

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-11549-MR
ADDRESS: 2860 BUNTING 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
Grand Junction, Colorado 81502

APPROVED BY

Michael K. Tucker
M. TUCKER
DOE PROJECT ENGINEER

DATE

August 27, 1985

REA11549:REA-711

8509100492 850827
PDR WASTE
WM-54 PDR

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 EXECUTIVE SUMMARY	1
1.1 Introduction	1
1.2 Evaluation and Recommendation	1
2.0 PROPERTY DESCRIPTION	2
2.1 General Description	2
2.2 Existing Facilities and Structures	2
3.0 RADIOLOGIC SURVEY	4
3.1 Introduction	4
3.2 Gamma Exposure-Rate Surveys	4
3.2.1 Exterior Findings	4
3.2.2 Interior Findings	4
3.3 Boreholes, Soil Samples, and Other Measurements	5
3.4 Radon/Radon Daughter Concentration	5
3.5 Extent of Contamination	5
4.0 RECOMMENDED REMEDIAL ACTION	7
4.1 Decontamination and Restoration	7
4.2 Evaluation of Recommended Remedial Action	7
5.0 REFERENCES	8
6.0 APPENDIX	9

1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-11549-MR, is a single-family residence located at 2860 Bunting 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, 31 cu. yd.; interior, 21 cu. yd.

Area A will not be included in this remedial action as discussed in Section 4.0 of this REA.

Estimated cost to perform remedial action, including dislocation when applicable, is \$1,975. Remedial action on this property will take approximately 10 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 2860 Bunting Avenue, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 7,500 sf (0.2 acres)

Legal Description: Lot 2, Block 1, Hutt Subdivision, Section 7, T1S, R1E, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 3 mile(s) 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
Gas:	Underground
Telephone:	Overhead
Sewer:	Underground
Water:	Underground
Cable TV:	Overhead

Bordering Properties:

North:	Apartment Building
South:	Bunting Avenue
East:	Single-family residence
West:	Single-family residence

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 1,189 sf
Construction Date:	Unknown - house moved to site
Construction:	Wood-frame
Foundation:	Concrete block on spread footing
Footing Depth:	Approximately 6" to bottom of footing from grade
Basement:	None
Crawl Space:	Yes - under entire living area
Condition:	Good

Other Structures:

Type:	Shed
Size:	Approximately 90 sf
Construction:	Prefabricated metal with wood floor
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 appears not 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-11549-MR on May 13, 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 south yard and at the crawl space entrance on the east side of 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 maps are included in the Appendix (Section 6.0).

3.2 Gamma Exposure-Rate Surveys

3.2.1 Exterior Findings

Background Readings: 14 to 16 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: 13 to 16 uR/h
Highest Inside Gamma Reading (HIG): 16 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 Figures 3.2a and 3.2b show 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 3.2a and 3.3. Data from these investigations are included in Appendix Tables 3.1 and 3.2.

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 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 that contain identified residual radioactive materials are:

- (Area A) Surface Material: soil
 Direction From Primary Structure: beneath
 Other Directions: crawl space
 Total Depth of Contamination: 6 inches
 Comments: The contamination is intermittent throughout the entire crawl space.
 Approximate Square Footage: 1,107 - this area is excluded from remedial action
- (Area B) Surface Material: lawn
 Direction From Primary Structure: south
 Other Directions: extends to south boundary
 Total Depth of Contamination: 12 inches
 Comments: The contamination exists on both sides of the sidewalk.
 Approximate Square Footage: 651
- (Area C) Surface Material: concrete
 Direction From Primary Structure: south
 Other Directions: middle of south yard
 Total Depth of Contamination: 12 inches
 Other (height or thickness): 4-inch-thick
 Comments: The sidewalk leads to the south porch and appears to be contaminated.
 Approximate Square Footage: 34
- (Area D) Surface Material: gravel
 Direction From Primary Structure: southeast
 Other Directions: adjacent to lawn
 Total Depth of Contamination: 12 inches
 Other (height or thickness): 3-inch-thick
 Comments: The line of demarcation between the driveway and lawn is unclear.
 Approximate Square Footage: 32

- (Area E) Surface Material: lawn
Direction From Primary Structure: southeast corner
Other Directions: around wood porch
Total Depth of Contamination: 12 inches
Comments: A large rosebush is in the contaminated area.
Approximate Square Footage: 82
- (Area F) Surface Material: lawn
Direction From Primary Structure: north
Other Directions: east of metal shed
Total Depth of Contamination: 6 inches
Comments: small deposit
Approximate Square Footage: 8
- (Area G) Surface Material: lawn
Direction From Primary Structure: south
Other Directions: southeast corner of wood porch
Total Depth of Contamination: 6 inches
Comments: small deposit
Approximate Square Footage: 8
- (Area H) Surface Material: lawn
Direction From Primary Structure: south
Other Directions: west of stairs leading to wood porch
Total Depth of Contamination: 12 inches
Comments: small deposit
Approximate Square Footage: 9

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-11549-MR, includes removal of select 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.

Remedial action will not be performed on Area A of this property because the levels of radioactivity in these areas do not exceed the EPA Standards (40 CFR 192), as described below:

- (1) Indoor radon-decay products shall not exceed a working level of 0.03, nor, to the extent possible, a working level of 0.02. An indoor RDC measurement shall be completed on this property. If the RDC measurement exceeds EPA Standards, then the REA will be revised and remedial action accomplished in accordance with the Vicinity Property Management and Implementation Manual. If EPA Standards are not exceeded, then the exclusion of Area A recommendation will be considered valid, and a Property Completion Report will be prepared for DOE certification.
- (2) Indoor gamma radiation shall not exceed 20 microroentgens per hour (uR/h) above background levels. (At this location the interior background readings were found to be between 13 and 16 uR/h, with the highest mean surface gamma reading at 20 uR/h.)

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 \$1,975.

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 3.2a	Interior Gamma Exposure Rates and Sample Locations
Figure 3.2b	Interior Gamma Exposure Rates
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-11549-MR

2860 Bunting Avenue

Page 1 of 3

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
5	139192	00	DS	1.7		*	Gas line
		18	DS	2.1		*	
6	139218	03	TC	3.7		*	Sewer line
		06	TC	4.0		*	West side of
		09	TC	3.9		*	primary structure
		12	BH	3.7	1.3	*	
		15	TC	3.5		*	DC = 0 inches
		18	TC	3.5		*	
		21	TC	3.5		*	
		24	BH	3.5	1.0	*	
		27	TC	3.5		*	
		30	TC	3.5		*	
		33	TC	3.6		*	
		36	BH	3.6	1.2	*	
7	142185	00-06	SS			9.3	South front yard
		03	TC	5.3		*	Gas line
		06	TC	5.2		*	
		09	TC	4.7		*	
		12	TC	4.3		*	DC = 9 inches
		15	TC	4.2		*	Based on the
		18	TC	4.1		*	deconvolution graph
		21	TC	4.1		*	
		24	TC	4.0		*	
		27	TC	4.0		*	
		30	TC	4.0		*	
		33	TC	3.9		*	
8	154182	00	DS	3.3		*	South yard
		06	DS	3.5		*	
		12	DS	2.7		*	DC = 12 inches
		18	DS	1.1		*	
9	154247	00	DS	2.9		*	North yard
		06	DS	2.1		*	DC = 6 inches
		00-06	SS			4.0	
10	155165	03	TC	10.1		*	Beside south yard
		06	TC	9.5		*	sidewalk
		09	TC	7.4		*	
		12	BH	5.9	3.9	*	DC = 12 inches
		15	TC	5.2		*	Based on the
		18	TC	4.8		*	deconvolution graph

Radium Concentrations at Exterior Locations

DOE ID #GJ-11549-MR

2860 Bunting Avenue

Page 2 of 3

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
10	155165	21	TC	4.6		*	
		24	BH	4.5	1.3	*	
		27	TC	4.4		*	
		30	TC	4.4		*	
		33	TC	4.3		*	
		36	BH	4.3	1.9	*	
		39	TC	4.3		*	
		42	TC	4.2		*	
		45	TC	4.1		*	
		48	TC	4.0		*	
11	155238	03	TC	3.4		*	North yard
		06	TC	3.7		*	DC = 0 inches
		09	TC	3.6		*	
		12	BH	3.5	1.5	*	
		15	TC	3.5		*	
		18	TC	3.5		*	
		21	TC	3.5		*	
		24	BH	3.6	1.2	*	
		27	TC	3.6		*	
		30	TC	3.6		*	
		33	TC	3.6		*	
		36	BH	3.6	1.1	*	
12	161183	00	DS	4.5		*	South yard
		06	DS	6.8		*	DC = 6 inches
		12	DS	1.0		*	
13	165219	03	TC	3.9		*	East side of
		06	TC	3.9		*	primary structure
		09	TC	3.9		*	DC = 0 inches
		12	TC	3.8		*	
		15	TC	3.7		*	
		18	TC	3.7		*	
		21	TC	3.6		*	
		24	TC	3.6		*	
		27	TC	3.7		*	
		30	TC	3.6		*	
		33	TC	3.6		*	
14	170200	00	DS	<1.0		*	Background
		00-06	SS			1.0	West of primary
		03	TC	3.0		*	structure

Radium Concentrations at Exterior Locations

DOE ID #GJ-11549-MR

2860 Bunting Avenue

Page 3 of 3

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
14	170200	06	TC	3.5		*	DC = 0 inches
		09	TC	3.6		*	
		12	TC	3.7		*	
		15	TC	3.6		*	
		18	TC	3.7		*	
		21	TC	3.7		*	
		24	TC	3.7		*	
		27	TC	3.7		*	
		30	TC	3.6		*	
		33	TC	3.6		*	
		36	TC	3.5		*	

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 = 05-13-85
Team Leader = TLC

Radium Concentrations at Interior Locations

DOE ID #GJ-11549-MR

2860 Bunting Avenue

Page 1 of 1

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
1		00	DS	10.5		*	Crawl space entrance
		03	DS	2.0		*	
2		00	DS	3.6		*	Southwest crawl space
		06	DS	2.1		*	
3		00	DS	1.3		*	North crawl space
4		00	DS	12.1		*	Beneath wood porch
		06	DS	1.6		*	

Measurement Types: GB = GAD-6 Borehole
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 = 05-13-85
Team Leader = TLC

Table 3.3
Summary of Interior Gamma Exposure Rates

DOE ID #GJ-11549-MR 2860 Bunting Avenue Page 1 of 1

=====

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)
CRAWL SPACE	00	-	-	20	15-45	20
ROOM A	05	13-15	14	05	13-16	15
ROOM B	05	14-15	14	05	14-17	15
ROOM C	02	13-14	14	02	14-15	15
ROOM D	05	13-15	14	05	14-16	15
ROOM E	02	13-15	14	02	14-15	15
ROOM F	05	13-15	14	05	13-16	14
ROOM G	06	13-15	14	06	15-16	15
ROOM H	09	15-15	15	09	15-15	15
ROOM I	09	14-15	15	09	15-18	16
SHED	05	14-15	15	05	15-15	16

=====

* Exposure rates and room locations are shown in Appendix Figures 3.2a, 3.2b, and 3.2c.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-11549-MR

Page 1 of 2

<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
INTERIOR					
Contaminated Fill					
A	11 x 3 =	33			
	22 x 45 =	990			
	6 x 14 =	84			
		<hr/>			
		1,107	x 0.5 =	554	
				<hr/>	
	TOTAL VOLUME - INTERIOR		=	554	= 554/27 = 21
EXTERIOR					
Concrete					
C	2 x 28.5 =	57	x 0.3 =	17	
				<hr/>	
	Volume of Concrete		=	17	= 17/27 = 1
Contaminated Fill					
B	16 x 22 =	352			
	13 x 23 =	299			
		<hr/>			
		651	x 1.0 =	651	
C	2 x 17 =	34	x 0.7 =	24	
D	4 x 5 =	20			
	3 x 4 =	12			
		<hr/>			
		32	x 1.0 =	32	

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-11549-MR

Page 2 of 2

<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
E	6 x 7 = 4 x 10 =	42 40			
		<hr/>			
		82	x 1.0 =	82	
F	2 x 4 =	8	x 0.5 =	4	
G	2 x 4 =	8	x 0.5 =	4	
H	3 x 3 =	9	x 1.0 =	9	
				<hr/>	
Volume of Fill				= 806 =	806/27 = 30
					<hr/>
TOTAL VOLUME - EXTERIOR					= 31

See Appendix Figures 3.4a and 3.4b For Areas

=====

Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-11549-MR

Page 1 of 1

EXTERIOR

Remove/replace concrete sidewalk
57 sf @ \$3/sf \$ 171

Remove identified residual radioactive material
27 cy @ \$14.50/cy (machine-open) 392
3 cy @ \$44/cy (manual-open) 132

Replace areas with topsoil
29 cy @ \$9.50/cy 276

Replace areas with roadbase
1 cy @ \$11.50/cy 12

Cleanup
Lump sum 200

TOTAL EXTERIOR \$ 1,183

TOTAL INTERIOR 0

ACCESS CONTROL 100

SUBTOTAL \$ 1,283

CONTINGENCY @ 10% 128

SUBTOTAL \$ 1,411

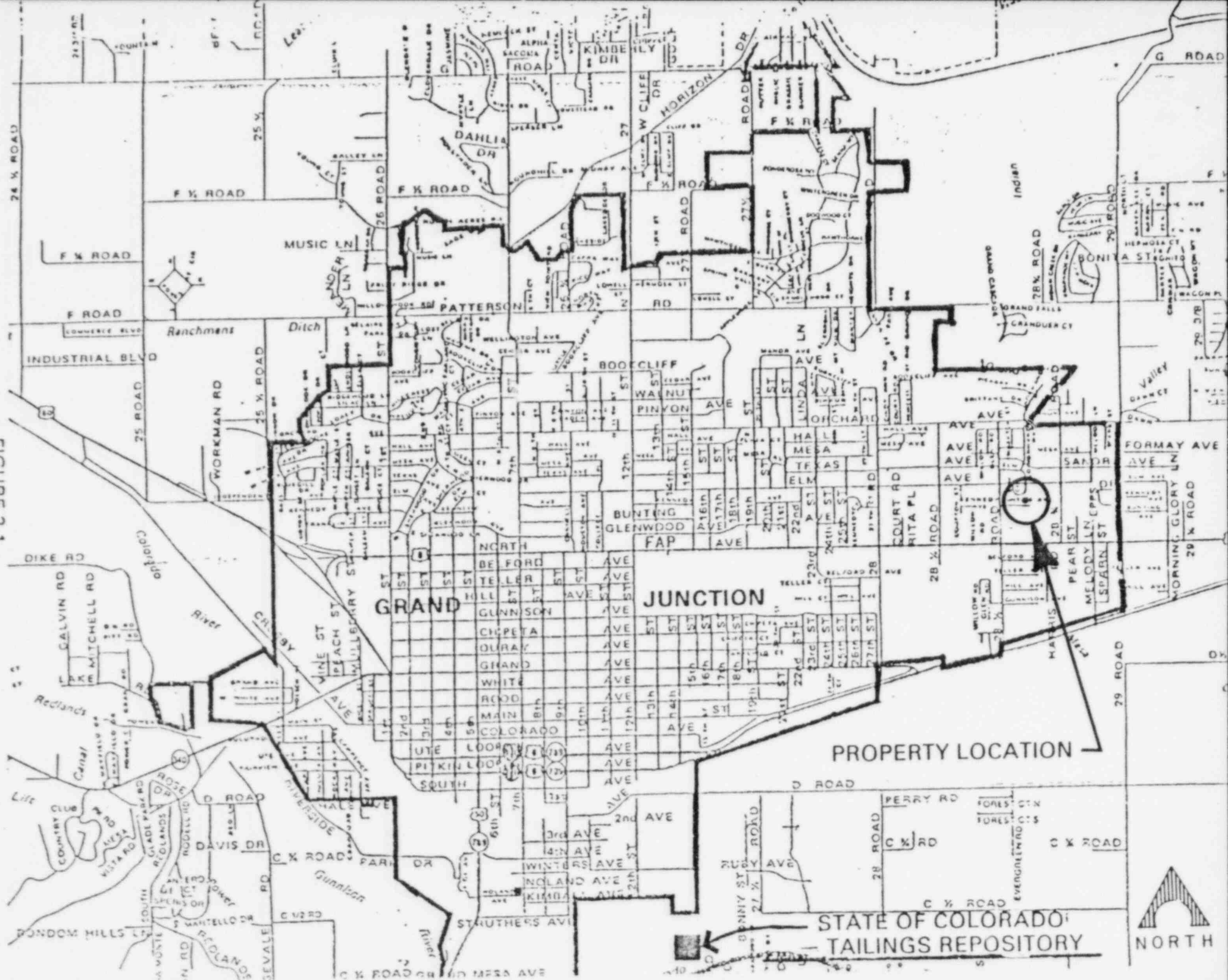
CONTRACTOR OVERHEAD & PROFIT @ 40% 564

GRAND TOTAL \$ 1,975

=====

FAV082385
REA11549/REA-711/AP

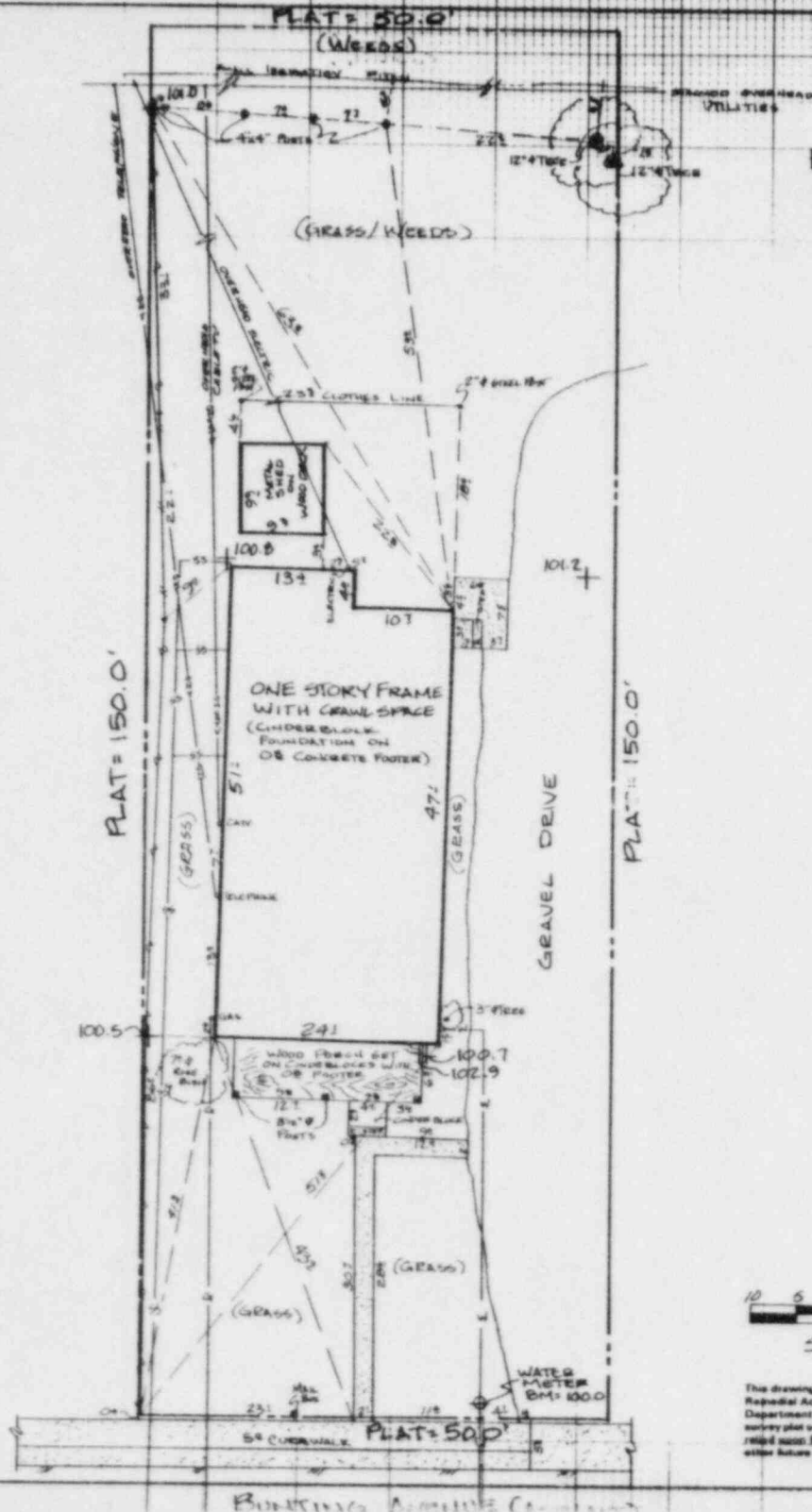
FIGURE 2.1
VICINITY MAP



PROPERTY LOCATION

STATE OF COLORADO
TAILINGS REPOSITORY



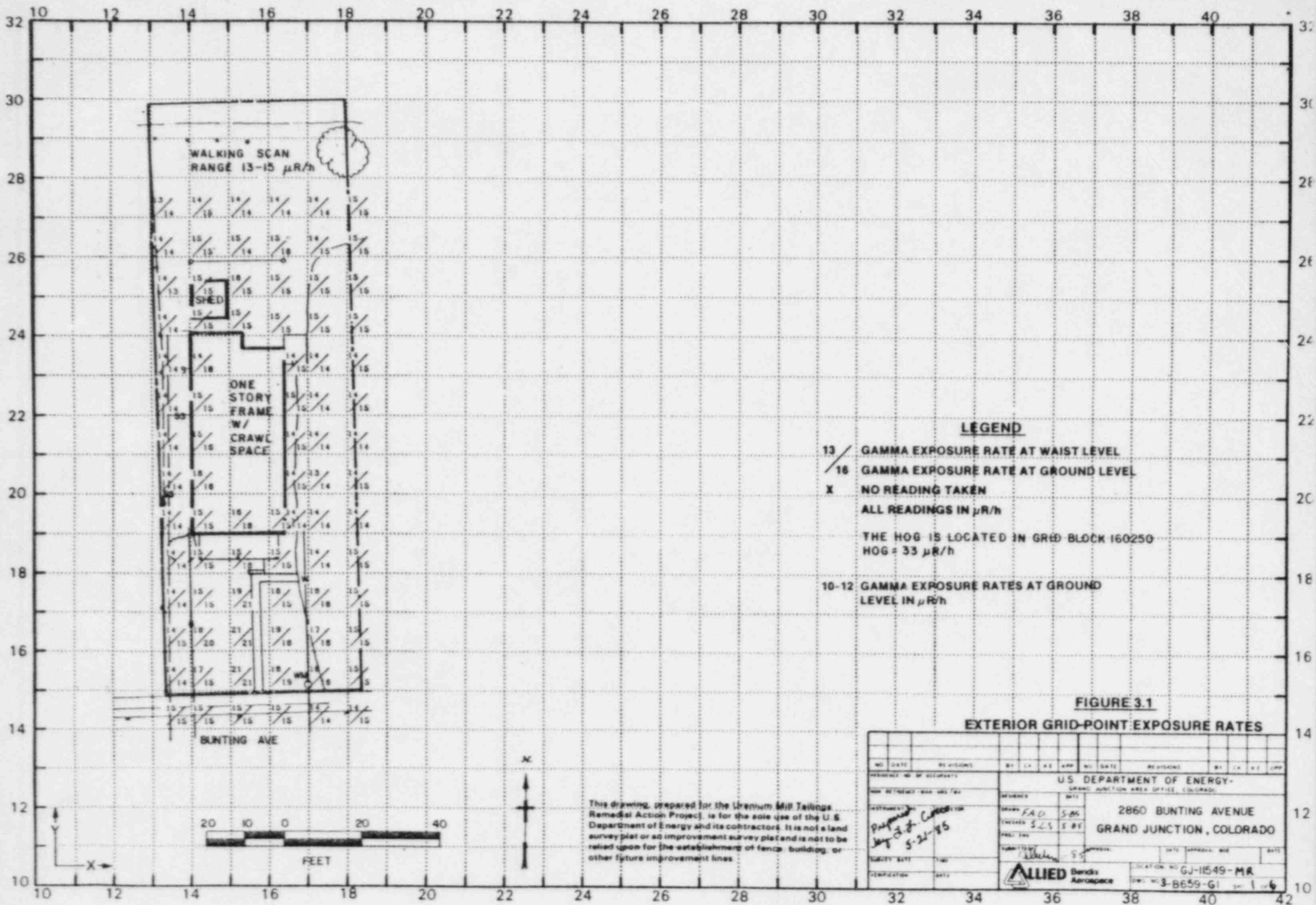


LOT 2 BLOCK 1 HUTT SUBDIVISION,
SECTION 7, T.15, R.1E., U.M.,
CITY OF GRAND JUNCTION, COLORADO.

FIGURE 2.2 SITE PLAN

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION PROJECT OFFICE, COLORADO		DOE ID NO. GJ11549 MR
ADDRESS 2860 BUNTING AVENUE GRAND JUNCTION, COLORADO		ALLIED ENGINEERING CORPORATION Grand Junction Operations
BLVD RLB 5-7-85	DRAFT RSK 5-9-85	DATE 5-7-85
DRAWING NO. 3-C659-F1	SHEET 1 OF 1	

This drawing, prepared for the Uranium Mill Tailings Remedial Action Project, is for the sole use of the U.S. Department of Energy and its contractors. It is not a land survey plot or an improvement surveyplot and is not to be relied upon for the establishment of fence, building, or other future improvement lines.



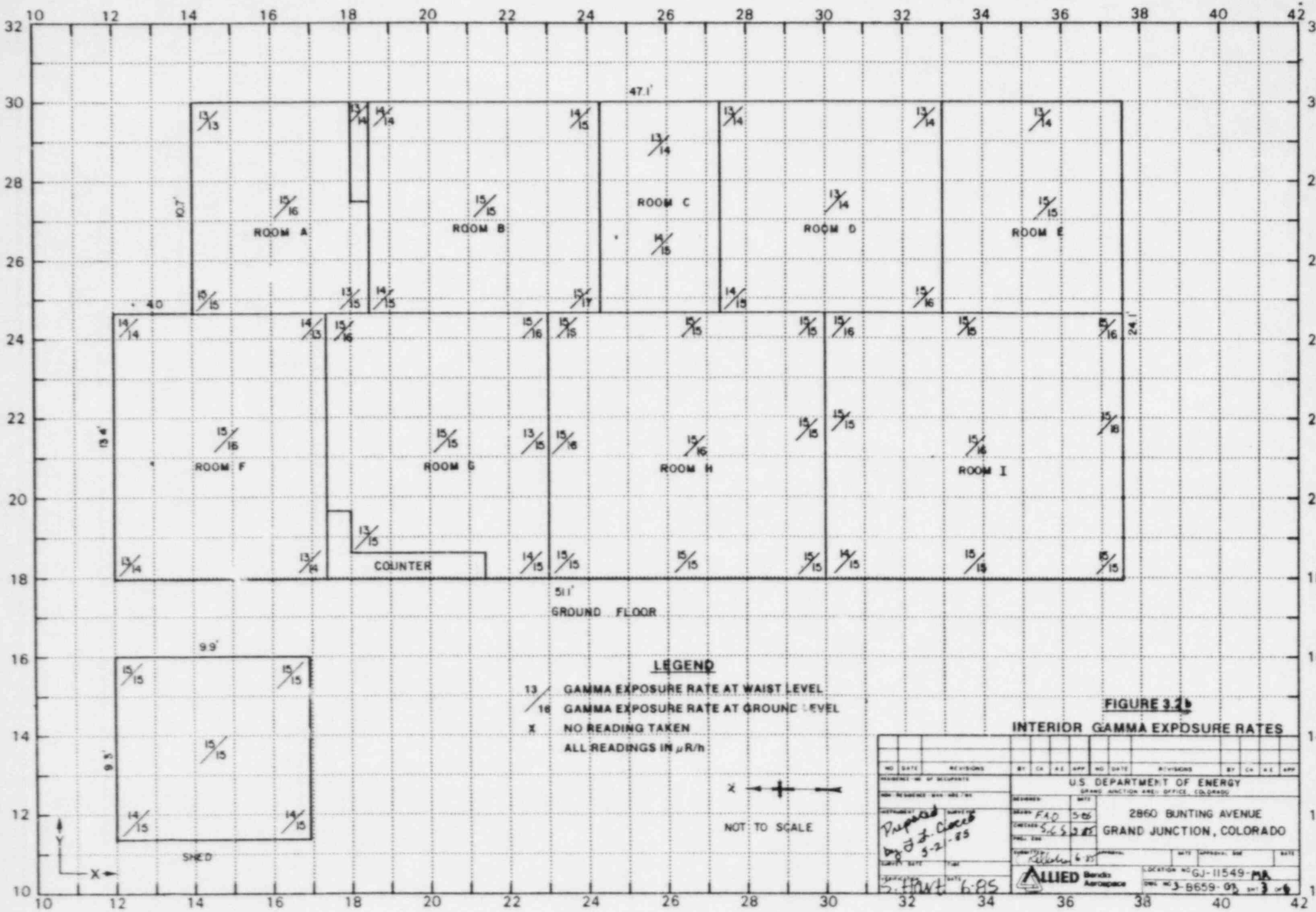
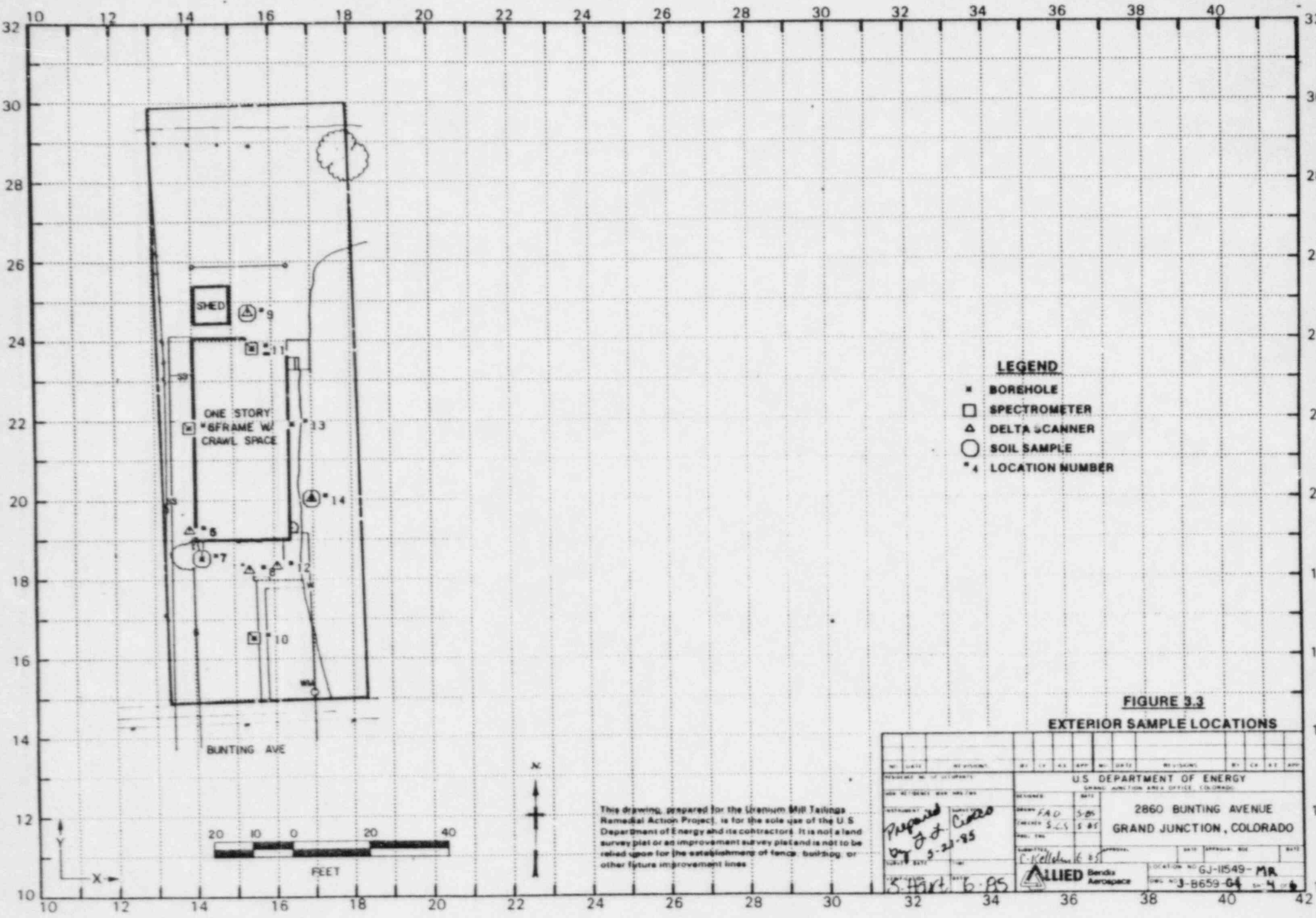


FIGURE 3.2b

INTERIOR GAMMA EXPOSURE RATES

NO.	DATE	REVISIONS	BY	CHK	APP	NO.	DATE	REVISIONS	BY	CHK	APP
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO 2860 BUNTING AVENUE GRAND JUNCTION, COLORADO						DATE 5-2-85 TIME 6:25 LOCATION GJ-11549-MA DATE 5-2-85 TIME 6:25					
PREPARED BY 5-2-85						ALLIED Service Aerospace					



- LEGEND**
- BOREHOLE
 - SPECTROMETER
 - △ DELTA SCANNER
 - SOIL SAMPLE
 - *4 LOCATION NUMBER

FIGURE 3.3
EXTERIOR SAMPLE LOCATIONS

This drawing, prepared for the Uranium Mill Tailings Remedial Action Project, is for the sole use of the U. S. Department of Energy and its contractors. It is not a land survey plat or an improvement survey plat and is not to be relied upon for the establishment of fence, building, or other future improvement lines.

NO. DATE		NO. DATE		NO. DATE		NO. DATE	
U.S. DEPARTMENT OF ENERGY				U.S. DEPARTMENT OF ENERGY			
2860 BUNTING AVENUE				2860 BUNTING AVENUE			
GRAND JUNCTION, COLORADO				GRAND JUNCTION, COLORADO			
APPROVED BY: <i>Proposed by J. & C. 5-21-85</i>		DATE: 5-21-85		APPROVED BY: <i>C. Kellum 6-85</i>		DATE: 6-85	
DRAWN BY: <i>S. Hart</i>		DATE: 6-85		APPROVED BY: <i>ALLIED</i>		DATE: 6-85	
PROJECT NO. <i>3-8659-64</i>		PROJECT NO. <i>3-8659-64</i>		PROJECT NO. <i>3-8659-64</i>		PROJECT NO. <i>3-8659-64</i>	

3/85

DOE ID NO. GJ-11549-MR

Date 5-16-95

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

Official Survey Report

Property Address 2860 Bunting Avenue

Property Owner Joseph p. and Marilyn A. Sarnac

Address of Owner (if different from above) 609 Pioneer Road. Grand Jct. CO 81504

Report Prepared By Teri L. Ciocco

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

☐ No evidence of residual radioactive material on surveyed property.

☒ Residual radioactive materials found at the following locations:

☒ In open areas.

☐ Under or around exterior improvements.

☐ Under or around a typically nonoccupied structure.

☐ Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

☐ 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.

☒ 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.

HIG = 16 uR/h
HOG = 33 uR/h

June 5, 1985

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

ATTN: Coleen Campbell

Dear Coleen:

The following is in response to your questions and comments during the Technical Review concerning Department of Energy (DOE) Identification (ID) number GJ-11549-~~25~~ (2860 Bunting Avenue), conducted on June 3, 1985.

MR

The gas line was 18-inches deep and the 18-inch delta at Location 139192 was on top of the gas line. The delta reading of 18-inches gave a total count of in-situ Ra-226 of 2.1, which is below the Environmental Protection Agency (EPA) standards below the surface.

Thank you for your time and cooperation. If you should have additional questions or comments you may contact me at 242-8621, extension 506.

Sincerely,

Teri L. Ciocco

Teri L. Ciocco
RSD Survey Team Leader

TLC:pr

MEMORANDUM

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado 81501

DATE: May 13, 1985

TO: Files

FROM: Teri Ciocco *TC*

SUBJECT: Team Leader Notes - GJ-11549-MR

Address: 2860 Bunting Avenue

Occupant: Not occupied.

Owner: Joseph and Marilyn Sarnac

Telephone: 245-0166

Team Members

T. Cicco (Team Leader)
N. Wallace
D. Dow
L. Kula

A. Raabe
S. Southern
D. Bell

Instruments

Crutch Scintillometer - C-1181, C-1205, C-1208
Delta Scintillometer - C-3935, C-3939
Total Count - C-3956
Downhole Spectrometer - C-0498

Colorado Department of Health (CDH) stated that contamination was on the outside and mostly in the south yard.

S. Southern arrived in the afternoon.

Team Leader Notes
Teri Ciocco
GJ-11549-PA
May 13, 1985
Page 2

The crawl space had limited access due to black widow spiders and low clearance. Due to the high readings and limited data, I obtained the key to enter the house and took interior grid points.

The north (back) yard had a foul odor, which could have been a dead animal, nothing was found.

The doors were locked after data was taken.

The south yard was the only exterior location with extensive contamination. The crawl space had contamination but no pattern was discernable while in the field.

All sides of the house were augered.

After all data was taken it was discovered that the north arrow was on the maps incorrectly. Data direction will have to be adjusted.

All team members were alpha scanned.

Team Leader Notes
Teri Ciocco
GJ-11549-R3
May 17, 1985
Page 3

Date: May 17, 1985

Revisit

Team Members

T. Ciocco (Team Leader)
V. Rothman

LC

Instruments

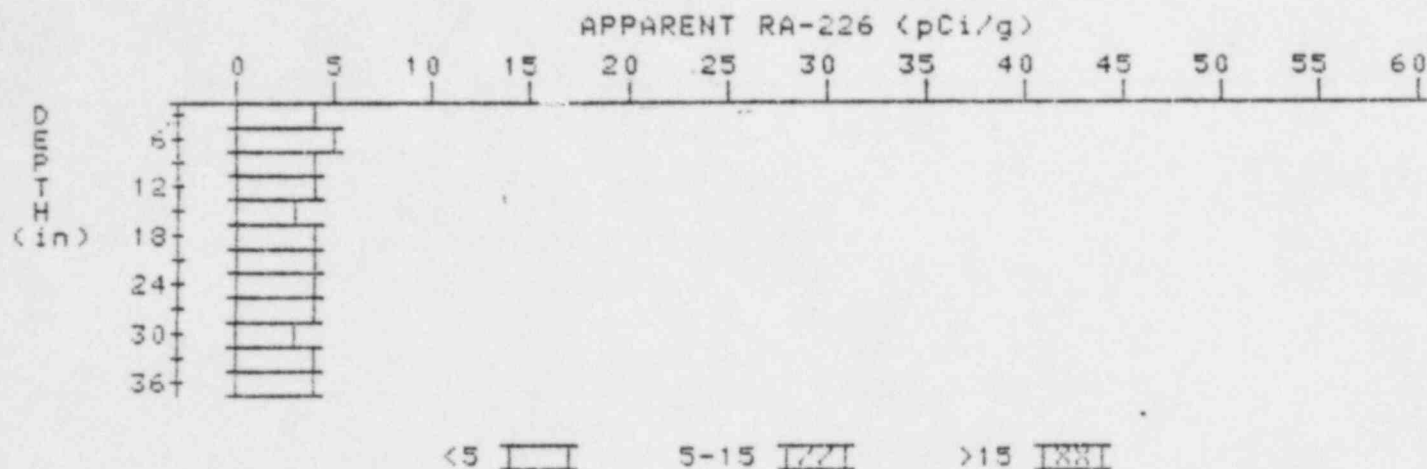
Delta - C-3943
Scintillometer - C-3502

A revisit to 2860 Bunting Avenue, GJ-11549-^{MR-8 8:25}R3, was made in order to take a scintillometer reading and three delta readings in the crawl space.

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

6

PROPERTY NUMBER: GJ-11549-MR
HOLE NUMBER: 6
LOCATION: 139218

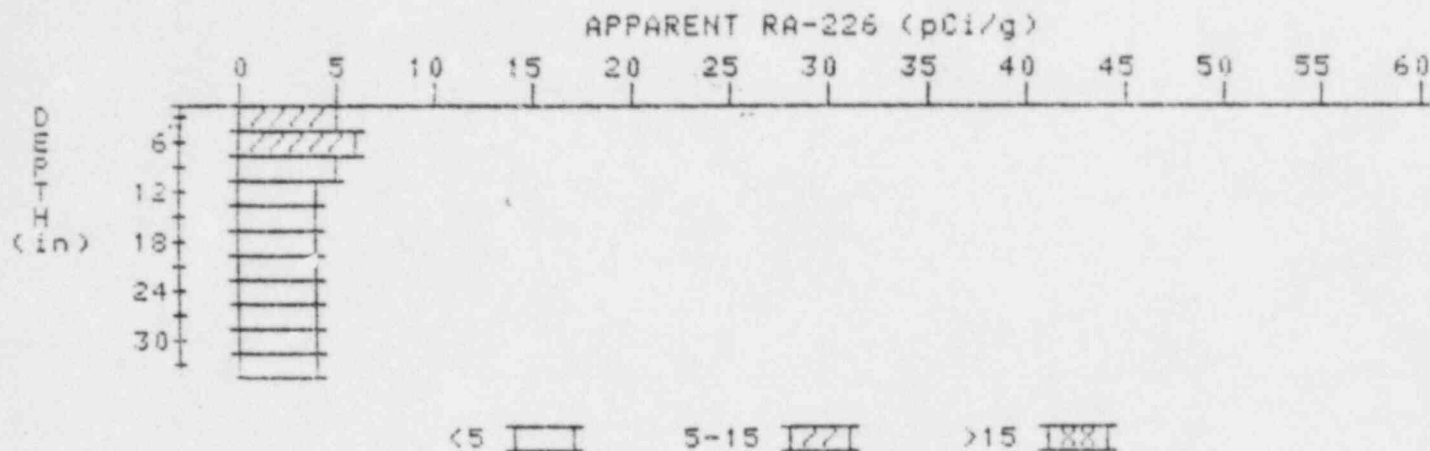


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.7	3.7
6	4.0	4.7
9	3.9	4.1
12	3.7	3.7
15	3.5	3.1
18	3.5	3.5
21	3.5	3.5
24	3.5	3.5
27	3.5	3.5
30	3.5	3.3
33	3.6	3.8
36	3.6	3.6

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

7

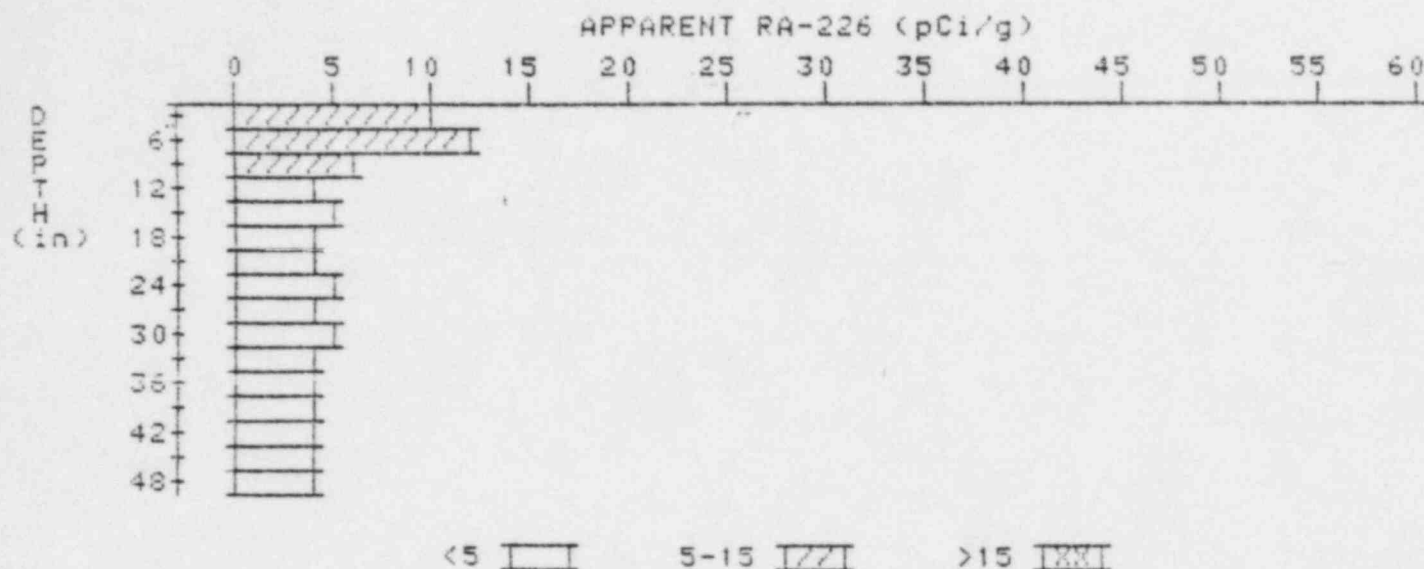
PROPERTY NUMBER: GJ-11549-MR
HOLE NUMBER: 7
LOCATION: 142185



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	4.5
12	4.3	3.8
15	4.2	4.2
18	4.1	3.9
21	4.1	4.3
24	4.0	3.8
27	4.0	4.0
30	4.0	4.2
33	3.9	3.9

APPARENT RADIUM-226 CONCENTRATION 10 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-11549-MR
HOLE NUMBER: 10
LOCATION: 155165



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	10.1	10.1
6	9.5	12.2
9	7.4	6.3
12	5.9	4.5
15	5.2	4.7
18	4.8	4.4
21	4.6	4.4
24	4.5	4.5
27	4.4	4.2
30	4.4	4.6
33	4.3	4.1
36	4.3	4.3
39	4.3	4.5
42	4.2	4.2
45		4.1
48	4.0	4.0

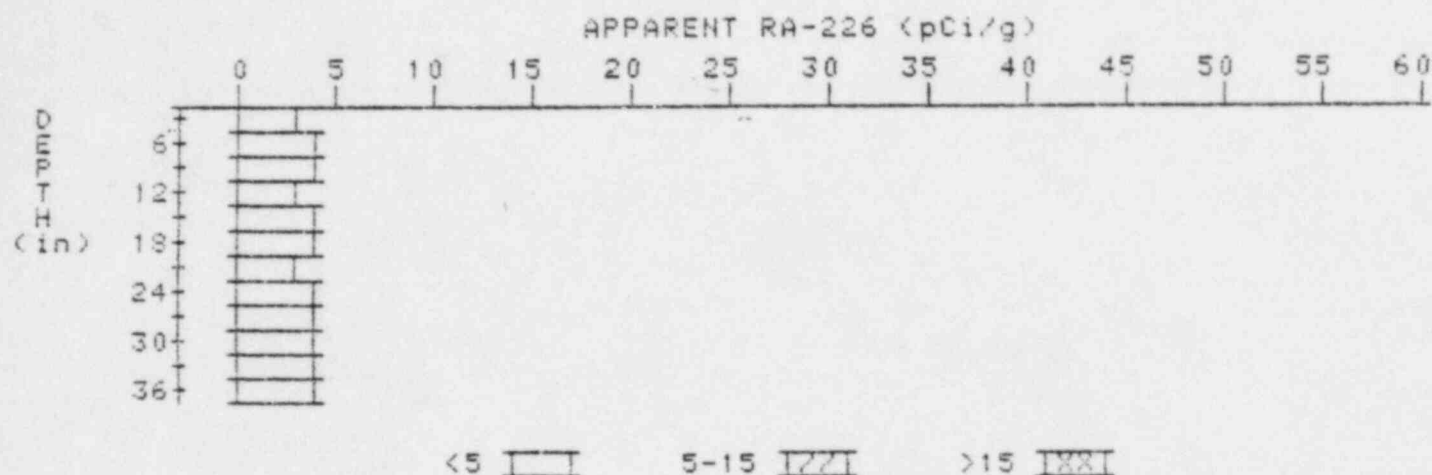
APPARENT RADIUM-226 CONCENTRATION 11

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-11549-MR

HOLE NUMBER: 11

LOCATION: 155238



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.4	3.4
6	3.7	4.4
9	3.6	3.6
12	3.5	3.3
15	3.5	3.5
18	3.5	3.5
21	3.5	3.3
24	3.6	3.3
27	3.6	3.6
30	3.6	3.6
33	3.6	3.6
36	3.6	3.6

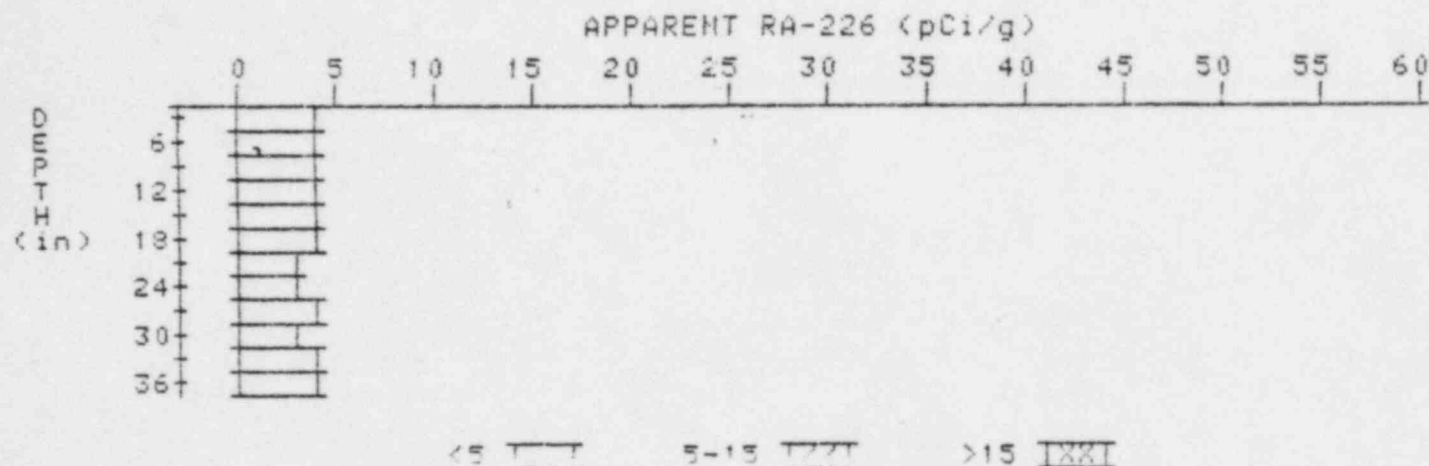
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

13

PROPERTY NUMBER: GJ-11549-MR

HOLE NUMBER: 13

LOCATION: 165219

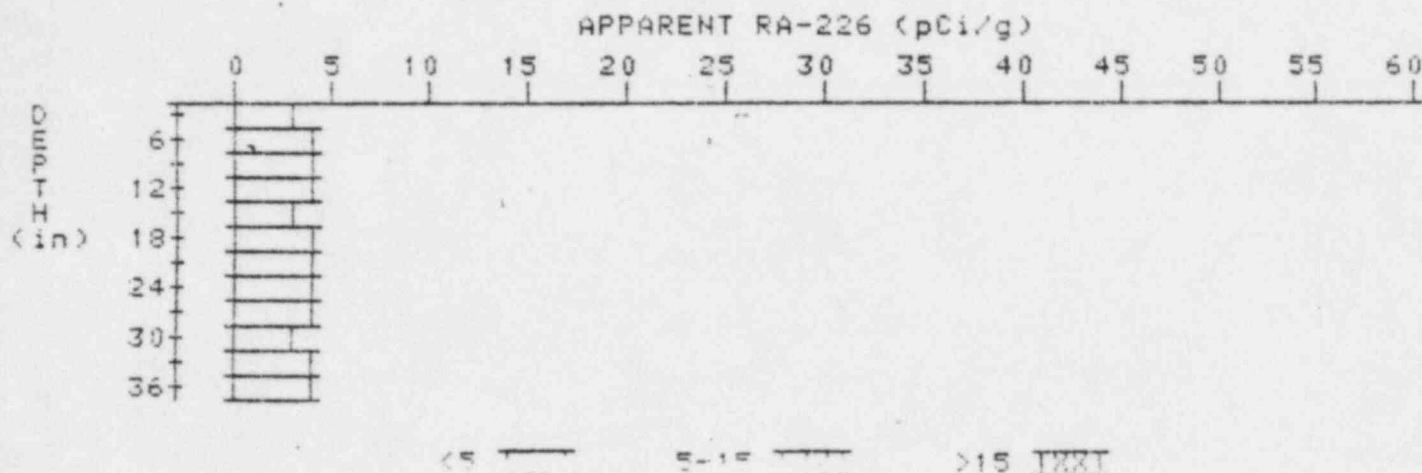


Depth (in)	Apparent Radium-226 (pCi/g)	Apparent Radium-226 (pCi/g)
	Undeconvolved	Deconvolved
3	3.9	3.9
6	3.9	3.9
9	3.9	4.1
12	3.8	3.8
15	3.7	3.5
18	3.7	3.9
21	3.6	3.4
24	3.6	3.4
27	3.7	4.1
30	3.6	3.4
33	3.6	3.6
36	3.6	3.6

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

14

PROPERTY NUMBER: GJ-11549-MR
HOLE NUMBER: 14
LOCATION: 170200



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.0	3.0
6	3.5	4.2
9	3.6	3.6
12	3.7	4.1
15	3.6	3.2
18	3.7	3.9
21	3.7	3.7
24	3.7	3.7
27	3.7	3.9
30	3.6	3.4
33	3.6	3.8
36	3.5	3.5

