

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-09493-RS
ADDRESS: 811 NOLAND AVENUE

AUGUST 1985

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

ALBUQUERQUE OPERATIONS OFFICE

DEPARTMENT OF ENERGY

BY

BENDIX FIELD ENGINEERING CORPORATION
P.O. Box 1569
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APPROVED BY

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DATE

August 19, 1985

REA09493:REA-707

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-09493-RS, is a single-family residence located at 811 Noland Avenue, Grand Junction, Colorado.

The purpose of this assessment is to evaluate the extent of uranium millsite contamination at this property. This assessment includes recommended remedial action, estimated volume of material to be removed, and estimated cost of the proposed action.

1.2 Evaluation and Recommendation

The action recommended is the removal of contaminated material and restoration of the property to its original condition. The identified residual radioactive material found on this property is tailings; the estimated volume is: exterior, 110 cu. yd.; interior, 0 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is \$4,459. Remedial action on this property will take approximately 8 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 811 Noland Avenue, Grand Junction, Colorado

Zoning: Industrial (I-2)

Lot Size: Approximately 6,200 sf (0.14 acres)

Legal Description: Lots 3 and 4, of Block 11, of the Benton Canon 1st Subdivision, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 0.25 mile(s) northwest of the State of Colorado Tailings Repository. Appendix Figure 2.1 shows the property location relative to its surroundings.

Utilities: Utility locations are shown in Appendix Figure 2.2.

Electrical:	Overhead
Gas:	Underground
Telephone:	Overhead
Sewer:	Underground
Water:	Underground
Cable TV:	Overhead

Bordering Properties:

North:	Noland Avenue (asphalt)
South:	Alley (dirt)
East:	Single-family residence
West:	Single-family residence

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 624 sf
Construction Date:	Not determined
Construction:	Wood-frame
Foundation:	Monolithic concrete slab-on-grade
Footing Depth:	Approximately 8" to bottom of footing from grade
Basement:	None
Crawl Space:	None
Condition:	Fair

Other Structures:

Type:	Shed
Size:	Approximately 50 sf
Construction:	Wood-frame
Foundation:	Wood and stone
Condition:	Fair to poor

General Remarks:

Structures, utilities, landscaping, and other special features of this property are included in Appendix Figure 2.2.

Historical Data:

This structure does not appear to be over 50 years old. Therefore, it does not meet the eligibility criteria for consideration of inclusion on the National Register of Historic Places.

3.0 RADIOLOGIC SURVEY

3.1 Introduction

Radiologic data were collected by Bendix at DOE ID No. GJ-09493-RS on July 15, 1985. Data collection methods were performed in accordance with procedures fully described in the Radiologic Support Operations Procedures Manual GJ-07(84) (Bendix Field Engineering Corporation, 1984). These data were evaluated to determine the areal and vertical extent of uranium mill tailings contamination at this property as well as any other contaminated material that may have originated from the millsite.

A review of historical information from the files of the Colorado Department of Health (CDH) and the inclusion data from Oak Ridge National Laboratory (ORNL) was conducted. These records indicate contamination in the yard surrounding the primary structure.

The Bendix radiologic survey was designed to investigate the entire property, with emphasis on previously identified areas of contamination. Conclusions based upon data analyses are discussed in Section 3.5, Extent of Contamination. Photocopies of the Official Survey Report, Memo of Understanding, team leader notes, deconvolution graphs, and Exterior Gamma Scan map are included in the Appendix (Section 6.0).

3.2 Gamma Exposure-Rate Surveys

3.2.1 Exterior Findings

Background Readings: 18 to 19 uR/h
Highest Outside Gamma Reading (HOG): 33 uR/h

Exterior radium-concentration measurements are presented in Appendix Table 3.1. Grid-point survey results are shown in Appendix Figure 3.1.

3.2.2 Interior Findings

Background Readings: 16 to 18 uR/h
Highest Inside Gamma Reading (HIG): 20 uR/h

Interior radium-concentration measurements are presented in Appendix Table 3.2. Interior gamma exposure-rate measurements are summarized in Appendix Table 3.3. Appendix Figure 3.2 shows interior exposure rates and locations of these measurements.

3.3 Boreholes, Soil Samples, and Other Measurements

Areas which displayed elevated gamma levels were further investigated; these areas are shown in Appendix Figures 3.2 and 3.3. Data from these investigations are included in Appendix Tables 3.1 and 3.2.

3.4 Radon/Radon Daughter Concentration (RDC)

Determined by CDH: The working level was not assessed by CDH. No RDC measurements were taken by Bendix.

3.5 Extent of Contamination

Appendix Figures 3.4a and 3.4b show identified areas and estimated depths of contamination on this property, based on assessments of all measurements taken. As noted in these figures, areas recommended for remedial action that contain identified residual radioactive materials are:

- (Area A) Surface Material: Wood
 Direction From Primary Structure: South
 Other Directions: Under the shed
 Total Depth of Contamination: Estimated at 6 inches
 Other (height or thickness): See footing foundation information
 Comments: The depth of contamination is based on information gathered in Area D, and was measured from the base of the shed.
 Approximate Square Footage: 90
- (Area B) Surface Material: Dirt
 Direction From Primary Structure: Southeast
 Other Directions: In alley
 Total Depth of Contamination: 9 inches
 Approximate Square Footage: 198
- (Area C) Surface Material: Dirt
 Direction From Primary Structure: Southwest
 Other Directions: In alley
 Total Depth of Contamination: 6 inches
 Approximate Square Footage: 252
- (Area D) Surface Material: Soil
 Direction From Primary Structure: South, west, and north
 Total Depth of Contamination: 6 inches
 Approximate Square Footage: 2,510
- (Area E) Surface Material: Brick
 Direction From Primary Structure: North
 Total Depth of Contamination: 6 inches
 Other (height or thickness): The bricks are 3 inches thick
 Comments: The depth of contamination is based on information collected in Area D
 Approximate Square Footage: 45
- (Area F) Surface Material: Soil
 Direction From Primary Structure: North, east, and south
 Total Depth of Contamination: 9 inches
 Approximate Square Footage: 1,617

(Area G) Surface Material: Soil
Direction From Primary Structure: South
Other Directions: Southeast corner of primary
 structure
Total Depth of Contamination: 24 inches
Approximate Square Footage: 48

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-09493-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figures 3.4a and 3.4b) and transport of removed material to the disposal site.

After remedial action is completed, the areas involved will be restored to original condition in accordance with the Bendix drawings, Vicinity Properties General Construction Specification (Bendix Field Engineering Corporation, 1984), and Statement of Work for Construction Subcontractor.

Dislocation of the occupants will not be required for this remedial action.

4.2 Evaluation of Recommended Remedial Action

Volume calculations of the areas included for remedial action are presented in Appendix Table 4.1. Cost estimates are presented in Appendix Table 4.2.

Estimated cost of remedial action is \$4,459.

This remedial action will result in removal of the identified residual radioactive materials.

There is no owner preference with respect to remedial action and no legal or other complications are foreseen at this time.

5.0 REFERENCES

ARIX, A Professional Corporation, Procedures Manual for the Grand Junction Remedial Action Program, for Colorado Department of Health, Radiation Control Division, and the U.S. Department of Energy, 1983.

Bendix Field Engineering Corporation, Procedures Manual Radiologic Support Operations Grand Junction Vicinity Properties, (GJ-07), for U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

Bendix Field Engineering Corporation, Engineering, Construction, and Land Support Manual Grand Junction Vicinity Properties Project, (GJ-08), for U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

Bendix Field Engineering Corporation, Grand Junction Vicinity Properties Operating Manual, (GJ-16) for U.S. Department of Energy, Nuclear Energy Programs, Division of Remedial Action Projects, UMTRA, 1984.

Bendix Field Engineering Corporation, Vicinity Properties General Construction Specification, for U.S. Department of Energy, Nuclear Energy Programs, Division of Remedial Action Projects, UMTRA, 1984.

Bendix Field Engineering Corporation, Environmental Assessment of Preliminary Cleanup Activities at Offsite Properties Contaminated by Tailings from the Grand Junction Inactive Uranium Millsite, (GJ-04), for U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations, Albuquerque, New Mexico, 1983.

U.S. Department of Energy, Programmatic Memorandum of Agreement (DOE No. DE-GM04-84AL28460) between the U.S. Department of Energy, the Advisory Council on Historic Preservation, and the Colorado State Historic Preservation Officer, for UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

U.S. Department of Energy, Vicinity Properties Management and Implementation Manual, for UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

U.S. Environmental Protection Agency, Standards for Remedial Action at Inactive Uranium Processing Sites (40 CFR Part 192), Washington, D.C., 1983.

6.0 APPENDIX

This Appendix contains the following:

Appendix Tables:

Table 3.1	Radium Concentrations at Exterior Locations
Table 3.2	Radium Concentrations at Interior Locations
Table 3.3	Summary of Interior Gamma Exposure Rates
Table 4.1	Area and Volume Calculations
Table 4.2	Estimated Cost of Decontamination and Restoration

Appendix Figures:

Figure 2.1	Vicinity Map
Figure 2.2	Site Plan
Figure 3.1	Exterior Grid-Point Exposure Rates
Figure 3.2	Interior Gamma Exposure Rates and Sample Locations
Figure 3.3	Exterior Sample Locations
Figure 3.4a	Interior Estimated Extent of Contamination
Figure 3.4b	Exterior Estimated Extent of Contamination

Official Survey Report

Memo of Understanding

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Exterior Gamma Scan Map

Radium Concentrations at Exterior Locations

DOE ID #GJ-09493-RS

811 Noland Avenue

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
2	134265	00	DS	<1.0		*	Gutter on edge of Noland Street
3	136265	00	DS	2.1		*	North edge of property near Noland Street
4	140223	00	DS	1.2		*	Background DC = 0 inches
		03	TC	3.1		*	
		06	TC	3.3		*	
		09	TC	3.3		*	
		12	TC	3.3		*	
		15	TC	3.3		*	
		18	TC	3.1		*	
		21	TC	3.1		*	
		24	TC	3.0		*	
		27	TC	2.9		*	
		30	TC	2.8		*	
		33	TC	2.8		*	
5	145223	00	DS	1.7		*	
6	150223	00	DS	2.7		*	
7	160240	00	DS	5.5		*	North yard
		06	DS	1.8		*	
8	160245	00	DS	3.6		*	Brick walkway north of primary structure
9	160260	00	DS	5.0		*	North yard DC = 9 inches Based on the deconvolution graph
		03	TC	5.3		*	
		06	TC	5.2		*	
		09	TC	4.7		*	
		12	TC	4.2		*	
		15	TC	4.0		*	
		18	TC	3.8		*	
		21	TC	3.9		*	
		24	TC	3.8		*	
		27	TC	3.7		*	
		30	TC	3.6		*	
		33	TC	3.5		*	
		36	TC	3.5		*	
		39	TC	3.3		*	

Radium Concentrations at Exterior Locations

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
9	160260	42	TC	3.3		*	
		45	TC	3.2		*	
10	172243	00	DS	1.2		*	Concrete pad north of primary structure
11	175251	03	TC	4.2		*	Water line
		06	TC	4.3		*	DC = 6 inches
		09	TC	4.5		*	Based on all
		12	TC	4.5		*	available data
		15	TC	4.2		*	
		18	TC	4.1		*	
		21	TC	4.0		*	
		24	TC	3.9		*	
		27	TC	3.8		*	
		30	TC	3.7		*	
		33	TC	3.5		*	
		36	TC	3.4		*	
		39	TC	3.4		*	
		42	TC	3.4		*	
12	180223	00	DS	3.6		*	Driveway
		03	TC	3.4		*	DC = 6 inches
		06	TC	3.8		*	Based on all
		09	TC	3.6		*	available data
		12	TC	3.5		*	
		15	TC	3.4		*	
		18	TC	3.3		*	
		21	TC	3.3		*	
		24	TC	3.2		*	
		27	TC	3.0		*	
		30	TC	3.0		*	
		33	TC	2.9		*	
13	185229	00	DS	3.4		*	Gas line
		12	DS	1.9		*	
14	202254	03	TC	5.1		*	Sewer line
		06	TC	5.4		*	DC = 24 inches
		09	TC	5.7		*	Based on the
		12	TC	5.7		*	deconvolution graph
		15	TC	5.6		*	

Radium Concentrations at Exterior Locations

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
14	202254	18	TC	5.7		*	
		21	TC	5.6		*	
		24	TC	5.2		*	
		27	TC	4.8		*	
		30	TC	4.5		*	
		33	TC	4.2		*	
		36	TC	4.0		*	
		39	TC	3.7		*	
		42	TC	3.6		*	
		45	TC	3.5		*	
15	210230	00	DS	5.1		*	DC = 6 inches
		03	TC	3.5		*	Based on all
		06	TC	3.4		*	available data
		09	TC	3.4		*	
		12	TC	3.4		*	
		15	TC	3.3		*	
		18	TC	3.4		*	
		21	TC	3.3		*	
		24	TC	3.2		*	
		27	TC	3.1		*	
		30	TC	3.1		*	
		33	TC	3.0		*	
		36	TC	2.9		*	
		39	TC	2.8		*	
		42	TC	2.8		*	
16	230250	00	DS	10.5		*	
		03	TC	5.6		*	DC = 9 inches
		06	TC	5.0		*	Based on the
		09	TC	4.4		*	deconvolution graph
		12	TC	4.2		*	
		15	TC	3.9		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.7		*	
		27	TC	3.6		*	
		30	TC	3.5		*	
17	255265	00	DS	3.3		*	
		03	TC	4.6		*	DC = 6 inches
		06	TC	4.9		*	Based on all
		09	TC	4.7		*	available data
		12	TC	4.4		*	

Radium Concentrations at Exterior Locations

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot.	Ct Spectr.		
17	255265	15	TC	4.1		*	
		18	TC	4.0		*	
		21	TC	3.8		*	
		24	TC	3.7		*	
		27	TC	3.6		*	
		30	TC	3.5		*	
		33	TC	3.5		*	
		36	TC	3.4		*	
		39	TC	3.5		*	
		42	TC	3.5		*	
		45	TC	3.3		*	
18	264225	00	DS	3.6		*	DC = 6 inches
		03	TC	3.6		*	Based on all
		06	TC	3.6		*	available data
		09	TC	3.5		*	
		12	TC	3.4		*	
		15	TC	3.3		*	
		18	TC	3.3		*	
		21	TC	3.2		*	
		24	TC	3.1		*	
		27	TC	3.1		*	
		30	TC	2.9		*	
		33	TC	2.8		*	
19	273223	00	DS	2.7		*	In alley
		03	TC	4.6		*	DC = 6 inches
		06	TC	4.6		*	Based on all
		09	TC	4.3		*	available data
		12	TC	4.2		*	
		15	TC	4.1		*	
		18	TC	3.9		*	
		21	TC	3.9		*	
		24	TC	3.9		*	
		27	TC	3.8		*	
		30	TC	3.6		*	
		33	TC	3.7		*	
		36	TC	3.5		*	
20	273245	00	DS	2.2		*	In alley
21	273265	00	DS	3.6		*	In alley
		03	TC	5.6		*	
		06	TC	5.3		*	

Radium Concentrations at Exterior Locations

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
21	273265	09	TC	4.5		*	DC = 9 inches
		12	TC	4.2		*	Based on the
		15	TC	4.0		*	deconvolution graph
		18	TC	4.0		*	
		21	TC	3.8		*	
		24	TC	3.7		*	
		27	TC	3.6		*	
		30	TC	3.5		*	
		33	TC	3.4		*	

Measurement GB = GAD-6 Borehole
Types: GS = GAD-6 Surface
DS = Delta Scintillometer
TC = Total Count Borehole
SS = Soil Sample
BH = Combined GAD-6 and
Total Count Borehole

Notes: DC = Depth of Contamination
* = No Soil Sample Taken
[n] = Reading Taken n-Inches
Above Floor or Ground
Date of Survey = 07-15-85
Team Leader = JDG

Radium Concentrations at Interior Locations

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=====						
In Situ Ra-226						
Loc	Grid	Depth	Meas.	(pCi/g)		Chem Ra-226
#	Location	(in.)	Type	Tot. Ct	Spectr.	(pCi/g) Comments

1		00	DS	1.0		*
=====						

Measurement GB = GAD-6 Borehole
Types: GS = GAD-6 Surface
DS = Delta Scintillometer
TC = Total Count Borehole
SS = Soil Sample
BH = Combined GAD-6 and
Total Count Borehole

Notes: DC = Depth of Contamination
* = No Soil Sample Taken
[n] = Reading Taken n-Inches
Above Floor or Ground
Date of Survey = 07-15-85
Team Leader = JDG

Location	Number of Readings Taken at Waist Level	Range at Waist Level (uR/h)	Mean at Waist Level (uR/h)	Number of Readings Taken at Surface	Range at Surface (uR/h)	Mean Surface (uR/h)
-----	-----	-----	-----	-----	-----	-----
Ground Floor	*	*	*	*	16-18	*
Room A	05	18-19	18	05	17-20	18
Shed	05	22-26	24	05	23-33	27
=====	=====	=====	=====	=====	=====	=====

* A walking gamma scan was performed to confirm the absence of interior contamination at this location. Gamma surveys were done in one room in the primary structure and in the shed. Exposure rates and room locations are shown in Appendix Figure 3.2.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-09493-RS

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<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
<u>EXTERIOR</u>					
	Brick				
E**	15 x 3 =	45	x 0.3 =	14	
	Volume of Brick = 14 = 14/27 = 1				
	Contaminated Fill				
A*	10 x 9 =	90	x 0.5 =	45	
B	22 x 9 =	198	x 0.8 =	158	
C	28 x 9 =	252	x 0.5 =	126	
D	21 x 38 =	798			
	32 x 28 =	896			
	30 x 9 =	270			
	26 x 21 =	546			
		2,510	x 0.5 =	1,255	
E	15 x 3 =	45	x 0.2 =	9	
F	22 x 28 =	616			
	25 x 14 =	350			
	31 x 21 =	651			
		1,617	x 0.8 =	1,294	
G	8 x 6 =	48	x 2.0 =	96	
	Volume of Fill = 2,983 = 2,983/27 = 110				
	TOTAL VOLUME - EXTERIOR = 111				

* This shed is movable; therefore it shall be considered as exterior involvement.

** Brick and stone will be removed, radiologically cleaned, and replaced to the location.

See Appendix Figures 3.4a and 3.4b for Areas

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Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-09493-RS

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EXTERIOR

Remove/store/replace wood shed Lump sum	\$ 125
Remove stone barbeque Lump sum	50
Remove/replace stone and brick walk Lump sum	50
Remove identified residual radioactive material 105 cy @ \$14.50/cy (machine-open)	1,523
5 cy @ \$44/cy (manual-open)	220
Replace roadbase 2 cy @ \$11.50/cy	23
Replace topsoil 108 cy @ \$9.50/cy	1,026
<hr/>	
TOTAL EXTERIOR	\$ 3,017
TOTAL INTERIOR	0
ACCESS CONTROL	250
<hr/>	
SUBTOTAL	\$ 3,267
CONTINGENCY @ 5%	163
<hr/>	
SUBTOTAL	\$ 3,430
CONTRACTOR OVERHEAD & PROFIT @ 30%	1,029
<hr/>	
GRAND TOTAL	\$ 4,459

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REA09493/REA-707/AP

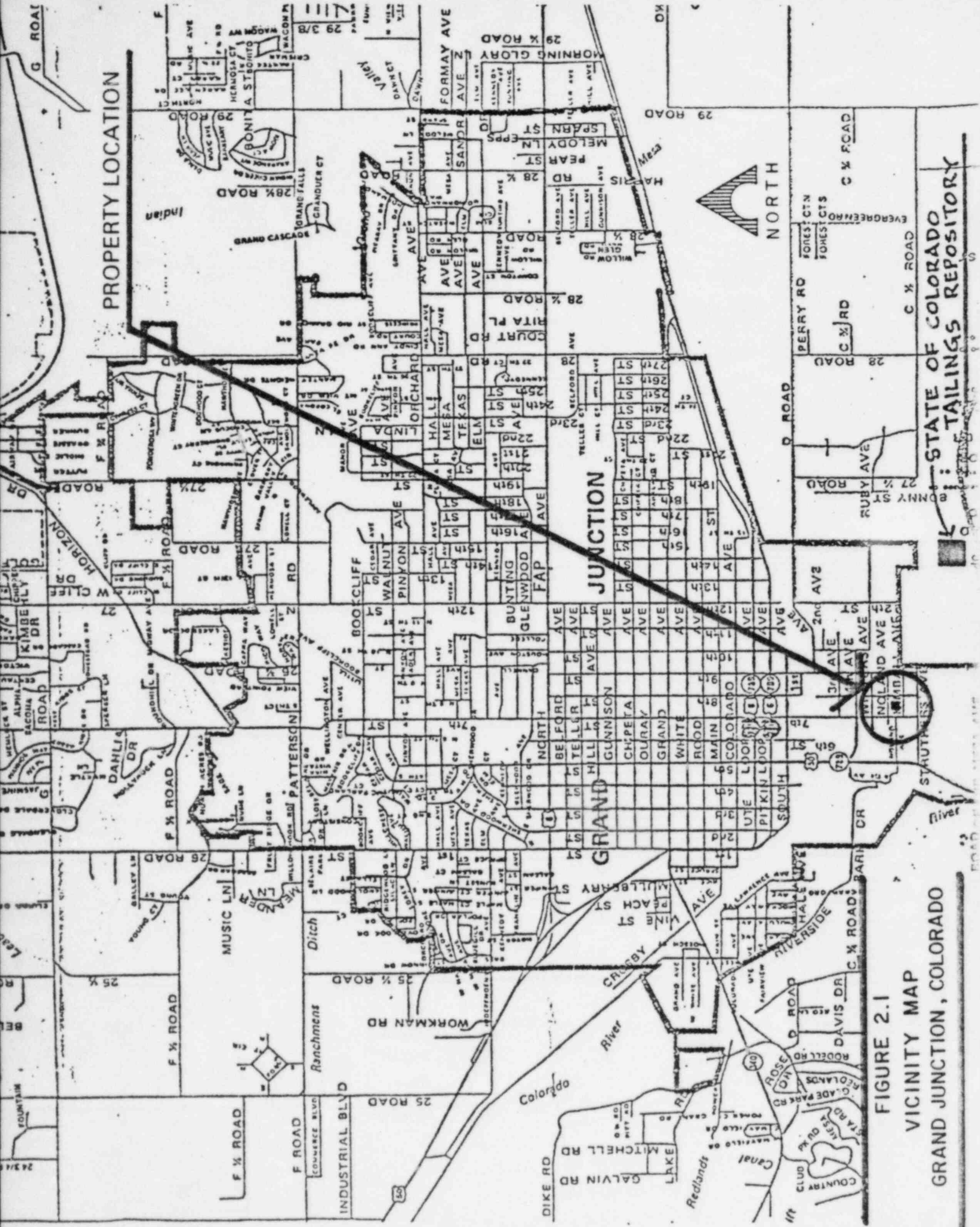


FIGURE 2.1

VICINITY MAP
GRAND JUNCTION, COLORADO

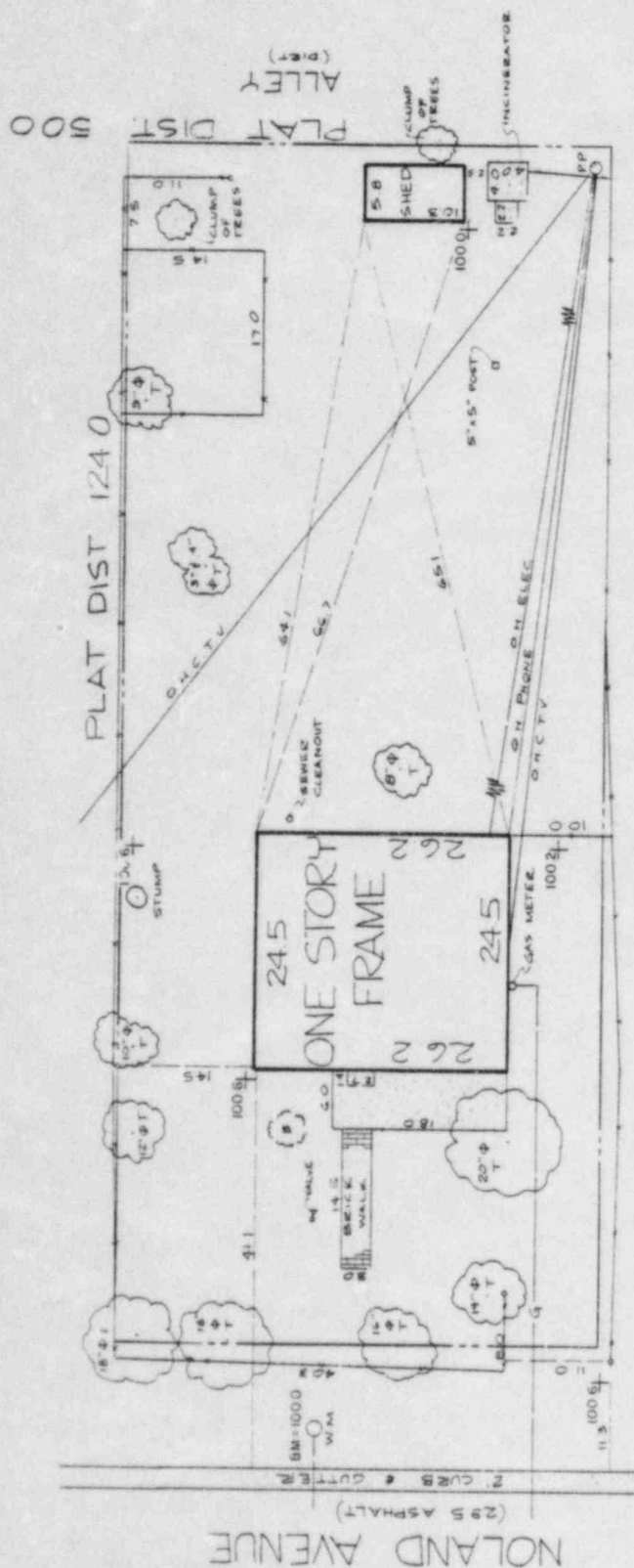
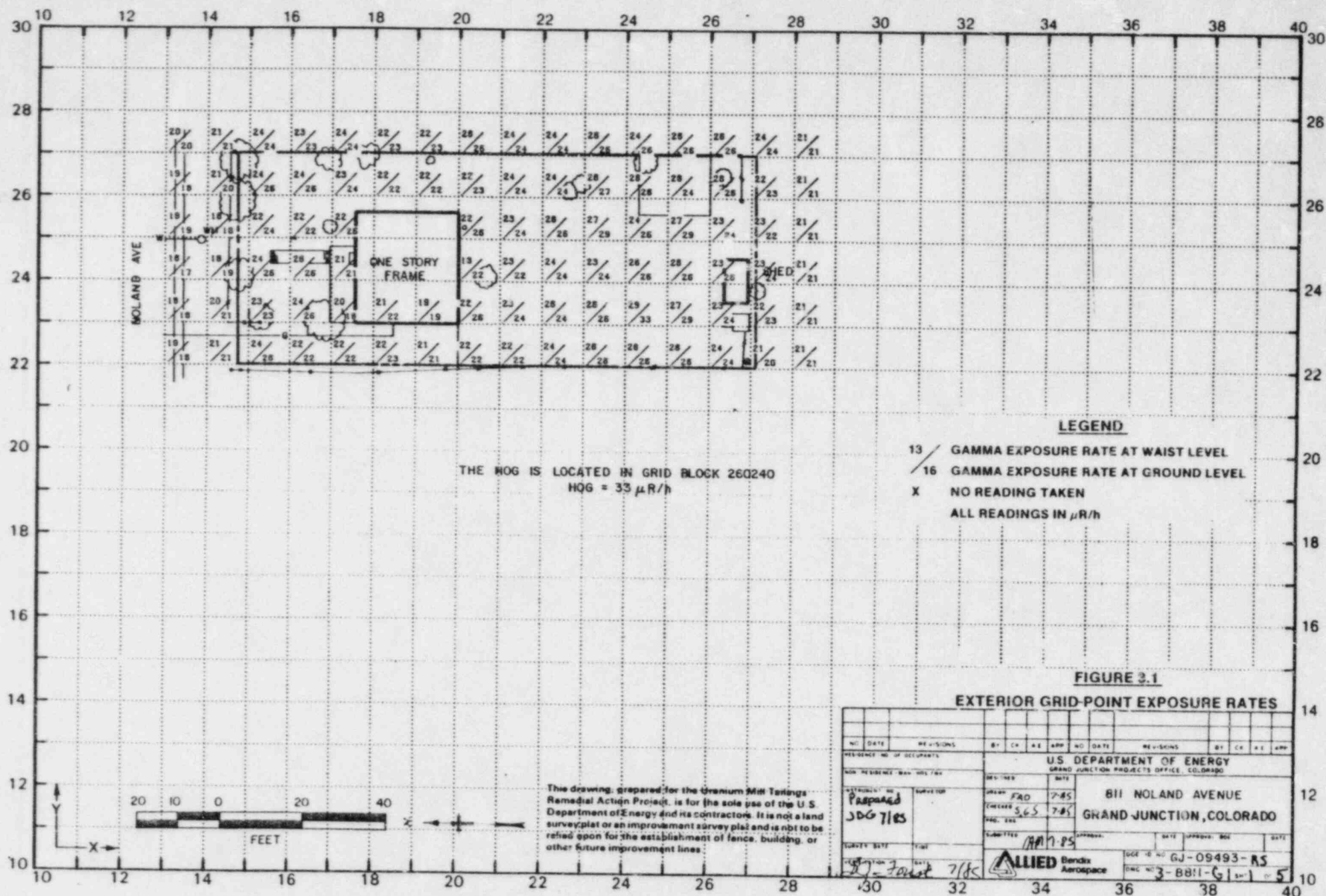
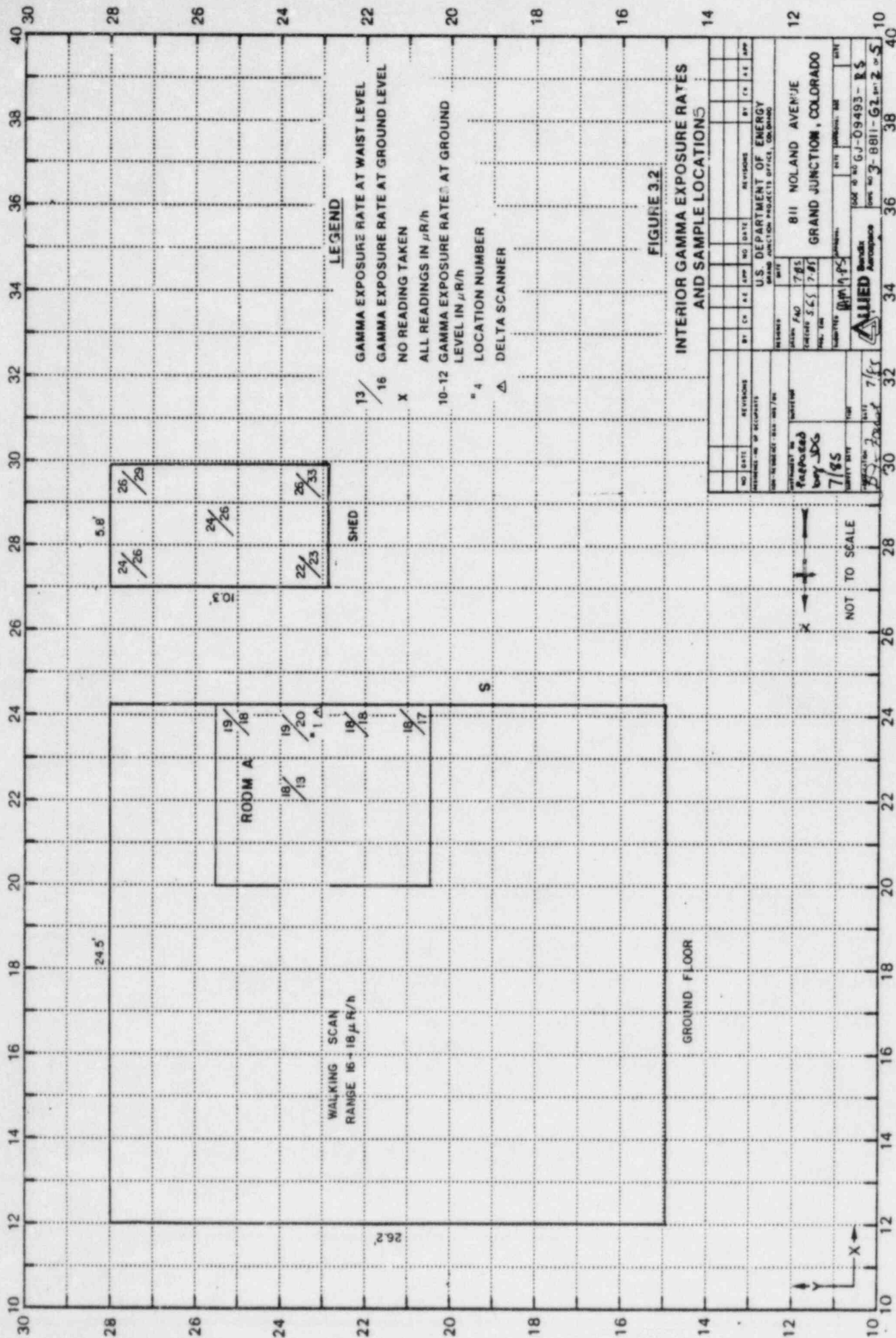
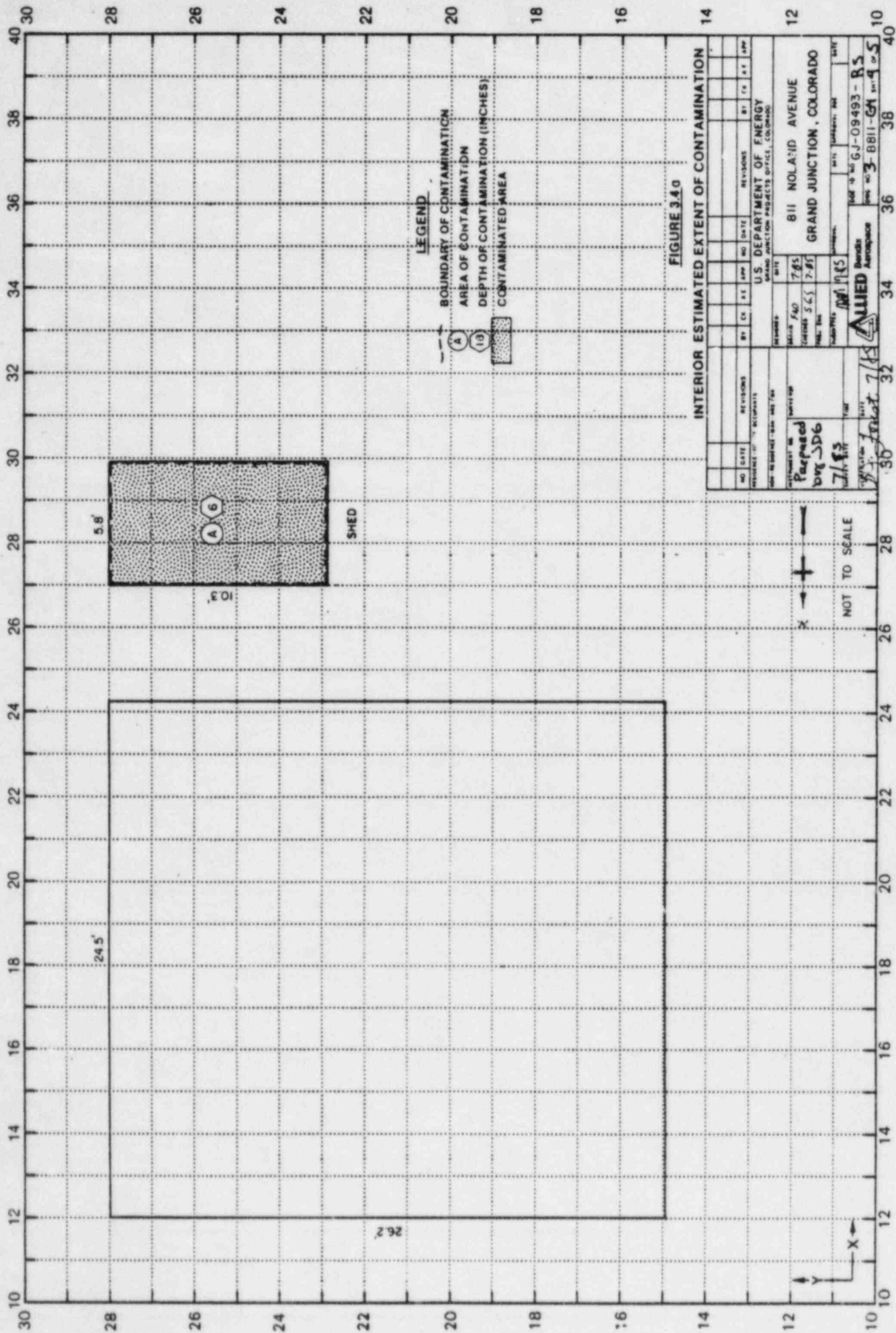


FIGURE 2.2 SITE PLAN

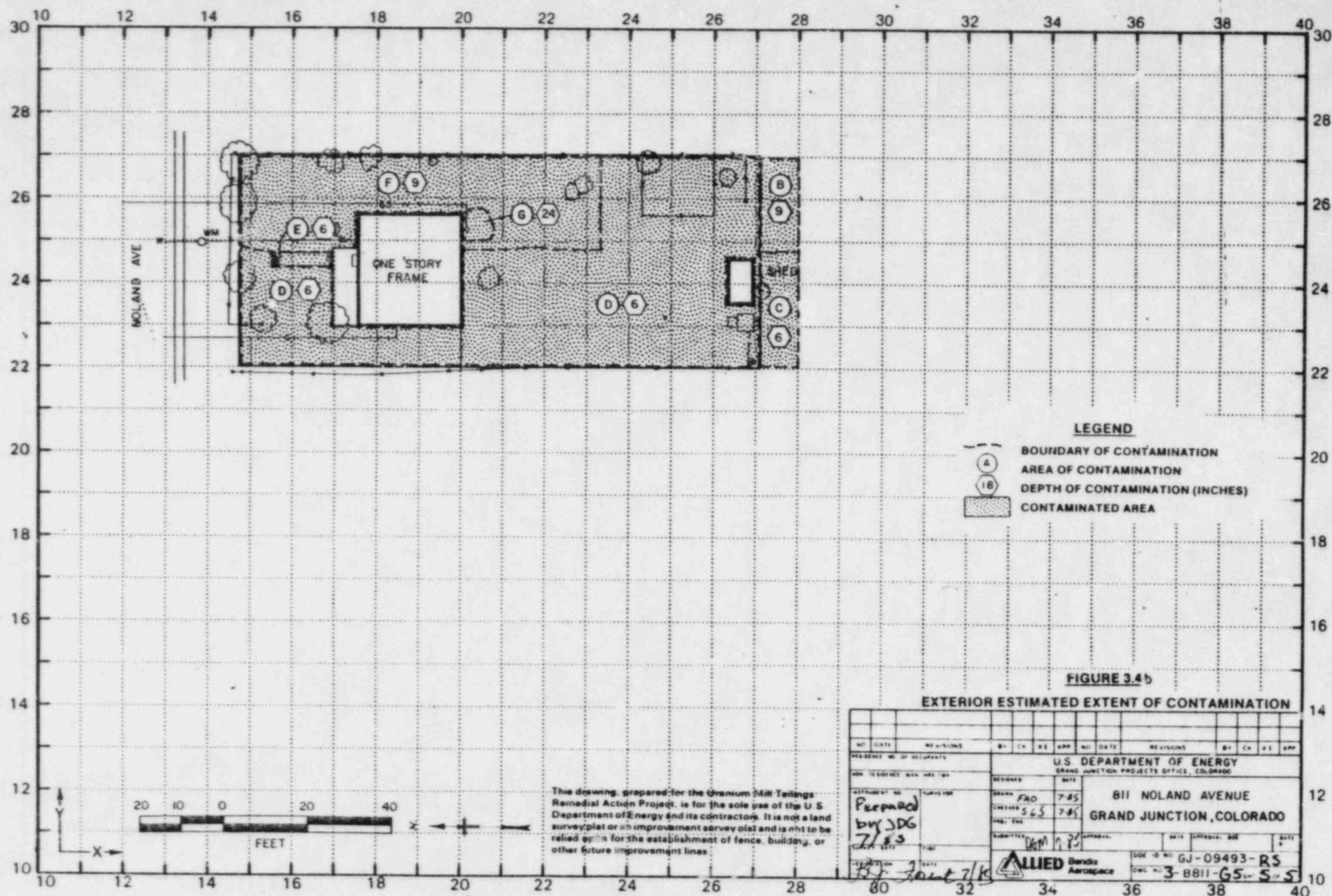
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION PROJECT OFFICE COLORADO	DATE 10 NO 6109493RS
ADDRESS 811 NOLAND AVENUE GRAND JUNCTION, COLO	ALLEN Nuclear Fuel Engineering & Construction General Services - Fuel Service
SURV WHL 79 BS DRAFT 11710 BS	CK 811 79 BS
DRAWING NO 36 811 F1	SHEET 1 OF 1







NO	DATE	REVISIONS	BY	CHK	DATE	APP	NO	DATE	REVISIONS	BY	CHK	DATE	APP
1													
<p>U.S. DEPARTMENT OF ENERGY</p> <p>GRAND JUNCTION PROJECTS OFFICE, COLORADO</p> <p>811 NOLAID AVENUE</p> <p>GRAND JUNCTION, COLORADO</p> <p>DATE: 7/85</p> <p>SCALE: 1/4" = 1'-0"</p> <p>PROJECT: 525</p> <p>FILE: 7-85</p> <p>PREPARED BY: SD6</p> <p>DATE: 7/85</p> <p>APPROVED BY: J. J. J. J.</p> <p>DATE: 7/85</p> <p>PROJECT: 525</p> <p>FILE: 7-85</p> <p>U.S. DEPARTMENT OF ENERGY</p> <p>GRAND JUNCTION PROJECTS OFFICE, COLORADO</p> <p>811 NOLAID AVENUE</p> <p>GRAND JUNCTION, COLORADO</p> <p>DATE: 7/85</p> <p>SCALE: 1/4" = 1'-0"</p> <p>PROJECT: 525</p> <p>FILE: 7-85</p> <p>PREPARED BY: SD6</p> <p>DATE: 7/85</p> <p>APPROVED BY: J. J. J. J.</p> <p>DATE: 7/85</p> <p>PROJECT: 525</p> <p>FILE: 7-85</p>													



3/85

DOE ID NO. GJ-09493-RS

Date 7-18-85

U.S. DEPARTMENT OF ENERGY
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT
GRAND JUNCTION VICINITY PROPERTIES

Official Survey Report

Property Address 811 Noland Avenue

Property Owner Louise Navarro and Kathleen Villarreal

Address of Owner (if different from above) Same

Report Prepared By James D. Garcia

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

1 1 No evidence of residual radioactive material on surveyed property.

1 xxx 1 Residual radioactive materials found at the following locations:

1 xxx 1 In open areas.

1 xxx 1 Under or around exterior improvements.

1 xxx 1 Under or around a typically nonoccupied structure.

1 xxx 1 Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

1 1 Levels of radiation from residual radioactive materials, if any, do not exceed EPA Standards and no action is required under the Uranium Mill Tailings Remedial Action Project.

1 xxxxx 1 Levels of radiation from residual radioactive materials exceed EPA Standards such that Remedial Action is recommended and will be accomplished, with your consent, as soon as budget and schedule permit.

HIG = 20 uR/h
HOG = 33 uR/h



Bendix
Aerospace

Bendix Field Engineering Corporation
P. O. Box 1569
Grand Junction, CO 81502-1569
Telephone (303) 242-8621
Telex: 454-338

July 26, 1985

Colorado Department of Health
222 South 6th Street
Grand Junction, Colorado 81501

ATTN: Jon Luellen

Dear Jon:

The following is in response to your questions and comments concerning Department of Energy (DOE) Identification (ID) number GJ-09493-RS (811 Noland Avenue), reviewed 23 July 1985.

A copy of your comments have been placed in the folio for review.

Thank you for your time and cooperation. If you should have additional questions or comments you may contact me at 242-8621, extension 435.

Sincerely,

James Garcia
RSD Survey Team Leader

JG:pr

MEMORANDUM

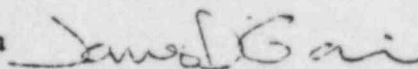
ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: July 15, 1985

To: Files

From: James Garcia



Subject: Team Leader Notes - GJ-09493-RS

Address: 811 Noland Avenue

Owner: Louise Navarro

Occupancy: Four

Team Members

J. Garcia (Team Leader)
R. Herman
S. Southern

V. Young
V. Rothman

Instruments

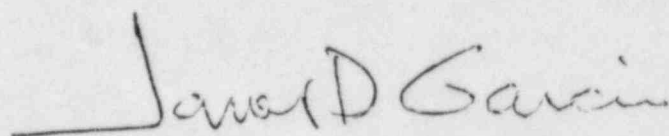
See Equipment Operational Summary sheet

Bendix team members arrived on the property and proceeded with the survey. While conducting the survey, spillover contamination was noted on the properties adjacent to the east and west of the included property. The property to the east (819 Noland Avenue) is a dovetail property and is being handled by Arix Engineering. The property to the west (809 Noland Avenue, GJ-09496) is a vacant lot and was scanned. The low gamma on this vacant lot was 160 counts per second (cps), the high gamma was 350 cps, and the background was 180 cps.

I asked the owners of 811 Noland if they knew who owned 809 Noland. They informed me that they did not know; however, I will try to obtain this information for the spillover inclusion.

Team Leader Notes
James Garica
GJ-09493-RS
July 15, 1985
Page 2

All team members were alpha scanned after completing the survey and returned to the compound.

James D Garica

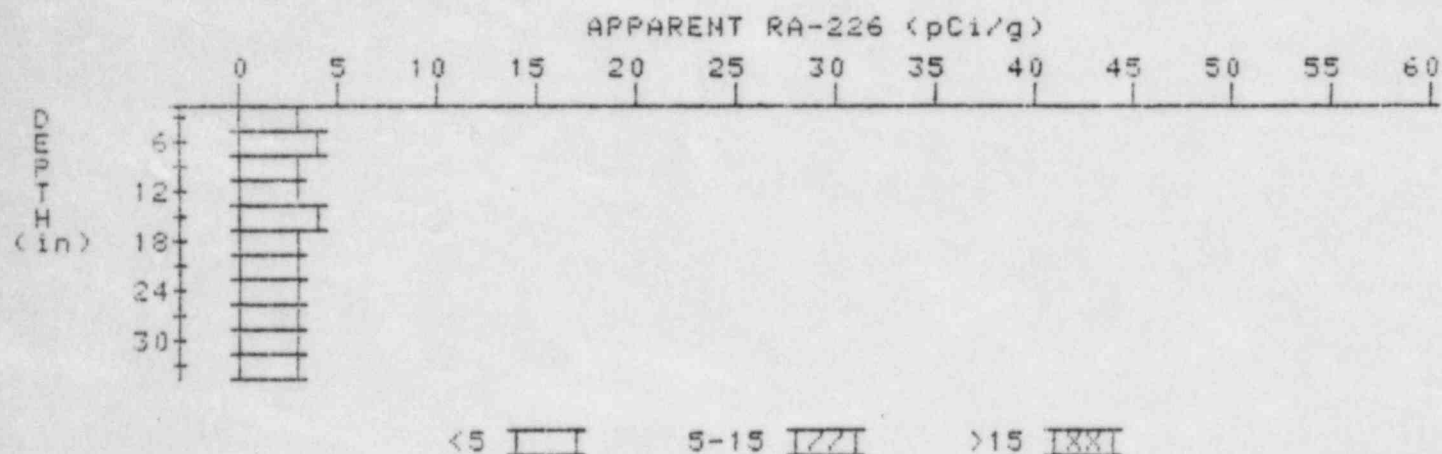
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

4

PROPERTY NUMBER: GJ-09493-RS

HOLE NUMBER: 4

LOCATION: 140223



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.3	3.7
9	3.3	3.3
12	3.3	3.3
15	3.3	3.7
18	3.1	2.7
21	3.1	3.3
24	3.0	3.0
27	2.9	2.9
30	2.8	2.6
33	2.8	2.8

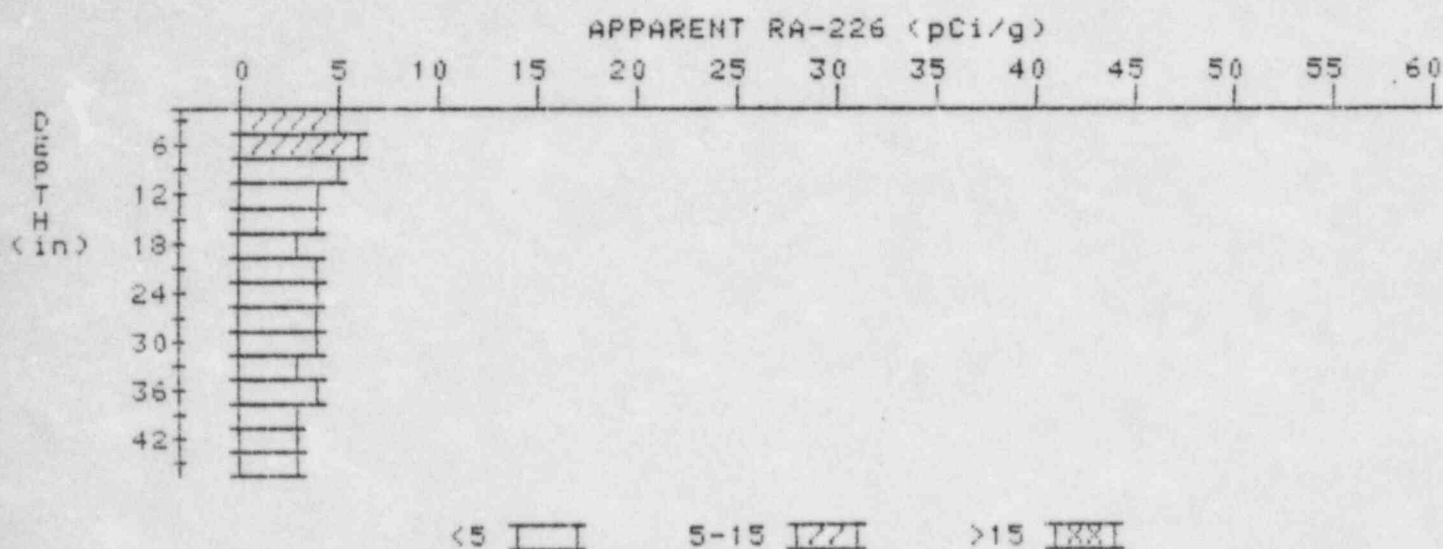
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

9

PROPERTY NUMBER: GJ-09493-RS

HOLE NUMBER: 9

LOCATION: 160260



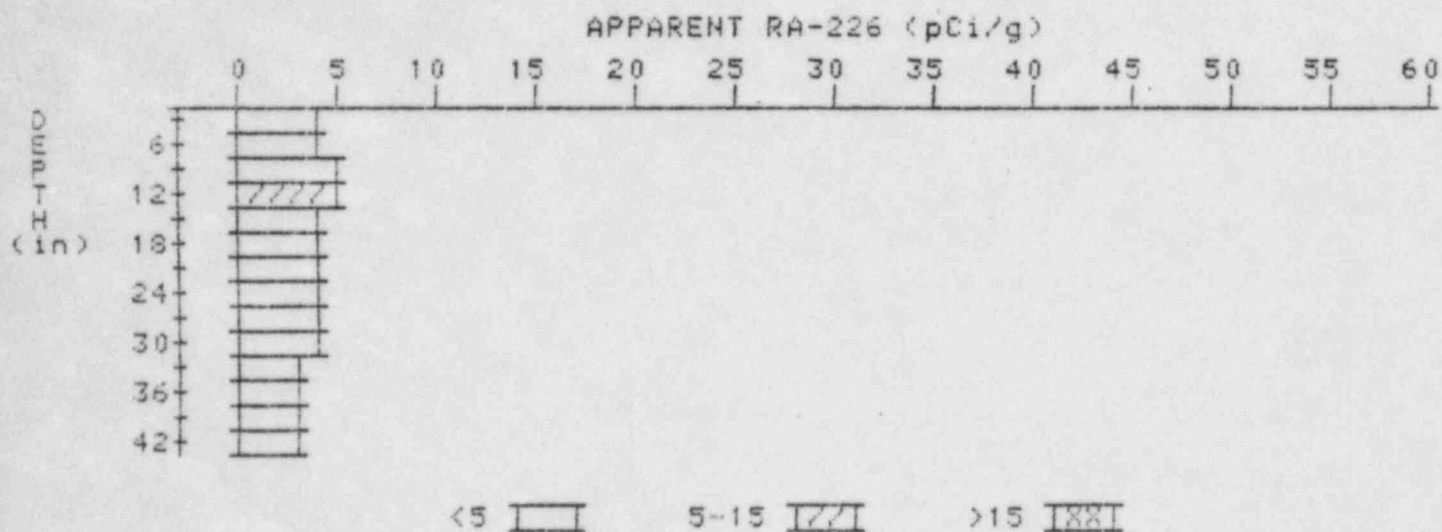
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.3	5.3
6	5.2	5.9
9	4.7	4.7
12	4.2	3.7
15	4.0	4.0
18	3.8	3.3
21	3.9	4.3
24	3.8	3.8
27	3.7	3.7
30	3.6	3.6
33	3.5	3.5
36	3.5	3.9
39	3.6	2.9
42	3.6	3.8
45	3.2	3.2

APPARENT RADIUM-226 CONCENTRATION 11 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-09493-RS

HOLE NUMBER: 11

LOCATION: 175251



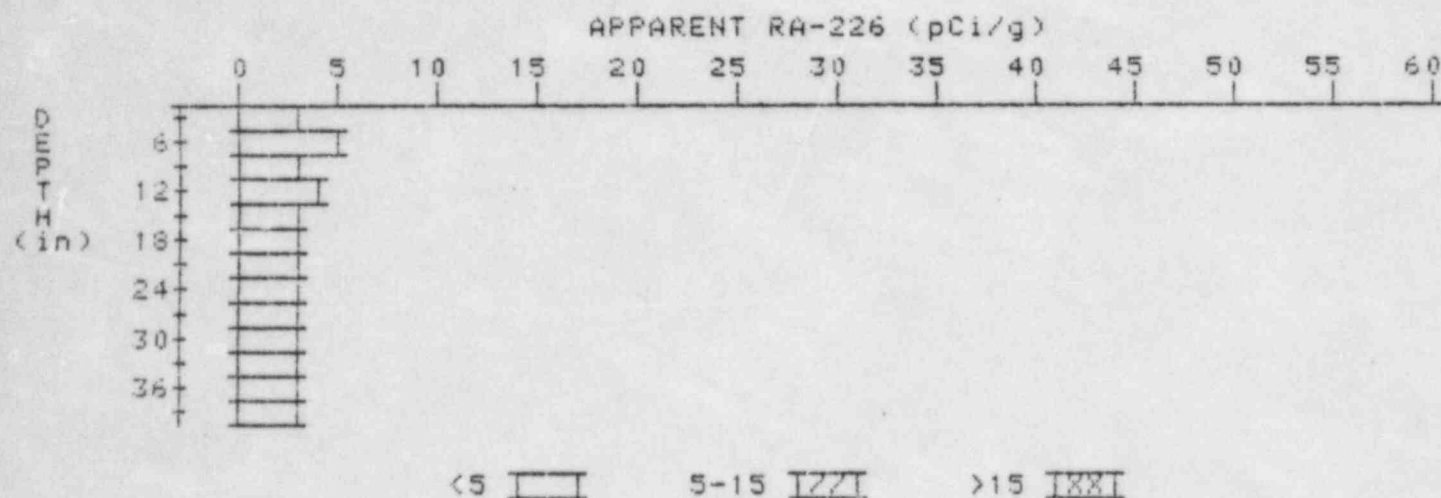
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.2	4.2
6	4.3	4.1
9	4.5	4.9
12	4.5	5.0
15	4.2	3.8
18	4.1	4.1
21	4.0	4.0
24	3.9	3.9
27	3.8	3.8
30	3.7	3.9
33	3.5	3.3
36	3.4	3.2
39	3.4	3.4
42	3.4	3.4

APPARENT RADIUM-226 CONCENTRATION 12 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-09493-RS

HOLE NUMBER: 12

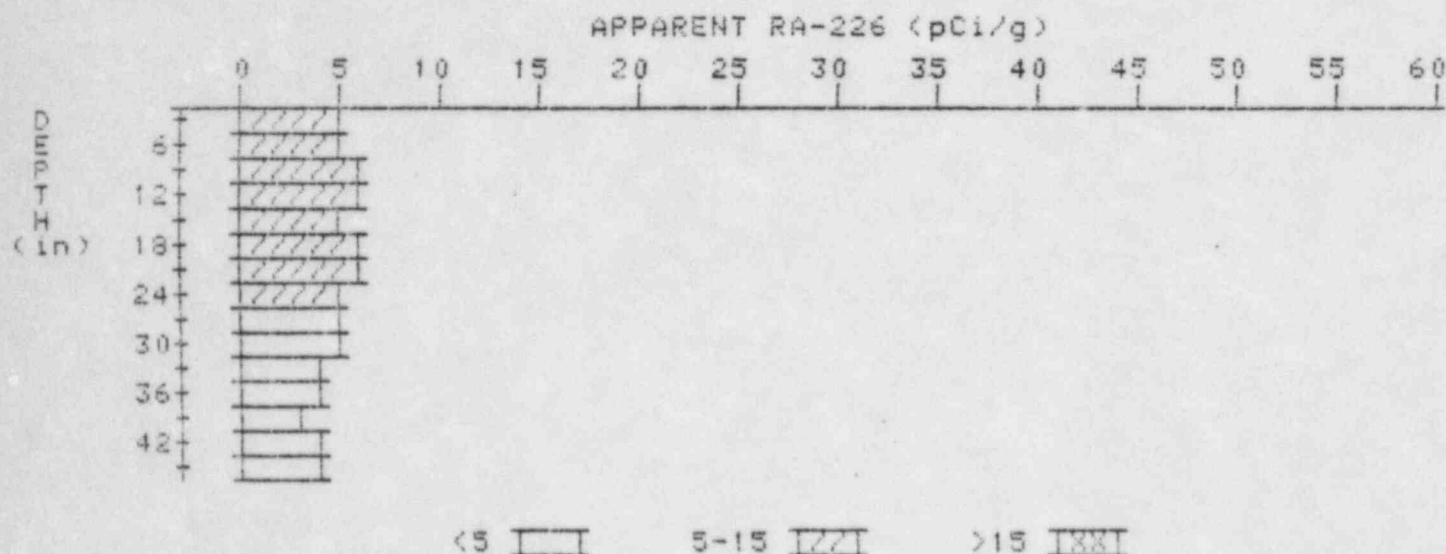
LOCATION: 180223



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.4	3.4
6	3.8	4.9
9	3.6	3.4
12	3.5	3.5
15	3.4	3.4
18	3.3	3.1
21	3.3	3.5
24	3.2	3.4
27	3.0	2.6
30	3.0	3.2
33	2.9	2.7
36	2.9	3.3
39	2.7	2.7

APPARENT RADIUM-226 CONCENTRATION 14 DECONVOLUTION GRAPH

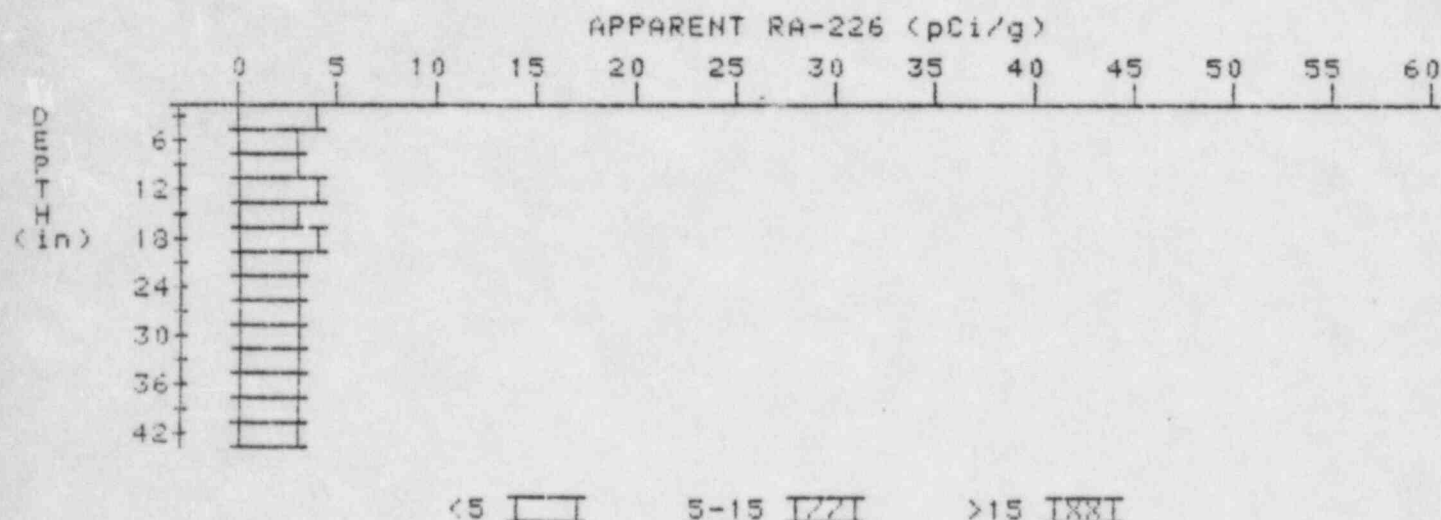
PROPERTY NUMBER: GJ-09493-RS
HOLE NUMBER: 14
LOCATION: 202254



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.1	5.1
6	5.4	5.4
9	5.7	6.2
12	5.7	5.9
15	5.6	5.2
18	5.7	6.1
21	5.6	6.1
24	5.2	5.2
27	4.8	4.6
30	4.5	4.5
33	4.2	4.0
36	4.0	4.2
39	3.7	3.3
42	3.6	3.6
45	3.5	3.5

APPARENT RADIUM-226 CONCENTRATION 15 DECONVOLUTION GRAPH

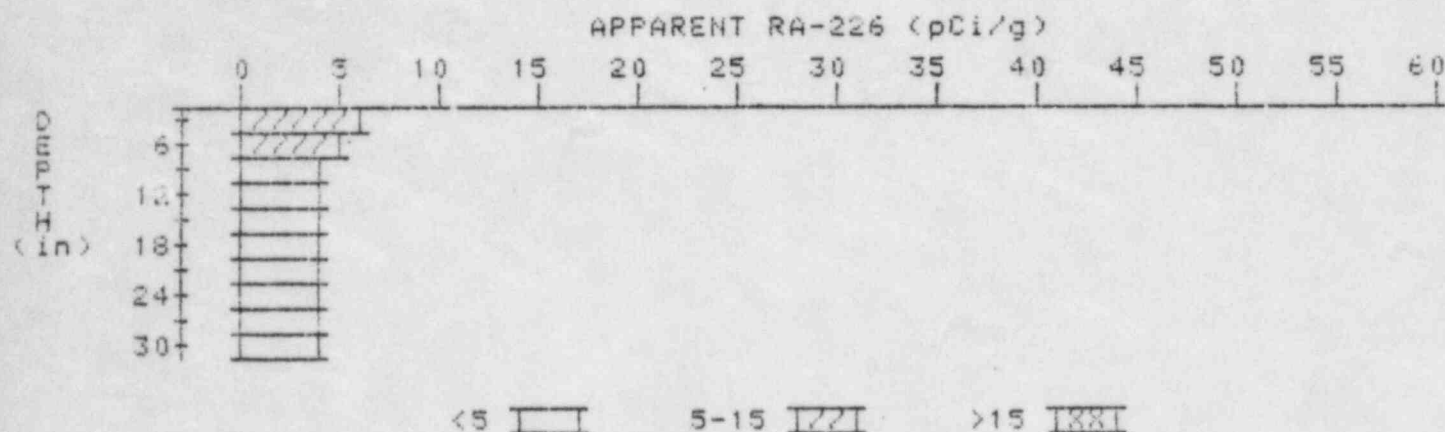
PROPERTY NUMBER: GJ-09493-R3
HOLE NUMBER: 15
LOCATION: 210230



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.5	3.5
6	3.4	3.2
9	3.4	3.4
12	3.4	3.6
15	3.3	2.9
18	3.4	3.0
21	3.3	3.3
24	3.2	3.2
27	3.1	2.9
30	3.1	3.3
33	3.0	3.0
36	2.9	2.9
39	2.8	2.6
42	2.8	2.8

APPARENT RADIUM-226 CONCENTRATION 16 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-09493-RS
HOLE NUMBER: 16
LOCATION: 230250



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.6	5.6
6	5.0	5.0
9	4.4	3.7
12	4.2	4.4
15	3.9	3.5
18	3.8	3.6
21	3.8	4.0
24	3.7	3.7
27	3.6	3.6
30	3.5	3.5

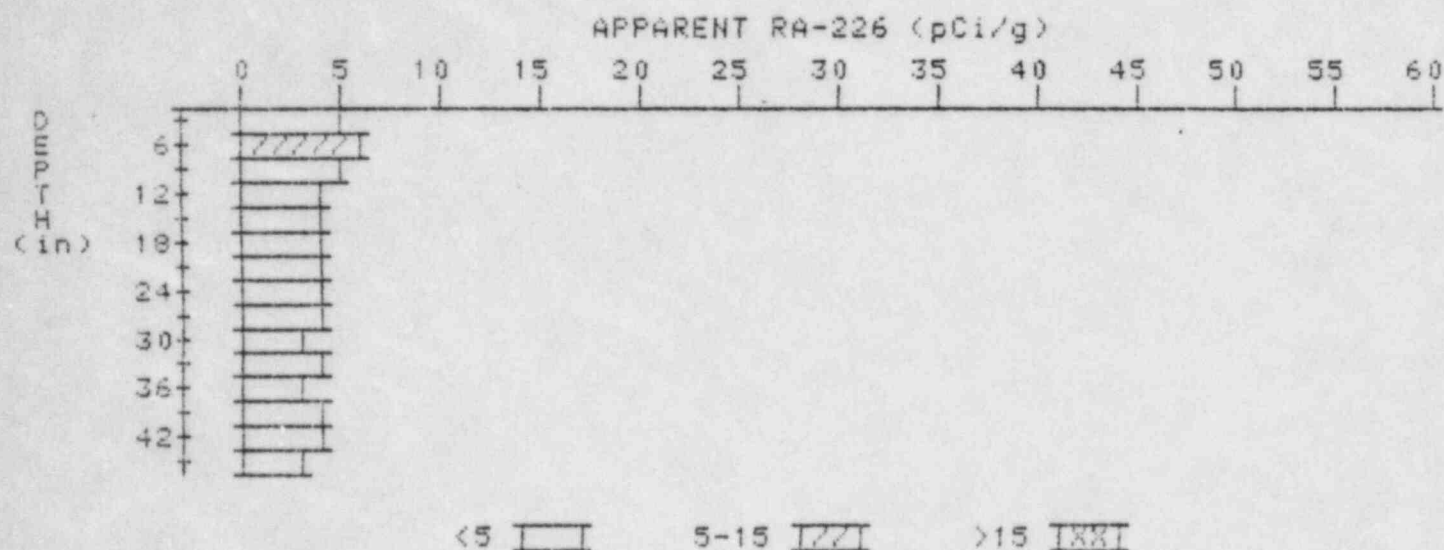
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

17

PROPERTY NUMBER: GJ-09493-RS

HOLE NUMBER: 17

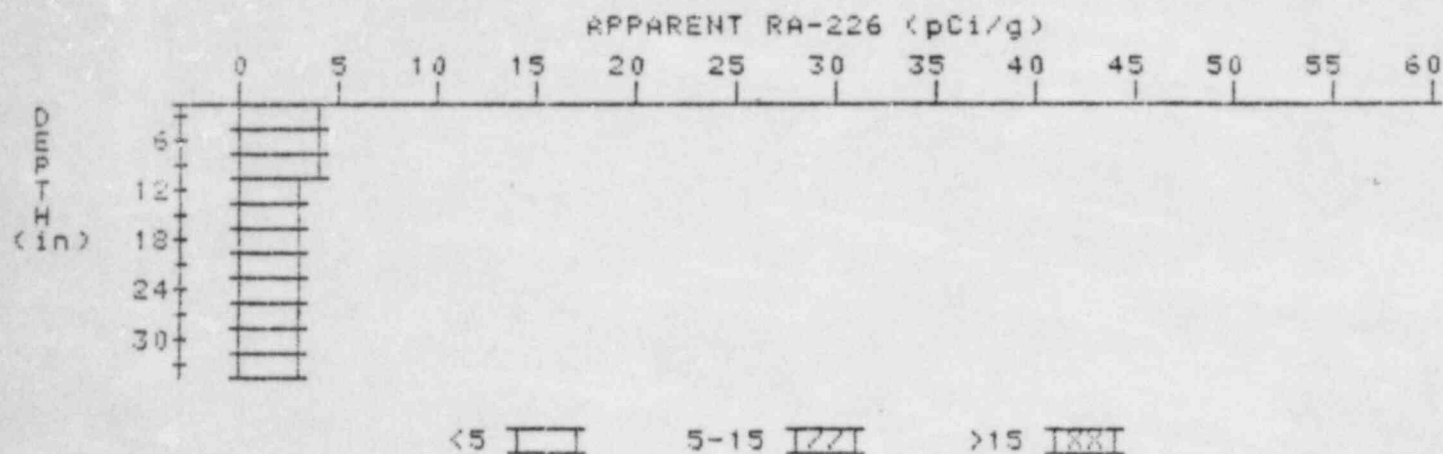
LOCATION: 255265



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.6	4.6
6	4.9	5.8
9	4.7	4.9
12	4.4	4.4
15	4.1	3.7
18	4.0	4.2
21	3.8	3.6
24	3.7	3.7
27	3.6	3.6
30	3.5	3.3
33	3.5	3.7
36	3.4	3.0
39	3.5	3.7
42	3.5	3.9
45	3.3	3.3

APPARENT RADIUM-226 CONCENTRATION 18 DECONVOLUTION GRAPH

PROPERTY NUMBER: G1-09493-RS
HOLE NUMBER: 18
LOCATION: 264225



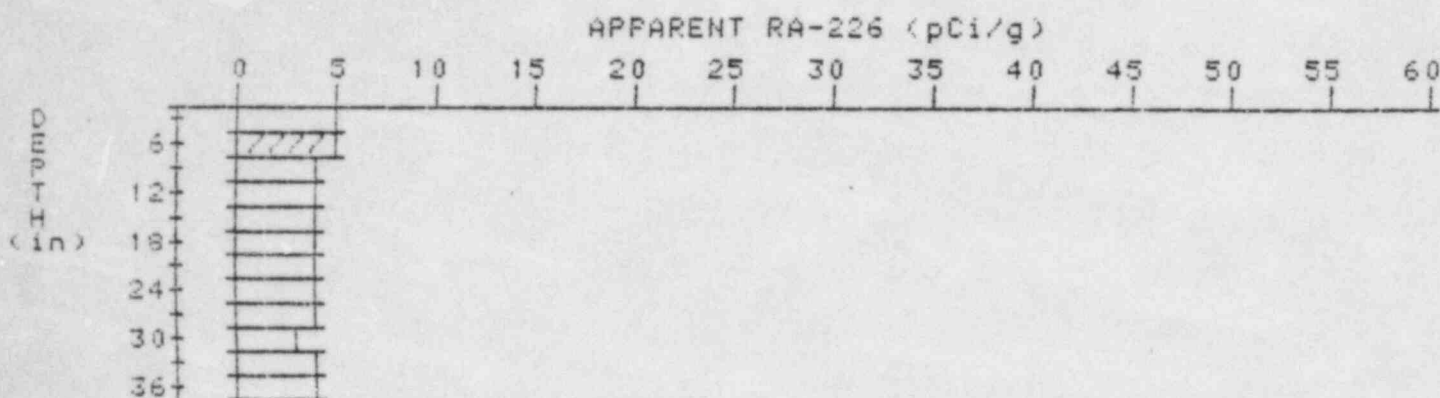
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.6	3.6
6	3.6	3.8
9	3.5	3.5
12	3.4	3.4
15	3.3	3.1
18	3.3	3.5
21	3.2	3.2
24	3.1	2.9
27	3.1	3.5
30	2.9	2.7
33	2.8	2.8

APPARENT RADIUM-226 CONCENTRATION 19 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-09493-RS

HOLE NUMBER: 19

LOCATION: 273223



<5 II 5-15 IZZI >15 IXXI

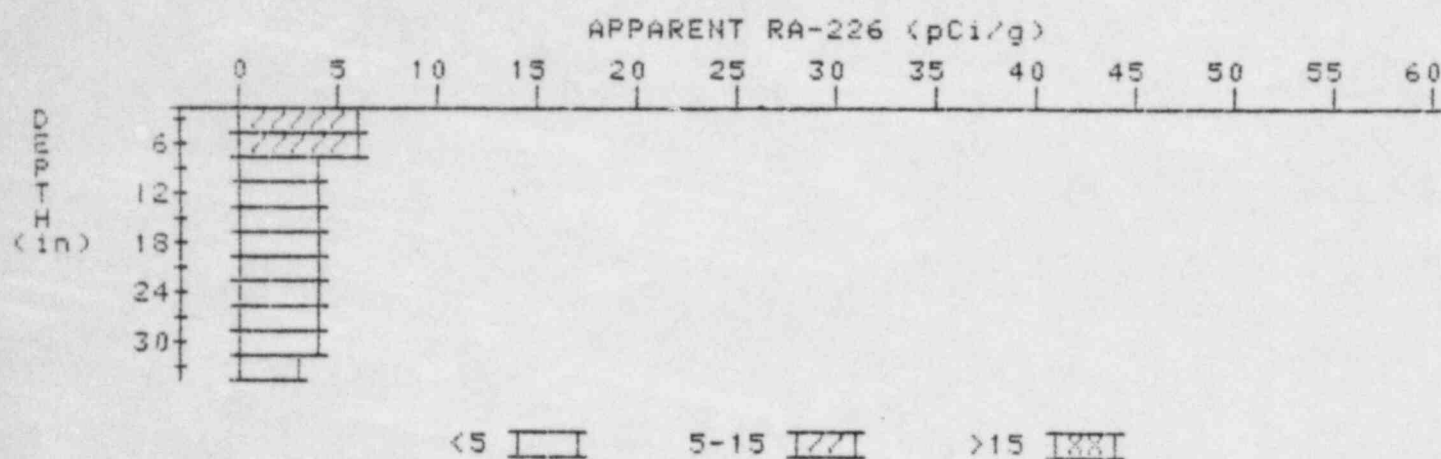
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.6	4.6
6	4.6	5.1
9	4.3	3.9
12	4.2	4.2
15	4.1	4.3
18	3.9	3.5
21	3.9	3.9
24	3.9	4.1
27	3.8	4.0
30	3.6	3.1
33	3.7	4.2
36	3.5	3.5

APPARENT RADIUM-226 CONCENTRATION 21 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-09493-RS

HOLE NUMBER: 21

LOCATION: 273265



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.6	5.6
6	5.3	6.2
9	4.5	3.6
12	4.2	4.0
15	4.0	3.6
18	4.0	4.4
21	3.8	3.6
24	3.7	3.7
27	3.6	3.6
30	3.5	3.5
33	3.4	3.4

