

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-12386-RS
ADDRESS: 560 ASHLEY LANE

JULY 1985

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

ALBUQUERQUE OPERATIONS OFFICE

DEPARTMENT OF ENERGY

BY

BENDIX FIELD ENGINEERING CORPORATION
P.O. Box 1569
Grand Junction, Colorado 81502

APPROVED BY

M. K. Tucker ^{Enr} ₀₀₄
M. TUCKER
DOE PROJECT ENGINEER

DATE

July 16, 1985

REA12386:REA-511

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PDR WASTE
WM-54

PDR

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-12386-RS, is a single-family residence located at 560 Ashley Lane, 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, 151 cu. yd.; interior, 0 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is \$6,624. Remedial action on this property will take approximately 14 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 560 Ashley Lane, Grand Junction, Colorado

Zoning: Residential (R-4)

Lot Size: Approximately 21,750 sf (0.5 acre)

Legal Description: Beginning 634 feet West plus 523 feet North of Southeast Corner NE4, Section 7, 1S 1E, West 150 feet, North 143 feet, East 150 feet, South to Beginning, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 5 miles northeast 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/underground
Gas:	Underground
Telephone:	Overhead/underground
Sewer:	Underground
Water:	Underground
Cable TV:	Overhead

Bordering Properties:

North:	Vacant land
South:	Alley (gravel)
East:	Vacant land
West:	Ashley Lane

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence with attached carport
Size:	Approximately 1,450 sf
Construction Date:	1952
Construction:	Wood-frame
Foundation:	Not determined
Footing Depth:	Not determined
Basement:	None
Crawl Space:	None
Condition:	Good

Other Structures:

Type:	Mobile home
Size:	Approximately 572 sf
Construction:	Prefabricated metal
Foundation:	None
Condition:	Good
Type:	Garage
Size:	Approximately 400 sf
Construction:	Wood-frame
Foundation:	Concrete slab-on-grade
Condition:	Fair
Type:	Carport
Size:	Approximately 246 sf
Construction:	Wood-frame
Foundation:	None
Condition:	Good
Type:	Shed
Size:	Approximately 175 sf
Construction:	Prefabricated metal
Foundation:	None
Condition:	Good

General Remarks:

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

Historical Data:

This structure is not 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-12386-RS on June 14, 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 east and west of the primary structure, in the driveway around the garage, west of the mobile home, and along Ashley Lane.

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, 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: 15 to 17 uR/h
Highest Outside Gamma Reading (HOG): 127 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: 14 to 18 uR/h
Highest Inside Gamma Reading (HIG): 18 uR/h

Interior gamma exposure-rate measurements are summarized in Appendix Table 3.2.

3.3 Boreholes, Soil Samples, and Other Measurements

Areas which displayed elevated gamma levels were further investigated; these areas are shown in Appendix Figure 3.2. Data from these investigations are included in Appendix Table 3.1.

3.4 Radon/Radon Daughter Concentration (RDC)

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

3.5 Extent of Contamination

Appendix Figure 3.3 shows identified areas and estimated depths of contamination on this property, based on assessments of all measurements taken. As noted in this figure, areas recommended for remedial action that contain identified residual radioactive materials are:

- (Area A) Surface Material: soil
Direction From Primary Structure: northwest
Other Directions: along canal embankment
Total Depth of Contamination: 9 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 500
- (Area B) Surface Material: soil
Direction From Primary Structure: northwest
Other Directions: along canal embankment
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 560
- (Area C) Surface Material: gravel
Direction From Primary Structure: west
Other Directions: edge of Ashley Lane
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 924
- (Area D) Surface Material: gravel
Direction From Primary Structure: southwest
Other Directions: edge of Ashley Lane
Total Depth of Contamination: 12 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 286
- (Area E) Surface Material: gravel
Direction From Primary Structure: southwest
Other Directions: in the driveway
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 345

- (Area F) Surface Material: lawn
Direction From Primary Structure: west and southwest
Other Directions: none
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: The depth of contamination of these two deposits is based on information gathered in Areas C and E.
Approximate Square Footage: 154
- (Area G) Surface Material: gravel
Direction From Primary Structure: south
Other Directions: in the driveway and around the garage
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 810
- (Area H) Surface Material: soil
Direction From Primary Structure: south
Other Directions: none
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 272
- (Area I) Surface Material: lawn
Direction From Primary Structure: east and southeast
Other Directions: none
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: Two deposits are included in this area.
Approximate Square Footage: 92
- (Area J) Surface Material: lawn
Direction From Primary Structure: east
Other Directions: none
Total Depth of Contamination: 12 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 1,025
- (Area K) Surface Material: soil and plants
Direction From Primary Structure: southeast
Other Directions: none
Total Depth of Contamination: 12 inches
Other (height or thickness): none
Comments: The depth of contamination is based on information gathered in Area J. This area is a vegetable garden.
Approximate Square Footage: 777

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-12386-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figure 3.3) 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 \$6,624.

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	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	Sample Locations
Figure 3.3	Estimated Extent of Contamination

Official Survey Report

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Gamma Scan Field Map

Radium Concentrations at Exterior Locations

DOE ID #GJ-12386-RS

560 Ashley Lane

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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.		
1	110160	00	DS	13.4		*	
		03	TC	24.9		*	Edge of Ashley Lane
		06	TC	23.4		*	
		09	TC	14.4		*	DC = 12 inches
		12	TC	8.9		*	Based on the
		15	TC	6.3		*	deconvolution graph
		18	TC	5.2		*	
		21	TC	4.6		*	
		24	TC	4.2		*	
		27	TC	4.0		*	
		30	TC	3.8		*	
		33	TC	3.8		*	
2	110282	00	DS	3.0		*	
		03	TC	4.9		*	Northwest corner
		06	TC	5.0		*	of property
		09	TC	4.6		*	
		12	TC	4.0		*	DC = 9 inches
		15	TC	3.9		*	Based on the
		18	TC	3.7		*	deconvolution graph
		21	TC	3.6		*	
		24	TC	3.5		*	
		27	TC	3.5		*	
		30	TC	3.4		*	
		33	TC	3.4		*	
3	114185	00	DS	3.9		*	
		03	TC	3.8		*	West edge of
		06	TC	3.9		*	driveway
		09	TC	3.9		*	
		12	TC	3.9		*	DC = 6 inches
		15	TC	3.9		*	Based on all
		18	TC	3.8		*	available data
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	TC	3.7		*	
		30	TC	3.6		*	
		33	TC	3.6		*	
4	128282	00	DS	5.2		*	
		03	TC	9.4		*	DC = 6 inches
		06	TC	6.5		*	Based on the
		09	TC	4.9		*	deconvolution graph
		12	TC	4.0		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-12386-RS

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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.		
4	128282	15	TC	3.6		*	
		18	TC	3.6		*	
		21	TC	3.5		*	
		24	TC	3.4		*	
5	133178	00	DS	3.3		*	DC = 6 inches
		03	TC	4.2		*	Based on all
		06	TC	4.1		*	available data
		09	TC	4.0		*	
		12	TC	4.0		*	
		15	TC	3.9		*	
		18	TC	3.7		*	
		21	TC	3.6		*	
		24	TC	3.5		*	
		27	TC	3.5		*	
		30	TC	3.5		*	
		33	TC	3.4		*	
6	159210	00	DS	<1.0		*	Gas line
		06	DS	1.6		*	
		12	DS	1.4		*	
		18	DS	1.2		*	
		21	DS	1.4		*	On gas line
7	181201	00	DS	<1.0		*	
8	182198	00	DS	9.9		*	
		06	DS	<1.0		*	
9	192182	03	TC	6.1		*	West of garage
		06	TC	5.2		*	
		09	TC	4.7		*	DC = 6 inches
		12	TC	4.3		*	Based on the
		15	TC	4.1		*	deconvolution graph
		18	TC	4.0		*	
		21	TC	4.1		*	
		24	TC	4.0		*	
		27	TC	3.9		*	
		30	TC	3.9		*	
10	202200	00	DS	3.5		*	
		06	DS	1.6		*	
		06	DS	1.2		*	Horizontal

Radium Concentrations at Exterior Locations

DOE ID #GJ-12386-RS

560 Ashley Lane

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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.		
11	205268	00	DS	1.2		*	Background DC = 0 inches
		03	TC	3.1		*	
		06	TC	3.5		*	
		09	TC	3.6		*	
		12	TC	3.7		*	
		15	TC	3.6		*	
		18	TC	3.6		*	
		21	TC	3.6		*	
		24	TC	3.6		*	
		27	TC	3.4		*	
		30	TC	3.4		*	
12	208178	00	DS	3.1		*	South of garage
		06	DS	1.4		*	
13	209161	00	DS	2.2		*	South of garage
14	210210	00	DS	5.1		*	
15	240220	03	TC	31.9		*	North of garden DC = 12 inches Based on the deconvolution graph
		06	TC	35.8		*	
		09	TC	26.1		*	
		12	TC	16.2		*	
		15	TC	9.6		*	
		18	TC	7.1		*	
		21	TC	6.0		*	
		24	TC	5.2		*	
		27	TC	4.7		*	
		30	TC	4.3		*	
		33	TC	4.1		*	
16	245230	03	TC	4.5		*	North of garden DC = 0 inches
		06	TC	4.6		*	
		09	TC	4.4		*	
		12	TC	4.2		*	
		15	TC	4.1		*	
		18	TC	3.9		*	
		21	TC	3.9		*	
		24	TC	3.9		*	
		27	TC	3.7		*	
		30	TC	3.6		*	
		33	TC	3.5		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-12386-RS

560 Ashley Lane

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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	250210	00	DS	10.0		*	DC = 12 inches
		03	TC	8.1		*	Based on the
		06	TC	7.2		*	deconvolution graph
		09	TC	5.9		*	
		12	TC	5.0		*	
		15	TC	4.4		*	
		18	TC	4.3		*	
		21	TC	4.1		*	
		24	TC	4.0		*	
		27	TC	3.8		*	
		30	TC	3.7		*	
		33	TC	3.6		*	
		36	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 = 06-14-85
 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)
Primary Structure	*	*	*	*	14-18	*
Mobile Home	*	*	*	*	14-16	*
Garage	*	*	*	*	13-16	*
Shed	*	*	*	*	15-17	*

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* A walking gamma scan was performed to confirm the absence of interior contamination at this location.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-12386-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>
EXTERIOR					
A	20 x 25 =	500	x 0.8 =	400	
B	20 x 28 =	560	x 0.5 =	280	
C	11 x 84 =	924	x 0.5 =	462	
D	11 x 26 =	286	x 1.0 =	286	
E	14 x 10 =	140			
	15 x 9 =	135			
	10 x 7 =	70			
		<hr/> 345	x 0.5 =	173	
F	5 x 14 =	70			
	2 x 42 =	84			
		<hr/> 154	x 0.5 =	77	
G	30 x 27 =	810	x 0.5 =	405	
H	10 x 8 =	80			
	12 x 16 =	192			
		<hr/> 272	x 0.5 =	136	
I	4 x 7 =	28			
	16 x 4 =	64			
		<hr/> 92	x 0.5 =	46	
J	41 x 25 =	1,025	x 1.0 =	1,025	
K	37 x 21 =	777	x 1.0 =	777	
				<hr/> 4,067	= 4,067/27 = 151
TOTAL VOLUME - EXTERIOR					<hr/> = 151

See Appendix Figure 3.3 For Areas

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Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-12386-RS

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Remove identified residual radioactive material	
136 cy @ \$14.50/cy (machine-open)	\$ 1,972
15 cy @ \$44/cy (manual-open)	660
Replace areas with roadbase	
49 cy @ \$11.50/cy	564
Replace areas with topsoil	
102 cy @ \$9.50/cy	969
Replace areas with sod	
1,148 sf @ \$.35/sf	402
	<hr/>
TOTAL EXTERIOR	\$ 4,567
TOTAL INTERIOR	0
ACCESS CONTROL	250
	<hr/>
SUBTOTAL	\$ 4,817
CONTINGENCY @ 10%	482
	<hr/>
SUBTOTAL	\$ 5,299
CONTRACTOR OVERHEAD & PROFIT @ 25%	1,325
	<hr/>
GRAND TOTAL	\$ 6,624

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LR071185
REAL2386/REA-511/LAJ

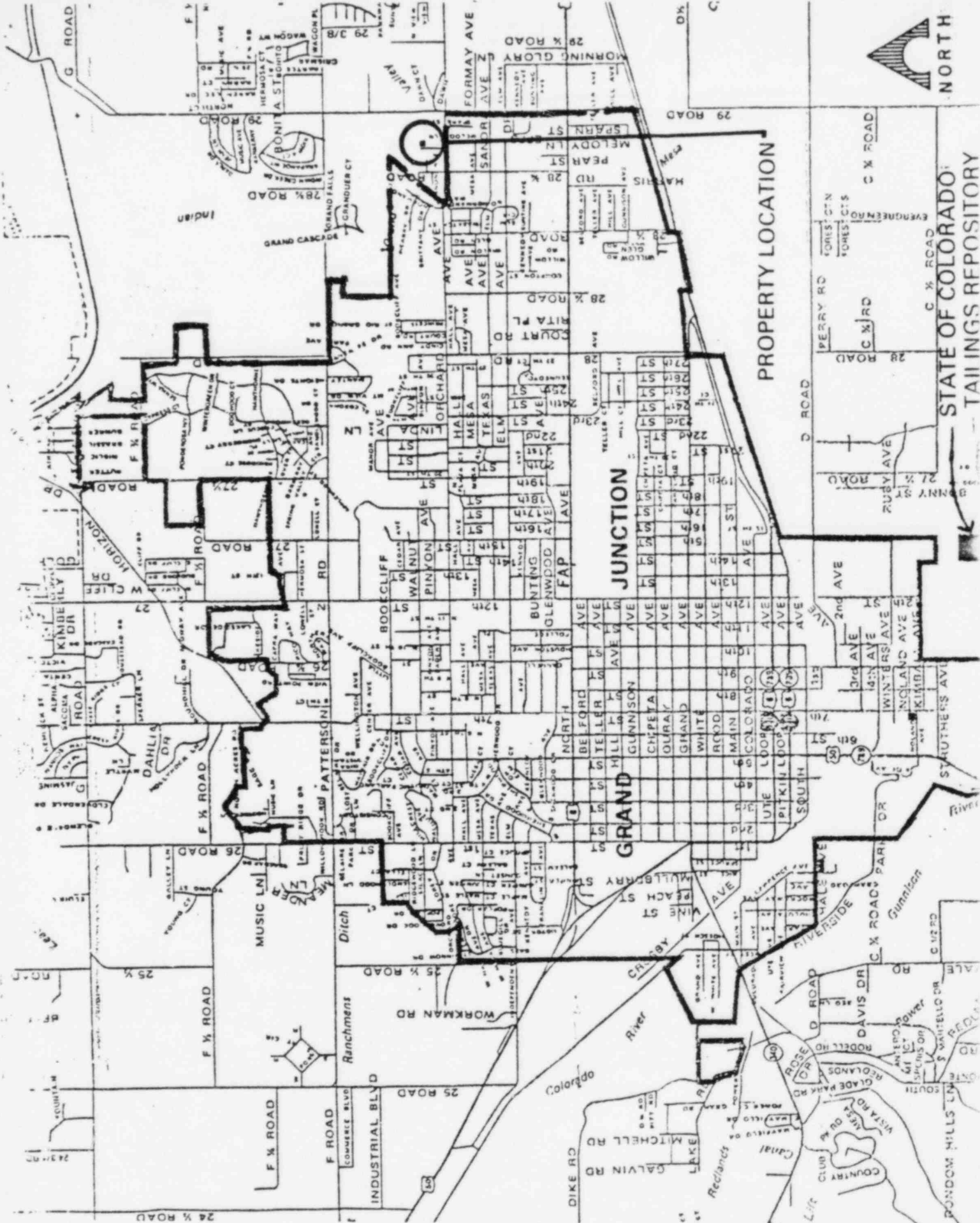
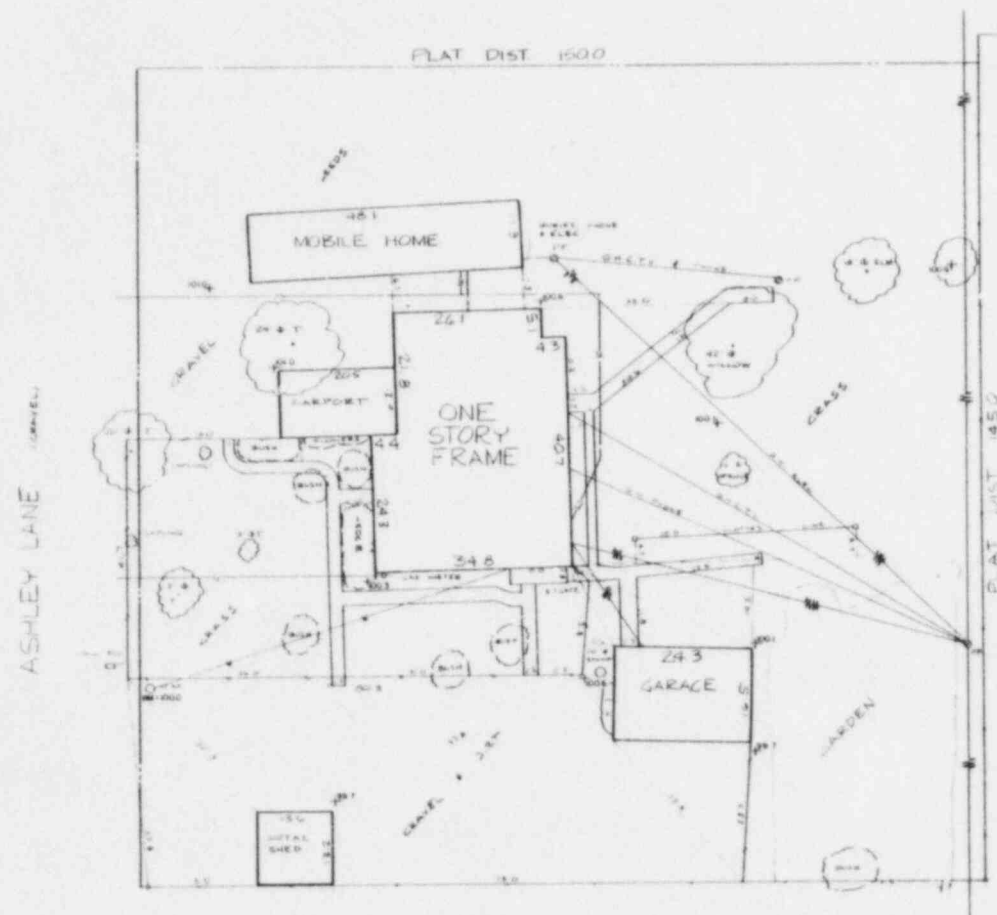


FIGURE 2.1
VICINITY MAP



BEG 634.0 W - 523.0 N OF SE COR NE ¼
SEC 7 IS 1E W1500 N1450 E 1500 S TO BEG

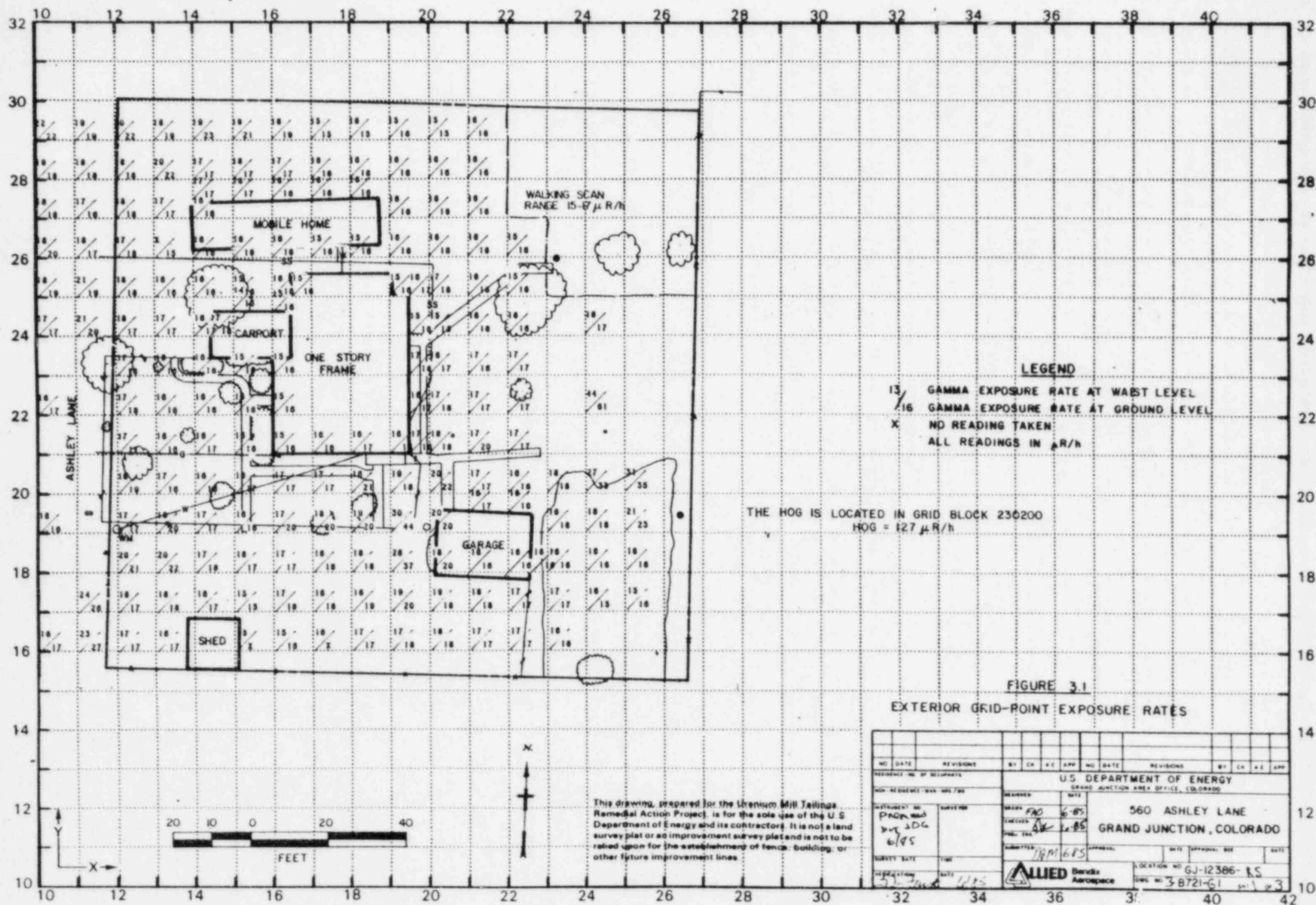
FIGURE 2.2 SITE PLAN



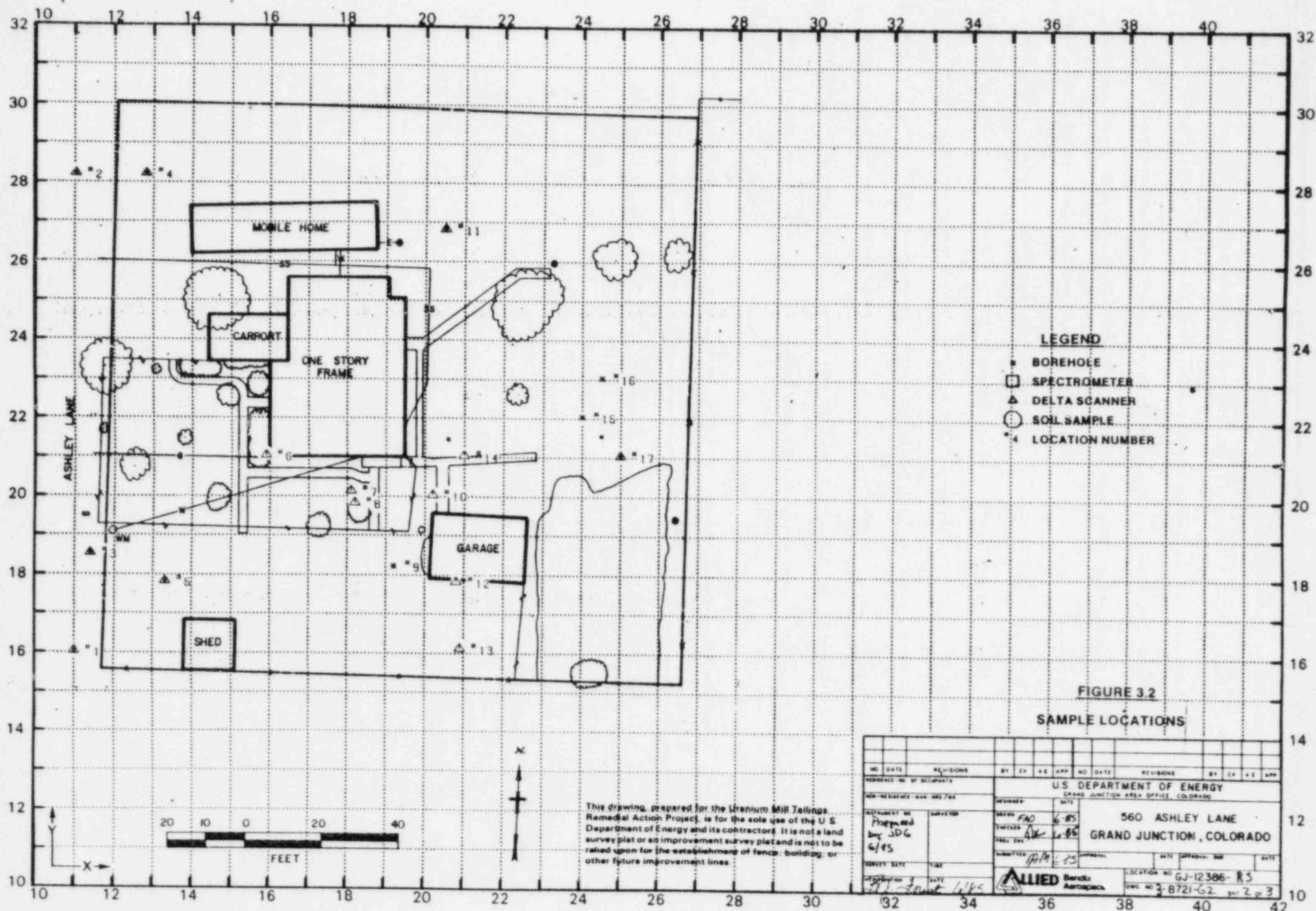
This drawing, prepared for the Uranium Mill Tailings Remedial Action Project, is for the site map of the U.S. Department of Energy and its contractors. It is not a legal survey and is not to be used as such. It is to be used only for the identification of sites, buildings, or other structures on the map.

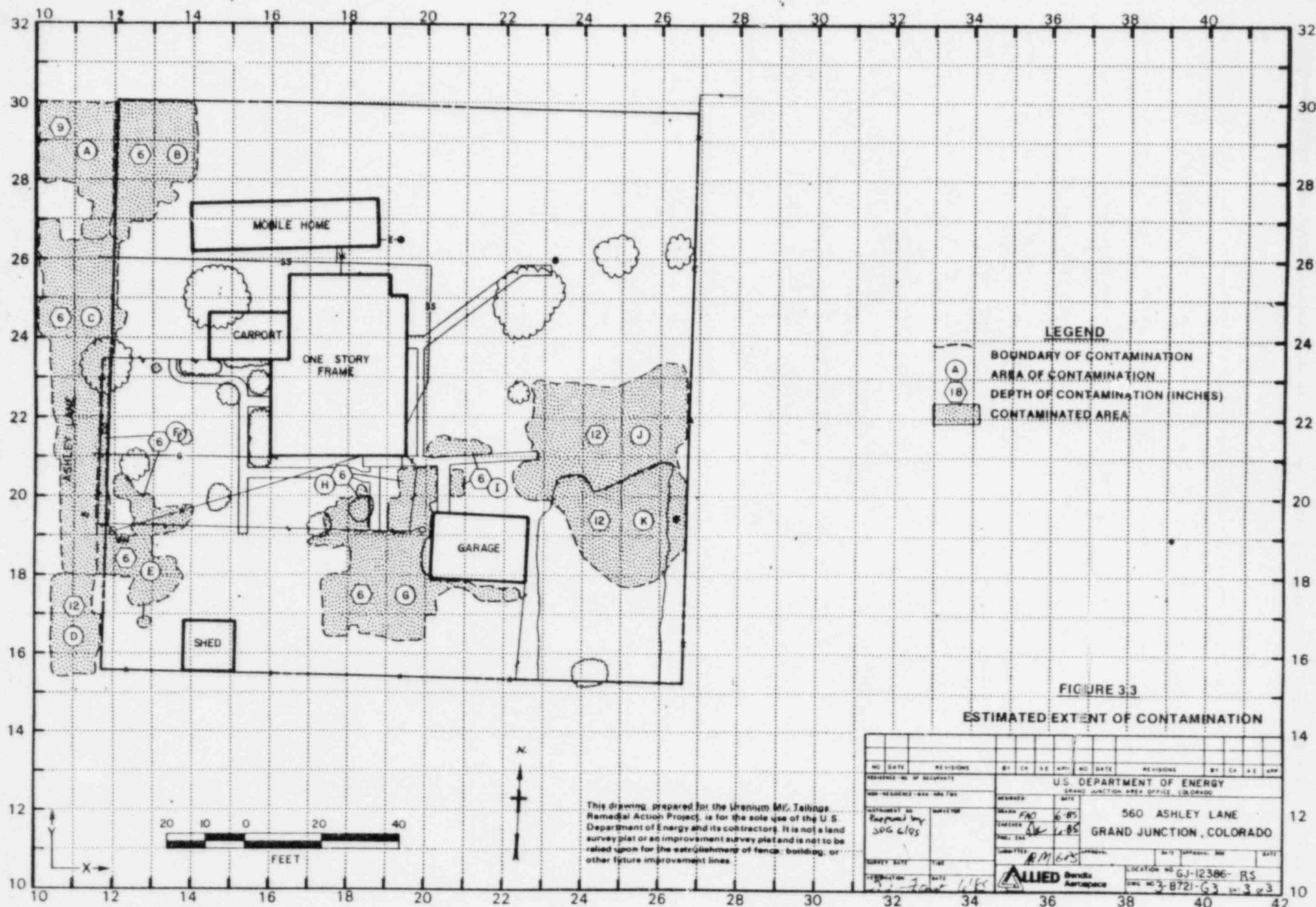


U.S. DEPARTMENT OF ENERGY		DATE OF MAP
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT		1-17-86 RD
PROJECT 540 ASHLEY LANE		
GRAND LAXTON, COLO		
SCALE 1" = 50'	DRAWN BY T. J. P.	CHECKED BY J. S.
DATE 12-1-85	BY T. J. P.	DATE 1-17-86



NO. DATE		REVISIONS		BY	CHK	DATE	NO. DATE		REVISIONS		BY	CHK	DATE
RESIDENCE NO. OF OCCUPANTS													
HOM. RESIDENCE: 560 ASHLEY LANE													
INSTRUMENT NO. PACR 206													
DATE 6/85													
SURVEY DATE													
DATE 6/85													
U.S. DEPARTMENT OF ENERGY													
GRAND JUNCTION AREA OFFICE, COLORADO													
560 ASHLEY LANE													
GRAND JUNCTION, COLORADO													
LOCATION NO. GJ-12386-15													
DWG NO. 3-B721-G1													





3/85

DOE ID NO. GJ-12386-RS

Date 6/24/85

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

Official Survey Report

Property Address 560 Ashley Lane

Property Owner J.S. and M.V. Gallegos

Address of Owner (if different from above)

Report Prepared By James D. Garcia

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

1 No evidence of residual radioactive material on surveyed property.

1 XXX Residual radioactive materials found at the following locations:

1 XXX In open areas.

1 XXX Under or around exterior improvements.

1 XXX Under or around a typically nonoccupied structure.

1 Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

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.

XXXXXX 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.

cc:

G. A. Franz, III, GJ/CDH

J. Themelis, Mgr. UMTRA Proj. Off.

HIC = 18 uR/h
HOG = 127 uR/h

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: June 14, 1985

To: Files

From: Billie J. Foust *Jan DGM*

Subject: Team Leader Notes - GJ-12386-RS

Address: 560 Ashley Lane

Owner: Mr. and Mrs. Gallegos

Occupancy: Four

Team Members

B.J. Foust (Team Leader)
D. Dille
M. Gilfillan
M. Duran
R. Herman
S. Garcia

J. Garcia
H. Lucero
E. Clay
D. Krabacher
R. Wilkins

The entire property was gridded since Oak Ridge National Laboratory (ORNL) data shows contamination along both the east and west property lines.

The garden area was being irrigated so only a grid point survey was performed in this area in order to prevent destroying the garden.

The interiors showed no contamination, except a point source in the house associated with an ore sample.

All utility lines and the foundation was checked with the downhole scintillometer.

Team Leader Notes
Billie J. Foust
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Grid Locations

163250 - west foundation
179257 - north foundation and water line
196218 - east foundation and sewer line
182209 - south foundation and water line

The gas line was investigated with a delta reading, no contamination.

A spillover inclusion will be done for the property to the west (561 Ashley Lane) and the horse pasture to the east.

Most of the team members were sent out to Dale Broom to help D. Martz and K. Cary at approximately 10:30 AM.

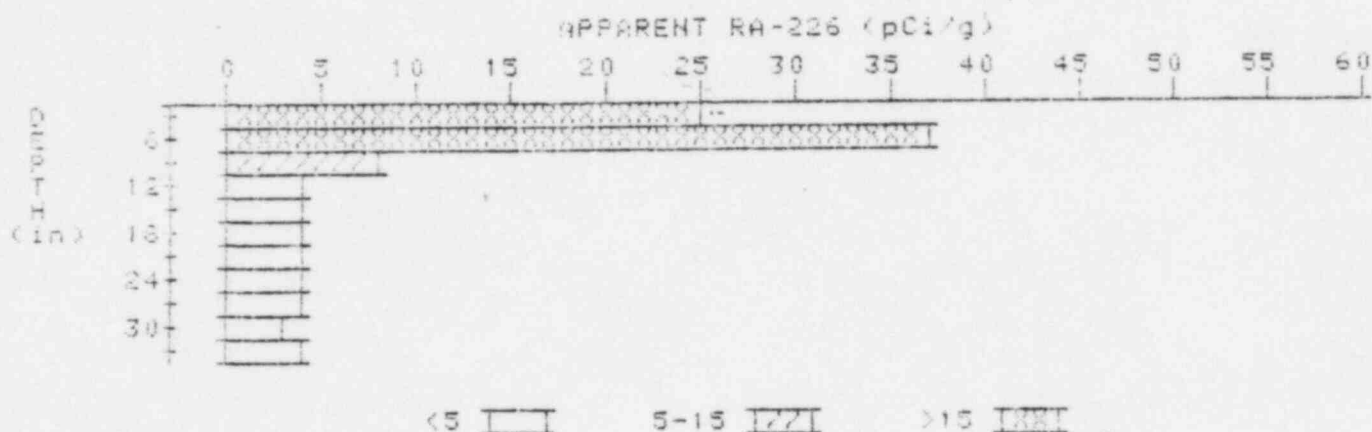
The survey was completed at 11:30 PM.

All personnel were alpha scanned.

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

1

PROPERTY NUMBER: GJ-12336-RS
HOLE NUMBER: 1
LOCATION: 110160



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	24.9	24.9
6	23.4	36.7
9	14.4	8.2
12	8.9	3.7
15	6.3	3.6
18	5.2	4.3
21	4.6	4.2
24	4.2	3.8
27	4.0	4.0
30	3.8	3.4
33	3.8	3.8

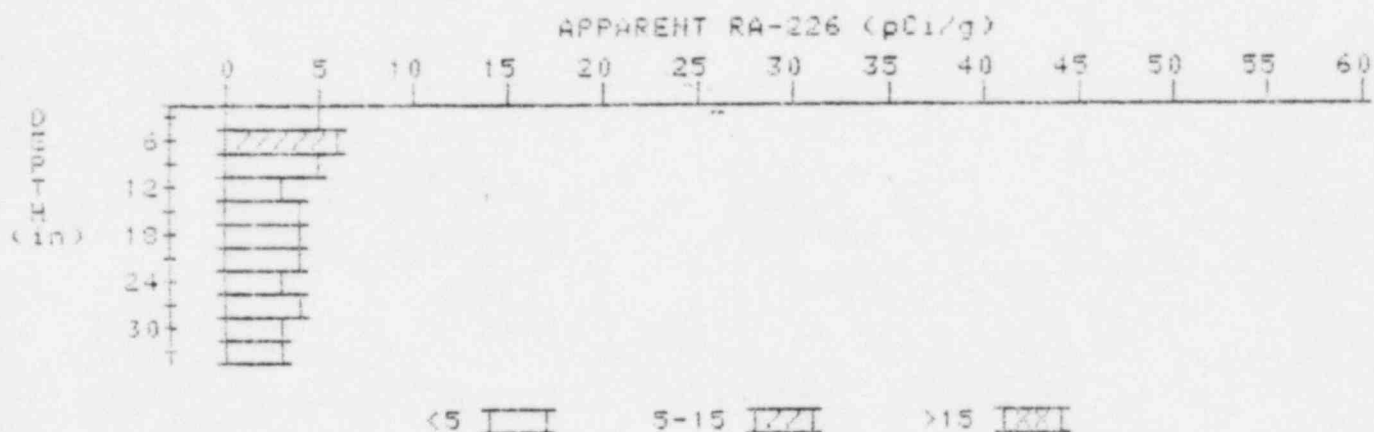
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

2

PROPERTY NUMBER: GJ-12386-RS

HOLE NUMBER: 2

LOCATION: 110282



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.9	4.9
6	5.0	5.9
9	4.6	5.0
12	4.0	3.1
15	3.9	4.1
18	3.7	3.5
21	3.6	3.6
24	3.5	3.3
27	3.5	3.7
30	3.4	3.2
33	3.4	3.4

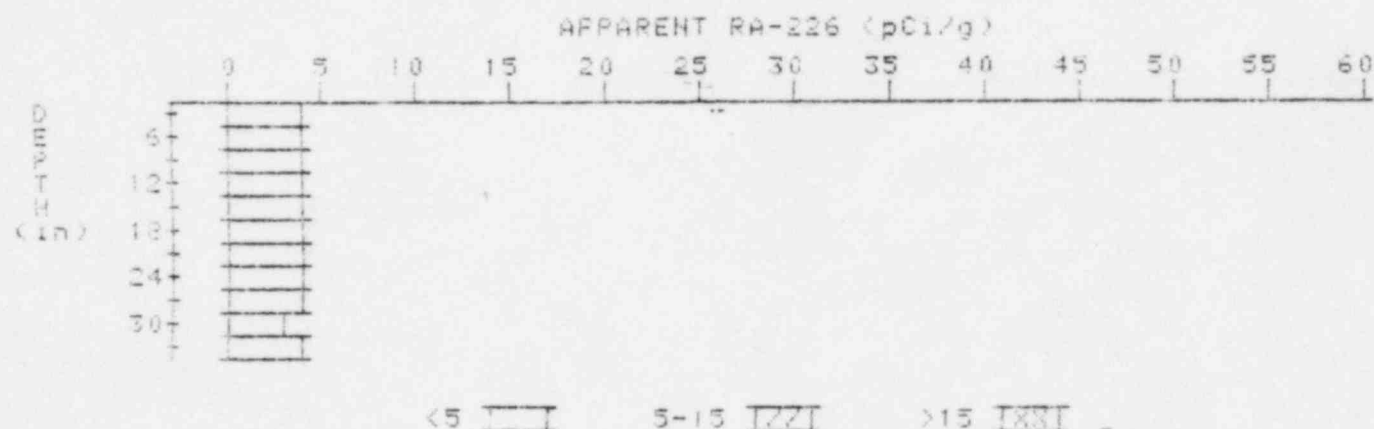
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

3

PROPERTY NUMBER: GJ-12386-R3

HOLE NUMBER: 3

LOCATION: 114185



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.8	3.8
6	3.9	4.1
9	3.9	3.9
12	3.9	3.9
15	3.9	4.1
18	3.8	3.6
21	3.8	3.8
24	3.8	4.0
27	3.7	3.7
30	3.6	3.4
33	3.6	3.6

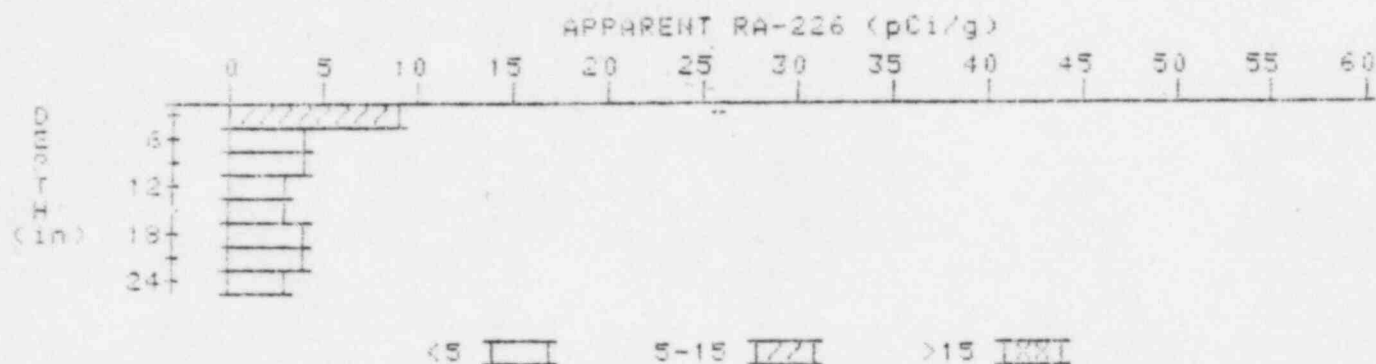
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

4

PROPERTY NUMBER: GJ-12386-RS

HOLE NUMBER: 4

LOCATION: 128282



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	9.4	9.4
6	6.5	4.2
9	4.9	3.7
12	4.0	3.1
15	3.6	2.9
18	3.6	3.8
21	3.5	3.5
24	3.4	3.4

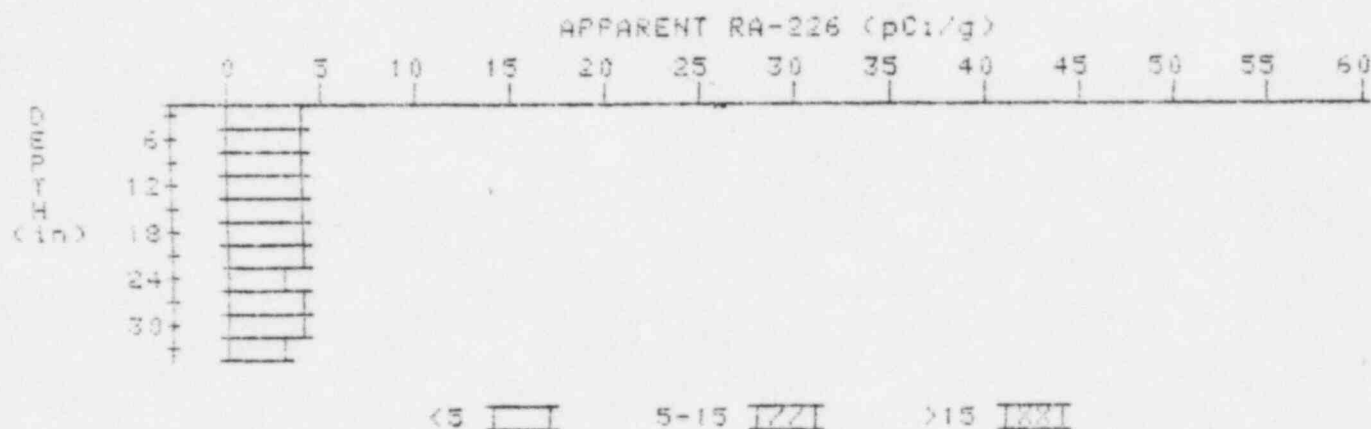
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

5

PROPERTY NUMBER: GJ-12306-RS

HOLE NUMBER: 5

LOCATION: 133178



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.2	4.2
6	4.1	4.1
9	4.0	3.8
12	4.0	4.2
15	3.9	4.1
18	3.7	3.5
21	3.6	3.6
24	3.5	3.3
27	3.5	3.5
30	3.5	3.7
33	3.4	3.4

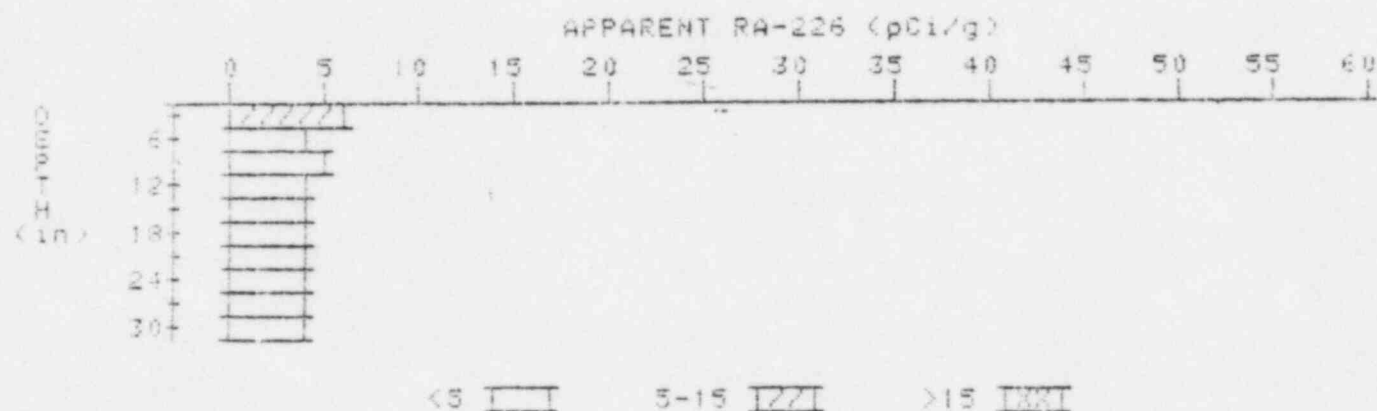
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

9

PROPERTY NUMBER: GJ-12386-R8

HOLE NUMBER: 9

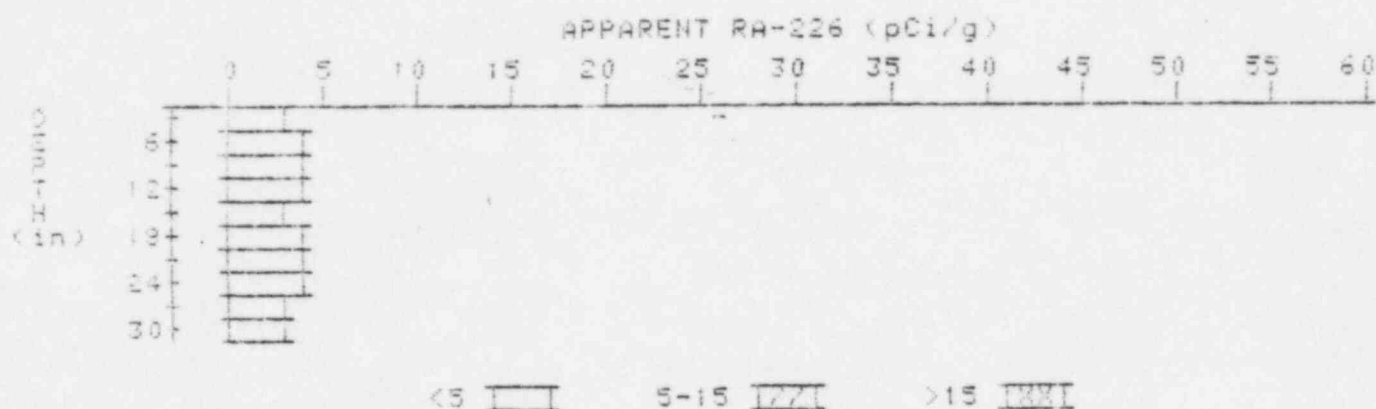
LOCATION: 192182



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.1	6.1
6	3.2	4.5
9	4.7	4.5
12	4.3	3.9
15	4.1	3.9
18	4.0	3.6
21	4.1	4.5
24	4.0	4.0
27	3.9	3.7
30	3.9	3.9

APPARENT RADIUM-226 CONCENTRATION 11 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12306-RS
HOLE NUMBER: 11
LOCATION: 205268



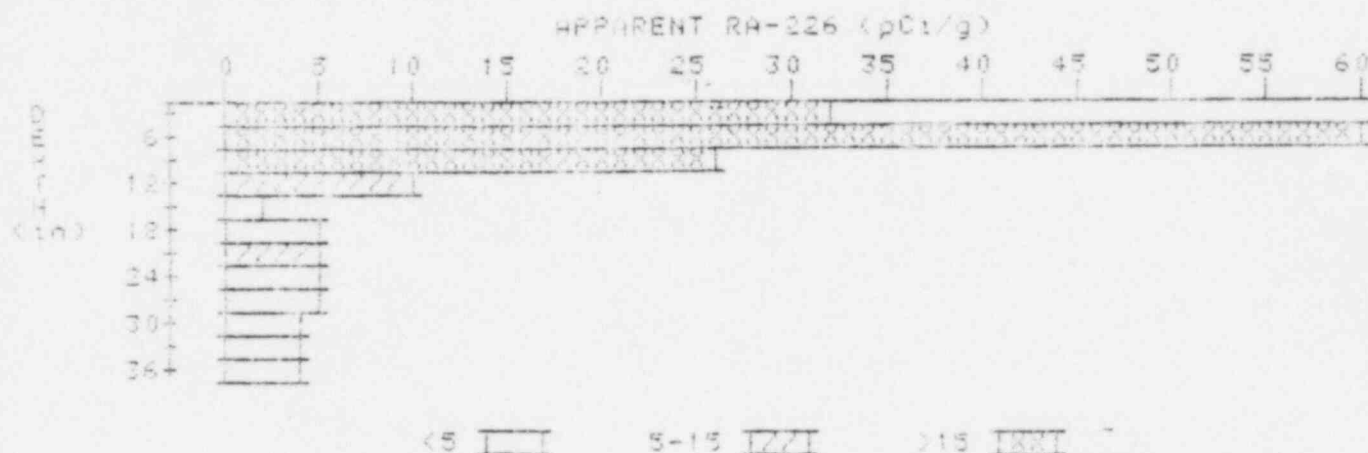
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.5	4.0
9	3.6	3.6
12	3.7	4.1
15	3.6	3.4
18	3.6	3.6
21	3.6	3.6
24	3.6	4.0
27	3.4	3.0
30	3.4	3.4

APPARENT RADIUM-226 CONCENTRATION 15 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12336-R6

HOLE NUMBER: 15

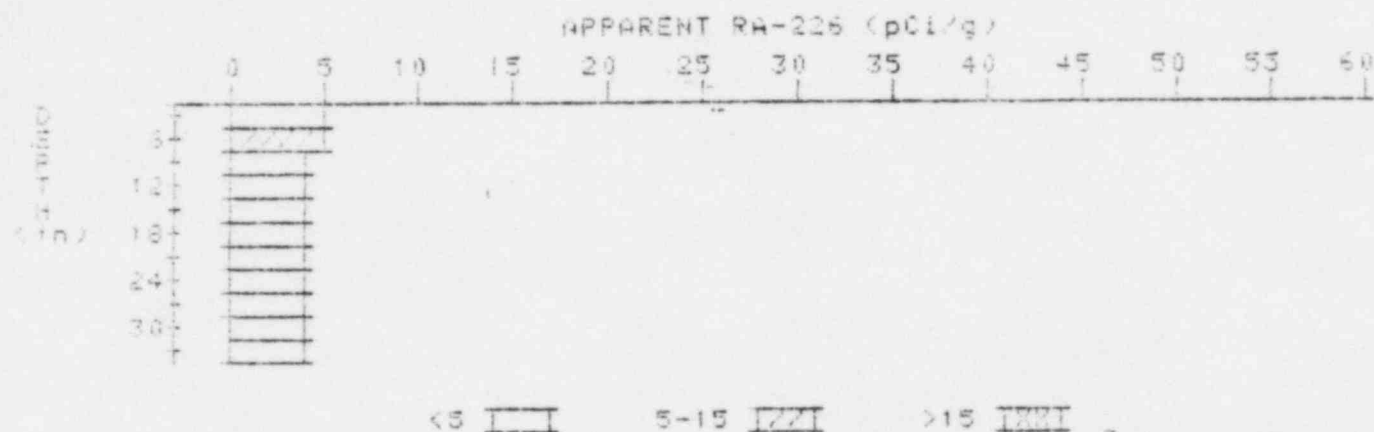
LOCATION: 240220



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	31.9	31.9
6	35.8	60.0
9	26.1	26.5
12	18.2	10.3
15	9.6	2.3
18	7.1	4.6
21	6.0	5.5
24	5.2	4.7
27	4.7	4.5
30	4.3	3.9
33	4.1	3.9
36	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION 16 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12386-RS
HOLE NUMBER: 16
LOCATION: 245239



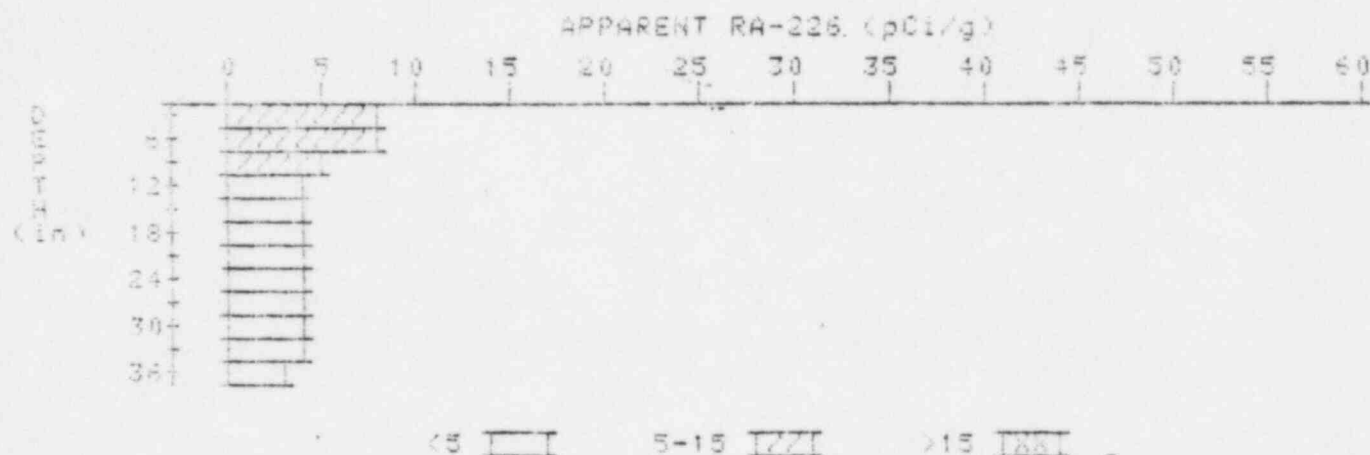
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.5	4.5
6	4.6	5.1
9	4.4	4.4
12	4.2	4.0
15	4.1	4.3
18	3.9	3.5
21	3.9	3.9
24	3.9	4.3
27	3.7	3.5
30	3.6	3.6
33	3.5	3.5

APPARENT RADIUM-226 CONCENTRATION 17 DECONVOLUTION GRAPH

PROPERTY NUMBER: 44-12306-85

HOLE NUMBER: 17

LOCATION: 250210



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	8.1	8.1
6	7.2	7.9
9	5.9	5.2
12	5.0	4.5
15	4.4	3.5
18	4.3	4.3
21	4.1	3.9
24	4.0	4.2
27	3.8	3.6
30	3.7	3.7
33	3.6	3.8
36	3.4	3.4

