



DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT, CORPS OF ENGINEERS
9170 LATTY AVENUE
BERKELEY, MISSOURI 63134

MAY 04 1999

REPLY TO
ATTENTION OF:

Formerly Utilized Sites Remedial Action Program Project Office

SUBJECT: VICINITY PROPERTY REMEDIATION STATUS OF 6821 HAZELWOOD AVENUE, BERKELEY, MISSOURI 63134 (LOCATOR #10K610189)

Mr. Thomas J. Caskanett, Jr.
Vice President/ONCOR Manager
165 North Meramec, Suite 500
St. Louis, Missouri 63105-3798

Dear Mr. Caskanett:

In October 1997, the management of the Formerly Utilized Sites Remedial Action Program (FUSRAP) was transferred by Congress from the Department of Energy to the Corps of Engineers pursuant to the FY98 Energy and Water Appropriations Bill. Prior to this transfer, removal of low-level radioactive contamination was accomplished according to standards cited in the applicable Engineering Evaluation/Cost Analysis. One of the properties addressed by a contamination removal action conducted by the Department of Energy and its contractors is located at 6821 Hazelwood Avenue, also referred to as Vicinity Property No. 36 (VP 36).

In response to your letter dated April 9, 1999, please find enclosed two verification reports from the Oak Ridge Institute for Science and Education (ORISE), a quasi-governmental organization under the Department of Energy. These reports contain information regarding VP 36. Of particular interest to you may be the "Interim Letter Report-Verification Survey of the St. Louis Airport Site (SLAPS) Vicinity Property No. 36, Hazelwood, Missouri" page 3. This report indicates your property is suitable for release in accordance with Department of Energy criteria.

Please contact Mr. Dennis Chambers at (314) 524-3329 if you need any further information regarding this letter. More detailed contamination documentation may also be available from the Department of Energy.

Sincerely,

Sharon R. Cotner
FUSRAP Program Manager

Enclosures (2)
CC: Norfolk Southern Director for
Real Estate Development

ORISE
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

February 20, 1997

W. Alexander Williams, PhD
Designation and Certification Manager
U.S. Department of Energy
EM-421
Cloverleaf Building
Washington, DC 20585-0002

SUBJECT: INTERIM LETTER REPORT—VERIFICATION SURVEY OF THE ST. LOUIS AIRPORT SITE (SLAPS) VICINITY PROPERTY NO. 36, HAZELWOOD, MISSOURI

Dear Dr. Williams:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) conducted verification activities at the St. Louis Airport Site (SLAPS) Vicinity Property (VP) No. 36 on August 7, 1996. Verification activities were performed in support of the remedial actions that Bechtel National, Inc. (BNI), the Formerly Utilized Sites Remedial Action Program project management contractor, performed for a number of the SLAPS VPs during Fiscal Year 1996.

SLAPS was acquired by the Manhattan Engineer District (MED) and operated from 1946 to 1966. The site was used for storage of waste materials that were generated during uranium processing from 1942 until the late 1950s at the Mallinckrodt facility, located in downtown St. Louis. These processing wastes, which consisted of pitchblende raffinate residues, radium-bearing residues, and barium sulfate cake, were purchased by Continental Mining and Milling Company of Chicago (CMMC) in 1966 and, subsequently, transported to 9200 Latty Avenue for storage under an Atomic Energy Commission (AEC), predecessor agency to the U.S. Department of Energy (DOE), license. During transit, some of the materials spilled onto the haul roads and contiguous properties, primarily collecting in the drainage ditches. The haul roads used for transport to the Latty Avenue storage site and other sites included McDonnell Boulevard, formerly Brown Avenue, Hazelwood Avenue, Pershall Road, Eva Avenue, Frost Avenue, and Latty Avenue.

VP 36 is located on Hazelwood Avenue in Hazelwood, Missouri (Figure 1). Soil contamination was mostly confined to the right-of-way portion of the property and extended from the boundary of Hazelwood Avenue to approximately 5 to 10 meters west of the road. At the south end of the property the excavation extends from the boundary of the road to approximately 55 meters west of the road. Figure 2 shows the remediated portions of VP 36. BNI remediated the contaminated soil from the property to depths of approximately 0.5 to 1 meter below the surface. BNI then subdivided the excavated portion of the property into approximately 100 m² survey units and performed

post-remedial action(post-RA) surveys and sampling of each survey unit. The results of BNI's post-RA survey and sampling indicated that contaminants had been reduced to levels below the acceptable residual contamination guidelines.

ESSAP performed independent verification surveys of VP 36 following the completion of remedial activities and upon the receipt of BNI's post-RA data. Independent verification is performed in order to provide independent survey and analytical data for use by the DOE in determining the adequacy and accuracy of the BNI conclusions as to the remediated areas status. Verification activities included review of BNI's post-RA data, gamma surface scans using NaI scintillation detectors coupled to ratemeters with audible indicators, exposure rate measurements and soil sampling.

Surface scans identified one location of elevated direct gamma radiation within grid 4. ESSAP personnel collected five systematic surface (0-15 cm) soil samples from grids 4, 9, and 16. Samples were collected from the center and at four points equidistant from the grid center and the grid corners and included the location of elevated direct gamma radiation identified in grid 4. Sample locations are shown on Figure 2. In addition, exposure rate measurements using a microrem meter were performed at 1 meter above each surface soil sampling location and results are presented in Table 1. Exposure rates ranged from 10 to 15 $\mu\text{R/h}$ and were comparable to background exposure rates obtained during previous SLAPS vicinity property surveys, which ranged from 9 to 10 $\mu\text{R/h}$ (ORISE 1996).

Soil samples were analyzed by solid-state gamma spectrometry and the spectra were reviewed for the contaminants of interest, which were Ra-226, Th-230, and U-238. Selected samples were also analyzed by alpha spectrometry for isotopic thorium. Radionuclide concentrations in soil samples, including background, are summarized in Table 1. Concentration ranges were as follows: 0.9 to 6.5 pCi/g for Ra-226, 1.58 to 290 pCi/g for Th-230, and 0.5 to 7.4 pCi/g for U-238. The highest concentrations of Ra-226, Th-230, and U-238 were from soil sample location 207 in grid block 4. BNI remediated this location and ESSAP collected a follow-up verification sample during a later survey visit. The radionuclide concentrations in this sample are also presented in Table 1. Concentrations were as follows: 1.8 pCi/g for Ra-226, 19.6 pCi/g for Th-230, and 2.3 pCi/g for U-238. The previously determined average background radionuclide concentrations in soil were 0.9 pCi/g for Ra-226, 1.31 pCi/g for Th-230, and 1.1 pCi/g for U-238 (ORISE 1996).

Sample results were then compared to the generic and site-specific soil concentration guidelines (DOE 1990a and 1990b). These guidelines are as follows:

<u>Radionuclide</u>	<u>Soil Concentration Above Background</u>
Ra-226, Th-230	5 pCi/g averaged over the first 15 cm of soil below the surface; 15 pCi/g, averaged over 15 cm thick layers of soil greater than 15 cm below the surface.
U-238	50 pCi/g

Dr. Alexander Williams

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February 20, 1997

Because the surface these samples were collected from was originally, and will be again following backfill, at a depth of greater than 15 cm, the subsurface guidelines are applicable. One sample in grid 4 exceeded the subsurface guideline for Th-230. However, the guidelines permit averaging the residual radioactive concentrations over an area of 100 m² and application of the hot spot criteria. For grid 4, the 100 m² average Th-230 concentration satisfied the guideline and the hot spot criteria also has been satisfied. All residual radionuclide levels therefore satisfied the guidelines.

In summary, the radiological status of VP 36 satisfies the applicable DOE guidelines for release for unrestricted use. A draft verification report will be prepared following the receipt of BNI's post-remedial action report. In the interim, please contact me at (423) 576-5073 or Eric Abelquist at (423) 576-3740 should you have any questions, comments, or require additional information.

Sincerely,



Timothy J. Vitkus
Survey Projects Manager
Environmental Survey and Site
Assessment Program

TJV:dka

cc: A. Johnson, DOE/HQ
D. Adler, DOE/FSRD/ORO
K. Albins, BNI
W. Beck, ORISE/ESSAP
E. Abelquist, ORISE/ESSAP
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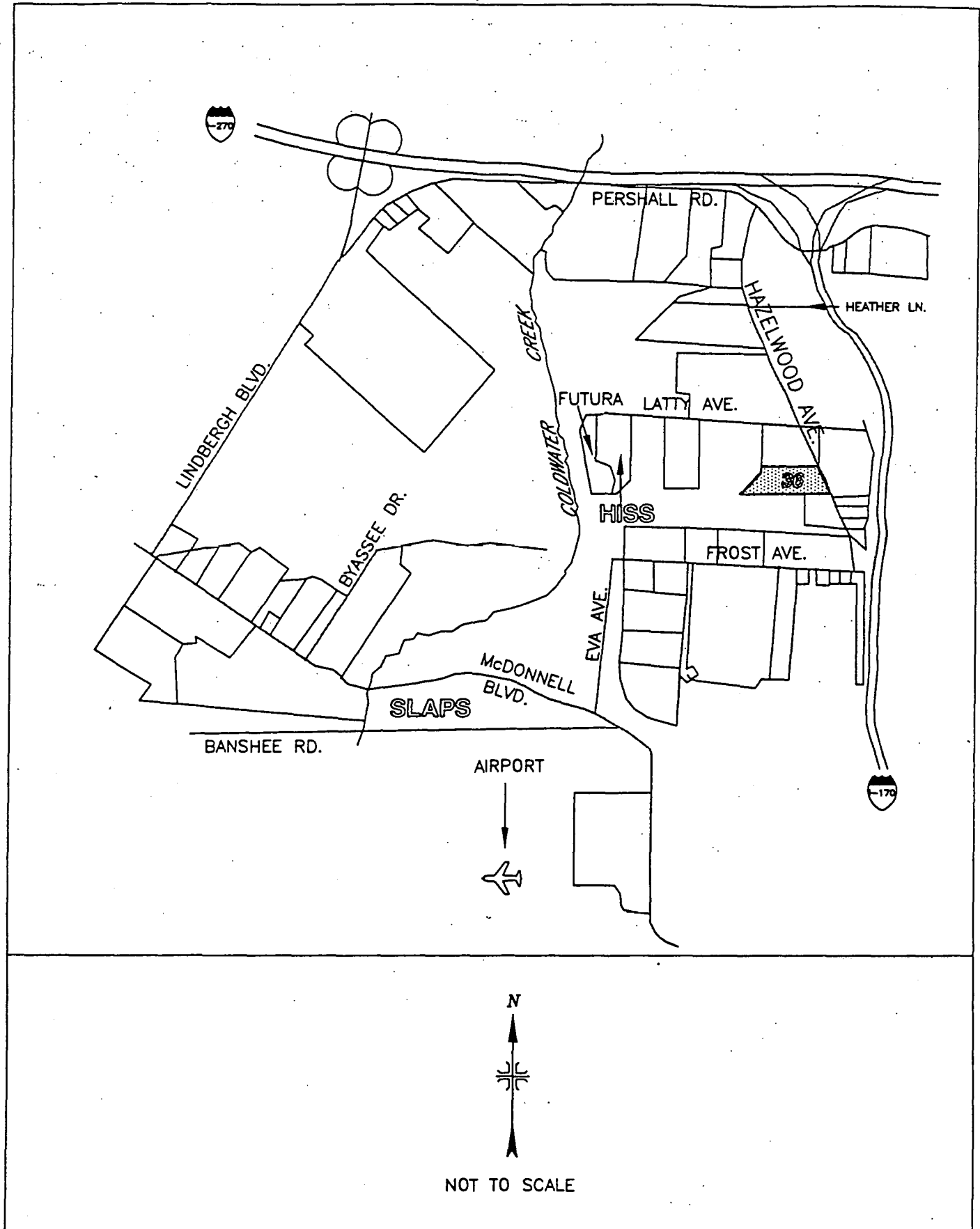


FIGURE 1: Location of SLAPS Vicinity Property Number 36

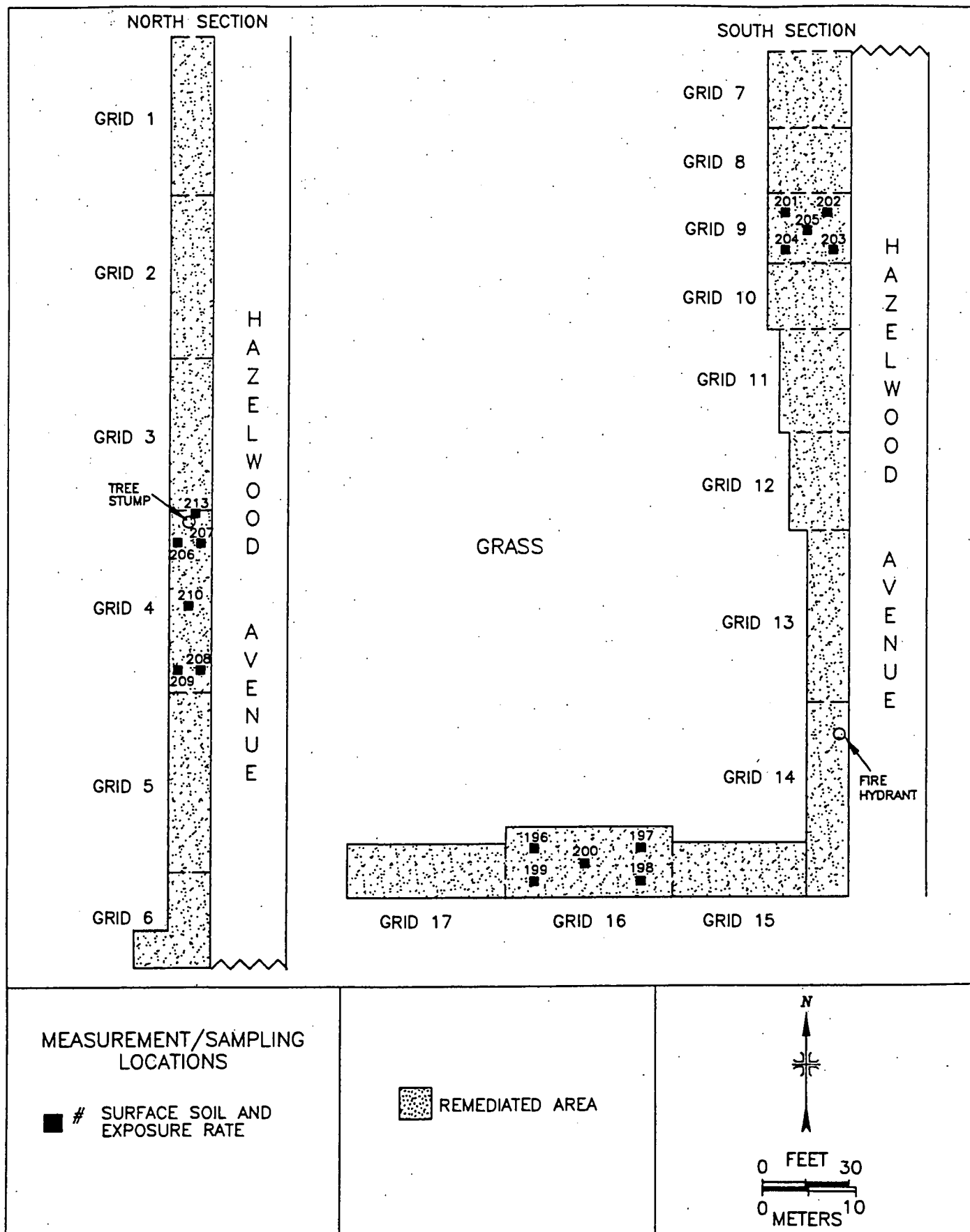


FIGURE 2: SLAPS Vicinity Properties, Property 36 – Measurement and Sampling Locations

TABLE 1

**EXPOSURE RATES AND RADIONUCLIDE CONCENTRATIONS IN SOIL SAMPLES
ST. LOUIS AIRPORT SITE VICINITY PROPERTY NUMBER 36
HAZELWOOD, MISSOURI**

Sample Location ^a	Exposure Rates at 1 m (μR/h) ^b	Radionuclide Concentration (pCi/g) ^b		
		Ra-226	Th-230	U-238
GRID 4				
206	12	0.9 ± 0.1 ^c	1.70 ± 0.26 ^d	0.8 ± 0.7
207	11	6.5 ± 0.3	290 ± 20	7.4 ± 2.1
213 (After additional remediation of Location 207)	---	1.8 ± 0.1	19.6 ± 4.6	2.3 ± 0.4
208	10	1.2 ± 0.1	11.83 ± 1.13 ^d	2.1 ± 0.9
209	12	1.2 ± 0.1	5.95 ± 0.64 ^d	1.6 ± 0.9
210	11	1.2 ± 0.1	4.27 ± 0.47 ^d	1.4 ± 0.8
100 m ² Average Concentration:			8.7	
GRID 9				
201	11	1.0 ± 0.1	1.91 ± 0.31 ^d	1.1 ± 1.0
202	13	1.0 ± 0.1	2.01 ± 0.26 ^d	1.3 ± 0.9
203	14	1.0 ± 0.2	1.96 ± 0.28 ^d	0.5 ± 0.8
204	14	1.1 ± 0.1	1.95 ± 0.26 ^d	0.9 ± 0.8
205	13	1.1 ± 0.1	4.05 ± 0.46 ^d	1.0 ± 0.7
GRID 16				
196	13	0.9 ± 0.1	1.72 ± 0.27 ^d	1.7 ± 1.0
197	15	0.9 ± 0.1	1.58 ± 0.26 ^d	1.7 ± 1.0
198	15	0.9 ± 0.1	1.72 ± 0.27 ^d	0.8 ± 0.8
199	13	1.2 ± 0.1	2.08 ± 0.33 ^d	1.0 ± 0.6
200	13	1.1 ± 0.2	2.50 ± 0.36 ^d	1.0 ± 0.9

^aRefer to Figures 2 and 3.

^bResults include background.

^cUncertainties represent the 95% confidence level, based only on counting statistics.

^dAlpha spectrometry analysis values.

^eMeasurement not performed.

REFERENCES

Oak Ridge Institute for Science and Education. Draft Reports-Verification Surveys of Properties 19, 20, 41, 43, 44, and 45, St. Louis Airport Site Vicinity Properties, Hazelwood and Berkeley, Missouri. Oak Ridge, TN; February 23, 1996.

U.S. Department of Energy (DOE). Radiation Protection of the Public and Environment. Washington, DC: DOE Order 5400.5. June 5, 1990a.

U.S. Department of Energy. Memorandum from J. Fiore to L. Price, "Uranium Cleanup Guidelines for St. Louis, MO, FUSRAP Sites." November 6, 1990b.

Cataloging Form

{Technical/Project Managers fill in C through G, K through Q. RM completes other fields}

A. Document ID Number: Assigned by database 00-346

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C. Operable Unit (Choose One):

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St. Louis Sites ☐
Downtown ☐
North County ☒
Madison Sites ☐
Inaccessible Areas ☐
PRP ☐
Oversight Committee ☐

D. Site (Optional):

SLDS VPs ☐
Mallinckrodt ☐
SLAPS ☐
SLAPS VPs ☒
CWC ☐
HISS ☐
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E. Area (Optional): VP36

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G. Secondary Document Type (see back of form): Correspondence

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I. SAIC Number:

J. MARKS Number(Choose One): FN: 1110-1-8100e ☐ FN: 1110-1-8100f ☐ FN: 1110-1-8100g ☒

K. Subject/Title: Remediation Status of 6821 Hazelwood Ave. (Locator #10K610189)

L. Author: Sharon R. Cotner

M. Author's Company: Pm-R

N. Recipient(s): Shemar J. Caskanoff

O. Recipient(s) Company: ONCOR

P. Version (Choose One): Draft ☐ Final ☒

Q. Date: 5-4-99

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S. Include in the AR? ☒

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X. Associated with Document(s):

Administrative Record for the Formerly Utilized Sites Remedial Action Program (FUSRAP) North St. Louis County Sites

St. Louis County, Missouri



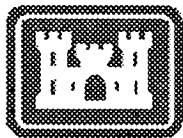
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