

FEBRUARY 18, 1980
SUPPLEMENTAL NARRATIVE SUMMARY
TO
LER 50-321/1979-021, REV. 5
EDWIN I. HATCH NUCLEAR PLANT - UNIT 1
NONROUTINE RADIOLOGICAL ENVIRONMENTAL OPERATING
ANOMALOUS MEASUREMENT REPORT

This report, which supplements the previous submittals of LER 50-321/1979-021, provides data on tritium levels in ground water samples taken from test holes A1, N9B, P16, T4, T18, T12, T19 and catch basin PY12. Analyses of samples from these test location, averaged over the 4th quarter of 1979, exceeded the level of 3.0×10^4 pCi/l as given in Table 3.2-3 of the E.T.S. There continues to be no significant impact on the public health and safety due to these readings which exceed the reporting level. As reported previously any releases to unrestricted areas are through the outfalls of the drainage system; such releases are minuscule and result in insignificant doses to the public. The release rates and dose rates are no greater than those reported previously.

In recent calendar quarters there were five locations (Test Holes N9B, P16, P17B, T4 and T18) from which the tritium levels in the groundwater samples were reported. Each of these test holes taps the water table. During the 4th quarter the tritium levels at P17B continued to decline; the average level for the 4th quarter was 2.85×10^4 pCi/l which is less than the 3.0×10^4 pCi/l reporting limit for offsite environmental samples; thus, the levels at P17B are not included in this supplement. The history of the tritium levels found in samples taken from each of the other four locations through the end of the 4th quarter of 1979 is provided in either Table 1 or Table 2. This were no dramatic changes in the tritium levels at these locations.

As has been reported separately, on December 2, 1979 a seal on one of the condensate transfer pumps blew resulting in the leakage of about 450 gallons of water from the CST-1 to the ground. Consequently, the tritium levels from the following locations exceeded the 3.0×10^4 pCi/l level: three adjacent test holes (A1, T12 and T19) each of which tap the water table; a catch basin (PY12) of the surface drainage system; and a puddle on the surface of the ground near the offending pump. On December 3 the tritium levels were 6.18×10^5 pCi/l in the CST-1, 6.09×10^5 pCi/l in a water sample scooped from the puddle, and 6.10×10^5 pCi/l in A1. It appears obvious that the water taken from A1 and the puddle is CST water which had leaked from the pump. Only one sample had been previously obtained from A1; this occurred on March 13, 1979; the tritium levels was $< 1.45 \times 10^3$ pCi/l. Due to the shallowness of A1 (< 7 ft below grade) the water

8002290 432

Supplement
February 18, 1980

table is almost always below the bottom of this test hole. The history of the tritium levels found in samples taken from PY12, T12 and T19 are listed in Table 3. The sudden rise of the tritium levels at PY12 and T19 in the samples collected soon after the pump leak show the leaked CST water reached these locations promptly. The sluggish response in the rise of the tritium level at T12 provides an indication of the required migration time to this point.

To preclude or reduce releases under similar circumstances, temporary confinement measures about the transfer pumps are being made until a permanent fix can be installed. The temporary measures consist of the installation of metal reflectors to direct any spraying from the pumps or related plumbing to the concrete slab upon which the pumps are mounted; a curbing is being added around the concrete slab to prevent run off of the ground; a drain from the slab to rad waste is already in place.

The investigation of these high tritium levels continues. On September 20, 1979, a dye was injected in test holes P17B and T18 (each of which is adjacent to a known source or ex-source of tritium). Subsequent monitoring for the dye in samples from test holes and other points in the vicinity should aid in determining the pattern of underground migration. On December 14 there was a sudden and strong appearance of dye in a sample from P16; the concentration increased in subsequent samples; the dye found here is believed to have migrated from the injection made at T18. Samples collected at N9B between November 9 and 30, and at T5 on November 9 and December 6 also show the presence of the dye, but at much lower concentrations; the dye in these samples is believed to have migrated from P17B. Although conclusions cannot yet be reached from these scant results, such results do seem to support the prognoses made on migration in an earlier supplement to this LER.

TABLE 1

HISTORY OF TRITIUM LEVELS AT EFFECTED
SAMPLING LOCATIONS

Date	pCi/l	
	N9B	P16
6/18/78		1.44 (5) ^a
8/08/78	3.55 (3)	1.64 (5) ^b
8/31/78	3.48 (3)	1.51 (5)
9/29/78	3.67 (3) ^c	
12/01/78	4.49 (3)	
1/26/79		1.37 (5)
2/14/79		1.32 (5)
2/16/79	9.63 (3)	
3/09/79		1.21 (5)
3/13/79	2.80 (4) ^d	
3/20/79	4.56 (4)	1.12 (5)
3/27/79	5.40 (4) ^e	dry
4/04/79	5.97 (4) ^f	1.09 (5) ^g
4/10/79	6.79 (4)	1.07 (5)
4/17/79	6.67 (4) ^h	1.14 (5)
4/24/79	6.60 (4) ⁱ	9.52 (4)
5/02/79	6.89 (4)	9.55 (4)
5/09/79	8.64 (4)	1.11 (5)
5/17/79	7.68 (4)	7.78 (4)
5/23/79	8.99 (4)	8.20 (4)
6/04/79	1.06 (5)	
6/05/79		7.66 (4)
6/13/79	1.02 (5)	
6/26/79	1.43 (5)	
7/11/79	1.37 (5)	7.62 (4)
7/26/79	1.47 (5)	
8/09/79	1.43 (5) ^j	6.07 (4)
8/24/79	1.28 (5) ^k	6.62 (4)
9/05/79		7.66 (4)
9/06/79	1.34 (5)	
9/18/79	1.42 (5)	7.44 (4)
10/02/79	1.72 (5)	6.01 (4)
10/05/79		
10/19/79	1.80 (5)	6.67 (4)
11/02/79	1.68 (5)	7.17 (4)
11/16/79	1.86 (5)	dry
11/30/79	1.55 (5)	dry
12/03/79		6.55 (4)
12/14/79	1.58 (5)	5.31 (4)
12/26/79	1.79 (5)	6.59 (4)

a) indicates 1.44×10^5
 b) recount 1.51 (5)
 c) split 2.95 (3)
 d) recount 2.95 (4)
 e) split 5.13 (4)
 f) split 5.73 (4)

g) split 1.01 (5)
 h) split 6.90 (4)
 i) split 6.93 (4)
 j) split 1.41 (5)
 k) split 1.28 (5)

TABLE 2

HISTORY OF TRITIUM LEVELS IN EFFECTED SAMPLING LOCATIONS

Date	pCi/l	
	T4	T18
4/24/79	a	
4/27/79	6.27 (3) ^c	
4/29/79	2.41 (4) ^b	
5/01/79	4.77 (4)	
5/02/79		a
5/03/79	7.33 (4)	dry
5/04/79		dry
5/10/79	7.74 (4)	
5/14/79	7.17 (4)	
5/16/79		6.07 (4)
5/17/79	4.66 (4)	
5/21/79	8.76 (4)	7.88 (4)
5/24/79	1.15 (5)	
5/28/79	1.34 (5)	6.82 (4)
5/31/79		6.91 (4)
6/01/79	1.34 (5)	
6/05/79	1.41 (5)	6.49 (4)
6/11/79	1.56 (5)	7.02 (4)
6/13/79	1.63 (5) ^d	6.55 (4)
6/26/79	1.79 (5)	5.71 (4)
7/11/79	1.72 (5)	6.57 (4)
7/26/79	1.87 (5) ^e	8.83 (4)
8/09/79	2.05 (5)	8.08 (4)
8/24/79	1.81 (5)	8.27 (4)
9/05/79		7.18 (4)
9/06/79	9.22 (4) ^f	
9/18/79	1.51 (5) ^g	6.70 (4)
10/02/79	6.74 (4)	
10/05/79		4.65 (4)
10/19/79	1.89 (5)	7.40 (4)
11/02/79	1.66 (5)	7.64 (4)
11/16/79	1.79 (5)	8.36 (4)
11/30/79	1.46 (5)	dry
12/05/79		7.06 (4)
12/14/79	1.35 (5)	6.02 (4)
12/26/79	1.55 (5)	6.75 (4)

a) installed

b) indicates 2.41×10^4

c) split 6.72 (3)

d) split 1.60 (5)

e) split 1.75 (5)

f) split 8.94 (4)

g) split 1.52 (5)

Supplement
February 18, 1980

TABLE 3

HISTORY OF TRITIUM LEVELS AT EFFECTED SAMPLING LOCATIONS

Date	PY12	T12	T19
8/08/78	2.40 (3) ^a		
8/31/78	1.54 (3)		
9/29/78	1.63 (3) ^b		
9/29/78	1.34 (3) ^c		
12/01/78	5.00 (2)		
2/22/79	2.50 (2)		
3/09/79	<1.45 (3)		
4/10/79	<1.58 (3)		
4/19/79		d	
4/20/79		<1.20 (3)	
4/23/79		2.50 (3)	
4/24/79		4.76 (3)	
4/26/79		1.46 (4)	
4/30/79		2.21 (4)	
5/03/79		2.42 (4)	
5/04/79			dry ^d
5/07/79		2.26 (4)	dry
5/10/79		3.13 (4)	<1.62 (3) ^e
5/14/79		2.14 (4)	<1.60 (3)
5/17/79		<1.60 (3)	3.57 (3)
5/21/79		<1.70 (3)	1.24 (4)
5/24/79		<1.70 (3)	1.86 (4)
5/28/79			1.91 (4)
5/31/79		<1.70 (3)	1.88 (4)
6/05/79		<1.70 (3)	1.98 (4)
6/11/79		1.06 (3)	1.88 (4)
6/13/79		<1.60 (3)	2.09 (4)
6/26/79		<1.60 (3)	1.72 (4)
7/11/79		1.59 (3)	2.06 (4)
7/13/79		1.04 (3)	1.74 (4) ^f
7/26/79	1.40 (2)		1.58 (4)
8/03/79	1.40 (2)		
8/09/79	3.10 (2)	7.80 (2)	1.52 (4)
8/24/79			1.25 (4)
9/05/79		5.30 (2)	1.13 (4)
9/18/79			1.36 (4)
10/02/79			1.78 (4)
10/10/79	2.67 (2)	8.22 (2)	
10/19/79			2.23 (4)
11/02/79			1.95 (4)
11/09/79		1.25 (3)	
11/16/79			2.03 (4)
11/30/79			1.58 (4)
12/03/79	5.60 (5)		
12/04/79			2.56 (5)
12/05/79		5.47 (3)	
12/14/79			2.76 (5)
12/26/79		3.65 (5)	1.96 (5)

a) indicates 2.40×10^3

b) Teledyne

c) APT

d) installed

e) approximated date

f) split 1.88 (4)

Supplement
February 18, 1980