145851
NF-120

Formerly Utilized Sites Remedial Action Program (FUSRAP)

ADMINISTRATIVE RECORD

For the Niagara Falls Site, New York

U.S. Department of Energy

DOE F 1325.8
(08-93)

United States Government

145851

Department of Energy

memorandum

SEP [illegible]

DATE: AUG 28 1996

REPLY TO ATTN OF: EM-42 (W. A. Williams, 301-903-8149)

SUBJECT: Surface Release Criteria for Building 403, Niagara Falls Storage Site

TO: L. Price, OR

This is in response to your memorandum of August 27, 1996, which recommended the use of the uranium surface release criteria for this building.

Chapter IV ("Residual Radioactive Material") provides surface release criteria in Figure IV-1, which (for each class of radionuclides) establishes the "Allowable Total Residual Surface Contamination" level. Your memorandum recommended the use of the criteria for "U-Natural, U-235, U-238, and associated decay products ..." rather than the criteria for various transuranic isotopes, "Ra-226," and others. This change was recommended because chemical analysis of the surface contaminants shows that the contaminant is uranium with or without its decay products. A supporting radiological analysis was provided to support the recommendation.

The analysis and rationale for using the uranium criteria are sound, and the request is approved, pursuant to the Department of Energy Order 5400.5, Chapter IV, Section 5a.

Albert S. Johnson
Team Leader
FUSRAP Team
Office of Eastern Area Programs
Office of Environmental Restoration

cc: R. Kirk, DOE/OR
J. Beck, Oak Ridge Institute
for Science and Education

DOE F 1326.8 (4/93)

96-417

145851

United States Government

Department of Energy

Oak Ridge Operations Office

memorandum

DATE: August 27, 1996

REPLY TO ATTN OF: Kirk;EW-93

SUBJECT: **NIAGARA FALLS STORAGE SITE - REQUEST FOR CHANGE IN SURFACE CRITERIA**

TO: Albert S. Johnson, EM-421, CL

In trying to finalize the cleanup status of the Niagara Falls Storage Site (NFSS), surveys of the remaining buildings have been completed to determine if residual radioactive material above guidelines remains in them. Building 403 currently houses the site's maintenance office and was one of the structures surveyed. The surface criteria that was used for evaluating the survey results was radium-226. Based on that evaluation, the Oak Ridge Institute for Science and Education (ORISE) determined that Building 403 contained residual radiological material above DOE's current guidelines.

Because limited historical information exists on the operations that resulted in Building 403 having residual radioactive material, samples were collected to determine the isotopic makeup of the material. The sample locations selected were those that exhibited the highest readings during the surface surveys. Attached is a copy of the results of the sampling and they show an equilibrium between uranium, thorium, and radium or a condition where radium is less than the others. This indicates that the appropriate surface criteria for Building 403 would be uranium in lieu of the radium-226 criteria.

These results have been coordinated with ORISE and they have indicated agreement with our assessment that the material in the samples appears to be uranium. Based on the sampling data in the attached table, I am requesting approval to use the uranium surface criteria for Building 403 at NFSS in determining what action is appropriate for the building.

If you have any questions, please contact Ron Kirk at (423) 576-7477.

Lester K. Price

Lester K. Price, Director
Former Sites Restoration Division

Attachments

ADDITIONAL RADIOLOGICAL SAMPLING RESULTS FOR BUILDING 403 AT NFSS

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Sampling Date	Sample ID	Location	Analyte	Result	Error	Unit
6/11/96	NFS0101	Loc.# 8	Ra-226	0.23	0.12	pCi/g
			Th-230	2.35	0.58	pCi/g
			U-234	8.30	1.56	pCi/g
			U-235	0.33 j	0.18	pCi/g
			U-238	8.08	1.52	pCi/g
	NFS0102	Loc.# 5	Ra-226	8.83	1.12	pCi/g
			Th-230	43.48	7.48	pCi/g
			U-234	30.95 j	5.91	pCi/g
			U-235	1.39 j	0.48	pCi/g
			U-238	28.32 j	5.61	pCi/g
	NFS0103	Loc.# 1	Ra-226	0.54	0.21	pCi/g
			Th-230	2.22	0.62	pCi/g
			U-234	1.59	0.46	pCi/g
			U-235	0.11 j	0.11	pCi/g
			U-238	1.78	0.49	pCi/g
	NFS0104	Loc.# 16	Ra-226	46.63	3.70	pCi/g
		& 17	Th-230	50.57	8.68	pCi/g
			U-234	48.61 j	9.84	pCi/g
			U-235	2.14 j	0.88	pCi/g
			U-238	47.71 j	9.67	pCi/g
	NFS0105	Loc.# 7	Ra-226	5.65	0.87	pCi/g
			Th-230	16.90	3.05	pCi/g
			U-234	11.14 j	2.21	pCi/g
			U-235	0.51 j	0.27	pCi/g
			U-238	11.12 j	2.20	pCi/g
Analytical Method: ALPHASPEC						
Reference: WI-96-118						

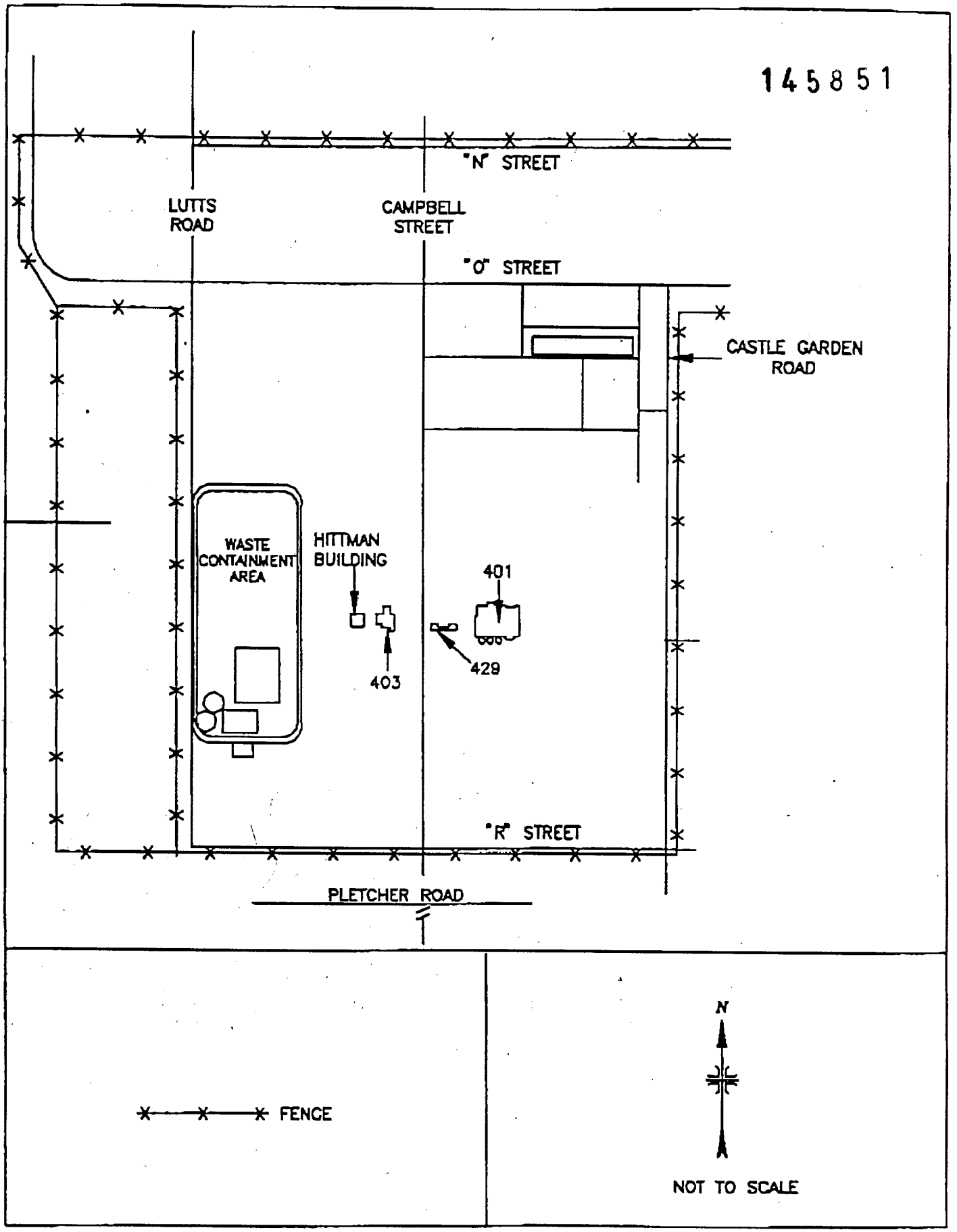

FIGURE 2: Niagara Falls Storage Site – Plot Plan