1.2 General Plant Description

The information in this section of the reference ABWR DCD, including all subsections, tables, and figures, is incorporated by reference with the following departures and supplements.

STD DEP T1 2.3-1

STD DEP T1 2.14-1

STD DEP T1 3.4-1

STP DEP 1.1-2 (Figure 1.2-1)

STD DEP 1.2-1

STP DEP 1.2-2 (Figures 1.2-24 through 1.2-31)

STD DEP 3.8-1 (Figures 1.2-23a through 1.2-23e)

STD DEP 8.3-1

STD DEP 9.1-1

STP DEP 9.2-5 (Figures 1.2-32 through 1.2-37)

STD DEP 9.4-3

STD DEP 9.4-4

STP DEP 10.4-2

STP DEP 10.4-4

~~STP DEP 10.4-2~~

STD DEP 10.4-6

STD DEP 11.4-1

1.2.1.3 Plant Design and Aging Management

The following site-specific supplement addresses COL License Information Item 1.1a.

The information in this subsection of the ABWR DCD is replaced. ABWR Licensing Topical Report NEDO-33321, "Advanced Boiling Water Reactor (ABWR) Life Cycle Management," was submitted in May 2007. Page A-1 of the Licensing Topical Report is incorporated by reference.

1.2.1.1.1 Site Location

The information in this subsection of the reference ABWR is incorporated by reference with the following site-specific supplement.

STP 3 & 4 are located on the existing South Texas Project (STP) site. The 12,200 acre site is located in a rural area of south central Matagorda county. STP 3 & 4 are located near the Main Cooling Reservoir which has sufficient capacity to serve as main condenser heat sink. The Colorado River provides makeup water to the Main Cooling Reservoir.

1.2.2.1.2.3 Geology and Seismology

The information in this subsection of the reference ABWR is incorporated by reference with the following site-specific supplement.

The Ultimate Heat Sink and Reactor Service Water Piping Tunnel are designed to the site-specific SSE acceleration.

1.2.2.2.2.1 Main Steamline Isolation Valves

STD DEP T1 2.3-1

All pipelines that both penetrate the containment and offer a potential release path for radioactive material are provided with redundant isolation capabilities. Isolation valves are provided in each main steamline to isolate primary containment upon receiving an automatic or manual closure signal. Each is powered by both pneumatic pressure and spring force. These valves ~~fulfill the following objectives:~~ prevent excessive damage to the fuel barrier by limiting the loss of reactor coolant from the reactor vessel resulting from either a major leak from the steam piping outside the containment or a malfunction of the pressure control system resulting in excessive steam flow from the reactor vessel.

~~*(1) Prevent excessive damage to the fuel barrier by limiting the loss of reactor coolant from the reactor vessel resulting from either a major leak from the steam piping outside the containment or a malfunction of the pressure control system resulting in excessive steam flow from the reactor vessel.*~~

~~*(2) Limit the release of radioactive materials by isolating the RCPB in case of the detection of high steamline radiation.*~~

1.2.2.3.10 Steam Bypass and Pressure Control System

STD DEP 10.4-6

A turbine bypass system is provided which passes steam directly to the main condenser under the control of the pressure regulator. Steam is bypassed to the condenser whenever the reactor steaming rate exceeds the load permitted to pass to the turbine generator. The turbine bypass system has the capability to shed ~~40%~~ 33% *of the turbine-generator rated load without reactor trip or operation of safety/relief*

valves. The pressure regulation system provides main turbine control valve and bypass valve flow demands so as to maintain a nearly constant reactor pressure during normal plant operation. It also provides demands to the recirculation system to adjust power level by changing reactor recirculation flow rate.

1.2.2.3.11 ~~*Process*~~ Plant *Computer* Functions (*Includes ~~PMCS,~~* PGCS)

STD DEP T1 3.4-1

Online plant computer functions ~~*process computers*~~ *are provided to monitor and log process variables and make certain analytical computations. The performance and power generation control systems are included*.

1.2.2.3.13 CRD Removal Machine Control Computer

STD DEP 9.1-1

The CRD handling equipment local operation panel ~~*machine control computer*~~ *provides automatic positioning, continuous operation and prevention of erroneous operation in the stepwise removal and installation of CRDs from the remote control room.*

1.2.2.5.3 Leak Detection and Isolation System

STD DEP T1 2.14-1

~~*(10) Isolates the flammability control system lines*~~

(~~11~~ 10) Isolates the drywell sumps drain lines

(~~12~~ 11) Isolates the fission products monitor sampling and return lines

(~~13~~ 12) Initiates withdrawal of the automated traversing incore probe

1.2.2.8.6 ~~*Multiplexing System*~~ Data Communication

STD DEP T1 3.4-1

Data communication is accomplished by ~~*The Multiplexing System provides*~~ *redundant and distributed control and instrumentation data communications networks to support the monitoring and control of interfacing plant systems. The* equipment ~~*system*~~ *includes electrical devices and circuitry (such as* remote interface ~~*multiplexing*~~ *units, bus controllers, formatters and data buses) that connect sensors, display devices, controllers, and actuators which are part of these plant systems. The* data ~~*commuication*~~ communication function ~~*Multiplexing System*~~ *also includes the associated data acquisition and communication software required to support its function of plant-wide data and control distribution.*

1.2.2.10.13 Solid Waste Management System

STD DEP 11.4-1

The Solid Waste Management System provides for the safe handling, packaging, and short-term storage of radioactive solid and concentrated liquid wastes that are produced. ~~Wet waste processed by this system is transferred to the solidification system, where it is solidified in containers.~~ Dry active waste is surveyed and disposed of whenever possible via the provisions of 10 CFR 20.302 (a). ~~The remaining combustible waste is compacted. Incinerator ash is compacted waste and shipped in containers for offsite disposal.~~ Refer to Section 11.4 for a complete description of the solid waste management system.

1.2.2.11.14 Condensate Purification System

STP DEP 10.4-4

Each unit is served by a 100% capacity condensate cleanup system, consisting of high efficiency filters followed by deep-bed demineralizer vessels designed for parallel operation. ~~One demineralizer vessel is a spare.~~ The condensate cleanup system with instrumentation and automatic controls is designed to ensure a constant supply of high-quality water to the reactor.

1.2.2.11.21 Main Condenser

STP DEP 10.4-2

The main condenser is a ~~multipressure~~ single-pressure*, three-shell deaerating type condenser ~~or single pressure design as dictated by the site specific circulating water system and power generating heat sink~~. During plant operation, steam expanding through the low pressure turbines is directed downward into the main condenser and is condensed. The main condenser also serves as a heat sink for the turbine bypass system, emergency and high level feedwater heater and drain tank dumps, and various other startup drains and relief valve discharges.*

1.2.2.13 Station Electrical System

STD DEP 8.3-1

The standard design departure describing the conversion of the medium voltage electrical system from a single 6.9 kV system to a dual 13.8 kV/4.16 kV system was provided in ABWR Licensing Topical Report NEDE-33335, "Advanced Boiling Water Reactor (ABWR) Plant Medium Voltage Electrical System Design," dated May 2007. Marked up pages 1.2-32 through 1.2-34 in Appendix B of the Licensing Topical Report are incorporated by reference.

1.2.2.14.1 Reserve Auxiliary Transformers

STD DEP 8.3-1

~~*The reserve auxiliary transformer provides the alternate preferred feed for the Class 1E buses M/C, E, F, and G. It also provides an alternate feed to non-Class 1E 6.9 kV buses.*~~

Each reserve auxiliary transformer provides alternate preferred feeds to two power generation buses and can feed any of the three plant investment protection buses and any of the three Class 1E 4.16 kV buses.

1.2.2.15.8 Flammability Control System

STD DEP T1 2.14-1

The Flammability Control System was eliminated in accordance with ABWR Licensing Topical Report NEDE-33330P, "Advanced Boiling Water Reactor (ABWR) Hydrogen Recombiner Requirements Elimination," dated May 2007.

1.2.2.16.5 Heating, Ventilating and Air Conditioning

STD DEP 9.4-4

(9) The Turbine Island HVAC System maintains environmental conditions in the Turbine Building and the Electrical Equipment areas.

STD DEP 9.4-3

(10) The Service Building HVAC System maintains environmental conditions in the Service Building, including clean areas such as the Technical Support Center and Operations Support Center during emergency conditions.

The following site-specific supplement addresses COL License Information Item 9.17.

(11) The Radwaste Building HVAC System is engineered and designed to provide proper environmental conditions within all areas of the Radwaste Building during normal plant operation.

1.2.2.16.5.1 Potable and Sanitary Water System

The information in this subsection of the reference ABWR is incorporated by reference with the following site-specific supplement.

The potable and sanitary water includes ~~conceptual~~ site-specific designs of a potable water system, a sanitary water system, a sewage treatment system, and a separate non-radioactive drain system. These systems are summarized in Subsections 9.2.4.1.3, 9.2.4.3.2, and 9.3.3.2.3, respectively.

1.2.2.16.15 Control Building Annex

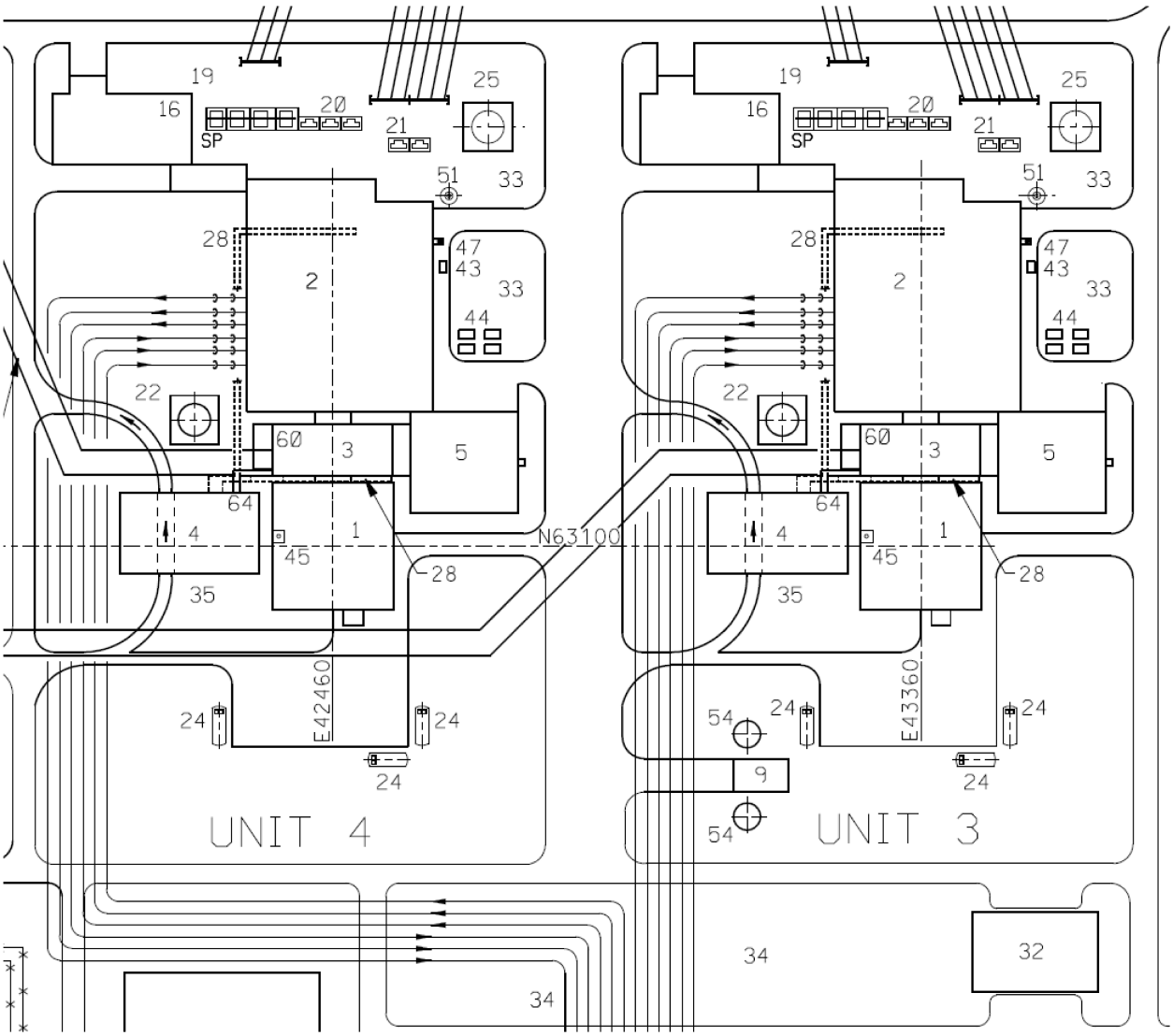
STD DEP 1.2-1

The Control Building Annex houses the two Reactor Internal Pump Motor Generator sets, control panels, and the cooling water lines, HVAC system, and electrical lines that support the MG sets.

1.2.3 COL License Information

1.2.3.1 Plant Design and Aging Management

The information in this subsection of the reference ABWR DCD is deleted. The information required by COL Information Item 1.1a is provided in Subsection 1.2.1.3.



1	Reactor Building	21	Reserve Transformer	44	RFP Variable Speed Drive Equip
2	Turbine Building	22	Condensate Storage Tank	45	Plant Stack
3	Control Building	23	Nitrogen Storage	46	Radwaste Building Stack
4	Radwaste Building	24	Emergency D/G Fuel Oil Tanks	47	CT Exhaust Stack
5	Service Building	25	CT & Aux Boiler Fuel Oil Tank	48	Auxiliary Boiler Stacks
6	Safety Intake Building	27	Reactor Service Water Piping Tunnel	49	Cryogenic C02 Storage
7	Circulating Water Piping	29	Controlled Extended Storage Area	50	Hydrogen Storage
9	Fire Pressure Pumphouse	30	Reserved for Future Use	51	Ventilation Stack
15	Warehouse	33	Non-Nuclear Maint. Laydown	54	Firewater Storage Tank
16	Machine Shop	34	Nuclear Island Maint. Laydown	56	Demineralized Water Storage Tank
17	Ultimate Heat Sink	35	Future Radwaste Expansion Area	60	Control Building Annex
19	Main Transformers	42	Controlled Warehouse	61	Maintenance Operation Facility
20	Unit Auxiliary Transformers	43	CT Generator Aux Transformer	62	Offgas System Stack

Figure 1.2-1 Site Plan

The following figures in Chapter 21 have been revised:

- Figure 1.2-23a Radwaste Building at Elevation 1500 mm
- Figure 1.2-23b Radwaste Building at Elevation 4800 mm
- Figure 1.2-23c Radwaste Building at Elevation 12300 mm
- Figure 1.2-23d Radwaste Building at Elevation 21000 mm
- Figure 1.2-23e Radwaste Building, Section A-A
- Figure 1.2-24 Turbine Building, General Arrangement at Elevation 5300 mm
- Figure 1.2-25 Turbine Building, General Arrangement at Elevation 12300 mm
- Figure 1.2-26 Turbine Building, General Arrangement at Elevation 20300 mm
- Figure 1.2-27 Turbine Building, General Arrangement at Elevation 30300 mm
- Figure 1.2-28 Turbine Building, General Arrangement, Longitudinal ~~Sectyion~~ Section A-A
- Figure 1.2-29 Turbine Building, General Arrangement, Section B-B
- Figure 1.2-30 Turbine Building, General Arrangement, Section C-C
- Figure 1.2-31 Turbine Building, General Arrangement, Section D-D

The following supplemental figures are added to Chapter 21:

- Figure 1.2-32 General Arrangement, Reactor Service Water Pump House (Sh 1 of 5)
- Figure 1.2-33 General Arrangement, Reactor Service Water Pump House (Sh 2 of 5)
- Figure 1.2-34 General Arrangement, Reactor Service Water Pump House (Sh 3 of 5)
- Figure 1.2-35 General Arrangement, Reactor Service Water Pump House and UHS Basin (Sh 4 of 5)
- Figure 1.2-36 General Arrangement, Reactor Service Water Pump House and UHS Basin (Sh 5 of 5)
- Figure 1.2-37 Plot Plan