
USC	U.S. Census
USCA	United States Court of Appeals
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
USHCN	United States Historical Climatology Network
USHR	U.S. House of Representatives
USNPS	U.S. National Park Service
UTC	Universal Time Coordinated
UV	ultra-violet
VCIS	Ventilation Climate Information System

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

ACRONYMS AND ABBREVIATIONS

VCT	volume control tank
VERA	Virtus Energy Research Associates
VFD	Volunteer Fire Department
VOC	volatile organic compound
VRB	variable
WB	Weather Bureau
WBR	Wheeler Branch Reservoir
WDA	work development area
WDFW	Washington Department of Fish and Wildlife
weight percent	wt. percent
WHT	waste holdup tank
WMT	waste monitor tank
WNA	World Nuclear Association
WPP	Watershed Protection Plan
WQMP	Water Quality Management Plan
WRE	Water Resource Engineers, Inc.
WWS	wastewater system
WWTP	wastewater treatment plant
yr	year

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

The purpose of this project is to develop, construct and operate two units, each with a net electrical output of approximately 1600 MWe as merchant plants using the US-APWR technology to generate electricity specifically for sale in the ERCOT Wholesale Market. This project is the result of a detailed evaluation of the potential environmental conditions as discussed in Chapters 1-7 and the assessment of other alternatives to this project (Chapter 9 and 10) for meeting the 2017 to 2027 market requirements projected by ERCOT and discussed in Chapter 8.

The National Environmental Policy Act (NEPA) requires any federal agency taking a “major federal action” to prepare an Environmental Impact Statement (EIS) for the action. The proposed action is the U.S. Nuclear Regulatory Commission (NRC) issuance of a combined construction and operating license (COL) to Luminant Generation Company LLC (Luminant) for the Comanche Peak Nuclear Power Plant (CPNPP) Units 3 and 4, located in Somervell and Hood counties, Texas. This action includes the proposed construction and operation of CPNPP Units 3 and 4, with the associated support facilities, including new water pipelines connecting with Lake Granbury and new electrical distribution infrastructure in preparation for the future connection to the electric delivery system. This action includes activities related to removal of existing buildings and some buried material from the site, including repair and remediation activities. In accordance with the provisions of Title 10 of the Code of Federal Regulations (CFR) Part 52, Subpart C, “Combined Licenses”(10 CFR 52), the Applicant is submitting to the NRC an application for a combined construction and operating license (COLA) for CPNPP Units 3 and 4. The regulations in 10 CFR 50.30(f) and 10 CFR 52.79(a)(2) require a complete Environmental Report (ER) to support the NRC in preparing an EIS as required by 10 CFR 51.45. This ER is submitted to aid the NRC in fulfilling their obligations under NEPA.

The general format and content is based on the guidance presented in NUREG-1555, “Environmental Standard Review Plan,” dated October 1999, and draft section revisions issued in July 2007. This ER is organized into the following chapters:

- **Chapter 1** - Introduction
- **Chapter 2** - Environmental Description
- **Chapter 3** - Plant Description
- **Chapter 4** - Environmental Impacts of Construction
- **Chapter 5** - Environmental Impacts of Station Operation
- **Chapter 6** - Environmental Measures and Monitoring Programs
- **Chapter 7** - Environmental Impacts of Postulated Accidents Involving Radioactive Materials

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

- **Chapter 8** - Need for Power
- **Chapter 9** - Alternatives to the Proposed Action
- **Chapter 10** - Environmental Impact of Proposed Action

These chapters describe the proposed project (**Chapter 1**), describe the existing environment at the CPNPP site and in the vicinity (**Chapter 2**), describe the proposed two-unit Mitsubishi Heavy Industries (MHI) U.S. Advanced Pressurized Water Reactors (US-APWR) (**Chapter 3**), summarize potential environmental impacts of construction and operation of the proposed facility (**Chapter 4** and **Chapter 5**), and describe the methods of monitoring the effects of this action and consider appropriate mitigation measures and possible accident conditions involving radioactive materials (**Chapter 6** and **Chapter 7**). The ER includes discussions of the need for power and alternatives to the proposed action, including the no action alternatives, energy alternatives, alternative sites, and alternative plant and transmission system (**Chapter 8** and **Chapter 9**), unavoidable adverse impacts, commitment of resources, relationships with the environment, and an evaluation of the costs and benefits associated with construction and operation of the two proposed US-APWR units (**Chapter 10**).

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

1.1 THE PROPOSED PROJECT

The proposed project is the construction and operation of two nuclear-powered electrical generation units, Comanche Peak Nuclear Power Plant (CPNPP) Units 3 and 4. The proposed project is to be constructed within the site boundaries of the current CPNPP Units 1 and 2. The proposed project utilizes the U.S. Advanced Pressurized Water Reactor (US-APWR) design. The proposed project, in addition to constructing and operating the nuclear units, includes construction of all the necessary support facilities, cooling water intake and discharge structures, cooling towers and water pipelines, and the necessary transmission infrastructure to connect to the local power grid. Environmental justice is addressed in the body of this report and public involvement provides opportunity for all concerned citizens to discuss their interest and receive information about the project prior to a U.S. Nuclear Regulatory Commission (NRC) decision.

The Environmental Report (ER) supports the combined construction and operating license application (COLA). The data and analyses provided in this report provide valuable information to support the proposed project during the NRC detailed review and issuance of an Environmental Impact Statement (EIS). Facts, tables, and figures are supplied as needed to support the ER and can be found within the following sections of this report. Constraints on the proposed project are reduced by a thorough and detailed ER. A description of the existing environment on the CPNPP site, in the surrounding area, a detailed description of the proposed action to construct and operate the power plants, associated on-site support facilities, the cooling water pipelines, and the transmission system is provided. In addition, an assessment of the environmental impacts that occur as a result of the proposed project construction and operation activities is provided as well as an evaluation of impacts from postulated accidents involving radioactive materials. Environmental measurements and monitoring programs, issues such as the need for power from the proposed plant, alternatives to the proposed action, irreversible and irretrievable commitments of resources, the relationship between short-term uses and long-term productivity of the human environment, and a benefit-cost evaluation are addressed.

The CPNPP Units 3 and 4 site selection is the result of an in-depth review of alternative sites. Criteria such as seismic characteristics, land ownership, demographics, emergency planning, exclusion area, transmission access, and water availability are used in the site-selection analysis. The current CPNPP site meets the desired characteristics necessary to support the construction and operation of CPNPP Units 3 and 4. The ER summarizes the process that produced the selection of the current CPNPP site for the proposed project.

1.1.1 THE APPLICANT AND OWNER

The Applicant and Owner is Luminant Generation Company LLC (Luminant) (NRC 2007). Luminant is the owner and operator of CPNPP Units 1 and 2 and is responsible for the construction and operation of CPNPP Units 3 and 4. Luminant, working with the Electric Reliability Council of Texas (ERCOT) and the Public Utility Commission of Texas (PUC), identified a growing need for additional electrical generation capacity in the 2009 – 2016 timeframe (ERCOT 2007). The Applicant is submitting the COLA to preserve the option of nuclear generation to meet this need. The need for this new power is further discussed in Chapter 8.

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

1.1.2 SITE LOCATION

As described in [Section 2.1](#), the CPNPP site is a 7950-acre (ac) site located in rural portions of Hood and Somervell counties of north central Texas. [Figures 1.1-1, 1.1-2, and 1.1-3](#) provide a visual indication of the current region, vicinity, and site. The CPNPP Units 3 and 4 are located along the southern banks of Squaw Creek Reservoir (SCR). The site is 5.2 miles (mi) north of Glen Rose and 9.6 mi south of Granbury. Granbury is the largest city within a 10-mi radius of the site. The nearest population centers to the site are Glen Rose and Granbury. The four largest population centers (as defined by 10 Code of Federal Regulations [CFR] 100.3) in the region are Fort Worth, Haltom City, Burleson, and Cleburne.

[Section 2.1](#) lists the coordinates of the center of the new reactors as:

LATITUDE AND LONGITUDE NAD83 (degrees/minutes/seconds)		
	Latitude	Longitude
UNIT 3:	32° 18' 08.9" N	97° 47' 30.1" W
UNIT 4:	32° 18' 07.5" N	97° 47' 41.8" W

UNIVERSAL TRANSVERSE MERCATOR ZONE 14 NAD83 (Meters)		
	Northing	Easting
UNIT 3:	3574606	613759
UNIT 4:	3574559	613453

The center point of the CPNPP Units 3 and 4 site is located at 3574584N and 613606E.

The CPNPP site boundary ([Figure 1.1-3](#)) encompasses the operating nuclear CPNPP Units 1 and 2, the proposed location for CPNPP Units 3 and 4, the support structures and facilities, and the entire SCR. As noted in [Section 2.1](#), the aquatic environs are dominated by SCR, which has an approximate pool elevation of 775 feet (ft) above mean sea level (msl). The plant grade ([Subsection 2.3.1.2.6](#)) elevation for the new units is 822 ft above msl.

The proposed units, constructed within the CPNPP site boundary ([Figure 1.1-3](#)), utilize areas of previous construction activity (such as laydown yards and parking) along with previously undisturbed areas of land.

CPNPP Units 1 and 2 began commercial operations in 1990 and 1993, respectively. Construction activities for CPNPP Units 1 and 2 resulted in extensive alteration of the site involving vegetation clearing; establishment of on-site roads; establishment of a railroad spur to the site; extensive excavation and grading with heavy equipment; construction of SCR and the Safe Shutdown Impoundment (SSI); and building of on-site warehouses, shops, and support facilities. The CPNPP Units 3 and 4 construction proposed activities are similar in nature but effort is being made to utilize any existing facilities possible, thereby minimizing the impact on the environment. [Chapter 2](#) discusses the site in greater detail.

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

1.1.3 REACTOR INFORMATION

The project proposes two US-APWR reactor units. Each reactor has a designed reactor power of 4451 megawatts thermal (MWt) and a net electrical output of approximately 1600 megawatts electrical (MWe). The reactor plant design and description is discussed in greater detail in [Chapter 3](#).

1.1.4 COOLING SYSTEM INFORMATION

The SCR is located entirely within the property boundary of the site. This reservoir is a key component of the cooling systems at CPNPP Units 1 and 2. Makeup water from Lake Granbury is pumped to SCR to maintain the reservoir inventory and aid in temperature control for the operation of CPNPP Units 1 and 2. Water from the reservoir is used for removing waste heat by once through condenser units and there are no cooling towers used for CPNPP Units 1 and 2.

Waste heat for CPNPP Units 3 and 4 is dissipated by a secondary side cooling water system consisting of a closed loop system with mechanical draft (wet) cooling towers. Makeup water for the cooling towers is withdrawn from Lake Granbury and transported by pipelines to the cooling towers. Cooling tower blowdown is then transported by return pipelines back to Lake Granbury to ensure the water quality of SCR, allow the continued operation to ensure there is no adverse effect on CPNPP Units 1 and 2, and to minimize the impact on Lake Granbury water inventory and water quality. A Blowdown Treatment Facility (BDTF), including evaporation ponds and treatment facilities, will be constructed along the blowdown return pipeline on the site property.

The intake structures for the CPNPP Units 3 and 4 supply pipelines located on Lake Granbury are shoreline structures with fine mesh passive screen strainers. The cooling tower blowdown is returned to Lake Granbury and the discharge structures on the outlet of the return pipelines are multi-port diffusers. The pipeline corridors used for all the makeup and cooling water pipelines do not require an increase in the width of the corridors to accommodate all the pipelines. A new intake structure on Lake Granbury requires additional right-of-way for construction. The infrastructure, facilities, and other support facilities associated with the cooling system is shown in [Figures 1.1.4](#) and [2.1-1](#) and is described in more detail in [Chapter 3](#).

The enhanced design of the US-APWR does not require the building of another SSI. The SSI is the ultimate heat sink (UHS) needed to provide a safety-related emergency cooling water source for CPNPP Units 1 and 2. The enhanced design of the US-APWR provides UHS water stored within the safety-related design parameters of the plant. No additional water bodies are required to be created for the purpose of supplying emergency cooling water.

1.1.5 TRANSMISSION SYSTEM INFORMATION

There are two types of transmission lines, 345-kilovolt (kV) and 138-kV, that currently enter and exit the CPNPP site. To transfer the power generated by CPNPP Units 3 and 4 to the electrical distribution system, two new 345-kV transmission corridors and additional lines may be required. The primary choices and major additions to the system are outlined below ([Oncor 2008](#)):

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

- A new double-circuit 345 kV line (one circuit in place) to Whitney using 2-1590 kcmil aluminum-clad steel reinforced (ACSR) conductor with a rating of 1631 MVA (approximately 45 mi). New corridor may be required.
- A new 345 kV circuit to Johnson Switch on existing structures using 2-1590 kcmil ACSR conductor with a rating of 1631 MVA (22.4 mi).
- A new 345 kV circuit from Johnson Switch to Everman on existing structures using 2-1590 kcmil ACSR conductor with a rating of 1631 MVA (22.4 mi).
- A new double-circuit 345 kV circuit (one circuit in place) to DeCordova using 2-1926.9 kcmil ACSS/TW conductor at 100° C to obtain a rating of 1969 MVA (approximately 17 mi). New corridor may be required.
- A new 345 kV line to Parker Switch on existing structures using 2-1590 kcmil ACSR conductor with a rating of 1631 MVA (41.6 mi).

Figure 1.1-5 contains information on the CPNPP Units 3 and 4 transmission corridors. The transmission system design and description is discussed in greater detail in Section 3.7.

1.1.6 CONSTRUCTION OVERVIEW

The completion of the proposed project results in two nuclear units supplying needed baseload electricity for the regional power grid. The overall duration of site preparation, construction, fuel load, and startup of the two US-APWR units at the CPNPP site is presented in Table 1.1-1 (CPSES 2007). Environmental impacts related to the construction of CPNPP Units 3 and 4 are presented in Chapter 4.

1.1.7 REFERENCES

(CPSES 2007) Comanche Peak Steam Electric Station. Part of a Presentation to the NRC. "Integrated Licensing, Construction, and Fabrication Schedule" received from Don Woodlan. May 28, 2007.

(ERCOT 2007) Electric Reliability Council of Texas (ERCOT). Meeting Texas' Future Energy Demands. Sam Jones- President and CEO. February 13, 2007. (June 5, 2007).

(Oncor 2008) Oncor Electric Delivery Company LLC, Final Steady-State Analysis Report, Luminant Generation Company LLC GIR 15INR0002, January 14, 2008.

(NRC 2007) Nuclear Regulatory Commission. Official Correspondence. Comanche Peak Steam Electric Station, Units 1 and 2 - Order approving the indirect Transfer of Facility Operating Licenses, and conforming license amendments (TAC NOS. MD5289 and MD5290). September 10, 2007.

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

TABLE 1.1-1
DURATION OF CONSTRUCTION AND STARTUP OF CPNPP UNITS 3 AND 4

Activity	Duration
Unit 3	
Receipt of COL and Notice to Proceed for Project	
Site preparations	36 months
Site construction, from first concrete to fuel load	48 months
Fuel load to startup to Commercial operation	8 months
Unit 4	
Site preparations	18 months
Site construction, from first concrete to fuel load	46 months
Fuel load, startup to Commercial operation	8 months

Note: Licensing process and project schedule timeline changes have affects on various chapters in the COL application. However, these potential changes have been reviewed and the resulting impact would not change the overall assessment of potential impact

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

1.2 STATUS OF REVIEWS, APPROVALS, AND CONSULTATIONS

Construction and operation of the proposed project requires Luminant Generation Company LLC (Luminant) to comply with environmental regulations, obtain associated permits and agreements, and perform consultations with governmental agencies. A search conducted for applicable regulations, permits, and consultations required by federal, state, regional, and local authorities, along with affected American Indian tribal agencies, produced the results that are presented in [Table 1.2-1](#).

New permits for CPNPP Units 3 and 4 have not been applied for at this time; therefore, the column presented in [Table 1.2-1](#) entitled "License/Permit No." has been either left blank or given a need date; or the column contains information about CPNPP Units 1 and 2 that requires modification or renewal as part of the proposed project. Many permits require long lead times or expire prior to project completion. Therefore, some permits are not available at the time of submittal.

1.2.1 AGENCIES AND AUTHORITIES INVOLVED

Agencies and authorities listed in [Table 1.2-1](#) are presented below along with the abbreviations used in the table. These agencies include:

- American Indian Tribes (Tribes)
- Brazos River Authority (BRA)
- Federal Aviation Administration (FAA)
- U.S. Nuclear Regulatory Commission (NRC)
- State Historic Preservation Officer (SHPO) ([SHPO 2007](#))
- Texas Commission on Environmental Quality (TCEQ)
- Texas Department of Health (TDOH)
- Texas Department of Transportation (TDOT)
- Texas Parks and Wildlife Department (TPWD)
- Public Utility Commission of Texas (PUC)
- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (USFWS) ([FWS 2006](#))

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

- Hood County, Texas (various departments)
- Somervell County, Texas (various departments)

1.2.2 REFERENCES

(FWS 2006) Response letter from the U.S. Department of the Interior Fish and Wildlife Service to ENERCON recommending that potential impact to three species be considered during project planning. December 4, 2006.

(SHPO 2007) State Historic Preservation Officer reply to ENERCON letter initiating National Historic Preservation Act Section 106 consultation, February 21, 2007.

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

TABLE 1.2-1 (Sheet 1 of 7)
FEDERAL, STATE, AND LOCAL AUTHORIZATIONS

Agency	Authority	Requirements	License/Permit No.	Activity Comment
NRC	10 CFR 52	Applicant submits Construction and Operating License Application (COLA) to NRC		Applicant is required to submit an application to the NRC for a combined construction and operating license (COL).
NRC	10 CFR 52.79	Applicant submits an Environmental Report (ER)		Applicant is required to submit a complete ER, 10 CFR 52.80 (b), 72 FR 57447, Oct 9, 2007, 10 CFR 52.79, 10 CFR 51.45, 10 CFR 51.50.
USFWS TPWD		Consultation with Fish and Wildlife, Federal and State (FWS 2006)		Consultation concerning potential impacts to federally threatened and endangered species must be obtained and interference with any listed species must be resolved prior to disturbance.
FAA TDOT	14 CFR 77.13	Notice of construction for permanent structures		Permit for structures over 200 ft in height (containment buildings, permanent facilities, cooling towers, etc.). Thirty days prior to construction of the obstruction.
FAA TDOT	14 CFR 77.13	Notice of construction for temporary structures		Permit for structures over 200 ft in height (construction cranes, towers, etc.). Thirty days prior to construction of the obstruction.
TCEQ	30 TAC 335	Notice of Registration for solid waste management	Solid Waste Reg. # 33306	Transport, treatment, storage, and disposal of solid waste. Notice requires modification
EPA	Applies only to Units 1 and 2		EPA ID # TXD02332078	3 months prior to any new solid waste not previously described.

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

TABLE 1.2-1 (Sheet 2 of 7)
FEDERAL, STATE, AND LOCAL AUTHORIZATIONS

Agency	Authority	Requirements	License/Permit No.	Activity Comment
USACE TCEQ	Clean Water Act 404 Permit	Construction in a wetland or shoreline		Submit 24 months prior to dredging/filling activities in wetland if required. Depends on the 401 permit process.
EPA TCEQ	Clean Water Act Section 401	Construction in a wetland or shoreline		Submit 24 months prior to dredging/filling activities in wetland if required.
TCEQ	Storm Water Pollution Prevention Plan (SWP3) Texas Water Code Chapter 26	Construction activities	General Permit No. TXR 150000	Stormwater to surface water discharge associated with land disturbance and industrial activity during construction activities. Submit plan modification with Notice of Intent (NOI) for a disturbance of 5 acres or more.
TCEQ	Notice of Intent (NOI) Texas Water Code Chapter 26 (SWP3)	Pertains to General Permit relating to stormwater discharges from construction activities	General Permit No. TXR 150000	Submit NOI 3 months prior to disturbance of land.

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

TABLE 1.2-1 (Sheet 3 of 7)
FEDERAL, STATE, AND LOCAL AUTHORIZATIONS

Agency	Authority	Requirements	License/Permit No.	Activity Comment
TCEQ	Storm Water Pollution Prevention Plan (SWP3)	Storm Water Pollution Prevention Plan (SWP3) for Operations of facility	Part III of General Permit No. TXR 050000	Submit plan modification concurrent with submittal of Stormwater Operations NOI.
	Texas Water Code Chapter 26			
TCEQ	Notice of Intent (NOI)	Pertains to General Permit relating to stormwater discharges from operation activities	General Permit No. TXR 050000	Submit NOI 3 months prior to operations.
	Texas Water Code Chapter 26			
TCEQ	Texas Water Code Chapter 5 and 26 TPDES Industrial Wastewater Permit (Major Source Modification)	Modification or additions to wastewater facilities	TPDES # WQ0001854000	Certification and licensing of municipal and domestic wastewater facilities. Submit 18 months prior to new construction or modification. Must be renewed but may require modification.
	Clean Water Act Section 402			

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

TABLE 1.2-1 (Sheet 4 of 7)
 FEDERAL, STATE, AND LOCAL AUTHORIZATIONS

Agency	Authority	Requirements	License/Permit No.	Activity Comment
TCEQ	30 TAC 285	Submit on-site sewage treatment and design		Six months prior to construction.
PUC		Certificate of Convenience and Need Application		Certification that present and future public convenience and necessity require or will require the operation of such equipment or facility and that it will be constructed and operated in compatibility with the environment.
SHPO TRIBES	13 TAC 26 Archeological sites	Permission required prior to clearing of any lands (SHPO 2007)		Identification and evaluation of historic properties and any cultural sites of significance to Native American tribes (site, transmission corridors, pipeline corridors).
SHPO	Section 106 National Historic Preservation Act 36CFR800	Permission required prior to clearing of any lands (SHPO 2007)		Review and analysis of cultural and historical resources, including completion of NHPA Section 106 consultation. SHPO concurrence supports no new study needed at CPNPP site.
BRA		Use of surface water approved by local water authority		New surface water rights secured from Lake Granbury for transfer to CPNPP site and return to Lake Granbury.
TPWD	31TAC69	Scientific Collection Permit	Each Vendor maintains a permit for collection	Sampling contractors need to have permit in hand for species collection.

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

TABLE 1.2-1 (Sheet 5 of 7)
FEDERAL, STATE, AND LOCAL AUTHORIZATIONS

Agency	Authority	Requirements	License/Permit No.	Activity Comment
TCEQ	30TAC335	Landfill #6 Closure Plan		Plan to close landfill is needed 3 months prior to its being disturbed.
TCEQ	30TAC335	Landfill #6 Closure Certification Report		Report upon completion of excavation as to the results versus the plan.
TCEQ	30TAC116	Concrete batch plant air permit		Concrete batch plant air permit required 6 months prior to construction for operation of an on-site concrete plant.
TCEQ	30TAC122	Title V Operating Permit for diesel units	TCEQ Air Permit No. 19225 (not Title V permit)	Diesel engines air permit for discharge to environment. Emergency diesels, fire pump diesels, auxiliary boilers, gas turbines, etc.
TCEQ	7TAC111	Air permit for burning debris in pit	[Requires modification]	Twelve months prior to initial firing of diesels.
EPA	40 CFR 110/112	Spill Prevention Control and Countermeasures Plan (SPCCP)		After burn pit is constructed, the permit is required 3 months prior to any burn activities.
EPA	40 CFR 110/112	Spill Prevention Control and Countermeasures Plan (SPCCP) – Revision		Revise existing plan 6 months prior to construction if changes are indicated.
EPA	40 CFR 110/112	Spill Prevention Control and Countermeasures Plan (SPCCP) – Revision		A revision to the plan may be required if contractors store more than 1320 gallons of petroleum products.

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

TABLE 1.2-1 (Sheet 6 of 7)
 FEDERAL, STATE, AND LOCAL AUTHORIZATIONS

Agency	Authority	Requirements	License/Permit No.	Activity Comment
TDOT County Agencies - Hood and Somervell		Road construction, road crossings, interruption of traffic flow		Affected areas involving old or new roads – changes or interruption of traffic.
TCEQ	30 TAC 106	Rock crusher operations		For rock debris going to be crushed, obtain a permit 6 months prior to operation.
NRC		Appendix B - Facilities Operating License Environmental Protection Plan, non-radiological		Changes required in the Environmental Protection Plan, non-radiological, to be modified pending final design reviews, approvals, and prior to operation of the facility.
TCEQ	30 TAC 321.255 30 TAC 210.23 30 TAC 309	Evaporation pond liner and size requirements		Certify evaporation pond meets requirements prior to use.
TCEQ		Hazardous materials storage (SARA Title III)		
TCEQ		Toxic chemical release inventory reporting form		
PUC of Texas	Disposal Facility	Radwaste disposal registration		
		PUC approval of decommissioning plan		

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

TABLE 1.2-1 (Sheet 7 of 7)
FEDERAL, STATE, AND LOCAL AUTHORIZATIONS

Agency	Authority	Requirements	License/Permit No.	Activity Comment
TCEQ	30 TAC 116	State construction air permit		

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

1.3 METHODOLOGY

For the combined construction and operating license applications (COLAs) that do not refer to an early site permit (ESP), U.S. Nuclear Regulatory Commission (NRC) regulations at 10 Code of Federal Regulations (CFR) 52.80, Contents of applications; additional technical information, subparagraph (b), states the application must contain an environmental report (ER), in accordance with 10 CFR 51.50(c), if a Limited Work Authorization (LWA) is not requested in conjunction with the COLA. A request for an LWA is not being submitted in conjunction with this COLA. Regulatory Guide (RG) 4.2, Preparation of Environmental Reports for Nuclear Power Stations, provides guidance to applicants preparing ERs for nuclear power stations. NUREG-1555, Environmental Standard Review Plan, provides guidance for the NRC's environmental reviews of applications related to nuclear power plants. As discussed in RG 1.206, Combined License Applications for Nuclear Power Plants (LWR Edition), Section C.II.2, Environmental Report, NUREG-1555 has been updated to recognize the alternative licensing structure under 10 CFR 52. Because RG 4.2 is an earlier NRC document and NUREG-1555 reflects the Part 52 regulatory structure, Luminant Generation Company LLC (Luminant) chose to rely on NUREG-1555 for guidance in establishing the format and content of the Comanche Peak Nuclear Power Plant (CPNPP) Units 3 and 4 ER.

Luminant is providing additional information beyond what is called for by NUREG-1555, as deemed appropriate, when applying lessons learned from ESP and other COLA application reviews. In [Table 1.3-1](#), verification of conformance with the regulatory information requirements of 10 CFR 51.45 and 10 CFR 51.50 is provided, including an identification of each requirement and indication of where in the ER Luminant has responded to the requirement. [Table 1.3-2](#) provides a summary of additional sections added beyond the provisions of NUREG-1555 and the basic content of each section.

Luminant reviewed the conclusions provided in NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, for input in assessing the impacts of the new Mitsubishi Heavy Industries (MHI) U.S. Advanced Pressurized Water Reactors (US-APWR) units on the CPNPP site. Based on this review, Luminant concluded that if characteristics of the proposed US-APWR reactors are similar to those of the existing pressurized water reactor fleet, the NUREG-1437 environmental issues, significance determination criteria, and significance conclusions could provide insights in the combined construction and operating license (COL) environmental review. The applicable sections identify where NUREG-1437 has been used in assessing environmental impacts for CPNPP Units 3 and 4. Where appropriate, these sections supplement the information provided in NUREG-1437 to account for more recent studies and site-specific information.

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

TABLE 1.3-1 (Sheet 1 of 3)
ER RESPONSES TO COMBINED OPERATING LICENSE REGULATORY
REQUIREMENTS

Regulatory Requirement (10 CFR)	ER Section Containing the Response
51.45 (a), Signed original	Transmittal letter
51.45 (b), Description of proposed action	Section 1.1 The Proposed Project, Chapter 3 Plant Description
51.45 (b), Statement of purpose of proposed action	Section 1.1 The Proposed Project
51.45 (b), Description of environment affected by proposed action	Chapter 2 Environmental Description
51.45 (b)(1), Environmental impact of proposed action	Chapter 4 Environmental Impacts of Construction, Chapter 5 Environmental Impacts of Station Operation, Chapter 7 Environmental Impacts of Postulated Accidents Involving Radioactive Materials, and Chapter 10 Environmental Consequences of the Proposed Action
51.45 (b)(2), Unavoidable adverse impacts	Section 10.1 Unavoidable Adverse Environmental Impacts
51.45 (b)(3), Alternatives to proposed action	Chapter 9 Alternatives to the Proposed Action
51.45 (b)(4), Relationship between short-term use and long-term productivity	Section 10.3 Relationship Between Short-Term Uses and Long-Term Productivity of the Human Environment
51.45 (b)(5), Irreversible and irretrievable commitments of resources	Section 10.2 Irreversible and Irretrievable Commitments of Resources

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

TABLE 1.3-1 (Sheet 2 of 3)
ER RESPONSES TO COMBINED OPERATING LICENSE REGULATORY
REQUIREMENTS

Regulatory Requirement (10 CFR)	ER Section Containing the Response
51.45 (c), Comparison of environmental effects of proposed action and alternatives	Chapter 4 Environmental Impacts of Construction, Chapter 5 Environmental Impacts of Station Operation, Chapter 7 Environmental Impacts of Postulated Accidents Involving Radioactive Materials, Chapter 9 Alternatives to the Proposed Action, and Chapter 10 Environmental Consequences of the Proposed Action
51.45 (c), Alternatives for reducing or avoiding adverse environmental impacts	Section 4.6 Measures and Controls to Limit Adverse Impacts During Construction and Section 5.10 Measures and Controls to Limit Adverse Impacts During Operation
51.45 (c), Economic, technical, and other benefits and costs of proposed action and alternatives	Section 10.4 Benefit-Cost Balance
51.45 (d), Federal permits and other entitlements and status of compliance	Section 1.2 Status of Reviews, Approvals, and Consultations
51.45 (d), Compliance with Federal and other environmental quality standards and requirements	Section 1.2 Status of Reviews, Approvals, and Consultations
51.45 (d), Compliance for alternatives	Section 9.2 Energy Alternatives and Section 9.3 Alternative Sites
51.45 (e), Adverse information	Section 10.1 Unavoidable Adverse Environmental Impacts
51.50 and 51.51(a), Uranium fuel cycle	Section 5.7 Uranium Fuel Cycle Impacts
51.50 and 51.52, Fuel and waste transportation	Section 3.8 Transportation of Radioactive Materials, Section 5.12 Impacts of Transportation of Radioactive Materials, and Section 7.4 Transportation Accidents

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

TABLE 1.3-1 (Sheet 3 of 3)
ER RESPONSES TO COMBINED OPERATING LICENSE REGULATORY
REQUIREMENTS

Regulatory Requirement (10 CFR)	ER Section Containing the Response
51.50, Reporting and record keeping procedures	Chapter 6 Environmental Measures and Monitoring Programs
51.50, Conditions and monitoring	Chapter 6 Environmental Measures and Monitoring Programs

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

TABLE 1.3-2
ADDITIONAL SECTIONS IN THE CPNPP UNITS 3 AND 4 ER

Section / Title	Description
1.3 - Methodology	CPNPP ER responsiveness to 10 CFR 51 Subparts 45, 50, 51 (a), and 52 and an explanation of additional sections
2.9 - Existing Plant Parameters and Site Characteristics	CPNPP Units 1 and 2 site and plant parameters relevant to cumulative impacts of CPNPP Units 1 – 4
3.9 - Construction Activities	Constructing activities conceptual discussion
3.10 - Workforce Characterization	CPNPP Units 3 and 4 construction and operation workforce characterization
4.7 - Cumulative Impacts Related to Construction Activities	Cumulative impacts of CPNPP Units 3 and 4 construction activities
4.8 - Nonradiological Health Impacts During Construction	Non-radiological health impacts of CPNPP Units 3 and 4 construction
5.11 - Cumulative Impacts Related to Station Operations	Cumulative impacts of operating CPNPP Units 3 and 4
5.12 - Impacts of Transportation Of Radioactive Materials	Transportation modes and radioactivity impacts
5.13 - Nonradiological Health Impacts During Operations	Non-radiological health impacts of CPNPP Units 3 and 4 operation
10.5 - Cumulative Impacts	Cumulative impacts of CPNPP Units 1 – 4