

STPEGS UFSAR

TABLE OF CONTENTS

CHAPTER 8

ELECTRIC POWER

<u>Section</u>	<u>Title</u>	<u>Page</u>
8.1	INTRODUCTION	8.1-1
8.1.1	Utility Grid Description	8.1-1
8.1.2	Onsite Electrical System	8.1.1
8.1.3	Offsite Electrical System	8.1-2
8.1.4	Design Bases	8.1-3
8.2	OFFSITE POWER SYSTEM	8.2-1
8.2.1	Description	8.2-1
8.2.2	Analysis	8.2-12
8.3	ONSITE POWER SYSTEMS	8.3-1
8.3.1	Alternating Current Power Systems Circuits	8.3-1
8.3.2	Direct Current Power Systems	8.3-35
8.3.3	Fire Protection for Cable Systems	8.3-40
8.3.4	Station Blackout	8.3-40

STPEGS UFSAR

LIST OF TABLES

CHAPTER 8

<u>Table</u>	<u>Title</u>	<u>Page</u>
8.1-1	Class 1E System Load Identification and Functions	8.1-6
8.1-2	Listing of Applicable Criteria	8.1-8
8.2-1	Transmission Lines Providing Offsite Power to South Texas Project Electric Generating Station Units 1 and 2	8.2-16
8.2-2	Main Generator Data, South Texas Project Electric Generating Station Units 1 and 2	8.2-17
8.2-3	Electric Reliability Council of Texas Planning Criteria	8.2-18
8.2-4	345-kV Transmission Circuit-Miles of STPEGS Owners	8.2-19
8.3-1	Connection Between 13.8 kV Auxiliary Busses and Unit Auxiliary Transformer	8.3-46
8.3-2	Connection Between Units 1 and 2 13.8 kV Standby Busses	8.3-47
8.3-3	Emergency Electrical Loading Requirements	8.3-48
8.3-6a	Unit 1 125 VDC ESF Loads (Amperes)	8.3-55
8.3-6b	Unit 2 125 VDC ESF Loads (Amperes)	8.3-56
8.3-8	Failure Modes and Effects Analysis Class 1E DC System	8.3-57
8.3-9	Class 1E AC (Except Vital 120 VAC) and 13.8 kV System (Aux. and Standby Systems)	8.3-60
8.3-12	Electrical Penetration Assignments	8.3-69
8.3-13	Failure Modes and Effects Analysis Class 1E Vital 120 VAC System	8.3-71
8.3-14	Containment Penetration Conductor Overcurrent Protective Devices	8.3-73

STPEGS UFSAR

LIST OF FIGURES

CHAPTER 8

<u>Figure Number</u>	<u>Title</u>	<u>Reference Number</u>
8.1-1	Electric Power Systems in Texas - 1982	
8.2-1	Power Supply Routing to Plant	
8.2-3	High Voltage Switchyard Single Line Diagram	
8.2-3A	Switchyard Relaying One Line Drawing (2 sheets)	
8.2-3B	Switchyard Cable Trench Arrangement (Typical)	
8.2-3C	Elementary Diagram 138 kV Emergency Transformer Protection	0000-0-E-0PG01-01
8.2-4	Associated Bulk 345 kV Transmission System	
8.2-5	STPEGS Plan of Rights-of-Way	
8.2-10	Transient Stability Study - 1989 - Cases 1 & 2	
8.2-10B	Transient Stability Study - 1989 - Case 2A	

STPEGS UFSAR

LIST OF FIGURES (Continued)

CHAPTER 8

<u>Figure Number</u>	<u>Title</u>	<u>Reference Number</u>
8.2-11	Transient Stability Study - 1989 - Cases 3 & 4	
8.2-12	Transient Stability Study - 1989 - Case 5	
8.3-1	Single Line Diagram Main One Line Diagram, Unit No. 1 & 2	0000-0-E-0AAAA-01
8.3-3	Single Line Diagram Class 1E 125 V DC & 120 V Vital AC Non-Class 1E 48 V, 125 V, 250 V DC & 120 V Vital AC Non-Class 1E Inverter Power for Computer 280/120 V AC Regulated Power	0000-9-E-0AAAB-01#1 0000-9-E-0AAAB-01#2
	Single Line Diagram Non-Class 1E Inverter Power for RMS and ERF Computers	0000-9-E-0AAAB-02#1 0000-9-E-0AAAB-02#2
8.3-4	Instrumentation Standby Diesel Generators Logic Diagram System: DG	5Q15-9-Z-42100#1 5Q15-9-Z-42100#2
	Instrumentation ESF Load Sequencer Actuation Train A Logic Diagram System: SP	5Z10-9-Z-42117#1 5Z10-9-Z-42117#2
	Instrumentation Standby DG 4.16 kV Feeder Breaker Logic Diagram System: SP	5Z10-9-Z-42121#1 5Z10-9-Z-42121#2
	Instrumentation ESF Bus 4.16 kV Supply Breakers Logic Diagram System: SP	5Z10-9-Z-42122#1 5Z10-9-Z-42122#2
	4.16 kV ESF Bus Undervoltage Control and Alarm Logic Diagram System: SP	5Z10-9-Z-42127#1 5Z10-9-Z-42127#2
8.3-14	Electrical Penetration Physical Arrangement	
8.3-15	7.5 kVA Static Inverter System (Unit 2)	