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Edwin I. Hatch Nuclear Plant

August 6, 1982
PM-82-754

PLANT E. I. HATCH
Licensee Event Report
Docket No. 50-321

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United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

ATTENTION: Mr. James P. O'Reilly

Pursuant to Section 6.9.1.9.d of Plant Hatch Unit 1 Technical Specifications and Sections 3.2 and 5.7.2 of the Hatch Unit 1 Environmental Technical Specifications, please find the attached Supplemental Narrative Summary to Reportable Occurrence Report No. 50-321/1979-021, Rev. 5. The attached report provides supplemental information to the previous submittal of this LER.

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August 6, 1982

SUPPLEMENTAL NARRATIVE SUMMARY
TO
LER 50-321/1979-021, REV. 5
EDWIN I. HATCH NUCLEAR PLANT - HATCH 1
NONROUTINE RADIOLOGICAL ENVIRONMENTAL OPERATING
ANOMALOUS MEASUREMENT REPORT

This report which supplements the previous submittals on LER 50-321/1979-021 provides updated data on tritium levels on groundwater samples taken from locations where the average value during the second quarter of 1982 exceeded 3.0 E4 pCi/l which is the report level for tritium in environmental water samples according to Table 3.2-3 of the ETS. There continues to be no significant impact on the public health and safety due to these readings which exceeded the report level. As reported previously, any releases to unrestricted areas are through the outfalls of the drainage system; such releases continue to be small and result in insignificant doses to the public.

For a few years now, high tritium levels have been found in two separate areas of the plant yard - the CST-1 area and the area north of the Unit 1 turbine building. These areas appear to be essentially unrelated to each other in that the causes of the high tritium levels are different and the hydraulic connection between them seems to be remote.

The tritium levels found in all samples gathered at the reportable locations during the second quarter along with a complete listing of the past average quarterly levels for those locations are presented in Tables 1 and 2. In presenting the events occurring in this report period, some of the recent history for each of the areas is briefly recapped.

The source of the tritium in the CST-1 area is the leakage from the condensate transfer pumps and associated plumbing. During 1980, dikes were erected around the pumps to preclude water from any future leaks from entering the ground. In July 1981 and again in January 1982 the dike floor became flooded when leaks occurred to one of the condensate transfer pumps. Soon after each of these incidents the tritium levels in nearby groundwater samples increased sharply.

The reportable locations (Test Hole P16 and T18) for the CST-1 area are presented in Table 1. Test Hole P16 was actually dry for the entire quarter. The average levels at T10 and T12 dropped below the report level during the second quarter; these were 2.94 E4 and 2.71 E4 pCi/l, respectively. Although the average level at T18 increased slightly, the levels at other locations in this area showed general declines.

A plausible explanation for the increase in the tritium levels of nearby groundwater samples following the flooding of the dike is that the dike itself is leaking. In March 1982 the blockouts (the depressions in the dike floor which accommodates the discharge piping of the pumps) were filled with a sealant.

Leak tests were performed on the dike during the first week of May and again during the second week of June to determine if the dike leak had been successfully repaired. Each of the test results definitely indicated that the dike was still leaking.

The tests consisted of flooding the dike and also of placing several inches of water in few nonleaking containers with vertical sides located on the dike floor in a manner to approximate average evaporation conditions; and then subsequently comparing the rate by which the water level recedes in the dike with that in the nonleaking containers.

Plans are afoot to stop the dike leakage by filling all joints with a sealant and applying an epoxy paint. The leak tests will then be repeated to assure the leakage has been stopped.

The high tritium levels in the area north of the Unit 1 turbine building has been attributed to process water releases from an open-ended line near P17B. This source was eliminated at the time of its discovery in March 1979. Judging by the rise and subsequent decline of readings at P17B, T4 and N9B and by the results of dye tests, the main body of this tritiated water appears to have migrated to the vicinity of the NE corner of the Unit 1 turbine building. Test hole N9B is located at this corner. The readings for the affected locations near the NE corner of the Unit 1 turbine building are given in Table 2.

The level at N9B reached a peak of 2.08 E5 pCi/l in May, 1980; a decline followed until June, 1981 when the level was 8.17 E4 pCi/l; a slow increase ensued, reaching 1.14 E5 pCi/l in December, 1981. Increases in early 1982 were rapid, reaching 4.71 E5 pCi/l in February; readings then remained near this level for a few months. Test hole T3, which is located several yards east of N9B and which has often reflected the readings at N9B but at a somewhat lower level, also showed dramatic increases early in the year. Readings in June at both N9B and T3, however, indicate the beginning of a decline.

An investigation was initiated in the first quarter of 1982 to determine the cause of the sudden increases in the tritium levels at N9B and T3. It was discovered that these increases are likely due to a new source, which is leakage from the Unit 1 precoat tank of the condensate polisher system, which is near the north wall on the 130' level. This tank may have overflowed in the past. Spillage on the floor could flow to the north building wall and flow under the wall panel to the outside of the building. The water apparently collected in the auxiliary steam pipe chase and adjacent sump. Open joints between these structures and the turbine building basement wall would probably allow water to enter the ground and flow along the basement wall. This likely provided an easy path to the area of test wells N9B and T3. Gamma scans of water from the pipe chase were similar to gamma scans of water taken from the precoat tank. The open portion of the turbine building wall which provided this leak path was promptly sealed.

As shown in Table 2: The tritium level in the pipe chase on May 4 was 2.80 E5 pCi/l, all subsequent readings were 2 to 3 orders of magnitude lower. This reduction results from the elimination of further leakages from the turbine building.

Normally, when the level of water in the steam pipe chase sump reaches a given height, a sump pump removes the water to the drain lines of the turbine building roof which joins the yard drain system further dow stream at manhole PY1. Subsequently, this portion of the yard drain system passes through several catch basins, an outfall from under Warehouse No. 6, and then to an open ditch leading to a culvert from which it is finally discharged near the river.

Each manhole or catch basin in the roof drain discharge path has a holdup volume of 50 to 100 gallons. These are noteworthy since any releases via this path would be diluted prior to reaching the river. The levels of radioactivity in condensate water vary but generally are near or below one MPC (total activity). Thus, any releases to the river via the roof drain path would have been small (limited by the fraction of precoat tank overflow that got to the steam pipe chase sump) and diluted below MPC limits by rainwater.

Since correlating water in the pipe chase with that in the precoat tank, the steam pipe chase sump pump has been tagged out. A gamma scan is run on a sample of water from the pipe chase before pumping some out. If manmade radionuclides are detected, the water is drummed and sent to radwaste. All samples have been clean; the pipe chase water has been pumped to the turbine building roof drain system.

Samples are now being taken regularly from PY5 which is the first catch basin downstream of manhole PY1 and from the outfall which emerges from under Warehouse No. 6. The tritium levels at PY1 have all been on the order of one or two thousand pCi/l except for the sample collected on June 24, which had a level of 6.54 E4 pCi/l; the cause of this high reading is under investigation; the average reading for the quarter was 1.41 E4 pCi/l. The levels found in samples taken from the outfall varied from less than 90 to 1370 pCi/l.

Table 1

Tritium Levels at Affected Locations in CST-1 Area

pCi/l

Qtr or Date	P16	T18
	QUARTERLY AVERAGE	
2-78	1.44 E5	
3-78	1.54 E5	
4-78		
1-79	1.26 E5	
2-79	9.60 E4	6.68 E4
3-79	7.08 E4	7.61 E4
4-79	6.38 E4	6.84 E4
1-80	9.18 E4	8.71 E4
2-80	1.12 E5	6.36 E4
3-80	dry	7.61 E4
4-80	dry	5.91 E4
1-81	6.22 E4	8.29 E4
2-81	5.73 E4	7.77 E4
3-81	8.55 E4	1.27 E5
4-81	dry	1.27 E5
1-82	1.26 E5	1.29 E5
2-82	dry	1.56 E5
	During Second Quarter 1982	
4-09	dry	1.47 E5
4-21	dry	1.65 E5
5-04	dry	1.52 E5
5-20	dry	1.50 E5
6-02	dry	1.69 E5
6-15	dry	1.58 E5
6-29	dry	1.48 E5

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Table 2

Tritium Levels at Affected Locations
Near NE Corner of the Unit 1 Turbine Building

pCi/l

Qtr or Date	N9B	T3	Pipe Chase
	QUARTERLY AVERAGES		
3-78	3.45 E3		
4-78	4.49 E3		
1-79	3.42 E4		
2-79	8.50 E4	1.19 E4	
3-79	1.38 E5	1.28 E4	
4-79	1.71 E5	2.01 E4	
1-80	1.73 E5	2.47 E4	
2-80	1.79 E5	3.92 E4	
3-80	1.64 E5	4.60 E4	
4-80	1.13 E5	4.29 E4	
1-81	1.06 E5	4.80 E4	
2-81	8.17 E4	5.55 E4	
3-81	8.47 E4	4.74 E4	
4-81	9.77 E4	5.29 E4	
1-82	4.20 E5	1.10 E5	
2-82	4.42 E5	1.13 E5	4.09 E4
	During Second Quarter 1982		
4-09	4.36 E5	1.42 E5	
4-21	4.80 E5	1.48 E5	
4-28			2.26 E3
5-04	4.64 E5	1.58 E5	2.80 E5
5-20	4.55 E5	1.60 E5	
6-02	4.55 E5	5.80 E4	2.98 E2
6-10			5.96 E2
6-15	3.93 E5	5.88 E4	7.32 E2
6-24			1.08 E3
6-29	4.12 E5	6.44 E4	1.42 E3

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