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CP-201201467
Log # TXNB-12042

Ref. # 10 CFR 52

December 6, 2012

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555
ATTN: David B. Matthews, Director
Division of New Reactor Licensing

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 3 AND 4
DOCKET NUMBERS 52-034 AND 52-035
SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
NO. 4206 (SECTION 12.3-12.4)

Dear Sir:

Luminant Generation Company LLC (Luminant) submits herein supplemental information for the response to Request for Additional Information (RAI) No. 4206 (CP RAI #135) for the Combined License Application for Comanche Peak Nuclear Power Plant Units 3 and 4. The supplemental information addresses the physical location of the Unit 4 condensate storage tank and its piping runs.

Should you have any questions regarding the supplemental information, please contact Don Woodlan (254-897-6887, Donald.Woodlan@luminant.com) or me.

There are no commitments in this letter.

I state under penalty of perjury that the foregoing is true and correct.

Executed on December 6, 2012.

Sincerely,

Luminant Generation Company LLC

Donald R. Woodlan for

Rafael Flores

Attachment: Supplemental Response to Request for Additional Information No. 4206 (CP RAI #135)

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NRO

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SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Comanche Peak, Units 3 and 4

Luminant Generation Company LLC

Docket Nos. 52-034 and 52-035

RAI NO.: 4206 (CP RAI #135)

SRP SECTION: 12.03-12.04 - Radiation Protection Design Features

QUESTIONS for Health Physics Branch (CHPB)

DATE OF RAI ISSUE: 4/27/2011

QUESTION NO.: 12.03-12.04-11

CST Overflow Dike Liner

The supplemental response to **RAI 4206 Question 12.03-12.04-11** dated April 13th 2011, stated that the CST was surrounded by a dike, and that the overflow from the CST was into the diked area. However, there was no discussion about the 40 CFR 265 Subpart K—Surface Impoundments – requirements. Based on a response to a similar issue (with a waste pond), the following information was provided.

> The evaporation pond is equipped with a leak detection system. In the event a leak is developed, a signal is sent to the Main Control Room and the Radwaste Control Room for operator actions, which may include removing the contents from the pond to facilitate inspection and repair as required. The pond liner is inspected regularly to determine liner integrity with respect to the liners and their seams. In the event of punctures and/or rupture and repair is required, the pond contents are removed, and the pond is rinsed before repair is performed.
>
> The evaporation pond is designed and constructed in accordance with the following standards (others may be applicable as the design is finalized):
>
> - Texas Commission of Environmental Quality (TCEQ)
> - TCEQ 330, Municipal Solid Waste TCEQ 217.203, Design Criteria for Natural Treatment Facilities
> - American Society for Testing and Materials (ASTM)
> - ASTM D3020, Specification for Polyethylene and Ethylene Copolymer Plastic Sheeting for Pond, Canal and Reservoir Lining
> - ASTM D5514-06, Standard Test Method of Large Scale Hydrostatic Puncture Testing of Geo-synthetics
> - ASTM D7002-03, Standard Practice for Leak Location on Exposed Geo-membranes Using the Water Puddle System
>
> The evaporation pond is designed and constructed to contain treated effluent that is contaminated with radioactive nuclides. The pond opens to the environment to allow the tritiated

water to naturally evaporate. The evaporation pond is constructed with two layers of High Density Polyethylene material suitable for this service. The High Density Polyethylene is a minimum of 60 mils thickness. A drainable mesh mat, with a minimum thickness of 30 mils, is provided in between the two layers of High Density Polyethylene to allow movement of the liquid due to leakage of the content from the top layer of High Density Polyethylene. The evaporation pond is constructed with a total depth of six feet, with four feet below grade and two feet freeboard. A berm is constructed to prevent surface water from entering the pond during rainy seasons.

The evaporation pond is constructed with a layer of clay with permeability less than 1E-7 centimeter per second to support the pond. The overall construction meets or exceeds the requirements for waste water pond stipulated by TCEQ. Some TCEQ requirements are as follows:

- In situ clay soils or placed and compacted meeting:
    1. more than 30% passing a Number 200 mesh sieve
    2. liquid limit greater than 30%
    3. plasticity index greater than 15
    4. a minimum thickness of two feet
    5. Permeability equal to or less than 1x10-7 centimeter per second
- Soil compaction will be 95% standard proctor density at optimum moisture content
- The pond is protected from inundation by a ten-year 2 hour rainfall event

Does Luminant intend to provide similar information for the dike surrounding the CST?

SUPPLEMENTAL INFORMATION:

During the revision of the grading and drainage plan, it was discovered that the Unit 4 CST and transfer pumps could not be located on the west side of Unit 4 in the same configuration as Unit 3 due to plant layout restrictions. The previous response to this question (ML11213A098) indicated that the transfer piping from the Unit 4 CST is identical to the transfer piping from the Unit 3 CST. Luminant is providing this supplemental response to revise the Unit 4 CST and transfer piping as follows:

- Subsection 9.2.6.2 – revised to state that the CST for Unit 3 is located on west side of Unit 3 as depicted on Figure 12.3-201, while the Unit 4 CST is located on the east side of Unit 4, as depicted on Figure 12.3-202.
- Subsection 10.4.8.2.1 – revised to refer to Figures 12.3-201 and 12.3-202.
- Subsection 11.2.3.4 – clarified the description of the piping run for Unit 3 and Unit 4.
- COL Action Item 12.3(10) – added Figure 12.3-202.
- Table 12.3-201, Sheets 1 and 2 – clarified the description of the piping runs for Unit 3 and Unit 4.
- Table 12.3-201, Sheet 4 – clarified the description of the piping run from the turbine building to the yard.
- Figure 12.3-201 – revised figure to show that it is now only applicable to Unit 3.
- Figure 12.3-202 – added new figure for Unit 4 yard piping routing and building penetration schematic.

Luminant believes there is no impact to the conclusions reached in the Safety Evaluation Report with Open Items for Chapter 12 as a result of the changes identified and that minor modifications to Page 12-31 referencing Figure 12.3-201 and new Figure 12.3-202 are the only changes necessary.

Impact on R-COLA

See attached marked-up FSAR Revision 3 pages 9.2-25, 10.4-7, 10.4-8, 11.2-8, 12.3-4, 12.3-6, 12.3-7, 12.3-9, and Figure 12.3-201, and new Figure 12.3-202.

Impact on S-COLA

None; this response is site-specific.

Impact on DCD

None.

~~for the ESW pump discharge check valve and motor operated butterfly valve, allowable voiding volume and maintenance durations. These level switches are used to allow the good operating practice of not manually starting the ESW pumps with low level in the header. rather than perform accident mitigation. Thus, the safety classification of these level switches is non safety-related and power is supplied by non-Class 1E power source.~~ RCOL2_09.02.01-9 RCOL2_09.02.01-9 S01

9.2.6.2 System Description RCOL2_12.03-12.04-11 S04

Replace the second paragraph in DCD Subsection 9.2.6.2 with the following.

The condensate storage and transfer system consists of one CST for each unit. The CST for CPNPP Unit 3 is located on the west side of CPNPP Unit 3. CPNPP Unit 4 CST is located on the east side of CPNPP Unit 4. Figures 12.3-201 and 12.3-202 depict this layout. Each CST has two 100% capacity condensate transfer pumps, and associated valves, piping, and instrumentation.

9.2.6.2.4 Condensate Storage Tank

Replace the last sentence of the first paragraph in DCD Subsection 9.2.6.2.4 with the following.

After analysis for level of contamination, the content inside the dike area can be trucked to Waste Management Pond C for disposal; or to the LWMS for treatment and release.

9.2.7.2.1 Essential Chilled Water System

STD COL 9.2(27) Replace the thirteenth paragraph in DCD Subsection 9.2.7.2.1 with the following.

The operating and maintenance procedures regarding water hammer are included in system operating procedures in Subsection 13.5.2.1. A milestone schedule for implementation of the procedures is also included in Subsection 13.5.2.1.

9.2.10 Combined License Information

Replace the content of DCD Subsection 9.2.10 with the following.

CP COL9.2(1)
STD COL 9.2(1) ***9.2(1)*** *The evaluation of ESWP at the lowest probable water level of the UHS and the recovery procedures when UHS approaches low water level*

This COL item is addressed in Subsection 9.2.1.3, 9.2.5.2.1, 13.5.2.1.

CP COL 9.2(2) ***9.2(2)*** *The protection against adverse environmental, operating and accident condition that can occur such as freezing, low temperature operation, and thermal over pressurization*

This COL item is addressed in Subsection 9.2.1.3.

The SGBDS also includes startup SG blowdown flash tank, startup blowdown heat exchanger, piping, valves and instrumentation used during plant startup and abnormal water chemistry conditions.

CP COL 10.4(2) Replace the thirteenth and fourteenth paragraph in DCD Subsection 10.4.8.2.1 with the following.

During plant startup, the blowdown rate is up to approximately 3 % of maximum steaming rate (MSR) at rated power. The blowdown from each SG flows to the startup SG blowdown flash tank. The blowdown lines from SGs A and B and the blowdown lines from SGs C and D are joined together before flowing to the startup SG blowdown flash tank.

The blowdown water from each SG is depressurized by a throttle valve located downstream of the isolation valves located in the startup blowdown line. The throttle valves can be manually adjusted to control the blowdown rate.

The depressurized blowdown water flows to the startup SG blowdown flash tank, where water and flashing vapor are separated. The vapor is diverted to the condenser and the water flows to the startup SG blowdown heat exchanger for cooling. The CWS cools blowdown water in this heat exchanger before discharging to the existing waste water management Pond C. Pond C has $6.7x10^6$ gal storage capacity.

This discharge line consists of the following piping segments for CPNPP Units 3 and 4 as depicted in Figures 12.3-201 and 12.3-202: RCOL2_12.03-12.04-11 S04

1. Single-walled stainless steel pipe from the startup SGBD heat exchanger up to and including the radiation monitor and the valves associated with the startup SGBD equipment. This line section includes the condensate return line and the discharge piping;

2. Of the two discharge piping segments, including the portion through the wall penetrations, the first piping segment in between the Startup SGBD system and the T/B (going to the Waste Holdup Tanks) is double-walled piping with stainless steel inner pipe and carbon steel outer pipe with no insulation. The second piping segment in between the Startup SGBD system and the T/B (going to the Waste Management Pond C) is double-walled carbon steel piping. The outer carbon steel pipe on both segments is coated to protect against corrosion;

3. Once inside the T/B, the discharge piping is connected (transferring effluent to the Waste Holdup Tanks) to single-walled stainless steel piping and is routed in pipe chases. And the other piping segment (transferring effluent to Waste Management Pond C) is connected to single-walled carbon steel piping and is also routed in pipe chases;

4. From the Unit 3 pipe chase, the discharge pipe exits the T/B penetration and is routed as a single-walled carbon steel piping in a concrete trench from the T/B to the transition manhole downstream of the Condensate Storage Tanks (CST). This portion of the piping is in the same concrete trench as the condensate transfer piping to the CST. From the Unit 4 pipe chase, the discharge pipe exits the T/B penetration and is routed as a single-walled carbon steel piping in a concrete trench from the T/B to the transition manhole downstream at the plant cement pavement boundary. The concrete trench is sloped and has an epoxy coating to facilitate drainage. This design eliminates liquid accumulation in the trench and thus minimizes unintended release. Using single-walled carbon steel pipe in the trench facilitates additional radial cooling of the fluid and enables the use of High Density Polyethylene (HDPE) piping for underground burial; RCOL2_12.03-12.04-11 S04 RCOL2_12.03-12.04-11 S04 RCOL2_12.03-12.04-11 S04

5. From the transition manhole, the discharge piping is connected to a buried double-walled HDPE piping to an existing waste water management Pond C for discharge. A transition manhole is constructed near the plant pavement boundary. HDPE pipe has the property of good corrosion resistance in the soil environment;

6. The trench and the double-walled HDPE piping are both sloped towards the nearby manhole so that leakage can be collected at the manholes. This approach also facilitates the determination of the segment of pipe that is leaking. Analysis of samples of the liquid collected in the manholes can also differentiate whether the leakage is rain water, groundwater or condensate.

Additional manholes are provided for testing and inspection for the buried piping. Each manhole is equipped with drain collection basins and leak detection instruments. This design approach minimizes unintended releases and provides accessibility to facilitate periodic hydrostatic or pressure testing and visual inspection to maintain pipe integrity. This design feature is in compliance with the guidance of RG 4.21, provided in Subsection 12.3.1.3.1. A radiation monitor located downstream of the startup SG blowdown heat exchanger measures radioactive level in the blowdown water. When an abnormally high radiation level is detected, the blowdown lines are isolated and the blowdown water included in the SGBDS is transferred to waste holdup tank in the LWMS. The location and other technical details of the monitor (RMS-RE-110) is described in Subsection 11.5.2.5.3 and Table 11.5-201.

With abnormal water chemistry, the flow of blowdown rate up to approximately 3 % of MSR at rated power is directed to the existing waste water management pond C via the startup SG blowdown flash tank for processing. In this mode, flashed vapor from the startup SG blowdown flash tank flows to the deaerator.

During normal operation, blowdown rate is approximately 0.5 to 1 % of MSR at rated power. At the 1% of MSR at rated power blowdown rate, both cooling trains are used.

The pond does not need to be used continuously because diversion of flow is not required during normal operating conditions and anticipated operational occurrences. The design features (HDPE, leak detection pit, and sloping towards the drainage pit for discharge) and operating procedures (cleaning, diversion only when required) ensure ease of decontamination and minimization of cross contamination (leakage to the groundwater), and thus satisfy 10 CFR 20.1406 and RG 4.21.

The LWMS piping for transporting treated effluent from the discharge valve inside the A/B to the evaporation pond and the piping from the pond to the Unit 1 flow receiver and head box consists of the following piping segments:

1. From the WMT discharge valves, single-walled carbon steel pipe is routed in pipe chases from the A/B, through the Power Source Building (PS/B), up to the Turbine Building (T/B) exit wall penetration.

2. The effluent pipe is then connected to a single-walled carbon steel pipe or double-walled HDPE piping from the T/B wall to the yard ~~near the condensate storage tank~~. This portion of pipe is run in the ~~condensate transfer~~ piping trench. A transition manhole is constructed near the plant pavement boundary to accommodate splitting the radwaste effluent pipe into two piping segments: the first segment goes to the Unit 1 flow receiver and headbox, and the second segment goes to the radwaste evaporation pond. RCOL2_12.03-12.04-11 S04

3. Buried double-walled HDPE piping from the transition manhole to the Unit 1 flow receiver and head box and to the evaporation pond.

4. Buried double-walled HDPE piping from the radwaste evaporation pond to the Unit 1 flow receiver and head box. This pipe is buried parallel to the effluent pipe from the WMTs and passes through the same manholes for testing and inspection for piping integrity.

Additional manholes are provided for testing and inspection of the buried piping. Each manhole is equipped with drain collection basins and leak detection instruments to send a signal when activated by fluid in the manhole to a receiver in the MCR for operator action. This design approach minimizes leakage and provides accessibility to facilitate periodic testing (hydrostatic or pressure), or visual inspection to maintain pipe integrity and is compliant with RG 4.21. A back flow preventer is provided near the Units 1 and 2 discharge boxes to prevent back flow from the circulating water.

The treated effluent release piping is non-safety and does not have any safety function. In addition, the Unit 1 flow receiver and head box, circulating water system, and discharge box are not required to perform any safety function or important to safety functions.

STD COL 12.3(1) CP COL 12.3(1) ***12.3(1)*** *Portable instruments*

This COL item is addressed in Subsection 12.3.4 and Section 12.5.

12.3(2) *Deleted from the DCD.*

12.3(3) *Deleted from the DCD.*

STD COL 12.3(4) CP COL 12.3(4) ***12.3(4)*** *Site radiation zones*

This COL item is addressed in Subsection 12.3.1.2.1.1 and Figure 12.3-1R (sheet 1 of 34).

CP COL 12.3(5) STD COL 12.3(5) ***12.3(5)*** *Administrative control of the fuel transfer tube inspection*

This COL item is addressed in Subsection 12.3.2.2.8 and Section 12.5.

STD COL 12.3(6) ***12.3(6)*** *The radiation protection aspects of the Mobile Liquid Waste Processing System.*

This COL item is addressed in Subsection 12.3.1.1.1.2.

STD COL 12.3(7) ***12.3(7)*** *How the system meets the requirements of 10 CFR 20.1406 and RG 4.21.*

This COL item is addressed in Subsections 11.2.1.6 and 12.3.1.1.1.2.

STD COL 12.3(8) ***12.3(8)*** *Radiation Zones for the Mobile Liquid Waste Processing System area.*

This COL item is addressed in Subsection 12.3.1.1.1.2.

CP COL 12.3(9) ***12.3(9)*** *Radiation Protection Program contains provisions to ensure the B.A. evaporator room does not become a VHRA.*

This COL item is addressed in Section 12.5

CP COL 12.3(10) STD COL 12.3(10) ***12.3(10)*** *The COL Applicant will address the site-specific design features, operational and post-construction objectives of Regulatory Guide 4.21.*

This COL item is addressed in Subsections 12.3.1.3.1.1, 12.3.1.3.2, Figures 12.3-201 and 12.3-202 and Table 12.3-201. RCOL2_12.03-12.04-11 S04

12.3.7 References

Add the following reference after the last reference in DCD Subsection 12.3.7.

CP COL 12.3(10)

Table 12.3-201 (Sheet 1 of 5)

Regulatory Guide 4.21 Design Objectives and Applicable FSAR Subsection Information for Minimizing Contamination and Generation of Radioactive Waste

Steam Generator Blowdown System **(Note: This table addresses the site-specific components and must be reviewed in parallel with the DCD Table 12.3-8 for standard components. The "System Features" column consists of excerpts from the FSAR)**

Objective		System Features	FSAR Reference
1	Minimize leaks and spills and provide containment in areas where such events may occur.	This discharge line consists of the following piping segments: 1. Single-walled stainless steel pipe from the startup SGBD heat exchanger up to and including the radiation monitor and valves associated with the startup SGBD equipment. This line section includes the condensate return line and the discharge piping; 2. Of the two discharge piping segments, including the portion through the wall penetrations, the first piping segment in between the Startup SGBD system and the T/B (going to the Waste Holdup Tanks) is double-walled piping with stainless inner pipe and carbon steel outer pipe with no insulation. The second piping segment in between the Startup SGBD system and the T/B (going to the Waste Management Pond C) is double-walled carbon steel piping. The outer carbon steel pipe on both segments is coated to protect against corrosion; 3. Once inside the T/B, the discharge piping is connected (transferring effluent to the Waste Holdup Tanks) to single-walled stainless steel piping and is routed in pipe chases. And the other piping segment (transferring effluent to the Waste Management Pond C) is connected to single-walled carbon steel piping and is also routed in pipe chases. 4. From the Unit 3 pipe chase, the discharge pipe exits the T/B penetration and is routed as a single-walled carbon steel piping in a concrete trench from the T/B to the transition manhole downstream of the condensate storage tanks (CSTs). This portion of the piping is in the same concrete trench as the condensate transfer piping to the CST. From the Unit 4 pipe chase, the discharge pipe exits the T/B penetration and is routed as a single-walled carbon steel pipe in a concrete trench from the T/B to the transition manhole at the plant cement pavement boundary. The concrete trench is sloped and has an	10.4.8.2.1
2	Provide for adequate leak detection capability to provide prompt detection of leakage for any structure, system, or component which has the potential for leakage.		

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RCOL2_12.03-12.04-11 S04

CP COL 12.3(10)

Table 12.3-201 (Sheet 2 of 5)

Regulatory Guide 4.21 Design Objectives and Applicable FSAR Subsection Information for Minimizing Contamination and Generation of Radioactive Waste

Steam Generator Blowdown System

(Note: This table addresses the site-specific components and must be reviewed in parallel with the DCD Table 12.3-8 for standard components. The "System Features" column consists of excerpts from the FSAR)

Objective		System Features	FSAR Reference
2		epoxy coating to facilitate drainage. This design eliminates liquid accumulation in the trench and thus minimizes unintended release. Using single-walled carbon steel pipe in the trench facilitates additional radial cooling of the fluid and enables the use of High Density Polytheylene (HDPE) piping for underground burial; 5. From the transition manhole, the discharge piping is connected to a buried double-walled HDPE piping to an existing waste water management Pond C for discharge. A transition manhole is constructed near the plant pavement boundary. HDPE pipe has the property of good corrosion resistance in the soil environment; 6. The trench and the double-walled HDPE piping are both sloped towards the nearby manhole so that leakage can be collected at the manholes. This approach also facilitates the determination of the segment of pipe that is leaking. Analysis of samples of the liquid collected in the manholes can also differentiate whether the leakage is rain water, groundwater or condensate.	

RCOL2_12.03-12.04-11 S04

CP COL 12.3(10)

Table 12.3-201 (Sheet 4 of 5)

Regulatory Guide 4.21 Design Objectives and Applicable FSAR Subsection Information for Minimizing Contamination and Generation of Radioactive Waste

Liquid Waste Management System

(Note: This table addresses the site-specific components and must be reviewed in parallel with the DCD Table 12.3-8 for standard components. The "System Features" column consists of excerpts from the FSAR)

Objective		System Features	FSAR Reference
1	Minimize leaks and spills and provide containment in areas where such events may occur.	The LWMS effluent release piping for transporting radioactive effluent from the discharge valve inside the Auxiliary Building (A/B) to the pond and the piping from the pond to the Unit 1 flow receiver and head box consists of the following piping segments: 1. From the discharge valve, single-walled carbon steel pipe is routed in pipe chases from the A/B, through the Power Source Building (PS/B), up to the Turbine Building (T/B) exit wall penetration. 2. The effluent pipe is then connected to a single-walled carbon steel pipe or double-walled High Density Polyethylene (HDPE) piping from the T/B wall to the yard~~ near the CST~~. This portion of pipe is run ~~via the condensate transfer~~in the piping trench. A transition manhole is constructed near the plant pavement boundary to accomodate splitting the radwaste effluent pipe into two piping segments: first segment goes to the Unit 1 flow receiver and headbox, and second effluent pipe to the radwaste evaporation pond. 3. Buried double-walled HDPE piping from the transition manhole to the Unit 1 flow receiver and head box. 4. Buried double-walled HDPE piping from the transition manhole to the radwaste evaporation pond. Additional manholes are constructed to monitor leakage along the buried pathway. 5. The radwaste evaporation pond return pipe is buried double-walled HDPE piping from the pond to the Unit 1 flow receiver and head box. This return pipe is buried parallel to the effluent pipe and passes through the same manholes for testing and inspection for piping integrity.	11.2.3.4
2	Provide for adequate leak detection capability to provide prompt detection of leakage for any structure, system, or component which has the potential for leakage.		

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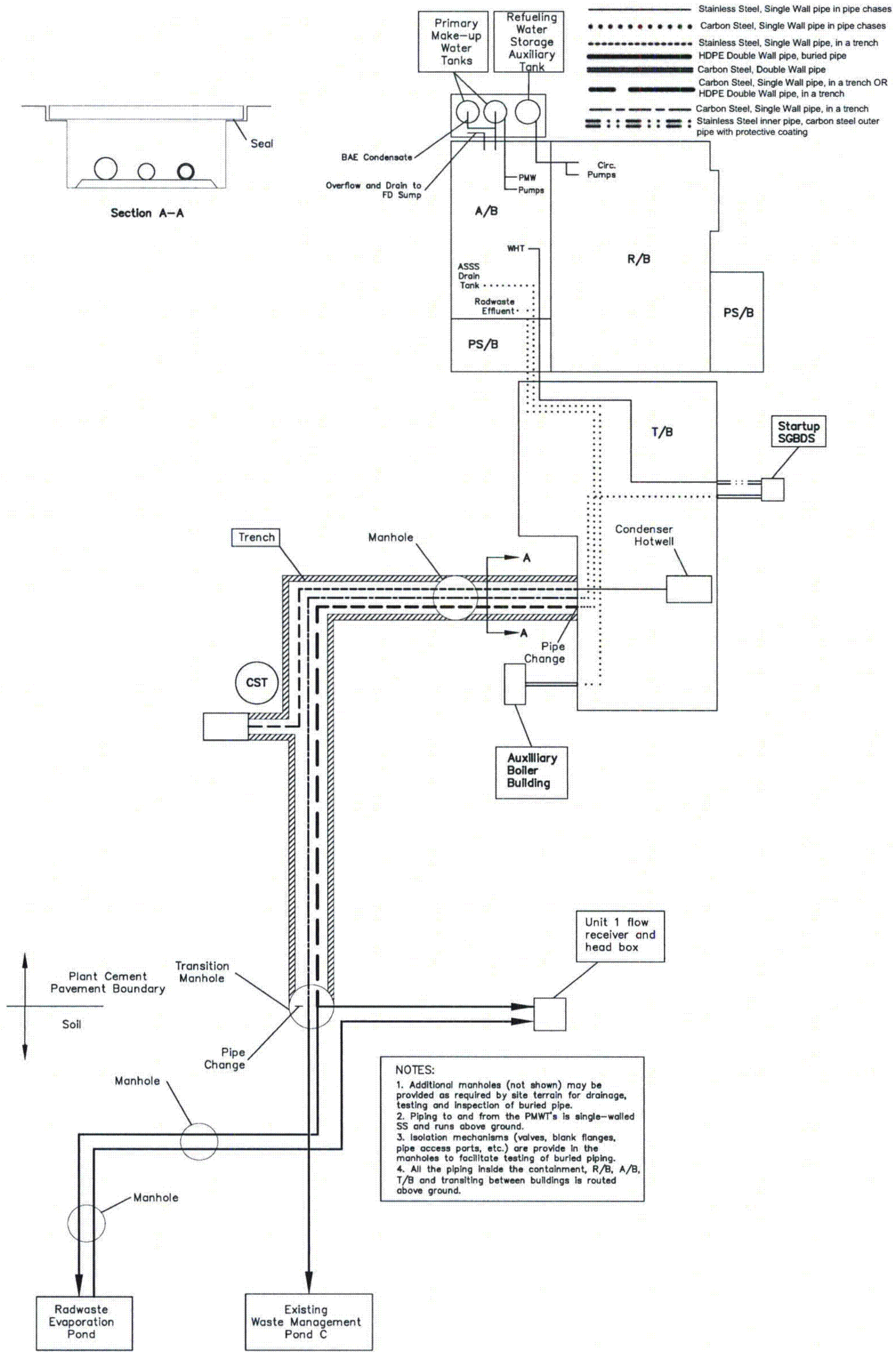

CP COL 12.3(10) **Figure 12.3-201 Yard Piping Routing and Building Penetration Schematic <u>for CPNPP Unit 3</u>**
(Not to scale)

RCOL2_12.0
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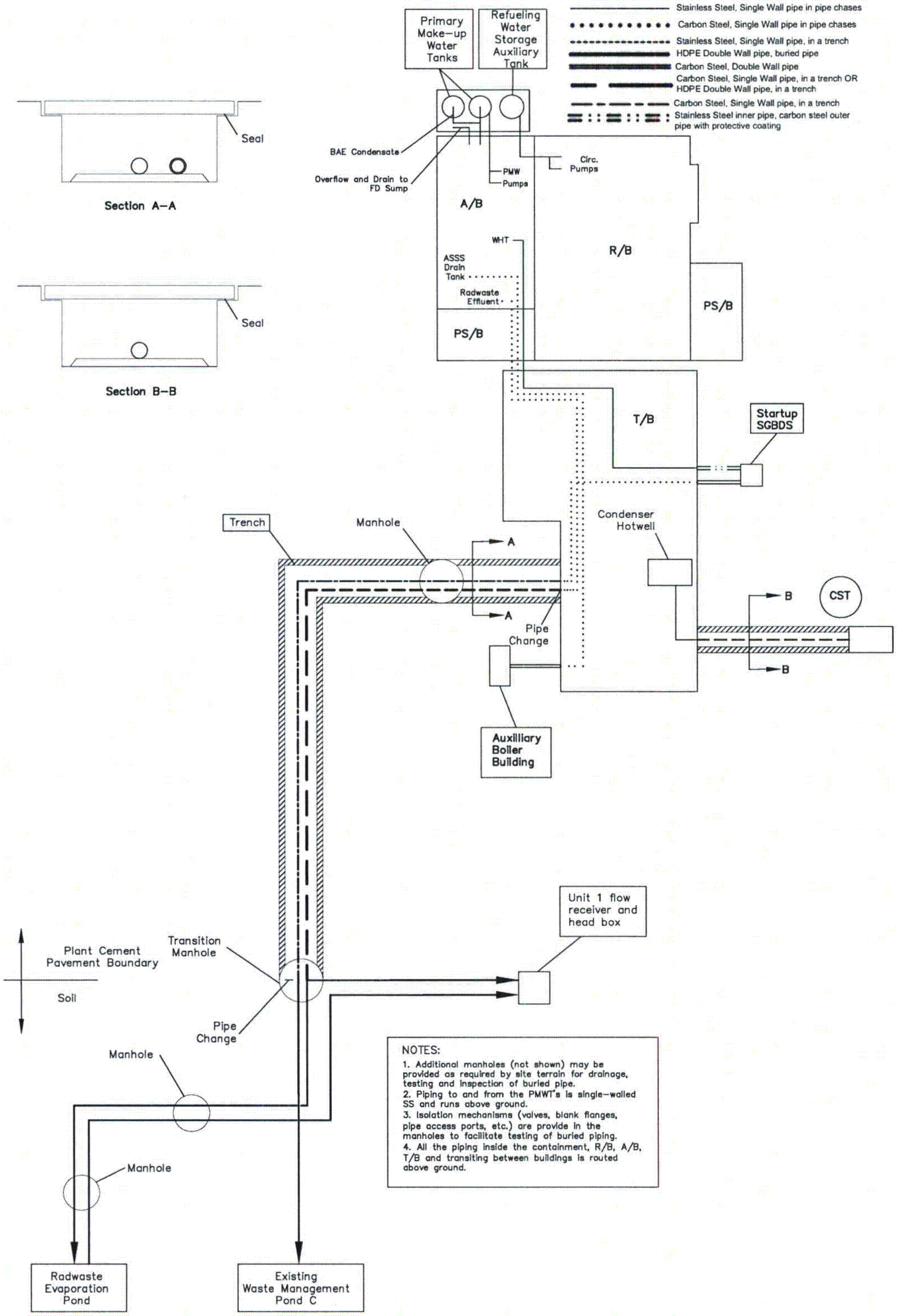

CP COL 12.3(10) **Figure 12.3-202 Yard Piping Routing and Building Penetration Schematic for CPNPP Unit 4 (Not to scale)**