



---

Florida Power & Light Company  
Turkey Point Units 6 & 7  
COL Application

**COLA Table of Contents**

Part 1 — General and Financial Information

Part 2 — Final Safety Analysis Report (FSAR)

Part 3 — Environmental Report (ER)

Part 4 — Technical Specifications

Part 5 — Emergency Plan

Part 6 — Limited Work Authorization and Site Redress Plan

Part 7 — Departures and Exemption Requests

Part 9 — Withheld Information

Part 10 — Proposed License Conditions (Including ITAAC)

Part 11 — Enclosures

---

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS**

<b>Chapter 1</b>	<b>Introduction</b>	<b>1.1-1</b>
1.1	The Proposed Project	1.1-1
1.1.1	Purpose and Need	1.1-2
1.1.2	Project Description	1.1-2
1.1.2.1	The Applicant and Owners	1.1-2
1.1.2.2	Site Location	1.1-2
1.1.2.3	Reactor Information	1.1-2
1.1.2.4	Cooling System Information	1.1-3
1.1.2.5	Transmission System Information	1.1-3
1.1.2.6	Public Involvement	1.1-3
1.1.2.7	Schedule for Major Activities	1.1-4
1.2	Status of Reviews, Approvals, and Consultations	1.2-1
<b>Chaper 2</b>	<b>Environmental Description</b>	<b>2.1-1</b>
2.1	Station Location	2.1-1
2.2	Land	2.2-1
2.2.1	The Site and Vicinity	2.2-1
2.2.1.1	The Site	2.2-1
2.2.1.2	The Vicinity	2.2-10
2.2.2	Transmission Corridors and Offsite Areas	2.2-13
2.2.2.1	Existing Circuits	2.2-13
2.2.2.2	Proposed Circuits	2.2-14
2.2.2.3	Makeup and Potable Water Systems	2.2-18
2.2.2.4	Fill Material	2.2-19
2.2.2.5	Emergency Operations Facility	2.2-20
2.2.2.6	Roads and Highways	2.2-20
2.2.3	The Region	2.2-21
2.2.3.1	Broward County	2.2-22
2.2.3.2	Collier County	2.2-23
2.2.3.3	Miami-Dade County	2.2-24
2.2.3.4	Monroe County	2.2-25
2.3	Water	2.3-1
2.3.1	Hydrology	2.3-1
2.3.1.1	Surface Water Resources	2.3-1
2.3.1.2	Groundwater	2.3-12
2.3.2	Water Use	2.3-35
2.3.2.1	Surface Water Use	2.3-35
2.3.2.2	Groundwater Use	2.3-42
2.3.3	Water Quality	2.3-48
2.3.3.1	Surface Water	2.3-48
2.3.3.2	Groundwater	2.3-52
2.4	Ecology	2.4-1
2.4.1	Terrestrial Ecology	2.4-7
2.4.1.1	Terrestrial Wildlife	2.4-7
2.4.1.2	Threatened and Endangered Species	2.4-8
2.4.1.3	Other Important Species and Habitats	2.4-12

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

2.4.2	Aquatic Ecology .....	2.4-14
2.4.2.1	Aquatic Communities .....	2.4-14
2.4.2.2	Important Species of Biscayne Bay and Card Sound .....	2.4-22
2.4.2.3	Other Important Species .....	2.4-22
2.4.2.4	Habitat Importance .....	2.4-25
2.4.2.5	Preexisting Environmental Stresses .....	2.4-31
2.4.2.6	Reclaimed Water Pipelines Aquatic Resources .....	2.4-31
2.4.2.7	Radial Collector Wells and Pipelines Aquatic Resources .....	2.4-32
2.4.2.8	Aquatic Resources Along Transmission Corridors .....	2.4-32
2.5	Socioeconomics .....	2.5-1
2.5.1	Demography .....	2.5-3
2.5.1.1	Population Data by Sector .....	2.5-3
2.5.1.2	Population Data by Political Jurisdiction .....	2.5-4
2.5.1.3	Transient Populations .....	2.5-6
2.5.2	Community Characteristics .....	2.5-7
2.5.2.1	Economy .....	2.5-8
2.5.2.2	Transportation .....	2.5-11
2.5.2.3	Taxes .....	2.5-14
2.5.2.4	Land Use .....	2.5-22
2.5.2.5	Aesthetics and Recreation .....	2.5-25
2.5.2.6	Housing .....	2.5-30
2.5.2.7	Public Services and Community Infrastructure .....	2.5-33
2.5.2.8	Education .....	2.5-38
2.5.3	Historic Properties .....	2.5-40
2.5.3.1	Applicable Federal, State, and Local Historic Preservation Regulations .....	2.5-40
2.5.3.2	Consultation with the Florida Division of Historical Resources .....	2.5-41
2.5.3.3	Cultural Resource Work Plans and Investigations .....	2.5-41
2.5.3.4	Native American Consultation .....	2.5-43
2.5.3.5	Significant Cultural Resources within 10 Miles .....	2.5-43
2.5.3.6	Significant Cultural Resources within 1.2 Miles of Offsite Areas .....	2.5-44
2.5.4	Environmental Justice .....	2.5-45
2.5.4.1	Methodology .....	2.5-45
2.5.4.2	Minority Populations .....	2.5-46
2.5.4.3	Low-Income Populations .....	2.5-49
2.5.4.4	Potential for Disproportionate Impacts .....	2.5-49
2.6	Geology .....	2.6-1
2.6.1	Geological Conditions .....	2.6-1
2.6.1.1	Physiography .....	2.6-1
2.6.1.2	Stratigraphy .....	2.6-1
2.6.1.3	Structural Geology .....	2.6-2
2.7	Meteorology, Air Quality, and Noise .....	2.7-1
2.7.1	Regional Climatology .....	2.7-1
2.7.1.1	Data Sources .....	2.7-1
2.7.1.2	General Climate Description .....	2.7-2
2.7.1.3	Normal, Mean, and Extreme Climatological Conditions .....	2.7-4

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

2.7.2	Air Quality .....	2.7-8
2.7.2.1	Regional Air Quality Conditions .....	2.7-9
2.7.2.2	Projected Air Quality Conditions .....	2.7-9
2.7.2.3	Restrictive Dispersion Conditions .....	2.7-10
2.7.3	Severe Weather .....	2.7-12
2.7.3.1	Thunderstorms and Lightning .....	2.7-12
2.7.3.2	Extreme Winds .....	2.7-13
2.7.3.3	Tornadoes .....	2.7-14
2.7.3.4	Hailstorms, Snowstorms, and Ice Storms .....	2.7-16
2.7.3.5	Tropical Cyclones .....	2.7-17
2.7.4	Local Meteorology and Topography .....	2.7-20
2.7.4.1	Normal, Mean, and Extreme Values .....	2.7-21
2.7.4.2	Fog .....	2.7-23
2.7.4.3	Average Wind Direction and Wind Speed Conditions .....	2.7-24
2.7.4.4	Wind Direction Persistence .....	2.7-26
2.7.4.5	Atmospheric Stability .....	2.7-26
2.7.4.6	Topographic Description .....	2.7-28
2.7.5	Short-Term Diffusion Estimates .....	2.7-29
2.7.5.1	Regulatory Basis and Technical Approach .....	2.7-29
2.7.5.2	PAVAN Modeling Results .....	2.7-31
2.7.6	Long-Term (Routine) Diffusion Estimates .....	2.7-32
2.7.6.1	Regulatory Basis and Technical Approach .....	2.7-32
2.7.6.2	XOQDOQ Modeling Results .....	2.7-33
2.7.7	Noise .....	2.7-34
2.8	Related Federal Project Activities .....	2.8-1
2.8.1	Land Acquisition and Use .....	2.8-1
2.8.2	Cooling Water Source and Supply .....	2.8-2
2.8.3	Projects Affecting Construction or Operation .....	2.8-2
2.8.4	Plans or Commitments Resulting in Significant Power Purchases .....	2.8-3
2.8.5	Other Federal Activities .....	2.8-3
<b>Chapter 3</b>	<b>Plant Description .....</b>	<b>3.1-1</b>
3.1	External Appearance and Plant Layout .....	3.1-1
3.1.1	Existing Site .....	3.1-1
3.1.2	Proposed Site .....	3.1-1
3.2	Reactor Power Conversion System .....	3.2-1
3.2.1	Engineered Safety Features .....	3.2-2
3.2.1.1	Containment .....	3.2-2
3.2.1.2	Containment Isolation System .....	3.2-3
3.2.1.3	Passive Core Cooling System .....	3.2-3
3.2.1.4	Main Control Room Emergency Habitability System .....	3.2-3
3.2.1.5	Fission Product Control .....	3.2-3
3.2.2	Turbine Generator .....	3.2-3
3.3	Plant Water Use .....	3.3-1
3.3.1	Water Consumption .....	3.3-1

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

3.3.1.1	Plant Water Demand .....	3.3-2
3.3.1.2	Plant Water Discharges .....	3.3-2
3.3.2	Water Treatment .....	3.3-3
3.3.2.1	Cooling Tower Makeup .....	3.3-3
3.3.2.2	Demineralized Water .....	3.3-3
3.3.2.3	Potable Water System .....	3.3-4
3.3.2.4	Fire Protection Water System .....	3.3-4
3.4	Cooling System .....	3.4-1
3.4.1	Description and Operational Modes .....	3.4-1
3.4.1.1	Normal Plant Cooling .....	3.4-1
3.4.1.2	Operational Modes .....	3.4-4
3.4.1.3	Additional information .....	3.4-4
3.4.2	Component Descriptions .....	3.4-5
3.4.2.1	Raw Water System .....	3.4-5
3.4.2.2	Final Plant Discharge .....	3.4-6
3.4.2.3	Heat Dissipation System .....	3.4-7
3.5	Radioactive Waste Management System .....	3.5-1
3.5.1	Liquid Radioactive Waste Management System .....	3.5-1
3.5.1.1	Waste Input Streams .....	3.5-2
3.5.1.2	Radioactive Releases .....	3.5-5
3.5.1.3	Doses .....	3.5-6
3.5.1.4	Cost Benefit Analysis of Population Doses .....	3.5-6
3.5.2	Gaseous Radioactive Waste Management System .....	3.5-6
3.5.2.1	System Description .....	3.5-7
3.5.2.2	Radioactive Releases .....	3.5-10
3.5.2.3	Doses .....	3.5-11
3.5.2.4	Cost Benefit Analysis of Population Doses .....	3.5-11
3.5.3	Solid Radioactive Waste Management System .....	3.5-11
3.5.3.1	System Description .....	3.5-12
3.6	Nonradioactive Waste Systems .....	3.6-1
3.6.1	Effluents Containing Chemicals or Biocides .....	3.6-1
3.6.2	Sanitary System Effluents .....	3.6-2
3.6.3	Other Effluents .....	3.6-3
3.6.3.1	Gaseous Effluents .....	3.6-3
3.6.3.2	Liquid Effluents .....	3.6-3
3.6.3.3	Solid Effluents .....	3.6-4
3.7	Power Transmission System .....	3.7-1
3.7.1	Switchyard Interfaces .....	3.7-1
3.7.2	Transmission System .....	3.7-2
3.7.2.1	Design Parameters .....	3.7-2
3.7.3	Transmission Line Corridors .....	3.7-3
3.7.3.1	Transmission Line Corridor Ecological and Cultural Surveys .....	3.7-3
3.7.3.2	Transmission Corridor Maintenance .....	3.7-4
3.7.3.3	Transmission System Operation .....	3.7-4
3.7.3.4	Noise .....	3.7-5

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

3.7.3.5	General Methods of Construction .....	3.7-5
3.8	Transportation of Radioactive Materials .....	3.8-1
3.8.1	Transportation of Unirradiated Fuel .....	3.8-1
3.8.2	Transportation of Irradiated Fuel .....	3.8-1
3.8.3	Transportation of Radioactive Waste .....	3.8-2
3.9	Preconstruction and Construction Activities .....	3.9-1
3.9.1	Preconstruction Activities .....	3.9-3
3.9.1.1	Clearing, Grubbing, and Spoils Area Establishment .....	3.9-4
3.9.1.2	Access Road, Heavy Haul Road, and Equipment Barge Unloading Area Improvement .....	3.9-4
3.9.1.3	Construction Security .....	3.9-5
3.9.1.4	Construction Utilities .....	3.9-6
3.9.1.5	Construction Facilities and Preparation Activities .....	3.9-6
3.9.1.6	Earthwork — Units 6 & 7 Plant Area .....	3.9-7
3.9.1.7	Earthwork — Units 6 & 7 Power Block .....	3.9-8
3.9.1.8	Makeup Water Reservoir, Cooling Towers, and Makeup Water Supply Pipelines .....	3.9-9
3.9.1.9	Reclaimed Water Pipelines and Potable Water Pipelines .....	3.9-11
3.9.1.10	Radial Collector Wells .....	3.9-11
3.9.1.11	Deep Injection Wells .....	3.9-12
3.9.1.12	Module Assembly .....	3.9-12
3.9.2	Limited Work Authorization Activities .....	3.9-12
3.9.3	COL Construction Activities .....	3.9-13
3.9.3.1	Structural Construction .....	3.9-13
3.9.4	Other Facilities and Site Completion .....	3.9-15
3.10	Workforce Characterization .....	3.10-1
3.10.1	Construction Workforce Characterization .....	3.10-1
3.10.1.1	Preconstruction Activities Workforce .....	3.10-2
3.10.1.2	LWA Activities Workforce .....	3.10-2
3.10.1.3	Units 6 & 7 Construction Activities .....	3.10-2
3.10.2	Construction Worker Relocation and Commuting .....	3.10-3
3.10.3	Operations Work Force .....	3.10-3
<b>Chapter 4</b>	<b>Environmental Impacts of Construction .....</b>	<b>4.0-1</b>
4.0	Environmental impacts of construction .....	4.0-1
4.1	Land Use Impacts .....	4.1-1
4.1.1	The Site and Vicinity .....	4.1-1
4.1.1.1	The Site .....	4.1-1
4.1.1.2	The Vicinity .....	4.1-4
4.1.2	Transmission Corridors and Offsite Facilities and Areas .....	4.1-4
4.1.2.1	Proposed Transmission Corridors .....	4.1-4
4.1.2.2	Offsite Substations .....	4.1-7
4.1.2.3	FPL-Owned Fill Source .....	4.1-8
4.1.2.4	Makeup and Potable Water Systems .....	4.1-8
4.1.2.5	Access Roadways .....	4.1-9

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

4.1.3	Historic Properties .....	4.1-11
4.1.3.1	Onsite Facilities and Construction Areas .....	4.1-11
4.1.3.2	Offsite Transmission Line Corridors .....	4.1-11
4.1.3.3	Other Offsite Areas .....	4.1-12
4.1.3.4	Discovery Provisions .....	4.1-12
4.2	Water-Related Impacts .....	4.2-1
4.2.1	Hydrologic Alterations .....	4.2-1
4.2.1.1	Onsite Facilities .....	4.2-2
4.2.1.2	Offsite Facilities .....	4.2-14
4.2.2	Water Use Impacts .....	4.2-21
4.2.2.1	Surface Water .....	4.2-21
4.2.2.2	Groundwater .....	4.2-22
4.2.3	Water-Quality Impacts .....	4.2-24
4.2.3.1	Surface Water .....	4.2-24
4.2.3.2	Groundwater .....	4.2-25
4.3	Ecological IMpacts .....	4.3-1
4.3.1	Terrestrial Ecosystems .....	4.3-3
4.3.1.1	Potential Impacts to the Units 6 & 7 Plant Area and Other Plant Property Areas .....	4.3-3
4.3.1.2	Potential Impacts of Makeup Water Systems .....	4.3-10
4.3.1.3	Potential Impacts to Offsite Areas .....	4.3-12
4.3.1.4	Summary .....	4.3-14
4.3.2	Aquatic Ecosystems - Construction IMpacts .....	4.3-15
4.3.2.1	General Impacts to Aquatic Resources .....	4.3-15
4.3.2.2	Potential Impacts to the Units 6 & 7 Plant Area and Other Onsite Aquatic Resources .....	4.3-17
4.3.2.3	Potential Impacts to Offsite Aquatic Resources .....	4.3-21
4.3.2.4	Summary .....	4.3-26
4.4	Socioeconomic Impacts .....	4.4-1
4.4.1	Physical Impacts of Construction .....	4.4-1
4.4.1.1	Noise .....	4.4-1
4.4.1.2	Air .....	4.4-3
4.4.1.3	Aesthetics .....	4.4-5
4.4.1.4	Traffic .....	4.4-7
4.4.1.5	Conclusion .....	4.4-7
4.4.2	Social and Economic IMpacts .....	4.4-8
4.4.2.1	Demography .....	4.4-9
4.4.2.2	Impacts to the Community .....	4.4-12
4.4.3	Environmental Justice .....	4.4-50
4.4.3.1	Health and Environmental Impacts .....	4.4-51
4.4.3.2	Socioeconomic Impacts .....	4.4-52
4.5	Radiation Exposure to Construction Workers .....	4.5-1
4.5.1	Site Layout .....	4.5-1
4.5.2	Radiation Sources .....	4.5-1
4.5.3	Construction Worker Doses .....	4.5-2

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

4.5.3.1	Gaseous Effluent Doses .....	4.5-2
4.5.3.2	Direct Radiation Doses .....	4.5-3
4.5.3.3	Total Doses .....	4.5-3
4.6	Measures and Controls to Limit Adverse Impacts During Construction .....	4.6-1
4.7	Cumulative Impacts Related to Construction Activities .....	4.7-1
4.7.1	Land Use .....	4.7-4
4.7.2	Hydrology and Water Use .....	4.7-5
4.7.2.1	Surface Water .....	4.7-5
4.7.2.2	Groundwater .....	4.7-6
4.7.2.3	Water Use .....	4.7-6
4.7.2.4	Water Quality .....	4.7-6
4.7.3	Ecology (Terrestrial and Aquatic) .....	4.7-7
4.7.3.1	Terrestrial .....	4.7-7
4.7.3.2	Aquatic .....	4.7-8
4.7.4	Socioeconomic Resources .....	4.7-9
4.7.5	Summary .....	4.7-12
4.8	NonRadiological Health Impacts .....	4.8-1
4.8.1	Public Health .....	4.8-1
4.8.2	Occupational Health .....	4.8-1
<b>Chapter 5</b>	<b>Environmental Impacts of Operation .....</b>	<b>5.0-1</b>
5.0	Environmental Impacts of Operation .....	5.0-1
5.1	Land Use Impacts .....	5.1-1
5.1.1	The Site and Vicinity .....	5.1-1
5.1.1.1	The Site .....	5.1-1
5.1.1.2	The Vicinity .....	5.1-2
5.1.2	Transmission Corridors and Offsite Areas .....	5.1-3
5.1.2.1	Transmission Corridors and Substations .....	5.1-3
5.1.2.2	Makeup Water Sources .....	5.1-4
5.1.2.3	FPL-Owned Fill Source .....	5.1-4
5.1.2.4	Access Roadways .....	5.1-5
5.1.3	Historic Properties and Cultural Resources .....	5.1-6
5.2	Water-related Impacts .....	5.2-1
5.2.1	Hydrologic Alterations and Plant Water Supply .....	5.2-1
5.2.1.1	Facilities on the Turkey Point Plant Property .....	5.2-2
5.2.1.2	Offsite Facilities .....	5.2-12
5.2.2	Water Use Impacts .....	5.2-15
5.2.2.1	Surface Water .....	5.2-16
5.2.2.2	Groundwater .....	5.2-18
5.2.3	Water Quality Impacts .....	5.2-20
5.2.3.1	Surface Water .....	5.2-20
5.2.3.2	Groundwater .....	5.2-22
5.2.3.3	Offsite .....	5.2-24
5.3	Cooling System Impacts .....	5.3-1



Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

5.3.1	Intake System .....	5.3-1
5.3.1.1	Hydrodynamic Descriptions and Physical Impacts .....	5.3-1
5.3.1.2	Aquatic Resources .....	5.3-2
5.3.2	Impacts of Cooling System Discharge System on Aquatic Ecosystems .....	5.3-3
5.3.3	Heat Discharge System .....	5.3-4
5.3.3.1	Heat Dissipation to the Atmosphere .....	5.3-4
5.3.3.2	Impacts of Heat Discharge System on Terrestrial Ecosystems .....	5.3-7
5.3.4	Impacts to Members of the Public .....	5.3-11
5.3.4.1	Etiological Agent Impacts .....	5.3-11
5.3.4.2	Noise .....	5.3-12
5.3.4.3	Conclusion .....	5.3-13
5.4	Radiological Impacts of Normal Operation .....	5.4-1
5.4.1	Exposure Pathways .....	5.4-1
5.4.1.1	Liquid Pathways .....	5.4-1
5.4.1.2	Gaseous Pathways .....	5.4-3
5.4.1.3	Direct Radiation .....	5.4-4
5.4.2	Radiation Doses to Members of the Public .....	5.4-4
5.4.3	Impacts to Members of the Public .....	5.4-5
5.4.4	Impacts to Biota Other than Members of the Public .....	5.4-5
5.4.5	Occupational Doses .....	5.4-6
5.5	Environmental Impacts of Waste .....	5.5-1
5.5.1	Nonradioactive Waste System Impacts .....	5.5-1
5.5.1.1	Impacts of Discharges to Land .....	5.5-2
5.5.1.2	Impacts of Discharges to Water .....	5.5-2
5.5.1.3	Impacts of Discharges to Air .....	5.5-3
5.5.2	Mixed Waste Impacts .....	5.5-3
5.5.2.1	Plant Systems Producing Mixed Waste .....	5.5-4
5.5.2.2	Mixed Waste Storage and Disposal Plans .....	5.5-4
5.5.2.3	Waste Minimization Plan .....	5.5-5
5.5.2.4	Environmental Impacts of Mixed Waste .....	5.5-6
5.5.3	Conclusions .....	5.5-6
5.6	Environmental Impacts of Transmission Systems .....	5.6-1
5.6.1	Impacts to Terrestrial Resources .....	5.6-1
5.6.2	Impacts to Aquatic Resources .....	5.6-4
5.6.3	Impacts to Members of the Public .....	5.6-6
5.6.3.1	Visual Impacts .....	5.6-6
5.6.3.2	Induced Current .....	5.6-6
5.6.3.3	Electromagnetic Field Exposure .....	5.6-8
5.6.3.4	Noise .....	5.6-8
5.6.3.5	Radio and Television Interference .....	5.6-9
5.7	Uranium Fuel Cycle and Transportation Impacts .....	5.7-1
5.7.1	Uranium Fuel Cycle Impacts .....	5.7-1
5.7.1.1	Land Use .....	5.7-3
5.7.1.2	Water Use .....	5.7-3
5.7.1.3	Fossil Fuel Impacts .....	5.7-4

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

5.7.1.4	Chemical Effluents .....	5.7-4
5.7.1.5	Radioactive Effluents .....	5.7-4
5.7.1.6	Radioactive Waste .....	5.7-6
5.7.1.7	Occupational Dose .....	5.7-7
5.7.1.8	Transportation .....	5.7-7
5.7.1.9	Summary .....	5.7-7
5.7.2	Transportation of Radioactive Materials .....	5.7-7
5.7.2.1	Transportation Assessment .....	5.7-7
5.7.2.2	Incident-Free Transportation Impacts Analysis .....	5.7-12
5.7.2.3	Conclusion .....	5.7-17
5.8	Socioeconomic Impacts .....	5.8-1
5.8.1	Physical Impacts of Station Operation .....	5.8-1
5.8.1.1	Noise .....	5.8-2
5.8.1.2	Air .....	5.8-3
5.8.1.3	Aesthetics .....	5.8-4
5.8.1.4	Traffic .....	5.8-6
5.8.1.5	Conclusion .....	5.8-6
5.8.2	Social and Economic Impacts of Station Operation .....	5.8-6
5.8.2.1	Demography .....	5.8-7
5.8.2.2	Impacts to the Community .....	5.8-9
5.8.3	Environmental Justice Impacts .....	5.8-39
5.8.3.1	Health and Environmental Impacts .....	5.8-40
5.8.3.2	Socioeconomic Impacts .....	5.8-42
5.9	Decommissioning .....	5.9-1
5.9.1	Environmental Impacts Related to Decommissioning .....	5.9-1
5.9.2	DOE-Funded Study on Decommissioning Costs .....	5.9-5
5.9.3	Units 6 & 7 Decommissioning Cost Estimate .....	5.9-7
5.9.4	Conclusions .....	5.9-7
5.10	Measures and Controls to Limit Adverse Impacts During Operations .....	5.10-1
5.11	Cumulative Impacts Related to Station Operation .....	5.11-1
5.11.1	Land Use .....	5.11-3
5.11.2	Hydrology and Water Use .....	5.11-5
5.11.2.1	Surface Water .....	5.11-5
5.11.2.2	Groundwater .....	5.11-6
5.11.2.3	Water Quality .....	5.11-6
5.11.3	Ecology (Terrestrial and Aquatic) .....	5.11-7
5.11.3.1	Terrestrial .....	5.11-7
5.11.3.2	Aquatic .....	5.11-8
5.11.4	Socioeconomic Resources .....	5.11-8
5.11.5	Atmospheric and Meteorological .....	5.11-9
5.11.6	Radiological .....	5.11-10
5.11.7	Waste .....	5.11-11
5.11.8	Human Health .....	5.11-11
5.11.9	Summary .....	5.11-11

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

5.12 Nonradiological Health Impacts .....	5.12-1
5.12.1 Public Health .....	5.12-1
5.12.2 Occupational Health .....	5.12-1
<b>Chapter 6 Environmental Measurements and Monitoring Programs .....</b>	<b>6.0-1</b>
6.0 Environmental Measurements and Monitoring Programs .....	6.0-1
6.1 Thermal Monitoring .....	6.1-1
6.1.1 Pre-Application Thermal Monitoring .....	6.1-1
6.1.2 Construction and Preoperational Thermal Monitoring .....	6.1-1
6.1.2.1 Surface Water .....	6.1-1
6.1.2.2 Groundwater .....	6.1-2
6.1.3 Operational Thermal Monitoring .....	6.1-2
6.1.3.1 Surface Water .....	6.1-2
6.1.3.2 Groundwater .....	6.1-2
6.2 Radiological Monitoring .....	6.2-1
6.2.1 Radiological Environmental Monitoring Program Basis .....	6.2-1
6.2.2 Radiological Environmental Monitoring Program Contents .....	6.2-1
6.2.2.1 Preoperational and Operational Radiological Monitoring Programs .....	6.2-2
6.2.3 Radiological Environmental Monitoring Program Reporting .....	6.2-3
6.3 Hydrological Monitoring .....	6.3-1
6.3.1 Pre-Application Hydrological Monitoring .....	6.3-1
6.3.1.1 Groundwater Monitoring — Units 6 & 7 Plant Area .....	6.3-1
6.3.1.2 Groundwater Monitoring — Pumping Tests .....	6.3-1
6.3.2 Construction Hydrological Monitoring .....	6.3-1
6.3.2.1 Surface Water .....	6.3-2
6.3.2.2 Groundwater .....	6.3-2
6.3.3 Preoperational Hydrological Monitoring .....	6.3-3
6.3.3.1 Surface Water .....	6.3-3
6.3.3.2 Groundwater .....	6.3-4
6.3.4 Operational Hydrological Monitoring .....	6.3-5
6.3.4.1 Surface Water .....	6.3-5
6.3.4.2 Groundwater .....	6.3-5
6.4 Meteorological Monitoring .....	6.4-1
6.4.1 General Description — Onsite Meteorological Measurements Program .....	6.4-2
6.4.2 preoperation Monitoring Program .....	6.4-2
6.4.2.1 Location, Elevation, and Exposure of Instruments .....	6.4-3
6.4.2.2 Tower Siting and Instrument Conformance .....	6.4-3
6.4.2.3 Obstructions .....	6.4-4
6.4.2.4 Heat and Moisture Sources .....	6.4-5
6.4.2.5 Wind Loss .....	6.4-6
6.4.2.6 Meteorological Parameters Measured .....	6.4-6
6.4.2.7 Meteorological Data Processing .....	6.4-9
6.4.2.8 Meteorological Data Used for Application .....	6.4-12

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

6.4.3	Operational Monitoring .....	6.4-13
6.4.4	Emergency Preparedness Support .....	6.4-14
6.5	Ecological Monitoring .....	6.5-1
6.5.1	Terrestrial Ecology and Land Use .....	6.5-1
6.5.1.1	Pre-Application Terrestrial Ecological Monitoring .....	6.5-1
6.5.1.2	Construction, Preoperational, and Operational Monitoring .....	6.5-3
6.5.2	Aquatic Ecological Monitoring .....	6.5-4
6.5.2.1	Pre-Application Aquatic Ecological Monitoring .....	6.5-4
6.5.2.2	Construction, Preoperational and Operational Monitoring .....	6.5-5
6.6	Chemical Monitoring .....	6.6-1
6.6.1	pre-Application Chemical Monitoring .....	6.6-1
6.6.1.1	Surface Water .....	6.6-1
6.6.1.2	Groundwater .....	6.6-1
6.6.2	Construction and Preoperational Monitoring .....	6.6-1
6.6.2.1	Surface Water .....	6.6-1
6.6.2.2	Groundwater .....	6.6-2
6.6.3	Operational Monitoring .....	6.6-2
6.6.3.1	Surface Water .....	6.6-3
6.6.3.2	Groundwater .....	6.6-3
6.7	Summary of Monitoring Programs .....	6.7-1
6.7.1	Pre-Application Monitoring .....	6.7-1
6.7.2	Preconstruction/Construction Monitoring .....	6.7-1
6.7.3	Preoperational Monitoring .....	6.7-2
6.7.4	Operational Monitoring .....	6.7-3
 <b>Chapter 7 Environmental Impacts Of Postulated Accidents</b>		
	<b>Involving Radioactive Materials .....</b>	<b>7.0-1</b>
7.1	Design Basis Accidents .....	7.1-1
7.1.1	Selection of Accidents .....	7.1-1
7.1.2	Evaluation Methodology .....	7.1-1
7.1.3	Source Terms .....	7.1-2
7.1.4	Radiological Consequences .....	7.1-2
7.2	Severe Accidents .....	7.2-1
7.2.1	Westinghouse Methodology .....	7.2-1
7.2.2	FPL Methodology .....	7.2-3
7.2.3	Consequences to Population Groups .....	7.2-5
7.2.3.1	Air Exposure Pathways .....	7.2-5
7.2.3.2	Surface Water Exposure Pathways .....	7.2-5
7.2.3.3	Groundwater Exposure Pathways .....	7.2-6
7.2.4	Comparison to NRC Safety Goals .....	7.2-6
7.2.4.1	Individual Risk Goal .....	7.2-6
7.2.4.2	Societal Risk Goal .....	7.2-6
7.2.5	Conclusions .....	7.2-7
7.3	Severe Accident Mitigation Alternatives .....	7.3-1
7.3.1	The Severe Accident Mitigation Alternative Analysis Process .....	7.3-1

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

7.3.2	The AP1000 SAMDA Analysis .....	7.3-2
7.3.3	Monetization of the Units 6 & 7 Base Case .....	7.3-4
7.4	Transportation Accidents .....	7.4-1
7.4.1	Radiological Impacts of Transportation Accidents .....	7.4-1
7.4.1.1	Transporting Unirradiated Fuel .....	7.4-1
7.4.1.2	Transporting Spent Fuel .....	7.4-1
7.4.1.3	Transporting Radioactive Waste .....	7.4-4
7.4.2	Nonradiological Impacts of Transportation Accidents .....	7.4-4
7.4.2.1	Transporting Unirradiated Fuel .....	7.4-4
7.4.2.2	Transporting Spent Fuel .....	7.4-4
7.4.2.3	Transporting Radioactive Waste .....	7.4-5
7.4.3	Conclusion .....	7.4-5
<b>Chapter 8</b>	<b>Need for Power .....</b>	<b>8.1-1</b>
8.1	State of Florida Process for Determining Need for Power .....	8.1-1
8.1.1	Ten-Year Site Plans .....	8.1-2
8.1.2	Determination of Need .....	8.1-3
8.1.3	Description of Service Area .....	8.1-6
8.1.4	FPL-Owned Resources .....	8.1-7
8.1.5	Florida Reliability Coordinating Council .....	8.1-7
8.2	Power Demand .....	8.2-1
8.2.1	Environmental Standard Review Plans (ESRPs) .....	8.2-1
8.2.2	Power and Energy Requirements .....	8.2-1
8.2.3	Factors Affecting Growth of Demand .....	8.2-4
8.3	Satisfaction of NRC Criteria .....	8.3-1
8.3.1	Systematic .....	8.3-1
8.3.2	Comprehensive .....	8.3-1
8.3.3	Subject to Confirmation .....	8.3-2
8.3.4	Responsive to Forecasting Uncertainty .....	8.3-3
8.3.5	Conclusion .....	8.3-3
<b>Chapter 9</b>	<b>Alternatives to the Proposed Action .....</b>	<b>9.0-1</b>
9.0	Alternatives to the Proposed Action .....	9.0-1
9.1	No-Action Alternative .....	9.1-1
9.2	Energy Alternatives .....	9.2-1
9.2.1	Alternatives That Do Not Require New Generation Capacity .....	9.2-1
9.2.1.1	Purchase Power from Other Utilities or Power Generators .....	9.2-3
9.2.1.2	Reactivate or Extend Service Life of Existing Plants, or Extend the Capacity .....	9.2-4
9.2.1.3	Demand Side Management .....	9.2-5
9.2.1.4	Use an Existing Peaking Facility to Provide Baseload Power .....	9.2-6
9.2.1.5	Conclusion .....	9.2-7
9.2.2	Alternatives That Require New Generation Capacity .....	9.2-7
9.2.2.1	Introduction .....	9.2-7
9.2.2.2	Wind .....	9.2-9
9.2.2.3	Solar Technologies .....	9.2-12
9.2.2.4	Hydroelectric Power .....	9.2-16

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

9.2.2.5	Geothermal .....	9.2-19
9.2.2.6	Fuel Cells .....	9.2-21
9.2.2.7	Biomass .....	9.2-23
9.2.2.8	Municipal Solid Waste/Landfill Gas .....	9.2-25
9.2.2.9	Coal .....	9.2-28
9.2.2.10	Natural Gas .....	9.2-31
9.2.2.11	Petroleum .....	9.2-33
9.2.2.12	Integrated Gasification Combined Cycle .....	9.2-34
9.2.2.13	Conclusion .....	9.2-36
9.2.3	Assessment of Competitive Alternative Energy Sources and Systems .....	9.2-36
9.2.3.1	Pulverized Coal-Fired Generation .....	9.2-37
9.2.3.2	Natural Gas Generation .....	9.2-47
9.2.3.3	Combination of Alternatives .....	9.2-53
9.2.4	Conclusion .....	9.2-55
9.3	Site Selection Process .....	9.3-1
9.3.1	Region of Interest .....	9.3-3
9.3.2	Overview of Site Selection Process .....	9.3-3
9.3.2.1	Alternative Site Selection Process .....	9.3-4
9.3.3	Alternative Site Review .....	9.3-16
9.3.3.1	Evaluation of the Glades Site .....	9.3-17
9.3.3.2	Evaluation of the Martin Site .....	9.3-44
9.3.3.3	Evaluation of the Okeechobee 2 Site .....	9.3-66
9.3.3.4	Evaluation of the St. Lucie Site .....	9.3-88
9.3.4	Summary and Conclusions .....	9.3-112
9.4	Alternative Plant and Transmission Systems .....	9.4-1
9.4.1	Heat Dissipation Systems .....	9.4-1
9.4.1.1	Screening of Alternative Heat Dissipation Systems .....	9.4-1
9.4.1.2	Feasible Alternatives .....	9.4-5
9.4.1.3	Summary .....	9.4-5
9.4.2	Circulating Water Systems .....	9.4-6
9.4.2.1	Intake Systems .....	9.4-6
9.4.2.2	Discharge Systems .....	9.4-11
9.4.2.3	Water Supply .....	9.4-15
9.4.2.4	Water Treatment .....	9.4-21
9.4.3	Transmission Systems .....	9.4-23
9.4.3.1	Alternatives to the Proposed Transmission System Design .....	9.4-23
9.4.3.2	Corridor Selection .....	9.4-26
9.4.3.3	Preferred Corridors .....	9.4-29
9.4.3.4	Community Outreach Program .....	9.4-35
<b>Chapter 10</b>	<b>Environmental Consequences of the Proposed Action .....</b>	<b>10.1-1</b>
10.1	Unavoidable Adverse Environmental Impacts .....	10.1-1
10.1.1	Unavoidable Adverse Environmental Impacts of Construction .....	10.1-1

Turkey Point Units 6 & 7  
COL Application  
Part 3 — Environmental Report

**ER MASTER TABLE OF CONTENTS (CONT.)**

10.1.2 Unavoidable Adverse Environmental Impacts of Operations .....	10.1-2
10.2 Irreversible and Irretrievable Commitments of Resources .....	10.2-1
10.2.1 Irreversible Commitments of Resources .....	10.2-1
10.2.1.1 Land Use .....	10.2-1
10.2.1.2 Hydrological and Water Use .....	10.2-1
10.2.1.3 Aquatic and Terrestrial Biota .....	10.2-2
10.2.1.4 Socioeconomic .....	10.2-2
10.2.1.5 Releases to Air and Surface Water .....	10.2-2
10.2.1.6 Disposal of Hazardous and Radioactively Contaminated Waste .....	10.2-3
10.2.1.7 Uranium Fuel Cycle .....	10.2-3
10.2.2 Irretrievable Commitments of Resources .....	10.2-4
10.3 Relationship Between Short-Term Uses and Long-Term Productivity of the Human Environment .....	10.3-1
10.3.1 Construction of Units 6 and 7 and Long-Term Productivity .....	10.3-1
10.3.2 Operation of UNITS 6 & 7 and Long-Term Productivity .....	10.3-2
10.3.3 Summary of Relationship Between Short-Term Uses and Long-Term Productivity .....	10.3-3
10.4 Benefit–Cost balance .....	10.4-1
10.4.1 Benefits .....	10.4-1
10.4.1.1 Need for Power .....	10.4-1
10.4.1.2 Fuel Diversity .....	10.4-2
10.4.1.3 Avoided Emissions .....	10.4-3
10.4.1.4 Advantage of Nuclear Power .....	10.4-4
10.4.1.5 Tax Payments .....	10.4-4
10.4.1.6 Local and State Economy .....	10.4-5
10.4.1.7 Other Benefits .....	10.4-5
10.4.1.8 Benefit Summary .....	10.4-6
10.4.2 Costs .....	10.4-6
10.4.2.1 Internal Costs — Proposed Action .....	10.4-6
10.4.2.2 Internal Costs — Generation Alternatives .....	10.4-9
10.4.2.3 External Costs .....	10.4-9
10.4.2.4 Alternative Sites .....	10.4-11
10.4.3 Summary .....	10.4-11