



Commonwealth Edison  
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Downers Grove, Illinois 60515

September 14, 1994

Mr. William Russell, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attn: Document Control Desk

Subject: Dresden Nuclear Power Station Unit 1  
Updated Environmental Evaluation of Dresden 1 Fuel Pool  
Integrity  
NRC Docket Number 50-010

- References: (1) Special Inspection of Potential Loss of Water from the Dresden Unit 1 Spent Fuel Storage Pool and of the Plant's Compliance to the SAFSTOR Decommissioning Plan (Inspection Report No. 50-010/94001)
- (2) May 27, 1994 letter from D.L. Farrar to Mr. William Russell documenting the initial results of the Environmental Monitoring Program around Dresden Unit 1.
- (3) July 6, 1994 letter from D.L. Farrar to Mr. William Russell providing ongoing results of the Environmental Monitoring Program around Dresden Unit 1.

Dear Mr. Russell:

The purpose of this letter is to provide an updated status of the special environmental monitoring program around the Dresden Unit 1 Spent Fuel Pool. References (2) and (3) documented the results of the program through the end of the second quarter of 1994. The long term program described in these references and summarized as Attachment (4) to this letter is now in place and further sampling will be in accordance with that program. Attachment (1) identifies all onsite monitoring locations.

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Dresden 1 Fuel Pool Special Sampling Program

Attachment (2) summarizes the results of the Special Environmental Monitoring Program that was established after discovering tritiated water apparently leaking from the Dresden Unit 1 spent fuel pool. The special sampling program conducted through the summer of 1994 has remained consistent with the concentrations seen during the spring sampling period. Commonwealth Edison efforts continue to be directed toward long term resolution of high level waste storage to permit the eventual draining of the Unit 1 Fuel Pool and the subsequent elimination of the source term for the tritium concentrations seen as a result of this portion of the sampling program.

The remote series of ground water monitoring wells (Designated Wells DSP 117, 118, and 119) continue to test at environmental background levels. These wells provide a reliable indication of ground water tritium concentration values nearing the site boundary and are positioned to function as sentinels for Members of the Public located around the Dresden Site. Wells DSP 102 through 104 were located prior to the present program and were drilled only to a depth of 10 ft. and collect surface run-off only. They were added to the special sampling program originally because of the lack of any other ground water monitoring capability in that direction. With Wells DSP 118 and 119 in place as part of the long term program, Wells DSP 102 through 104 no longer serve a functional purpose and will be deleted from the special program following 3rd Quarter sampling.

Dresden Site Special Sampling Program

Attachment (3) summarizes the results of the storm sewer sampling program which was the result of an expansion of the scope of the initial special environmental sampling program around Unit 1. This expansion resulted in the identification of a leakage path to the storm sewer unrelated to the Unit 1 Fuel Pool. The Station assembled a multi-disciplinary task force to examine the issue and has initiated a plan to locate and repair this leak path. The highest concentration of tritium was found in the storm sewer designated for the purposes of this investigation as DSP-140. The storm sewers in this region drain to the east and north into the Unit 1 intake canal. Storm Sewer DSP-132 is located at the nearest point of release to the canal and has been sampled throughout this program. Tritium concentrations at this sewer sampling point have remained consistently around 20,000 pCi/l. The Unit 1 Discharge Canal was previously identified as a sample point as a part of the Unit 1 special sampling program. Results to date have been consistently below 2000 pCi/l.

Storm Sewer DSP-140 is located near the base of the Unit 2/3 Condensate Storage Tanks. Tritium concentrations in these tanks are at or near 1 million pCi/l. These tanks, or their connected piping, are believed to be the source of contamination in the storm sewers. The B (west) tank was observed to have a piping leak during this period and was drained and repaired. In addition, the floor of the B tank had been replaced in 1992 following the identification of degradation of the tank. Subsequently, when the B tank was returned to service the A tank was drained for inspection/repair. The floor of the A tank was found to be leaking and repairs are expected to be complete in early September. Since draining the A tank, tritium concentrations at Storm Sewer DSP-140 have decreased from approximately 450,000 pCi/l but appear to have stabilized at approximately 300,000 pCi/l. The station has initiated efforts to identify, inspect, and subsequently repair as necessary the underground piping connecting the condensate storage tanks to the power block. This effort will initiate in the vicinity of DSP-140 and work radially from this area until the source is identified and repaired.

In addition, as a result of the discovery of tritium contamination in the storm sewers in areas other than those related to the Unit 1 Fuel Pool, Commonwealth Edison has begun additional actions to ensure the integrity of the underground piping systems at Dresden Station.

- 1) The station, in the spring of 1994, identified that the existing in-ground cathodic protection system had significantly deteriorated. Since that identification the station has designed and installed a new more effective system to minimize underground corrosion in the future.
- 2) Corporate Environmental Services Department assisted the station in developing a more extensive network of ground water wells capable of characterizing the entire site. The location of the additional wells necessary to do this is identified in Attachment (1). These wells were completed in late August and the initial sample results are included in Attachment (3). These wells have been added to the special sampling program (DSP-121 through 127) and will be analyzed on a monthly basis. The initial results from these samples confirms the existence of a low concentration tritium pool in the immediate vicinity of the power block. The outer sampling ring confirms that the tritium values seen near the station are not being communicated to the public in the immediate vicinity of the station.

Mr. William Russell

(4)

September 14, 1994

Please direct any questions that you may have concerning this response to Martin Vonk at (708) 663-7292 or John Golden at (708) 663-6535.

Sincerely,



D. L. Farrar  
Nuclear Regulatory Services Manager

- Attachments:
- (1) Dresden Site Map for the Special Environmental Sampling Program
  - (2) Dresden Unit 1 Special Environmental Sampling Program Results
  - (3) Dresden Site Special Environmental Sampling Program Results
  - (4) Dresden Station Long Term Special Environmental Sampling Plan

cc: J.B. Martin, Regional Administrator - RIII  
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P. Erickson, Dresden Unit 1 Project Manager, NRR  
M. Leach, Dresden Senior Resident Inspector  
R. Allen, Manager, Office of Environmental Safety, IDNS

Attachment 1

Dresden Site Map for the Special Environmental Sampling Program

Attachment 2

Dresden Unit 1 Special Environmental Sampling Program Results

Dresden Unit 1 Fuel Pool Sampling Program

1. Unit 1 Ground Water Monitoring Wells

DSP-105 (Well No.1) - Southwest of Fuel Pool

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
5/10	5219
5/17	2171
6/28	2443
7/20	2216
8/30	2161

DSP-106 (Well #2) - South of Unit 1 Fuel Pool

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
5/10	18164
5/17	9590
6/29	5934
7/20	7116
8/30	6934
8/31	5565

DSP-107 (Well #3) - Northeast of U-1 Fuel Pool

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
5/10	26214
5/17	16507
6/29	12249
7/20	15665
8/30 16:55	47296
8/30 (Resample) 17:11	17191

DSP-108 (Well #4) - East of Unit 1 Sphere

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
5/10	41626
5/17	51368
6/29	42994
7/20	40047
8/30	37664

DSP-117 (Well #13) - Northeast of Sphere/Across U-1 Intake Canal

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
6/15	<200
7/21	<200
8/31	<200

DSP-118 (Well #14) - Southeast of U-1/Protected Area Boundary

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
6/15	<200
7/21	<200
8/31	<200

DSP-119 (Well #15) - South Edge of Contractor Parking Lot

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
6/14	<200
7/21	<200
8/31	<200

DSP-102 (Well #18) - 10' Well in Contractor Parking Lot \*

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
3/30	<200
7/21	Dry
8/31	Dry

DSP-103 (Well #17) - 10' Well in Contractor Parking Lot \*

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
3/30	<200
7/21	<200
8/31	<200

DSP-104 (Well #16) - 10' Well in Contractor Parking Lot \*

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
3/30	<200
7/21	<200
8/31	<200

\* 10 ft. Wells to be deleted from program after 3rd Quarter 1994.

2. Additional Samples

DSP-120 - Station Potable Water Supply

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
5/12	<200
7/7	<200
7/21	<200
9/6	<200

D-18 - Unit 1 Intake Canal

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
5/13	1251
6/94	685
7/94	702
8/94	1478

D-05 - Northeast Farm Well/North of Illinois River

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
5/14	<200
3rd Quarter	<200

D-23 - South Residential Well

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
4/09	<200
5/07	258
6/04	<200
7/94	<200
8/94	<200

D-35 - Dresden Lock and Dam

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
1st Quarter	<200
2nd Quarter	<200
3rd Quarter	<200

D-32 - General Electric Well/Southeast of site

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
1st Quarter	<200
2nd Quarter	<200
3rd Quarter	<200

D-22 - Illinois River at Morris

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
1st Quarter	<200
5/14	503
2nd Quarter	767
3rd Quarter	226

Attachment 3

Dresden Site Special Environmental Sampling Program Results

## Dresden Site Sampling Program

### 1. Storm Sewers

#### DSP-130 - (#1)

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
6/28	<200

#### DSP-131 - (#2)

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
6/28	<200
7/20	<200
7/28	<200
8/03	<200
8/08	<200
8/19	283
8/24	<200
9/1	<200

DSP-132 - (#3) Discharge Point to Unit 1 Canal

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
6/28	33256
7/06	26441
7/11	27848
7/20	21273
7/28	16866
7/29	18359
8/03	19716
8/08	26434
8/19	7141
8/24	17074
9/1	32514
9/10	6173

DSP -133 (#4) - Not Used to Date

DSP-134 (#5)

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
6/28	17125
7/11	21030
7/20	16445
8/03	21128
8/08	20654

DSP-135 (#6)

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
7/11	98467
8/03	118491
8/08	103921

DSP-136 (#7)

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
6/28	<200

DSP-137 (#8)

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
6/28	<200
7/20	422

DSP-138 (#9) - Not Used to Date

DSP-139 (#10)

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
7/06	279
7/11	762

DSP-140 (#11) - Base of Condensate Storage Tanks

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>	<u>Date</u>	<u>Tritium Conc.</u>
7/06	445944	8/03	319574
7/11	335925	8/04	54955
7/15	349757	8/05	252431
7/19	242825	8/08	326976
7/20	268798	8/10	310443
7/22	237615	8/11	239870
7/25	303327	8/12	302794
7/26	312798	8/15	328927
7/28	266267	8/19	331810
7/29	276931	8/22	308555
7/31	305596	8/24	198908
8/01	324813	8/26	349938
8/02	258201	9/01	313370
		9/09	302151
		9/10	325776

DSP-141 (#12)

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
7/06	37022
7/11	39650

DSP-142 (#13)

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
7/06	2977

DSP-143 (#14) - Not Used to Date

DSP-144 (#15)

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
7/11	73516

DSP-145 (#16) - Not Used to Date

DSP-128 - Waste Water Treatment Composite

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
8/19	1593
8/24	1411
9/01	598
9/09	851

2. Site Ground Water Monitoring Wells

DSP-121 - North of Unit 1 Intake Canal

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
9/01	214

DSP-122 - North of 2/3 Rad Waste Tank Farm

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
9/01	6455

DSP-123 - North of Unit 1 Sphere

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
9/01	14712

DSP-124 - 2/3 Floor Drain Surge Tank

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
9/01	8603

DSP-125 - Base of 2/3 Condensate Storage Tanks

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
9/01	2901

DSP-126 - North of Training Building

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
9/01	<200

DSP-127 - West of 2/3 Canals

<u>Date</u>	<u>Tritium Conc. (pCi/l)</u>
9/01	774

3. Cathodic Protection Wells - One Time Samples. Samples were available as wells were drilled for new system. Samples from these points are no longer available.

<u>Cathodic Well #</u>	<u>Date</u>	<u>Result (pCi/l)</u>
DSP-109 - 5	5/13	1950
DSP-110 - 6	5/17	2249
DSP-111 - 7	5/20	<200
DSP-112 - 8	5/24	4912
DSP-113 - 9	5/25	5077
DSP-114 - 10	5/31	329
DSP-115 - 11 (40')	5/31	403
(200')	6/02	255
DSP-116 - 12	6/06	374

Attachment 4

Dresden Station Long Term Special Environmental Sampling Plan

Onsite Well Samples

Sample Type	Sampling Locations <sup>1</sup>	Well Depth	Sampling Frequency	Analyses
Onsite Wells	DSP-105	50'	Monthly	Tritium and gamma isotopic
	DSP-106	50'		
	DSP-107	50'		
	DSP-108	50'		
	DSP-117	50'		
	DSP-118	50'		
	DSP-119	300'		
	DSP-121	50'	Quarterly	Tritium
	DSP-122	35'		
	DSP-123	50'		
	DSP-124	35'		
	DSP-125	35'		
	DSP-126	50'		
	DSP-127	50'		
Station Potable Water <sup>2</sup>	DSP-120	788' and 1500'	Monthly	Tritium and gamma isotopic
Unit 1 Intake	D-18	Surface	Weekly	Monthly composite of weekly samples for tritium and gamma isotopic
Storm Sewers	DSP-131 DSP-132 DSP-137 DSP-140	5 - 10'	Monthly	Tritium

Offsite Well Samples

Sample Type	Sampling Locations <sup>1</sup>	Well Depth	Sampling Frequency	Analysis
Bennitt Farm Well	DSP-05	Unknown	Quarterly	Tritium
Thorsen Well	D-23	110'	Monthly	Tritium
Dresden Lock and Dam	D-35	225'	Quarterly	Tritium

NOTES:

1. Sample locations designated "D-xx" indicated sample locations that are presently part of the Radiological Environmental Monitoring Program (REMP), sample locations designated "DSP-xx" indicated new sample locations.
2. One sample is taken from a common head for the 788' and 1500' levels.

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