

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

MAY

ACCESSION NBR: 8403290134 DOC. DATE: 84/03/22 NOTARIZED: NO DOCKET # 05000400
 FACIL: 50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina
 AUTH. NAME: MCDUFFIE, M.A. AUTHOR AFFILIATION: Carolina Power & Light Co.
 RECIP. NAME: DENTON, H.R. RECIPIENT AFFILIATION: Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards addl info re svc water sys effluent monitoring, in response to SER Open Item 11 from Meteorology & Effluent Treatment Branch.

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NOTES:

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	NRR/DSI/AEB 26	1 1	NRR/DSI/ASB	1 1
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	NRR/DSI/PSB 19	1 1	NRR/DSI/RAB 22	1 1
	NRR/DSI/RSB 23	1 1	<u>REG FILE</u> 04	1 1
	RGN2	3 3	RM/DDAMI/MIB	1 0
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	DMB/DSS (AMDTs)	1 1	FEMA-REP DIV 39	1 1
	LPDR 03	1 1	NRC PDR 02	1 1
	NSIC 05	1 1	NTIS	1 1

The following information was obtained from the records of the
 Department of the Interior, Bureau of Land Management, on the
 subject of the above-captioned matter. It is noted that the
 land in question is located in the State of California, and
 is owned by the United States of America. The land is
 situated in the County of Santa Clara, and is more
 particularly described as follows:

The land in question is situated in the State of California,
 and is more particularly described as follows:

26

Section	Range	County	State	Acres	Owner
1	1	San Jose	Calif.	160	U.S. Land Office
2	1	San Jose	Calif.	160	U.S. Land Office
3	1	San Jose	Calif.	160	U.S. Land Office
4	1	San Jose	Calif.	160	U.S. Land Office
5	1	San Jose	Calif.	160	U.S. Land Office
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Carolina Power & Light Company
MAR 22 1984

SERIAL: NLS-84-122

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
UNIT NO. 1 - DOCKET NO. 50-400
MONITORING OF THE SERVICE WATER SYSTEM

Dear Mr. Denton:

Carolina Power & Light Company (CP&L) hereby submits additional information concerning the Shearon Harris Nuclear Power Plant Service Water System Effluent Monitoring. This information is in response to Safety Evaluation Report (SER) Open Item 11 from the Meteorology and Effluent Treatment Branch.

If you have further questions or require additional information, please contact our staff.

Yours very truly,

M. A. McDuffie
Senior Vice President
Nuclear Generation

GAS/cfr (9699NLU)

Attachment

- | | |
|---------------------------------|----------------------------|
| cc: Mr. B. C. Buckley (NRC) | Mr. Wells Eddleman |
| Mr. J. J. Hayes (NRC-METB) | Dr. Phyllis Lotchin |
| Mr. G. F. Maxwell (NRC-SHNPP) | Mr. John D. Runkle |
| Mr. J. P. O'Reilly (NRC-RII) | Dr. Richard D. Wilson |
| Mr. Travis Payne (KUDZU) | Mr. G. O. Bright (ASLB) |
| Mr. Daniel F. Read (CHANGE/ELP) | Dr. J. H. Carpenter (ASLB) |
| Chapel Hill Public Library | Mr. J. L. Kelley (ASLB) |
| Wake County Public Library | |

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Shearon Harris Nuclear Power Plant
SER Open Item 11
Monitoring of the Service Water System

Open Item

The service water system, waste processing building cooling water system, and RAB backwash return line are not monitored downstream of all potential radioactive inputs to the system. The liquid monitor for the emergency fan coolers is not adequate for the service water system.

Response:

The service water system shown on FSAR Figure 9.2.1-1 normally discharges to the closed cycle circulating water system shown on FSAR Figure 9.2.1-2. As shown on FSAR Figure 9.2.1-2, there are two inputs of service water to the circulating water system; those systems using service water in the RAB and those systems in the WPB shown on FSAR Figure 9.2.10-1. The present design uses one off-line liquid radiation monitor (tag numbers REM-3500 A, B, C, or D) for each of the four (4) discharge lines of the containment fan coolers. To meet NRC requests the following new design is provided:

Off-line liquid radiation monitors REM-3500A and REM-3500B, which monitor the discharges of fan coolers AH-1 and AH-2, will be relocated to the service water lines discharging into the circulating water system. Liquid radiation monitor REM-3500A will be relocated to line 7SW24-544-1 in the WPB prior to valve 7SW-B44-1 shown on FSAR Figure 9.2.1-2. Liquid radiation monitor REM-3500B will be relocated to line 7SW42-1-1 in the turbine building after valve 7SW-B53-1 shown on FSAR Figure 9.2.1-2. Liquid radiation monitors REM-3500C and REM-3500D will be deleted. Liquid radiation monitors REM-3500A and REM-3500B are described in FSAR Sections 11.5.2.5.7 and 11.5.2.6.2, which include information on detector capability, sensitivity, and range. As stated in FSAR Section 11.5.1.3, liquid radiation monitors are provided with grab sample capability. The service water system, downstream of all inputs, will be monitored continuously prior to discharge to the circulating water system.

Attached is a sketch showing the affected lines from FSAR Figure 9.2.1-2 and the new locations of liquid radiation monitors REM-3500A and REM-3500B. Draft pages for FSAR Section 11.5.2.7.1 and FSAR Table 11.5.2-2 have also been attached for your information. FSAR Figure 9.2.1-2, FSAR Section 11.5.2.7.2.1, and FSAR Table 11.5.2-2 will be formally revised in a future FSAR amendment to incorporate this response.

DRAFT

The monitor provides an alert and high radiation alarm when concentration levels reach preset limits. The receipt of these alarms will alert the operator to the presence of leakage so that additional radiation surveys, sampling, and equipment isolation can be effected in order to locate and repair the leakage source.

11.5.2.7.1.5 Waste Processing Building (WPB) Cooling Water System Monitors

The WPB cooling water system monitor provides an indication to operations personnel of radioactive inleakage into the WPB Cooling Water System. The liquid monitor, described in Section 11.5.2.6.2, is located on the inlet to the WPB cooling water heat exchangers.

The monitor provides an alert and high radiation alarm when concentration levels reach preset limits. The vent valve on the WPB cooling water surge tank automatically closes on a radiation alarm from the WPB cooling water monitor.

11.5.2.7.1.6 Gas Decay Tank Monitors

The gas decay tank radiation monitor is located in the line from the gas decay tanks to the compressor suction header. The monitor allows the operator to measure the radiation from the circulating gas stream from the gas decay tank in operation.

The noble gas radiation monitor is described in Section 11.5.2.6.6. A heat exchanger is provided.

11.5.2.7.2 Effluent Radiological Monitoring System

See Table 11.5.2-2 for operating information on the effluent radiological monitors.

11.5.2.7.2.1 Service Water System Monitors

~~The service water monitors are part of the safety related portion of the RMS (Section 11.5.2.3) and provide an indication to operations personnel of the activity in the Service Water System, downstream of each of the emergency containment fan coolers. These monitors detect radioactive leakage from the Component Cooling Water System into the Service Water System, and as such provide additional assurance that radioactivity will not be released undetected from the plant. Each of the four emergency containment fan coolers per unit is monitored using the liquid monitors described in Section 11.5.2.6.2. Heat exchangers are provided to cool the sample before it is analyzed.~~

INSERT A

The monitors provide a high radiation alarm when concentrations reach preset limits. The receipt of these alarms will alert the operator to the presence of leakage, so that the leaking service water fan cooler can be isolated.

DRAFT

INSERT A

The service water radiation monitors are used to detect leakage of radioactivity into service water that cools systems which may become contaminated with radioactivity. The service water system will not be a source of routine radioactivity release. The service water system is separated from potentially contaminated systems by at least one barrier and one other monitored cooling systems (i.e. CCW and WPCCW System) or one barrier and a positive pressure differential (i.e. containment fan coolers and WPB HVAC chiller, liquid radiation monitors). Both the CCW and WPCW Systems are monitored. To ensure that any potential radioactive contamination into the service water system is monitored prior to release to the environment, the service water from the WPB and RAB will be monitored before discharge into the circulating water system. Grab sampling capability is provided on the monitors as described in Section 11.5.

TABLE 11.5.2-2
EFFLUENT RADIATION MONITORS

Description	Tag #	Subsection of 11.5.2.7.1 Described in	Detector Type	Range	Sensitivity	Accuracy (%)	Typical High Alarm Setpoints	Location	Power	Automatic Actuation
WPB										
Service Water Control Fan Cooler AR-1	ISU-3500A SA	.1	Liquid (11.5.2.5.7)	$3 \times 10^{-8} - 1 \times 10^{-3}$	3.3×10^8 CPM/μCi/cc Cal37	±30	2×10^{-6} μCi/cc	Off-line	1	-
Service Water Control Fan Cooler AR-2	ISU-3500A SA	.1								
Turbine Building										
Service Water Control Fan Cooler AR-1	ISU-3500B SA	.1								
Service Water Control Fan Cooler AR-2	ISU-3500B SA	.1								
Service Water Control Fan Cooler AR-3	ISU-3500C SA	.1								
Service Water Control Fan Cooler AR-3	ISU-3500C SA	.1								
Service Water Control Fan Cooler AR-4	ISU-3500D SA	.1								
Service Water Control Fan Cooler AR-4	ISU-3500D SA	.1								

11.5.2-22

Amendment No. 10

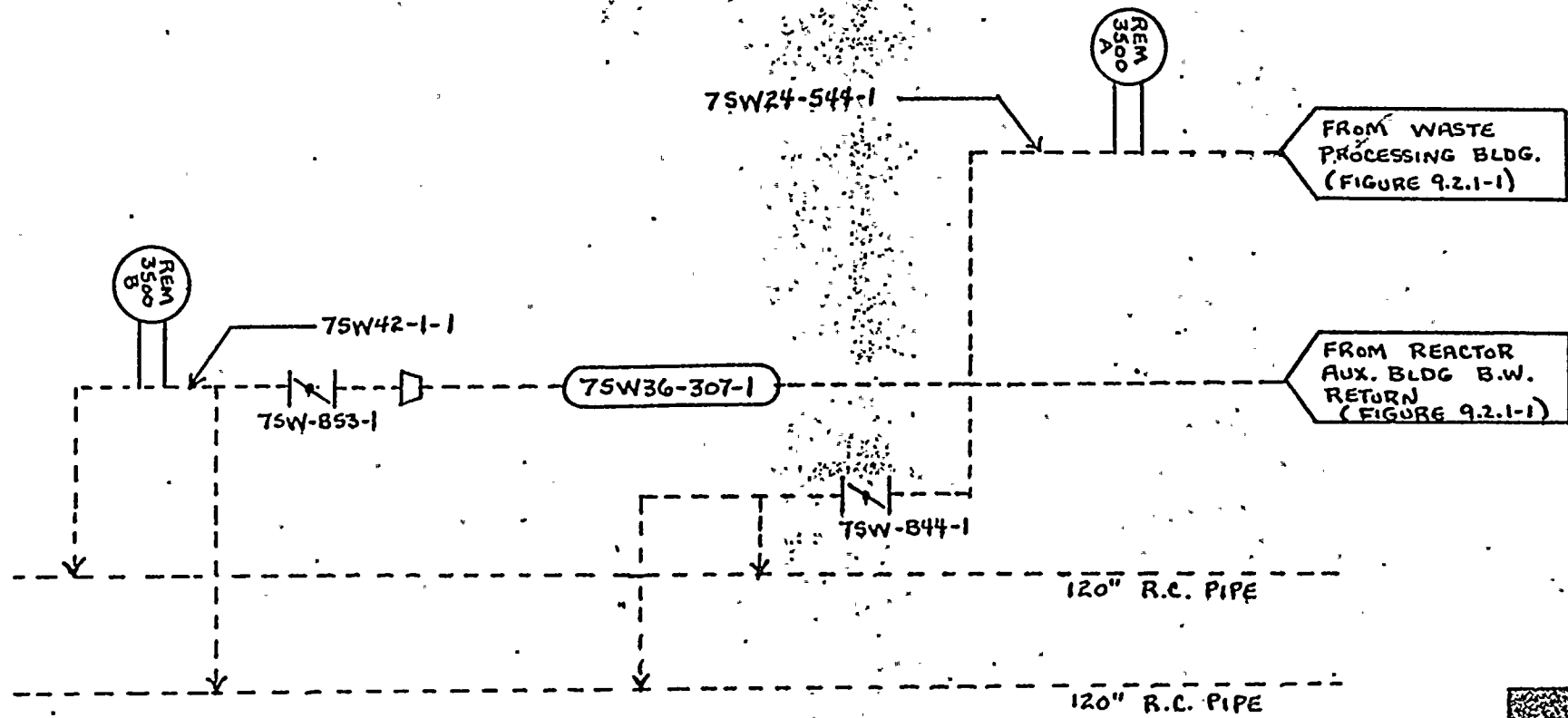
! Safety Related AC Bus
!! Instrumentation AC Bus

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SHORT RSAN



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ATTACHMENT



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A single handwritten line or mark in the bottom right corner.