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GENERAL PUBLIC UTILITIES SYSTEM

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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Gentlemen:

Saxton Nuclear Facility
Operating License No. DPR-4
Docket No. 50-146

Final Release Survey of the
Reactor Support Buildings, Revision No. 2

On October 15-26, 1990, the NRC conducted a safety inspection at the Saxton Nuclear Experimental Corporation (SNEC) facility in Saxton, Pennsylvania. During the inspection the NRC observed the verification survey conducted by the NRC contractor, Oak Ridge Associated Universities (ORAU). This inspection resulted in inspection report no. 50-146/90-02.

This submittal responds to additional information requested in the inspection report. Also included are analytical results of paint chip samples that were requested by the NRC during the July 10-12, 1990 safety inspection 50-146/90-01.

Attachments 1, 2, and 3 comprise Revision 2 of the Final Release Survey Report. Attachments 1 and 2 provide results of the paint chip samples and a plan of action to disposition the Filled Drum Storage Bunker (FDSB), respectively. Attachment 3 provides administrative forms to replace existing forms in Revision 1 of the report. In addition to the issues raised during the verification survey and addressed by Attachment 2, there were two other items which are addressed below:

1. An area along the north edge of the yard pipe tunnel (referred to as area "d" in NRC Inspection Report 50-146/90-02) was identified by the USNRC and ORAU as having radiation readings above background levels. The area was excavated and a drywell and a concrete storm drain were

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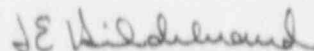
uncovered and removed. Soil surrounding the area was excavated until radiation readings of the soil were near background levels. The excavated soil is being stored onsite until it can be properly dispositioned. Following excavation, a soil sample was taken at the base of the hole with the resultant Cs-137 of 23 ± 2 pCi/gm. To improve industrial safety conditions, the hole was then backfilled with soil from within the SNEC area fence that had radiation readings near background levels.

This area has been established as a "hold point," thus providing the USNRC the option to review the results and/or conduct verification surveys before final disposition.

2. Drawings of the site were obtained from the architect/engineering firm and are available on aperture cards. These documents will be reviewed as part of the plan for final site closure and release of the yard area. Some work has already been performed to evaluate underground pipes and equipment. A ground penetrating radar study was performed but was unsuccessful due to the high iron concentrations in the soil. Also core samples to bedrock were taken in areas where underground storage tanks were previously located and confirmed that the tanks were removed.

Please contact us if you require additional information.

Sincerely,



J. E. Hildebrand
President

EJP/BAG/plp

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File: 2412.5.4



ATTACHMENT 1

RESULTS OF COMPOSITE FAINT CHIP SAMPLES

RESULTS OF COMPOSITE PAINT CHIP SAMPLES

Composite paint samples from the Control and Auxiliary (C&A) building and the Radioactive Waste Disposal Facility (RWDF) were collected to ensure residual radioactivity was not being masked by the painted surfaces. Paint samples were collected from most rooms/cubicles that had painted surfaces remaining. Areas were selected that had a higher probability of contamination based on their functions during operations. In the C&A building, samples were collected from the Auxiliary Equipment Room, Sampling Room, Decon Room, Locker Room, 1st Floor Corridor, HP Room, and Switchgear Room. The RWDF did not have as many painted surfaces remaining. Samples from this building were collected from the Control Room, Scale and Storage Room, and the Drum Shipping Room.

A sanding machine was used to remove paint from a known amount of surface area. The radiological results were equated to units of activity (dpm) per 100 cm² for comparison to the USNRC guidelines for unrestricted release as stated in Regulatory Guide 1.86. Table 1 contains the results of those radionuclides that were above the lower limit of detection (LLD) of the sensitive laboratory analytical equipment.

The sample results show that the residual radioactivity is less than the USNRC guidelines for unrestricted release as stated in Regulatory Guide 1.86. The results confirm that residual radioactivity was not masked by the paint and that survey

measurements made on these surfaces using portable field instrumentation is valid.

TABLE 1

RESULTS OF COMPOSITE PAINT CHIP SAMPLES

<u>Building</u>	<u>Radionuclide</u>	<u>Activity (dpm/100cm²)</u>
Control & Auxiliary	Cs-137	219
	Co-60	5
	U-234	1
	U-235	3
	U-238	0.5
Radioactive Waste Disposal Facility	Cs-137	116
	Co-60	1.5
	Pu-238	1
	U-234	3
	U-235	0.4
	U-238	3

NOTE: THE FOLLOWING IS THE SAMPLE DATA THAT WAS USED TO GENERATE TABLE 1

C&A Building Total Surface Area Sanded: 11,342 cm²
 Total Weight of Sample: 195 grams
 Radionuclide Results of Sample:
 Co-60 1.39 ± 0.27 pCi/gm
 Cs-137 57.5 ± 5.8 pCi/gm
 U-234 0.34 ± 0.14 pCi/gm
 U-235 0.88 ± 0.71 pCi/gm
 U-238 0.14 ± 0.09 pCi/gm

RWDF Total Surface Area Sanded: 7,535 cm²
 Total Weight of Sample: 120 grams
 Radionuclide Results of Sample:
 Co-60 0.42 ± 0.09 pCi/gm
 Cs-137 32.9 ± 3.3 pCi/gm
 Pu-238 0.27 ± 0.15 pCi/gm
 U-234 0.93 ± 0.28 pCi/gm
 U-235 0.12 ± 0.10 pCi/gm
 U-238 0.83 ± 0.26 pCi/gm

ATTACHMENT 2

PLAN OF ACTION TO DISPOSITION THE
FILLED DRUM STORAGE BUNKER

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FILLED DRUM STORAGE BUNKER

The FDSB is a timber and earthen structure that was used as temporary storage for low level radwaste during plant operations. The structure consists of four walls and a floor. The internal walls are composed of timbers arranged in matrices intertwined with soil. The top 6 to 12 inches of surficial materials were removed from the outside walls leaving 2 to 4 feet of clay soil.

The drums of soil and pile of soil that were being stored inside the bunker were removed to gain access to the bunker and the macadam floor. The soil was relocated to the north side of the SNEC area fence and was stabilized to prevent erosion and sedimentation problems. The macadam floor of the bunker was surveyed using a gamma scintillation detector with a ratemeter. Measurements greater than 2 times background levels were excavated and will be dispositioned appropriately.

The outside walls were gridded (3 meters x 3 meters) and soil samples were collected and analyzed from each grid. Soil core samples (2 to 4 feet) were taken from the inside and outside walls. Samples were also taken of the soil that became exposed after excavation of contaminated sections of the macadam floor. Figure 1 shows the sample locations and Tables 1, 2, and 3 contain the radiological results of the grids, soil cores, and soil floor, respectively.

Following approval of Tech. Spec. Change Request No. 53, the FDSB will be dismantled by a demolition contractor. The timbers will be dismantled and separated from the soil. They will be surveyed in accordance with procedures for survey and release of equipment and materials for unrestricted use. The release criteria will be Regulatory Guide 1.86. Any timbers found to be greater than the release criteria will either be decontaminated and resurveyed or disposed of as low level radwaste. The timbers will be staged onsite and the USNRC will be notified of their status. The USNRC has the option to review the results and/or conduct verification surveys before final disposition. After final approved release, the timbers may be recycled or disposed of offsite in an approved landfill.

The soil component of the bunker will remain onsite and stabilized to prevent erosion and sedimentation problems. The macadam floor will also remain onsite. Final release of the soil and macadam floor will be addressed at the time of final site closure.

FIGURE 1
FILLED DRUM STORAGE BUNKER (FDSB)

(Layout of Grids and Sample Locations)
 NORTH

(C2)

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18

(H) (G) (D) (C1) (C) (B) (A)
 (E)

19
20
21
22
23
28
29
32
33
34
35

WEST	24	25									EAST
(C6)	26	27	(C5)								(C7)
	30	31	(J) (I)	(F)		(C3)					
	36	37	38	39	40	41	42	43	44	45	46
	47	48	49	50	51	52	53	54	55	56	57

(C4)
 SOUTH

TABLE 1

SOIL RESULTS FROM FDSB OUTSIDE WALL GRIDS

Cs-137 pCi/gm

<u>Grid No.</u>	<u>Cs-137 pCi/gm</u>	<u>Grid No.</u>	<u>Cs-137 pCi/gm</u>	<u>Grid No.</u>	<u>Cs-137 pCi/gm</u>
1	1.7 ± 0.2	20	0.73 ± 0.07	39	2.5 ± 0.2
2	71.0 ± 7	21	0.92 ± 0.09	40	2.6 ± 0.3
3	5.3 ± 0.5	22	8.0 ± 0.8	41	5.6 ± 0.6
4	1.2 ± 0.1	23	2.4 ± 0.2	42	13.0 ± 1
5	0.55 ± 0.07	24	3.0 ± 0.3	43	2.3 ± 0.2
6	0.98 ± 0.1	25	0.50 ± 0.06	44	0.79 ± 0.08
7	0.49 ± 0.06	26	1.3 ± 0.1	45	0.34 ± 0.06
8	5.5 ± 0.5	27	17.0 ± 2	46	0.31 ± 0.05
9	5.6 ± 0.6	28	1.4 ± 0.1	47	3.1 ± 0.3
10	0.09 ± 0.029	29	1.1 ± 0.1	48	2.6 ± 0.3
11	1.4 ± 0.1	30	7.5 ± 0.8	49	1.5 ± 0.2
12	0.91 ± 0.09	31	5.8 ± 0.6	50	0.82 ± 0.08
13	0.56 ± 0.06	32	0.78 ± 0.08	51	1.2 ± 0.1
14	0.26 ± 0.04	33	3.1 ± 0.3	52	2.7 ± 0.3
15	0.29 ± 0.05	34	2.4 ± 0.2	53	1.5 ± 0.1
16	0.44 ± 0.05	35	1.8 ± 0.2	54	2.1 ± 0.2
17	0.97 ± 0.01	36	7.0 ± 0.7	55	2.1 ± 0.2
18	0.76 ± 0.08	37	18.0 ± 2	56	5.1 ± 0.5
19	6.8 ± 0.7	38	9.9 ± 1	57	2.7 ± 0.3

TABLE 1 (Cont'd)

SOIL RESULTS FROM FDSB OUTSIDE WALL GRIDS

<u>Grid No.</u>	<u>Co-60 pCi/gm</u>
2	0.51 ± 0.08
35	0.18 ± 0.04
38	1.2 ± 0.05
42	0.16 ± 0.05
43	0.12 ± 0.05

TABLE 2

RESULTS OF SOIL CORES FROM INSIDE AND OUTSIDE WALLS OF THE FDSB

<u>CORE I.D.</u>	<u>Cs-137 pCi/gm</u>
C1 (inside wall)	0.26 ± 0.05
C2 (outside wall)	<0.04
C3 (inside wall)	2.6 ± 0.3
C4 (outside wall)	<0.07
C5 (inside wall)	2.9 ± 0.3
C6 (outside wall)	0.33 ± 0.06
C7 (outside wall)	<0.05

TABLE 3

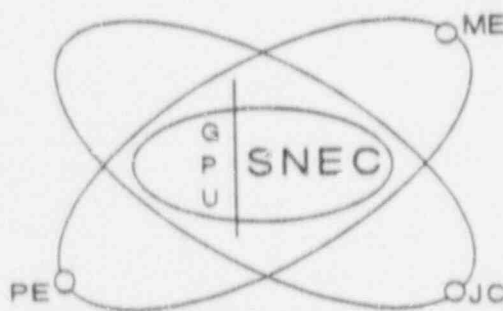
RESULTS OF SOIL SAMPLES FROM EXCAVATED HOLES IN THE FDSB FLOOR

<u>SOIL NO.</u>	<u>Cs-137 pCi/gm</u>
A	0.92 ± 0.09
B	0.22 ± 0.06
C	4.8 ± 0.5
D	0.49 ± 0.05
E	0.043 ± 0.029
F	1.8 ± 0.2
G	2.8 ± 0.3
H	7.9 ± 0.8
I	2.1 ± 0.2
J	5.0 ± 0.5

ATTACHMENT 3

INSERTS FOR REV. 2, JANUARY 1991,
TO THE
FINAL RELEASE SURVEY OF THE REACTOR SUPPORT BUILDINGS

Saxton Nuclear Experimental Facility



Final Release Survey of the Reactor Support Buildings

Rev. 2 , January 1991

FINAL RELEASE SURVEY REPORT
OF THE
CONTROL AND AUXILIARY BUILDING, RADIOACTIVE WASTE DISPOSAL FACILITY
REFUELING WATER STORAGE TANK, YARD PIPE TUNNEL, AND
FILLED DRUM STORAGE BUNKER
FOR THE
SAXTON NUCLEAR EXPERIMENTAL FACILITY
NRC LICENSE NO. DPR-4

Prepared by GPU Nuclear Corporation for the
Saxton Nuclear Experimental Corporation (SNEC)

Revision 2, January, 1991

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