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June 18, 2013

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
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION 275 (7099)
(SECTION 3.4.1)

Dear Sir:

Luminant Generation Company LLC (Luminant) submits herein the response to Request for Additional Information (RAI) 275 (7099) for the Combined License Application for Comanche Peak Nuclear Power Plant Units 3 and 4. The RAI addresses the impact of tank failures on safety-related structures, systems, and components.

Should you have any questions regarding the response, 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 June 18, 2013.

Sincerely,

Luminant Generation Company LLC

Donald R. Woodlan for

Rafael Flores

Attachment: Response to Request for Additional Information 275 (7099)

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NRO

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RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Comanche Peak, Units 3 and 4

Luminant Generation Company LLC

Docket Nos. 52-034 and 52-035

RAI 275 (7099)

SRP SECTION: 03.04.01 - Internal Flood Protection for Onsite Equipment Failures

DATE OF RAI ISSUE: 5/15/2013

QUESTION NO.: 03.04.01-1

US-APWR DCD COL item COL 3.4(3) states "Site-specific flooding hazards from engineered features, such as from cooling water system piping, are to be addressed by the COL applicant". Upon review of the site plan drawings the staff found that there are two 750,000 gallon non-seismic condensate storage tanks (CSTs), surrounded by non-seismic dikes located outside the turbine building which puts them in close proximity of safety-related structures, systems, and components (SSCs). SRP 3.4.1 "internal flood protection for onsite equipment failures" identifies failure of exterior tanks as an area of review. Therefore the staff's review of internal flooding takes into consideration the effects of potential flooding of SSC's due to failure of non-seismic and non-tornado protected tanks, vessels, and other process equipment. The applicant does not address the failure of the condensate storage tanks in the supplemental information added to the FSAR to address COL item 3.4(3). However, in addressing COL item 3.4(1) it is stated in the FSAR that

"Entrances to all safety-related structures are above the design-basis flooding level (DBFL) listed in Section 2.4, and adequate sloped site grading and drainage prevents flooding caused by probable maximum precipitation (PMP) or postulated failure of non safety-related, non seismic storage tanks located on site."

Based on the location of the CST relative to the plant, the staff could not confirm the water released from the failure of the CSTs would be drained away from the plant. Also, the COL item in the FSAR addressing failure of these tanks is identified as a standard COL item (SCOL). Since the number and location of condensate storage tanks in the yard are site dependent, the COL item related to this should be a site specific COL item (CP COL).

a. Specifically address the failure of the exterior tanks associated with the condensate storage facilities, (CST, DWST, and PMWTs) in the FSAR, and provide the basis for the conclusion that water released due to failure of these tanks would flow away from the plant and not impact safety-related SSCs.

b. Identify this COL item as a Comanche Peak COL item instead of a Standard COL item since it is based on site specific location of the external tanks.

ANSWER:

a. The site-specific external flooding evaluation considers the failures of large water tanks that are not protected from tornado, hurricane, and other missiles, i.e., the condensate storage tanks (CSTs), primary make-up water tanks (PMWTs), refueling water storage auxiliary tank (RWSAT),

demineralized water storage tanks (DWSTs) and fire water storage tanks (FWSTs). Multiple tank failures are considered in this evaluation because earthquake, tornado missiles, or hurricane missiles could damage multiple tanks simultaneously.

As shown in FSAR Figure 1.2-1R (Sheet 2 of 2), two PMWTs and one RWSAT are located inside each Tank House, which is located north of the auxiliary building. The capacities of one PMWT and the RWSAT are 140,000 gallons and 220,000 gallons, respectively. The PMWTs and RWSAT are surrounded by concrete curbs inside the Tank House that are designed to retain the entire water volume of all three tanks. Therefore, failure of two PMWTs and the RWSAT in a unit does not jeopardize any safety-related equipment. However, since the concrete curbs are not seismically qualified, they cannot be credited for a seismic event, although they can be credited for tornado/hurricane missiles. As depicted in FSAR Figure 2.4.2-202 and Figure 2.4.2-206, there are several grading and drainage features in the area of the Tank Houses. See Attachment 1 for the flow paths from the Tank Houses. If the curb is not credited due to a seismic event, the flow path from the Unit 3 PMWTs and RWSAT could be Path A and/or Path B. Path A flows to Drainage Pond B, while Path B merges into Path C and flows to Drainage Pond A. Also, the flow path from Unit 4 PMWTs and RWSAT could be Path D and/or Path E. Path D merges into Path C and flows to Drainage Pond A, while Path E flows directly to Drainage Pond A. Therefore, even if the concrete curbs inside the Tank Houses are non-functional due to a seismic event, the released water would be directed to Drainage Pond A or Drainage Pond B.

Drainage Pond A is normally empty and has a bottom elevation of approximately 798.9 ft msl. Drainage Pond A has a capacity of approximately 7,300,000 gallons at the overflow elevation of approximately 810 ft msl. The top berm elevation of Drainage Pond A is approximately 813 ft msl, so the overflow capacity of Drainage Pond A is much greater than 7,300,000 gallons.

Drainage Pond B has a bottom elevation of approximately 804 ft msl and an overflow elevation of approximately 811 ft msl. Drainage Pond B is normally empty and has a capacity of approximately 2,700,000 gallons. The top berm elevation of Drainage Pond B is approximately 814 ft msl, so its overflow capacity is much greater than 2,700,000 gallons.

Therefore, the entire water volume from all Unit 3 and 4 PMWTs and RWSATs can be retained within Drainage Pond A and Drainage Pond B, even if the runoff feature of Drainage Pond A or Drainage Pond B is postulated to be non-functional.

Two FWSTs are located at an elevation of 822 ft msl on the east side of Unit 3, more than 300 ft from the Unit 3 east power source fuel storage vault (PSFSV), which is the nearest safety-related structure. The capacity of a FWST is 500,000 gallons. As depicted in FSAR Figure 2.4.2-202 and Figure 2.4.2-206, there are several grading and drainage features in the area of the FWSTs. The grade is sloped downhill to the north and east of the FWSTs leading to Drainage Pond B, which is located east of Unit 3. Unit 3 Southeast Channel located west of the FWSTs has a flow path to Drainage Pond B. The Security and Access Office is located south of the FWSTs, so there is no flow path to the south from the FWSTs. Therefore, leakage from the FWST in any direction is directed to Drainage Pond B. See Attachment 2 for the flow path from FWSTs, which is Path F. The capacity of Drainage Pond B is much greater than 2,700,000 gallons as presented above. Therefore, the entire water volume from the FWSTs can be retained within Drainage Pond B, even if the runoff feature of Drainage Pond B is postulated to be non-functional. Thus, failure of the FWSTs does not jeopardize safety-related equipment.

Two CSTs are located at an elevation of 822 ft msl between the Unit 3 and Unit 4 Turbine Buildings. The CSTs are approximately 280 ft west of the Unit 3 PSFSV and approximately 300 ft east of the Unit 4 PSFSV, which are the nearest safety-related structures. The capacity of a CST is 750,000 gallons. As depicted in FSAR Figure 2.4.2-202 and Figure 2.4.2-206, the grade is sloped downhill around the CSTs, directing leakage from the CST to the nearest valley located southwest of the CSTs. Overflow from this valley will ultimately discharge into Drainage Pond A via a 620 ft by 30 ft swale. See Attachment 3 for the flow path from the CSTs, which is Path G. The capacity of Drainage Pond A is much greater than 7,300,000 gallons as presented above. Therefore, the entire water volume from the CSTs can be retained within Drainage Pond A even if

the runoff feeder of Drainage Pond A is postulated to be non-functional. Thus, the failure of the CSTs does not jeopardize safety-related equipment.

Three DWSTs are located outside the protected area at an elevation of 847.5 ft msl on the south side of the Unit 3 and 4 parking area, approximately 1,500 ft east of the Unit 4 PSFSV, which is the nearest safety-related structure. DWSTs are identified as # 11 in FSAR Figure 1.2-1R (Sheet 1 of 2). Two of the DWSTs are for Unit 3 and 4 and the third is for Units 1 and 2 (combined). As shown in Attachment 4, there are several grading and drainage features around the DWSTs. There are culverts located around the DWSTs, which direct water released from DWSTs to the pond located southeast of the DWSTs (Path H). Also, even if this pond is postulated to be non-functional, released water could flow to the Units 1 and 2 safe-shutdown impoundment as indicated by Path J. Additionally, the Unit 3 and 4 parking area and the existing effluent holdup and evaporation pond are located north of the DWSTs at an elevation of approximately 849 ft msl. These features provide no path for water released from the DWSTs to flow north and reach the Unit 3 and 4 protected area. In the event that some released water reaches the protected area, it is drained away from the plant by the West Channel identified in FSAR Figure 2.4.2-206. Therefore, failure of the DWSTs does not jeopardize safety-related equipment.

FSAR Subsection 3.4.1.2 has been revised to address the failure of these exterior tanks.

b. FSAR Subsection 3.4.1.2 has been revised to identify this COL item as a CP COL item instead of a STD COL item.

Attachments

1. Flow Paths from Tank Houses
2. Flow Paths from Fire Water Storage Tanks
3. Flow Paths from Condensate Storage Tanks
4. Flow Paths from Demineralized Water Storage Tanks

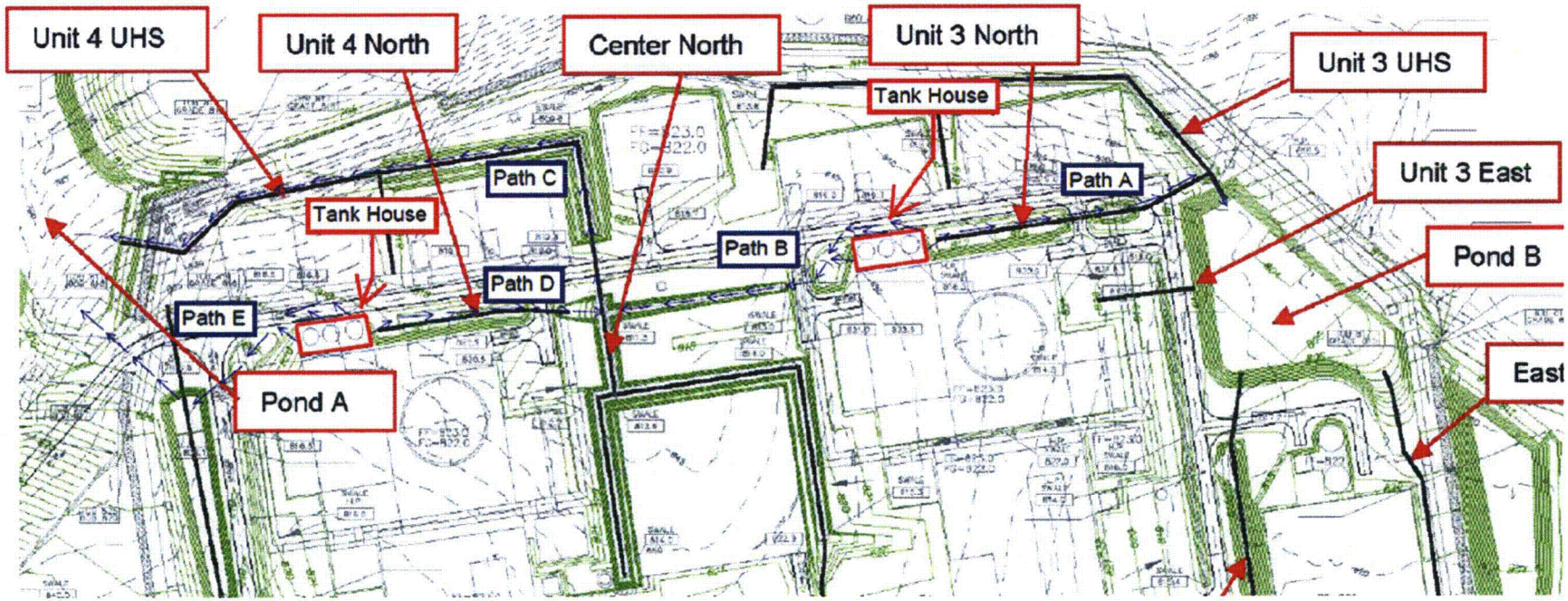
Impact on R-COLA

See attached marked up FSAR Revision 3 page 3.4-1.

Impact on DCD

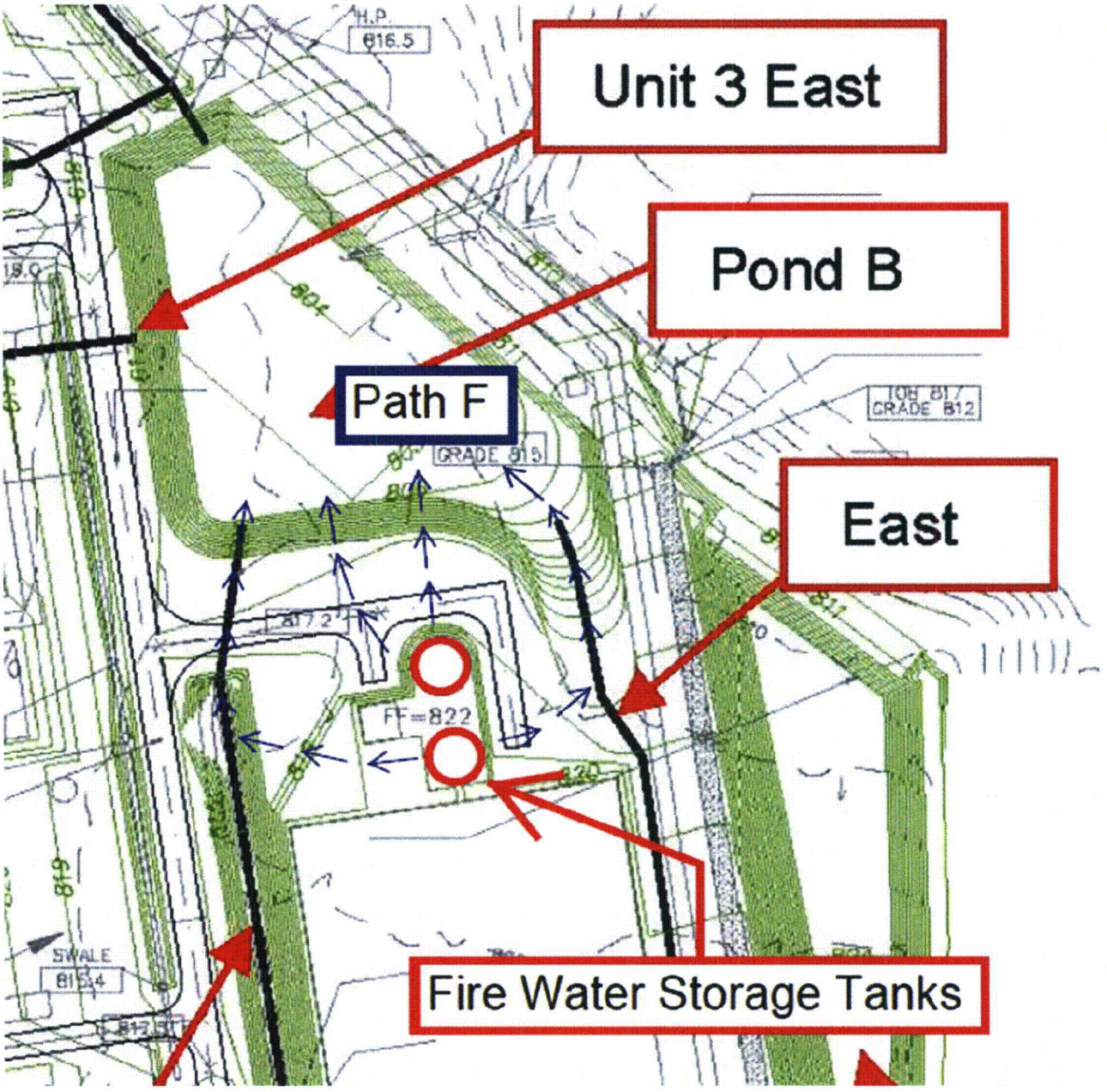
None.

Attachment 1



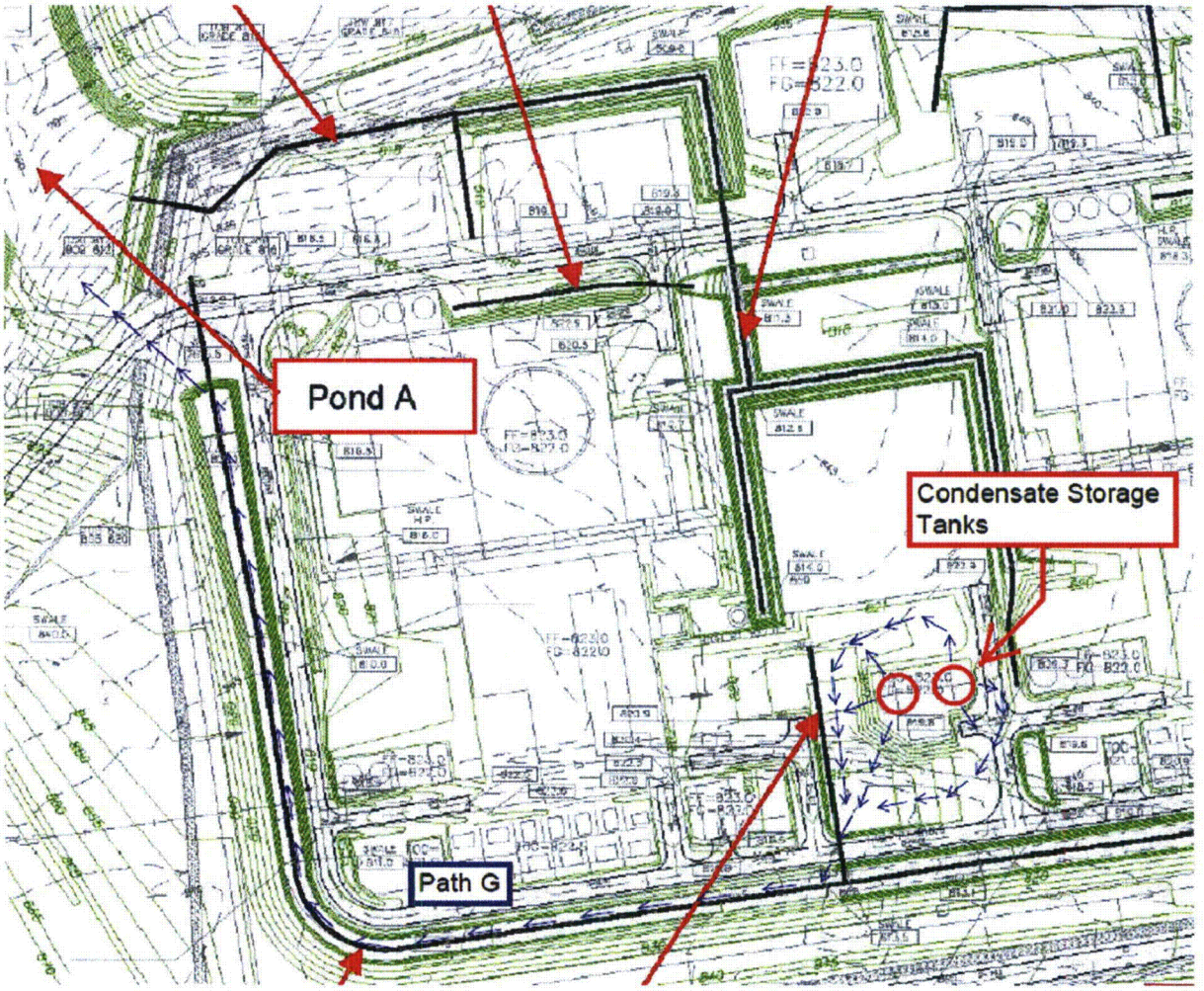
Flow Paths from Tank Houses

Attachment 2



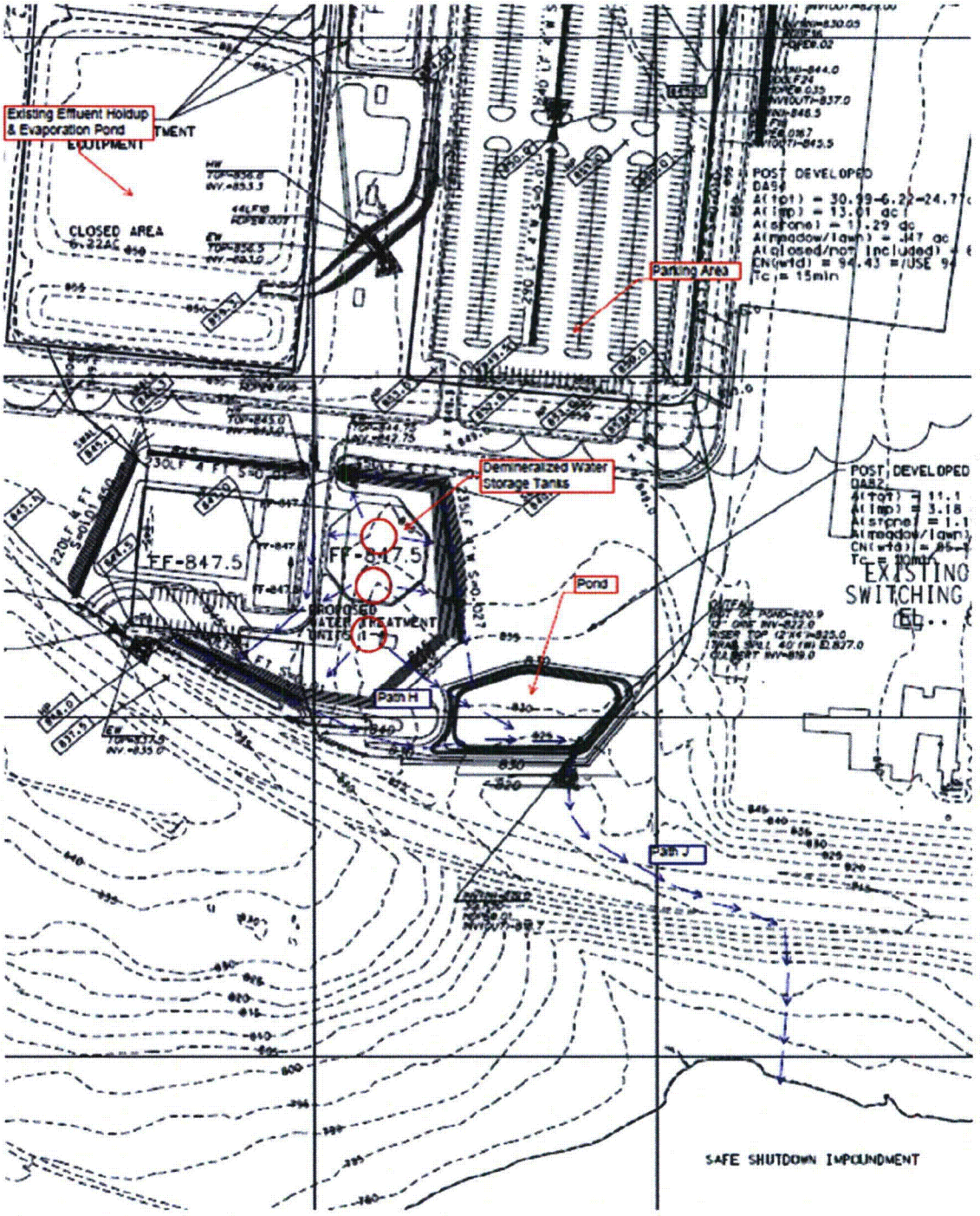
Flow Paths from Fire Water Storage Tanks

Attachment 3



Flow Paths from Condensate Storage Tanks

Attachment 4



Flow Paths from Demineralized Water Storage Tanks

3.4 WATER LEVEL (FLOOD) DESIGN

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

3.4.1.2 Flood Protection from External Sources

~~STD~~CP COL 3.4(1) Replace the first sentence of the third paragraph in DCD Subsection 3.4.1.2 with the following. RCOL2_03.04.01-1

Entrances to all safety-related structures are above the design-basis ~~flooding level (DBFL) listed~~flood elevations described in Section 2.4, and adequate sloped site grading and drainage prevents flooding caused by probable maximum precipitation (PMP). ~~or postulated failure of non-safety related, non-seismic storage tanks located on site~~Entrances to all safety-related structures are also protected from flooding due to the failure of the outside tanks (such as the condensate storage tanks, refueling water storage auxiliary tank, demineralized water storage tanks, and fire water storage tanks) by the site's grading and drainage or installed curbs. RCOL2_03.04.01-1 RCOL2_03.04.01-1

CP COL 3.4(5) Replace the fourth paragraph in DCD Subsection 3.4.1.2 with the following.

No site-specific flood protection measures such as levees, seawalls, floodwalls, site bulkheads, revetments, or breakwaters are applicable at CPNPP Units 3 and 4, since the plant is built above the DBFL and has adequate site grading.

CP COL 3.4(4) Replace the seventh paragraph in DCD Subsection 3.4.1.2 with the following.

All seismic Category 1 buildings and structures below-grade are protected against the effects of flooding, including ground water. This protection is achieved by providing a water barrier on all exterior below-grade concrete members. The water barrier consists of providing waterstops at all below-grade construction joints in the exterior wall and base mats subjected to ground water seepage, and membrane waterproofing material at all below-grade exterior wall surfaces. The foundation slab water barrier system consists of crystalline waterproofing compound applied between the base mat and fill concrete/bedrock. The compound will either be spray applied or dry-shake to the fill concrete/bedrock. A cementitious membrane coating made out of a crystalline waterproofing compound is provided on the inside face of the UHS basin outermost walls and