



SITE CERTIFICATION SUMMARY

This Site Certification Summary provides information about the **Chicago South, Illinois, Site**. The U.S. Department of Energy Office of Legacy Management is responsible for long-term stewardship of the site under the **Formerly Utilized Sites Remedial Action Program**.

Site Description and History

The Chicago South, Illinois, Site is located on the campus of the University of Chicago. The University of Chicago is a private university located in the Hyde Park-Kenwood area of the city of Chicago, Illinois. It is about 7 miles south of the Chicago downtown business district. The existing campus buildings that were associated with Manhattan Engineer District (MED) work are Ryerson Physical Laboratory, Eckhart Hall, Kent Chemistry Laboratory, and George Herbert Jones Chemical Laboratory. At the time of publication of the Certification Docket, these buildings were in use as offices, laboratories, and classrooms. The New Chemistry Laboratory and Annex, West Stands, and Ricketts Laboratory, which were also associated with MED activities, have been torn down. On-site MED activities included producing and purifying plutonium that was later used to develop the first atomic bomb. The first contract with the University of Chicago was established in January 1942. Research sponsored by the U.S. Atomic Energy Commission (AEC) continued at the site until 1952. The Chicago South site was remediated to criteria in *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Surplus Facilities Management Program Sites*.

Site Remediation Timeline

January 1942 through 1952 — MED/AEC activities took place at the University of Chicago site.

September 1976 through September 1977 — Radiological surveys of the site were performed.

1982 through 1984 — Argonne National Laboratory (ANL) and university personnel conducted separate decontamination activities in all four buildings.

1983 — The U.S. Department of Energy (DOE) determined that the Chicago South site was eligible for the Formerly Utilized Sites Remedial Action Program (FUSRAP).

July through October 1987 — Bechtel National Inc. (BNI) decontaminated the exhaust ducts in the Jones Chemical Laboratory.

September 22 through October 9, 1987 — Oak Ridge National Laboratory conducted independent verification surveys.

May 17, 1990 — DOE published the site's cleanup certification in the Federal Register.

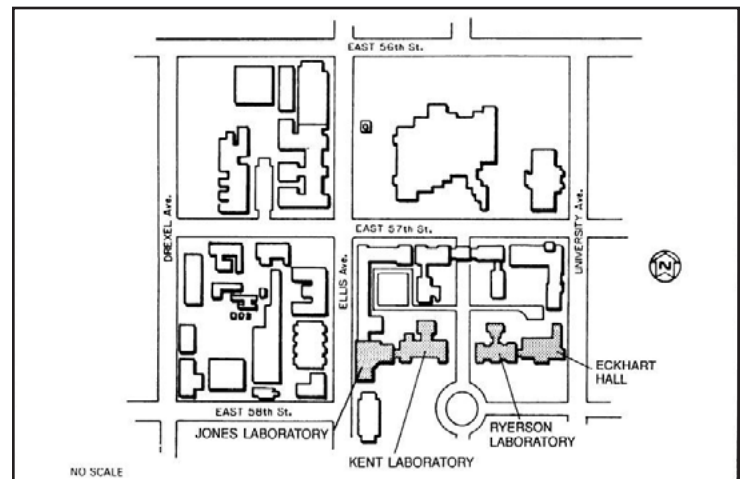


Figure 1. Plan view of the University of Chicago site.

Certification Docket Contents

The [Certification Docket](#) documents the successful decontamination of the Chicago South site. The docket consists of documents supporting DOE certification that conditions at the Chicago South site are in compliance with radiological guidelines and standards determined to apply to the site. The use of this property will not result in any measurable radiological hazard to the general public.

Remedial Action

Under the direction of DOE, decontamination activities at the University of Chicago were conducted by ANL in 1982 and 1983, by university personnel in 1982 and 1983, and by BNI in 1987 as part of FUSRAP. See the [Fact Sheet](#) for details.

FUSRAP objectives for the site were to:

- Identify and assess sites formerly utilized to support early MED/AEC nuclear work to determine whether further decontamination and/or control is needed.
- Decontaminate and/or apply controls to the sites to permit conformance with currently applicable guidelines.
- Dispose of and/or stabilize all generated residues in an environmentally acceptable manner.
- Accomplish all work in accordance with appropriate landowner agreements and local and state environmental and land use requirements to the extent specified by federal law and applicable DOE orders, regulations, standards, policies, and procedures.
- Certify, at the completion of the remedial action, that the radiological conditions at the site comply with guidelines and that the site is appropriate for future use.

Post-Remediation Sampling

Decontamination Activities: 1982 through 1984

From 1982 to 1984, ANL and University of Chicago conducted separate decontamination efforts. Remedial activities took place in all four contaminated buildings: Eckhart Hall, Ryerson Physical Laboratory, Jones Chemical Laboratory, and Kent Chemical Laboratory.

In the Kent Chemical Laboratory, surface surveys, soil samples, and sewer sludge samples were taken. Surface surveys indicated that surface contamination had been cleaned to levels that were as low as reasonably achievable and met the criteria specified for unrestricted use. The concentrations of radium-226 in soil samples, when averaged over a 100-square-meter area, were well below the 15 picocuries per gram (pCi/g) standard. The concentrations of uranium-238 and uranium-234 were also below the recommended limit (40 pCi/g). However, the sewers remaining under the building were still contaminated in excess of the criteria.

Surface surveys, soil samples, and sewer sludge samples were also taken in the other three buildings. Upon completion of decontamination activities, all contaminated areas in the interiors of Eckhart Hall, Ryerson Physical Laboratory, and Jones Chemical Laboratory, which were identified in the 1976-1977 radiological surveys, had been cleaned to the level that contamination could no longer be detected.

The three structures were certified free from significant contamination and released for unrestricted use.

The sewer systems and drains beneath and exiting the three buildings are still considered contaminated. This contamination, however, did not pose an immediate hazard. Appropriate safeguards should be taken into consideration whenever the sewers are intruded upon or removed.

The duct work in the interior walls of the Jones Chemical Laboratory remained suspect and was considered contaminated until the university renovates and removes the walls.

Decontamination Activities: 1987

Remediation of the duct work in the Jones Chemical Laboratory was conducted by BNI in 1987 during building renovations. Measurements taken following decontamination procedures indicated that four of the 63 ducts in the building were still contaminated above guidelines. These four ducts were removed. All contaminated air vents, floors, and blowers were either removed or further decontaminated to meet radiological criteria. All post-remedial action measurements indicated that applicable remedial action guidelines had been met.

For more detailed results of the post-remediation sampling, see the [Site Certification Data Summary Worksheet](#) on pages 4-12. For a detailed map of the site and sampling locations, see the [Site Overview Map](#) on page 13.

Current Site Conditions

In 1987, DOE certified that the site complied with applicable DOE standards and criteria developed to protect health, safety, and the environment. Since 1989, DOE has been responsible for the long-term stewardship of the Chicago South site. The stewardship requirements and protocols are captured in the Long-Term Stewardship Plan for Completed FUSRAP Sites, which is available on the DOE Office of Legacy Management website (www.energy.gov/lm/chicago-south-illinois-site).



ADDITIONAL INFORMATION

Documents related to FUSRAP activities at the Chicago South, Illinois, Site are available on the LM website at lmpublicsearch.lm.doe.gov/SitePages/default.aspx?sitename=Chicago_South.

For other information on site history or current long-term stewardship activities, please contact us at:

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Chicago South, Illinois, Site Certification Data Summary Worksheet

Twenty tables referenced in the Chicago South Certification Docket provide the evidence used to certify the site as clean.

When the tables refer to the "Report of Decontamination," that is the "Report of the Decontamination of Jones Chemical Laboratory, Ryerson Physical Laboratory, and Eckhart Hall, the University of Chicago, Chicago, Illinois" (dated August 1984).

When the tables refer to the "PRAR of Kent Lab," that is the "Post-Remedial-Action Radiological Survey of Kent Chemical Laboratory, the University of Chicago, Chicago, Illinois" (dated May 1983).

When the tables refer to the "PRAR of Jones Lab," that is the "Post-Remedial Action Report for the George Herbert Jones Chemical Laboratory at the University of Chicago Site, Chicago, Illinois" (dated January 1989).

Ryerson Physical Laboratory - Contamination Locations					
Table 2 in Report of Decontamination					
Room Number	Location Number	Estimated Area of Contamination (cm ²)	Maximum PAC Reading (dis/min-100 cm ²)		Final Status
			Beta/Gamma	Alpha	
Basement Corridor	7	500	3.2 x 10 ⁵	BKGD ^a	NCD ^b
50	9	500	4.6 x 10 ⁴	BKGD	Decontaminated to NCD
	11	500	1.6 x 10 ³	BKGD	Decontaminated to NCD
55	29	500	1.6 x 10 ³	BKGD	Cleaned to NCD (this material has high natural background)
56	32	200	1.1 x 10 ⁵	BKGD	Instrument chassis disposed of (SRW) ^c
	33	200	1.1 x 10 ⁵	BKGD	Metal box - gone
	34	200	1.9 x 10 ⁵	BKGD	Metal box - gone
	35	200	7.8 x 10 ⁴	BKGD	Metal chassis - gone
	36	200	1.6 x 10 ³	BKGD	Contaminated tube - gone
59B	45	100	2.7 x 10 ³	BKGD	NCD
	46	-	1.5 x 10 ⁴	BKGD	Sources removed
	47	-	6.3 x 10 ⁴	BKGD	Sources removed
	48	-	4.3 x 10 ³	BKGD	Sources removed
	49	200	4.3 x 10 ³	BKGD	NCD
60	50	-	4.6 x 10 ⁴	BKGD	Sources removed
	53	500	4.5 x 10 ³	BKGD	NCD
61	54	500	4.5 x 10 ³	BKGD	NCD
	57	500	5.9 x 10 ³	BKGD	Cleaned to NCD (this material has high natural background)
62	61	1000	1.5 x 10 ⁵	1.2 x 10 ⁴	Decontaminated to NCD
	62	500	7.8 x 10 ³	BKGD	NCD
63	65	300	1.8 x 10 ⁴	BKGD	Decontaminated to NCD
N-001	76	100	5.1 x 10 ³	BKGD	NCD
N-76	83	500	3.5 x 10 ³	BKGD	NCD
	84	1000	1.5 x 10 ⁴	BKGD	NCD
Stairway	106	100	7.8 x 10 ⁴	1.3 x 10 ⁴	Wooden cart had been removed; was located in Jones basement and disposed of as SRW
	107	100	-	-	
155	(new)	300	4 x 10 ³	BKGD	Decontaminated to NCD
158	128	300	1.2 x 10 ⁴	3.0 x 10 ³	Decontaminated to NCD above background of natural material in stone
Loading dock	129	500	BKGD	3.0 x 10 ³	NCD
	137	500	1.5 x 10 ⁴	BKGD	Hood removed; then NCD
162	141	500	1 x 10 ⁵	1.5 x 10 ⁵	Removed oak floor and subfloor to NCD
253	202	200	7.2 x 10 ³	BKGD	Cleaned to NCD
	203	200	4.8 x 10 ³	BKGD	Cleaned to NCD
255	212	-	-	-	Check sources removed
255	^d	100	1.2 x 10 ⁴	2.0 x 10 ³	Floor removed to NCD
256A	218	200	1.6 x 10 ⁴	BKGD	Window sill cleaned to NCD
257	221	200	1.4 x 10 ⁴	BKGD	Window sill cleaned to NCD
	224	200	9.5 x 10 ⁴	BKGD	Cleaned to NCD
258A	225	-	-	-	Standard source removed
	232	500	4.7 x 10 ⁴	BKGD	Cleaned to NCD
	233	500	7.2 x 10 ³	BKGD	Cleaned to NCD
259	(new)	200	4 x 10 ⁴	2 x 10 ³	Cleaned to NCD
	242	500	3.1 x 10 ⁴	BKGD	NCD
M-200U	191	-	-	-	Bench samples removed
350	265	-	NRR ^e	BKGD	Source removed
351	266	-	1.5 x 10 ⁴	BKGD	Source removed
361A	294	500	1.3 x 10 ⁴	BKGD	Cleaned to NCD
	295	200	1.6 x 10 ⁵	BKGD	Cleaned to NCD
361B	296	-	1.6 x 10 ⁵	BKGD	Photo lens removed
450	309	300	1.9 x 10 ⁵	9.6 x 10 ⁴	Wooden bench had been removed
	310	-	2.2 x 10 ³	BKGD	Source removed
453	326	-	2.2 x 10 ⁴	BKGD	Source removed
	328	-	NRR	BKGD	Source removed
454	330	100	BKGD	8.0 x 10 ⁴	Rheostat had been removed
	331	100	5.0 x 10 ⁴	BKGD	Chassis had been removed
455	336	300	6.3 x 10 ⁴	BKGD	Wooden bench had been removed
550	340	300	9.5 x 10 ⁴	BKGD	Steel bench cleaned to NCD

^aBKGD = Background
^bNCD = No contamination detectable at the time of decontamination activity
^cSRW = Solid Radioactive Waste
^dContaminated area not previously identified
^eNRR = No Reading Recorded

Chicago South, Illinois, Site Certification Data Summary Worksheet

Jones Chemical Laboratory - Contamination Locations					
Table 3 in Report of Decontamination					
Room Number	Location Number	Estimated Area of Contamination (cm ²)	Maximum PAC Reading (dis/min-100 cm ²)		Final Status
			Beta/Gamma	Alpha	
Stairs by 17	6	200	1.2 x 10 ³	BKGD ^a	NCD ^b
	7	200	6.2 x 10 ²	BKGD	NCD
	8	200	9.2 x 10 ²	BKGD	NCD
7E	31	200	2.0 x 10 ³	BKGD	These floor areas were decontaminated to NCD
	32	20,000	2.3 x 10 ³	BKGD	
10	36	100	3.9 x 10 ⁵	BKGD	Contaminated junction box and conduit removed (SAW ^c) and replaced
16	41	200	6.2 x 10 ²	BKGD	NCD
17 and 17A	44	300	1.5 x 10 ³	BKGD	Decontaminated to NCD
	45	300	2.0 x 10 ³	BKGD	Decontaminated to NCD
	46	300	2.0 x 10 ³	BKGD	NCD
	47	300	3.0 x 10 ³	BKGD	Decontaminated to NCD
19	51	300	3.0 x 10 ²	BKGD	These rooms (19, 20, 23, and 23A) completely remodeled and all floors replaced; no remaining contamination detected
	52	300	6.0 x 10 ²	BKGD	
	53	300	1.2 x 10 ⁴	9.6 x 10 ²	
20	54	300	9.0 x 10 ²	BKGD	
23 and 23A	59	300	3.0 x 10 ²	BKGD	
	61	300	1.2 x 10 ³	BKGD	
104	81	100	3.0 x 10 ⁴	3.2 x 10 ⁴	NCD
	82	100	2.4 x 10 ³	3.1 x 10 ⁴	NCD
	84	100	2.3 x 10 ⁴	1.6 x 10 ⁴	NCD
	85	100	BKGD	1.6 x 10 ⁵	NCD
122	108	300	6.0 x 10 ²	BKGD	These rooms (122,124, and 125) completely remodeled and all floors replaced; no remaining contamination detected
124	113	200	5.9 x 10 ³	BKGD	
	114	300	1.6 x 10 ³	BKGD	
	115	200	2.5 x 10 ³	BKGD	
	116	200	5.9 x 10 ³	BKGD	
	117	200	7.5 x 10 ³	BKGD	
125	118	300	5.4 x 10 ³	5.0 x 10 ²	
	119	200	1.4 x 10 ⁴	9.6 x 10 ³	
213	141	-	1.4 x 10 ⁴	BKGD	Source removed
222	158	100	9.5 x 10 ⁴	BKGD	These three hoods have been replaced since the initial survey
	159	100	1.4 x 10 ³	BKGD	
	160	100	1.0 x 10 ⁵	BKGD	
316	192	300	5.6 x 10 ³	BKGD	NCD (Floor was replaced).
404B	214	100	1.1 x 10 ³	BKGD	NCD
404D	217	300	2.1 x 10 ⁴	BKGD	Decontaminated to NCD
	218	200	1.1 x 10 ⁴	BKGD	Decontaminated to NCD
404E	220	300	2.8 x 10 ³	BKGD	Floor decontaminated to NCD
	221	500	6.1 x 10 ³	BKGD	Contaminated wall removed and replaced
	222	500	4.8 x 10 ⁴	BKGD	
5th Floor	306	10,000	3.0 x 10 ⁴	5.0 x 10 ²	NCD (wooden floor had been removed)

^a BKGD = Background
^b NCD = No contamination detectable at the time of decontamination activity
^c SAW = Solid Active Waste

Chicago South, Illinois, Site Certification Data Summary Worksheet

Eckhart Hall - Contamination Locations					
Table 1 in Report of Decontamination					
Room Number	Location Number	Estimated Area of Contamination (cm ²)	Maximum PAC Reading (dis/min-100 cm ²)		Final Status
			Beta/Gamma	Alpha	
3	7	500	1.2 x 10 ³	BKGD ^a	NCD ^b Tile removed
	8	500	2.5 x 10 ³	BKGD	NCD Tile removed
6	15	500	7.8 x 10 ²	BKGD	NCD (high natural background from brick wall)
8	25	-	6.5 x 10 ⁴	BKGD	Cabinet removed
9	30	500	9.0 x 10 ³	BKGD	NCD Tile removed
12	39	500	5.6 x 10 ⁴	1.7 x 10 ³	NCD Tile removed
19	59	500	4.2 x 10 ⁴	6.4 x 10 ³	Soapstone bench cleaned to NCD (this material has high natural background)
	60	500	6.2 x 10 ³	BKGD	Floor decontaminated to NCD and repaired
25	71	500	3.1 x 10 ⁴	6.6 x 10 ²	NCD Tile removed
27	78	500	2.0 x 10 ³	BKGD	NCD - wall had been repaired
Basement Corridor	88	500	-	BKGD	Removed tile and decontaminated subflooring to NCD by scabbling; subfloor resurfaced and tile replaced
	89	500	-	BKGD	
Main Stairs	90	200	2.0 x 10 ⁴	BKGD	Decontaminated to NCD by abrasion of stone surface; no resurfacing required
	91	1000	3.5 x 10 ⁵	3.9 x 10 ⁴	

^aBKGD = Background
^bNCD = No contamination detected at the time of decontamination activity

Jones Chemical Laboratory Attic - Contamination Locations					
Table 4 in Report of Decontamination					
Room Number	Location Number	Estimated Area of Contamination (cm ²)	Maximum PAC Reading (dis/min-100 cm ²)		Final Status
			Beta/Gamma	Alpha	
IA	260	100,000	3.0 X 10 ⁵	8.5 X 10 ⁴	Floor removed with jackhammer until NCD ^b
IB	261	100,000	1.9 X 10 ⁵	1.5 X 10 ⁴	
IE	264	1,000	6.5 X 10 ⁴	2.9 X 10 ³	Floor cleaned with solvent to NCD
IIA	259	50,000	7.0 X 10 ³	3.6 X 10 ⁴	Floor scabbled to NCD
IIB	258	50,000	5.5 X 10 ³	BKGD ^a	Floor cleaned with solvent to NCD
IIC	257	50,000	7.5 X 10 ⁴	2.6 X 10 ³	Floor cleaned with solvent to NCD
IID	256	1,000	1.5 X 10 ⁴	3.5 X 10 ³	Floor cleaned with solvent to NCD
IIE	255	1,000	2.5 X 10 ³	BKGD	Floor cleaned with solvent to NCD
IIIA	263	1,000	1.3 X 10 ⁵	7.3 X 10 ³	Floor cleaned with solvent to NCD
IIIB	262	1,000	5.5 X 10 ⁴	7.3 X 10 ³	Floor cleaned with solvent to NCD
IIIC	265	-	6.4 X 10 ³	1.6 X 10 ³	Source removed
	276	-	2.9 X 10 ³	7.3 X 10 ²	Source removed

^aBKGD = Background
^bNCD = No contamination detected at the time of decontamination activity

Chicago South, Illinois, Site Certification Data Summary Worksheet

Gamma Spectral and Uranium-Fluorometric Analyses of Sewer Samples					
Table 5 in Report of Decontamination					
Sample Number	Gamma Spectra (pCi/g ± σ) or (pCi/l ± σ)			Uranium Fluorometric	
	¹³⁷ Cs	²³² Th Decay Chain	²³⁸ U Decay Chain	(μg/g ± 10%)	(pCi/g ± 10%) ^b
EH-SS-3(DS) ^a	42 ± 4	18 ± 2	80 ± 8	0.11 ± 0.01	0.1 ± 0.1
EH-SS-3(SS) ^a	0.14 ± 0.04	0.60 ± 0.06	1.08 ± 0.11	11.8 ± 1.2	8.1 ± 0.8
EH-SS-4(DS)	<0.02	101 ± 10	< 0.02	0.15 ± 0.02	0.1 ± 0.1
EH-SS-4(SS)	57 ± 6	<0.04	104 ± 10	8.2 ± 0.8	5.6 ± 0.6
EH-SS-5	0.08 ± 0.03	0.24 ± 0.07	0.44 ± 0.04	2.7 ± 0.3	1.8 ± 0.2
EH-SS-6	<0.02	0.97 ± 0.10	0.86 ± 0.09	14.7 ± 1.5	10.0 ± 1.0
EH-SS-7	0.28 ± 0.04	0.65 ± 0.07	1.09 ± 0.11	8.0 ± 0.8	5.5 ± 0.6
EH-SS-8	0.03 ± 0.02	0.07 ± 0.03	0.43 ± 0.04	26.2 ± 2.6	17.9 ± 1.8
EH-SS-9	0.10 ± 0.03	0.36 ± 0.07	0.86 ± 0.09	7.8 ± 0.8	5.3 ± 0.5
EH-SS-10	0.13 ± 0.04	0.11 ± 0.04	2.72 ± 0.27	16.3 ± 1.6	11.1 ± 1.1
EH-SS-11	0.07 ± 0.03	0.23 ± 0.06	1.07 ± 0.11	11.8 ± 1.2	8.1 ± 0.8
EH-SS-12	14 ± 1	0.45 ± 0.05	1.01 ± 0.10	5.3 ± 0.5	3.6 ± 0.4
RL-SS-3(DS) ^a	< 0.02	< 0.04	121 ± 12	0.51 ± 0.05	0.4 ± 0.1
RL-SS-3(SS) ^a	0.05 ± 0.02	0.32 ± 0.06	0.38 ± 0.04	3.3 ± 0.3	2.3 ± 0.2
RL-SS-4	0.18 ± 0.04	0.40 ± 0.06	0.47 ± 0.05	35.7 ± 3.6	24.4 ± 2.4
RL-SS-5(DS)	< 0.02	53 ± 5	< 0.02	0.32 ± 0.03	0.2 ± 0.1
RL-SS-5(SS)	0.77 ± 0.08	0.34 ± 0.06	1.35 ± 0.14	4.1 ± 0.4	2.8 ± 0.3
RL-SS-6	< 0.02	0.17 ± 0.05	0.62 ± 0.06	1.9 ± 0.2	1.3 ± 0.1
RL-SS-7(DS)	< 0.02	< 0.04	< 0.02	0.21 ± 0.02	0.1 ± 0.1
RL-SS-7(SS)	< 0.02	< 0.04	4.67 ± 0.47	1.8 ± 0.2	1.2 ± 0.1
RL-SS-8(DS)	30.0 ± 3.0	< 0.04	< 0.02	0.12 ± 0.01	0.1 ± 0.1
RL-SS-8(SS)	< 0.02	< 0.04	2.71 ± 0.27	1.8 ± 0.2	1.2 ± 0.1
RL-SS-9(DS)	< 0.02	< 0.04	< 0.02	0.17 ± 0.02	0.1 ± 0.1
RL-SS-9(SS)	< 0.02	< 0.04	< 0.02	4.5 ± 0.5	3.1 ± 0.3
RL-SS-10(DS)	< 0.02	< 0.04	< 0.02	0.11 ± 0.01	0.1 ± 0.1
RL-SS-10(SS)	0.69 ± 0.07	< 0.04	0.81 ± 0.08	11 ± 0.1	0.8 ± 0.1
RL-SS-11(DS)	< 0.02	< 0.04	220 ± 22	0.53 ± 0.05	0.4 ± 0.1
RL-SS-11(SS)	< 0.02	2.10 ± 0.21	4.82 ± 0.48	1.21 ± 0.1	0.8 ± 0.1
RL-SS-12(DS)	< 0.02	< 0.04	< 0.02	3.43 ± 0.34	2.3 ± 0.2
RL-SS-12(SS)	< 0.02	1.82 ± 0.18	2.58 ± 0.26	2.4 ± 0.2	1.6 ± 0.2
RL-SS-13(DS)	10 ± 1	25 ± 3	< 0.02	0.91 ± 0.09	0.6 ± 0.1
RL-SS-13(SS)	< 0.02	0.46 ± 0.05	0.51 ± 0.05	0.9 ± 0.1	0.6 ± 0.1
RL-SS-14(DS)	< 0.02	< 0.04	< 0.02	0.21 ± 0.02	0.2 ± 0.1
RL-SS-14(SS)	< 0.02	113 ± 0.11	1.62 ± 0.16	0.7 ± 0.1	0.5 ± 0.1
RL-SS-15(DS)	< 0.02	< 0.04	< 0.02	0.64 ± 0.06	0.4 ± 0.1
RL-SS-15(SS)	0.88 ± 0.09	0.56 ± 0.06	0.88 ± 0.09	0.8 ± 0.1	0.5 ± 0.1
JC-SS-2	0.11 ± 0.03	0.52 ± 0.06	0.35 ± 0.04	5.9 ± 0.6	4.0 ± 0.4
JC-SS-3	0.38 ± 0.04	0.45 ± 0.06	0.72 ± 0.07	26.1 ± 2.6	18 ± 1.8
JC-SS-4	< 0.02	0.11 ± 0.04	0.23 ± 0.02	3.4 ± 0.4	2.3 ± 0.2
JC-SS-5	0.50 ± 0.05	0.84 ± 0.08	2.48 ± 0.25	31.1 ± 3.0	21 ± 2.1
JC-SS-6(DS) ^a	< 0.02	< 0.04	60 ± 6	2.2 ± 0.2	1.5 ± 0.2
JC-SS-6(SS) ^a	0.29 ± 0.04	5.48 ± 0.55	7.07 ± 0.71	64 ± 6	44 ± 4.4
JC-SS-7	0.11 ± 0.03	0.52 ± 0.05	0.35 ± 0.04	5.6 ± 0.6	3.8 ± 0.4
JC-SS-8(DS)	< 0.02	< 0.04	< 0.02	0.2 ± 0.1	0.1 ± 0.1
JC-SS-8(SS)	< 0.02	< 0.04	1.27 ± 0.13	1.2 ± 0.1	0.8 ± 0.1
JC-SS-9	0.38 ± 0.04	0.30 ± 0.06	0.50 ± 0.05	2.3 ± 0.2	1.6 ± 0.2
JC-SS-10	0.60 ± 0.06	0.38 ± 0.04	0.89 ± 0.09	4.6 ± 0.5	3.1 ± 0.3
Exterior Sewer Samples					
JC-SS-11(DS)	< 0.02	274 ± 27	8 ± 1	0.1 ± 0.1	0.1 ± 0.1
JC-SS-11(SS)	2.29 ± 0.23	0.47 ± 0.07	0.69 ± 0.07	1.5 ± 0.2	1.0 ± 0.1
JC-SS-12(DS)	10 ± 1	171 ± 17	< 0.02	0.5 ± 0.1	0.3 ± 0.1
JC-SS-12(SS)	0.06 ± 0.02	0.26 ± 0.08	0.54 ± 0.05	1.3 ± 0.1	0.9 ± 0.1
JC-SS-13(DS)	< 0.02	< 0.04	70 ± 7	0.5 ± 0.1	0.3 ± 0.1
JC-SS-13(SS)	0.17 ± 0.03	0.27 ± 0.07	0.55 ± 0.06	1.2 ± 0.1	0.8 ± 0.1
JC-SS-14	0.22 ± 0.04	0.18 ± 0.05	0.18 ± 0.03	0.8 ± 0.1	0.5 ± 0.1
RL-SS-16(DS)	< 0.02	< 0.04	53 ± 5	2.80 ± 0.28	1.9 ± 0.2
RL-SS-16(SS)	< 0.02	< 0.04	0.27 ± 0.03	1.3 ± 0.1	0.9 ± 0.1
RL-SS-17(SS)	2.03 ± 0.20	0.24 ± 0.04	0.75 ± 0.08	2.6 ± 0.3	1.8 ± 0.2
RL-SS-18(DS)	< 0.02	< 0.04	< 0.02	2.0 ± 0.2	1.4 ± 0.2
RL-SS-18(SS)	1.84 ± 0.18	2.34 ± 0.23	2.63 ± 0.26	5.0 ± 0.5	3.4 ± 0.3
RL-SS-19(SS)	1.70 ± 0.17	1.09 ± 0.11	2.41 ± 0.24	12.6 ± 1.3	8.6 ± 0.9
RL-SS-20(DS)	32 ± 3	31 ± 3	< 0.02	0.12 ± 0.01	0.1 ± 0.1
RL-SS-20(SS)	< 0.02	< 0.04	< 0.02	3.2 ± 0.3	2.2 ± 0.2
RL-SS-21(SS)	0.26 ± 0.02	0.14 ± 0.04	0.20 ± 0.02	5.9 ± 0.6	4.0 ± 0.4
RL-SS-22(SS)	1.01 ± 0.10	0.40 ± 0.03	0.73 ± 0.07	2.5 ± 0.3	1.7 ± 0.2
RL-SS-23(SS)	2.08 ± 0.21	< 0.04	0.62 ± 0.06	2.5 ± 0.3	1.7 ± 0.2
RL-SS-24(SS)	0.72 ± 0.07	0.21 ± 0.06	0.24 ± 0.02	1.2 ± 0.1	0.8 ± 0.1
RL-SS-25(SS)	2.75 ± 0.08	< 0.04	1.22 ± 0.12	2.7 ± 0.3	1.8 ± 0.2
RL-SS-26(DS)	26 ± 3	18 ± 2	< 0.02	0.5 ± 0.1	0.3 ± 0.1
RL-SS-26(SS)	0.64 ± 0.06	< 0.04	< 0.02	2.7 ± 0.3	1.8 ± 0.2
RL-SS-27(SS)	0.79 ± 0.08	0.33 ± 0.07	0.83 ± 0.08	3.1 ± 0.3	2.1 ± 0.2
RL-SS-28(DS)	< 0.02	< 0.04	< 0.02	0.4 ± 0.1	0.3 ± 0.1
RL-SS-28(SS)	< 0.02	3.87 ± 0.39	18 ± 2	3.1 ± 0.3	2.1 ± 0.2
RL-SS-29(SS)	0.09 ± 0.04	0.50 ± 0.06	0.51 ± 0.05	1.0 ± 0.1	0.7 ± 0.1
RL-SS-30(DS)	< 0.02	< 0.04	< 0.02	0.5 ± 0.1	0.3 ± 0.1
RL-SS-30(SS)	0.67 ± 0.07	1.80 ± 0.18	2.33 ± 0.23	1.9 ± 0.2	1.3 ± 0.2

^aOne standard deviation due to counting statistics.
^bANL conversion factor from Appendix 5.
^cEH-SS identifies Eckhart Hall-Sewer Sample.
^d(DS) identifies dissolved solids in a water sample - (units pCi/l).
^e(SS) identifies suspended solids in a water sample - (units pCi/g solids).
^fRL-SS identifies Ryerson Physical Laboratory-Sewer Sample.
^gJC-SS identifies Jones Chemical Laboratory-Sewer Sample.

Plutonium Separation and Alpha Spectrometric Analysis of Selected Samples (fCi/g ± σ)		
Table 7 in Report of Decontamination		
Sample Number	²³⁹ Pu	²³⁸ Pu
EH-SS-3(DS) ^a	BDL ^b	BDL
EH-SS-3(SS) ^c	23 ± 5 ^d	BDL
EH-SS-8	68 ± 10	BDL
RL-SS-3(DS)	BDL	BDL
RL-SS-3(SS)	14 ± 3	BDL
RL-SS-5(DS)	BDL	BDL
RL-SS-5(SS)	57 ± 5	BDL
RL-SS-13(DS)	BDL	BDL
RL-SS-13(SS)	7 ± 3	BDL
JC-SS-2	13,000 ± 1,000	350 ± 40
JC-SS-3	350 ± 30	BDL
JC-SS-4	15 ± 4	BDL
JC-SS-5	46 ± 5	BDL
JC-SS-6(SS)	27 ± 5	BDL
JC-SS-7	7 ± 3	BDL
JC-SS-8(DS)	BDL	BDL
JC-SS-8(SS)	13 ± 4	BDL
JC-SS-9	19 ± 5	BDL
JC-SS-10	31 ± 5	BDL
JC-SS-11(DS)	BDL	BDL
JC-SS-11(SS)	76 ± 8	BDL
JC-SS-12(DS)	BDL	BDL
JC-SS-12(SS)	2 ± 1	BDL
JC-SS-13(DS)	BDL	BDL
JC-SS-13(SS)	16 ± 4	BDL
JC-SS-14	96 ± 15	74 ± 10

^a(DS) identifies dissolved solids in a water sample - (units fCi/l).
^bBDL equates to "Below Detectable Limits" for the analysis method.
^c(SS) identifies suspended solids in a water sample - (units fCi/g).
^dBackground levels from fallout are 15 to 20 fCi/g.

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Gamma Spectral and Uranium Fluorometric Analyses of Samples					
Table 4 in PRAR of Kent Lab					
Sample No.	Gamma Spectra, pCi/g±σ ^a			Uranium Fluorometric	
	¹³⁷ Cs	²³² Th Decay Chain	²²⁶ Ra Decay Chain	µg/g ± 10%	pCi/g ± 10% ^b
Soil					
KC-S4	< 0.03	0.21 ± 0.06	0.31 ± 0.03	1.4 ± 0.14	0.96 ± 0.096
KC-S5*	< 0.03	0.19 ± 0.06	0.65 ± 0.07	35.0 ± 3.50	23.9 ± 2.39
KC-S6*	< 0.03	0.24 ± 0.07	3.76 ± 0.38	8.0 ± 0.80	5.5 ± 0.55
KC-S7*	< 0.03	0.53 ± 0.06	4.47 ± 0.45	33.0 ± 3.30	22.5 ± 2.25
KC-S8*	< 0.03	0.51 ± 0.06	16.00 ± 2.00	19.0 ± 1.90	13.0 ± 1.30
KC-S9*	< 0.03	0.04 ± 0.02	13.00 ± 1.00	23.0 ± 2.30	15.7 ± 1.57
Sewer Sludge					
KC-SS10	0.81 ± 0.08	0.66 ± 0.07	9.50 ± 1.00	160.0 ± 16.00	109.3 ± 10.93
KC-SS11	0.06 ± 0.02	0.06 ± 0.03	0.47 ± 0.05	1.8 ± 0.18	1.2 ± 0.12
KC-SS12	0.30 ± 0.04	0.60 ± 0.06	9.30 ± 1.00	21.0 ± 2.10	14.3 ± 1.43
KC-SS13	0.50 ± 0.05	2.20 ± 0.22	10.00 ± 1.00	54.0 ± 5.40	36.9 ± 3.69
Clay Ventilation Pipe					
KC-Pipe-14				µg Total	pCi Total ^b
Contaminated	0.05 ± 0.03	0.5 ± 0.3	0.9 ± 0.4		
Control ^c	0.1 ± 0.05	1.1 ± 0.5	0.8 ± 0.4		
Etch Solution ^d				16	11

^aOne standard deviation due to counting statistics
^bANL conversion from Appendix 5
^cControl sample (27.3 g) was chiseled from the unetched side of ventilation pipe.
^dSample KC-PIPE-14, tile, was treated with 8M HNO₃ on its inside surface to remove uranium by dissolution.

Comments
 The ventilation pipe was broken into four pieces so that counting could be done at meaningful geometries. Conclusions are that some of the activity was dissolved during the chemical etch; however, the bulk of the activity still remains embedded in the tile matrix.
^{*}Areas subsequently cleaned to levels below detectable limits with portable survey instruments during post remedial action survey activities.

Direct Post-Remedial Action Measurements in the Areas Around Duct 10		
Table 4-1 in PRAR of Jones Lab		
Location	Alpha Activity (dpm/100 cm ²) ^a	Beta-Gamma Activity (mrad/h) ^b
FA1-1	<29	<0.01
FA1-2	<29	<0.01
FA1-3	<29	<0.01
FA1-4	<41	<0.01
FA1-5	<66	<0.01
FA2-2	62 ± 56	<0.01
FA2-3	<41	<0.01
FA2-5	52 ± 53	<0.01
FB1-3	<41	<0.01
FB1-4	<66	<0.01
FB1-5	<41	<0.01
FB2-3	52 ± 53	<0.01
FB2-5	<66	<0.01
OA1-1	<29	<0.01
OA1-2	62 ± 56	0.03 ± 0.01
OA1-3	<41	0.02 ± 0.01
OA1-4	<29	<0.01
OA1-5	43 ± 50	0.02 ± 0.01
OA2-3	<1	0.02 ± 0.01
OB1-3	62 ± 56	0.03 ± 0.01
OB1-4	43 ± 50	<0.01
OB1-5	127 ± 74	0.03 ± 0.01
OB2-3	<41	0.03 ± 0.01
OC1-3	89 ± 65	0.04 ± 0.02
OC1-4	<54	<0.01
OC1-5	34 ± 46	0.02 ± 0.01
OC2-3	80 ± 62	0.03 ± 0.01
OC2-5	89 ± 65	0.02 ± 0.01
OD1-3	34 ± 46	0.02 ± 0.01
OD2-3	62 ± 56	0.02 ± 0.01
OD3-3	62 ± 56	0.01 ± 0.01
WA-1	<15	<0.02
WA-2	<54	0.01 ± 0.01
WA-3	<15	0.01 ± 0.01
WA-4	<54	0.02 ± 0.01
WA-5	<15	<0.02
WB-3	34 ± 46	0.01 ± 0.01
WB-4	<15	0.02 ± 0.01
WB-5	<15	<0.02
WC-3	<41	0.02 ± 0.01
WC-4	34 ± 46	0.01 ± 0.01
WC-5	34 ± 46	<0.02
WD-3	<41	<0.01
DN-1	89 ± 65	0.01 ± 0.01
DN-2	<66	0.03 ± 0.01
DN-3	<54	0.03 ± 0.02
DN-4	62 ± 56	0.03 ± 0.01
DN-5	34 ± 46	<0.01
DE-1	43 ± 50	<0.02
DE-2	<15	0.03 ± 0.01
DE-3	34 ± 46	0.02 ± 0.01
DE-4	<54	0.03 ± 0.01
DE-5	<66	0.02 ± 0.01
DS-1	34 ± 46	0.02 ± 0.01
DS-2	34 ± 46	0.02 ± 0.01
DS-3	<54	0.02 ± 0.01
DS-4	34 ± 46	0.02 ± 0.01
DS-5	52 ± 53	0.02 ± 0.01
DP-1	43 ± 50	<0.02

^aRemedial action guideline is 300 dpm/100 cm²;
^bRemedial action guideline is 1.0 mrad/h.
 Guidelines found on page 6 of the PRAR of Jones Lab.

Gamma-Ray Spectral and Uranium-Fluorometric Analyses of Soil Samples					
Table 6 in PRAR of Kent Lab					
Sample Number	Gamma Spectra pCi/g±σ ^a			Uranium Fluorometric	
	¹³⁷ Cs	²³² Th Decay Chain	²²⁶ Ra Decay Chain	µg/g±10% ^b	pCi/g±10% ^c
KC-1A	0.82 ± 0.05	0.9 ± 0.1	0.85 ± 0.08	4.9 ± 0.4	3.3 ± 0.3
KC-1B				2.4 ± 0.3	1.6 ± 0.2
KC-1C				3.2 ± 0.4	2.2 ± 0.3
KC-1D				1.0 ± 0.5	0.7 ± 0.3
KC-2A	0.82 ± 0.06	0.7 ± 0.2	1.00 ± 0.09	5.0 ± 0.6	3.4 ± 0.4
KC-2B				2.6 ± 0.3	1.8 ± 0.2
KC-2C				3.8 ± 0.5	2.6 ± 0.3
KC-2D				2.6 ± 0.4	1.8 ± 0.3
KC-3A	1.45 ± 0.07	0.6 ± 0.1	0.80 ± 0.07	2.1 ± 0.4	1.4 ± 0.3
KC-3B				1.5 ± 0.4	1.0 ± 0.3
KC-3C				2.6 ± 0.4	1.8 ± 0.3
KC-3D				1.0 ± 0.3	0.7 ± 0.3
LFE Blank	0.00 ± 0.04	0.0 ± 0.1	0.00 ± 0.06	0.0 ± 0.2	0.0 ± 0.1

^aOne standard deviation due to counting statistics
^bData results from LFE Corporation Environmental Analysis Laboratories.
^cANL conversion from Appendix 5.

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Transferable Post-Remedial Action Measurements in the Areas Around Duct 10	
Table 4-2 in PRAR of Jones Lab	
Location	Alpha Activity (dpm/100 cm ²) ^a
FA2-2	<2
FA2-5	3 ± 7
FB2-3	<2
OA1-2	<2
OA1-5	<2
OB1-3	<2
OB1-4	3 ± 7
OB1-5	3 ± 7
OC1-3	<2
OC1-5	<2
OC2-3	<2
OC2-5	<2
OD1-3	<2
OD2-3	3 ± 7
OD3-3	<2
WB-3	<2
WC-4	3 ± 7
WC-5	<2
DN-1	<2
DN-4	<2
DN-5	<2
DE-1	<2
DE-3	<2
DS-1	3 ± 7
DS-2	<2
DS-4	<2
DS-5	<2
DP-1	<2

^aRemedial action guideline is 20 dpm/100 cm².
Guidelines found on page 6 of the PRAR of Jones Lab.

Direct Post-Remedial Action Measurements in the Areas Around Duct 26		
Table 4-3 in PRAR of Jones Lab		
Location	Alpha Activity (dpm/100 cm ²) ^a	Beta-Gamma Activity (mrad/h) ^b
FA1-1	34 ± 37	<0.02
FA1-2	71 ± 52	<0.02
FA1-3	62 ± 49	<0.01
FA1-4	71 ± 52	<0.01
FA1-5	62 ± 49	<0.01
FA2-5	24 ± 32	<0.01
FB1-3	71 ± 52	<0.01
FB1-4	43 ± 41	<0.01
FB1-5	62 ± 49	<0.02
FB2-3	43 ± 41	<0.01
FC1-3	43 ± 41	<0.01
FC1-4	62 ± 49	0.04 ± 0.02
FC1-5	71 ± 52	<0.02
FC2-3	34 ± 37	<0.01
OA1-1	<24	<0.01
OA1-2	15 ± 26	<0.01
OA1-3	15 ± 26	<0.02
OA1-4	<6	<0.01
OA1-5	<24	<0.02
OA2-2	<24	<0.01
OA2-5	<6	<0.02
OA3-2	<6	<0.01
OA3-3	15 ± 26	<0.01
OA3-5	<24	<0.01
OB1-3	<24	<0.02
OB1-4	<24	<0.02
OB1-5	<6	0.01 ± 0.01
OB2-5	15 ± 26	<0.02
OB3-3	24 ± 32	0.01 ± 0.01
OB3-5	<24	<0.02
OC1-3	<6	0.01 ± 0.01
OC1-4	15 ± 26	<0.01
OC1-5	15 ± 26	0.02 ± 0.01
OC2-5	24 ± 32	<0.02
OC3-3	62 ± 49	0.01 ± 0.01
OC3-5	<24	<0.01
OD1-3	<6	<0.02
OD3-3	24 ± 32	<0.02
WA1-1	15 ± 26	0.01 ± 0.01
WA1-2	34 ± 37	0.03 ± 0.01
WA1-3	34 ± 37	0.03 ± 0.01
WA1-4	43 ± 41	0.02 ± 0.01
WA1-5	24 ± 32	0.02 ± 0.01
WA2-2	<24	0.02 ± 0.01
WA2-3	15 ± 26	0.02 ± 0.01
WA2-5	43 ± 41	0.01 ± 0.01
WB1-3	62 ± 49	0.02 ± 0.01
WB1-4	52 ± 45	0.02 ± 0.01
WB1-5	43 ± 41	0.01 ± 0.01
WB2-3	<24	0.01 ± 0.01
WB2-5	24 ± 32	<0.02
WC1-3	34 ± 37	0.01 ± 0.01
WC1-4	24 ± 32	0.03 ± 0.01
WC1-5	24 ± 32	<0.02
WC2-3	43 ± 41	0.02 ± 0.01
WC2-5	<24	0.02 ± 0.01
WD1-3	15 ± 26	0.01 ± 0.01
WD2-3	43 ± 41	<0.02
DS-1	15 ± 26	0.02 ± 0.01
DS-2	24 ± 32	0.02 ± 0.01
DS-3	34 ± 37	0.03 ± 0.01
DS-4	89 ± 58	0.03 ± 0.01
DS-5	34 ± 37	0.01 ± 0.01
DS-6	24 ± 32	0.03 ± 0.02
DE-1	34 ± 37	0.02 ± 0.01
DE-2	34 ± 37	0.02 ± 0.01
DE-3	34 ± 37	0.02 ± 0.01
DE-4	<24	0.02 ± 0.01
DE-5	15 ± 26	0.03 ± 0.02
DE-6	15 ± 26	0.02 ± 0.01

^aRemedial action guideline is 300 dpm/100 cm²;
^bRemedial action guideline is 1.0 mrad/h.
Guidelines found on page 6 of the PRAR of Jones Lab.

Transferable Post-Remedial Action Measurements in the Areas Around Duct 26	
Table 4-4 in PRAR of Jones Lab	
Location	Alpha Activity (dpm/100 cm ²) ^a
WA1-3	<1
WA1-4	3 ± 6
WA2-5	<1
WA1-2	<1
WB1-3	<1
WB1-4	<1
WB1-5	<1
WC1-3	<1
WC2-3	3 ± 6
WD2-3	<1
DE-1	3 ± 6
DE-2	<1
DE-3	<1
DS-3	<1
DS-4	<1
DS-5	<1

^aRemedial action guideline is 20 dpm/100 cm².
Guidelines found on page 6 of the PRAR of Jones Lab.

Transferable Post-Remedial Action Measurements in the Areas Around Duct 29	
Table 4-6 in PRAR of Jones Lab	
Location	Alpha Activity (dpm/100 cm ²) ^a
DS-1	<1
DS-2	<1
DS-6	<1
DS-7	<1
DN-1	<1
DN-2	3 ± 6
DN-5	<1
DN-6	<1
DA-5	<1
DB-3	<1
DB-4	<1
DB-5	<1
DD-3	3 ± 6

^aRemedial action guideline is 20 dpm/100 cm².
Guidelines found on page 6 of the PRAR of Jones Lab.

Direct Post-Remedial Action Measurements in the Areas Around Duct 29		
Table 4-5 in PRAR of Jones Lab		
Location	Alpha Activity (dpm/100 cm ²) ^a	Beta-Gamma Activity (mrad/h) ^b
FA1-1	<22	0.02 ± 0.01
FA1-2	21 ± 32	0.02 ± 0.01
FA1-3	<22	0.02 ± 0.01
FA1-4	<37	0.08 ± 0.02
FA1-5	21 ± 32	0.01 ± 0.01
FA2-2	<37	0.01 ± 0.01
FA2-3	<22	0.03 ± 0.02
FA2-5	<37	0.04 ± 0.02
FB1-3	<6	0.03 ± 0.02
FB1-4	<37	0.03 ± 0.02
FB1-5	<22	0.07 ± 0.02
FB2-3	<22	0.01 ± 0.01
FB2-5	<6	0.03 ± 0.02
FC1-3	<37	0.02 ± 0.01
FC1-4	<6	0.02 ± 0.01
FC1-5	<22	0.02 ± 0.01
FC2-3	<6	<0.01
FC2-5	<6	<0.01
FD1-3	<22	<0.01
FD1-4	<22	<0.01
FD1-5	<37	<0.01
FD2-3	<22	<0.01
OA1-1	<6	<0.01
OA1-2	<22	<0.01
OA1-3	<22	<0.01
OA1-4	<22	<0.01
OA1-5	<6	<0.01
OA2-2	<6	<0.01
OA2-3	<6	<0.01
OA2-5	<22	<0.01
OB1-3	<37	<0.01
OB1-4	<22	<0.01
OB1-5	<22	<0.01
OB2-3	<6	<0.01
OB2-5	<22	<0.01
OC1-3	<6	<0.01
OC1-4	<6	<0.02
OC1-5	<22	<0.01
OC2-3	<22	<0.02
OC2-5	<6	0.01 ± 0.01
DS-1	30 ± 37	0.02 ± 0.01
DS-2	21 ± 32	0.02 ± 0.01
DS-3	<37	0.03 ± 0.02
DS-4	<22	0.03 ± 0.02
DS-5	<37	<0.02
DS-6	39 ± 41	0.03 ± 0.02
DS-7	30 ± 37	0.02 ± 0.01
DN-1	39 ± 41	0.02 ± 0.01
DN-2	21 ± 32	0.02 ± 0.01
DN-3	<37	0.02 ± 0.02
DN-4	<22	0.01 ± 0.01
DN-5	39 ± 41	0.02 ± 0.02
DN-6	30 ± 37	0.03 ± 0.02
DN-7	<37	0.03 ± 0.02
DA-1	<37	0.03 ± 0.02
DA-2	<22	0.02 ± 0.02
DA-3	<22	0.02 ± 0.01
DA-4	<22	0.02 ± 0.01
DA-5	21 ± 32	0.02 ± 0.01
DB-3	58 ± 49	0.02 ± 0.01
DB-4	48 ± 45	0.02 ± 0.01
DB-5	30 ± 37	0.03 ± 0.02
DC-3	<37	0.02 ± 0.01
DC-4	<22	0.02 ± 0.01
DC-5	<22	0.03 ± 0.02
DD-3	48 ± 45	<0.02

^aRemedial action guideline is 300 dpm/100 cm²;
^bRemedial action guideline is 1.0 mrad/h.
Guidelines found on page 6 of the PRAR of Jones Lab.

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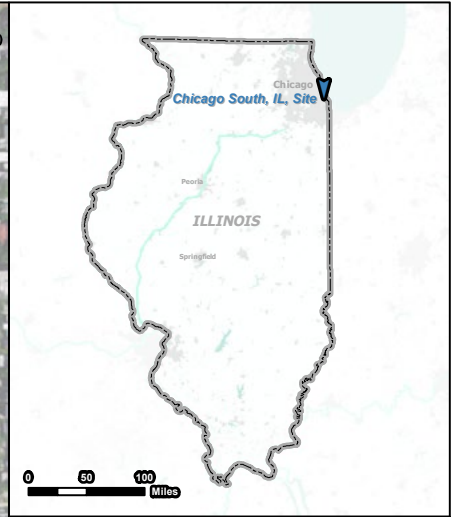
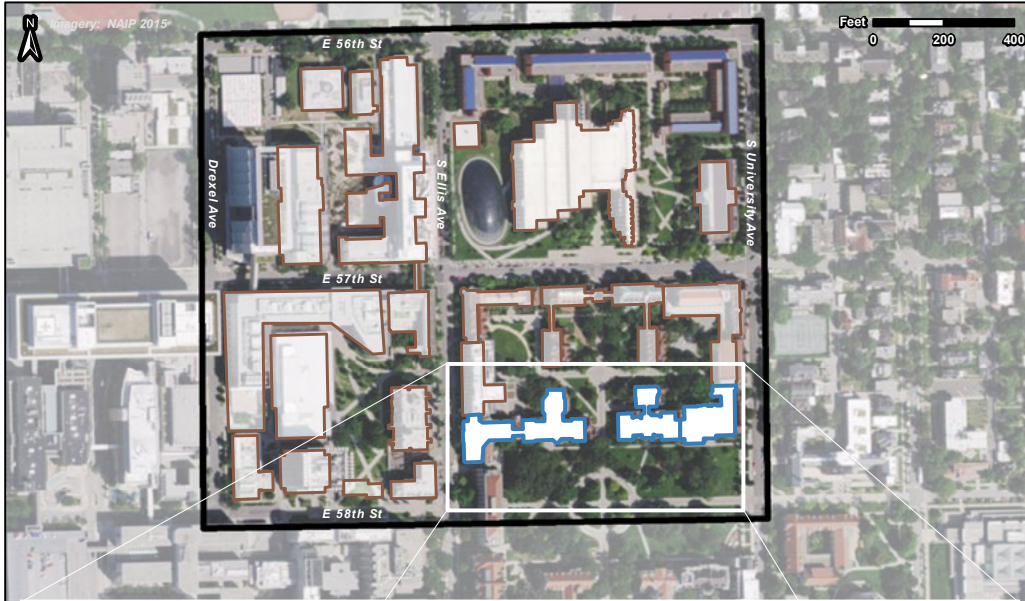
Direct Post-Remedial Action Measurements in the Areas Around Duct 64

Table 4-7 in PRAR of Jones Lab

Location	Alpha Activity (dpm/100 cm ²)	Beta-Gamma Activity (mrad/h)	Location	Alpha Activity (dpm/100 cm ²)	Beta-Gamma Activity (mrad/h)	Location	Alpha Activity (dpm/100 cm ²)	Beta-Gamma Activity (mrad/h)	Location	Alpha Activity (dpm/100 cm ²)	Beta-Gamma Activity (mrad/h)
FIA1-1	<37	<0.01	WIC2-3	58 ± 49	0.02 ± 0.01	W2D-3	35 ± 41	0.02 ± 0.01	W3B-3	36 ± 47	<0.01
FIA1-2	<22	<0.01	WIC2-5	77 ± 56	0.02 ± 0.01	W2A2-3	<35	0.01 ± 0.01	W3B-4	<30	<0.02
FIA2-2	<51	<0.01	FIA-1	77 ± 56	<0.01	W2A2-5	26 ± 37	0.02 ± 0.01	W3B-5	55 ± 54	<0.02
FIA3-2	<22	<0.01	FIA-2	40 ± 42	<0.01	W2B2-3	<48	0.01 ± 0.01	W3C-3	45 ± 50	<0.01
FIA4-2	<37	<0.01	FIA-3	58 ± 49	<0.01	W2B2-5	26 ± 37	<0.02	W3C-4	55 ± 54	<0.01
FIA1-3	<37	<0.01	FIA-4	30 ± 38	<0.01	W2C2-3	53 ± 49	<0.02	W3C-5	<43	<0.01
FIA2-3	<37	<0.01	FIA-5	21 ± 33	<0.01	W2C2-5	26 ± 37	<0.02	W3D-3	83 ± 62	<0.02
FIA3-3	<37	<0.01	FIB-3	21 ± 33	<0.01	W2D2-3	44 ± 45	<0.02	D3E-1	<43	<0.01
FIA4-3	<22	<0.01	FIB-4	30 ± 38	<0.01	FI2F-1	35 ± 41	0.02 ± 0.01	D3E-2	64 ± 57	<0.01
FIA1-4	<37	<0.01	FIB-5	<37	<0.01	FI2F-2	26 ± 37	0.02 ± 0.01	D3E-3	<56	<0.01
FIA1-5	<51	<0.01	FI1C-3	49 ± 46	<0.01	FI2F-3	53 ± 49	0.02 ± 0.01	D3E-4	<30	<0.01
FIA2-5	48 ± 49	<0.01	FI1C-4	<23	<0.01	FI2F-4	<48	0.02 ± 0.01	D3E-5	45 ± 50	<0.01
FIA3-5	57 ± 52	<0.01	FI1C-5	<37	<0.01	FI2F-5	26 ± 37	0.02 ± 0.01	D3E-6	<56	<0.01
FIA4-5	<22	<0.01	F2A1-1	<6	<0.01	O2A1-1	<22	<0.01	D3E-7	36 ± 47	<0.01
FIB1-3	28 ± 40	<0.01	F2A1-2	<22	<0.01	O2A1-2	<22	<0.01	D3W-1	55 ± 54	0.01 ± 0.02
FIB2-3	<22	<0.01	F2A2-2	<22	<0.01	O2A1-3	<6	<0.01	D3W-2	<56	<0.02
FIB3-3	28 ± 40	<0.01	F2A3-2	<6	<0.01	O2A1-4	<22	<0.01	D3W-3	55 ± 54	0.01 ± 0.02
FIB4-3	28 ± 40	<0.01	F2A4-2	<6	<0.01	O2A1-5	<6	<0.01	D3W-4	45 ± 50	0.01 ± 0.02
FIB1-4	<22	<0.01	F2A1-3	<6	<0.01	O2B1-3	<22	<0.01	D3W-5	<43	<0.02
FIB1-5	<22	<0.01	F2A2-3	<6	<0.01	O2B1-4	<6	<0.01	D3W-6	<43	<0.02
FIB2-5	<37	<0.01	F2A3-3	<6	<0.01	O2B1-5	<6	<0.01	D3W-7	<56	<0.02
FIB3-5	<6	0.01 ± 0.01	F2A4-3	<6	<0.01	O2C1-3	<6	<0.01	D3N-1	<56	<0.02
FIB4-5	<22	<0.01	F2A1-4	<22	<0.01	O2C2-3	<22	<0.01	D3N-2	26 ± 43	0.01 ± 0.02
CIA1-1	<21	<0.01	F2A1-5	<6	<0.01	O2A2-2	<22	<0.01	D3N-3	64 ± 57	0.01 ± 0.02
CIA1-2	<6	<0.01	F2A2-5	<6	<0.01	O2A3-2	<22	<0.01	D3N-4	73 ± 60	<0.02
CIA1-3	<21	<0.01	F2A3-5	<6	<0.01	O2A3-3	<6	<0.01	D3N-5	64 ± 57	<0.02
CIA1-4	<35	<0.01	F2A4-5	<6	<0.01	O2A2-5	<6	<0.01	D3N-6	36 ± 47	<0.02
CIA1-5	<21	<0.01	F2B1-3	<6	<0.01	O2A3-5	<22	<0.01	D3N-7	36 ± 47	<0.01
CIA2-3	<35	<0.01	F2B2-3	<6	<0.01	O2B3-3	<6	<0.01	FI3F-1	<43	<0.01
CIA2-4	<6	<0.01	F2B3-3	<6	<0.01	O2B2-5	17 ± 33	<0.01	O3A1-1	28 ± 38	<0.01
CIA2-5	<21	<0.01	F2B4-3	<6	<0.01	O2B3-5	<36	<0.01	O3A1-2	<6	<0.01
CIA3-3	<21	<0.01	F2B1-4	<22	<0.01	O2C3-3	<6	<0.01	O3A1-3	38 ± 42	<0.01
CIA3-4	<21	<0.01	F2B1-5	<22	<0.01	F3A1-1	28 ± 38	<0.01	O3A1-4	19 ± 33	<0.01
CIA3-5	<6	<0.01	F2B2-5	<6	<0.01	F3A1-2	19 ± 33	<0.01	O3A1-5	<6	<0.01
CIB1-3	<35	<0.01	F2B3-5	<6	<0.01	F3A1-3	28 ± 38	<0.01	O3A2-2	28 ± 38	<0.01
CIB1-4	<6	<0.01	F2B4-5	<6	<0.01	F3A1-4	<22	<0.01	O3A2-5	19 ± 33	<0.01
CIB1-5	<21	<0.01	C2A1-1	<6	<0.01	F3A1-5	<6	<0.01	O3A3-2	38 ± 42	<0.01
CIB2-3	<35	<0.01	C2A1-2	<22	<0.01	F3A2-2	19 ± 33	<0.01	O3A3-3	28 ± 38	<0.01
CIB2-5	<35	<0.01	C2A2-2	<6	<0.01	F3A2-3	38 ± 42	<0.01	O3A3-5	28 ± 38	<0.01
CIB3-3	<6	<0.01	C2A3-2	<6	<0.01	F3A2-5	38 ± 42	<0.01	O3B1-3	47 ± 46	<0.01
CIB3-5	<6	<0.01	C2A1-3	<36	<0.01	F3A3-2	<36	<0.01	O3B1-4	<36	<0.01
DIN-1	21 ± 33	<0.01	C2A2-3	<36	<0.01	F3A3-3	19 ± 33	<0.01	O3B1-5	<36	<0.01
DIN-2	<37	<0.01	C2A3-3	<6	<0.01	F3A3-5	28 ± 38	<0.01	O3B2-5	<36	<0.01
DIN-3	40 ± 42	<0.01	C2A1-4	<22	<0.01	F3A4-2	<6	<0.01	O3B3-3	<22	<0.01
DIN-4	<23	<0.01	C2A1-5	<6	<0.01	F3A4-3	<36	<0.01	O3B3-5	28 ± 38	<0.01
DIN-5	*	<0.01	C2A2-5	<22	<0.01	F3A4-5	<6	<0.01	O3C1-3	28 ± 38	<0.01
DIN-6	*	<0.01	C2A3-5	<22	<0.01	F3B1-3	<36	<0.01	O3C2-3	<36	<0.01
DIN-7	*	<0.01	C2A1-3	<6	<0.01	F3B1-4	28 ± 38	<0.01	O3C3-3	57 ± 50	<0.01
DIN-8	96 ± 62	0.01 ± 0.01	C2B2-3	<6	<0.01	F3B1-5	28 ± 38	<0.01			
DIN-9	49 ± 46	<0.01	C2B3-3	<6	<0.01	F3B2-3	<22	<0.01			
DIN-10	58 ± 49	<0.02	C2B1-4	<36	<0.01	F3B2-5	38 ± 42	<0.01			
DIN-11	77 ± 56	<0.01	C2B1-5	<22	<0.01	F3B3-3	28 ± 38	<0.01			
DIN-12	106 ± 64	0.02 ± 0.01	C2B2-5	<6	<0.01	F3B3-5	<6	<0.01			
DIN-13	77 ± 56	0.02 ± 0.02	D2E-1	26 ± 37	<0.01	F3B4-3	19 ± 33	<0.01			
DIE-1	21 ± 33	<0.01	D2E-2	<35	<0.01	F3B4-5	<22	<0.01			
DIE-2	<37	<0.01	D2E-3	<21	<0.01	C3A1-1	<36	<0.01			
DIE-3	<37	<0.01	D2E-4	35 ± 41	<0.01	C3A1-2	<36	<0.01			
DIE-4	21 ± 33	<0.01	D2E-5	<35	<0.01	C3A1-3	<36	<0.01			
DIE-5	49 ± 46	<0.01	D2E-6	<21	<0.01	C3A1-4	28 ± 38	<0.01			
DIE-6	21 ± 33	<0.01	D2E-7	<35	<0.01	C3A1-5	28 ± 38	<0.01			
DIE-7	30 ± 38	<0.01	D2N-1	<21	<0.01	C3A2-2	19 ± 33	<0.01			
WIA1-1	21 ± 33	0.03 ± 0.01	D2N-2	<35	<0.01	C3A2-3	<22	<0.01			
WIA1-2	<23	0.03 ± 0.02	D2N-3	<21	<0.01	C3A2-5	<36	<0.01			
WIA1-3	49 ± 46	0.02 ± 0.01	D2N-4	<35	<0.01	C3A3-2	47 ± 46	<0.01			
WIA1-4	30 ± 38	0.03 ± 0.01	D2N-5	<21	<0.02	C3A3-3	19 ± 33	<0.01			
WIA1-5	21 ± 33	0.02 ± 0.01	D2N-6	<48	<0.01	C3A3-5	<6	<0.01			
WIA2-2	21 ± 33	0.02 ± 0.01	D2N-7	<21	<0.02	C3B1-3	38 ± 42	<0.01			
WIA2-3	40 ± 42	0.02 ± 0.01	W2A-1	<48	0.01 ± 0.01	C3B1-4	<36	<0.01			
WIA2-5	58 ± 49	0.02 ± 0.01	W2A-2	<35	0.01 ± 0.01	C3B1-5	38 ± 42	<0.01			
WIB1-3	<37	0.02 ± 0.01	W2A-3	<48	0.02 ± 0.01	C3B2-3	28 ± 38	<0.01			
WIB1-4	58 ± 49	0.01 ± 0.01	W2A-4	26 ± 37	0.02 ± 0.01	C3B2-5	<22	<0.01			
WIB1-5	40 ± 42	0.03 ± 0.02	W2A-5	35 ± 41	0.02 ± 0.01	C3B3-3	19 ± 33	<0.01			
WIB2-3	77 ± 56	0.02 ± 0.01	W2B-3	<48	0.02 ± 0.01	C3B3-5	<36	<0.01			
WIB2-5	49 ± 46	0.02 ± 0.01	W2B-4	<48	0.02 ± 0.01	W3A-1	102 ± 68	<0.01			
WIB2-4	<37	0.02 ± 0.01	W2B-5	26 ± 37	0.02 ± 0.01	W3A-2	<17	<0.01			
WIC1-3	49 ± 46	0.03 ± 0.01	W2C-3	35 ± 41	0.02 ± 0.01	W3A-3	64 ± 57	<0.01			
WIC1-4	87 ± 59	0.02 ± 0.01	W2C-4	<21	0.02 ± 0.01	W3A-4	45 ± 50	<0.01			
WIC1-5	49 ± 46	0.02 ± 0.01	W2C-5	<35	0.01 ± 0.01	W3A-5	<56	0.01 ± 0.02			

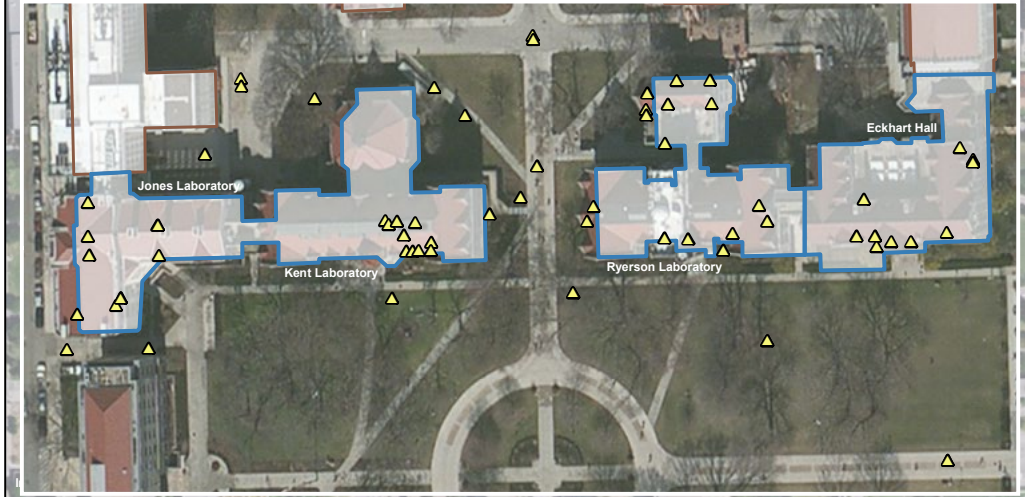
*Alpha reading could not be obtained because of rough surface.
 *Remedial action guideline is 300 dpm/100 cm².
 *Remedial action guideline is 1.0 mrad/h.
 Guidelines found on page 6 of the PRAR of Jones Lab.

Chicago South, Illinois, Site Map



U.S. DEPARTMENT OF ENERGY
OFFICE OF LEGACY MANAGEMENT

Work Performed by
Navarro Research & Engineering, Inc.
Under DOE Contract Number DE-LM000421



Chicago South, IL, Site

- Sample Locations
- Site Buildings
- FUSRAP Certified Boundary
- Original Site Boundary

DATE PREPARED: **September 1, 2017**

FILE NAME: **CHS_DELIVERABLE**

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